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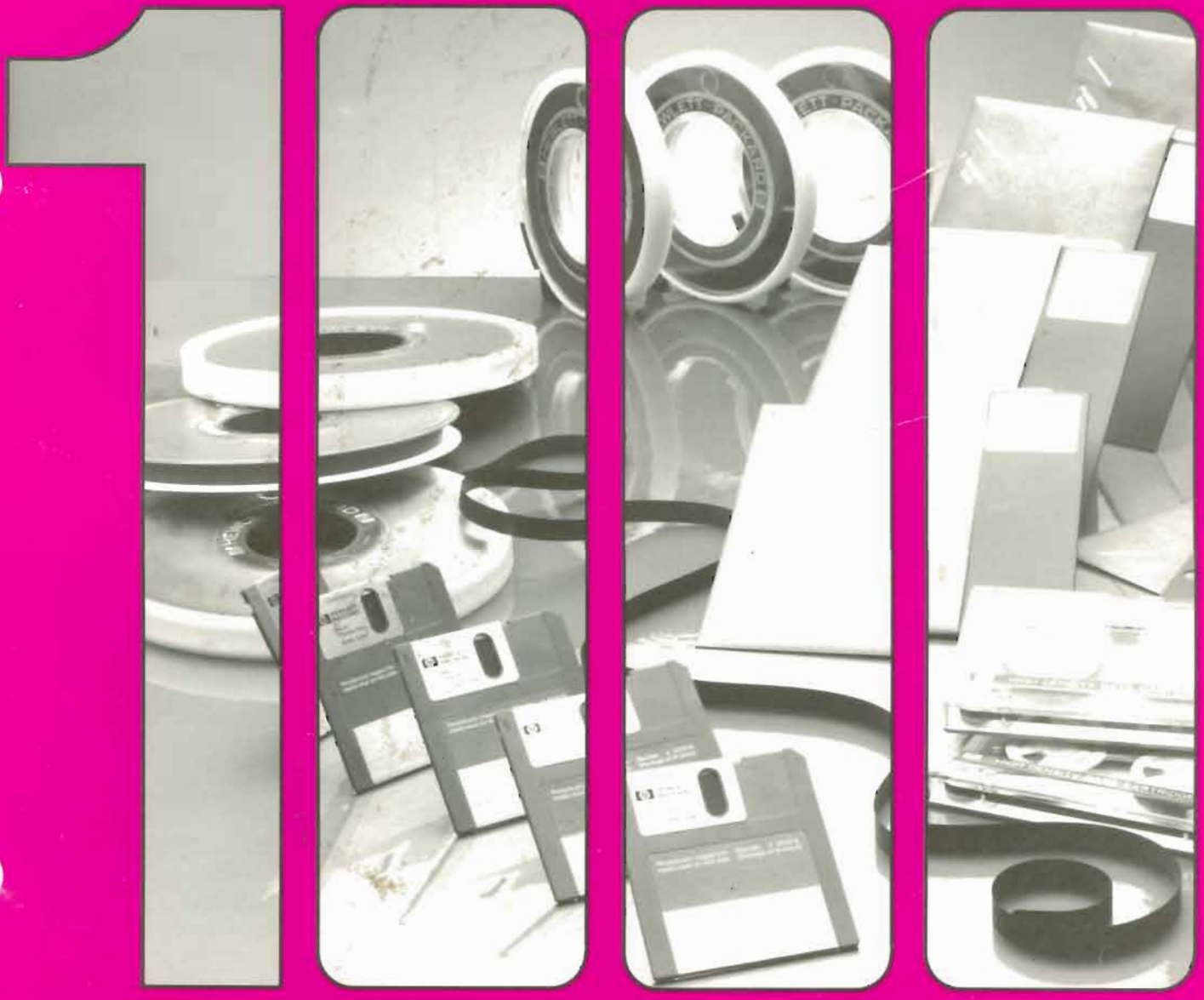
Computer Systems

COMMUNICATOR



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___	(91711B)	Diagnostics(M,E,F)	___	(91740A)	DS/1000
___	(91747A)	Datashare	___	(91750A)	DS/1000-IV
___	(91781A)	RJE-II/1000	___	(91782A)	DSN/MRJE 1000
___	(91784A)	PMF	___	(91823A)	Control/1000
___	(92049A)	Microprogramming	___	(92064A)	RTE-M
___	(92068A)	RTE-IVB	___	(92069A)	Image-I
___	(92070A)	RTE-L	___	(92071A)	RTE-XL
___	(92073A)	Image-L	___	(92077A)	RTE-A
___	(92078A)	VC+	___	(92080A)	Datacap/1000
___	(92081A)	Image/1000 II	___	(92084A)	RTE-6/VM
___	(92091A)	HPSPICE	___	(92836A)	FTN7X
___	(92841A)	DGL Version I	___	(92842A)	AGP Version I
___	(92843X)	Code for 92841A	___	(92857A)	Basic/1000C
___	(92860A)	DEBUG	___	(92861A)	DGL Version II
___	(92862A)	AGP Version II	___	(94200B)	PCIF
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Chapter 1
Introduction

This introductory chapter is a brief explanation of the content and format of the Communicator/1000.

1.1 Purpose of the Communicator/1000 and how to use it.

The Communicator/1000 accompanies software, firmware and/or manual updates. It is designed to be a reference document to describe product changes and to give general considerations on how to incorporate these changes in the system.

The Communicator/1000 performs basically three functions:

1) Describe the *changes* that have occurred *within* a product for both maintenance and enhancements (Chapter 2).

If the change is in response to a Service Request from the field, this is noted. The descriptions are meant to be a quick overview to give the user a condensed look at the changes. More specific information must be obtained from the particular product's updated manuals.

When changes made to a product affect the generation, loading, or installation of that product, mention is made in Chapter 4. Major usage changes are also mentioned in Chapter 4. Again, for specific instructions you should refer to the appropriate manual.

2) List the *Current Revision Codes, Updated Media* and *Manual Part* Numbers for each product (Chapter 3). This chapter indicates:

- the current revision codes for the software modules and firmware belonging to a product,

- the software media part numbers and firmware that are being shipped in this update cycle; these media will contain the updated software for a particular product,

- the part numbers of the manuals that are being updated in this update cycle.

Chapter 3 is not intended to replace the Software Numbering Catalog or Software Numbering File for each product, but rather it is intended to be a quick reference source for revision codes and a help in determining what media and manuals will be received by a customer for a particular product.

3) Describe different *media formats* sent to a customer along with a brief explanation of the *Software Update Procedures* associated with each media (Chapter 5).

All software media can be read by HP-supported utilities which are described in various manuals. The user is directed to the appropriate reference manual for more specific instructions.

How to use the Communicator/1000:

The following are some suggestions to help you use the Communicator/1000 as a reference:

- When you receive the Communicator/1000, check Chapter 1 for any changes that might have occurred in the Communicator/1000 format and could affect how you will use it.

- Depending on the products for which you have a subscription service and the media you have chosen, you will receive a set of software and/or firmware media and manuals. If you are unfamiliar with the media you have received, check Chapter 5 for a description of the media format and suggestions for update procedures.

- Before you regenerate your system or load any software on-line, be sure to look through Chapter 4 to see if there have been any changes to load or generation procedures.

- Chapter 3 can be used to resolve any confusion concerning what software or manuals you should have received. Any software files or manuals that have been deleted from or added to the product will be highlighted there.

- Chapter 2, along with the updates you receive for your manuals, describes the corrections and enhancements made in this update cycle.

NOTE

The Communicator/1000 is only a quick reference document for an update cycle and is not intended to supersede the product manuals. Refer to the product manuals for the precise information on how to use the product.

1.2 Update Naming Convention

The naming convention used in the past for update cycles was:

x.yy where: x = A,B,C, etc
yy= last 2 digits of year

e.g. A.83 = the first software update in 1983.

However, in order to decouple the update cycles from the calendar year, the naming convention has been changed to

X.YZ where: X corresponds to a major operating system release
Y corresponds to a minor operating system or subsystem release
Z corresponds to a revision to a release

This naming convention will be used in all references to a particular cycle.

This current update cycle is called 'DSD4.0' or '4.00' - that is, major operating system release number FOUR.

Note that in certain literature such as the Software Status Bulletin (SSB), the '.' is replaced by a '0' for convenience. Therefore, release 4.00 is also known as 4000 in some places.

The software in an update may be of different revision codes. This means that the revision code of a software product does not indicate the update cycle in which that software product will be released. An example might be that update 5.00 is released in May 1987 and contains Graphics software of revision 2540, Image software of revision 2601, DD.00 driver of revision 2640, etc.

The next update will be revision 4.10 or 4010.

1.3 Communicator/1000 Format Changes

Continuing the change introduced in the A.85 Communicator, the format of chapter 3 allows for the use of the new hierarchical file system on RTE-A and RTE-6/VM. Those changes were

- The file name field was expanded from six characters to twenty-one. To accomodate this, the module field was eliminated.

- For products that are shipped in the hierarchical file format, path names are given on a separate line to help identify where specific parts can be found.

These changes affect subsystems that run only on RTE-A and RTE-6/VM (e.g., Debug/1000 and Image/1000-II). Other subsystems remain unchanged (in format).

Another small change was carried over in chapter 3: a star (*) appears after the product name for all products that support the hierarchical file system. This was in response to input we received at an Interex conference some time ago.

New to this DSD4.0 Communicator are the following:

1. Chapter 2 is much better organized, thus easier to use.
2. Chapter 3 contains the latest firmware information.
3. Chapter 4 includes usage information as well.
4. Chapter 5 has been updated.

We hope that all these improvements are helpful.

Chapter 2
Description of Software Changes

This chapter describes the reasons behind the software changes in this update. Changes that were initiated by Service Requests filed are listed with their SR numbers.

The entries are categorized into three types: Problem/Solution, Enhancement, and Note. A Problem/Solution entry describes a problem along with the actions taken by Hewlett-Packard to fix it. An Enhancement entry similarly describes a modification to software that improves its utility or simplicity of usage. Finally, a Note contains useful information about a change that may impact the user but is not directly related to a software fix or enhancment.

The products are sorted by their part numbers. For each product, the entries are grouped by their affected functional area (if applicable). For example, RTE-A has "Bootex" entries first, followed by those of "Build". Under each functional area, the entries are further grouped by Problem/Solution, Enhancements, then Notes, where the SR numbers are sorted numerically. Please see the SR Index for a numerical list of ALL the SR numbers. We hope that this format will make the Communicator much easier to use.

For more information on individual filenames that have changed, please refer to chapter 3.

2.1 (24398B) Peripheral Diagnostics (L,A-Series)

2.1.1 EXER

SR# NONE

ENHANCEMENT: EXER is enhanced to support the 7907 disc and to work on-line.

2.2 (24612A) Offline Diagnostics (A-Series)

2.2.1 24612A

SR# 2200021287

PROBLEM: When executing test 8 of the SFD (system functional diagnostics) to test the battery backup circuitry, a parity error is observed on the A900 on an average of 1 in 50 power cycles. VCP then reports "PTEST ERROR 340 204".

SOLUTION: The SFD (system functional diagnostics) has been fixed to stop writing to memory after 5 msec. This allows the powerfail test to complete successfully.

SR# 2200023838

PROBLEM: When the A-series I/O extender control card (IOC) is the first card after the CPU, the System Function Diagnostic (SFD) fails.

```
OSUTL FAILED
LINE 410 STOP
A reg = 77b   B reg = 21b

relative address in SFD is 2277b
```

SOLUTION: We delayed the execution of the .SIP (skip if interrupt pending) instruction after the i/o reset (CLC 0,C).

SR# 5000063412

PROBLEM: During an access to the CS80 disc unit a Bad DSJ is reported. This results from a request release command from the disc controller which is not being answered by the diagnostics.

SOLUTION: The disc driver now checks for a release request from the CS80 drive. It will now send the release command to the controller, so the CS80 disc can take itself off-line for maintence (Auto head align., etc.)

SR# NONE

PROBLEM: The MCD fails when the log device is the line printer.

SOLUTION: Modified the LP driver for the diagnostic so it now works for the 263x printers when executing the MCD diagnostics.

2.3 (91711B) Online Diagnostics (M,E,F-Series)

2.3.1 TXPM1/TXPM2/TXPM3

SR# 2200002378

PROBLEM: TXPF0 cannot be reloaded after entry points have been changed. Programs loaded with LINK still use software entries.

SOLUTION: TXPF0 now reminds user that LINK snap files must be rebuilt. These include SNAP.6 on FMGR disk LUs and SNAP.SNP::LIBRARIES for CI disks. Run LINDX for runstring information. Note that neither the operating system or system-generated programs can take advantage of optional firmware even after the CH (change) option is run. Only programs that are reloaded AFTER the CH option is run will be affected.

Also, %$TXPF has been added to the Primary to allow reloading TXPF0 without requiring the 91711B product tape. The CH option has been moved from parameter #2 to parameter #5 to match other 91711B program runstrings.

SR# 2200013268

PROBLEM: TXPM1 could not run without programs TXPM2 and TXPM3 first RP'd. Also, multiple copies of TXPM1 could not be run due to partition assignment conflicts.

SOLUTION: TXPM1 now RP's a copy of both TXPM1 and TXPM2 using IDRPL. This requires that TXPM2 and TXPM3 reside on an FMGR disk LU. The clones are uniquely named for each copy of TXPM1 that is run. The renaming takes place in the 3rd character to allow 26 names for the slaves. Each copy of TXPM will use 2 names (ie, TXP33 will clone

TXA33 and TXB33 for session 33).

SR# 2200023069

PROBLEM: TXPF0 was updated for RTE-6 but not made backward compatible.

SOLUTION: TXPF0 now handles both EMA and VMA correctly. Also, TXPF0 will report errors when the appropriate firmware is missing or when inappropriate firmware is present (ie, VMA in RTE-4B). This change requires that TXPF0 be loaded in a specific order (#TXPF0). The merged relocatable (%$TXPF) supplied with the Primary is correctly ordered.

SR# 2200057018

PROBLEM: When TXPF0 is run without selecting all firmware to be checked, several misleading error messages are emitted.

SOLUTION: TXPF0 has been changed to eliminate the partial testing and is no longer interactive. All installed firmware is tested as appropriate to the CPU type. Several new warnings and error messages have been added. A runstring help command (RU,TXPF0,?) has been added.

Repeated passes may be made, and a time delay between passes can be specified. All runtime information can be suppressed and the results are always returned in globals 1P thru 5P. The M-series CPU is now tested. TXPF0 grew approximately 1 or 2 pages to 21 to 25 pages.

The S-register would be destroyed by TXPF0 tests..this is now retained. TXPF0 cannot function on non-MX series computers. A check is made for this condition. The CH option is syntaxed when run in RTE-4. Memory Protect errors could occur when testing non-existant firmware. This is due to MEF-computer handling of undefined opcodes. TXPF0 now skips firmware tests that could cause this condition (ie, SIS tests in an E-series).

A number of F-series computers have SIGNAL/1000 ROMs. These are now tested.

SR# 2200057430

PROBLEM: CS80 versions of the Primary report track errors when running TXPF0 with the CHange command.

SOLUTION: TXPF0 now calculates the system library addresses correctly and reports entry points that could not be found.

SR# NONE

PROBLEM: TXPF0 will halt older E-series computers when testing for DS ROMs that are not present.

SOLUTION: TXPF0 no longer tests for DS ROMs in E-series; only M or F-series computers.

SR# NONE

PROBLEM: Naming convention for merge files vs. LOADR/LINK directives.

SOLUTION: #$TXPF is now the LOADR/LINK file to load the composite relocatable %$TXPF, and *$TXPF is a new part number that contains the MERGE commands for creating %$TXPF.

SR# NONE

PROBLEM: TXPF0 would produce undefined externals when loaded.

SOLUTION: The entry points .SWP, .UMPY, .MYAD, .LDAS and .STAS were removed from &RPTBL since they were never completed in the RTE-6 firmware release. The entry points .EMAP and .EMIO may be undefined in RTE-6 unless $EMCLB is generated-in or searched while loading TXPF0. The entry points UNSCR or PRSCR (and others) will occur if SIGNAL/1000 is not installed.

TXPF0 is designed to work when force-loaded. This is how TXPF0 determines that an entry point is not in the system library. The only entry points that cannot be undefined for TXPF0 are from the %DECAR library; most start with the letter Q (ie, QWRIT, QOCTR, etc). TXPF0 will MP or DM under these conditions. TXPF0 undef's can be satisfied from libraries searched online; however, RP's cannot be changed for online libraries and a error message will be issued when appropriate.

SR# NONE

PROBLEM: The RTE-6 operating system ROMs were not tested. Useful information was not being reported from the RTE-6 ROMs.

SOLUTION: The RTE-6 operating system ROMs are now tested. In addition, the RTE-6 selftest returns information about the RPL switches on the main CPU board, and contents of the installed loader ROMs can be read back. This information is now formatted and reported in the verbose mode (when parameter #3 is positive). If parameter #3 is +2 then a complete listing of the installed loader ROMs' code is also done to aid in identifying loader ROM problems. RTE-6 operating system entry points are now tested.

SR# NONE

PROBLEM: TXPM1 did not save a copy of the MAT entry before changing the entry to a non-SHEMA partition.

SOLUTION: TXPM1 now saves and restores the MAT entry correctly. Comments added to &NPART to clarify this requirement.

SR# NONE

PROBLEM: TXPF2 needs more information, pass control, time delays.

SOLUTION: A 3 level output control value has been added to TXPF2 to allow deleting all output, normal and verbose output (same as TXPM1). Pass and error counts are returned in globals 1P-5P. Pass count may be negative to run forever. Time delays between passes may be in -milliseconds or +seconds. Runstring information can be shown with ? as the first parameter (RU,TXPF2,?).

SR# NONE

PROBLEM: TXPF1 needs more information, pass control, time delays.

SOLUTION: A 3 level output control value has been added to TXPF1 to allow deleting all output, normal and verbose output (same as TXPM1). Pass and error counts are returned in globals 1P-5P. Pass count may be negative to run forever. Time delays between passes may be in -milliseconds or +seconds. Runstring information can be shown with ? as the first parameter (RU,TXPF1,?).

SR# NONE

PROBLEM: TXPM0 needs more information, pass control, time delays.

SOLUTION: A 3 level output control value has been added to TXPM0 to allow deleting all output, normal and verbose output (same as TXPM1). Pass and error counts are returned in globals 1P-5P. Pass count may be negative to run forever. Time delays between passes may be in -milliseconds or +seconds. Runstring information can be shown with ? as the first parameter (RU,TXPM0,?).

SR# NONE

PROBLEM: System-generated errors were cryptically reported.

SOLUTION: Calls to MESSS that failed would show only the RTE response but not the text sent to RTE. For instance, if TXPM2 was loaded as a type 3 program and then sized to 28 pages, the error message "SIZE ERROR" would be shown and TXPM1 would stop without further comment. The error message now shows both the command and the response.

SR# NONE

PROBLEM: Undefined (downed) partitions would stop TXPM1.
SOLUTION: An error in scanning the memory allocation tables would allow TXPM1 to try assigning a slave to the undefined partition. This has been fixed; now, a parity error that downs a partition will not stop the test procedure.

SR# NONE

PROBLEM: Testing memory online with other applications causes excessive delays.
SOLUTION: TXPM1 has an optional time delay that allows either -millisecond delays or +seconds up to +32767 (9 hours). This delay is executed after each pass of a complete memory test. The priority for TXPM1 is now 98 and the slaves, TXPM2 and TXPM3 are 99. TXPM1 should always have a lower priority value than the slaves to allow proper operation with multiple copies of TXPM1 running at the same time.

SR# NONE

PROBLEM: If TXPM2 is loaded with LOADR, the program type defaults to 3 and thus could not be assigned to partitions set up for large background programs.
SOLUTION: TXPM1 checks TXPM2's program type before continuing and will comment appropriately.

SR# NONE

PROBLEM: It is not clear what TXPM1 is doing during the partition tests.
SOLUTION: TXPM1 has quiet, normal and verbose mode controlled by the 3rd parameter in the runstring. In the verbose mode, every partition test is commented in detail. To aid long-term testing, TXPM1 also passes test results back in 1P-5P globals.

SR# NONE

PROBLEM: Shared EMA (SHEMA) partitions were tested without restriction. This would corrupt shared data in a system where SHEMA programs were active.
SOLUTION: SHEMA tests are now optional. TXPM1 will comment if

SHEMA is present but not tested.

SR# NONE

PROBLEM: TXPM1 would not respond to system BREAK.
SOLUTION: TXPM1 and the 2 slaves, TXPM2 and TXPM3 now respond to system BREAK.

SR# NONE

ENHANCEMENT: TXPM1 will display runstring parameters when run with ? as the first parameter (RU,TXPM1,?). In addition, the pass count may be negative to specify run forever.

2.4 (91747A) Datashare/1000

2.4.1 DATASHARE

SR# 2200021188

ENHANCEMENT: The CI version of D.RTR has been enhanced to include DataShare/1000 features, and this version of D.RTR has been put into the DataShare product (the RTE-6/RTE-A version of D.RTR will not have the DataShare features). DataShare will still only work with FMGR cartridges (i.e., no sharing is done with CI files), but CI volumes can now coexist on a system with DataShare cartridges.

This update eliminates the need for $FMP6C, which was used to load HP uilities on a DataShare system; utilities can now be loaded using the standard $FMP6 library. DataShare still has its own versions of %BMPG1, %BMPG2 (containing the updated D.RTR), and %BMPG3, as well as other DataShare-specific software.

2.4.2 OPERATING SYSTEM

SR# 2200005686

PROBLEM: Only up to 63 shareable EMA programs are allowed; the maximum of 256 shareable EMA programs causes problems.

SOLUTION: This problem has been fixed by allowing SHEMA programs to share ID-EXTensions if the data in them is the same. A shared count is kept in the last word of the extension (count -1) and when it goes negative, the ID-EXT is released. Changes were made to the system library routines IDDUP, IDRPL, as well as to MLLDR, LOADR, $CNFX and the system OF routine. In addition the system SZ routine was changed to disallow changing the MSEG size if the program uses SHEMA, since the MSEG size is in the ID-EXT. In addition the following routines were added to the system library (note, these routines are not for general use and are included here only for completeness): $FINDIDEXT, $SETIDEXT, $SETDRIDEXT, $LKLU2, $FREEIDEXT.

Shared ID-EXTs are supported by all system code except the generator. Such programs may be loaded by MLLDR, or LOADR as well as RPed or RUn after a LINK load. $CNFX correctly accounts for them if the system is reconfigured after such programs are added to the system by MLLDR or LOADR.

Error 31 is added to $CNFX. It indicates that $CNFX has run out of ID- EXTs. This is possible if programs are reconfigured such that programs that once shared ID-EXTs can no longer do so.

2.5 (91750A) DS/1000-IV

2.5.1 DEXEC 99

SR# 2200019687

PROBLEM: If a program is both "dormant saving resources" and in the "time list" DEXEC 99 reports "dormant saving resources" (TL bit is not set in the returned status).

SOLUTION: PGMAD (an internal DS/1000-IV module) is fixed to report the state of the program as in the time list if it is both in the time list and dormant saving resources.

2.5.2 DSINF

SR# NONE

PROBLEM: DSINF will report statistics for DS cards which are not present in the system. This is due to the facts that if an LU is set down with a request pending and then brought back up, the request is completed with a no abort return and bit 0 of the status word set.

SOLUTION: DSINF now checks bit 0 of the status word upon return from the attempted reads and reports any error.

SR# NONE

PROBLEM: The M/E/F version of DSINF incorrectly checks to see if it was running on an RTE-6 system when processing the LU command. It always uses 8 bits from the DRT as the EQT number. On MIII and RTE-4 systems the EQT is only 6 bits. This may cause DSINF to not report any information on the specified LU.

SOLUTION: The check has been corrected.

2.5.3 DSLIN

SR# 2200013151

PROBLEM: DSLIN will initialize a Bisync link with a buffer size larger than the maximum System Available Memory which will ever be available.

SOLUTION: DSLIN now attempts to allocate the amount of S.A.M.

specified as the buffer's size. DSLIN will still initialize the link with the selected buffer size but will WARN the user if the buffer specified is not now or will never be available. It is up to the user to take corrective action.

SR# NONE

PROBLEM: DSLIN could report up to three buffer sizes to the user when run with the default parameters. In some cases, the buffer size reported for the card is not in fact the buffer size used by the card.

SOLUTION: The default buffer size for the link is now set to the lesser of the configured buffer size and 1024. This prevents DSLIN from attempting to initialize the link with a buffer size larger than the 3000 INP can accept. If an SSLC card is being used on the 3000 the user may override the default with a buffer size of 1072 words (the maximum the SSLC card will accept).

SR# NONE

PROBLEM: DSLIN does not expect an OPEN option from a command file, even though the CLOSE option could be specified. This causes some confusion in the use of DSLIN command files.

SOLUTION: DSLIN now expects all input except the LU number to be in the command file.

SR# NONE

PROBLEM: If the the user hits carriage return in response to a prompt from the program DSLIN, the program will loop until aborted.

SOLUTION: The input routines have been modified to correctly handle null input.

2.5.4 DSMOD

SR# NONE

PROBLEM: DSMOD accepts commands only in upper case.

SOLUTION: Now DSMOD accepts commands in lower case as well as upper case.

2.5.5 Device Status

SR# NONE

PROBLEM: In checking the dynamic status of a tape drive, bit 4 of the returned status word indicates beginning of the tape on RTE-A but may indicate an error on other systems. When checking the status of the device, this bit is interpreted as an error and logging is marked down.

SOLUTION: The program QUEX and the subroutine D$WLG have been modified to not mark logging down if this bit is set.

2.5.6 HP1000-HP3000 links.

SR# 5000101220
SR# 2200015214
SR# 2200015198

PROBLEM: Carriage control was not always handled correctly when converting from 3000 FWRITE format to 1000 REIO format. Problems included no CR/LF before new RMOTE prompt, no CR/LF for FORTRAN I/O and an extra CR/LF for FORTRAN ACCEPT statements.

SOLUTION: Several fixes were made to forms control handling in subroutine D3KMS.

2.5.7 HP3000 Logon UDCs

SR# 5000053165

PROBLEM: Attempts to read or write more than about 133 words from/to the terminal from an HP3000 logon UDC will fail. This problem is seen when running RMOTE and logging on to a 3000 account whose logon UDC runs a program which attempts such reads/writes. The problem is due to the fact that the HELLO subroutine must buffer the read/write data in a 133 word buffer in subroutine D3KMS.

SOLUTION: The program RMOTE and the subroutine HELLO have been modified to allow read/write data to be buffered at the end of RMOTE's partition. The length of data which may be read/written during logon is now determined by the size of RMOTE's partition. Any other program calling the HELLO subroutine is still restricted to a limit or 133 word reads and writes during logon.

2.5.8 LOG3K

SR# NONE

PROBLEM: LOG3K truncated a warning message to the user.

SOLUTION: The full message is now printed.

2.5.9 LUMAP

SR# 5000056119

PROBLEM: LUMAP's buffer length is defined as 521 instead of 512.

SOLUTION: Changed the buffer length to 512.

2.5.10 NS/1000 compatability

SR# NONE

ENHANCEMENT: Added new entry points for NS/1000. Also moved the

entry point D$XS5 from D$EQT into RESA so that D$EQT is no longer required in labeled common on RTE-A systems.

2.5.11 PROGL

SR# NONE

PROBLEM: PROGL reports checksum error if PROGL's class number is bad. The portion of the code which is responsible for terminating PROGL in the case of a bad class number is incorrect.

SOLUTION: Now PROGL aborts if the class number is bad.

2.5.12 PTOP

SR# 5000052464

PROBLEM: Optional user buffer is overwritten in a GET call for any request other than PWRIT. The optional user buffer address is always passed to RTE GET call. This causes the buffer to be overwritten.

SOLUTION: Now the optional buffer is passed to RTE GET call only if the request is a PWRIT.

2.5.13 QUEX

SR# NONE

PROBLEM: QUEX uses the configured buffer size when checking for an acceptable buffer size from the 3000. This buffer size may, in fact, be larger than what the PSI card has been configured to use.

SOLUTION: QUEX now accepts the lesser of the requested buffer size, the communications buffer, and the cards configured buffer size. The communications buffer size

is determined by the selection of a "buffer library" as described in the Network Managers Manual.

SR# NONE

PROBLEM: Program QUEX never sends an accept to a DS/3000 termination request. The next message sent by DS/1000-IV is mistaken for a reply to the termination request. Under certain timing conditions this would cause the line to become unavailable for DS traffic.

SOLUTION: QUEX has been modified to send a termination reply to the 3000 rather than sending a disconnect request to the PSI card.

SR# NONE

PROBLEM: When QUEX received a reply from the 3000 for which there was no master TCB the buffer was flushed but not reported.

SOLUTION: In such cases QUEX now reports (via QCLM) a possible timeout to the system console.

2.5.14 RMOTE

SR# NONE

PROBLEM: Current command files didn't function correctly.

SOLUTION: New command files have been created, based upon the type of system the user is loading on (e.g. RTE-A, RTE-6/VM).

SR# NONE

PROBLEM: RMOTE receives an MPE file system error 43 if an attempt is made to move a type 1 file to the 3000. The problem is due to RMOTE using a read request length of 384 for all file types. For all but type 1 files, one record (up to 384 words) will be returned. For type 1 files a full 384 words is returned which is longer than the record length of the 3000 file.

SOLUTION: For type 1 files RMOTE always uses a length of 128 words on the read request.

2.5.15 RTMLG

SR# 2200045468

PROBLEM: When a program is relocated using RTMLG and DEBUG is appended to the program, the program doesn't work when run in the RTE-M system for which it was relocated.

SOLUTION: Corrected definition of constant 'DEBUG' in RTML4.

SR# 2200024315
SR# 2200053363

PROBLEM: RTMLG reports FMP -32 error on termination. Errors for file close were being checked incorrectly.

SOLUTION: Eliminated error check on file close.

SR# 5000046045

PROBLEM: Non-standard linkages between subroutines in different segments did not allow LINK to be used to Load RTMLG.

SOLUTION: Moved some entry points into the modules that called them, replaced some special routines with standard system routine calls. LINK now works for RTMLG.

SR# 5000081497

PROBLEM: RTMLG reports ERR NM (no memory) in RTE-6/VM. A non-standard LIMEM routine in LGLIB was used.

SOLUTION: Replaced with call to system routine.

SR# NONE

ENHANCEMENT: RTMLG will now load and run on RTE-A. It will not, however, talk to CI files.

2.5.16 Timeouts

SR# 2200015206
SR# 5000083956

PROBLEM: Setting of terminal timeouts was actually implemented at A.85. The old timeouts were not, however, correctly restored at that time. This problem has been fixed on local terminals. If running RMOTE on a mapped terminal the user may find that their terminal timeout has been set to zero after exiting. This is due to the fact that current drivers do not all provide a means of retrieving the old terminal timeout for later restoration.

SOLUTION: The original timeout is now restored correctly on local terminals.

2.5.17 Undefined Externals

SR# NONE

PROBLEM: Both RMOTE and LOG3K calls the system routine SPOPN which does not exist on RTE-A/XL systems. This required these programs to be force- loaded on these systems.

SOLUTION: The call to SPOPN has been replaced by a call to a new routine D$OPN. On RTE-A/XL systems this routine is a stub which returns an error to the caller. On all other systems the routine just makes the call to SPOPN.

2.6 (91781A) RJE/1000-II

2.6.1 $opsy

SR# 5000084475

PROBLEM: Need to renegate the B-register on driver returns for RTE-A only.
SOLUTION: Added the RTE-A A.85 and DSD4.0 opsy number (-53).

2.6.2 Files

SR# 5000098632

PROBLEM: Type 2 files do not have the same EOF indicator as do all others. When sending a type 2 file a FMP -12 error would occur.
SOLUTION: Added code to test for and handle type 2 files.

2.6.3 PSI LU

SR# NONE

PROBLEM: When an LU is unassigned and RINIT tries to initialize it a fatal error occurs. The LURQ system call returns a good value when it locks an unassigned LU.
SOLUTION: The code now uses the lockedLU call to check to see if the LU is locked. Added error message to determine if the LU is down or unassigned.

2.6.4 Post-processor

SR# NONE

ENHANCEMENT: Added a post-processor that uses IBM JCL comments to determine the destination of the host's streams.

2.6.5 Runstring

SR# 5000075606

PROBLEM: The user interface program (RJE) only permitted a 80 character runstring. This was due to the lack of the runstring compiler option. A user could not specify all

eight possible filenames if they were long filenames.
SOLUTION: Added the runstring option -- 600 characters is the maximum length.

2.6.6 Termination Message

SR# NONE

PROBLEM: If RJE terminates before the log file is opened then the termination message is not diplayed properly on the system console.
SOLUTION: Added a delay after submitting message to allow class I/O to complete the write to the system console.

2.6.7 Timeout

SR# 5000094482
SR# 5000094490

PROBLEM: The timeout period on the card lu's was too short.
SOLUTION: Lengthened it.

2.7 (91782A) DSN/MRJE 1000

2.7.1 Error Messages

SR# NONE

PROBLEM: Under certain conditions a bad configuration file could cause the message "Bad configuration file." to be output twice.
SOLUTION: Repaired the incorrect code.

SR# NONE

PROBLEM: Undocumented debugging message "proc_link end". This

message has no meaning for the user.
SOLUTION: Deleted the message from the code in the line monitor.

2.7.2 Files

SR# 2200012153

PROBLEM: A null byte was being written as the first byte of a punch record.
SOLUTION: The punch SRCB is now being written out as the first byte of the punch record. This is analogous to the print records in print files.

SR# 2200013425

PROBLEM: The security code in the queue file namr wasn't supported: the cartridge reference was misused as the security code.
SOLUTION: We corrected the fopen call that mangled the file namr.

SR# 2200011502
SR# 2200013615
SR# 5000094359

PROBLEM: MRJE did not use the file size parameter in the FMGR namr and had a fixed size file extent.
SOLUTION: It now supports the full FMGR namr.

SR# NONE

PROBLEM: If a user specified a security code or cartridge reference on the download file, it was ignored. It was not sent to DCTF1 (which handles the download file).
SOLUTION: Now the full download file namr is sent to DCTF1 and DCTF1 supports and uses these additional fields.

SR# NONE

ENHANCEMENT: The configuration file now is user-editable. A user can make her configuration file with either EDIT/1000 or MRJE/1000. Since the file is a standard text file, comments can be included on each line. If MRJE generates the file, it also adds comments to each line (with line numbers). This enhancement is to make MRJE/1000 and RJE/1000 more similar.

2.7.3 LU's

SR# 2200027110
SR# 5000084681

PROBLEM: Double digit LU's were not usable and even if they were, LU's greater than 63 could not be used.

SOLUTION: Changed the source to use all digits of a LU and to use xluex calls.

2.7.4 Protocol

SR# 5000051664

PROBLEM: The standard sequence to end a file is to send an end-of-file record. However some hosts just send a new request on the same data stream without an end-of-file record. This is shorthand for "I want to end the old job and start a new one". MRJE/1000 would hang when the host tries to drop the line; it assumes that another job was due.

SOLUTION: MRJE now understands the implicit end-of-file. It ends the old job and starts a new one.

2.7.5 XFTTY

SR# 2200028365

PROBLEM: RTE-A A.85 PCO introduced an entry point XFTTY for RTE-6 compatability. Since MRJE already had this entry point (for the same reason) there was a duplicate entry point.

SOLUTION: Removed the entry point XFTTY from MRJE since the OS has this now.

2.8 (91784A) PMF/1000

2.8.1 PMF under RTE-6

SR# NONE

PROBLEM: PMFMG could not start all of the PMF modules under RTE-6/VM because RTE6/VM version 4.0 does not allow the MSEG size to be changed after a program is RP'ed.

SOLUTION: PMF no longer attempts to change the MSEG size dynamically. SIZE_PROCESS (in HOSI0) now does SZ,name,EMA_size instead of SZ,name,EMA_size,1 (We also added $Range=Off$ in this code, to be consistent with the option we specify in the PASCAL run-string.)

2.9 (91823A) Control/1000

2.9.1 CONTROL 1000

SR# 2200026179

PROBLEM: On a Control/1000 system (REV 2320) various problems occured -- memory protect violations on D.RTR, DS communications errors, system halts -- when doing either of the following two things:

1) Chaining with a combination of analog and digital calls.
2) Reading from a RELAY MUX card (25504) while running REMAT.

The problem is with ID*70. The driver does two dummy reads, which are later thrown away, when reading from either an ANALOG INPUT or RELAY MUX card. Anticipatory reads uses 4 quads for setting up the cards for valid readings. The 1st quad is used to select R200 of the MCI card, 2nd and 3rd quads are the dummy reads, and the 4th quad is the actual read.

The problem involves a one word variable which holds the results of the dummy read (in fact, it holds the garbage address). The variable is in the driver code space instead of in the DVTX area. If DS is being run simultaneously, then ID*66 is mapped in. At the logical location of the variable, ID*66 might expect a different value than what is in the dummy variable. Thus DS Communication Error is reported.

SOLUTION: The fix to this problem is to put the variable (garbage read address) in the DVTX area instead of the driver code space.

Also, as a precaution, the modifier table for the control bits (DLY,BLK CHP) of Register R200 of the MCI card are put into the DVTX area instead of in ID*70 code space, just like the anticipatory garbage read address.

Due to the fixes, the DVTX area will grow from 88 words to 97 words -- one for the garbage read address and 8 for the modifier table.

2.10 (92049A) Microprogramming

2.10.1 Library

SR# 2200027169

PROBLEM: MPARA will not load with the current revision of the pascal library.

SOLUTION: Recompiled all the sources for MPARA.

2.10.2 WLOAD

SR# 2200017970

PROBLEM: WLOAD would MP or UI when the LU command was used.

SOLUTION: The Pascal NOABORT compiler directive was added to the external declaration of the XLUEX 13 call (GET_INTERFACE_TYPE). The Pascal compiler will then execute the next Pascal statement for the abort return of the XLUEX routine. In addition to the above fix, all EXEC 1, 2, and 13 calls were changed to XLUEX. This will allow WLOAD to access a WCS card with an LU greater than 63.

2.11 (92068A) RTE-IVB Operating System

2.11.1 ACCOUNTS

SR# 2200005579

PROBLEM: "New,user" command specifies in the documentation a total limit of 60 for SST spares plus disc limit. Altering a user above this maximum correctly produces the error. However, creating a user above this maximum would create an account with a corrupt SCB. "List,user" shows illegal values and logging-on would create a session that can't be logged-off.

SOLUTION: Fixed in the 4.0 update.

SR# 2200019539

PROBLEM: ACCTS encryption algorithm sometimes puts invalid data in for password. Altering a user's password with the AL,U,<user>.@ can corrupt the user's password. There are actually two conditions where corruption can occur.
1) AL,U,<user>.@
2) AL,U,@.<group>

SOLUTION: Fixed in the DSD4.0.

SR# 5000079913

PROBLEM: A.85 ACCTS will abort with a MP error when you try to link a new user to another user. Module ACNWU was writing to a buffer that is not big enough.

SOLUTION: This is fixed in the DSD 4.0 update.

2.11.2 DVA37

SR# 2200002790

PROBLEM: Control zero [call exec(3,lu)] does not always provide an untalk on the bus.

SOLUTION: An untalk/unlisten is now always done before all control requests.

SR# 2200018663

PROBLEM: There were multiple SRQ schedules when only 1 SRQ occured. It has been observed occasionally that more than one alarm program schedule will result from a single device SRQ.

SOLUTION: Some flags are incorrectly set and cleared. A new bit (bit 6) is defined for the HPIB config word and if it is set for a device, then all SRQ's would be disabled for that bus until the device service program reenables them with a control 31b request and optional parameter not = -1. This allows the service program and driver to handle devices like this and avoid extra schedules or avoid not being able to detect unclaimed SRQ's.

2.11.3 DVC12

SR# 5000014043

PROBLEM: DVC12 is not re-entrant; a unique copy of the driver must be gen'ed for each 12821 - CIPER printer on the system.

SOLUTION: A second copy of DVC12 will be supplied called DVD12. It is made by changing entry points CC12 to CD12 and IC12 to ID12. If a third copy is needed contact your support represetative.

SR# 5000054437

PROBLEM: DVC12 has problems processing timeouts and often generates an illegal interrupt.

SOLUTION: During the power fail state, resume processing the current write request instead of exiting the driver and trying to reenter at the top of IC12 via $upio and letting the TBG go to 0.

SR# 5000058008

PROBLEM: DVC12 does not handle Ciper error C6 and C8 (data overrun and protocol errors) correctly. This often would crash the system or loop in the driver with interrupt system off.

SOLUTION: The code has been changed to explicitly define packet header numbers. The return jump is fixed as well.

SR# 5000035956

ENHANCEMENT: DVC12 is enhanced to process eqt word 5 status identical to DVB12 except for bit 6.

SR# NONE

ENHANCEMENT: DVC12 is enhanced to use fewer base page and current page links. It is also modified to not configure on interrupt entry as this was, at times, causing it to loop (probably due to some other failure). Since DVC12 may only be used with one printer, it does need not to reconfigure. For this same reason we are also releasing DVD12, a clone of DVC12 for those who have two printers. In addition, since the driver already keeps almost everything internally, it is changed to not require an EQT extension (X=0).

Additional changes are made to support compressed mode printing (IPARM=3 on control RQ 3003b) and to reconfigure the lines per inch option on powerfail recovery. This driver underwent major surgery with this change and should prove to be much more reliable than in the past.

2.11.4 DVR31

SR# 2200022475

PROBLEM: DVR31 track map call returns the wrong number for sectors per track. The code starting at $SPCL (line 703) expects to find the # sect/track prior to $TB31. The generator does not supply this word. This will cause FC to fail when talking to a 7900 disk.

SOLUTION: The driver is modified to supply always the number of sectors per track in the returned track map.

2.11.5 DVR32

SR# 2200002949

PROBLEM: DVR32 incorrectly calculates the number of sectors to verify, resulting in IO NR or IO TO errors.

SOLUTION: The driver is modified to properly calculate the number of sectors involved.

2.11.6 FORMT

SR# 2200006197

PROBLEM: FORMT does not allow formatting LU's > 63. This is a problem in a Datasafe enviremont where logical LU's are > 63.

SOLUTION: Modify FORMT so LU >63 can be formatted. EQTRQ is also modified so that a system LU > 63 can be modified.

SR# 2200012070

PROBLEM: FORMT cannot spare a spare track. FORMT assumes that a subchannel ends on the last track and does not include spare tracks.

SOLUTION: Add number of spare tracks to total number of tracks for a given LU.

SR# 2200013565

PROBLEM: FORMT aborts with I007 when using the 93581C Dual Disc Driver. IFDVR checks EQT word 4 bit 11 to see if the driver processes it's own time-out bit. The 93581C dual disc driver (type 32) modifies this so that it looks like an ICD disc. (Only MAC discs are supported by this driver.) At this point, the disc library routines are all confused.

SOLUTION: We modified IFDVR such that it uses a different method for determining whether a disc is a MAC or ICD disc. It issues an EXEC request with icode of 2200b on specific lu (use track 0, sector 0). This will return the track map table entry. It checks bit 15 of word 5.

SR# 2200014670
SR# 2200032292

PROBLEM: FORMT requires a capability of exactly 60 to re-format lu 2 or 3.

SOLUTION: Allow formatting of LU 2 or 3 if capability is > 60.

SR# 2200055889

PROBLEM: FORMT cannot format LU'S not in SST.
SOLUTION: We changed all EXEC calls in DSCLB to XLUEX with the non-session bit set.

SR# NONE

ENHANCEMENT: Allow commands given to FORMT to be entered in lower case.

2.11.7 GENERATOR

SR# 2200028126

PROBLEM: A.)Customer submitted an answer file to us that worked at A.84 (2401) With the necessary changes for A.85 (2440), the same answer file causes a GEN ERR 07 -

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symbol table overflow. Customer has tried many variations (like leaving out Image) and still got the problem.

The RTE-IVB generator has three words (relative 0,1,2) which define the number of tracks to use for ENT/EXTs, NAMs, and fixups. These are too small.

B.)The RT4GN program needs to have its segments RP'ed to run.

SOLUTION: A.)Changed the number of tracks for ENT/EXTs to 3 and for NAMs to 5.

B.)The generator was changed to call EXEC to get free memory bounds, instead of searching for RT4G3 (its largest segment). This allows T5IDM to do the full job and the segments nolonger have to be RPed.

2.11.8 INTRINSIC ROUTINES

SR# 2200058362

PROBLEM: ISIGN(IA,IB) where IA and IB are single integer arguments return a result of 0 when IA=3 and IB=0. By definition, the result should be 3.

SOLUTION: The code is changed to return the correct value.

2.11.9 KEYS

SR# 2200014746

PROBLEM: Priority of KYDMP in NAM record is too high (10).
SOLUTION: The priority will be changed to 99 .

2.11.10 LIBRARY FUNCTIONS

SR# 2200002675

PROBLEM: RHPAR fails to return runstrings if a program terminates saving resources and then gets scheduled in the normal way. On the second call to RHPAR the routine checks to see if it has been called before; if so, it does not bother to collect the runstring that was passed. Since the program terminated saving resources, the second string will not be given to it.

SOLUTION: RHPAR is changed to call EXEC for the runstring on each entry. If EXEC returns a zero length string, RHPAR assumes the string it got last time (or some prior time) is still valid and uses it. This allows the user to use RHPAR for strings which result from a son program returning as well as the terminate saving resources condition.

2.11.11 LUPRN

SR# NONE

NOTE: LUPRN is made compatible with FTN7X; QSUBS routines are removed.

2.11.12 MATH ROUTINES

SR# 5000078808

PROBLEM: Math library routine DSINH (.DSNH) when evaluated with argument = 0.0d0 should return 0.0d0 . However what is returned into the four words that comprise the double precision result is 000000b,000000b,000000b,177776b.

SOLUTION: The routine (.DSNH) divides the result by 2 by subtracting 2 from the exponent... without checking for 0 first. The missing test for zero result has been added before the subtract.

2.11.13 POWER FAIL

SR# 2200008235

PROBLEM: On a system with the 93770 Specials TBG-TOD clock, it is possible for a TBG tick to occur during power fail recovery. There are several instructions at the beginning of the power recovery routine which occur before a CLC 0,C is issued. Since the Specials TBG has an external power source it will continue to tick even if power is lost.

SOLUTION: The power fail routine is modified to do the CLC 0,C before allowing any other interrupt. This is done by moving some code to the "down" routine and by making the JMP to the "up" routine indirect.

SR# 2200013367

PROBLEM: When several power sags occur, the HP1000 powerfail/auto- restart does not appear to work properly. The symptoms include application programs as well as HP programs aborting due to memory protects, dynamic mapping or "RQ" errors.

SOLUTION: In as much as this is a software problem, we have changed some code in the power fail routine to plug some holes that are inherent in the hardware.

2.11.14 SPOOLING

SR# 2200010272

PROBLEM: Spool files occasionally hang in queue and will not outspool -- GASP commands are ineffectual (i.e., RS, CS or UP). Problem seems to occur randomly (no known cause). The same sequence of commands that caused the problem once will work most of the time. The size of the offending output seems always to be less than one page in length. The only way to get rid of the spool file is by the KS command.

SOLUTION: Several internal problems in SMP have been fixed in DSD4.0. This should fix the problem.

SR# 2200014449

PROBLEM: RTE-IVB spooler leaves files opened even after the user logs off. The customer had equivalenced a file to the spool LU and when he logged off, he failed to do :CS,LU - but the system should have cleaned up anyway. It did not. Another customer had the same problem with an earlier revision of RTE-4B. It disappeared after regen'ing to 2126 software.

SOLUTION: At DSD4.0, we fixed the RTE-6 spool system and made it a part of RTE-IV. This should fix the problem.

SR# 2200053785

PROBLEM: When reading from a spooled tape, the IEOF does not work. All other methods for finding the end of file such as the A-register status work properly.

This was caused by the spool driver (DVS43 and OS6SP) clearing the status word before checking the request type.

SOLUTION: Fixed at DSD4.0. The fix was done in the RTE-6 spool driver which, with this revision, is also used in RTE-IVB.

2.12 (92069A) Image/1000 (A,E,F-Series)

2.12.1 %NO/DS.

SR# 2200001107

ENHANCEMENT: The IMAGE installation file was unclear as to how the library %NO\DS should be used to load QUERY and RECOV. The installation files have been changed to specifically search %NO\DS instead of assuming it has been generated into the system.

2.12.2 %NO\DS renamed

SR# NONE

PROBLEM: The file, %NO\DS 92069-12005, was incompatible with the TF utility. TF is used to build the Cupertino Binary tapes for every PCO cycle.
SOLUTION: %NO\DS was renamed to %NO_DS.

2.12.3 DBBLD

SR# 5000080440

PROBLEM: DBBLD MP's when NOLIST is selected. DBBLD was passing a negative number of bytes to EWRIT for reporting error messages. EWRIT only accepts a positive word count.
SOLUTION: We changed the EWRIT calls to positive word counts.

2.12.4 DBDS

SR# 5000065623

PROBLEM: DBDS was using its own parsing routine that incorrectly parsed the namr.
SOLUTION: The system routine NAMR is now used in place of DBDS' parsing routine.

2.12.5 DBGET

SR# 5000072272

PROBLEM: A DBGET doing a chained read returns an Err 160 upon encountering an empty record (eg, a chained read gets interrupted and another program deletes the record that the chained read was pointing to) which means that a data structure corruption exists. An Err 114 (record is empty) would be more appropriate in this case.
SOLUTION: The DBGET intrinsic has been modified to return Err 114 instead of Err 160 in the above situation.

2.12.6 DBLOD

SR# 5000011718

PROBLEM: If a database is corrupted such that a manual master key is lost or duplicated, DBLOD will eventually produce an error (returned by DBPUT), then quit. This is a problem since the remainder of the data is not recovered.

SOLUTION: DBLOD will now report the error and the data in the record which caused the error; DBLOD then continues to process the rest of the DBULD tape or file, attempting to recover as much data as possible.

SR# 5000071894

PROBLEM: A customer wanted to increase the size of a compound item which was the last item in a detail from 58 to 64. He first did a DBULD, modified his schema to increase the compound item, ran DBDS, and finally, DBLOD. Everything was fine except that the compound item was now empty.

SOLUTION: This is a 'User Misunderstanding'. DBLOD performed correctly according to the manual's description. DBLOD truncated the compound item because it did not completely fill the newly defined 64-element item. This is documented in the Reference Manual.

2.12.7 DBOPN

SR# 5000051979

PROBLEM: The eighth program to attempt opening a database gets the wrong error back from the DBOPN call. It expects error 131 but receives error 129 (root file open exclusively to another program). The root cause lies in the FMP error -8, which IMAGE interprets to mean 'exclusively open', but which can also mean 'already open 7 times'.

SOLUTION: The program DBCOP, which manages resource numbers, will check first for the database being open 7 times, thus trapping that particular error before attempting to open the root file. Thus, an FMP error -8 will always refer to the file being opened exclusively. QUERY also was

modified to wait for a database for errors 129 or 131.

2.12.8 DSEXT

SR# 5000054445

PROBLEM: The IMAGE manual states that the subroutine DSEXT must be called in the main of a user's segmented program which makes remote database calls. However, no such subroutine DSEXT exists.

SOLUTION: We created the subroutine DSEXT (which is really a Fortran/Pascal- callable interface to #MAST).

2.12.9 IMAGE

SR# 2200026161

PROBLEM: When opening and closing multiple databases within a program, it is possible that IMAGE will re-use an empty DCB (assuming it is in use) and eventually cause a memory protect error.

SOLUTION: Code now checks that a DCB is really in use before using it.

2.12.10 Manuals

SR# 2200014894

PROBLEM: The program size examples on pp. 1-2 of the Configuration Guide are misleading. Program sizes can vary from revision to revision, and from system to system depending on the amount of firmware available, etc. The manual should clarify this or refer the user to examine the appropriate LOADR/LINK command file.

SOLUTION: We clarified the program size in the Configuration Guide.

SR# 2200015693

PROBLEM: The Manual does not specify the size of the Query scratch file that it requires, nor the fact that it uses

one at all. Query reports 'scratch file allocation error' if there is insufficient space.

SOLUTION: The manual has been updated to define the 'scratch file allocation error' and what caused it.

SR# 5000031831

PROBLEM: Update to Users Reference Manual dated Jan 1983 has its table of contents incorrect on pages viii a/b. It does not correctly list section 4 "Host Language Access".

SOLUTION: The index has been corrected.

SR# 5000038737

PROBLEM: Manual error: Update 5 for Image-I Users Reference Manual pp. 3-5 lists 4 possible open modes for Query: 1, 3, 5, and 8. However, mode 5 is invalid and is not accepted by Query.

SOLUTION: Manual has been corrected.

SR# 5000062794

PROBLEM: In the December 1983 update to the reference manual, some important information about deleting data using Query was inadvertently omitted from chapter 3.

SOLUTION: The appropriate information was added back to the manual.

SR# 5000066365

PROBLEM: In Chapter 5 of the Configuration Guide, RTE-A System Generation, it states that DBCOP should be relocated. This should not be done during system generation. However, DBCOP should be RP'd in the welcome file.

SOLUTION: The Configuration Guide has been updated with the correct information.

2.12.11 QUERY

SR# 2200011833

PROBLEM: QUERY's help file contained 2 misspellings, one incorrect syntax in the example for the FIND command and mode 5 was listed as a possible mode for opening the database (only true for IMAGE-II).

SOLUTION: We fixed the QUERY help file.

SR# 2200016527

PROBLEM: If DS is in the system, but a local-only QUERY is loaded, the %NO\DS relocatable is searched improperly, resulting in some entry points being satisfied in SSGA (system common) when not expected. The result is an UI (unimplemented instruction) error on an RTE-A system.

SOLUTION: Fixed the installation files to correctly load QUERY regardless of DS, and independent of any entry points generated into the operating system.

SR# 5000056531

PROBLEM: A QUERY report of a numeric value, with an edit mask smaller than 6 digits, would report incorrect values. Internally, QUERY was not calculating the correct number of significant digits, and worse, it was truncating digits off the right hand side.

SOLUTION: We corrected the algorithm for editing numeric values.

2.12.12 RECOV

SR# NONE

PROBLEM: A program name under 5 characters is not accepted by the program RECOV. Additionally, RECOV continues to prompt for a program to recover, even if no programs remain to be recovered.

SOLUTION: Code blank-pad program names to 5 places and quits if there are no programs to recover.

2.12.13 Utilities

SR# 2200013599

PROBLEM: RTE-A magnetic tape driver cannot recognize manual rewind of tape. Hence it may believe the tape is still at EOT and generate errors for subsequent reads/writes to the tape.

SOLUTION: Programmatically rewind the tape when EOT is sensed.

SR# NONE

PROBLEM: In several IMAGE utilities, the terms DOUBLE PRECISION,

EXTENDED PRECISION and COMPLEX are used to create real-value variables with byte sizes of 6 or 8. However, it is possible to override the default sizes of DOUBLE, EXTENDED and COMPLEX in a system generation, yielding unpredictable results from one system to another.

SOLUTION: Code now specifically declares real variables as REAL*6 or REAL*8 as appropriate.

2.13 (92070A) RTE-L Operating System

2.13.1 AUTO RESTART

SR# 2200053306

PROBLEM: When AUTOR is compiled using FTN4X, and then run, it generates runtime error 496 - ILLEGAL FORMAT STATEMENT.

SOLUTION: We changed the DIMENSION statement and the CALL RMPAR statements in &AUTOR to be

```
      DIMENSION ITM(5),ITMX(5)
   20 CALL RMPAR(ITM)
```

2.13.2 FMP

SR# 2200053405

PROBLEM: When accessing a type 2 file, the READF routine would sometimes write data beyond the end of the DCB, possibly over-writing user code.

SOLUTION: The correct bit masking is now used by the R/W$ routine.

2.13.3 ID.37

SR# 2200050310

PROBLEM: The ID.37 control 0B request is supposed to send an SDC (selected device clear) if parm2 is 0; it is supposed to send an IFC (interface clear) and an SDC if parm2 is non-zero. In the second case only the IFC was sent.

SOLUTION: ID.37 is changed to now always send an SDC. If parm2 is non-zero, an IFC is sent first.

2.13.4 ID*50

SR# 2200050260

PROBLEM: ID*50 could be enabled to schedule a program upon receipt of an asynchronous (ie. unsolicited) interrupt. The programmer would do an EXEC 3 call with a subfunction of 20B to enable program scheduling. If the program name (supplied with the exec call) does not have an ID-segment, an error message should be returned to the programmer. Instead, the driver returns a successfull completion status

SOLUTION: The driver (ID*50) has been fixed to take the correct exit.

2.13.5 INTRINSIC ROUTINES

SR# 2200058362

PROBLEM: ISIGN(IA,IB) where IA and IB are single integer arguments return a result of 0 when IA=3 and IB=0. By definition, the result should be 3.

SOLUTION: The code is changed to return the correct value.

2.13.6 MATH ROUTINES

SR# 5000032763

PROBLEM: System routine DDINT does not work on A900 as documented. Real*6 DDINT fails on all neg. fractional powers of 2, e.g. -1/2, -1/4, -1/8, etc. This problem occurs only with DDINT for REAL*6 arguments. AINT for REAL*4 and DDINT for REAL*8 work fine.

SOLUTION: DDINT depends on a flag passed back from ENTIX. ENTIX was setting the flag incorrectly on negative fractional powers of two. ENTIX is changed to properly set the flag.

SR# 5000078808

PROBLEM: Math library routine DSINH (.DSNH) when evaluated with argument = 0.0d0 should return 0.0d0 . However what is returned into the four words that comprise the double precision result is 000000b,000000b,000000b,177776b.

SOLUTION: The routine (.DSNH) divides the result by 2 by subtracting 2 from the exponent... without checking for 0 first. The missing test for zero result has been added before the subtract.

2.13.7 SYSTEM LIBRARY

SR# 2200020214

PROBLEM: The FTN4L compiler does not load in RTE-L because the routine GMS.C which is part of the system library ($SYSLB 92070-12012) has externals that are not satisfied in any RTE-L library. The routine GMS.C has the following external references: C.OLY, COR.A, and ID.AD. The last two mentioned have not been in any RTE-L,XL, or A library.

SOLUTION: In $SYSLB there is an incorrect library module GMS.C part # 92070-1X367. With this module FTN4L compiler would not load on RTE-L. To correct this the module GMS.C was removed and replaced with GMS.C module, part # 92071-1X391, from RTE-XL.

2.14 (92070B) RTE-L Operating System

2.14.1 ID.37

SR# 2200050310

PROBLEM: The ID.37 control 0B request is supposed to send an SDC (selected device clear) if parm2 is 0; it is supposed to send an IFC (interface clear) and an SDC if parm2 is non-zero. In the second case only the IFC was sent.

SOLUTION: ID.37 is changed to now always send an SDC. If parm2 is non-zero, an IFC is sent first.

2.14.2 ID*50

SR# 2200050260

PROBLEM: ID*50 could be enabled to schedule a program upon receipt of an asynchronous (ie. unsolicited) interrupt. The programmer would do an EXEC 3 call with a subfunction of 20B to enable program scheduling. If the program name (supplied with the exec call) does not have an ID-segment, an error message should be returned to the programmer. Instead, the driver returns a successfull completion status

SOLUTION: The driver (ID*50) has been fixed to take the correct exit.

2.14.3 INTRINSIC ROUTINES

SR# 2200058362

PROBLEM: ISIGN(IA,IB) where IA and IB are single integer arguments return a result of 0 when IA=3 and IB=0. By definition, the result should be 3.

SOLUTION: The code is changed to return the correct value.

2.14.4 MATH ROUTINES

SR# 5000032763

PROBLEM: System routine DDINT does not work on A900 as documented. Real*6 DDINT fails on all neg. fractional powers of 2, e.g. -1/2, -1/4, -1/8, etc. This problem occurs only with DDINT for REAL*6 arguments. AINT for REAL*4 and DDINT for REAL*8 work fine.

SOLUTION: DDINT depends on a flag passed back from ENTIX. ENTIX was setting the flag incorrectly on negative fractional powers of two. ENTIX is changed to properly set the flag.

SR# 5000078808

PROBLEM: Math library routine DSINH (.DSNH) when evaluated with argument = 0.0d0 should return 0.0d0 . However what is returned into the four words that comprise the double precision result is 000000b,000000b,000000b,177776b.

SOLUTION: The routine (.DSNH) divides the result by 2 by subtracting 2 from the exponent... without checking for 0 first. The missing test for zero result has been added before the subtract.

2.15 (92071A) RTE-XL Operating System

2.15.1 FMGR

SR# NONE

PROBLEM: FMGR causes UI error when more than two colons are put between the file name and LU or CRN.

SOLUTION: Fixed at DSD4.0.

2.15.2 ID.37

SR# 2200025379

PROBLEM: A serial poll timeout could cause the HP-IB to hang.
SOLUTION: The driver is fixed to correctly check the flag. SPD (serial poll disable) is now sent to the interface card on an abort sequence in case an SPE (serial poll enable) had been sent.

2.15.3 INTRINSIC ROUTINES

SR# 2200058362

PROBLEM: ISIGN(IA,IB) where IA and IB are single integer arguments return a result of 0 when IA=3 and IB=0. By definition, the result should be 3.

SOLUTION: The code is changed to return the correct value.

2.15.4 MACRO

SR# 2200003780

PROBLEM: When you use the S (Symbolic Debug) option in the MACRO runstring to override options in the source file, the S does not appear in the MACRO line in the listing. Debug still works correctly.

SOLUTION: MACRO is changed to include the DEBUG option in the built control statement. (Note that the D option comes out as S because they are the same.)

SR# 2200010611

PROBLEM: Macro aborts with an MP error if there are incorrect literal values.
SOLUTION: The literal processor is changed to pass back dummy values in both A and B in the error case, allowing assembly to continue.

SR# 2200021261

PROBLEM: If the O option is used to create old relocatables and OLDRE is not available, MACRO complains, but does not count it as an error. As a result, a program that schedules MACRO would be ignorant of any errors.

SOLUTION: MACR7 is modified to bump the error count on the schedule error.

SR# 5000021378

PROBLEM: The MACRO manual says that - DEF =F39.25 should work, but an ERROR 321 is generated.

SOLUTION: MACR2 and MACR3 are changed to allow =F literals as well as others in the DEF opcode.

SR# 5000034231

PROBLEM: In REV A.85 and earlier the MACRO assembler puts all the source in the swap file in spite of the fact that there is conditional code assembly (i.e. AIF,AELSEIF) and macros. All of the macros are placed in the swap file. The swap file is extremely large. In one case the swap file on the scratch cartridge took 750 tracks while the eventual program was only 2000 words. This user had a library with over 40 macros. The swap file should contain only the generated code with the macros that are needed.

SOLUTION: MACR1 has been changed to not keep unneeded lines in the IF file.

SR# 5000071647

PROBLEM: The include statement in a macro compilation allows a total of 32 characters in an include file name.

SOLUTION: Fixed in MACR1 to allow the full 64 character file names.

2.15.5 MATH ROUTINES

SR# 5000032763

PROBLEM: System routine DDINT does not work on A900 as documented. Real*6 DDINT fails on all neg. fractional powers of 2, e.g. -1/2, -1/4, -1/8, etc. This problem occurs only with DDINT for REAL*6 arguments. AINT for REAL*4 and DDINT for REAL*8 work fine.

SOLUTION: DDINT depends on a flag passed back from ENTIX. ENTIX was setting the flag incorrectly on negative fractional powers of two. ENTIX is changed to properly set the flag.

SR# 5000078808

PROBLEM: Math library routine DSINH (.DSNH) when evaluated with argument = 0.0d0 should return 0.0d0 . However what is returned into the four words that comprise the double precision result is 000000b,000000b,000000b,177776b.

SOLUTION: The routine (.DSNH) divides the result by 2 by subtracting 2 from the exponent... without checking for 0 first. The missing test for zero result has been added before the subtract.

2.16 (92077A) RTE-A Operating System

2.16.1 ADVANCELINK

SR# NONE

ENHANCEMENT: Added monitor to support ADVLINK on RTE-A.

2.16.2 BOOTEX

SR# 5000075812

PROBLEM: To boot from a MUX, the select code must not be 20.

SOLUTION: This limitation no longer exists.

SR# 2200016964

ENHANCEMENT: BOOTEX used FMPReportError to report its FMP errors. BOOTEX did not allow enough time for D.RTR to be scheduled and print out the FMP -209 message before executing a halt 1 when the directory of the system file could not be found. BOOTEX is enhanced to report it's own FMP errors.

2.16.3 BUILD

SR# NONE

ENHANCEMENT: BUILD include files are named &BUFMP and &BUGBL. The software naming convention for include files is to have the first character be a [. The names for the include files are changed to [BUFMP and [BUGBL.

2.16.4 CI

SR# 2200018747

PROBLEM: If you enter a command stack command and your terminal then times out, the last command displayed is executed by CI.

```
Example:  CI> /
          WH,AL
          DL,/SYSTEM/
          IO
          _ (cursor waiting for user)
```

If the terminal then times out waiting for the user, IO is executed.

SOLUTION: A check has been added to see if a timeout occured and to handle it properly when the command stack is displayed. Before, the timeout was ignored and the last

command displayed was executed.

SR# 2200018762

PROBLEM: CI's SET command with no parameters truncates the values of $1 - $9 to 76 characters each instead of 80.

SOLUTION: The length of the scratch variable used to manipulate these values has been increased because it was too small, causing truncation of its contents.

SR# 2200018804

PROBLEM: CI aborts with a Fortran string error when the user enters more than 80 slashes.

SOLUTION: CI now checks if more than 80 slashes were entered and truncates to 80 if 81 or more were entered.

SR# 2200020206

PROBLEM: CI's TM command does not work if time is set to be after 12 and the PM parameter is specified. A "No such time" error results.

SOLUTION: CI correctly handles the TM command now.

SR# 2200020362

PROBLEM: Timeout/logoff process does not restart if the user enters a command in the middle of the process.

SOLUTION: The variable which keeps track of how many consecutive timeouts have occured is now reset after the user enters a command.

SR# 2200021378

PROBLEM: When CI or CM aborts due to an EXEC error, it is difficult to tell what program had the EXEC error.

SOLUTION: The EXEC error message code has been changed to include CI/CM to identify itself when reporting an EXEC error.

SR# 2200021386

PROBLEM: /m/ followed by /n, where m and n are both greater than about 25, causes a clear screen to be executed by CI while commands are being displayed and garbage to appear in the command stack.

SOLUTION: The code performing the /n command is only set up to handle n less than or equal to 22. Now it can handle any size n given in the /n command.

SR# 2200021394

PROBLEM: CI help files refer to "substitution parameters", which should be called "positional variables".

SOLUTION: The ?CI file has been changed to match the new term being used in the manuals.

SR# 2200021402

PROBLEM: CI does not give "Your programs:" message when a user logs off with active programs.

SOLUTION: The flag which makes sure "Your programs:" is printed only once when the user logs off with two or more active programs is being set before the message is ever printed. The code which does this has been deleted.

SR# 2200028373

PROBLEM: CI will let the user specify any file as the command stack in the WD command. But CI may print garbage and/or lock the terminal if the user tries to list the command stack with the "/" command if the file is not a type 3 or 4 file.

SOLUTION: CI now checks the type of the file specified as the command stack file in the WD command. If the file is not a type 3 or 4 file it prints a error message to the user and ignores the WD command. The user can still get a bad command stack, but CI will be able to list it without locking the terminal and the user can see there is a problem to be corrected.

SR# 5000056986

PROBLEM: CI allows the user to specify an LU to be the command stack. This can cause a variety of problems: terminal hangs, etc.

SOLUTION: A check has been added to CI so that it does not allow the CI.STK file to be defined on any LU when the WD command is given.

SR# 5000073379

PROBLEM: When CI is compiled with the CDS option and the terminal times out, the value of AUTO_LOGOFF has no effect; the CI prompt is repeated. If only a carriage return is struck, the next timeout will start the AUTO_LOGOFF sequence. After any other command, the AUTO_LOGOFF feature is again disabled until only a carriage return is struck.

SOLUTION: The variables which control the AUTO_LOGOFF process are now initialized to zero so that the first terminal timeout of a sequence starts the AUTO_LOGOFF feature.

SR# 5000080713

PROBLEM: CI does not let you transfer to a command file with a negative security code on a FMGR cartridge.

SOLUTION: The security code sent inside the file descriptor parameter is overwritten by the subroutine which determines if the file is a command file. Thus when CI tries to open the file to read the commands, it gives an illegal security code message. Now the security code in the file descriptor parameter is saved and and put back in the return file descriptor.

2.16.5 CI HELP

SR# 2200026716

ENHANCEMENT: Transfer files have been created to assist in copying the HP supplied help files in the form ?command to the /HELP directory with the "?" removed. These are *COHLP, 92077-17259, for RTE-A and *VCCOHLP, 92078-17034, for VC+.

2.16.6 CI UTILITIES

SR# 2200006015

PROBLEM: The DL command from CI will not display "type 0" files on FMGR cartridges.

SOLUTION: DL now displays "type 0" files on FMGR cartridges.

SR# 2200010082

PROBLEM: A remote DL reports open files incorrectly. If a file is open on a remote node, the program name which DL reports as being the locking program is taken from the local node, not the remote node.

SOLUTION: DL now reports open files correctly.

SR# 2200021436

PROBLEM: When the DL command is issued with the 'L' option on a directory on a remote system, the LU given as part of the location for the file is not correct - it is always 63.

SOLUTION: DL has been fixed to give the correct LU.

SR# 2200022160

PROBLEM: FVERI does not interpret the runstring correctly with all disc LU's verifications and +L option.

SOLUTION: The "+L" now works correctly.

SR# 2200023978

PROBLEM: Too many trailing blanks with the LU in the message "Verifying LU xxxxx".

SOLUTION: The message has been corrected.

SR# 2200024455

PROBLEM: The NLS message buffer is too small to hold a Japanese message.

SOLUTION: The buffer size is increased.

SR# 5000070490

PROBLEM: When doing an FSCON to change a FMGR cartridge to a CI volume, you can dismount it from a single session and then run the utility. When you want to mount it back again, you have to dismount it from all the other sessions and then mount it under CI.

SOLUTION: The appropriate manual has been documented to show this.

SR# NONE

ENHANCEMENT: The display format for FREES is changed. You can see the free area of all discs at a glance with a column-oriented format.

2.16.7 D.RTR

SR# 2200024380

PROBLEM: D.ERR does not allow enough space in its message buffer for a trailing null character.

SOLUTION: The buffer size has been increased by 1 word.

SR# 2200024414

PROBLEM: D.ERR doesn't correctly retrieve the NLS flag from the FmpError routine.

SOLUTION: The correct string length is now received.

SR# 2200028654

PROBLEM: If a type 6 file is RP'ed and the file is opened

exclusively by OPENF, no error results and the file can be written into by the program which opened it.

SOLUTION: If an RP'ed program file is opened with the OPENF call, write access is now disallowed on the file.

SR# 5000060871

PROBLEM: If a disc is genned to have more than 128 sectors per track, then D.RTR will destroy itself when trying to access the disc.

SOLUTION: In the mount process (from both the CI and FMGR MC commands), D.RTR now checks the number of sectors/track defined for the disc LU, and if it is greater than 128, an error -108 is returned. This is a new error meaning 'Illegal number of sectors per track'.

2.16.8 DD*33

SR# 2200007047

PROBLEM: When inserting a linus tape in a CS80 tape drive, if a diagnostic error occurs, the CS80 Disc LU would go down on the next access of the drive.

SOLUTION: The driver has been fixed.

SR# 5000014225

PROBLEM: The setting of the EOF bit in the returned status from the CTD is inconsistent. In one instance, the EOF bit is set if the EOF block is contained in the length of the data read. In another instance, the EOF bit is set only on the actual read of the EOF block (no data returned as expected). The latter case should be correct. In both cases the transmission log is correct.

SOLUTION: The driver has been modified to check for EOF during a cache refill.

2.16.9 DDM30

SR# 2200017525

ENHANCEMENT: The 13037 correctable data algorithm is now implemented in DDM30.

2.16.10 DS SUPPORT

SR# 2200023325

PROBLEM: Systems routines for allocating and deallocating DSAM do not check the allocation word of the SHEMA table entry before renaming the entry.

SOLUTION: Corrected at DSD4.0.

SR# 2200025411

ENHANCEMENT: DS needed to have IDINFO enhanced so that if a program is dormant and saving resources and in the time list, the MEF state should come back to 100000b indicating time list suspended, instead of 140000b indicating saving resources.

2.16.11 DS TRANSPARENCY

SR# 2200023341

PROBLEM: If you edit the NODENAMES file, DSRTR does not see the changes.

SOLUTION: DSRTR has been modified so that, if it is scheduled without a runstring (i.e., 'RU,DSRTR'), it will re-read the nodenames file to update its internal tables. The correct action to take, then, is to edit the nodenames file to make corrections, then type 'RU,DSRTR' to force DSRTR to pick up the changes.

SR# 5000007153

PROBLEM: When the NODENAMES file is set up as described in the RTE-A System Generation and Installation Manual, accessing a node by name through DS transparency does not work. FMP returns a 'no such node' error. The problem is not having a comment field in the line.

SOLUTION: DSRTR does not require a comment field in the NODENAMES file anymore, but comments may be included if desired (they are ignored).

2.16.12 DSAVE/DRSTR

SR# NONE

PROBLEM: DSAVE and DRSTR report an internal error when a mirrored volume LU was specified to be saved or restored.

SOLUTION: DSAVE and DRSTR have been changed to check for mirrored volume disc LUs and issue either an error or a warning. DSAVE and DRSTR now access LUs greater than 63 because all EXEC 1, 2, 13 have been changed to XLUEX calls.

2.16.13 EDIT

SR# 2200014571

PROBLEM: If the list file is a printer, RTE-6 and RTE-A versions of Edit now do a page eject when it is closed. The list file is closed by a FCL command, or when a new list file is specified, or when Edit terminates.

SOLUTION: The printer is now kept LU-locked by Edit until the list file is closed.

SR# 5000079970

PROBLEM: Edit is not correctly resetting the page mode strap at start up.

SOLUTION: This is now corrected.

SR# NONE

PROBLEM: Read errors, while reading from a device, were reported twice.

SOLUTION: This is corrected in &NEWFI.

SR# 5000023580

ENHANCEMENT: The RTE-6 and RTE-A version of Edit now allows a leading slash in FMGR cartridge file names (there must not be a global directory that has the same name). This is related to SR5000023580.

2.16.14 EMA

SR# 2200011908

PROBLEM: According to the RTE-A Programmer's Reference Manual, the request transfer length (IDL) of a VMAREAD call ranges from 0 to 65534. However, when a 0 length is requested, a -243 error (illegal parameter) is returned.

SOLUTION: A decrement of the transfer length is removed (should not occur when length=0). This problem is fixed at DSD4.0.

SR# 2200012617

PROBLEM: VMAREAD, VMAWRITE, VREAD, and VWRITE don't check the length parameter for errors correctly if the file is of type 2. An invalid length (greater than the MSEG) may be accepted. The routine is only checking to make sure the data can map into MSEG+1 pages, not MSEG.

SOLUTION: An error code of -243 (parameter error) will now be returned when the transfer length is > MSEG. This problem is fixed in release DSD4.0.

SR# 2200017616

PROBLEM: EM82 errors occur when running several SHEMA programs accessing one SHEMA. The PTE is reinitialized by a first-time program. When a higher priority program interrupts and tries to access the last page of SHEMA, the page would be temporarily bad because of the reinitialization by the first program. Thus, the EM82 error is reported.

SOLUTION: $INIT is rearranged and kept privileged during initialization. Fixed in DSD4.0.

SR# 5000067702

PROBLEM: When using VREAD to read a type 2 file, the IDL (data length request) parameter is ignored if it is less than the record length. VREAD will always read the entire record into the array. This can cause serious problems by overwriting other data or code. The problem is caused by the code checking for a type 2 file, and if in fact it is a type 2 file, it would use the record length from the DCB rather than the passed-in length as the request length.

SOLUTION: The code involved is eliminated so that now the passed-in length will be the request length no matter what the file type.

2.16.15 ERROR LOGGING

SR# 5000051136

PROBLEM: LOGIT does not do error checking of the length parameter. If LOGIT is called with a length that is negative or greater than 1024, severe problems can result (system crash).

SOLUTION: LOGIT now checks to make sure that the length is positive and less than 128 words since the spool system only prints 128 word records maximum.

2.16.16 EXER

SR# NONE

ENHANCEMENT: EXER is enhanced to support the 7907 disc and to work on-line.

2.16.17 FC

SR# 2200016055

PROBLEM: FC will not recognize device type 24, which is what the streaming tape drives require if they are going to stream.

SOLUTION: FC now recognizes LDTYP's return for streaming tape drives. LDTYP normally returns a value of 2200 for magnetic tapes (device type 23B), but it returns a 230 for streaming drives (device type 24B).

2.16.18 FILE I/O

SR# 2200015644

PROBLEM: Files opened with USE='NONEXCLUSIVE' could not be purged by closing with STATUS='DELETE'.

SOLUTION: Fixed in the DSD 4.0 update for 1) old files, 2) new files, 3)new files & CDS, and 4) DS.

SR# 2200019067

PROBLEM: The INQUIRE statement fails if another program opens the file in shared mode. .FFIN wants to open the file in exclusive mode. This fails if another program opens the file (even in shared mode). Thus no status information is returned to the INQUIRE calling program.

SOLUTION: Fixed in DSD4.0.

SR# 2200025569

PROBLEM: If the NAME= parameter in an INQUIRE statement refers to a variable that is too small to hold the result, the byte just prior to the variable is set to blank (32 base 10). This problem exists only if $FOLDF is used. No errors are generated to indicate any problem.

SOLUTION: The software has been corrected.

SR# 5000058255

PROBLEM: In a formatted READ of a direct-access file (an ANSI extension), if the internal I/O buffer (or LGBUF buffer) is too small, no error is reported. The record is treated as if it were blank beyond the buffer size.

SOLUTION: Error 496 is now reported.

2.16.19 FMGR

SR# 2200011718

PROBLEM: There is a problem in FMGR in the section where it swaps in a segment. When it checks to see if the segment it wants is already in memory, the test always fails, causing FMGR to swap segments in more often than it needs. This does not cause any errors to occur, it just slows FMGR down.

SOLUTION: FMGR is fixed.

SR# 2200056291

PROBLEM: Doing a FMGR CO command without specifying a CRN for the source file results in a FMGR-032 error.

SOLUTION: FMGR is fixed.

SR# 2200058297

PROBLEM: If the severity code in effect is anything but zero, the optional message in the FMGR 'PA' command is not sent to LU 1.

SOLUTION: FMGR is fixed.

SR# 5000003061

PROBLEM: PK fails in the combined CI/FMGR environment.

SOLUTION: PK has been fixed to work.

SR# 5000052142

PROBLEM: In FMGR, doing the following commands results in a memory protect error:

```
ll,<file that exists>
pl
```

SOLUTION: PL is now fixed.

2.16.20 FMP

SR# 2200009738

PROBLEM: If a type one or type two file is opened with FmpOpen, allowing extents (X option), and the last block of the file is written into, the file would be extended prematurely.

SOLUTION: The FMP routines for handling type 1 and 2 files now will set the EOF bit when the last record in the file has been written (when the extendability option is enabled). On the next write, the EOF bit will be cleared and an extent will be created. Note that for type 2 files, this only happens when the last record of the file fits exactly to the end of the last block of the file.

SR# 2200012633

PROBLEM: Using the 'CO' command from CI with masking, any user can copy files from a FMGR cartridge without needing to know the file's security code.

SOLUTION: The masking routines (used by the CI CO command) now will use the security code supplied by the user in the

original mask. If it is wrong, the masking operation will not succeed (PU will fail, etc.).

A side effect is the following enhancement to DL: if a zero is explicitly specified for the security code in the mask, DL will only find those files which have a zero security code. If no security code is explicitly given, DL will ignore the security codes when matching. This is also true of the file type (explicitly specifying zero for the file type causes DL to find only type zero files). Note that this is only a feature of FMGR files since CI files don't have security codes or type zero files.

SR# 2200018317

PROBLEM: Opening a type 1 or 2 file with a Pascal REWRITE to do sequential writes to the file causes an FMP -12 error. The manual claims that this should be legal. The problem is that FmpSetEOF is setting the EOF bit in the DCB.

SOLUTION: FmpSetEOF no longer sets the EOF bit in the DCB for type 1 or 2 files.

SR# 2200018382

PROBLEM: If FmpLastFileName is given a string with no name, e.g., '::', the user program will abort with a FTN7X runtime error.

SOLUTION: FmpLastFileName now correctly checks for a zero-length name.

SR# 2200018655

PROBLEM: If a 'Z' is used as an option in a CO command, or an FmpCopy call, the destination file doesn't get valid data transferred to it.

SOLUTION: FmpCopy now ignores a 'Z' in the option string.

SR# 2200020875

PROBLEM: The LI command displays only 1st 256 bytes of each record if the record size exceeds 256 bytes.

SOLUTION: LI can now display the whole record longer than 256 bytes.

SR# 2200021360

PROBLEM: CIX (FmpCopy) can get into an infinite loop when trying to copy a file with the D option onto a FMGR cartridge.

SOLUTION: FmpCopy's scratch name is now 'COxxx...', which puts a character from the system time into the 6th character of the file name. This will make the name unique on each try. Also, the break flag is checked inside of the loop which creates the scratch file - if the break flag is detected, FmpCopy will return a -235 error (break flag detected).

SR# 2200022210

PROBLEM: A program is executed and terminates saving resources. When the program is executed for the second time a new cloned version is run, not the terminated copy. If the program is first RP'ed this problem does not occur. If the program is linked with the SU option, the problem does not occur, but only one copy can run at a time.

SOLUTION: FmpRpProgram now checks if the program ID segment already exists and is dormant saving resources. If so, a new copy of the program is not cloned; the current program is used instead.

SR# 2200023200

PROBLEM: If a global directory name is exactly 16 characters long, and the working directory is set to a subdirectory of that global, the WD command reports only the global directory name and not the subdirectory.

SOLUTION: An internal variable in D.RTR was too short to pick up a full 16 character global directory name plus subdirectory names, and the subdirectory names were getting lost. This is now corrected.

SR# 2200023358

PROBLEM: The C.83 versions of D.RTR on RTE-6, and D.RTR on RTE-A do not recognize the 'bad track list' that is put into the cartridge header via the FMGR IN command. The FMGR

PK command may purge files created on that LU.

SOLUTION: This feature was added to FMGR a long time ago to support discs that did not do their own track sparing. Since all current discs do have an internal track sparing mechanism (except the 7900 disc), this feature is not needed anymore. The correction for this bug, then, is to remove the 'bad track list' option in the FMGR IN command. Now, if a list of bad tracks is given in the IN command, an error 56 (bad parameter) is issued.

SR# 2200024059

PROBLEM: FmpError does not return text for some errors that are documented in the manuals. These errors are:

-49, -54 thru -60, -63, -64, -68, -217, -219, -223, -227, -228, -231, -234, -243, -244, -247, -248, -250

SOLUTION: FmpError now returns text for all of these errors.

SR# 2200025593

PROBLEM: FmpWrite will write data past the EOT mark of a magtape, but FmpRead treats EOT as an EOF and will not return the data past the EOT, even if transparency mode has been turned on (transparency mode is turned on with a call to FmpSetIoOptions).

SOLUTION: FmpRead now sets the B register value in common /FMPREGS/ correctly so that it will be the actual length read when reading data past the EOT mark on a mag tape.

SR# 5000040188

PROBLEM: FMPRENAME can rename a file on a file manager disc to a name that contains lower case letters.

SOLUTION: The new file name is now upshifted before being created.

SR# 5000066076

PROBLEM: Programs loaded as system processes are being cloned, which is not supposed to happen. "Don't clone" is one feature of a system utility. If a system utility is

RP'ed already, and you request it to be RP'ed again, you get a clone if you specify the directory name in the RP command. If you don't specify the directory, it won't clone the program.

SOLUTION: FmpRpProgram now checks if the program already exists and is a system process before checking if the directory is specified. Even if the directory is specified, the system process will not be cloned. Note, you can still clone a system process if it is given a new name.

SR# 5000071100

PROBLEM: When dealing with remote-system files using FMP calls, access would fail on Open if the nodename given is not EXACTLY as written in the NodeNames file (i.e. the call is U/L case sensitive). This is not true when using interactive commands, such as thru CI.

SOLUTION: DSRTR now accepts upper or lower case node names in the NODENAMES file and in file descriptors (DSRTR upshifts all node name strings before using them).

SR# 5000073908

PROBLEM: If a program in the time list calls FmpUniqueName, the program gets removed from the time list.

SOLUTION: Rather than becoming time-suspended for 10 ms, FmpUniqueName now uses a different algorithm for insuring that it will create a unique name each time it is called: FmpUniqueName now remembers the time it was called last, and if less than 10 ms have gone by, it goes into a short loop waiting for the time to change. This loop will only be executed if FmpUniqueName is called twice within a 10 ms window.

SR# NONE

ENHANCEMENT: The routine DiscSize for RTE-A allows only 6 bit LU numbers. The routine has been changed to make a XLUEX call instead of a EXEC call.

SR# NONE

NOTE: The routine FmpLastFileName was corrected in $FMP for SR #2200018382. A twin version of the routine exists in

$FMPC and was corrected in the same way.

2.16.21 FMP LIBRARIES

SR# 2200023101

PROBLEM: The integer-to-ascii conversion routines, for single and double integers, write over your code when a buffer is too small for the number needing converting.

SOLUTION: A check of the destination buffers size is made and used in determining how much information to return.

SR# 2200023119

PROBLEM: If DINTTODECIMAL is sent the double integer value -2147483648, it returns the ascii string "-./,),(-*,(".

SOLUTION: .DNG did not handle the number -2147483648 correctly, so it performed the calculation without the number. The software has been corrected.

SR# 2200024570

PROBLEM: If a user's CDS program calls Calc_Dest_Name, and the CDS version of this routine is used ($CDS is searched), the program will get strange errors or possibly abort.

SOLUTION: The optional (internally-used only) string parameter for Calc_Dest_Name is now handled correctly.

SR# 2200023150

ENHANCEMENT: Added some right-justified integer conversion routines to go along with INTTODECIMAL, DINTTODECIMAL, INTTOOCTAL, and DINTTOOCTAL. They are INTTODECIMALR, DINTTODECIMALR, INTTOOCTALR, and DINTTOOCTALR.

2.16.22 FORMAT

SR# 2200024521

PROBLEM: Some floating-point numbers do not round as expected on output; for example, 25039.5 in an F10.0 field prints as

25039.

SOLUTION: Some of these numbers now produce more pleasing output.

SR# 5000019539

PROBLEM: In FTN7X:

```
    READ(1,100) I
100 FORMAT(I1)
```

gives a *RUNTIME ERROR* 0494 @ 02022 for all characters except for D,d,E,e,.,-, and +.

SOLUTION: The software has been corrected.

SR# 2200028597

ENHANCEMENT: As of DSD 4.0 it is possible to change

1) the fill character used to fill output fields where the number did not fit,
2) the leading blank character, used to fill the left part of fields which are larger than necessary

The method of changing these characters is to store into the words at external symbols #FMLB and #FMFC.

eg.
```
$alias /fill/='#FMFC',noallocate
        common /fill/ifill
        ifill - ichar('$')
```

SR# NONE

NOTE: Enhancement to allow list-directed READs to not require quote marks.

2.16.23 FORMT

SR# 2200024125

PROBLEM: FORMT IN command for HP-IB MAC disc causes MP error.

SOLUTION: Correct the IN command.

2.16.24 GENERATOR

SR# 2200015404

PROBLEM: If you specify 0 words of SAM, SL,0,0 gives the error message 'Upper spool limit should be 1000 words less than SAM'.

SOLUTION: Segment 4 of RTAGN was fixed to check if the high buffer limit is zero. If so, the check for high buffer limit 1000 words less than SAM is skipped.

SR# 2200019141

PROBLEM: The generator would only allow up to 255 words of table extension in a DVT extension (should be 512). If more than 255 words are specified, only N (mod 256) words are set aside.

SOLUTION: The generator DVT fix up entry structure is changed to allow a 9 bit field for the table extension for DVT fixup entries, and use a nine bit mask when allocating the table space.

SR# 2200019208

PROBLEM: If the system checksum is calculated to be 0, a 0 is placed in $CKSM in the output file, and a 1 is placed in the header record of the snap file as the system checksum.

SOLUTION: Segment 4 of RTAGN is fixed to increment the checksum (if it is 0) BEFORE it outputs it to the system file and snap file.

SR# 2200019455

PROBLEM: If there are 32 pages of SAM and no spooling is used, SL,0,0 gives the error 'Upper spool limit should be 1000 words less than SAM'.

SOLUTION: Segment 4 of RTAGN now checks to see if there are 32 pages of SAM, and if so, it skips the high buffer limit

1000 words less than SAM check (high buffer limit can't be more than 6112 words).

SR# 2200019810

PROBLEM: The number of entry points specified in the header of the SNAP file does not match the actual number of entry points in the SNAP file. Also, the system ID checksum specified in the header record does not match the checksum actually calculated from the SNAP file.

SOLUTION: The snap file output routine is fixed to add the number of symbols in the snap file correctly, and to calculate the checksums correctly.

SR# 2200020438

PROBLEM: The SNAP file output routine assumes that TC tags have the same structure as JSB tags, which cause it to output the wrong logical address for TC tag entry points.

SOLUTION: The SNAP file output routine is fixed to know about the structure of TC tags.

SR# 2200022624

PROBLEM: The generator puts entry points into the snap from a library which was searched in the system relocation phase. Only some of the entry points are put in the SNAP file from the relocated (type 7) module, others are left out.

SOLUTION: Segment 2 of RTAGN was changed to tag all symbols entered in the symbol table during a library search, regardless of whether any ENTs had yet matched an undefined external or not (the symbols are removed from the symbol table if the module ends up not getting relocated).

SR# 2200023044

PROBLEM: The snap file has absolute entry points (P$ symbols) in the system symbol area.

SOLUTION: Segment 4 of RTAGN was changed to enter the P$ symbols as type 0 (system symbols) instead of type 3 (absolute).

SR# 2200023051

PROBLEM: The system common pointer in the snap file header is off if both system common and NLS messages are relocated.

SOLUTION: Segment 4 of RTAGN is changed to do three passes through the symbol table to output the snap file - one for RPLs and ABSs, one for system symbols, and one for system common symbols.

SR# 2200024786

PROBLEM: In a system without class genned in, FMP calls to type 0 files return FMP -17 errors. This is due to XREIO calls getting OP17 errors which used to work just fine.

SOLUTION: The generator is fixed to not update the symbol type of symbols which are already defined when it finds a symbol during a library search.

SR# 2200024968

ENHANCEMENT: The generator is enhanced so the 'NO SYSTEM MESSAGES INCLUDED' warning does not count as an error.

SR# 2200024976

ENHANCEMENT: RTAGN is modified to support the DATAPAIR/1000 product.

SR# 2200025031

ENHANCEMENT: The generator is enhanced to use the space between the end of the system relocation and the start of the OS/driver partitions. Any of the following tables which fit entirely in this space will be placed there (in first come, first served order):
- DVT extensions for LUs which are not in a node list
- the LU table
- the class table
- the resource number table
- ID segments
- memory descriptors
- swap descriptors
- the shared program table
- the system memory block

SR# 2200025270

ENHANCEMENT: The generator now puts its rev.code in word 100B of the generated system. BUILD puts its rev.code in word 101B of the built system and BOOTEX puts its rev.code in word 102B when it processes the system.

2.16.25 HELP

SR# 2200019042

PROBLEM: ?PS help had 2 LK commands. One is actually supposed to be LD.

SOLUTION: Corrected the help file misspelling.

2.16.26 HPIB LIBRARY

SR# 5000067280

PROBLEM: When a call to the HPIB routine CNFG from a Fortran program is made, the program gets lost. This is because the instructions are hardcoded to the current page.

SOLUTION: The Instructions IOR14, IOR15, AND14, and AND15 are moved to ADJLU.

2.16.27 I/O

SR# 2200003723

PROBLEM: The operating system is not write-protecting the system base page in the routine $SETR.

SOLUTION: $SETR routine has been fixed to write-protect the system base page when it is done using it.

SR# 2200015883

PROBLEM: Doing a class get on an empty class with the NoWait and Save Buffer bits set will deallocate the class number. The documentation says it shouldn't.

SOLUTION: The problem is in $G.CL in the CLASS module at entry point G.065. The logic of checking the bits was incorrect.

SR# 2200019547

PROBLEM: If a rethreaded request is sent to a spooled device, the system will crash. Here is a detailed description of how the problem occurs. In RTIOA rev C.83 at L.140 the system expects source SAM class block to be in T6 and destination SAM class block to be in XBLK. However code at L.03(line 862) says if rethread then jump around SAM setup($alc) of T6 and XBLK areas. This is done by jumping from L.132 to L.134 to L.140 which trashes SAM. In this case, because XBLK is zero, it writes in the first locations of SAM.

SOLUTION: At DSD4.0, the system no longer crashes, however some requests will still fail to complete. This will be addressed in the next update. Note that the fix is truly in &IORQ which used to be part of &RTIOA.

SR# 2200020024

PROBLEM: If a program makes a nonbuffered normal or class request to a spooled device, when the program terminates, it will stay in the ABORT IN PROCESS state forever. At update A.85, IORQ (I/O ReQuest module) started bumping a counter for nonbuffered class requests. However, spooled requests are always buffered so the counter was erroneously being bumped.

SOLUTION: When a request is converted to a spool request, IORQ now strips out the buffered bit. Note that IORQ used to be a part of RTIOA.

SR# 2200021857

PROBLEM: Typing 'UP 14' to the RTE: prompt gets the message 'Usage: UP LU'. From RTE: the correct usage is 'UP,LU'

SOLUTION: All of the 'Usage:' messages that come from the OS are changed at the DSD 4.0 revision to include the commas.

SR# 2200022244

PROBLEM: If a request is made to an interface driver whose select code is equal to zero, the code that calls the interface driver will not work. P.DVR in RTIOA bypasses the code that sets up the return address if the select code is zero.

SOLUTION: This is fixed in DSD 4.0.

SR# 2200025361

PROBLEM: When a CDS program that uses EMA passes a buffer to the I/O system that lies in between the end of the partition and the MSEG, no error is returned. When doing the comparison for an illegal buffer, $VBUF should compare with 077777b as well as 177777b.

SOLUTION: This will be fixed at the DSD4.0 update.

SR# 2200026070

PROBLEM: A system can go into an infinite loop when it tries to set up the map registers for a request. The I/O system does not reset the L bit in the DVT when it dequeues a request at Logical Done. If a request is queued on the DVT but has not been initiated and an unsolicited interrupt comes in from the device, if the physical driver sends the interrupt to the logical driver, this causes the logical driver to initiate the physical, $SETR will look at the L bit which is no longer valid.

SOLUTION: This fix is in the module RTIOA.

SR# 2200030692

PROBLEM: If a device driver creates a dummy request and sends it to the interface driver when there aren't any real requests on the device, and then an error occurs on the interface, the error message will be sent to the LU specified by the bottom eight bits of trap cell 28 decimal (regardless of what type of device that is). This can be caused by tape unloads or head alignment requests from the CS/80 drives. The result can be as minor as error messages not being reported, or as severe as the error message being put on top of a disc's

bitmap. Logical Done in RTIOA did not expect to see an error if there was not a request on the DVT (lower fifteen bits of DVT2 being zero). It treated the zero as an ID segment address and added 28 to get to $CON. Then the error message was dumped to this LU.

SOLUTION: RTIOA now checks to see if there is not a request and if so, treats the error handling the same as if it were an XSIO request (the error message will be sent to the system console). This fix will be in DSD 4.0.

SR# 2200019992

NOTE: FmpReportError now does not set the "no suspend bit" in the Exec call to the LU. This will cause the program to suspend if the LU is locked rather than just throw away the error message.

2.16.28 ID*37

SR# 2200010314

PROBLEM: A serial poll timeout could cause the HP-IB to hang.
SOLUTION: The driver is fixed to correctly check the flag. SPD (serial poll disable) is now sent to the interface card on an abort sequence in case an SPE (serial poll enable) had been sent.

SR# 2200017459

PROBLEM: The SRQ enable/disable flag used by control requests (subfunction 30b and 31b) is stored in the driver code instead of the IFT extension. In systems with multiple HP-IB cards, this causes all cards to be enabled or disabled.
SOLUTION: The flag is now stored in the IFT extension.

SR# 2200017822

PROBLEM: In the past, parallel poll would always occur, whether PPoll devices existed or not. The driver normally masks out PPoll interrupts if no PPoll devices reside on the bus. The masking of the PPoll interrupt prevents the new HP-IB chips (ABI and Medusa) from issuing a PPoll. However, when interrupt status is retrieved, all

interrupts are unmasked. This allowed a PPoll to be issued when PPoll is to be turned off.

SOLUTION: The interrupt status routine (STAT2) in the driver is changed to enable the PPoll interrupt only if PPoll devices are present.

SR# 5000058610

PROBLEM: The ID*37 control 0B request is supposed to send an SDC (selected device clear) if parm2 is 0; it is supposed to send an IFC (interface clear) and an SDC if parm2 is non-zero. In the second case only the IFC was sent.

SOLUTION: ID*37 is changed to always send an SDC. If parm2 is non-zero, an IFC is sent first.

SR# NONE

PROBLEM: This problem really consisted of two parts. The first problem is a lack of extended status. The second part of the problem lies with the PSTAT routine in the driver. When getting dynamic status, the high order bits in the HP-IB chip status register are altered because the read clocks the high order bits into the status word.

SOLUTION: For the first part: extended status information is now posted at the end of most read and write requests. For the second part: The order in which the HP-IB chip registers are read has been rearranged.

SR# NONE

ENHANCEMENT: Changes are made to ID*37 to improve its performance and supportability. 1) Additional comments are added. 2) IFTX space is rearranged to place pointers to single item entries in a group. This allows the SETP instruction to set up pointers. 3) Moved code which places data in IFTX from driver pointer setup to first time code initialization. This only needs to happen once in the life of the system. 4) Removed unneeded saving of registers from DSRQ, PP?, ESRQ, and CFLG. 5) ID*37 now uses the base page constants used by RTE-A to reduce driver code space and the number of base page links. 6) Added a check to ensure the IFTX area is large enough. If the IFTX were too small the driver would write over other I/O tables and cause unpredictable results. An IO-12 (IO-GE) error is now returned to indicate a generation problem.

2.16.29 ID*50

SR# 5000067355

PROBLEM: If ID*50 is set up for program scheduling on an interrupt from the user device, and the program has been off'ed, ID*50 would go ahead and call $LIST to schedule the program anyway. Depending upon the status of the id segment previously used by the program, the wrong program could be scheduled, or RTE-A could crash.

SOLUTION: ID*50 is modified to save the program name as well as id segment address. The program name is checked if the sequence counter has been incremented, to insure that the program still owns the id segment. The IFT Extension area is changed from 6 words to 9 words.

SR# 5000062174

ENHANCEMENT: If a user device wants to use the PIC for reads/writes and asynchronous interrupts, AND the user device has device command and device flag tied together, then in certain configurations, the PIC would generate constant interrupts. This is because the user device treats device command assertion for interrupt the same as for read/write, i.e. immediate device flag, which generates an interrupt. To allow devices of this type to generate asynchronous interrupts, bit 7 of DVT parameter word 2 is now defined. When this bit is set, a CLF 30B will be issued before the interrupt system is re-enabled. This has the effect of cancelling the device flag(generated by device command tied to device flag) before the system sees the flag. The device can then assert device flag (or ST0 if IRQEN in register 31 is set) to signal an asynchronous interrupt. When bit 7 is clear, no CLF 30B is issued. Bit 7 should only be set for PIC devices having device command tied to device flag. If bit 7 is set in other instances, the PIC may lose an interrupt from the device. User devices should use ST0-ST4 to signal the device whether a read, write, or arm for interrupt is the reason for device command being asserted.

2.16.30 INTRINSIC ROUTINES

SR# 2200058362

PROBLEM: ISIGN(IA,IB) where IA and IB are single integer arguments return a result of 0 when IA=3 and IB=0. By definition, the result should be 3.

SOLUTION: The code is changed to return the correct value.

2.16.31 LIBRARY FUNCTIONS

SR# 2200002675

PROBLEM: RHPAR fails to return runstrings if a program terminates saving resources and then gets scheduled in the normal way. On the second call to RHPAR the routine checks to see if it has been called before; if so, it does not bother to collect the runstring that was passed. Since the program terminated saving resources, the second string will not be given to it.

SOLUTION: RHPAR is changed to call EXEC for the runstring on each entry. If EXEC returns a zero length string, RHPAR assumes the string it got last time (or some prior time) is still valid and uses it. This allows the user to use RHPAR for strings which result from a son program returning as well as the terminate saving resources condition.

SR# 5000045187

PROBLEM: When the ELAPSEDTIME subroutine is used across midnight, an incorrect value is returned.

SOLUTION: ElapsedTime is calculated as (the current time of day) - (the time of day when ResetTimer was last called). The problem is fixed by putting a check in ElapsedTime to detect if the elapsed time that is calculated is less than zero. If so, 24 hours (in miliseconds) is added to the result because the system time has crossed midnight to a new day.

SR# NONE

ENHANCEMENT: Enhanced system library to contain &BLDNM and DAYS70. &BLDNM builds the file names for the language processors, that is the source name and specified list, relocatable, etc.

DAYS70 takes a date code string and returns the integer number of days since 1970.

2.16.32 LIF

SR# 2200007849
SR# 2200009324

PROBLEM: The LIF utility program, used for transfering files from HP/1000 systems to HP/9000 systems, will not initialize a CS/80 tape prior to storing files on the tape.

SOLUTION: LIF now accepts CS/80 tapes which are used in FC format.

SR# 5000078675

PROBLEM: LIF does not work at A.85. The LIF utility aborts due to the $OPSY call returning an unknown system code.

SOLUTION: Changed opsys check to accept RTE-A rev. A.85.

2.16.33 LINK

SR# 2200020842

PROBLEM: If LINK encounters problems while creating or writing to a list file (e.g. a non-existent directory), the message "Error on list file" is displayed many times. In the meantime, LINK does output the listing to the user's terminal.

SOLUTION: LINK now recognizes whether or not the list file is valid. If an error occurs, the listing is redirected to the user's terminal.

SR# 2200023911

PROBLEM: The RPL's $$$LARGEMA1$$$ and $$$LARGEMA2$$$ are not being initialized properly when EMA is not assigned. This affects the EMA_LIMITS routine (part of Native Language Support).

SOLUTION: LINK now sets $$$LARGEMA1$$$ to zero in this case.

SR# 2200026856

PROBLEM: Simple EMA variable does not produce the correct symbol table records for Symbolic Debug. Thus Symbolic Debug cannot display EMA variables ("address out of range" error) because LINK built the .DBG file incorrectly.

SOLUTION: Link now correctly computes the EMA variable addresses and passes the the correct information to Symbolic Debug.

SR# 2200027474

PROBLEM: LINK sets the MSEG size of a program incorrectly. If the program being loaded requests an MSEG size of 2 or more (i.e. the $MSEG directive in FTN7X), LINK makes the MSEG one page too small. Programs which use Vector Instruction Set firmware routines require the specification of MSEG, and therefore abort with EM87 errors (MSEG too small).

SOLUTION: LINK now uses the MSEG value specified in the program.

SR# NONE

PROBLEM: LINK uses an EXEC call to read commands, preventing itself from being swapped.

SOLUTION: An REIO call is now used.

SR# NONE

PROBLEM: The "duplicate entry point" warning (#139) is always reported when a module containing both code and RPL's is searched, confusing the user as to whether or not the program is loaded correctly.

SOLUTION: LINK now recognizes this case and does not issue a warning.

SR# NONE

ENHANCEMENT: RPL's are now given special treatment in "duplicate entry point" situations during (pass 1) linking:

1) If an RPL is relocated, it may be replaced by another RPL of a different value (but same name);
2) If an RPL is relocated, it may be replaced by a non-RPL (ENT or XENT) of the same name.

In both situations, a warning will be issued:

"Warning #141: RPL value replaced: entry_point_name"

SR# NONE

ENHANCEMENT: A new command has been added to LINK so that a single module can be relocated from a file which may contain multiple modules. The syntax of the command is

"rm filename symbolname"

where symbolname is an entry point for the desired module. If the file is indexed (with LINDX), the index is used to locate quickly the desired module; otherwise the file is searched in a linear fashion.

This command provides additional flexibility for loading programs:

1) It can be used to extract software versions of routines from a system library, which may be helpful in determining whether or not firmware is working (or installed). For example:

"rm $6sylb .imap" (software equivalent of a VMA routine)

2) When combined with the LINK "if" command, a LINK command file can be created as follows:

```
re %prog
if 6 rm %library sub6
if a rm %library suba
en
```

3) LINK can be used to determine the external references of a particular module:

```
CI.86> link
link Rev.2540     Use ? for help
link: rm $fmp6 fmpopen
```

```
FMPOPEN
link: di
  Undefined symbols:
 .SST  .ENTR   .NFEX   LURQ  FMPASKDDOT  FMPCLOSE
link:
```

2.16.34 MACRO

SR# 2200003780

PROBLEM: When you use the S (Symbolic Debug) option in the MACRO runstring to override options in the source file, the S does not appear in the MACRO line in the listing. Debug still works correctly.

SOLUTION: MACRO is changed to include the DEBUG option in the built control statement. (Note that the D option comes out as S because they are the same.)

SR# 2200010611

PROBLEM: Macro aborts with an MP error if there are incorrect literal values.

SOLUTION: The literal processor is changed to pass back dummy values in both A and B in the error case, allowing assembly to continue.

SR# 2200021261

PROBLEM: If the O option is used to create old relocatables and OLDRE is not available, MACRO complains, but does not count it as an error. As a result, a program that schedules MACRO would be ignorant of any errors.

SOLUTION: MACR7 is modified to bump the error count on the schedule error.

SR# 5000021378

PROBLEM: The MACRO manual says that - DEF =F39.25 should work, but an ERROR 321 is generated.

SOLUTION: MACR2 and MACR3 are changed to allow =F literals as well as others in the DEF opcode.

SR# 5000034231

PROBLEM: In REV A.85 and earlier the MACRO assembler puts all the source in the swap file in spite of the fact that there is conditonal code assembly (i.e. AIF,AELSEIF) and macros. All of the macros are placed in the swap file. The swap file is extremely large. In one case the swap file on the scratch cartridge took 750 tracks while the eventual program was only 2000 words. This user had a library with over 40 macros. The swap file should contain only the generated code with the macros that are needed.

SOLUTION: MACR1 has been changed to not keep unneeded lines in the IF file.

SR# 5000071647

PROBLEM: The include statment in a macro compilation allows a total of 32 characters in an include file name.

SOLUTION: Fixed in MACR1 to allow the full 64 character file names.

SR# 2200014324

ENHANCEMENT: MACRO/1000 has been changed to have a source name alias feature.

This name is used by DEBUG/1000 to identify the correct file and display it when the original source is Pascal or any other language which uses MACRO as its final pass.

MACRO has been enhanced to recognize an extension to the MACRO control statement of the form: +SF=file name. This file name will then be put in the NAM records of all modules assembled under this MACRO control statement. In order to allow room for this enhancement on the line, MACRO now handles continue lines on the control statement (except for macro library M runs).

At the same time the MACRO control statement has been enhanced to allow Pascal (and other higher level languages using MACRO as a final pass) to pass MACRO a version number to be put in the NAM record. The form of

this extension is: +DC=<850802 where the '<' is optional and the date is the version number. This number is converted to days since 1970 and put in NAM record word 24. MACRO puts its version number in word 23.

Further enhancements for Pascal and others are as follows. Two new unary operators are defined:

:SY:expression	Returns the external symbol number of the expression or 0 if the expression does not result in an external reference.
:MR:expression	Returns the relocatability of the expression as an integer as follows: 0 - Absolute 1 - Program relocatable 2 - Base page relocatable 3 - Common relocatable (blank common) 4 - Pure code relocatable 5 - EMA relocatable (local EMA) 6 - Save relocatable 7 - External 9 - Allocate EMA 10 - Allocate SAVE 12 - Allocate COMMON 20 - Two or more of the above.

In both cases the <expression> must meet the definability rules of the opcode with which it is used (e.g. if used with EQU it must be defined when found in pass 2; if used with ABS, it must be defined by pass 3).

MACR4, MACR5, and MACR6 were changed to have the same date code as the rest of the MACRO modules.

2.16.35 MATH ROUTINES

SR# 2200010595

PROBLEM: 'JSB .XFXD' library call causes UI violation error on A900 because there is a sharing of code that doesn't work with the microcode version of the library.

SOLUTION: The routine .XFXD has been recoded to call .DTBL (convert to *8) and .TFXD (convert *8 real to *4 integer).

SR# 5000032763

PROBLEM: System routine DDINT does not work on A900 as documented. Real*6 DDINT fails on all neg. fractional powers of 2, e.g. -1/2, -1/4, -1/8, etc. This problem occurs only with DDINT for REAL*6 arguments. AINT for REAL*4 and DDINT for REAL*8 work fine.

SOLUTION: DDINT depends on a flag passed back from ENTIX. ENTIX was setting the flag incorrectly on negative fractional powers of two. ENTIX is changed to properly set the flag.

SR# 5000078808

PROBLEM: Math library routine DSINH (.DSNH) when evaluated with argument = 0.0d0 should return 0.0d0 . However what is returned into the four words that comprise the double precision result is 000000b,000000b,000000b,177776b.

SOLUTION: The routine (.DSNH) divides the result by 2 by subtracting 2 from the exponent... without checking for 0 first. The missing test for zero result has been added before the subtract.

2.16.36 MEMORY MANAGER

SR# 2200019158

PROBLEM: Intermittently, the system would hang in $sharepr of the MEMRY module when the priority of a shared program was lowered (increase number). The reason is that $sharepr is not called properly from $list in PROGS. The A and B registers are not set up with correct values.

SOLUTION: This is fixed in DSD4.0 update.

SR# 2200024687

PROBLEM: When a copy of a shared CDS program is loaded (one is already in memory) the code partition gets the priority of the program that was just loaded. Actually, the priority in the ID segment of the highest priority shared program should be used. This is caused by $SORL (Swap Or Load) not searching for the ID segment with the

highest priority before assigning a priority.

SOLUTION: $SORL (Swap Or Load) now calls a routine called $SWPR (SWitch PRiority) which determines the proper priority for the program.

SR# 5000006353

PROBLEM: When DEBUG is run on CDS programs, WHZAT shows that both the data and code partition are memory locked. However the code partition can be swapped out if another program needs the partition. When the program is swapped back in, WHZAT shows that the code partition is no longer memory locked. The problem is that the $MAPS routine in EXEC did not clear the OV bit (set in LOAD) when a new segment is brought in off the disc.

SOLUTION: Changed $MAPS code to clear the OV bit before the program is dispatched.

SR# 5000016345

PROBLEM: CDS programs will usually not run on discs that have 64 sectors per track.

SOLUTION: This is fixed at DSD 4.0.

SR# 5000060863

PROBLEM: System hangs when two large CDS shared programs are running. One easy way to reproduce this is to use Pascal. Run WHZAT to find that both data partitions are in memory (131 pages each) and the code partition (361 pages) is swapped out.

SOLUTION: The problem is in the operating system module MEMRY. The check to make sure that a sister code partition was not overlayed with its respective data partition was done incorrectly. Due to the large sizes of the PASCOMP code and data segments, the code partition would be overlayed with a data segment; then the data segement would need to be swapped out to make room for the code segment. At best this resulted in much thrashing and at worst a deadlock situation where there would not be enough room in the swap file to swap the data partition out so that the code could be brought in. In this case the PASCAL compiler would appear to completely die. We have fixed the code.

2.16.37 MESSS

SR# 2200024067

PROBLEM: The routine CHNGPR does not work. It will return good status without changing the priority of the program. CHNGPR calls MESSS with the length parameter stored in the B register. A fix to MESSS at the A.85 revision caused this to stop working.

SOLUTION: MESSS will once again be able to use the B register for the length parameter at revision DSD4.0.

2.16.38 MI2AB

SR# 2200020495

PROBLEM: MI2AB would erroneously report FMP error -209 (no such directory) or -15 (illegal filename) if the input file name had an even length. MI2AB was not using the string length information returned by GETST or REIO.

SOLUTION: MI2AB now uses the actual length of the passed string.

2.16.39 MODEM

SR# 2200008706

PROBLEM: The program MODEM aborts the IMAGE-II monitor DBMON. If a modem connection is broken, roll back recovery is forced on all open databases.

SOLUTION: MODEM is updated to special-case the program DBMON when disconnecting.

2.16.40 MULTIUSER/SESSION

SR# 2200015768

PROBLEM: Sessions can exist in RTE-A with two or more programs having the same name. The ATACH and DTACH routines do not check a program's future session for this problem before moving it into the session.

SOLUTION: ATACH and DTACH now call the subroutine ProgramsId to determine if a program with the same name already exists in the session to which the program is being ATACH'ed or DTACH'ed. If one does exist, a -5 error is returned, and the ATACH/DTACH call is not successful. To access this error return with all forms of DTACH, use DTACH as a function call, rather than a subroutine call.

SR# 2200017038

PROBLEM: Long passwords are not correctly handled.

SOLUTION: The maximum length of passwords has been changed from 16 characters to 14 characters.

SR# 2200018796

PROBLEM: The SearchTable routine is used to find a user ID entry with a certain value in a certain word or portion of the word (superuser bit = 1, for example). It is possible that the value searched for is found in a table entry that was not in use. That is, the entry is filled with garbage left over from a previous session. The caller might then start manipulating this entry, or give information based on this entry, which is all invalid information.

SOLUTION: Modified SearchTable to return a user ID table entry only if the table entry is in use. One exception to this is when the status is being checked. In this case, the caller is looking at the status to see if it is 0, so an unused entry can be returned.

SR# 2200022939

PROBLEM: Dormant, non-time-scheduled system utilities are not

removed from a user's session when the user logs off. Depending on how the utility functions, as of update A.85, SAM can be corrupted if that utility runs in that nonexistent session.

SOLUTION: When a session terminates, the OS ($DECPC routine) cleans up all RP'ed programs belonging to the session. Non-system utilities have their ID segments removed (as done previous to this update). System utilities are attached to the SYSTEM session (instead of remaining in this now dormant session).

SR# 2200023234

PROBLEM: GetResetInfo may encounter problems when opening a seemingly good user configuration file. This problem is caused by GetResetInfo assuming a string of a certain length being passed by the caller. GetResetInfo then accesses the actual string and some information that comes after it in the program's memory. This information is usually harmless, but in some cases is interpreted to be file information.

SOLUTION: Modified GetResetInfo to use the string as declared by the caller. That is, no string length is assumed.

SR# 2200025106

PROBLEM: LOGON calls ATCRT to set the terminal lu in the $CON word of its ID segment to the session number it is accessing. If this is a programmatic session, this is not a valid lu number. If LOGON aborts with this value in $CON, the system crashes.

SOLUTION: ATCRT now checks the "lu" value passed. If it is larger than any lu genned into the system, lu 1 is put in as the caller's terminal lu value in the program ID segment.

SR# 2200025239

PROBLEM: System processes, not just superusers, should be able to atach/dtach programs in other sessions.

SOLUTION: Now system processes residing in a non-superuser session can atach/dtach programs in another session.

SR# 5000051144

PROBLEM: RTE-A VC+ system does not give user ability to fix problems when system runs out of SAM. User is given prompt (CM> or SYSTEM>), but anything the user enters is ignored because there is no room in SAM to save the input.

SOLUTION: PROMT now detects when the system is out of SAM (its class I/O requests fail). The multiuser system is disabled. Attempts to access CM, LOGON, or the SYSTEM> prompt are responded with an out of SAM error message. RTE is made available (RTE: prompt) at lu 1 or at the interrupting lu if lu 1 is not available. PROMT also starts up RESTR, a utility that will restore the system to normal multiuser operations once you have fixed the SAM problem. The SAM problem can be fixed (by you) by releasing blocks of SAM. You can do this by offing the offending program(s), for example. Once this has been done, enter GO,RESTR. To prepare for this situation, RP RESTR, SAM, and WH when you boot your system. They will be most useful in fixing the problem should it occur.

2.16.41 OLDRE

SR# NONE

ENHANCEMENT: The OLDRE routine now has a version that works with the CI file system. This is now the standard version on RTE-6/VM and RTE-A.

2.16.42 OPERATING SYSTEM

SR# 2200020529

PROBLEM: $.CLA entry point is missing from dummy OS CLASS module, CLA..

SOLUTION: This is fixed in the DSD 4.0 update.

2.16.43 PARITY ERROR

SR# 2200027458

PROBLEM: The PERR module does not mask off the high byte of the parity error register when it is loaded in, which contains syndrome bits or other garbage. This causes the memory manager to try to down a non-existent page in some circumstances.

SOLUTION: The code now masks off the garbage bits before reporting the offending page.

2.16.44 PHYSICAL BACKUP

SR# 5000065722

PROBLEM: When doing two unit restores, some of the files from the second tape are written to the first disc unit.

SOLUTION: Table inside ARSTR will now be initialized before every restore operation.

SR# NONE

PROBLEM: ASAVE and ARSTR report an internal error when a mirrored volume LU is specified to be saved or restored.

SOLUTION: ASAVE and ARSTR are changed to check for mirrored volume disc LUs and issue either an error or a warning. ASAVE and ARSTR now access LUs greater than 63 because all EXEC 1, 2, and 13 calls are changed to XLUEX calls.

SR# 5000051342

ENHANCEMENT: CSYS has been enhanced to optionally place ASAVE/ARSTR header and trailer records around a VCP bootable file on CTD. This will allow ASAVE to append to a tape containing a memory based system. The "SA:<next-file-number>" option has been added to CSYS.

2.16.45 POWER FAIL

SR# 2200033480

PROBLEM: When a A.85 system gets a power fail warning, but does not actually lose power, the system is likely to crash. The reason is that bit 15 in the powerfail IFT word 7 is being set with the E-register value present when the powerfail occurred, rather than being unconditionally set to force a continuation entry.

SOLUTION: Cause IFT word 7 to have bit 15 set in some other way.

2.16.46 PRIMARY

SR# 2200021881

PROBLEM: The primary answer file has comments for all the DS modules which must be included when adding DS with the exception of %ID.66. This comment should be added. ie. * RE,%ID.66::A3 ,,, include for DS!

SOLUTION: Corrected in DSD4.0.

SR# 2200022020

PROBLEM: #ANS, the answer file shipped with the RTE-A product, does not match the primary system in that the disc layout of the Micro 1000 internal disc is changed from 4 LU's (55, 56, 57, 58) to 2 LU's (55, 56)

SOLUTION: Fix to this problem is in the DSD 4.0 update.

2.16.47 PRINT

SR# 2200023960

PROBLEM: The message "LU xx is locked to program xxxxx" is not displayed correctly.

SOLUTION: The message has been corrected.

2.16.48 RESOURCE NUMBERS

SR# 2200013250

PROBLEM: RNRQ does not always set the STATUS variable. With some errors, the A and B registers are set to RNxx, but STATUS is not set.

SOLUTION: The RNRQ routine has been modified to solve this problem. RNRQ now checks for the parameters passed. The status parameter is now optional. If present, it will always be set accordingly. The A&B register will now return an RN01 error code to indicate the wrong number of parameters was specified. The manuals have been updated to reflect these changes.

2.16.49 SYSTEM LIBRARY

SR# 5000079160

PROBLEM: Fortran CDS EMA programs are aborting with MP, DM, UI, or sometimes just quitting when they are doing Fortran I/O. One early symptom is getting duplicate entry point warnings during Link. The problem occurs in programs doing Fortran I/O with EMA variables where, during Link, a non-CDS system format routine requires entry points that need to be satisfied with a CDS system format routine. Link, currently scanning the non-CDS library, attempts to bring in the non-CDS module which satisfies these references resulting in duplicate entry point warnings and a non-performing program. The routines that are giving us problems are the non-CDS routine .IAV. trying to pull in the cds routine .IAY., but getting the non-CDS .IIO. instead.

SOLUTION: The problem with .IAV. has been solved by creating a CDS version !IAV which has been placed in $FCDS. The nonCDS routine .IAV. has been removed from $6SYLB and $SYSLB and placed into $FLIB. This fix is in DSD 4.0.

2.16.50 SYSTEM MESSAGES

SR# 2200018523

PROBLEM: The current segment number in the ID segment is not always correct, so sometimes the wrong segment number is printed in abort messages.

SOLUTION: ERLOG has been modified to obtain the current segment number from page 0 of the user code segment.

2.16.51 SYSTEM PARTITIONING

SR# 2200024950

PROBLEM: There is a call to $scmsg in the LOAD module. LOAD is a partitionable module and $scmsg is a 4-parameter subroutine, which is not partitionable.

SOLUTION: The LOAD module now calls $printer in UTIL, which makes the $SCMSG call.

SR# 2200025049

PROBLEM: The LOAD module is missing an OS,EX GEN record for the $XEQ5 entry point, requiring that the LOAD and MEMRY modules be relocated in a particular order.

SOLUTION: The LOAD module now has an OS,EX record for the $XEQ5 entry point, and thus MEMRY and LOAD can be relocated in any order in your system GEN.

SR# 2200024984

ENHANCEMENT: The RTIOA, EXEC and IOMOD modules are so large that they are consuming base page links unnecessarily. These modules are now divided into 8 modules:

ABORT - Handles EXEC 6, EXEC 7, and abort processing
EXEC - Handles all interrupts, privileged mode, and initial EXEC

processing
IOMOD - Contains the code for linking and unlinking I/O requests. buffer limit checks, and I/O abort processing
IORQ - Does initial I/O request processing
MAPS - Contains the code pertaining to the dynamic mapping syst
PROGS - Contains the code for program scheduling
RTIOA - Contains the code for logical and physical drivers
UTIL - Contains everything else; includes the startup code, system global variables, unpartitionable parts of other modules, and various utility routines

SR# 5000006387

ENHANCEMENT: In order to have more room in the system map, we have partitioned the CLASS, IORQ, TIME, and LOCK modules, in addition to those partitioned at A.85. Also, more base page links have been freed up. Please also see SR#2200024984.

2.16.52 Scheduling

SR# 2200015156

PROBLEM: When the parent program schedules and terminates a child program at a high rate, MP, UI, and SC04 errors occur. If the parent is of higher priority than the child, the problem goes away.

SOLUTION: EXEC 6 was not setting the son's OFf bit in the case where the son is in the process of being loaded from disc and the father terminates it. The load would be aborted, but the son would not be removed from the schedule list. Eventually the son would be run but it would not be in memory properly, leading to errors. The son's OFf bit is now being set in this case. By setting the OFf bit, the $ZLST routine is later called (after the load abort completes) which leads to the son being aborted (removed from the schedule list).

SR# 2200016824

PROBLEM: EXEC 12 scheduling with an execution multiple of > 2047 does not work properly.

SOLUTION: Modified mask in &TIME module to access the full 12 bits of the "multiple for resolution" field from the

program's ID segment. Previously, the most significant bit was lost.

SR# 2200020354

PROBLEM: AT command would cause the user's number of programs counter to be corrupted if the user time scheduled a system utility that resided in another session.

SOLUTION: Modify ON.. and TIME to handle this special case correctly.

SR# 2200024182

PROBLEM: If a parent program does an EXEC 6 call on child program, the EXEC 6 does not terminate the child program if it is I/O suspended.

SOLUTION: An error in the EXEC 6 code in the operating system caused this problem. The program's OF bit was not being set properly so the program did not terminate once the I/O request was flushed. The OF bit is now set as needed.

2.16.53 TF

SR# 2200009704

PROBLEM: TF aborts without a meaningful error message while restoring files from a tape if a file called "xx".dir is on the tape.

SOLUTION: When TF tries to backup a FMGR file called "xx".dir, it converts the "." to a "*". This prevents any of these files from ever getting on the tape in the first place. If TF is restoring an FC tape with such a file, it no longer treats the file as a directory. In this case you can get an FMP error, but the rest of the files on the tape can be accessed.

SR# 5000023325

PROBLEM: TF group command causes an error if a 'C' or 'V' option is specified on some of the copy commands (in the group), while some of the other copy commands have no options specified at all.

SOLUTION: The 'C' and 'V' options both set the VERIFY flag for the

entire group, so TF is assuming that each line must have had an option in it since one of the option flags is set. Using TRIMLEN, a reference is made to the 0th location of a string that had a first location of 1. A simple check for the current number of options prevents the bad reference.

SR# 5000046011

PROBLEM: TF prints in column 1 which messes up the carriage control information for the printer when the list device is the printer LU.

SOLUTION: A call to FmpSetIoOptions is used to set the V bit in case the LL command references a device.

SR# 2200008136

ENHANCEMENT: In a multitape backup, TF takes all but the last tape offline when it is done rewinding.

SR# 2200013193

ENHANCEMENT: The LL command now applies to the CO (copy) command, not just the DL command.

SR# 2200019075

ENHANCEMENT: UNIX binary files being restored are now created to their actual size as a type 1 file.

SR# 2200019091

ENHANCEMENT: TF pads in zeros at the end of the last block of data for UNIX binary files.

SR# 2200021410

ENHANCEMENT: When restoring a file or set of files to a global directory that does not exist, the directory will be created on the LU it previously existed on, if possible.

SR# 2200021485

ENHANCEMENT: TF now accepts the 'C' option to clear the backup bit when restoring files.

SR# 2200022897

ENHANCEMENT: TF now rewinds after each tape in a multiple tape restore.

SR# 5000021550

ENHANCEMENT: A second EOF mark is added at the end of the tape.

2.16.54 TIME

SR# 5000044727

PROBLEM: If a programs is scheduled to run tomorrow (after midnight) and the system time is changed to be past midnight, the program's time to execute is altered incorrectly.

SOLUTION: Modified &TIME (FIXIT routine) to check for the special case of system time being changed to be past midnight when there are time-relative scheduled programs to run after midnight. If this is the case, the execution time is modified appropriately to run within the next 24 hours (since you can schedule only within the next 24 hours).

2.16.55 VMA

SR# 2200006734

PROBLEM: VMAOpen with the "T" option invariably causes an error return of -15 (illegal name) or -6 (no such file). The name is ignored in the VMAOpen. Instead a scratch file name is produced. This name has imbedded blanks which cause the error when D.RTR is asked to open the file.

SOLUTION: VMAOpen is changed to use the name specified. If the name field is blank, or if this is a temporary file and a directory was not specified and the working directory is not set, it will use the options specified, but create it's own name.

SR# 2200009050

PROBLEM: When the working directory is 0 (WD = 0) and a scratch CRN has not been specified (SC), the backing store file created for a VMA program is placed on the first FMGR

CRN. The BSF namr is a legal filename and the BSF is not purged on completion of the VMA program. The BSF name should be an illegal filename and the BSF should be purged on program completion.

SOLUTION: When a scratch cartridge has not been specified ($SCRN=0) and the working directory is not set (Words 10 and 11 in the UID are -1) then create an illegal file name. This code is in &VMA. Fixed at revision DSD4.0.

SR# 2200025437

PROBLEM: VMAOPEN has problems using odd length filenames and options sometimes. It is using arithmetic shifts on byte addresses to convert them to word addresses. This causes string buffers that are located in the the range from 16k to 24k in the program to be accessed incorrectly.

SOLUTION: This is fixed in the DSD 4.0 update.

2.17 (92080A) Datacap/1000-II

2.17.1 Aborts

SR# NONE

PROBLEM: In normal operations, Datacap may experience normal but fatal errors from time to time, such as when a dataset is full. When this happens, Datacap should shut down gracefully. Instead, it was doing an MP.

SOLUTION: The abort processor was modified to shut down gracefully.

2.17.2 DCRCV

SR# C700022723

PROBLEM: The INCLUDE option within DCRCV does not always work (as is the case with other options). Algorithms for time stamp checking were being done incorrectly.

SOLUTION: The checks of time stamp conditioning were changed in DCRCV to fix this.

2.17.3 Error Messages

SR# 5000096651

PROBLEM: When a terminal sends back a status in error when doing an assigned transaction during transaction startup, the potential for a TMP 51 exists. This will cause the entire runtime system to be shut down.

SOLUTION: ZTMP was modified to trap on the --30-- error, and set itself in a state such that it doesn't think it is to start up a particular transaction. It will then ask for a transaction as if none were assigned, and the potential for the TMP 51 is eliminated.

SR# NONE

PROBLEM: Datacap would abort intermittently with a TMS 29 error when devices would go down with an IONR.

SOLUTION: When a device goes down, an attempt to UP the LU is tried.

SR# NONE

PROBLEM: When doing simple disc file storage on an RTE-VI system, TMP 99 Internal error 620 ** -5 would occur.

SOLUTION: The problem deals with values in the DCB for the disc file. FMP format has changed, and this is now reflected in Datacap's manipulation of the DCB. The problem was introduced at REV.2340 of RTE-VI.

2.17.4 Undefined Externals

SR# NONE

PROBLEM: Image now has 2 versions of the READ routine, DBDRT and DBRED. One of these must be merged into $DBMS1 along with %DBMS and %LOCAL.

SOLUTION: #DCIML is the merge file for $DBMS1, and it has been updated for this modification.

2.18 (92081A) Image/1000-II

2.18.1 +DBCON

SR# 2200023291

PROBLEM: When the +DBCON file is created on RTE-6, it has the initial default protection of RW/R. When IMAGE is started, DBMON becomes part of system session which has no write access to the file +DBCON, hence DBMON quits.

SOLUTION: When creating +DBCON on RTE-6, Image sets its protections to RW/RW to allow system session programs to have read/write access.

2.18.2 Backup Utilities

SR# 2200025890

PROBLEM: If the user of a backup utility doesn't respond before the timeout on the terminal elapses, the utility was being terminated.

SOLUTION: The interactive prompt is repeated when the terminal times out instead of terminating the backup utility.

SR# 5000080465

PROBLEM: The IMAGE utilities DBRST and DBLOD attempt to determine

if a file contains any data by making an FmpRecordCount call, however, record count information is only kept for heirarchical files. FMGR files appear to be empty if an FmpRecordCount call is made against them.

SOLUTION: The check to determine if a file is empty has been removed. (It will be found out anyway at the first attempt to read from the file).

2.18.3 Conversion

SR# NONE

ENHANCEMENT: IMAGE/1000-II supported most CI files with the exception of the database root file and data sets at REV. DSD4.0. Now all files may reside on CI volumes.

SR# NONE

ENHANCEMENT: The IMAGE/1000-II root file format has changed to support databases on heirarchical directories. Rather than require databases to be unloaded and reloaded, a utility has been developed to adjust an existing root file to the REV. DSD4.0 format.

2.18.4 DBBLD

SR# NONE

ENHANCEMENT: DBBLD will now open the database with read/write shared access, rather than exclusive access. This will allow other users to read/modify the database while DBBLD is executing.

2.18.5 DBDS

SR# 2200011791

PROBLEM: DBDS often produces vague error messages like 'FMP error', without explaining even what the error number was.

SOLUTION: Made DBDS more informative about errors.

SR# 5000080036

PROBLEM: DBDS places a '1' in column one to force a page eject, then procedes to echo schema lines beginning at column 1, which causes the first character of the schema file to be stripped off when printed on a line printer.

SOLUTION: The code now pads each schema line with a leading blank to insure correct output appears on a printer.

SR# NONE

PROBLEM: Comment printed by DBDS should be reworded more tactfully.

SOLUTION: Reworded comment printed by DBDS.

2.18.6 DBFND

SR# NONE

PROBLEM: The manual states that word 2 of the status array from DBFND will always contain zero, but is actually unchanged.

SOLUTION: Set word 2 of the status array to zero before returning from DBFND.

2.18.7 DBGET

SR# 5000072264

PROBLEM: When using DBGET for a remote database, the returned data is at an address one word higher than expected.

SOLUTION: We fixed an array index in the code which was subscripted one higher than it should be.

2.18.8 DBINF

SR# 5000070235

PROBLEM: If any data set is not accessible to a program (due to opening at some level below the highest), DBINF mode 204

always returns the error 100 (illegal data set reference).

SOLUTION: The code now ignores inaccessible data sets for DBINF mode 204.

2.18.9 DBLCK/DBUNL

SR# NONE

PROBLEM: The example programs sent with the product needed some corrections for locking and use of character data types.

SOLUTION: Corrected the example programs.

2.18.10 DBLOD

SR# 5000104836

PROBLEM: When adding new data items to a data set, DBLOD puts data from the next record into the new items.

SOLUTION: DBLOD now trims the new items from the item list on the DBPUT calls, thus leaving new items as blanks (if character) or zero (if numeric).

2.18.11 DBMEM

SR# 2200024851

PROBLEM: DBMEM does not return the current transaction number in status words 3-4. (Those words are left unchanged by DBMEM)

SOLUTION: DBMEM will now return the current transaction number in words 3-4 of the status array.

2.18.12 DBMON

SR# 2200024554

PROBLEM: DBMON aborts with a VM82 error if the transaction log

fills and the current call being processed is a DBPUT.

SOLUTION: DBMON alters a data set identifier in the DBPUT message it receives. If DBMON needs to recover space in the transaction log file because it is becoming full, it would retry the DBPUT, but would calculate a bad VMA pointer and abort. DBMON no longer alters the original DBPUT message if a retry will be done.

SR# 2200025908

PROBLEM: A re-occurrence of a bug in IMAGE: a program whose session number changes has its IMAGE resources cleaned up, but DBMON continues to accept messages from the program, eventually corrupting the database.

SOLUTION: We fixed DBMON to reject messages from cleaned up programs.

SR# NONE

PROBLEM: Due to DBMON's modifications, its link command file needs to be updated with new WS and VS values.

SOLUTION: Updated DBMON.LOD.

2.18.13 DBOPN

SR# NONE

PROBLEM: The new DBOPN which can handle hierarchical root files grew by over 2700 words due to calls to FmpWorkingDir, FmpParseName and FmpBuildName.

SOLUTION: The extra 2700 words of code are produced by the algorithm for analyzing the root file descriptor and appending it to the working directory(if any). Therefore, the file descriptor analysis code has been isolated in a single module, and a stub called SHORT_DBOPN.REL can be searched or relocated in the application program to avoid the extra code; however, note that the application must pass a fully qualified descriptor of the root file to DBOPN.

2.18.14 DBPUT

SR# 2200030296

PROBLEM: DBPUT does not return chain information in the status array for a put to a detail data set.

SOLUTION: Chain information was not being returned from the routine performing the DBPUT; the information is now returned properly.

2.18.15 DBRFR

SR# 5000096404

PROBLEM: DBRFR incorrectly handles input from a terminal. DBRFR gets the error -11 (DCB not open) when prompting for roll-forward log volume names or database root file names.

SOLUTION: We now use FmpOpen for interactive and disc files. (Previously, interactive devices were treated with special EXEC calls, and were not accessed with standard FMP calls).

2.18.16 DBSPL

SR# 2200023283

PROBLEM: Nothing is written to a magnetic tape that is defined as the roll-forward log. (A macro routine for getting a device LU from the DCB was not changed for the hierarchical DCB format at A.85; a magnetic tape then looked like a bit bucket).

SOLUTION: We changed the device-LU routine to understand the new DCB format.

SR# 2200023622

PROBLEM: Upon reaching the EOF of a roll-forward log file, DBSPL quits and IMAGE shuts down with a 'soft crash' condition. The IMAGE warning log contains the message 'UNEXPECTED IMAGE ERROR'.

SOLUTION: DBSPL is expecting an error 12 (absolute value of the FMP eof-bof error -12), but was receiving the true -12 error code which was 'unexpected'. DBSPL now expects either the true or massaged error code.

SR# 2200023648

PROBLEM: If DBSPL is RP'ed, DBRBR gets a cloned DBSPL which looks to DBRBR as though DBSPL failed to execute, since the real DBSPL ID segment looks dormant. DBRBR then quits with an error.

SOLUTION: FmpRunProgram clones a copy of an RP'ed program if the scheduling string is of the form 'XQ,DBSPL.RUN::PROGRAMS'. If the scheduling string is 'XQ,/PROGRAMS/DBSPL.RUN', then the RP'ed DBSPL will be executed.

2.18.17 DBSTR

SR# 5000086249

PROBLEM: DBSTR is unable to make a backup of a database if more than one tape is required. (FmpRead would not read data past the end-of-tape mark).

SOLUTION: A fix is made to FMP which allows the IMAGE backup utilities to determine how much data was read, even though FMP returns a length of -1 (end-of-tape detected) from the FmpRead call. The patch involves peeking into labeled common /FMPREGS/.

SR# 5000098517

PROBLEM: For multiple tape backups, if the terminal times out while DBSTR is prompting for the next tape to be mounted, DBSTR aborts with error 236 ('user requested abort'). The same symptom shows if a carriage return is done at the prompt.

SOLUTION: The 'mount next tape' algorithm was corrected to re-prompt if the answer to the prompt is not yes or no.

2.18.18 DBUPD

SR# 5000085571

PROBLEM: When performing a DBUPD on a large record (over 3k bytes) the last portion of the record (up to 450 words) is corrupted.

SOLUTION: DBMON has an upper limit of 2062 words for class I/O messages. It should be 2500 words. The last portion of the class message would be lost and random garbage in memory would be written to the database. The code has

been fixed.

2.18.19 DBUTL

SR# 2200034157

PROBLEM: Executing the DBUTL 'RB' command at an RTE-6 system console could result in an error -226 if DBRBR is not RP'ed, or error 8 if RP'ed. The trouble was DBRBR making a PRTN call before closing its files which allowed DBUTL to be executing concurrently with DBRBR.
SOLUTION: DBRBR now makes a PRTN call just before terminating.

SR# 5000083345

PROBLEM: When running DBUTL from a session other than MANAGER.SYS, DBUTL returns error -205 (no write access to file) and quits.
SOLUTION: Same as SR 2200023291, where +DBCON is created with read/write access for owner and others.

SR# 5000084715

PROBLEM: DBUTL schedules the utilities DBRBR and DBRFR using FmpRunProgram. If FmpRunProgram returns an error, DBUTL attempts to write an error message to the user before opening the list file, hence no error message, but DBUTL terminates.
SOLUTION: The code now opens the list file before writing an error message.

SR# 5000041285

ENHANCEMENT: DBUTL causes non-HP terminals to hang due to code which tries to set up for a command stack, assuming the terminal is 'smart'. DBUTL will only attempt to set up a command stack if the input is to be from a terminal. If input is from some non-interactive device or file, no command stack action will be taken.

SR# NONE

ENHANCEMENT: DBUTL will allow blanks and commas to delimit command parameters. (Formerly only commas were allowed).

2.18.20 DD*24

SR# 5000051805

PROBLEM: IMAGE software assumes the only magnetic tape driver is DD*23; IMAGE would not recognize an LU controlled by DD*24 as a magnetic tape.

SOLUTION: It now accepts both DD*23 and DD*24 as magnetic tape drivers.

2.18.21 DEMON

SR# 2200015982

PROBLEM: Both IMAGE/1000-II and CONTROL/1000 have a program called 'DEMON' with different functions; the two subsystems have difficulty co-existing.

SOLUTION: Changed IMAGE's DEMON to a more conventional name: DBCLN

2.18.22 Error Messages

SR# 2200023606

PROBLEM: When IMAGE attempts to allocate a class number and none are available, an incorrect error is returned (138) implying that a class read/write had failed.

SOLUTION: The A-register is now checked after a CLRQ call to allocate a class number, to determine if the allocation succeeded. (Previously, only the abort return would return the correct error number; a normal return was assumed to have succeeded, but the class number would be zero and class reads/writes would naturally fail).

2.18.23 LINK

SR# NONE

ENHANCEMENT: All Link command files for installing IMAGE programs were changed to place all common commands within the command file rather than in the Link run string.

2.18.24 Log Files

SR# 2200023317

PROBLEM: DBUTL gets error -216 when attempting to create IMAGE files on FMGR cartridges.

SOLUTION: DBUTL now ignores error -216 from FmpSetProtection calls. (-216 means "Can't do that to a FMGR file"; affects only RTE-6).

SR# 2200024885

PROBLEM: DBUTL run from a non-super user/non-manager.sys account will not be able to create log files on the /IMAGE2/ directory.

SOLUTION: Documented in the reference manual the file system restrictions that only the owner of a directory or super user may create a file on that directory. (MANAGER.SYS is typically the owner of /IMAGE2.DIR on RTE-6).

SR# 2200024901

PROBLEM: IMAGE will not be able to open a database if the transaction log file is on a FMGR volume. (DBMON reports error 142 indicating the transaction log file is full).

SOLUTION: FmpRecordCount is used to obtain the number of blocks in the transaction log file; for FMGR files, FmpRecordCount returns zero, which makes the transaction log file appear very small. FmpSize is now used.

SR# 2200033175

PROBLEM: When using the roll-forward logging without spooling, logging would prematurely end after switching to the spare roll-forward log. DBMON was misinterpreting the 'switching' message from DBSPL as a fatal logging error and assuming roll-forward logging had been disabled.

SOLUTION: DBMON now correctly handles non-fatal DBSPL messages.

SR# 2200033183

PROBLEM: When using roll-forward logging to a disc file, the file will appear corrupt to DBARC and DBRFR (roll-forward recovery program) due to a partially written log buffer at the end of the file. In addition, if no spare log is

defined when the file becomes full, and IMAGE is shut down at that point, DBSPL's buffer is not written anywhere and the log file gets re-used when IMAGE is next started up.

SOLUTION: DBSPL now checks to insure that room exists in the file to write the whole buffer before attempting the write, thus insuring no partial buffer appears at the end of the log. To solve the shutting down problem, a flag has been added to the +DBCON to prohibit shutdowns at 'critical' periods where DBSPL cannot shut down without losing data.

SR# 5000067827

PROBLEM: Roll-forward log files exceeding 32,767 blocks cannot be archived (DBUTL command AR).

SOLUTION: The program performing the archive (DBARC) has a 16-bit integer for the disc block number. This has been changed to a 32-bit value.

2.18.25 Manuals

SR# 2200022145

PROBLEM: Incorrect description of error 144.

SOLUTION: Fixed reference manual.

SR# 2200024844

PROBLEM: The IMAGE documentation is not helpful for what steps to take when the transaction log or roll-forward log becomes full.

SOLUTION: The IMAGE reference manual has been augmented to give the options for what steps can be taken to correct full-log conditions.

SR# 5000053959

PROBLEM: Error 235 is not specific enough about which file has become full.

SOLUTION: Explained that the backup storage file has become full.

SR# 5000061002

PROBLEM: Error 145 in the reference manual does not give any hints about how to recover from a logically-incorrect database.

SOLUTION: Gave some alternative workarounds in the manual.

SR# 5000074732

PROBLEM: IMAGE reference manual is misleading about what values may be used for the list parameter for DBUPD, DBGET and DBPUT calls.

SOLUTION: Corrected the item list description for DBUPD, DBGET and DBPUT in the reference manual.

SR# 5000096388

ENHANCEMENT: The manual does not give examples for what order DBUTL commands should be executed in, nor is it helpful in describing how logging, backup, and recovery interact. For this reason there will be example command files (both CI and DBUTL command files) which show how these various functions of IMAGE relate to each other, what needs to be done and in what order. The ZOO database will be used for examples.

2.18.26 NLS

SR# NONE

ENHANCEMENT: NLS has been implemented in the following IMAGE-II programs: QUERY, DBUTL, DBSTR, DBRST, DBRBR, DBRFR, DBLOD, DBULD, DBSPA and DBBLD. (DBMON, DBSPL and DBCLN do not produce messages).

2.18.27 QUERY

SR# 2200024703

PROBLEM: For 4-byte real items, QUERY finds too many records if the 'ILT' (is less than) relational operator is used, and finds no records if the 'IGT' (is greater than) operator is used.

SOLUTION: The 4-byte real comparison algorithm mistakenly uses a 4-byte integer for comparison with a 4-byte real, resulting in too many or not enough matches. The code has been fixed.

SR# 2200025791

PROBLEM: QUERY's DISPLAY command is unable to display some files, reporting a syntax error.
SOLUTION: QUERY has some leftover code from REV.A.84 which looks at the first word of a DCB to determine whether the DCB is for a device or file. The obsolete code has been deleted.

SR# 5000038232

PROBLEM: The QUERY help command gave an incorrect example of the 'FIND' command syntax.
SOLUTION: Corrected the FIND example.

SR# 5000063099

PROBLEM: When QUERY peforms a FIND involving a chained read with more than one value to be found, QUERY finds the first qualifying record but not any succeeding ones.
SOLUTION: Algorithm ended the FIND prematurely; algorithm has been corrected.

SR# 5000081463

PROBLEM: Duplicate of SR# 5000063099
SOLUTION: Fixed algorithm bug.

SR# 5000086017

PROBLEM: QUERY reserves certain characters for syntax, and will not access files which contain those characters; (period or dot, equal sign, and quote).
SOLUTION: The code now does not check for syntactical characters when processing a file name. Semicolon is still reserved, however.

SR# 5000060210

ENHANCEMENT: QUERY is now capable of reporting up to 512 characters per report line. (Former limit was 132; some HP printers are capable of up to 256 columns per line).

SR# NONE

ENHANCEMENT: QUERY in IMAGE/1000-II has a variety of new features:

1) The record numbers in a select file can be used by a different run of QUERY.

2) A new command, FINDA, will add more record

numbers to those already in a select file.

3) Abbreviations for various commands:
   FIND abbreviated to F
   FINDA abbreviated to FA
   REPORT abbreviated to R
   UPDATE abbreviated to U
   EXIT abbreviated to EX, E, EN and END.

4) QUERY has a 20-line command stack, similar to EDIT/1000's.

5) FIND and FINDA commands can use wildcards on CHARACTER ITEM searches. (No wildcards for numeric items). The wildcard features are similar to the file system conventions:
   A dash (-) represents one indefinite character.
   An at-sign (@) represents zero or more indefinite characters.
   Any other character is absolute.

6) REPORT ALL defaults to single-spacing; (formerly double-spaced). The default can be overridden by a supplied spacing value of 1 through 5 as follows:
   REPORT ALL,,2; {Double spacing}
   R ALL,,5; {blank lines between each item value}

7) Quotes (") are no longer required around item values, unless the item value contains a reserved syntax character (blank, comma and semicolon).
   Old style: FIND item is "xyz" END;
   New style: FIND item is xyz;
   {'END' is optional, now}
   or, FIND item is "Tom Hirata";
   {Quotes still required here}

8) 'END' keyword is not required on FIND and FINDA.

2.18.28 ZOO

SR# NONE

PROBLEM: The example database ZOO supplied with the IMAGE product did not have any command files for creating and loading data into the database. The DBBLD data file, in

particular, requires a non-default run string to be given and the correct run string is not intuitively obvious.

SOLUTION: Supplied an example command file to show how to create the ZOO database and load it with data.

2.19 (92084A) RTE-6/VM Operating System

2.19.1 $6FCLB

SR# NONE

NOTE: The file $6FCLB has been reinstated for release DSD 4.0.

2.19.2 ACCOUNTS

SR# 2200001198

PROBLEM: Repeatedly shutting down ACCTS with the RE (release memory) option and then bringing session back up causes system to lose all of available SAM. The $BALC routine is not properly setting up links to system entry points during the return call ($BRTN). Thus each new load from the disc is using invalid pointers.

SOLUTION: $BALC has been changed to use fresh pointers on each entry.

SR# 2200005579

PROBLEM: "New,user" command specifies in the documentation a total limit of 60 for SST spares plus disc limit. Altering a user above this maximum correctly produces the error. However, creating a user above this maximum would create an account with a corrupt SCB. "List,user" shows illegal values and logging-on would create a session that can't be logged-off.

SOLUTION: Fixed in the DSD4.0 update.

SR# 2200019539

PROBLEM: ACCTS encryption algorithm sometimes puts invalid data in for password. Altering a user's password with the AL,U,<user>.@ can corrupt the user's password. There are actually two conditions where corruption can occur.
1) AL,U,<user>.@
2) AL,U,@.<group>

SOLUTION: Fixed in the DSD4.0.

SR# 5000079913

PROBLEM: A.85 ACCTS will abort with a MP error when you try to link a new user to another user. Module ACNWU was writing to a buffer that is not big enough.

SOLUTION: This is fixed in the DSD 4.0 update.

2.19.3 CI

SR# 2200018747

PROBLEM: If you enter a command stack command and your terminal then times out, the last command displayed is executed by CI.

```
Example:  CI> /
          WH,AL
          DL,/SYSTEM/
          IO
          _ (cursor waiting for user)
```

If the terminal then times out waiting for the user, IO is executed.

SOLUTION: A check has been added to see if a timeout occured and to handle it properly when the command stack is displayed. Before, the timeout was ignored and the last command displayed was executed.

SR# 2200018762

PROBLEM: CI's SET command with no parameters truncates the values of $1 - $9 to 76 characters each instead of 80.

SOLUTION: The length of the scratch variable used to manipulate these values has been increased because it was too small, causing truncation of its contents.

SR# 2200018804

PROBLEM: CI aborts with a Fortran string error when the user enters more than 80 slashes.

SOLUTION: CI now checks if more than 80 slashes were entered and truncates to 80 if 81 or more were entered.

SR# 2200020206

PROBLEM: CI's TM command does not work if time is set to be after 12 and the PM parameter is specified. A "No such time" error results.

SOLUTION: CI correctly handles the TM command now.

SR# 2200020362

PROBLEM: Timeout/logoff process does not restart if the user enters a command in the middle of the process.

SOLUTION: The variable which keeps track of how many consecutive timeouts have occured is now reset after the user enters a command.

SR# 2200021378

PROBLEM: When CI or CM aborts due to an EXEC error, it is difficult to tell what program had the EXEC error.

SOLUTION: The EXEC error message code has been changed to include CI/CM to identify itself when reporting an EXEC error.

SR# 2200021386

PROBLEM: /m/ followed by /n, where m and n are both greater than about 25, causes a clear screen to be executed by CI while commands are being displayed and garbage to appear in the command stack.

SOLUTION: The code performing the /n command is only set up to handle n less than or equal to 22. Now it can handle any size n given in the /n command.

SR# 2200021394

PROBLEM: CI help files refer to "substitution parameters", which should be called "positional variables".

SOLUTION: The ?CI file has been changed to match the new term being used in the manuals.

SR# 2200028373

PROBLEM: CI will let the user specify any file as the command stack in the WD command. But CI may print garbage and/or lock the terminal if the user tries to list the command stack with the "/" command if the file is not a type 3 or 4 file.

SOLUTION: CI now checks the type of the file specified as the command stack file in the WD command. If the file is not a type 3 or 4 file it prints a error message to the user and ignores the WD command. The user can still get a bad command stack, but CI will be able to list it without locking the terminal and the user can see there is a problem to be corrected.

SR# 5000056986

PROBLEM: CI allows the user to specify an LU to be the command stack. This can cause a variety of problems: terminal hangs, etc.

SOLUTION: A check has been added to CI so that it does not allow the CI.STK file to be defined on any LU when the WD command is given.

SR# 5000080713

PROBLEM: CI does not let you transfer to a command file with a negative security code on a FMGR cartridge.

SOLUTION: The security code sent inside the file descriptor parameter is overwritten by the subroutine which determines if the file is a command file. Thus when CI

tries to open the file to read the commands, it gives an illegal security code message. Now the security code in the file descriptor parameter is saved and and put back in the return file descriptor.

SR# NONE

ENHANCEMENT: There is a new CIX load file for LOADR called #CIX6.

2.19.4 CI UTILITIES

SR# 2200006015

PROBLEM: The DL command from CI will not display "type 0" files on FMGR cartridges.

SOLUTION: DL now displays "type 0" files on FMGR cartridges.

SR# 2200010062

PROBLEM: A remote DL reports open files incorrectly. If a file is open on a remote node, the program name which DL reports as being the locking program is taken from the local node, not the remote node.

SOLUTION: DL now reports open files correctly.

SR# 2200021105

PROBLEM: PATH does not accept lower case character option in the command file. It does not recognize blank lines correctly in the command file.

SOLUTION: Fixed in DSD4.0.

SR# 2200021436

PROBLEM: When the DL command is issued with the 'L' option on a directory on a remote system, the LU given as part of the location for the file is not correct - it is always 63.

SOLUTION: DL has been fixed to give the correct LU.

SR# 2200022160

PROBLEM: FVERI does not interpret the runstring correctly with all disc LU's verifications and +L option.

SOLUTION: The "+L" now works correctly.

SR# 2200023978

PROBLEM: Too many trailing blanks with the LU in the message "Verifying LU xxxxx".

SOLUTION: The message has been corrected.

SR# 2200024455

PROBLEM: The NLS message buffer is too small to hold a Japanese message.

SOLUTION: The buffer size is increased.

SR# 5000067058

PROBLEM: CMD gives an FMP-209 error when no /SYSTEM directory is found. CMD does not check for a FMP -209 error when trying to open CMD.HLP.

SOLUTION: CMD now checks for a FMP -209 Error when trying to open CMD.HLP.

SR# 5000070490

PROBLEM: When doing an FSCON to change a FMGR cartridge to a CI volume, you can dismount it from a single session and then run the utility. When you want to mount it back again, you have to dismount it from all the other sessions and then mount it under CI.

SOLUTION: The appropriate manual has been documented to show this.

SR# 5000079301

PROBLEM: The A.85 RTE-6/VM command file *INCI does not include an entry to create the directory /CMDFILES (where CI

expects to find system-wide command files as a default).

SOLUTION: *INCI will now create and set protection on the /CMDFILES and /CATALOGS directories.

SR# NONE

ENHANCEMENT: The display format for FREES is changed. You can see the free area of all discs at a glance with a column-oriented format.

2.19.5 D.RTR

SR# 2200024380

PROBLEM: D.ERR does not allow enough space in its message buffer for a trailing null character.

SOLUTION: The buffer size has been increased by 1 word.

SR# 2200024414

PROBLEM: D.ERR doesn't correctly retrieve the NLS flag from the FmpError routine.

SOLUTION: The correct string length is now received.

SR# 2200028654

PROBLEM: If a type 6 file is RP'ed and the file is opened exclusively by OPENF, no error results and the file can be written into by the program which opened it.

SOLUTION: If an RP'ed program file is opened with the OPENF call, write access is now disallowed on the file.

SR# 5000033720

PROBLEM: It is possible for the average user to use LINK to place a program type 6 file on LU 2, but that user can not then purge it (gets illegal access to LU 2 error). FMGR, on the other hand, can SP a file to LU 2 and it

can then be purged.

SOLUTION: CI has been enhanced to be able to purge the type 6 file on LU 2/3.

SR# 5000060483

PROBLEM: The performance of utilities like FC and TF, and some types of user- written programs, degraded considerably with the post C.83 D.RTR.

SOLUTION: The routine in D.RTR that checks FMGR open flags is corrected.

SR# 5000060871

PROBLEM: If a disc is genned to have more than 128 sectors per track, then D.RTR will destroy itself when trying to access the disc.

SOLUTION: In the mount process (from both the CI and FMGR MC commands), D.RTR now checks the number of sectors/track defined for the disc LU, and if it is greater than 128, an error -108 is returned. This is a new error meaning 'Illegal number of sectors per track'.

2.19.6 DRREL/DRRPL

SR# 2200023218

PROBLEM: The module INI2F, which is called by DRIVE, is used to find the basepage link to $CIC within the possible area below SCOM. The test fails because the value is not found. On return, the message error 015 'Corrupt system' is printed and DRRPL completes immediatly.

SOLUTION: Start the search for the $CIC link at word 100B.

2.19.7 DS TRANSPARENCY

SR# 2200023341

PROBLEM: If you edit the NODENAMES file, DSRTR does not see the changes.

SOLUTION: DSRTR has been modified so that, if it is scheduled without a runstring (i.e., 'RU,DSRTR'), it will re-read the nodenames file to update its internal tables. The correct action to take, then, is to edit the nodenames file to make corrections, then type 'RU,DSRTR' to force DSRTR to pick up the changes.

SR# 5000007153

PROBLEM: When the NODENAMES file is set up as described in the RTE-A System Generation and Installation Manual, accessing a node by name through DS transparency does not work. FMP returns a 'no such node' error. The problem is not having a comment field in the line.

SOLUTION: DSRTR does not require a comment field in the NODENAMES file anymore, but comments may be included if desired (they are ignored).

2.19.8 DVA37

SR# 2200002790

PROBLEM: Control zero [call exec(3,lu)] does not always provide an untalk on the bus.

SOLUTION: An untalk/unlisten is now always done before all control requests.

SR# 2200018663

PROBLEM: There were multiple SRQ schedules when only 1 SRQ occured. It has been observed occasionally that more than one alarm program schedule will result from a single device SRQ.

SOLUTION: Some flags are incorrectly set and cleared. A new bit (bit 6) is defined for the HPIB config word and if it is set for a device, then all SRQ's would be disabled for that bus until the device service program reenables them with a control 31b request and optional parameter not = -1. This allows the service program and driver to

handle devices like this and avoid extra schedules or avoid not being able to detect unclaimed SRQ's.

2.19.9 DVC12

SR# 5000014043

PROBLEM: DVC12 is not re-entrant; a unique copy of the driver must be gen'ed for each 12821 - CIPER printer on the system.

SOLUTION: A second copy of DVC12 will be supplied called DVD12. It is made by changing entry points CC12 to CD12 and IC12 to ID12. If a third copy is needed contact your support represetative.

SR# 5000054437

PROBLEM: DVC12 has problems processing timeouts and often generates an illegal interrupt.

SOLUTION: During the power fail state, resume processing the current write request instead of exiting the driver and trying to reenter at the top of IC12 via $upio and letting the TBG go to 0.

SR# 5000058008

PROBLEM: DVC12 does not handle Ciper error C6 and C8 (data overrun and protocol errors) correctly. This often would crash the system or loop in the driver with interrupt system off.

SOLUTION: The code has been changed to explicitly define packet header numbers. The return jump is fixed as well.

SR# 5000035956

ENHANCEMENT: DVC12 is enhanced to process eqt word 5 status identical to DVB12 except for bit 6.

SR# NONE

ENHANCEMENT: DVC12 is enhanced to use fewer base page and current page links. It is also modified to not configure on interrupt entry as this was, at times, causing it to loop (probably due to some other failure). Since DVC12 may only be used with one printer, it does need not to reconfigure. For this same reason we are also releasing DVD12, a clone of DVC12 for those who have two printers. In addition, since the driver already keeps almost everything internally, it is changed to not require an EQT extension (X=0).

Additional changes are made to support compressed mode printing (IPARM=3 on control RQ 3003b) and to reconfigure the lines per inch option on powerfail recovery. This driver underwent major surgery with this change and should prove to be much more reliable than in the past.

2.19.10 DVR31

SR# 2200022475

PROBLEM: DVR31 track map call returns the wrong number for sectors per track. The code starting at $SPCL (line 703) expects to find the # sect/track prior to $TB31. The generator does not supply this word. This will cause FC to fail when talking to a 7900 disk.

SOLUTION: The driver is modified to supply always the number of sectors per track in the returned track map.

2.19.11 DVR32

SR# 2200002949

PROBLEM: DVR32 incorrectly calculates the number of sectors to verify, resulting in IO NR or IO TO errors.

SOLUTION: The driver is modified to properly calculate the number of sectors involved.

2.19.12 EDIT

SR# 2200014571

PROBLEM: If the list file is a printer, RTE-6 and RTE-A versions of Edit now do a page eject when it is closed. The list file is closed by a FCL command, or when a new list file is specified, or when Edit terminates.

SOLUTION: The printer is now kept LU-locked by Edit until the list file is closed.

SR# 5000079970

PROBLEM: Edit is not correctly resetting the page mode strap at start up.

SOLUTION: This is now corrected.

SR# NONE

PROBLEM: Read errors, while reading from a device, were reported twice.

SOLUTION: This is corrected in &NEWFI.

SR# 5000023580

ENHANCEMENT: The RTE-6 and RTE-A version of Edit now allows a leading slash in FMGR cartridge file names (there must not be a global directory that has the same name). This is related to SR5000023580.

2.19.13 EMA/VMA

SR# 2200019562

PROBLEM: This problem occurs when a request is made for more words than are in mseg. VREAD does not give 1 record back for type 2 files. For a type 2 file, a request length of greater than 0 should return 1 record from vread.

SOLUTION: The fixed is in the DSD 4.0 update.

2.19.14 FILE I/O

SR# 2200015644

PROBLEM: Files opened with USE='NONEXCLUSIVE' could not be purged by closing with STATUS='DELETE'.

SOLUTION: Fixed in the DSD 4.0 update for 1) old files, 2) new files, 3)new files & CDS, and 4) DS.

SR# 2200019067

PROBLEM: The INQUIRE statement fails if another program opens the file in shared mode. .FFIN wants to open the file in exclusive mode. This fails if another program opens the file (even in shared mode). Thus no status information is returned to the INQUIRE calling program.

SOLUTION: Fixed in DSD4.0.

SR# 2200025569

PROBLEM: If the NAME= parameter in an INQUIRE statement refers to a variable that is too small to hold the result, the byte just prior to the variable is set to blank (32 base 10). This problem exists only if $FOLDF is used. No errors are generated to indicate any problem.

SOLUTION: The software has been corrected.

SR# 5000056804

PROBLEM: In Fortran 77 rev 2401 the INQUIRE statement following an OPEN statement on a direct access file returns incorrect information.

SOLUTION: Fixed in the DSD4.0.

SR# 5000058255

PROBLEM: In a formatted READ of a direct-access file (an ANSI extension), if the internal I/O buffer (or LGBUF buffer) is too small, no error is reported. The record is treated as if it were blank beyond the buffer size.

SOLUTION: Error 496 is now reported.

2.19.15 FMGR

SR# 5000045328

PROBLEM: CN,6 resets forms length configuration in the printer.

SOLUTION: FMGR makes the correct control request now.

2.19.16 FMP

SR# 2200009738

PROBLEM: If a type one or type two file is opened with FmpOpen, allowing extents (X option), and the last block of the file is written into, the file would be extended prematurely.

SOLUTION: The FMP routines for handling type 1 and 2 files now will set the EOF bit when the last record in the file has been written (when the extendability option is enabled). On the next write, the EOF bit will be cleared and an extent will be created. Note that for type 2 files, this only happens when the last record of the file fits exactly to the end of the last block of the file.

SR# 2200012633

PROBLEM: Using the 'CO' command from CI with masking, any user can copy files from a FMGR cartridge without needing to know the file's security code.

SOLUTION: The masking routines (used by the CI CO command) now will use the security code supplied by the user in the

original mask. If it is wrong, the masking operation will not succeed (PU will fail, etc.).

A side effect is the following enhancement to DL: if a zero is explicitly specified for the security code in the mask, DL will only find those files which have a zero security code. If no security code is explicitly given, DL will ignore the security codes when matching. This is also true of the file type (explicitly specifying zero for the file type causes DL to find only type zero files). Note that this is only a feature of FMGR files since CI files don't have security codes or type zero files.

SR# 2200018317

PROBLEM: Opening a type 1 or 2 file with a Pascal REWRITE to do sequential writes to the file causes an FMP -12 error. The manual claims that this should be legal. The problem is that FmpSetEOF is setting the EOF bit in the DCB.

SOLUTION: FmpSetEOF no longer sets the EOF bit in the DCB for type 1 or 2 files.

SR# 2200018382

PROBLEM: If FmpLastFileName is given a string with no name, e.g., '::', the user program will abort with a FTN7X runtime error.

SOLUTION: FmpLastFileName now correctly checks for a zero-length name.

SR# 2200018655

PROBLEM: If a 'Z' is used as an option in a CO command, or an FmpCopy call, the destination file doesn't get valid data transferred to it.

SOLUTION: FmpCopy now ignores a 'Z' in the option string.

SR# 2200020875

PROBLEM: The LI command displays only 1st 256 bytes of each record if the record size exceeds 256 bytes.

SOLUTION: LI can now display the whole record longer than 256 bytes.

SR# 2200021360

PROBLEM: CIX (FmpCopy) can get into an infinite loop when trying to copy a file with the D option onto a FMGR cartridge.

SOLUTION: FmpCopy's scratch name is now 'COxxx...', which puts a character from the system time into the 6th character of the file name. This will make the name unique on each try. Also, the break flag is checked inside of the loop which creates the scratch file - if the break flag is detected, FmpCopy will return a -235 error (break flag detected).

Computer Museum

SR# 2200023200

PROBLEM: If a global directory name is exactly 16 characters long, and the working directory is set to a subdirectory of that global, the WD command reports only the global directory name and not the subdirectory.

SOLUTION: An internal variable in D.RTR was too short to pick up a full 16 character global directory name plus subdirectory names, and the subdirectory names were getting lost. This is now corrected.

SR# 2200023358

PROBLEM: The C.83 versions of D.RTR on RTE-6, and D.RTR on RTE-A do not recognize the 'bad track list' that is put into the cartridge header via the FMGR IN command. The FMGR PK command may purge files created on that LU.

SOLUTION: This feature was added to FMGR a long time ago to support discs that did not do their own track sparing. Since all current discs do have an internal track sparing mechanism (except the 7900 disc), this feature is not needed anymore. The correction for this bug, then, is to remove the 'bad track list' option in the FMGR IN command. Now, if a list of bad tracks is given in the IN command, an error 56 (bad parameter) is issued.

SR# 2200024059

PROBLEM: FmpError does not return text for some errors that are documented in the manuals. These errors are:

-49, -54 thru -60, -63, -64, -68, -217, -219, -223, -227, -228, -231, -234, -243, -244, -247, -248, -250

SOLUTION: FmpError now returns text for all of these errors.

SR# 2200025593

PROBLEM: FmpWrite will write data past the EOT mark of a magtape, but FmpRead treats EOT as an EOF and will not return the data past the EOT, even if transparency mode has been turned on (transparency mode is turned on with a call to FmpSetIoOptions).

SOLUTION: FmpRead now sets the B register value in common /FMPREGS/ correctly so that it will be the actual length read when reading data past the EOT mark on a mag tape.

SR# 5000035261

PROBLEM: MANAGER.SYS does not have access to files on Group and Private cartridges through masking.

SOLUTION: FMPINITMASK calls CRNTOLU and OLDLUINFO which determine the cartridges the user has access to. CRNTOLU and OLDLUINFO call DSFSTAT with a parameter that restricts the users access regardless of the user. A check is now made in these routines for SUPERUSER which causes them to tell DSFSTAT not to restrict this user.

SR# 5000040188

PROBLEM: FMPRENAME can rename a file on a file manager disc to a name that contains lower case letters.

SOLUTION: The new file name is now upshifted before being created.

SR# 5000044289

PROBLEM: Using FmpCopy to copy files to a remote RTE-6 node, without specifying the cartridge reference number and a logon in the destination file name, the file will be created on the first mounted system cartridge, even if it is LU 2 or 3. The DS transparency handler TRFAS, if not explicitly given a name under which to log on at the

remote system, will log on as non-session. TRFAS should log on under some default session, such as the default session defined for the DS subsystem.

SOLUTION: If not given a specific logon name, TRFAS will log on using the default logon name defined for DS/1000 (defined in the DINIT answer file when DS is initialized). If this default name has not been set, or if session has not been initialized, TRFAS will proceed in non-session mode.

The fix involves changes to both DSRTR (on the system initiating the DS transparency request) and TRFAS (on the system local to the files being accessed). If the DSRTR making the request is not this updated version, TRFAS will log on with the default logon name anyway. However, rather than logging on once when the file is opened and logging off when the file is closed, TRFAS will need to log on and log off for every request it receives from the old DSRTR (except for simple disc accesses) (The updated version of DSRTR passes a default logon request to the updated TRFAS which eliminates the extra log-on/log-off's). This means that security will be maintained on the system at the TRFAS-side, but at the cost of decreased performance on the DSRTR-side, until DSRTR is updated to the new revision. Note that the reverse mixed-revision situation (new DSRTR and old TRFAS) will work as it did before, that is, TRFAS will operate in non-session mode.

SR# 5000071100

PROBLEM: When dealing with remote-system files using FMP calls, access would fail on Open if the nodename given is not EXACTLY as written in the NodeNames file (i.e. the call is U/L case sensitive). This is not true when using interactive commands, such as thru CI.

SOLUTION: DSRTR now accepts upper or lower case node names in the NODENAMES file and in file descriptors (DSRTR upshifts all node name strings before using them).

SR# 5000073908

PROBLEM: If a program in the time list calls FmpUniqueName, the program gets removed from the time list.

SOLUTION: Rather than becoming time-suspended for 10 ms,

FmpUniqueName now uses a different algorithm for insuring that it will create a unique name each time it is called: FmpUniqueName now remembers the time it was called last, and if less than 10 ms have gone by, it goes into a short loop waiting for the time to change. This loop will only be executed if FmpUniqueName is called twice within a 10 ms window.

SR# 5000074120

PROBLEM: Programs that terminate saving resources are cloned and therefore never continue execution past the point of the exec 6 with saving resources option.

SOLUTION: Cloning in this manner is a feature of RTE-6; whenever a program is cloneable, it will be cloned. The documentation on terminating saving resources (Programmer's Reference Manual) and on running a program (RTE-6/VM CI User's Manual) now has information on how to run a program that terminates saving resources so that it will resume where it had left off.

2.19.17 FMP LIBRARIES

SR# 2200023101

PROBLEM: The integer-to-ascii conversion routines, for single and double integers, write over your code when a buffer is too small for th number needing converting.

SOLUTION: A check of the destination buffers size is made and used in determining how much information to return.

SR# 2200023119

PROBLEM: If DINTTODECIMAL is sent the double integer value -2147483648, it returns the ascii string "-./,),(-*,(".

SOLUTION: .DNG did not handle the number -2147483648 correctly, so it performed the calculation without the number. The software has been corrected.

SR# 2200023150

ENHANCEMENT: Added some right-justified integer conversion routines to go along with INTTODECIMAL, DINTTODECIMAL, INTTOOCTAL, and DINTTOOCTAL. They are INTTODECIMALR,

DINTTODECIMALR, INTTOOCTALR, and DINTTOOCTALR.

2.19.18 FORMAT

SR# 2200024521

PROBLEM: Some floating-point numbers do not round as expected on output; for example, 25039.5 in an F10.0 field prints as 25039.

SOLUTION: Some of these numbers now produce more pleasing output.

SR# 2200026476

PROBLEM: TAB format does not work properly with internal files. (1) When reading or writing multi-record internal files, the T format descripter did not work correctly after the first record. (2) When writing multi-record internal files with a list-directed (*) write, if the data required more than two output records, an error 496 was generated. (3) The first record written by a list-directed write could exceed the specified record size limit by one character. The default limit is 72 characters; it may be changed by FFRCL. For internal files the limit is the record size; the above condition caused a spurious 496 error.

SOLUTION: Fixed in the 4.0 revision.

SR# 5000019539

PROBLEM: In FTN7X:

```
    READ(1,100) I
100 FORMAT(I1)
```

gives a *RUNTIME ERROR* 0494 @ 02022 for all characters except for D,d,E,e,.,-, and +.

SOLUTION: The software has been corrected.

SR# 2200028597

ENHANCEMENT: As of DSD 4.0 it is possible to change

1) the fill character used to fill output fields where the number did not fit,
2) the leading blank character, used to fill the left part of fields which are larger than necessary

The method of changing these characters is to store into the words at external symbols #FMLB and #FMFC.

```
eg. $alias /fill/='#FMFC',noallocate
          common /fill/ifill
          ifill - ichar('$')
```

SR# NONE

NOTE: Enhancement to allow list-directed READs to not require quote marks.

2.19.19 FORMT

SR# 2200006197

PROBLEM: FORMT does not allow formatting LU's > 63. This is a problem in a Datasafe enviremont where logical LU's are > 63.

SOLUTION: Modify FORMT so LU >63 can be formatted. EQTRQ is also modified so that a system LU > 63 can be modified.

SR# 2200012070

PROBLEM: FORMT cannot spare a spare track. FORMT assumes that a subchannel ends on the last track and does not include spare tracks.

SOLUTION: Add number of spare tracks to total number of tracks for a given LU.

SR# 2200013565

PROBLEM: FORMT aborts with I007 when using the 93581C Dual Disc Driver. IFDVR checks EQT word 4 bit 11 to see if the driver processes it's own time-out bit. The 93581C dual disc driver (type 32) modifies this so that it looks like an ICD disc. (Only MAC discs are supported by this

driver.) At this point, the disc library routines are all confused.

SOLUTION: We modified IFDVR such that it uses a different method for determining whether a disc is a MAC or ICD disc. It issues an EXEC request with icode of 2200b on specific lu (use track 0, sector 0). This will return the track map table entry. It checks bit 15 of word 5.

SR# 2200014670
SR# 2200032292

PROBLEM: FORMT requires a capability of exactly 60 to re-format lu 2 or 3.

SOLUTION: Allow formatting of LU 2 or 3 if capability is > 60.

SR# 2200055889

PROBLEM: FORMT cannot format LU'S not in SST.
SOLUTION: We changed all EXEC calls in DSCLB to XLUEX with the non-session bit set.

SR# NONE

ENHANCEMENT: Allow commands given to FORMT to be entered in lower case.

2.19.20 GENERATOR

SR# 2200019125

PROBLEM: In the driver writing manual on chapter 4-7 the use of SSGA with a privileged driver is recommended. However, the generator rejects such a link with error 52.

SOLUTION: This condition no longer is reported as an error by the generator.

SR# 2200021212

PROBLEM: A.85 RT6GN cannot handle RELC and REL commands in the

same generation. It works fine if all relocates are either REL or RELC but has problems with mixtures.

SOLUTION: The generator has been changed to clear the DCB before opening a file so as not to close the prior file.

SR# 5000036582

PROBLEM: The absolute binary bootstrap loader for a CS/80 disc will not load from paper tape or cartridge tape. The IPL loader gives a HALT 55B. The loader rom, however, works fine from disc.

The high address is 77743 overlaying the paper or cartridge tape loadr.

SOLUTION: The generator is changed to load the bootstrap at 2011B (the same as the disc IPL loades it) and to set up its start address to be 2055B,I.

SR# 5000074831

PROBLEM: A.85 generator has problem handling driver partition overflow. The generator forgets to back up some pointers in the absolute file output routine. This causes all drivers after the one that fails to be loaded incorrectly (wrong address on the disc). When the new system is switched in and an incorrectly loaded driver is accessed the program may MP and/or the system crashes.

SOLUTION: The forgotten pointers are now saved and restored.

SR# 5000102533

PROBLEM: EXT references to ALLOCATE common would cause fixup entries to be built but never fixed up. This caused a GEN ERR 0 after the program load.

SOLUTION: The generator was changed to load and fixup the ALLOCATE common after the first module which has an EXT reference to it (provided it was not already loaded).

NOTE : ALLOCATE COMMON REFERED TO BY EXT CAUSED GEN ERR 0

SR# NONE

PROBLEM: The RTE-VI generator would put out module and file name messages for old relocatable modules.

SOLUTION: This message was supported to complete an error report on GEN record errors. The problem was that the GEN record error flag was not being loaded, and so the test was done on the NAM record program length word. When ever it was negative the report appeared. Negative program length entries appeared in output of some old compilers which did not know the true length of the module when the NAM record was generated. The Generator was changed to properly load the GEN record error flag.

SR# NONE

ENHANCEMENT: The RTE-VI generator (RT6GN) was changed to allow setting of the immediate reporting bit for CS80 Cartridge Tape Drives (CTDs). This bit is bit 14 of the first word of the track assignment table entry for the CTD. Immediate reporting allows the devices to stream - if data availability can keep up.
Note- This feature is only available for CTDs that are not physically integrated into a disc drive.

Syntax is CTD,<hpib add.>,<unit>,<volume>[,I]

Where: <hpib add.>,<unit>, and <volume> are as before and [,I] is the optional immediate reporting bit flag.

SR# NONE

ENHANCEMENT: RT6GN is enhanced to recognize the 7907, 7941, 7942, 7945, 7946 and the 9133 discs.

SR# NONE

ENHANCEMENT: In the past, file truncation was noted in the listing, but was not considered a GEN ERRor. It was elevated to a full GEN ERRor to alert the user. The SWTCH program will not switch an extended file, which is the most likely cause of the failure to truncate.

2.19.21 HELP

SR# NONE

ENHANCEMENT: The help file header revision is updated to reflect changes of other modules in HELP.

SR# NONE

ENHANCEMENT: HELP is modified to pass a default data file name of HELP.HLP::SYSTEM to CMD. If that file is not available, CMD will try !HELP::0 for backwards compatibility.

SR# NONE

ENHANCEMENT: Several modules in the HELP program need to be modified in order to be compiled with the new pascal.

2.19.22 HP-IB LIBRARY

SR# 5000053702
SR# 2200055848
SR# 2200032565

PROBLEM: The HPIB library routines (including CLEAR and RMOTE) do not mask the EQT number correctly and thus EQT's greater than 63 could not be used.

SOLUTION: The HPIB library routines have been modified to check for the operating system type to and use the appropriate mask.

2.19.23 I/O

SR# 2200019992

NOTE: FmpReportError now does not set the "no suspend bit" in the Exec call to the LU. This will cause the program to suspend if the LU is locked rather than just throw away the error message.

2.19.24 INTRINSIC ROUTINES

SR# 2200058362

PROBLEM: ISIGN(IA,IB) where IA and IB are single integer arguments return a result of 0 when IA=3 and IB=0. By definition, the result should be 3.

SOLUTION: The code is changed to return the correct value.

2.19.25 KEYS

SR# 2200014746

PROBLEM: Priority of KYDMP in NAM record is too high (10).
SOLUTION: The priority will be changed to 99 .

2.19.26 LIBRARY FUNCTIONS

SR# 2200002675

PROBLEM: RHPAR fails to return runstrings if a program terminates saving resources and then gets scheduled in the normal way. On the second call to RHPAR the routine checks to see if it has been called before; if so, it does not bother to collect the runstring that was passed. Since the program terminated saving resources, the second string will not be given to it.

SOLUTION: RHPAR is changed to call EXEC for the runstring on each entry. If EXEC returns a zero length string, RHPAR assumes the string it got last time (or some prior time) is still valid and uses it. This allows the user to use RHPAR for strings which result from a son program returning as well as the terminate saving resources condition.

SR# 2200018481

PROBLEM: The RHPAR/RCPAR/FPARM routines strip out the word 'NO' or 'NOW' from a program's run string if the word appears as the first parameter. For example, if the run string is "RU,PROG,NOW,P1,P2", the routines would return "P1" as the first parameter. The routines do this because the ON command in RTE-6/VM considers the NO or NOW as special cases to mean 'run the program now', and it expects the word to not be passed to the user. Since the ON command does not exist on RTE-A (and since it is not used often even on RTE-6), these routines should not treat the first parameter as special. The older and RTE-6-specific GETST routine still strips out the NO/NOW, and can be used on RTE-6 if necessary.

SOLUTION: The RHPAR routine (which FPARM calls) is changed to no longer strip the NOW parameter. In addition the RTE-VI O.S. is changed to strip the NOW from the run string in (and only in) the case of an ON command. GETST is also changed to use the RTE-A version which does not strip NOW from the run string.

SR# 5000045187

PROBLEM: When the ELAPSEDTIME subroutine is used across midnight, an incorrect value is returned.

SOLUTION: ElapsedTime is calculated as (the current time of day) - (the time of day when ResetTimer was last called). The problem is fixed by putting a check in ElapsedTime to detect if the elapsed time that is calculated is less than zero. If so, 24 hours (in miliseconds) is added to the result because the system time has crossed midnight to a new day.

SR# NONE

ENHANCEMENT: Enhanced system library to contain &BLDNM and DAYS70. &BLDNM builds the file names for the language processors, that is the source name and specified list, relocatable, etc.

DAYS70 takes a date code string and returns the integer number of days since 1970.

2.19.27 LIF

SR# 2200007849
SR# 2200009324

PROBLEM: The LIF utility program, used for transfering files from HP/1000 systems to HP/9000 systems, will not initialize a CS/80 tape prior to storing files on the tape.

SOLUTION: LIF now accepts CS/80 tapes which are used in FC format.

2.19.28 LINK

SR# 2200002279

PROBLEM: In the RTE-6 session environment, a user could load a high- priority program with LINK, even if the user's capability was less than 50 (the default capability required for the system "PR" command).

SOLUTION: If the user's capability is less than 50, LINK will not allow the program being loaded to have a priority higher than 99. If the requested priority is between 1 and 98, LINK will issue the following warning:

"Warning 145: Program priority changed to 99"

SR# 2200014191

PROBLEM: When loading a program in which the same symbol has been used to access different and incompatible data allocations (e.g. EMA in one program unit and named common in another), LINK reports the error #117 ("Allocate type mismatch") but does not report the offending symbol's name. In a large program it could take considerable time and effort to find the symbol.

SOLUTION: LINK's error message has been expanded to report the name of the symbol which has conflicting declarations:

"Allocate type mismatch"
"Last module relocated: <module name>"
"Last reference: <symbol name>"
"Fatal error 117 - Link terminated"

SR# 2200017699

PROBLEM: Non-system managers can place a type 6 file on Lu 2/3 using LINK. They cannot however, replace an existing file on Lu 2/3 from LINK.

SOLUTION: Link now checks for ownership of program files and allows the creator of the program file to relink it, including files on LU 2 or LU 3. If a different user attempts to relink the program file, the following message will be issued:

The system manager (MANAGER.SYS) is allowed full capability to relink files and will never get this message. This is now noted in the LINK manual in the relinking section in chapter 4.

SR# 2200019521

PROBLEM: When the VMA size is greater than 32767, you will get a two page working set with the WS command.

SOLUTION: A problem with a single integer overflowing has been fixed and now WS sets the working set size correctly.

SR# 2200024588

PROBLEM: LINK would ignore the "WS,nn" command.

SOLUTION: LINK now sets the working set size to the number of pages specified in the "WS,nn" command.

SR# 5000033803

PROBLEM: It is possible to load an EMA program which does not contain the required EMA fault handler and status routines EMA, $INIT, VMAST. This scenario comes about if all the following conditions are met.

1) The main program does not use EMA (i.e. no $EMA declaration;
2) The main program calls subroutines which use EMA;
3) The subroutines are compiled separately from the main;
4) The user does not specify the EM command when running LINK;

LINK would create the program, but the program would abort (usually with a memory protect error or dynamic mapping violation) as soon as EMA is accessed.

SOLUTION: LINK now checks for this case and will issue the message:

"Error 120: Library module needs EMA"

The user should reload the program and specify the "EM" command.

SR# 5000036400

PROBLEM: LINK sets the MSEG size of a program incorrectly. If the program being loaded requests an MSEG size of two or more (i.e. the $MSEG directive in FTN7X), LINK makes the MSEG one page too small. Programs which use Vector Instruction Set firmware routines require the specification of MSEG, and therefore would abort with EM87 errors (MSEG too small).

SOLUTION: LINK now uses the MSEG value specified in the program.

SR# NONE

PROBLEM: Some of LINK's message reporting was being done with EXEC calls, preventing LINK from being swapped if the output LU was unbuffered.

SOLUTION: The EXEC calls which do I/O have been changed to REIO calls.

SR# 5000045724

ENHANCEMENT: It is possible to relocate modules into a user program which have the same entry points as modules in SSGA or the operating system. Although this is a desirable capability, it sometimes occurs unintentionally, creating programs which do not execute properly. For example, DS/1000-IV programs might be loaded with copies of modules which are in SSGA, preventing them from executing properly. LINK will now issue warning messages for each entry point which exists in SSGA or the operating system and in a module relocated into the program:

"Warning #142: Conflict with SSGA or
system entry point: <entry point name>"

This will alert the user that an entry point of the same name is in SSGA (or the memory-resident operating system).

SR# 5000054692

ENHANCEMENT: If LINK is unable to create the program (type 6) file because of insufficient disc space, it will issue a warning:

"Warning #137: Insufficient disc space for program file"

If LINK is run in the "interactive" mode, it will then issue a command prompt to the terminal so that the user may try to create the program file in a different directory with the "EN" command. LINK assumes an "interactive" mode if

1) Any command is entered interactively;
   or
2) Anything other than a ".LOD" file is specified in the runstring.

SR# NONE

ENHANCEMENT: A new command has been added to LINK so that a single module can be relocated from a file which may contain multiple modules. The syntax of the command is

"rm filename symbolname"

where symbolname is an entry point for the desired module. If the file is indexed (with LINDX), the index is used to locate quickly the desired module; otherwise the file is searched in a linear fashion.

This command provides additional flexibility for loading programs:

1) It can be used to extract software versions of routines from a system library, which may be helpful in determining whether or not firmware is working (or installed). For example:

   "rm $6sylb .imap" (software equivalent of a VMA routine)

2) When combined with the LINK "if" command, a LINK command file can be created as follows:

```
re %prog
if 6 rm %library sub6
if a rm %library suba
```

en

3) LINK can be used to determine the external references of a particular module:

```
CI.86> link
link Rev.2540     Use ? for help
link: rm $fmp6 fmpopen
FMPOPEN
link: di
  Undefined symbols:
 .SST  .ENTR   .NFEX   LURQ  FMPASKDDOT  FMPCLOSE
link:
```

SR# NONE

ENHANCEMENT: RPL's are now given special treatment in "duplicate entry point" situations during (pass 1) linking:

1) If an RPL is relocated, it may be replaced by another RPL of a different value (but same name);
2) If an RPL is relocated, it may be replaced by a non-RPL (ENT or XENT) of the same name.

In both situations, a warning will be issued:

"Warning #141: RPL value replaced: entry_point_name"

The warning will also be issued for each RPL in the system library which has been redefined for this program.

2.19.29 LUPRN

SR# NONE

NOTE: LUPRN is made compatible with FTN7X; QSUBS routines are removed.

2.19.30 MACRO

SR# 2200003780

PROBLEM: When you use the S (Symbolic Debug) option in the MACRO runstring to override options in the source file, the S does not appear in the MACRO line in the listing. Debug still works correctly.

SOLUTION: MACRO is changed to include the DEBUG option in the built control statement. (Note that the D option comes out as S because they are the same.)

SR# 2200010611

PROBLEM: Macro aborts with an MP error if there are incorrect literal values.

SOLUTION: The literal processor is changed to pass back dummy values in both A and B in the error case, allowing assembly to continue.

SR# 2200021261

PROBLEM: If the O option is used to create old relocatables and OLDRE is not available, MACRO complains, but does not count it as an error. As a result, a program that schedules MACRO would be ignorant of any errors.

SOLUTION: MACR7 is modified to bump the error count on the schedule error.

SR# 5000021378

PROBLEM: The MACRO manual says that - DEF =F39.25 should work, but an ERROR 321 is generated.

SOLUTION: MACR2 and MACR3 are changed to allow =F literals as well as others in the DEF opcode.

SR# 5000034231

PROBLEM: In REV A.85 and earlier the MACRO assembler puts all the source in the swap file in spite of the fact that there is conditonal code assembly (i.e. AIF,AELSEIF) and macros. All of the macros are placed in the swap file. The swap file is extremely large. In one case the swap file on the scratch cartridge took 750 tracks while the eventual program was only 2000 words. This user had a library with over 40 macros. The swap file should

contain only the generated code with the macros that are needed.

SOLUTION: MACR1 has been changed to not keep unneeded lines in the IF file.

SR# 5000071647

PROBLEM: The include statment in a macro compilation allows a total of 32 characters in an include file name.

SOLUTION: Fixed in MACR1 to allow the full 64 character file names.

SR# 2200014324

ENHANCEMENT: MACRO/1000 has been changed to have a source name alias feature.

This name is used by DEBUG/1000 to identify the correct file and display it when the original source is Pascal or any other language which uses MACRO as its final pass.

MACRO has been enhanced to recognize an extension to the MACRO control statement of the form: +SF=file name. This file name will then be put in the NAM records of all modules assembled under this MACRO control statement. In order to allow room for this enhancement on the line, MACRO now handles continue lines on the control statement (except for macro library M runs).

At the same time the MACRO control statement has been enhanced to allow Pascal (and other higher level languages using MACRO as a final pass) to pass MACRO a version number to be put in the NAM record. The form of this extension is: +DC=<850802 where the '<' is optional and the date is the version number. This number is converted to days since 1970 and put in NAM record word 24. MACRO puts its version number in word 23.

Further enhancements for Pascal and others are as follows. Two new unary operators are defined:

:SY:expression	Returns the external symbol number of the expression or 0 if the expression does not result in an external reference.
:MR:expression	Returns the relocatability of the

expression as an integer as follows:
0 - Absolute
1 - Program relocatable
2 - Base page relocatable
3 - Common relocatable (blank common)
4 - Pure code relocatable
5 - EMA relocatable (local EMA)
6 - Save relocatable
7 - External
9 - Allocate EMA
10 - Allocate SAVE
12 - Allocate COMMON
20 - Two or more of the above.

In both cases the <expression> must meet the definability rules of the opcode with which it is used (e.g. if used with EQU it must be defined when found in pass 2; if used with ABS, it must be defined by pass 3).

MACR4, MACR5, and MACR6 were changed to have the same date code as the rest of the MACRO modules.

2.19.31 MATH ROUTINES

SR# 5000032763

PROBLEM: System routine DDINT does not work on A900 as documented. Real*6 DDINT fails on all neg. fractional powers of 2, e.g. -1/2, -1/4, -1/8, etc. This problem occurs only with DDINT for REAL*6 arguments. AINT for REAL*4 and DDINT for REAL*8 work fine.

SOLUTION: DDINT depends on a flag passed back from ENTIX. ENTIX was setting the flag incorrectly on negative fractional powers of two. ENTIX is changed to properly set the flag.

SR# 5000078808

PROBLEM: Math library routine DSINH (.DSNH) when evaluated with argument = 0.0d0 should return 0.0d0 . However what is returned into the four words that comprise the double precision result is 000000b,000000b,000000b,177776b.

SOLUTION: The routine (.DSNH) divides the result by 2 by subtracting 2 from the exponent... without checking for

0 first. The missing test for zero result has been added before the subtract.

2.19.32 MLS UTILITIES

SR# 2200021170

PROBLEM: SGMTR doesn't recognize RPL records. The entry points that are defined in RPL records will display as undefined in SGMTR. INDXR and MLLDR handle the RPL records as they should.

SOLUTION: Added code to take care of the new RPL record format.

SR# 2200021170

PROBLEM: SGMTR does not recognize RPL records. The entry points that are defined in RPL records will display as undefined in SGMTR. INDXR and MLLDR handle the RPL records as they should.

SOLUTION: Code is added to take care of the new RPL record format.

SR# NONE

NOTE: Restructures SGMTR into %SGMTR and $SGMTR

2.19.33 OLDRE

SR# NONE

ENHANCEMENT: The OLDRE routine now has a version that works with the CI file system. This is now the standard version on RTE-6/VM and RTE-A.

2.19.34 OPERATING SYSTEM

SR# 2200004234

PROBLEM: During a "slow boot", when echoing to a 2608S, the system console and printer, both list the current I/O configuration and ask RECONFIGURE I/O (yes/no). After the user answers no and presses return, the cursor returns but doesn't line feed and the system is gone!

SOLUTION: This problem is caused by the driver trying to go to $UPIO befor MAPOS is called to set up the OS partition maps ($UPIO is in a partition). In this case the required code is in memory, but the MAPOS tables have not yet been set up. The fix is to change MAPOS to set up its tables and return to the caller. This allows us to change $CNFG1 to call MAPOS as soon as the code is in memory. We also changed MAPOS to HALT if it is asked to map an OS module before its tables are set up. This takes care of the case of a bad disc configuration, where on boot the disc driver returns NOT READY and the OS tries to call the OS partition code to handle the NOT READY. This would happen if $CNFG1 were trying to load the partitions. In this case, the code is NOT present in memory and the only solution is to HALT, whereas before the system would JMP to uninitialized memory. The HALT is HLT 47B.

SR# 2200005686

PROBLEM: Only up to 63 shareable EMA programs are allowed; the maximum of 256 shareable EMA programs causes problems.

SOLUTION: This problem has been fixed by allowing SHEMA programs to share ID-EXTensions if the data in them is the same. A shared count is kept in the last word of the extension (count -1) and when it goes negative, the ID-EXT is released. Changes were made to the system library routines IDDUP, IDRPL, as well as to MLLDR, LOADR, $CNFX and the system OF routine. In addition the system SZ routine was changed to disallow changing the MSEG size if the program uses SHEMA, since the MSEG size is in the ID-EXT. In addition the following routines were added to the system library (note, these routines are not for general use and are included here only for completeness): $FINDIDEXT, $SETIDEXT, $SETDRIDEXT, $LKLU2, $FREEIDEXT.

Shared ID-EXTs are supported by all system code except the generator. Such programs may be loaded by MLLDR, or LOADR as well as RPed or RUn after a LINK load. $CNFX correctly accounts for them if the system is reconfigured after such programs are added to the system by MLLDR or LOADR.

Error 31 is added to $CNFX. It indicates that $CNFX has run out of ID- EXTs. This is possible if programs are reconfigured such that programs that once shared ID-EXTs can no longer do so.

SR# 2200007443

PROBLEM: A SHEMA program is scheduled to run every 10 seconds and it is the only program running. The program is then suspended by the operator while it is dorment. When the program is restarted (sygo) the computer HALTS with 102050B. Halt 50 says that count of SHEMA programs has become negative.

SOLUTION: This problem is fixed in the $LIST processor by adding code to track the case of a program going from dormant to operator suspend. In this case the $LIST processor now does the same checks it does when a program goes from dormant to scheduled to see if the SHEMA count needs to be bumped.

SR# 2200015479

PROBLEM: On RTE-A, a feature exists which causes a program's ID segment to be removed when a program terminates (the temporary bit in the ID segment). With this feature, an XQ command will execute a program, then the ID segment will go away automatically when the program finishes. This feature is not available on RTE-6/VM, so that an XQ command will leave the ID segment laying around. RTE-6/VM should have the temporary ID segment feature also.

SOLUTION: We put a true PURGE on termination bit in the sign bit of the track word. All the appropriate code (i.e. IDDUP, IDRPL, OF, etc.) was changed to use this feature.

SR# 2200024653

PROBLEM: Cannot use SZ to increase EMA size unless it was

defaulted. SZ command should allow you to increase EMA size, even if EMA size was originally defaulted. Users of BASIC/1000 used to be able to size up EMA beyond amount allocated at load time.

SOLUTION: The size command has been changed to allow the user to change EMA size in all cases. The system now depends on EM errors to find cases where the user makes the size too small.

SR# 2200032334

PROBLEM: LU 6 and LU 7 point to buffered EQT 6. While listing to LU 7, the device (printer or terminal) is taken off line and an IONR message in displayed on log device. LU 7 is redirect to EQT 7 and listing is resumed on another device. When the listing finishes, the SAM buffer is deallocated but the device ref. table word 2 for LU 6 still has a SAM address. When EQT 6 is up'ed, the interrupt light on the front panel goes off and the operating system goes down.

SOLUTION: The code in &OS2SC and &OS5IO is changed to fix this problem.

SR# NONE

PROBLEM: In the past, code was added to RTCOM to allow immediate completion returns from drivers called by $XSIO (the systems I/O) call. This code failed and caused a IO NR report and subsequent system crash.

SOLUTION: RTCOM is changed to correctly call the immediate completion code.

SR# NONE

PROBLEM: The user map for I/O control requests is not being set up correctly for extended background programs. Table area 1 is not mapped. If the driver is then entered in the user map, the system would crash. The code to test to see if the user map should be used is also wrong in that it looks at the buffer address before checking to see if it is a control request (in which case there is no buffer). Depending on the parameter passed with the control, the system could get into an indirect loop when the control is passed through $XSIO, such as the case with DATASAFE.

SOLUTION: The code in RTEMA and RTCOM has been changed to check for control requests before looking for the buffer address.

SR# NONE

NOTE: A fix is made to OS6SN to make it compatable with $DDT on boot up.

2.19.35 PHYSICAL BACKUP

SR# 2200006155

PROBLEM: PRSTR terminates after advancing the tape if the disc LU is not in the SST.

SOLUTION: Fix the code which locks the disc LU before advancing the tape.

SR# 2200012179

PROBLEM: PRSTR would position the tape incorrectly if the default file number was entered. PRSTR calls a routine (FFILE) which uses an incorrect mask to determine whether the tape was at EOT. The mask used is 400B and should be 200B.

SOLUTION: The mask used to determine EOT is changed from 400B to 200B.

SR# 5000049577

PROBLEM: PSAVE/PRSTR load command files have incorrect SZ command. PSAVE and PRSTR calculate the amount of memory needed at run time. The programs may load correctly but when the programs are run, there may not be enough memory for tape buffers.

SOLUTION: Modify load command files.

SR# 5000088914

PROBLEM: PSAVE aborts with an error code 19 when using a 7974 mag tape drive. PSAVE would attempt to back up the tape -- the mask used to verify that the tape position is incorrect.

SOLUTION: Changed the mask to the correct value.

2.19.36 POWER FAIL

SR# 2200008235

PROBLEM: On a system with the 93770 Specials TBG-TOD clock, it is possible for a TBG tick to occur during power fail recovery. There are several instructions at the beginning of the power recovery routine which occur before a CLC 0,C is issued. Since the Specials TBG has an external power source it will continue to tick even if power is lost.

SOLUTION: The power fail routine is modified to do the CLC 0,C before allowing any other interrupt. This is done by moving some code to the "down" routine and by making the JMP to the "up" routine indirect.

SR# 2200013367

PROBLEM: When several power sags occur, the HP1000 powerfail/auto-restart does not appear to work properly. The symptoms include application programs as well as HP programs aborting due to memory protects, dynamic mapping or "RQ" errors.

SOLUTION: In as much as this is a software problem, we have changed some code in the power fail routine to plug some holes that are inherent in the hardware.

2.19.37 SESSION MONITOR

SR# 2200022558

PROBLEM: $BALC sometimes destroys buffer in SAM during DS-1000

initialization. It ignores the possibility that the block of SAM allocated may equal the block of free SAM removed. If this is the case $BALC creates a zero length block of free SAM, wiping out the first two words of the following class buffer!

SOLUTION: $BALC is changed to check for the case of allocation of the whole block.

SR# 5000081141

PROBLEM: LOGON can have problems at A.85 when useing the old accounts file +@CCT!. A.85 system gens, switches and boots up ok; Accounts structure is the same as one which works fine in rev A.84. But when certain users (maybe all users) try to log on to the new system, LOGON may report ERR 10, but then will DM or MP, abort, and generally refuse to allow those users to log on. ACCTS rev A.85 uses part of the +@CCT! file to save information on UDSPs, and there may have been garbage in that field for some user accounts. Now when A.85 comes up, LOGON gets confused for that user because he thinks the #UDSPs/depth is greater than the limit: 8/8

SOLUTION: LOGON is modified to detect a UDSP count that is greater than the 8/8 limit and issue the warning message.
"LGON 16 NUMBER OF UDSP'S OR DEPTH INVALID
UDSP NUMBER AND DEPTH SET TO 0,0"
The user will then be logged on with a UDSP of 0/0. Fix is in the DSD 4.0 update.

2.19.38 SPOOLING

SR# 2200010272

PROBLEM: Spool files occasionally hang in queue and will not outspool -- GASP commands are ineffectual (i.e., RS, CS or UP). Problem seems to occur randomly (no known cause). The same sequence of commands that caused the problem once will work most of the time. The size of the offending output seems always to be less than one page in length. The only way to get rid of the spool file is by the KS command.

SOLUTION: Several internal problems in SMP have been fixed in

DSD4.0. This should fix the problem.

SR# 2200014852

PROBLEM: In a busy system with spooling active, the set up of a write-only spool file with buffering would sometimes fail. Failure modes include loss of all data sent to the file and loss (crash) of the system. The cause of the problem is that SMP gets in a race condition with the spool driver due to the buffering. This means that SMP may disrupt the driver during the set-up by changing one of its flag words.

SOLUTION: This problem is fixed by changing the spool driver to handle dynamic status requests by just rejecting them (this also fixes another bug, e.g sr2200053785 logged against RTE-IV). The system never buffers a dynamic status request, so SMP is then changed to do a dynamic status request during the set-up to wait for the driver. This guarantees that the flag word is not in use when it is modified. Thinking ahead, we also realize that a related problem exists at spool close time. Since SMP usually runs at higher priority than its callers, it is possible that it writes the final buffer flush to the driver ahead of the final user's requests which might be in the buffer pool. It might even disable the EQT before these requests are processed, resulting in loss of data at the end of the file. To fix this problem, the spool lu is locked, forcing RTIOC to put the SMP requests after the lower priority user request and the dynamic status request is again used to wait for the whole string of requests to be processed. SMP can then disable the EQT and continue the file clean-up.

SR# 2200031385

PROBLEM: SPOUT aborts with I004 message while outputting very large spool file.

SOLUTION: This problem is caused by the 65536'th line causing an ISZ in OS6SP to skip. The instruction skipped is the LDB of the transmission log, thus a very large TLOG is returned. This causes SPOUT to attempt to send a very large line to the output device, resulting in the I004. The ISZ is now protected with a JMP *+1.

SR# 2200053785

PROBLEM: When reading from a spooled tape, the IEOF does not work. All other methods for finding the end of file such as the A-register status work properly.

This was caused by the spool driver (DVS43 and OS6SP) clearing the status word before checking the request type.

SOLUTION: Fixed at DSD4.0. The fix was done in the RTE-6 spool driver which, with this revision, is also used in RTE-IVB.

SR# 5000010009

PROBLEM: The RTE-6/VM spooler allows multiple users to use the same spool file for outspooling at the same time. This causes somebody's output to be lost.

If a user-defined spool file is being used, a user at one terminal can enter a :SL,6,SPOOLF,,6 command and begin writing on LU 6. Meanwhile, another user at another terminal can enter the same command. When he begins writing to LU 6, he overwrites whatever the first user was doing. User 1 will be surprised when he gets his spooled output back.

Furthermore, when one of the users enters the :CS,6 command, SMP closes the file. The second user can still write to it. This would cause some interesting problems if someone purges the file and packs the disc!

SOLUTION: This is caused by SMP opening the file in each case. It is therefore blind to the fact that it was already open (to itself). Even worse, if for some SMP terminates, including shut downs and/or reboots, all the opens would be cleared by D.RTR.

SMP has been changed to reopen all files in the SPLCON file when it is restarted. If a file cannot be found the SPLCON entry is cleared and an appropiate message is sent to the system console. In addition, D.RTR has been modified to return, to SMP, a flag which indicates that it regards the file is already open to SMP. SMP now uses this flag to reject attempted spool setups of files which already are in use by SMP on behalf of the same, or another user.

SR# NONE

ENHANCEMENT: The RTE-6/VM spool system is enhanced to handle the byte length flag in files written by the CI file system (on FMGR discs).

2.19.39 SWTCH

SR# 2200011130

PROBLEM: When printing subchannels for prompt "TARGET ADDRESS/UNIT X FOR SUBCHANNELS", after subchannel 35 is printed, the "comma, space" is replaced with "35". EXAMPLE: ...32, 33, 34, 353536353735 The problem is that switch is set up for 32 maximum.

SOLUTION: The buffers are increased to allow the full 64 subchannels in the DSD 4.0 update.

2.19.40 SYSTEM UTILITIES

SR# 2200023440

PROBLEM: The PATH utility accepts a command line of only 80 characters.

SOLUTION: It is enhanced to accept up to 240 characters as a command line.

SR# 2200053694

PROBLEM: With some FMGR errors, INDXR doesn't print the name of the file which causes the error.

SOLUTION: Fixed in DSD4.0.

SR# 2200053728

PROBLEM: INDXR allows the same nam/ent symbol to be put into a library twice.

SOLUTION: Fix is in DSD 4.0 update. The user is now warned of the

duplicate NAM/ENT.

SR# 5000065938

PROBLEM: INDXR does not recognize RPL records. The index created will contain the NAM record, but no entry for the RPL. An undefined entry point message will result from SGMTR or MLLDR.

SOLUTION: Fixed in DSD4.0 update.

SR# 2200021121

ENHANCEMENT: INDXR is enhanced to talk to CI files.

2.19.41 TF

SR# 2200009704

PROBLEM: TF aborts without a meaningful error message while restoring files from a tape if a file called "xx".dir is on the tape.

SOLUTION: When TF tries to backup a FMGR file called "xx".dir, it converts the "." to a "*". This prevents any of these files from ever getting on the tape in the first place. If TF is restoring an FC tape with such a file, it no longer treats the file as a directory. In this case you can get an FMP error, but the rest of the files on the tape can be accessed.

SR# 5000023325

PROBLEM: TF group command causes an error if a 'C' or 'V' option is specified on some of the copy commands (in the group), while some of the other copy commands have no options specified at all.

SOLUTION: The 'C' and 'V' options both set the VERIFY flag for the entire group, so TF is assuming that each line must have had an option in it since one of the option flags is set. Using TRIMLEN, a reference is made to the 0th location of a string that had a first location of 1. A simple check for the current number of options prevents the bad reference.

SR# 5000046011

PROBLEM: TF prints in column 1 which messes up the carriage control information for the printer when the list device is the printer LU.

SOLUTION: A call to FmpSetIoOptions is used to set the V bit in case the LL command references a device.

SR# 2200008136

ENHANCEMENT: In a multitape backup, TF takes all but the last tape offline when it is done rewinding.

SR# 2200013193

ENHANCEMENT: The LL command now applies to the CO (copy) command, not just the DL command.

SR# 2200019075

ENHANCEMENT: UNIX binary files being restored are now created to their actual size as a type 1 file.

SR# 2200019091

ENHANCEMENT: TF pads in zeros at the end of the last block of data for UNIX binary files.

SR# 2200021410

ENHANCEMENT: When restoring a file or set of files to a global directory that does not exist, the directory will be created on the LU it previously existed on, if possible.

SR# 2200021485

ENHANCEMENT: TF now accepts the 'C' option to clear the backup bit when restoring files.

SR# 2200022897

ENHANCEMENT: TF now rewinds after each tape in a multiple tape restore.

SR# 5000021550

ENHANCEMENT: A second EOF mark is added at the end of the tape.

2.19.42 WHZAT

SR# 2200017913

PROBLEM: The 2608A prints 3 NULL characters at the begining of each line of a WHZAT print-out (i.e. WH,6)

SOLUTION: WHZAT is fixed to not output the null characters. (At one time, they were used for display control.)

2.20 (92091A) HPSPICE

2.20.1 SPICE

SR# 2200018283

PROBLEM: At revision C.83, HPSpice did not load on RTE-6/VM due to the support libraries getting larger.

SOLUTION: This problem has been fixed by moving the Fortran formatter routines out of the main of SIMSP and into other nodes.

SR# 2200019190

PROBLEM: The function Pas.Parameters was modified in the B.83 revision of $PLIB. Previously, Pas.Parameters either returned a one-word integer value that was the number of characters in the runstring or selected parameter, or it returned a zero if the selected parameter did not exist. The function was modified in B.83 to return a negative one if the selected parameter did not exist and no parameters followed.

SOLUTION: The HP interactive editor (SPICE) has been changed to correct a known problem which was due to a change in the pas.parameters function. Previously the SPICE program had to be run "SPICE,,," to avoid this problem. The change was made to Procedure Initialize in file &COMMS.

SR# NONE

PROBLEM: The simulator (SIMSP) gave runtime errors and MP errors when executed.

SOLUTION: The MLLDR command file for SIMSP (#SIMSP) was changed to move several additional routines of the FORTRAN formatter from the main and into the nodes.

SR# NONE

NOTE: SNF was changed to reflect these changes.

SR# NONE

NOTE: Due to a change in the Pascal compiler at revision B.84 the undefined entrypoints $$$LARGEMA1$$$ AND $$$LARGEMA2$$$ were reported. To correct this the MLLDR command file for SPICE (#SPICE) has been modified to add a search to %LH2 (pascal_lh2.rel).

2.21 (92836A) Fortran-77 Compiler

2.21.1 $ALIAS

SR# 5000048223

PROBLEM: $ALIAS with absolute addresses does not work well when using equivalence and character data. When $ALIAS is used to put a common block at an absolute address, and a character variable in that block has a byte address greater than 77777B, the high bit of that byte address is lost. Absolute byte addresses (from the $ALIAS absolute common block mechanism) always have bit 15 zero.

SOLUTION: The software is corrected.

2.21.2 ARRAYS

SR# 2200024034

PROBLEM: In non-CDS programs, constant subscripts on character arrays generated bad code.

SOLUTION: The software is corrected.

2.21.3 CDS

SR# 2200024778

PROBLEM: In CDS mode, a STOP statement with a character variable (instead of constant) failed.

SOLUTION: The software is corrected.

SR# NONE

ENHANCEMENT: Most of the entry points in the CDS version of the formatter and file I/O (BGCDS) are now called directly (using the "!" names) instead of thru interfaces (using the "." names).

2.21.4 COMMON

SR# 2200024299

ENHANCEMENT: DATA statements can now initialize variables in blank and labelled COMMON (in non-block data module) with the following restrictions: 1) EMA cannot be initialized 2) Blank common cannot be initialized in block data subprogram.

2.21.5 Compiler Error

SR# 2200018341

PROBLEM: Variably dimensioned EMA arrays with variable lower bounds and "*" upper bounds caused internal compiler errors. When a variably dimensioned EMA array has a variable lower bound and a "*" upper bound, an internal compiler error is issued.

SOLUTION: The software is corrected.

SR# 2200020743

PROBLEM: The use of CONTINUE on the right-hand-side of a logical IF is legal, but FTN7X produces a warning 89.

SOLUTION: A CONTINUE statement on right side of a logical IF caused a warning 89: correct code is now generated, and warning is no longer produced.

SR# 2200021600

PROBLEM: A spurious error 17 is generated in common statements in the second BLOCKDATA subprogram in a file, in revision A.84.

SOLUTION: The problem does not occur at DSD4.0.

SR# 2200022285

PROBLEM: In PARAMETER statements, if the variable is of type CHARACTER and the value is numeric, the compiler fails with an MP, DM, UI, infinite loop, etc.

SOLUTION: The software is corrected.

SR# 2200024117

PROBLEM: When a single COMMON statement is used to declare multiple common blocks, and an EMA common block is followed by a non-EMA common block (in the same common statement) the compiler aborted with an internal error.

SOLUTION: The software is corrected.

SR# 2200024547

PROBLEM: In FTN7X revision A.85, the extra character in odd length records in the source is treated as if it were valid. Usually the character is blank, which is harmless. When the character is nonblank problems occur.

SOLUTION: The software is corrected.

SR# 5000047332

PROBLEM: The ISHFT function with a large constant shift count caused an internal compiler error. When the ISHFT function is used with a constant shift count greater than 16 (32 for double integer), an internal compiler error is produced.

SOLUTION: These problems could not be duplicated and are assumed to be fixed by other changes.

SR# NONE

PROBLEM: An internal compiler error is issued when using variably-dimensioned EMA arrays in CDS mode. Too little space is allocated for the temporary variables which hold copies of the variable dimensions.

SOLUTION: The software is corrected.

2.21.6 DEBUG

SR# NONE

PROBLEM: The DEBUG information for EMA formal parameters are incorrect.

SOLUTION: The software is corrected.

2.21.7 EMA

SR# 2200023143

PROBLEM: When using local EMA with two or more EQUIVALENCE groups with the total size of local EMA exceeded 32K words, it is possible to get too little EMA allocated.

SOLUTION: The software is corrected.

SR# 2200023572

PROBLEM: If an EMA variable is used as the starting or ending position value in a substring contruct, bad code is generated. This caused a LINK error.

SOLUTION: The software is corrected.

2.21.8 ENTRY

SR# 2200014019

PROBLEM: Three or more ENTRY statements with code on the same line causes FTN7X to MP. When the 's' option is used, FTN77 program with multiple ENTRY statements and multi-statement lines (e.g. ENTRY FOO (parm) $ FOO=FUN(parm,6) $ return) causes the compiler to MP (memory protect). If there are 3 such statements the compiler hangs (i.e. runs forever) after listing the module. If there are 4 or more statements the compiler MPs. The debug option must be on for the failure to exist. No problem occurs if the ENTRY statements are on their own lines.

SOLUTION: The problem is due to the presence of an executable statement following a non-executable statement on the same line, when DEBUG information is being generated. The software is corrected.

2.21.9 FTN7X Configuration File

SR# 5000034744

PROBLEM: Fortran Configuration Guide is incorrect in specifing how to access extended LU's (>63) in RTE-A. The guide says that Z$CWD must be set correctly and %frpls searched when linking the user code. %frpls must be explicitly relocated, searching won't do it. %frpls as a system library does not work either.

SOLUTION: The configuration guide ("FTN7X) now indicates that the %FRPLS file must be relocated when loading the user program.

2.21.10 Functions

SR# 5000083360

PROBLEM: In the A.85 compiler, using statement functions could cause a variety of problems.

SOLUTION: Statement functions now work correctly.

2.21.11 INTRINSIC

SR# 2200020503

PROBLEM: There were two distinct problems with the INTRINSIC statement: 1) INTRINSIC statements caused a spurious warning 33 and acted like EXTERNAL statements. 2) At A.85, INTRINSIC statements could cause the compiler to fail (e.g. DM) when an EMA symbol table is used.

SOLUTION: The software is corrected.

2.21.12 Listing

SR# 5000009019

PROBLEM: When two or more users specify the printer as the list device during fortran compilation, the listings interleave with each other. FTN7X did not lock the list device when listing to a printer.

SOLUTION: FTN7X now locks the list device.

SR# 5000064782

PROBLEM: The FTN7X listing file is incorrect for programs larger than 9999 lines.

SOLUTION: The listing is moved one character to the right to accomodate another digit in the line number. The new limit is 32767.

SR# 5000047647

ENHANCEMENT: The source file name printed in the listing is limited to 26 characters. The compiler truncated longer names on the right, which is usually the useful part of the name. Now it truncates on the left, and puts ".." before the name to indicate that it is truncated.

2.21.13 NLS

SR# NONE

ENHANCEMENT: FTN7X is changed to support other native languages. (NLS support)

2.21.14 Runstring

SR# 5000082958

PROBLEM: Lowercase parameters in the RUN string confuse FTN7X. This has only been possible with CI since A.85.

SOLUTION: FTN7X now upshifts its run string.

2.21.15 Source File

SR# NONE

ENHANCEMENT: The name of the source file is now always put in the XNAM record. Previously, it was only put there under the 's' option.

2.22 (92842A) Graphics/1000-II AGP

2.22.1 JSERR

SR# 2200012989

PROBLEM: JSERR does not report AGP errors to the LU specified by the user. It would always display errors to the LU that scheduled the AGP program.

SOLUTION: JSERR does not properly store the requested error LU. By storing the error LU into common properly, the bug has been fixed.

2.23 (92857A) Basic/1000C

2.23.1 Aborts

SR# 2200018705

PROBLEM: The BASIC interpreter aborts with "ERROR: 21, SECONDARY ERROR: 13" when a "CM>" prompt is encountered during an edit session. Compiled BASIC programs also abort in a similar fashion if the prompt is encountered while writing to the CRT screen.

SOLUTION: This problem is due to changes in the A.85 operating system. CM now locks the terminal LU until it receives a response. BASIC will now check if the LU to which it is writing is the terminal LU (i.e. LU 1). If so, BASIC will suspend if this LU has been locked. This change was made in both the BASIC interpreter and compiler.

SR# 2200028324

PROBLEM: Encountering certain syntax errors can cause the BASIC interpreter to abort with the error "Samurai Error".

SOLUTION: A fault in the mechanism for detecting segmentation errors has been corrected.

SR# 5000048504

PROBLEM: When executing a program in the BASIC interpreter on a "small" A-series (i.e. only 512 KB of memory), the error "ERROR (173) PROGRAM COULD NOT BE SCHEDULED" can occur. This happens when RBEX (the interpreter's executor program) cannot fit into the available main memory.

SOLUTION: The supplied link file for RBEX specifies a working set of 169 which can be inappropriate for smaller systems. Re-linking RBEX (the LK command in LINK) with a smaller working set would solve this problem. The BASIC/1000C Installation and Configuration Guide has been updated to include this information.

SR# 5000050484

PROBLEM: When linking compiled BASIC programs, a LINK error "Unsupported PCAL to old code" can occur.

SOLUTION: We deleted the SE command from the link files supplied with the BASIC compiler.

SR# 2200018986
SR# 5000055087

PROBLEM: The BASIC interpreter aborts in program preparation mode with "ERROR (109) OUT OF ROOM" when loading a large program.

SOLUTION: The BASIC editor has been converted into a VMA program and is no longer restricted to the 32k partition for its work space.

SR# NONE

PROBLEM: The BASIC interpreter loops indefinitely upon encountering certain internal errors.

SOLUTION: Changes to the error handler now enable the current DOFILE to be closed and control to be returned to the user.

2.23.2 BBMG

SR# 2200003632

PROBLEM: BBMG does not specify the names of the output files that it creates.

SOLUTION: BBMG now specifies the names of the info and relocatable files upon successful completion of a session.

SR# 2200019000

PROBLEM: BBMG does not overwrite the list file when new file system names are used. If a command file and a list file are specified in the runstring and the list file

already exists, BBMG reports an error referring to old-style filenames.

SOLUTION: BBMG can now overwrite files with new file system names.

2.23.3 CDS

SR# 2200019976

PROBLEM: The BASIC compiler generates bad code when using $CDS ON with $RESERVE n where n is less than 1024.

SOLUTION: The problem has been fixed by externalizing a subroutine in the compiler.

2.23.4 DOFILE

SR# 2200018556

PROBLEM: A program with an INPUT statement will not work correctly if the file containing the program is specified as the DOFILE in the BASIC interpreter runstring.

SOLUTION: This is a problem with the DOFILE initialization. When the current DOFILE ends, the previously nested DOFILE would not be initialized properly. Inserting a call to procedure init_file_names into the module DOFIO.PAS solved this problem.

SR# NONE

PROBLEM: During execution of a program, when the BASIC interpreter is getting input from a DOFILE and encounters end-of-file, control is not correctly transferred to the debugger.

SOLUTION: This is another DOFILE initialization problem. A call to the procedure init_file_names has beem inserted into the module SYNIO.PAS.

2.23.5 Editor

SR# NONE

PROBLEM: Long lines are mishandled by the BASIC interpreter's line editor.

SOLUTION: Changes have been made to two edit routines.

2.23.6 Filenames

SR# 5000074161

PROBLEM: On an FMGR cartridge, the 2401 BASIC compiler does not accept non-default file specifiers.

SOLUTION: The BASIC compiler's runstring parsing routine has been corrected to accept non-default file specifiers.

2.23.7 Functions

SR# 2200010587

PROBLEM: The BASIC interpreter's SGN function returns the wrong value when the argument is of type DOUBLE.

SOLUTION: The wrong variable was being used to determine the type of the argument, which resulted in the wrong value being evaluated. This has been corrected.

2.23.8 GET

SR# NONE

PROBLEM: "GET" performance in the BASIC interpreter needs improvement.

SOLUTION: Changes include algorithmic improvements and the use of more efficient routines for table access.

2.23.9 I/O

SR# 2200018358
SR# 5000040337

PROBLEM: BASIC accepts LU numbers in the range 0 to 63. RTE-A currently supports LU numbers in the range 0 to 255.

SOLUTION: The appropriate EXEC and REIO calls have been replaced by their extended LU counterparts (XLUEX and XREIO). Changes have been made in both the interpreter and compiler.

SR# 5000059634

PROBLEM: The BASIC compiler does not properly default the list and relocatable files when they are not specified. The runstring "CBASIC,TEST.BAS,,-" will not set the list file to LU 0.

SOLUTION: When not specified, list and relocatable files are now defaulted to LU 0.

SR# 5000087288

PROBLEM: Certain cases involving the ON INTR GOTO statement can cause program flow problems in the BASIC interpreter.

SOLUTION: The handling of interrupts by the BASIC interpreter's branching routines has been corrected.

SR# NONE

PROBLEM: The BEXEC relocatable supplied with the BASIC interpreter does not have extended LU range capability.

SOLUTION: The new relocatable BXLUEX.REL will now be supplied to enable the user to communicate with LU's in the extended range 0..255.

2.23.10 Installation

SR# NONE

PROBLEM: The BASIC interpreter install file for RTE-6 will use the wrong link command file if a load map is requested for RBEX.

SOLUTION: We corrected the LINK runstring in the file INSTALL_6_BAS.CMD.

2.23.11 Manuals

SR# 2200015636

PROBLEM: The BASIC/1000C manual, page 13.3, is incorrect in describing the size of the type 2 file.

SOLUTION: The BASIC/1000C manual has been corrected.

SR# 2200018366

PROBLEM: The BASIC/1000C manual's description of the use of SHEMA with the BASIC compiler is insufficient and should be expanded to detail all of the restrictions and possible dangers.

SOLUTION: The BASIC/1000C manual has been corrected.

SR# 2200021063

PROBLEM: The BASIC/1000C manual's description of the use of BASIC with MLLDR needs clarification and correction.

SOLUTION: The BASIC/1000C manual has been corrected.

SR# 5000005124

PROBLEM: The BASIC/1000C Installation and Configuration Guide contains errors regarding working set size for the interpreter on page 4-5. In addition, the benchmark information on page 4-7 does not specify time units.

SOLUTION: The BASIC/1000C Installation and Configuration Guide has been corrected.

SR# 5000056093

PROBLEM: The BASIC/1000C manual's explanation of the $RESERVE directive needs clarification.

SOLUTION: The BASIC/1000C manual has been updated.

2.23.12 RINTR

SR# NONE

PROBLEM: Interrupts cannot be logged on an HPIB LU greater than 63. The HPIB library on RTE-A can accept LU's in the extended range 0-255.

SOLUTION: The interrupt handler, RINTR, has been updated to accept HPIB LU's in the extended range of 0-255 on RTE-A systems.

2.24 (92860A) Symbolic Debug/1000

2.24.1 Break

SR# 2200026187

PROBLEM: Debug cannot clear breakpoints outside the current segment or main.

SOLUTION: Fixed in the DSD 4.0 update.

SR# 5000017525

PROBLEM: A SEGLD that overlaid a segment with itself could cause a breakpoint in that segment to not be hit.

SOLUTION: Fixed in the DSD 4.0 update.

SR# 5000042960

PROBLEM: When setting a breakpoint at an entry point which has the same name as a local variable, Debug will set the breakpoint at the variable, not the entry point.

SOLUTION: Now Debug will properly "prefer" entry point names over variable names when setting breakpoints and when in profiling mode.

2.24.2 CDS

SR# 2200017152

PROBLEM: Debug cannot handle the last part of a large CDS routine.

SOLUTION: Fixed in the DSD 4.0 update.

SR# 2200026211

PROBLEM: Debug locks up or gives a syntax error message if a variable in an inactive CDS routine is used in a conditional breakpoint or tracepoint.

SOLUTION: Fixed in the DSD 4.0 update. These variables are legal to use.

SR# 2200026195
SR# 2200026203
SR# 2200026245

PROBLEM: Debug does not keep track of CDS segments properly. Symptoms include

- Incorrectly saying "Must be in current segment or main".
- Using the right address but the wrong segment for

various commands.
- Not hitting breakpoints.
- Not stepping into PCALX or PCALV calls.
- Incorrectly saying a routine is not active.
- Incorrectly reporting MP violations.

SOLUTION: Debug now does a far better job of handling segments, and does not treat non-CDS code in the data partition as if it were in a segment.

SR# 2200026260

PROBLEM: The Where command displays wrong values for parameters of recursive CDS routines. Parameters are always looked for in the most recent invocation of a routine, rather than the invocation being displayed.

SOLUTION: Parameters are now looked for only in the routine invocation being displayed.

SR# 2200026286

PROBLEM: Debug displays wrong suffixes after values for CDS locations or addresses. Octal contents of a location may be suffixed by the memory relocation type ('q' or 'c', rather than 'b'). Addresses may be suffixed by an arbitrary character.

SOLUTION: The suffixes as defined in the manual are now given.

SR# 2200016915
SR# 5000031633

PROBLEM: Debug cannot single step computed gotos in CDS mode.

SOLUTION: Fixed in the DSD 4.0 update.

SR# 5000064766

PROBLEM: Listing a subroutine in CDS mode could cause Debug to hang.

SOLUTION: Fixed in DSD 4.0.

2.24.3 Display

SR# 2200026229

PROBLEM: Debug cannot display the address of a location outside the current segment or main.

SOLUTION: Addresses can always be displayed.

SR# 5000026328

PROBLEM: Displaying an array using a type override directive (i.e. D X(3):C2) displays the wrong locations.

SOLUTION: Debug calculates the index based on the original type of the array, not the override type.

SR# 5000033415

PROBLEM: Debug does not use enough precision when displaying real numbers.

SOLUTION: An additional unit of precision is added when rounding.

SR# 2200012732
SR# 5000075911

PROBLEM: Debug does not display character data correctly if the string begins on an odd byte boundary.

SOLUTION: Fixed in the DSD 4.0 update.

SR# 5000081208

PROBLEM: Debug gives a "Packing type invalid" error when displaying an array with adjustable array declarators (variable dimensions).

SOLUTION: Fixed in the DSD 4.0 update.

2.24.4 EMA

SR# 5000078501
SR# 5000081257

PROBLEM: Debug cannot display nor modify EMA variables.

SOLUTION: EMA variables not being displayed is caused by problems in FTN7X and RTE-A Link, which is now fixed.

2.24.5 List

SR# 5000039867

PROBLEM: Debug can go into an infinite loop or report strange error messages when the List command is used to list an arbitrary file. This is caused by incorrectly calling symbol table support routines.

SOLUTION: Fixed in the DSD 4.0 update.

2.24.6 Modify

SR# 5000056135

PROBLEM: Cannot modify X and Y registers on RTE-A.

SOLUTION: Fixed in the DSD 4.0 update.

2.24.7 Running DEBUG

SR# 2200004192

PROBLEM: When using the :IH option in DEBUG, the program name must be given with a .RUN extension (i.e. DEBUG FOO.RUN:IH).

SOLUTION: Now just the program name is required. Note that the program is OFF'ed at the end of the session on RTE-A, even with the :IH option.

SR# 2200016568

PROBLEM: Debug creates new '@' files on the first cartridge in the cartridge list, rather than on the same cartridge as the original '@' file.

SOLUTION: Fixed in the DSD 4.0 update.

SR# 2200016048
SR# 2200020149
SR# 2200026252

PROBLEM: Debug gets an MP violation while exiting. This occurs when Debug tries to OF the debugged program and fails, perhaps because no ID segment exists for the program yet (during initialization).

SOLUTION: The program is only OF'ed if previously RP'ed.

SR# 2200026278

PROBLEM: Debug requests too much memory when prompting for the runstring on RTE-A, causing Debug to become memory-suspended.

SOLUTION: Debug now requests 256 bytes.

SR# 5000047449

PROBLEM: Debug can become memory suspended when the +L option is used.

SOLUTION: Fixed in the DSD 4.0 update. Session LUs are used rather than system LUs (for RTE-6).

SR# 5000069641

PROBLEM: Debug gives a "DCB not open swap file" error when debugging large programs.

SOLUTION: Fixed in the DSD 4.0 update.

SR# 2200026328

ENHANCEMENT: If Debug detects an error in the linking of stack frames a "Stack marker inconsistency detected" error is given. If the user suspects the stack chain is corrupt, entering the Where command will cause Debug to perform this check. Debug will no longer hang up on this condition.

SR# 5000020081

ENHANCEMENT: A RUN command is created to schedule programs while in Debug.

SR# 5000050583

ENHANCEMENT: If Debug cannot find a source file and must be told the new name, Debug remembers the new name while in that module. The user does not have to re-enter the name after each single step.

SR# 5000028373
SR# 5000050666

ENHANCEMENT: Programs that expect RMPAR parameters that are independent of the runstring parameters can be debugged from CI or FMGR. The +P option has been expanded to the form +P[:n1:n2:n3:n4:n5], where n1-n5 are the RMPAR parameter values to pass. Any RMPAR values not specified in the +P option are set from the runstring parameters, as usual.

SR# 5000075879

ENHANCEMENT: The buffer for Debug's runstring is expanded to 3K words so that larger buffers can be passed to programs being debugged.

2.24.8 Stepping

SR# 2200017137

PROBLEM: If Link drops current page links after a line, Debug cannot single step the line.

SOLUTION: Debug now goes into emulation mode when current page links are found, increasing the chances that the line can be single stepped.

SR# 5000065011
SR# 5000067090

PROBLEM: Debug incorrectly reports MP violations when single stepping CDS programs.

SOLUTION: Fixed in the DSD 4.0 update.

SR# 5000077792

PROBLEM: Debug does not properly single step a VADD call in CDS mode; the program runs to completion.

SOLUTION: Fixed in the DSD 4.0 update.

2.25 (92861A) Graphics/1000-II DGL Version 2.0

2.25.1 26061A

SR# NONE

ENHANCEMENT: We have added new display devices for the 26061A vector to raster translator card by adding the library D0045.

2.25.2 Plotter

SR# NONE

ENHANCEMENT: We have added new display and locator devices for the 7586 plotter interfaced by RS232 by adding libraries D0068 and L0068.

SR# NONE

ENHANCEMENT: We have added new display devices for the 7550 plotter interfaced by RS232 by adding library D0065.

SR# NONE

ENHANCEMENT: We have added a new display device for the 7475 plotter interfaced by RS232 by adding library D0066.

SR# NONE

ENHANCEMENT: We have added new display and locator devices for the 7470 plotter interfaced by RS232 by adding libraries D0067 and L0067.

SR# NONE

ENHANCEMENT: We have added new display and locator devices for the 7440 plotter interfaced by either HP-IB or RS232 by adding libraries D0061, D0063, L0061, and L0063.

2.25.3 Polygon

SR# 2200005611

PROBLEM: There is a problem in filling two or more overlapping polygons with polygon edges and fill lines being coincident.
SOLUTION: We fixed the round off errors that were occurring.

2.25.4 Printer

SR# NONE

ENHANCEMENT: We have added new display devices for the HP2686 Laser Jet printer by adding library D0058.

2.25.5 Terminals

SR# NONE

ENHANCEMENT: Added new display devices for the 2393 and 2397 terminals using libraries D0059, D0060, L0059, V0059, P0059, L0060, V0060 and P0060.

2.25.6 ZPGDD

SR# NONE

PROBLEM: ZPGDD for the 2627 terminal handler would always outline the polygon with a solid line, even if the line style had been changed by a previous call to ZLSTL.

SOLUTION: ZPGDD is using the 2627 firmware to generate the boundary line. The 2627 firmware only supports solid boundary lines. ZPGDD has been changed to generate the boundary line in software, so that the current line style attribute would be displayed.

SR# NONE

PROBLEM: ZPGDD for libraries D0047 and D0048 does not update the current point correctly.

SOLUTION: ZPGDD has been mmodified to update the current point.

2.26 (92862A) Graphics/1000-II AGP Version 2.0

2.26.1 JSERR

SR# 2200012989

PROBLEM: JSERR does not report AGP errors to the LU specified by the user. It would always display errors to the LU that scheduled the AGP program.

SOLUTION: JSERR does not properly store the requested error LU. By storing the error LU into common properly, the bug has been fixed.

2.26.2 WSP

SR# 5000036079

PROBLEM: Any WSP name of less than 6 characters sent into JDINT would return an error indicating that the WSP program was not found.

SOLUTION: A bug has been fixed in MNEW and MNEWL that involves incorrect extraction of the program name from a file descriptor.

SR# 5000041509

PROBLEM: In order to use a workstation program for AGP, the program has to be either RP'ed or in a file in the working directory. WSP's in the /PROGRAMS directory are not found.

SOLUTION: The ZMNTR program has been enhanced to also look in the PROGRAMS directory.

2.27 (94200B) PCIF/1000

2.27.1 Library

SR# NONE

ENHANCEMENT: Made additions to PCIF Library, PCTST, and tutorial for extended call enhancements.

2.28 (94202A) PCIF/1000 Handler for Allen-Bradley PCs

2.28.1 PC and HWY Handlers Enhancements

SR# 2200022673

ENHANCEMENT: Added support to Allen-Bradley 1771-KG interface module.

SR# C700021964

ENHANCEMENT: Added configuration screen six to allow setting the baud rate on the downloadable mux to other than 9600 baud.

SR# NONE

ENHANCEMENT: Additions to support Allen-Bradley PLC-3 PC.

2.29 (94203A) PCIF/1000 Handler for Modicon PCs

2.29.1 P/C and HWY Handlers Enhancements

SR# NONE

ENHANCEMENT: Additions to support Gould 484 and 984 PCs.

2.30 (94204A) PCIF/1000 Siemens Handler

2.30.1 Siemens Handlers

SR# NONE

ENHANCEMENT: To support S5-115U, S5-135U & S5-150U SIEMENS PCs.

Chapter 3
Current Revisions & Changes

This chapter lists the current revision codes for each software product, and notes any changes that have occurred to the product in this update cycle.

Those products that have been changed in this update cycle are marked with a '+' to the left of the product number. If a product has been updated, the listing will also include:

a) Manuals and

b) Software (and firmware) media

that have been updated (or added) in this update cycle, and are being distributed with the subscription services for this product.

If software has been updated for the product, then those modules that have been changed/added/deleted are marked with a '*' to the left of the file name, and the type of update is shown to the right of the current revision code: updated files show the new revision code; added or deleted files are marked as 'New' or 'Deleted' (respectively).

Products that support the hierarchical file system are marked with an asterisk (*) after the product name.

For specific information on updating systems in the new hierarchical file format, please refer to chapter 5.

Note that updated products may have only manual changes or only software changes. This is noted in the manual or media lists. The manual changes are listed in the format 'Edition#/Update#'. For example, '2/2' means edition 2, update 2 and '3/-' means edition 3, no update.

A history of the firmware for both the A and M/E/F Series machines is at the end of this chapter.

3.1 (12824A) Vector Instruction Set

Filename	Part Number	Rev
$VLIB1	12824-12001	2026
$VLIB2	12824-12002	2026
%VISOD	12824-16002	2026

3.2 (12829A) VIS for RTE-6

Filename	Part Number	Rev
$VLB6A	12829-12001	2226
$VLB6B	12829-12002	2213
%VIS06	12829-16001	2226

3.3 (24396A-F) Offline Diagnostics (M ,E, F-Series)

Filename	Part Number	Rev
!IODG	24318-16001	2326
$VLB6B	12829-12002	2213
%VIS06	12829-16001	2226

3.4 + (24398A/B) Peripheral Diagnostics (L, A-Series)

Filename	Part Number	Rev
!DIAG	24398-16020	2401
!DISFO	24398-16024	2401
!ERT	24398-16022	2401
!EXR1	24398-16025	2340
!MEXPL	24398-16055	2401
!MTEXR	24398-16054	2401
!MTVER	24398-16018	2340
!OPER	24398-16031	2340
!SYSTM	24398-16053	2401
!TAPE	24398-16029	2340
!TESTM	24398-16052	2340
B24398	24398-17998	2401

B24398	24398-17998	REV.
BOOTEX	92077-16364	2401
EXR1	24398-16026	2340
EXR1M	24398-16036	2340
MACICD	24398-16056	2401
MACICM	24398-16057	2401
MTEXR	24398-16058	2401
MTEXRM	24398-16059	2401
MTVER	24398-16017	2340
MTVERM	24398-16039	2340
OPER	24398-16032	2340
OPERM	24398-16038	2340
TAPE	24398-16030	2340
TAPEM	24398-16037	2340
TESTM	24398-16033	2340
TESTMM	24398-16043	2340

Manual Part#	Title	Edition/Update
5958-9137	7974/7978 Magnetic Tape Drive HP 1000 Exerciser Manual (replaces 24398-90007)	1/-

3.5 (24600A) I/F Diagnostics (L, A-Series)

Filename	Part Number	Rev
!PSI	24600-16001	2026
A24600	24600-18999	
BOOTEX	24998-16013	2041
PSI	24600-16002	2026

3.6 + (24612A) Offline Diagnostics (A-Series)

Filename	Part Number	Rev	Change
!AIMXD	24613-16001	2301	
!AOUTD	24613-16002	2301	
!ASIC	24612-16035	2301	
!BCM	24612-16042	2326	
!BCMCT	24612-16043	2326	
!CDSBI	24612-16048	2326	
!CDSPC	24612-16050	2326	

```
   !CPU                 24612-16015  2301
   !CSIC                24612-16051  2326
   !CTDVR               24612-16002  2301
 * !DCDVR               24612-16004  2401   --> 2540
   !DID                 24612-16052  2401
   !DIDVR               24612-16056  2327
   !DIGIO               24613-16003  2301
   !DSDVR               24612-16006  2326
   !EIG                 24612-16027  2301
   !FDL                 24612-16041  2213
   !FPD                 24612-16025  2301
 * !HPIB                24612-16036  2340   --> 2440
   !IOM                 24612-16019  2326
   !LIS                 24612-16029  2326
   !MAD                 24612-16021  2401
   !MCD                 24612-16023  2340
   !MCDXL               24612-16046  2326
   !MTDVR               24612-16054  2401
   !MUX                 24612-16040  2301
   !PIC                 24612-16037  2326
   !PROM                24612-16038  2301
   !PSI                 24612-16039  2213
   !RMDVR               24612-16008  2301
 * !SFD                 24612-16017  2301   --> 2540
   !SIS                 24612-16031  2301
   !WCS                 24612-16032  2213
 * #AUTO                24612-18013  2326   --> 2540
   %CDSBI               24612-16047  2340
   %CDSPC               24612-16049  2326
   %CPU                 24612-16014  2301
   %CTDVR               24612-16001  2301
 * %DCDVR               24612-16003  2401   --> 2540
   %DDL                 24612-16010  2340
   %DEBUG               24612-16011  2301
   %DIDVR               24612-16055  2327
   %DSDVR               24612-16005  2326
   %EIG                 24612-16026  2301
   %FPD                 24612-16024  2326
 * %IOM                 24612-16018  2326   --> 2440
   %LIS                 24612-16028  2326
 * %LPDVR               24612-16012  2213   --> 2540
   %MAD                 24612-16020  2340
   %MADMG               24612-16045  2301
   %MAPS                24612-16009  2301
   %MCD                 24612-16022  2340
   %MSGS                24612-16033  2301
   %MTDVR               24612-16053  2401
   %PFCON               24612-16034  2401
   %RMDVR               24612-16007  2301
 * %SFD                 24612-16016  2401   --> 2540
```

	%SIS	24612-16030	2326	
*	A24612	24612-17999	2401	--> 2540
*	BCMDC	24612-16044	2401	--> 2540
	BCMDI	24612-16057	2327	
	BCMMT	24612-16058	2401	

Manual Part#	Title	Edition/Update
(no manual changes)		

Media Part#	Media Option
24612-13312	020
24612-13313	020
24612-13317	020
24612-13319	021
24612-13320	021
24612-13324	021
24612-13311	022
24612-13401	041
24612-13406	042
24612-13408	042
24612-13409	044
24612-13410	044
24612-13411	044
24612-13412	044
24612-13501	051

3.7 (24613A) Measurement & Control Diagnostics

Filename	Part Number	Rev
!AIMXD	24613-16001	2301
!AOUTD	24613-16002	2301
!ASIC	24612-16035	2301
!BCM	24612-16042	2326
!BCMCT	24612-16043	2326
!CDSBI	24612-16048	2326
!CDSPC	24612-16050	2326
!CPU	24612-16015	2301
!CSIC	24612-16051	2326
!CTDVR	24612-16002	2301
!DCDVR	24612-16004	2401
!DID	24612-16052	2401
!DIDVR	24612-16056	2327

!DIGIO	24613-16003	2301
!DSDVR	24612-16006	2326
!EIG	24612-16027	2301
!FDL	24612-16041	2213
!FPD	24612-16025	2301
!HPIB	24612-16036	2440
!IOM	24612-16019	2326
!LIS	24612-16029	2326
!MAD	24612-16021	2401
!MCD	24612-16023	2340
!MCDXL	24612-16046	2326
!MTDVR	24612-16054	2401
!MUX	24612-16040	2301
!PIC	24612-16037	2326
!PROM	24612-16038	2301
!PSI	24612-16039	2213
!RMDVR	24612-16008	2301
!SFD	24612-16017	2301
!SIS	24612-16031	2301
!WCS	24612-16032	2213
#AUTO	24612-18013	2326
%CDSBI	24612-16047	2340
%CDSPC	24612-16049	2326
%CPU	24612-16014	2301
%CTDVR	24612-16001	2301
%DCDVR	24612-16003	2401
%DDL	24612-16010	2340
%DEBUG	24612-16011	2301
%DIDVR	24612-16055	2327
%DSDVR	24612-16005	2326
%EIG	24612-16026	2301
%FPD	24612-16024	2326
%IOM	24612-16018	2326
%LIS	24612-16028	2326
%LPDVR	24612-16012	2213
%MAD	24612-16020	2340
%MADMG	24612-16045	2301
%MAPS	24612-16009	2301
%MCD	24612-16022	2340
%MSGS	24612-16033	2301
%MTDVR	24612-16053	2401
%PFCON	24612-16034	2401
%RMDVR	24612-16007	2301
%SFD	24612-16016	2401
%SIS	24612-16030	2326
A24612	24612-17999	2440
BCMDC	24612-16044	2401
BCMDI	24612-16057	2327
BCMMT	24612-16058	2401

3.8 + (91711B) Online Diagnostics (M, E, F-Series)

	Filename	Part Number	Rev	Change
	!CS801	91711-16351	2226	
*	!CS802	91711-16351	New	--> 2226
*	!CS803	91711-16351	New	--> 2226
*	!CS804	91711-16351	New	--> 2226
*	!CS805	91711-16351	New	--> 2226
*	!CS806	91711-16351	New	--> 2226
*	!CS807	91711-16351	New	--> 2226
*	!CS808	91711-16351	New	--> 2226
*	!CS809	91711-16351	New	--> 2226
*	!CS810	91711-16351	New	--> 2226
*	!CS811	91711-16351	New	--> 2226
*	!CS812	91711-16351	New	--> 2226
*	!CS813	91711-16351	New	--> 2226
*	!CS814	91711-16351	New	--> 2226
	!ICD01	91711-16350	2201	
*	!ICD02	91711-16350	New	--> 2201
*	!ICD03	91711-16350	New	--> 2201
*	!ICD04	91711-16350	New	--> 2201
*	!ICD05	91711-16350	New	--> 2201
*	!ICD06	91711-16350	New	--> 2201
*	!ICD07	91711-16350	New	--> 2201
*	!ICD08	91711-16350	New	--> 2201
*	!ICD09	91711-16350	New	--> 2201
*	!ICD10	91711-16350	New	--> 2201
*	!ICD11	91711-16350	New	--> 2201
*	!ICD12	91711-16350	New	--> 2201
*	!ICD13	91711-16350	New	--> 2201
	!MUXST	12792-16007	2301	
*	#$TXPF	91711-17026	New	--> 2540
	#TESTM	91711-17025	2301	
	#TXDS0	91711-17007	2201	
	#TXIB0	91711-17008	2201	
	#TXMT0	91711-17009	2201	
	#TXMV0	91711-17006	2201	
	#TXMV1	91711-17016	2201	
*	#TXPF0	91711-17005	2201	--> 2540
*	#TXPF1	91711-17017	2201	--> 2540
*	#TXPF2	91711-17018	2201	--> 2540
	#TXPF3	91711-17019	2201	
	#TXPF4	91711-17020	2201	
*	#TXPM0	91711-17001	2201	--> 2540
*	#TXPM1	91711-17002	2201	--> 2540
*	#TXPM2	91711-17003	2201	--> 2540
*	#TXPM3	91711-17004	2201	--> 2540
	#TXTD0	91711-17014	2201	

	#TXTD1	91711-17015	2201	
	#TXTR0	91711-17013	2201	
	#TXTT0	91711-17011	2201	
	#TXTT1	91711-17012	2201	
	#TXWL0	91711-17010	2201	
	#VIS06	91711-17022	2201	
	#VMACK	91711-17021	2201	
	$XXTD1	91711-12031	2201	
*	%$TXPF	91711-12112	New	--> 2540
	%CFTML	91711-16252	2201	
*	%DBIVF	91711-16386	New	--> 2540
*	%DISVF	91711-16238	2201	--> 2540
*	%EMAVF	91711-16012	New	--> 2540
*	%EXR1	91711-16285	2226	--> Deleted
*	%FFPVF	91711-16234	2201	--> 2540
*	%HFPVF	91711-16235	2201	--> 2540
	%IMPTM	91711-16254	2201	
	%IWRZZ	91711-16253	2201	
	%JENTS	91711-16370	2301	
*	%MEXPL	91711-16384	New	--> 2540
*	%MORFE	91711-16233	2201	--> 2540
*	%MTEXR	91711-16383	New	--> 2540
	%MUXST	12792-16006	2301	
*	%NPART	91711-16228	2226	--> 2540
*	%RODFK	91711-16226	2201	--> 2540
*	%RODSK	91711-16256	2201	--> 2540
*	%RODTK	91711-16257	2201	--> 2540
*	%RPTBL	91711-16232	2201	--> 2540
*	%RT6VF	91711-16385	New	--> 2540
*	%SIGVF	91711-16387	New	--> 2540
*	%SISVF	91711-16236	2201	--> 2540
*	%TAPE	91711-16287	2301	--> Deleted
	%TESTM	91711-16369	2301	
	%TXDS0	91711-16241	2201	
	%TXIB0	91711-16242	2201	
	%TXMT0	91711-16243	2201	
	%TXMV0	91711-16240	2226	
	%TXMV1	91711-16266	2201	
*	%TXPF0	91711-16231	2201	--> 2540
*	%TXPF1	91711-16258	2201	--> 2540
*	%TXPF2	91711-16259	2201	--> 2540
	%TXPF3	91711-16260	2201	
	%TXPF4	91711-16261	2201	
*	%TXPM0	91711-16225	2201	--> 2540
*	%TXPM1	91711-16227	2226	--> 2540
*	%TXPM2	91711-16229	2201	--> 2540
*	%TXPM3	91711-16230	2201	--> 2540
	%TXTD0	91711-16248	2201	
	%TXTD1	91711-16249	2201	
	%TXTD2	91711-16250	2201	

	%TXTD3	91711-16251	2201	
	%TXTR0	91711-16247	2201	
	%TXTT0	91711-16245	2201	
	%TXTT1	91711-16246	2201	
	%TXWL0	91711-16263	2201	
*	%VIS06	12829-16006	2201	--> 2226
*	%VISVF	91711-16239	2201	--> 2540
	%VMACK	92084-16423	2121	
*	%VMAVF	91711-16237	2201	--> 2540
*	B91711	91711-17999	New	--> 2540
	DIAG	91711-16327	2201	
	DISCZ	91711-16329	2201	
	ERT	91711-16328	2201	
	EXR1	91711-16330	2226	
	FORM	91711-16326	2201	
*	OPER	91711-16333	New	--> 2226
	TAPE	91711-16332	2301	

Manual Part#	Title	Edition/Update
91711-90006	HP 91711B Diagnostic and Verification Package Reference Manual	1/3

Media Part#	Media Option
91711-13319	020
91711-13321	020
91711-13322	020
91711-13323	020
91711-13326	020
91711-13337	020
91711-13336	022
91711-13503	050
91711-13504	051

3.9 (91730A) Multipoint

Filename	Part Number	Rev
%AUTO7	91730-16009	2140
%DLFT	91730-16011	2140
%DSPMP	91730-16003	2140
%DVR07	91730-16001	2140
%EXMP	91730-16002	2140

%MPLIB	91730-12001	2140

3.10 (91731A) Multiplexer

Filename	Part Number	Rev
%DVS0N	91731-16001	1926
%DVS0Z	91731-16004	1926
%LD5AN	91731-16002	1926
%LD5AZ	91731-16003	1926
%LD5BN	91731-16005	1926
%LD5BZ	91731-16006	1926

3.11 (91732A) Datalink (A-Series)

Filename	Part Number	Rev
#AEXMP	91732-17006	2330
#AUTO7	91732-17005	2330
#CONFG	91732-17001	2330
#DYNST	91732-17002	2330
#FDLGN	91732-17004	2330
#VERDL	91732-17007	2330
$DLLIB	91732-12001	2326
%AEXMP	91732-16003	2330
%AUTO7	91732-16002	2330
%CONFG	91732-16004	2401
%DD.07	91732-16001	2401
%DLRPL	91732-16024	2330
%DYNST	91732-16006	2330
%IDS00	91732-16023	2330
%VERDL	91732-16005	2330
&AUTO7	91732-18002	2330
A91732	91732-17999	2401

3.12 (91740A/B) DS/1000

Filename	Part Number	Rev	Change
!665AD	29005-60001	1636	
!773AD	29024-60001	1636	

$DSDB	92069-12007	2040	
%2APLD	91740-16017	1840	
%3APLD	91740-16018	1840	
%DLIS1	91740-16009	2001	
%DLIS2	91740-16010	2001	
%DLIS3	91740-16011	1740	
%DSLB1	91740-12001	2326	
%DSLB2	91740-12002	2001	
%DSLB3	91740-12003	1740	
%DSML1	91740-12004	1913	
%DSML2	91740-12005	1913	
%DVA65	91740-16071	2026	
%EDITD	91740-16022	2026	
%EXECM	91740-16005	1840	
%EXECW	91740-16008	1740	
%GRPM	91740-16014	2001	
%LGLIB	91740-12007	1926	--> 2540
%LOADD	91740-16019	1913	
%LSTEN	91740-16001	1913	
%LSTNS	91740-16072	1913	
%NDTGN	91740-16021	1805	
%OPERM	91740-16006	2026	
%PROGL	91740-16012	1913	
%PTOPM	91740-16007	1913	
%QCLM	91740-16016	2001	
%QUEUE	91740-16013	2026	
%RD.TB	92069-16257	2040	
%RDBAM	92069-16258	1912	
%RDBAP	92069-16259	1912	
%REDIT	91740-16023	1740	
%REMAT	91740-16024	2026	
%RFAM1	91740-16003	1740	
%RFAM2	91740-16004	2213	
%RMTIO	91740-16037	1913	
%RTMLG	91740-12006	2013	--> 2540
%RTRY	91740-16015	2026	
%SGPRP	91740-16070	1805	
%UPLIN	91740-16002	1840	

3.13 (91741A) DS/1000-3000

Filename	Part Number	Rev
%D3KL2	91741-12002	1913
%D3KLB	91741-12001	2026
%DVG67	91741-16001	2126
%QUEX	91741-16003	2013

%QUEZ	91741-16002	1740
%RMOTE	91741-16007	2013
%RPCNV	91741-16005	2026
%RQCNV	91741-16004	1913

3.14 (91745A) Datasafe/1000

Filename	Part Number	Rev	Change
#RPAIR	91745-17002	2218	--> 2218
#VPAIR	91745-17003	2218	--> 2440
$RECAP	91745-12001	2218	--> 2540
%..DS	91745-16007	2218	--> Deleted
%DMYDS	91745-16007	New	--> 2440
%ALARM	91745-16005	2218	--> 2440
%ALRMX	91745-16020	2218	--> 2518
%CNREQ	91745-16006	2218	--> 2218
%DPAIR	91745-16002	2218	--> 2518
%DSCPR	91745-16022	2218	
%DVI30	91745-16001	2218	--> 2522
%LPAIR	91745-16004	2218	--> 2540
%RPAIR	91745-16003	2218	--> 2440
%VPAIR	91745-16019	2218	--> 2520
&ALRMX	91745-18020	2218	--> 2518
A91745	91745-17999	2301	--> 2540
#DPAIR	91745-17001	2218	
%VCOMP	91745-16030	New	--> 2440

3.15 + (91747A) Datashare/1000

	Filename	Part Number	Rev	Change
	#DCONV	91747-17001	2218	
*	$DSHAR	91747-12004	2326	--> 2540
*	%BMPG1	91747-12001	2218	--> 2540
*	%BMPG2	91747-12002	2301	--> 2540
*	%BMPG3	91747-12003	2326	--> 2540
	%DCONV	91747-16001	2218	
	%DMALL	91747-16002	2218	
*	A91747	91747-17999	2326	--> 2540

Manual Part#	Title	Edition/Update
(no manual changes)		

Media Part#	Media Option
91747-13301	020
91747-13302	020
91747-13303	020
91747-13304	022
91747-13501	050
91747-13502	051

3.16 + (91750A) DS/1000-IV

	Filename	Part Number	Rev	Change
*	!COPY3	91750-16213	2340	--> 2440
	#DSLIN	91750-17001	2301	
*	#RMOT1	91750-17003	2401	--> Deleted
*	#RMOTA	91750-17005	New	--> 2540
*	#RMOTE	91750-17002	2401	--> Deleted
*	#RMOTM	91750-17004	New	--> 2540
	$D3KBB	91750-12019	2201	
	$D3KL2	91750-12016	2201	
*	$D3KLB	91750-12017	2401	--> 2540
	$D3KMB	91750-12021	2201	
	$D3KRB	91750-12018	2201	
	$D3N25	91750-12029	2401	
*	$D3X25	91750-12028	2401	--> 2440
*	$DSAL	91750-12027	2401	--> 2540
*	$DSLB1	91750-12001	2401	--> 2540
*	$DSLB2	91750-12002	2401	--> 2440
*	$DSLB3	91750-12003	2401	--> 2540
*	$DSLCL	91750-12007	2326	--> 2540
*	$DSLSM	91750-12015	2401	--> 2540
*	$DSLXL	91750-12022	2340	--> 2540
*	$DSMA	91750-12008	2340	--> 2440
*	$DSML1	91750-12004	2340	--> 2540
	$DSML2	91750-12005	2113	
*	$DSMX4	91750-12025	2340	--> 2540
*	$DSMX6	91750-12023	2340	--> 2540
*	$DSNMA	91750-12010	2013	--> 2440
	$DSNRR	91750-12011	2013	

	$DSNSM	91750-12012	2340	
	$DSRR	91750-12013	2226	
*	$DSSM	91750-12014	2401	--> 2540
	%#SEND	91750-16208	2140	
	%#SPLU	91750-16221	2013	
	%$MWB	91750-16233	2113	
	%3APLD	91750-16042	2301	
*	%ADV00	91750-16286	2326	--> 2440
	%APLDL	91750-16040	2113	
	%APLDX	91750-16223	2013	
	%CNSLM	91750-16048	2340	
	%COMND	91750-16049	2013	
	%CSV66	91750-16268	2401	
	%CXL66	91750-16269	2401	
	%DDA66	91750-16292	2340	
*	%DINIS	91750-16069	2401	--> 2440
*	%DINIT	91750-16068	2401	--> 2440
*	%DLIS1	91750-16072	2326	--> 2440
*	%DLIS2	91750-16073	2326	--> 2440
*	%DSIN2	91750-16078	2401	--> 2540
*	%DSINF	91750-16077	2401	--> 2540
*	%DSINL	91750-16079	2401	--> 2540
	%DSLIM	91750-16265	2301	
*	%DSLIN	91750-16263	2440	--> 2540
*	%DSMOD	91750-16092	2401	--> 2540
	%DSTES	91750-16100	2013	
*	%DSVCP	91750-16102	2301	--> 2440
	%DVA65	91750-16105	2301	
	%DVA66	91750-16107	2326	
	%DVB65	91750-16300	2401	
	%DVC67	91750-16108	2201	
	%DVS64	91750-16241	2140	
	%EDI6D	91750-16240	2140	
	%EDITD	91740-16022	2440	
*	%EXECM	91750-16111	2401	--> 2440
*	%EXECW	91750-16112	2226	--> 2440
	%FCL7	91750-16243	2140	
	%GRPM	91750-16124	2326	
*	%ID*66	91750-16126	New	--> 2540
*	%ID.66	91750-16126	2340	--> Deleted
	%IDS64	91750-16242	2326	
	%INCNV	91750-16129	2340	
*	%IOMAP	91750-16130	2340	--> 2440
*	%LGLIB	91740-12007	1926	--> 2540
*	%LOG3K	91750-16132	2113	--> 2540
*	%LUMAP	91750-16133	2326	--> 2540
	%LUQUE	91750-16134	2201	
	%MATIC	91750-16136	2301	
	%MDFCL	91750-16293	2340	
	%MDV00	91750-16109	2201	

	%MSPLU	91750-16222	2013	
	%MVCP3	91750-16212	2013	
*	%OPERL	91750-16142	2340	--> 2440
	%OPERM	91750-16143	2140	
*	%OTCNV	91750-16144	2226	--> 2440
	%PLOG	91750-16147	2340	
*	%PROGL	91750-16150	2340	--> 2540
*	%PROGZ	91750-16226	2340	--> 2540
	%PTOPM	91750-16151	2340	
*	%QCLM	91750-16152	2401	--> 2540
	%QUEUE	91750-16153	2401	
	%QUEX	91750-16154	2340	
*	%QUEX1	91750-16155	2401	--> 2540
	%QUEZ	91750-16156	2201	
	%QUEZ1	91750-16157	2401	
	%REDIT	91740-16023	1740	
*	%REMAN	91750-16159	2401	--> 2440
*	%REMAZ	91750-16160	2401	--> 2440
*	%RESA	91750-16283	2326	--> 2540
*	%RESL	91750-16161	2326	--> 2440
*	%RESM	91750-16162	2326	--> 2440
*	%RESSM	91750-16163	2326	--> 2440
*	%RESXL	91750-16228	2326	--> 2440
*	%RFAM1	91750-16164	2340	--> 2440
*	%RFAM2	91750-16165	2340	--> 2440
*	%RMOT1	91750-16168	2401	--> 2540
*	%RMOTE	91750-16167	2401	--> 2540
	%RMTIO	91750-16169	2013	
*	%RPCNV	91750-16170	2326	--> 2440
	%RPRTL	91750-16224	2013	
	%RQCNV	91750-16171	2401	
*	%RSM	91750-16172	2401	--> 2440
*	%RTMLG	91740-12006	2013	--> 2540
	%RTRY	91750-16173	2301	
	%SGPRP	91740-16070	1805	
	%SGXL	91750-16234	2201	
	%SLCIN	91750-16176	2113	
	%SYSAT	91750-16202	2140	
	%TLOG	91750-16177	2326	
	%TRC3K	91750-16178	2301	
*	%UPLIN	91750-16179	2401	--> 2440
	%VCPMN	91750-16180	2226	
*	%WHZ6D	91750-16527	2340	--> 2540
*	%WHZDS	91750-16217	2013	--> 2440
*	%XDV00	91750-16181	2140	--> 2440
*	A91750	91750-18999	2401	--> 2540
*	EDITD	91740-16022	Dele	--> Deleted
*	REDIT	91740-16023	Dele	--> Deleted
*	SGPRP	91740-16070	Dele	--> Deleted

Manual Part#	Title	Edition/Update
91750-90002	User's Manual	2/1
91750-90005	Quick Reference Manual	2/1
91750-90010	Network Manager's Manual, Vol. 1	3/1

Media Part#	Media Option
91750-13301	020
91750-13302	020
91750-13303	020
91750-13304	020
91750-13305	020
91750-13306	020
91750-13307	020
91750-13308	020
91750-13309	020
91750-13311	020
91750-13312	020
91750-13310	022
91750-13401	041
91750-13402	041
91750-13403	042
91750-13404	042
91750-13405	042
91750-13406	042
91750-13407	044
91750-13408	044
91750-13409	044
91750-13410	044
91750-13501	050
91750-13502	051

3.17 (91751A) DSN/X.25 1000

Filename	Part Number	Rev
#LDXFA	91751-18627	2401
#LDXGA	91751-18707	2401
#LDXIA	91751-18550	2401
#LDXLA	91751-18687	2401
#LDXMA	91751-18567	2401
#LDXNA	91751-18527	2401

#LDXPA	91751-18587	2401
#LDXRA	91751-18647	2401
#LDXTA	91751-18607	2401
#LDXWA	91751-18667	2401
#LGNEF	91751-18701	2401
#LLAEF	91751-18681	2401
#LXFEF	91751-18621	2401
#LXIEF	91751-18541	2401
#LXMEF	91751-18561	2401
#LXNEF	91751-18521	2401
#LXPEF	91751-18581	2401
#LXREF	91751-18641	2401
#LXTEF	91751-18601	2401
#LXWEF	91751-18661	2401
$X25DS	91751-12002	2401
$X25LB	91751-12001	2401
%#X25A	91751-16014	2401
%#X25T	91751-16003	2401
%#XCOM	91751-16007	2401
%$CSTB	91751-16006	2401
%DD.60	91751-16005	2401
%DDX00	91751-16004	2401
%DDX60	91751-16002	2401
%DVX00	91751-16001	2401
%GENPK	91751-16200	2401
%LAPBV	91751-16180	2401
%XFOEF	91751-16010	2401
%XINEF	91751-16008	2401
%XINFA	91751-16122	2401
%XINIT	91751-16040	2401
%XINXA	91751-16012	2401
%XMOD	91751-16060	2401
%XNET	91751-16020	2401
%XNFEF	91751-16120	2401
%XNFOA	91751-16013	2401
%XPLOG	91751-16081	2401
%XREAD	91751-16140	2401
%XTLOG	91751-16100	2401
%XWRIT	91751-16160	2401
&$CSTB	91751-18006	2401
&DLOEF	91751-18513	2401
&DLOOA	91751-18516	2401
&XLOEF	91751-18511	2401
&XLOOA	91751-18515	2401
*LDXFA	91751-18626	2401
*LDXGA	91751-18706	2401
*LDXIA	91751-18549	2401
*LDXLA	91751-18686	2401
*LDXMA	91751-18566	2401
*LDXNA	91751-18526	2401

*LDXPA	91751-18586	2401
*LDXRA	91751-18646	2401
*LDXTA	91751-18606	2401
*LDXWA	91751-18666	2401
*LGNEF	91751-18708	2401
*LLAEF	91751-18688	2401
*LXFEF	91751-18628	2401
*LXIEF	91751-18542	2401
*LXMEF	91751-18568	2401
*LXNEF	91751-18528	2401
*LXPEF	91751-18588	2401
*LXREF	91751-18648	2401
*LXTEF	91751-18608	2401
*LXWEF	91751-18668	2401
A91751	91751-17999	2401

3.18 (91780A) DSN/RJE 1000

Filename	Part Number	Rev
#TDP	91780-17002	2201
#TRCE	91780-17001	2201
%#BSC	91780-16013	2201
%#COMN	91780-16012	1840
%#DIAL	91780-16014	1840
%#TDMP	91780-16017	1940
%#TRAC	91780-16016	1940
%DVR50	91780-16015	2201
%RJE	91780-16011	2201
A91780	91780-18999	2201

3.19 + (91781A) RJE/1000-II

	Filename	Part Number	Rev	Change
	Directory: /RJE/			
*	A91781	91781-18999	2501	--> 2540
	AMERI.REL	91781-16200	2427	
	CANAD.REL	91781-16201	2427	
	CON.PAS	91781-18004	2427	
	CON.REL	91781-16004	2427	
	DANIS.REL	91781-16202	2427	

	DDD63.REL	91781-16030	2427	
	DDV63.REL	91781-16777	2427	
	DUTCH.REL	91781-16203	2427	
	ENGLI.REL	91781-16204	2427	
	FINNI.REL	91781-16205	2427	
	FMT.FTN	91781-18021	2427	
	FMT.REL	91781-16021	2427	
	FRENC.REL	91781-16206	2427	
	GERMA.REL	91781-16207	2427	
	ITALI.REL	91781-16208	2427	
	KATAK.REL	91781-16213	2427	
	NATIV.REL	91781-16214	2427	
	NORWE.REL	91781-16209	2427	
	PASCAL.LIB	92833-16113	2440	
	PORTU.REL	91781-16210	2427	
*	RINIT.REL	91781-16002	2501	--> 2540
*	RJE.CMD	91781-17001	2427	--> 2540
	RJE.DAT	91781-18100	2427	
	RJE.HELP	91781-17000	2427	
*	RJE.REL	91781-16001	2501	--> 2540
*	RJELB.LIB	91781-12001	2427	--> 2540
*	RJEXX.REL	91781-16003	2501	--> 2540
	RJTAB.REL	91781-16005	2427	
*	ROUTE.PAS	91781-18023	New	--> 2540
*	ROUTE.REL	91781-16023	New	--> 2540
	SPANI.REL	91781-16211	2427	
	STAT.FTN	91781-18022	2427	
	STD3780.TXT	91781-17002	2427	
	SWEDI.REL	91781-16212	2427	

Manual Part#	Title	Edition/Update
91781-90001	DSN/RJE/1000-II Programmer Reference	1/1

Media Part#	Media Option
91781-13301	022
91781-13403	042
91781-13404	042
91781-13401	044
91781-13402	044
91781-13501	050
91781-13502	051

3.20 + (91782A) DSN/MRJE 1000

	Filename	Part Number	Rev	Change
*	!MLB00	91782-17002		--> Deleted
*	$MRJL6	91782-12002	2340	--> Deleted
*	$MRJLA	91782-12003	2340	--> Deleted
*	$MRJLB	91782-12001	2340	--> Deleted
*	%$DVTB	91782-16052	d	--> Deleted
*	%$DVTN	91782-16041	d	--> Deleted
*	%DCCMD	91782-16003	2340	--> Deleted
*	%DCTF1	91782-16004	2340	--> Deleted
*	%DD.63	91782-16010	2340	--> Deleted
*	%DDV63	91782-16009		--> Deleted
	Directory: /MRJE/			
*	%DVN00	12792-16008		--> 2540
*	%FMTRA	91782-16007		--> Deleted
*	%MLTAB	91782-16008		--> Deleted
*	%MLTRA	91782-16006		--> Deleted
*	%MRFIL	91782-16005	2340	--> Deleted
*	%MRJE	91782-16001	2340	--> Deleted
*	%POI	91782-16002	2340	--> Deleted
*	*MRJE	91782-17001		--> Deleted
*	?MRJE	91782-17003		--> Deleted
*	A91782	91782-17999	2340	--> 2540
*	DCCMD.REL	91782-16003	New	--> 2540
*	DCTF1.REL	91782-16004	New	--> 2540
*	DDD63.REL	91782-16010	New	--> 2501
*	DDV63.REL	91782-16009	New	--> 2501
*	FMTRA.REL	91782-16007	New	--> 2501
*	MLB00.Z80	91782-17002	New	--> 2501
*	MLTAB.REL	91782-16008	New	--> 2501
*	MLTRA.REL	91782-16006	New	--> 2501
*	MRFIL.REL	91782-16005	New	--> 2540
*	MRJE.CMD	91782-17001	New	--> 2540
*	MRJE.DAT	91782-17003	New	--> 2501
*	MRJE.REL	91782-16001	New	--> 2540
*	MRJL6.LIB	91782-12002	New	--> 2540
*	MRJLA.LIB	91782-12003	New	--> 2540
*	MRJLB.LIB	91782-12001	New	--> 2540
*	MRKIL.REL	91782-16206	New	--> 2540
*	MRLOG.REL	91782-16202	New	--> 2540
*	POI.REL	91782-16002	New	--> 2540
*	STOPL.REL	91782-16207	New	--> 2540

Manual Part#	Title	Edition/Update
91782-90001	DSN/MRJE/1000-II Programmer Reference	2/1

Media Part#	Media Option
91782-13301	020
91782-13302	020
91782-13303	020
91782-13305	020
91782-13306	020
91782-13307	020
91782-13304	022
91782-13401	041
91782-13402	042
91782-13404	042
91782-13403	044
91782-13405	044
91782-13501	050
91782-13502	051

3.21 + (91784A) PMF/1000

	Filename	Part Number	Rev	Change
	Directory: /PMF/			
	"HPFOF	91784-17005	2501	
	#BENCH	91784-17751	2501	
	#PMFMG	91784-17757	2501	
	#PMFSH	91784-17767	2501	
	*FMGR	91784-17773	2501	
	*PMF	91784-17001	2501	
*	A91784	91784-17999	2501	--> 2540
	BENCH.LOD	91784-17769	2501	
	BENCH.REL	91784-12016	2501	
	DDD63.REL	91781-16030	2427	
	DDV63.REL	91781-16777	2427	
	ERCDE.DAT	91784-17006	2501	
	HDTER_IDX.DAT	91784-17003	2501	
	HGSL2.LIB	91784-12003	2501	
	HGSLB.LIB	91784-12002	2501	
	HITDA.PASI	91784-18802	2501	

HITSH.PASI	91784-18801	2501	
HITTY.PASI	91784-18803	2501	
HMSLB.LIB	91784-12001	2501	
HOHLP_IDX.DAT	91784-17004	2501	
HOMFL.REL	91784-16023	2501	
HOSLB.LIB	91784-12006	2501	
HPMDP.REL	91784-16024	2501	
HPMLP.REL	91784-16025	2501	
HSDPW.DAT	91784-17007	2501	
HSMPH.REL	91784-16026	2501	
HSMTM.REL	91784-16020	2501	
HTMPP.REL	91784-16022	2501	
HTMTR.REL	91784-16021	2501	
HUHLP_IDX.DAT	91784-17009	2501	
HUSLB.LIB	91784-12018	2501	
KATAK.REL	91784-16360	2501	
NATIV.REL	91784-16365	2501	
PASCAL_ERR.REL	92833-16125	2440	
PASCAL_TRA.REL	92833-16168	2440	
PMF.CMD	91784-17771	2501	
PMF6.LIB	91784-12007	2501	
PMFA2.LIB	91784-12008	2501	
PMFA3.LIB	91784-12019	2501	
PMFLB.LIB	91784-12017	2501	
PMFLG.REL	91784-12015	2501	
PMFMD.REL	91784-16402	2501	
PMFMG.LOD	91784-17770	2501	
* PMFMG.REL	91784-12009	2501	--> 2540
PMFSH.LOD	91784-17768	2501	
PMFVR.REL	91784-12010	2501	
PMONA.REL	91784-12011	2501	
PMONB.REL	91784-12012	2501	
PMONC.REL	91784-12013	2501	
PSIM.REL	91784-12014	2501	
PSI_DOWNLOAD.DAT	91784-17008	2501	
SAMPLE.CON	91784-17010	2501	
TF_PMF_TO_CI	91784-17774	2501	

Manual Part#	Title	Edition/Update
91784-90001	PMF/1000 Reference Manual	2/2

Media Part#	Media Option
91784-13301	022
91784-13404	042
91784-13409	042
91784-13408	044

91784-13410	044
91784-13501	050
91784-13502	051

3.22 + (91823A) Control/1000

	Filename	Part Number	Rev	Change
	#BUIL6	91823-17006	2320	
	#BUILA	91823-17002	2320	
	#DEMON	91823-17001	2320	
	#RMOT	91823-17005	2320	
	$DEMLB	91823-12002	2401	
	$MCLIB	91823-12001	2401	
	%CKST	91823-16002	2320	
	%DEMON	91823-16101	2320	
*	%ID*70	91823-16001	New	--> 2540
*	%ID.70	91823-16001	2320	--> Deleted
	&CKST	91823-18002	2320	
	&START	91823-18119	2320	
	&UPDS	91823-18120	2320	
	*BUIL6	91823-17009	2320	
	*BUILA	91823-17004	2320	
	*CKST	91823-17007	2320	
	*GEN6	91823-17008	2320	
	*GENA	91823-17003	2320	
*	A91823	91823-17999	2401	--> 2540

Manual Part#	Title	Edition/Update
(no manual changes)		

Media Part#	Media Option
91823-13302	020
91823-13303	022
91823-13401	041
91823-13402	042
91823-13403	044
91823-13501	050
91823-13502	051

3.23 (92045A) A700 Microprogramming Package

Filename	Part Number	Rev
#MPARA	92045-17001	2220
#WLOAD	92045-17003	2220
$WLIB	92045-12002	2220
%ID.41	92045-16002	2326
%MPARA	92045-12001	2220
%WLOAD	92045-16001	2220
A92045	92045-17999	2326

3.24 + (92049A) A900 Microprogramming Package

	Filename	Part Number	Rev	Change
*	#MPARA	92049-17002	2330	--> Deleted
*	#WLOAD	92049-17007	2330	--> Deleted
*	$WUTLS	92049-12001	2330	--> Deleted
*	%ID.42	92049-16003	2330	--> Deleted
*	%MPARA	92049-16001	2330	--> Deleted
*	%WLOAD	92049-16002	2330	--> Deleted
	Directory: /A900_MICROPROG/			
*	A92049	92049-17999	2330	--> 2540
*	ID#42.REL	92049-16003	New	--> 2540
*	M92049	92049-17998	New	--> 2540
*	MPARA.LIB	92049-12002	New	--> 2540
*	MPARA.LOD	92049-17002	New	--> 2540
*	MPARA.REL	92049-16001	New	--> 2540
*	WLOAD.LOD	92049-17007	New	--> 2540
*	WLOAD.REL	92049-16002	New	--> 2540
*	WUTLS.LIB	92049-12001	New	--> 2540

Manual Part#	Title	Edition/Update
(no manual changes)		

Media Part#	Media Option
92049-13301	022
92049-13401	041
92049-13403	044

92049-13404	044
92049-13502	051

3.25 (92060B) RTE-III Operating System

Filename	Part Number	Rev
!2GN00	92001-16013	1631
!2GN05	92001-16026	1631
!2GNFH	92001-16018	1631
!DSKUP	92060-16044	1805
!S4L07	02607-16004	1538
!S4L67	29100-60022	A
!S4LP	29100-60017	A
!S4MT1	12970-16004	1550
!S4MT2	29100-60023	A
!S4MT3	29100-60049	A
!S4PHR	29100-60019	A
!S4PUN	29100-60020	A
!S4SYD	29100-60018	A
!S4TER	29100-60050	A
%$CMD2	92001-16029	1710
%0DV05	92001-16028	2140
%0FTN4	92060-16094	2026
%1DV10	72008-60001	A
%1DV37	59310-16002	2126
%1FTN	20875-60001	E
%1FTN4	92060-16095	2001
%2DP43	92001-16004	1926
%2DV10	72009-60001	A
%2DV37	59310-16003	2126
%2DV47	92900-16002	1913
%2FTN	20875-60002	E
%2FTN4	92060-16096	2026
%2SP01	92002-12002	2001
%3DV47	92900-16003	1913
%3FTN	20875-60003	E
%3FTN4	92060-16097	1913
%4DV05	92001-16027	2140
%4FTN	20875-60004	E
%4FTN4	92060-16098	2026
%5FTN	20875-60005	E
%5FTN4	92060-16101	1913
%ALGL1	24129-60002	C
%ALGOL	24129-60001	1643
%ASMB	92060-12004	1639
%AUTOR	92001-16014	1631

%BMLIB	92002-16006	2001
%BMPG1	92002-12001	2001
%CAL10	20808-60001	B
%CALIB	20810-60001	C
%CLIB	92060-12005	2140
%COPY	92060-16042	1704
%CR2SY	92001-16012	1926
%DBKLB	92060-16043	1901
%DECAR	24306-60001	2026
%DVA05	92001-16035	2140
%DVA12	92001-16020	1826
%DVA13	91200-16001	1648
%DVR00	29029-60001	2140
%DVR11	29030-60001	1710
%DVR12	29028-60002	1805
%DVR15	09601-16021	1901
%DVR23	92202-16001	2140
%DVR24	25117-60499	1805
%DVR30	20747-60001	C
%DVR31	29013-60001	1710
%DVR32	92060-16031	2013
%DVR33	12732-16001	1805
%EDITR	92002-16010	2140
%FF.N	24153-60001	C
%FF4.N	24998-16002	1926
%FFTN4	92060-16093	1913
%FTN4	92060-16092	2026
%IB4A	59310-12001	2026
%KEYS	92060-16052	1707
%KYDMP	92060-16053	1707
%LDR2	92001-16002	1732
%LP31	92062-16003	1805
%MSAFD	92064-16086	2001
%MTM	92001-16003	B
%RDNAM	92060-16045	1926
%RESTR	92060-16040	2001
%RLIB1	24998-16001	1926
%RLIB2	24998-16009	1926
%RLIB3	24998-16011	1926
%RT2G1	92001-16031	1926
%SAVE	92060-16039	1901
%SRQ.P	59310-16005	1805
%SWTCH	92060-16038	1826
%SYLIB	92001-16005	1926
%TVLIB	91200-16002	1648
%TVVER	91200-16004	1648
%VERFY	92060-16041	1704
%WHZT2	92001-16030	1726
%XREF	92060-16028	A
&AN2F0	92001-18033	

&AN2F5	92001-18034	
&AUTOR	92001-18014	1631
&PKDIS	92060-18047	1631
&UPDAT	92060-18046	1926

3.26 (92061A) Microprogramming

Filename	Part Number	Rev
%MDEP	92061-16004	1634
%MDES	92061-16005	1926
%MICRO	92061-16001	2013
%MXREF	92061-16002	2013
%PTGEN	92061-16003	1813
%WLOAD	13197-16003	1813

3.27 (92063A) Image/1000 (E, F-Series)

Filename	Part Number	Rev
%BORL	92063-16009	1621
%DBBLD	92063-16003	1913
%DBDS1	92063-16002	1840
%DBLIB	92063-12001	2126
%DBLOD	92063-16007	1940
%DBRST	92063-16005	1840
%DBSPA	92063-16014	1913
%DBSTR	92063-16004	1645
%DBULD	92063-16006	1805
%QS001	92063-16011	1940
%QS003	92063-16012	1940
%RECOV	92063-16013	1645
&HELP	92063-18010	1623

3.28 + (92064A) RTE-M Operating System

	Filename	Part Number	Rev	Change
	!MCGEN	92064-16033	1901	
	!MFGEN	92064-16075	1901	
*	$IB6A	92084-12036	New	--> 2540

```
  %$PVMP          92060-16035  A
* %0DV05          92001-16028  2140  --> 2141
  %0FTN4          92060-16094  2026
  %1DV10          72008-60001  A
* %1DV37          59310-16002  2126  --> Deleted
  %1FTN4          92060-16095  2001
  %2DV10          72009-60001  A
* %2DV37          59310-16003  2126  --> Deleted
  %2DV47          92900-16002  1913
  %2FTN4          92060-16096  2026
  %3DV47          92900-16003  1913
  %3FTN4          92060-16097  1913
* %4DV05          92001-16027  2140  --> 2141
  %4FTN4          92060-16098  2026
  %5FTN4          92060-16101  1913
* %6DA37          92084-16593  New   --> 2540
* %6DV37          92084-16592  New   --> 2540
* %CAL10          20808-60001  B     --> Deleted
  %CALIB          20810-60001  C
* %CALIO          20808-60001  New   --> B
  %CLIBM          92064-12007  2140
* %DECAR          24306-16001  New   --> 2540
* %DECAR          24306-60001  2026  --> Deleted
  %DIRD           92064-16054  1650
  %DRC            92064-16018  1650
  %DRC1           92064-16021  1650
  %DRF            92064-16056  1650
  %DRF1           92064-16060  1650
  %DSCHD          09580-16126  A
  %DVA05          92001-16035  2140
* %DVA12          92001-16020  1826  --> 1827
* %DVA13          91200-16001  1648  --> 1649
* %DVB12          92062-16004  2013  --> 2540
* %DVM72          09580-16079  2101  --> 2341
  %DVR00          29029-60001  2301
  %DVR11          29030-60001  1710
  %DVR12          29028-60002  1805
  %DVR15          09601-16021  1901
* %DVR23          92202-16001  2226  --> 2341
  %DVR33          12732-16001  1805
  %FF.N           24153-60001  C
  %FF4.N          24998-16002  1926
  %FFTN4          92060-16093  1913
  %FMGC0          92064-16017  1805
  %FMGF0          92064-16055  1805
  %FMPC           92064-12005  1805
  %FMPF           92064-12006  1805
  %FTN4           92060-16092  2026
* %IB4A           59310-12001  2026  --> Deleted
* %KEYS           92060-16052  1707  --> 2441
```

*	%KYDMP	92060-16053	1707	--> 2540
*	%LP31	92062-16003	1805	--> 2441
	%MAP	92064-16012	2013	
	%MAP3	92064-16016	2013	
	%MASM0	92064-16040	2001	
	%MASM1	92064-16041	1650	
	%MASM2	92064-16042	1650	
	%MASM3	92064-16043	1650	
	%MASM4	92064-16044	1650	
	%MASM5	92064-16050	1650	
	%MASM6	92064-16026	2001	
	%MAUTO	92064-16030	2026	
	%MBU	92064-16005	1650	
	%MCL	92064-16011	1808	
	%MCL3	92064-16015	1808	
	%MDMLB	92064-16013	1740	
	%MEDIT	92064-16025	1813	
	%MFTN0	92064-16045	1650	
	%MFTN1	92064-16046	1650	
	%MFTN2	92064-16047	1650	
	%MMP	92064-16006	1940	
	%MOP	92064-16010	1650	
	%MPF	92064-16027	2001	
	%MPF3	92064-16029	2001	
	%MPRMP	92064-16035	1650	
	%MRN	92064-16031	1650	
	%MRSPN	92064-16036	1650	
*	%MSAFD	92064-16086	2001	--> 2002
	%MSY1	92064-16001	1940	
	%MSY2	92064-16002	2026	
	%MSY3	92064-16003	2026	
	%MSYLB	92064-16081	2013	
	%MTI	92064-16008	1650	
	%MTS	92064-16009	1901	
	%MXRF0	92064-16051	1650	
	%ONMTM	92064-16032	1650	
	%RLIB1	24998-16001	1926	
	%RLIB2	24998-16009	1926	
	%RLIB3	24998-16011	1926	
	%RTMGN	92064-16022	2026	
	%RTMLD	92064-16023	1740	
	%RTMSC	92064-16024	1805	
	%SGPRP	92064-16034	1650	
*	%SRQ.P	59310-16005	1805	--> 1806
	%STRTM	92064-16080	1709	
	%TBLCR	92064-16019	1650	
	%TBLFP	92064-16057	1709	
*	%TVLIB	91200-16002	1648	--> 1649
*	%TVVER	91200-16004	1648	--> 1649
*	&HEWPK	92001-18032	New	--> 1631

	&MAUTO	92064-18141	2026	
	&MHELP	92064-18126	1650	
	&TBLCR	92064-18059	1650	
	&TBLFP	92064-18171	1709	
*	A92064	92064-17999	New	--> 2540

Manual Part#	Title	Edition/Update
(no manual changes)		

Media Part#	Media Option
92060-13303	020
92062-13302	020
92062-13303	020
92062-13304	020
92062-13308	020
92064-13304	020
92064-13307	020
92064-13401	040
92064-13402	040

3.29 (92065A) Basic/1000M

Filename	Part Number	Rev
$BAMLM	92065-12003	2213
%694BS	29102-16003	C
%A2313	29102-60016	B
%ACFIL	92065-16008	1726
%ALARM	92413-16007	B
%BASLB	92101-12003	2213
%DTRAP	92065-16005	1650
%DUFIL	92065-16009	1726
%MBASC	92065-12002	2001
%MBTG	92065-12001	1901
%MESCD	92065-16003	1650
%MESGA	92065-16002	2001
%TSKSC	92101-16013	A

3.30 (92066A) Measurement & Control

Filename	Part Number	Rev
!2313	09611-16014	1926
!RMCKT	09610-16001	A
%!2313	02313-16002	1926
%2DV62	29009-60001	C
%3DV62	02313-16001	A
%4DV62	02313-16004	2140
%D2313	29011-60004	A
%DVA72	09611-16005	1826
%P2313	29011-60002	A
%R2313	29011-60001	E
%SENSE	09611-16007	A
%T6940	09611-16006	A
%T694S	09611-16015	A

3.31 (92067A) RTE-IVA Operating System

Filename	Part Number	Rev
!DSKUP	92060-16044	1805
%#EMA	92067-16013	1805
%$CNFX	92067-16006	1926
%0DV05	92001-16028	2140
%0FTN4	92060-16094	2026
%1DV10	72008-60001	A
%1DV37	59310-16002	2126
%1FTN4	92060-16095	2001
%2DV10	72009-60001	A
%2DV37	59310-16003	2126
%2DV47	92900-16002	1913
%2FTN4	92060-16096	2026
%3DV47	92900-16003	1913
%3FTN4	92060-16097	1913
%4ASB0	92067-16070	1940
%4ASB1	92067-16071	1940
%4ASB2	92067-16072	1940
%4ASB3	92067-16073	1940
%4ASB4	92067-16074	1940
%4ASMB	92067-16011	2013
%4AUTR	92067-16005	1805
%4DP43	92067-16004	1926
%4DV05	92001-16027	2140
%4FTN4	92060-16098	2026

%4LDR	92067-16002	2013
%4MTM	92067-16003	2101
%4PVMP	92067-16001	1805
%4SPO1	92067-16028	2013
%4SWTH	92067-16010	1926
%4SYLB	92067-16035	2013
%4WHZT	92067-16007	1926
%4XREF	92067-16012	2001
%5FTN4	92060-16101	1913
%BMLIB	92002-16006	2001
%BMPG1	92002-12001	2001
%CAL10	20808-60001	B
%CALIB	20810-60001	C
%CLIB	92060-12005	2140
%COPY	92060-16042	1704
%CR4S1	92067-16014	2001
%DBKLB	92060-16043	1901
%DBUGR	92067-16075	2013
%DECAR	24306-60001	2026
%DSCHD	09580-16126	A
%DVA05	92001-16035	2140
%DVA12	92001-16020	1826
%DVA13	91200-16001	1648
%DVB12	92062-16004	2013
%DVM72	09580-16079	2101
%DVR00	29029-60001	2301
%DVR11	29030-60001	1710
%DVR12	29028-60002	1805
%DVR15	09601-16021	1901
%DVR23	92202-16001	2226
%DVR31	29013-60001	1710
%DVR32	92060-16031	2013
%DVR33	12732-16001	1805
%EDITR	92002-16010	2140
%FF4.N	24998-16002	1926
%FFTN4	92060-16093	1913
%FTN4	92060-16092	2026
%HPIB	59310-16004	1926
%IB4A	59310-12001	2026
%KEYS	92060-16052	1707
%KYDMP	92060-16053	1707
%LGTAT	92067-16008	2101
%LP31	92062-16003	1805
%MESS	59310-16011	1926
%MSAFD	92064-16086	2001
%RDNAM	92060-16045	1926
%RESTR	92060-16040	2001
%RLIB1	24998-16001	1926
%RLIB2	24998-16009	1926
%RLIB3	24998-16011	1926

%RT4G1	92067-16009	1926
%SAVE	92060-16039	1901
%SRQ.P	59310-16005	1805
%TVLIB	91200-16002	1648
%TVVER	91200-16004	1648
%VERFY	92060-16041	1704
&4AUTR	92067-18005	1805
&AN4F0	92067-18033	1940
&AN4F5	92067-18034	1940
&PKDIS	92060-18047	1631
&UPDAT	92060-18046	1926

3.32 + (92068A) RTE-IVB Operating System

	Filename	Part Number	Rev	Change
	!DISK	92067-16348	2026	
	!DSKUP	92067-16340	2013	
	!MTLDR	92067-16512	2126	
*	"EDIT	92074-17004	New	--> 2440
*	"EDIT.	92074-17004	2340	--> Deleted
	"FCHLP	92084-17150	2226	
*	"HELP	92067-18122	2140	--> 2440
*	"HELPA	92067-18489	2140	--> 2440
*	"HELPB	92067-18490	2140	--> 2440
*	#AN4E	92068-18103	New	--> 2440
*	#ED1K4	92074-17001	2213	--> 2440
	#FC4	92068-17001	2302	
	#OLDRE	92059-17002	2213	
*	#READR	92084-17005	New	--> 2340
*	#SAVER	92084-17006	New	--> 2340
*	$ACCLB	92068-12018	2340	--> 2540
	$DKULB	92067-12003	2026	
*	$DSCLB	92084-12062	2226	--> 2540
*	$ED1K4	92074-12003	2340	--> 2440
*	$FDSLB	24998-12004	2340	--> 2540
*	$FLIB	24998-12008	2340	--> 2540
*	$FNDLB	24998-12005	2226	--> 2227
*	$FOLDF	24998-12009	2340	--> 2540
*	$IB6A	92084-12036	2340	--> 2540
	$LDRLB	92067-16470	2026	
	$LIB4E	92068-12003	2103	
*	$MATH	24998-12007	2326	--> 2540
	$PLIB	92832-16700	2101	
*	$RSLIB	92068-12006	2240	--> 2540
	$SHSLB	92832-16701	2101	
	$VMCLB	92068-12017	2301	

	%#EMA	92067-16013	1805	
	%$CNFX	92067-16516	2340	
*	%$DVTB	12792-16005	2340	--> 2341
	%$TA32	92067-16507	2001	
	%$TB32	92067-16509	2001	
*	%0DV05	92001-16028	2140	--> 2141
	%0FTN4	92060-16094	2026	
	%1FTN4	92060-16095	2001	
	%2DV47	92900-16002	1913	
	%2FTN4	92060-16096	2026	
	%3DV47	92900-16003	1913	
	%3FTN4	92060-16097	1913	
	%4ASB0	92067-16070	1940	
	%4ASB1	92067-16071	1940	
	%4ASB2	92067-16072	1940	
	%4ASB3	92067-16073	1940	
	%4ASB4	92067-16074	1940	
	%4ASMB	92067-16011	2013	
*	%4AUTR	92067-16118	2340	--> 2441
*	%4DP43	92067-16004	1926	--> 2540
*	%4DV05	92001-16027	2140	--> 2141
	%4FTN4	92060-16098	2026	
	%4LDR	92067-16471	2040	
	%4MTM	92067-16003	2101	
*	%4PVMP	92067-16001	1805	--> 1806
*	%4SYLB	92067-16268	2340	--> 2540
	%4XREF	92067-16012	2001	
	%5FTN4	92060-16101	1913	
*	%6DA37	92084-16593	2340	--> 2540
*	%6DV37	92084-16592	2340	--> 2540
*	%ACCTS	92067-16361	2340	--> 2540
	%APL4D	92068-16066	2103	
	%APL4E	92068-16065	2103	
*	%ATRAN	92059-16013	2226	--> 2540
	%BMPG1	92067-16185	2226	
	%BMPG2	92067-16124	2226	
*	%BMPG3	92067-16125	2308	--> 2440
	%CLIB	92067-12001	2226	
	%CLOAD	92067-16358	2101	
*	%CNF4E	92068-12001	2103	--> 2540
	%CNV4E	92068-16062	2103	
	%COMPL	92067-16359	2101	
	%COPY	92067-16338	1903	
	%CR4S1	92067-16102	2301	
*	%CR4S2	92067-16103	2301	--> 2440
	%D.BUF	92067-16587	2101	
	%D.R4E	92068-16064	2103	
	%DBKLB	92067-16339	2140	
	%DBUGR	92067-16075	2013	
*	%DDT05	12792-16011	New	--> 2540

*	%DDV05	12792-16003	2340	--> 2540
*	%DDV12	12792-16004	2140	--> 2141
*	%DECAR	24306-16001	New	--> 2540
*	%DECAR	24306-60001	2340	--> Deleted
*	%DSCHD	09580-16126	A	--> 2540
	%DVA05	92001-16035	2140	
*	%DVA12	92001-16020	1826	--> 1827
*	%DVA13	91200-16001	1648	--> 1649
*	%DVA32	92084-16708	2340	--> 2540
*	%DVB12	92062-16004	2340	--> 2540
*	%DVC12	92068-16110	2340	--> 2540
*	%DVC32	92084-16709	2340	--> 2540
*	%DVD12	92068-16129	New	--> 2540
*	%DVM00	12792-16002	2301	--> 2441
*	%DVM72	09580-16079	2340	--> 2341
*	%DVP32	92084-16710	2340	--> 2540
*	%DVR00	29029-60001	2301	--> Deleted
*	%DVR00	92084-16637	New	--> 2441
	%DVR11	29030-60001	1710	
	%DVR12	29028-60002	1805	
	%DVR15	09601-16021	1901	
*	%DVR23	92202-16001	2340	--> 2341
*	%DVR31	92084-16712	2121	--> 2540
*	%DVR32	92084-16711	2340	--> 2540
	%DVR33	92067-16467	1903	
*	%DVT00	12792-16010	New	--> 2441
*	%EDITA	92074-12001	2340	--> 2440
*	%EDITB	92074-12002	2340	--> 2440
	%EDITR	92002-16010	2140	
	%FFTN4	92060-16093	1913	
	%FMG4E	92068-12002	2103	
*	%FORMT	92067-16554	2040	--> 2540
	%FTN4	92060-16092	2026	
*	%HELP	92067-16121	1903	--> 2440
*	%KEYS	92060-16052	2340	--> 2441
*	%KYDMP	92060-16053	2340	--> 2540
	%LCOPY	92067-16347	2013	
	%LGTAT	92067-16008	2101	
*	%LP31	92062-16003	1805	--> 2441
	%LSAVE	92067-16344	2026	
*	%LUPRN	92068-16125	2326	--> 2540
	%MERGE	92067-16334	2301	
*	%MLD4E	92068-16063	2226	--> 2440
*	%MSAFD	92064-16086	2001	--> 2002
	%NSESN	92067-16456	2101	
*	%OLDRE	92059-16010	2226	--> 2227
*	%PVM00	12792-16001	2032	--> 2034
	%RDNAM	92060-16045	1926	
*	%READR	92068-16054	2240	--> 2241
*	%READT	92067-16332	2026	--> 2440

	%RESTR	92067-16346	2026	
	%RSTOR	92067-16336	1903	
*	%RT4GN	92067-16315	2101	--> 2540
	%SAVE	92067-16335	2013	
*	%SAVER	92068-16053	2240	--> 2241
*	%SMON1	92067-16260	2301	--> 2440
	%SMON2	92067-16261	2001	
	%SPO1B	92067-16425	2226	
*	%SPO2B	92067-16350	2226	--> 2540
*	%SRQ.P	59310-16005	1805	--> 1806
	%SSTCH	92067-16513	2001	
	%T5IDM	92067-16469	2226	
*	%TVLIB	91200-16002	1648	--> 1649
*	%TVVER	91200-16004	1648	--> 1649
	%USAVE	92067-16345	2026	
*	%UTLIB	92067-16104	2301	--> 2440
	%VERFY	92067-16337	1903	
	%WHZAT	92067-16501	2226	
	%WRITT	92067-16333	2301	
	%XCNTL	92068-16080	2103	
	&$CMND	92067-18457	1940	
	&$TA32	92067-18507	2001	
	&$TB32	92067-18509	2001	
*	&4AUTR	92067-18456	2340	--> 2441
	&C.TAB	92067-18201	2026	
	&D.BUF	92067-18587	2101	
	&PKDIS	92060-18047	1631	
	&UPDAT	92060-18046	1926	
*	=AVL2	92084-16943	2340	--> 2341
*	=EXT	92084-16941	2340	--> 2540
	=FC0	92068-12010	2340	
	=FC1	92068-12011	2340	
	=FC2	92068-12012	2340	
	=FC3	92068-12013	2340	
*	=FC4	92068-12014	2340	--> 2440
	=FC5	92068-12015	2340	
	=FC6	92068-12016	2340	
	=FCL1	92068-12019	2340	
	=FCL2	92068-12020	2340	
*	=FCM6	92068-12009	2340	--> 2440
*	=FLAG	92084-16942	2340	--> 2540
*	=FPORT	92084-16944	2340	--> 2341
*	=PLIB	92833-16051	2326	--> 2440
*	=PRERS	92833-16053	2226	--> 2440
*	=SHSLB	92833-16052	2326	--> 2440
*	A92068	92068-18999	2340	--> 2540
*	M92068	92068-18998	New	--> 2440
	SEP.6	92084-17205	2340	

Manual Part#	Title	Edition/Update
92068-90005	RTE-IVB Batch & Spooling	2/4
92068-90022	DVC12 Line Printer Driver Reference Manual	2/-
92062-90004	2608A Line Printer Driver DVB12	4/2

Media Part#	Media Option
2540-4AA	020
2540-4AB	020
2540-4AC	020
2540-4AD	020
2540-4AE	020
2540-4AF	020
2540-4AG	020
2540-4AH	020
2540-4AI	020
2540-4AJ	020
92068-13002	031
92068-13006	032
92068-13003	033
92068-13505	050
92068-13517	052
92068-13518	053
92068-13519	054
92068-13520	055

3.33 + (92069A) Image/1000 (A, E, F-Series)

	Filename	Part Number	Rev	Change
	#DBBLD	92069-18309	2340	
	#DBDS	92069-18308	2340	
	#DBMS1	92069-18304	2340	
	#DBMS2	92069-18305	2340	
	#DBMS3	92069-18306	2340	
*	#IMAGE	92069-18288	2340	--> 2540
*	#IMAGL	92069-18289	2340	--> 2540
*	#QUERY	92069-18307	2340	--> 2540
*	#RDBA	92069-17001	New	--> 2540
*	$DBBLL	92069-12009	2340	--> 2540
*	$DBDSL	92069-12010	2213	--> 2540
	$DSDB	92069-12007	2340	

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* $QRYXL                92069-12008  2340  --> 2540
  %BAIMX                92069-16255  2026
* %DBBLX                92069-16001  2340  --> 2540
* %DBCOP                92069-16256  1912  --> 2540
  %DBDRT                92069-16310  2340
* %DBDSX                92069-16015  2340  --> 2540
* %DBLOX                92069-16128  2226  --> 2540
* %DBMS                 92069-12002  2340  --> 2540
  %DBRED                92069-16160  2340
  %DBRSX                92069-16126  2140
  %DBSPX                92069-16133  2140
* %DBSTX                92069-16125  2140  --> 2540
* %DBULX                92069-16127  2140  --> 2540
* %LOCAL                92069-12006  2340  --> 2540
* %NO\DS                92069-12005  2340  --> Deleted
* %NO_DS                92069-12005  New   --> 2540
* %QURYX                92069-16060  2340  --> 2540
  %RD.TB                92069-16257  2340
* %RDBA                 92069-12003  2340  --> 2540
  %RDBAM                92069-16258  2340
  %RDBAP                92069-16259  2340
* %RECVX                92069-16134  2140  --> 2540
* %REMOT                92069-12004  2340  --> 2540
* *A92069               92069-18999  REV.  --> Deleted
* *DBUP                 92069-12001  2340  --> 2540
* *IMAGA                92069-18230  2340  --> 2540
* *IMAGE                92069-18287  2340  --> 2540
* *IMAGX                92069-18303  2340  --> 2540
* A92069                92069-18999  2341  --> 2540
* QSHELP                92069-16122  1912  --> 2540
```

Manual Part#	Title	Edition/Update
92069-90001	IMAGE Reference Manual	2/6
92069-90003	IMAGE Configuration Guide	6/1

Media Part#	Media Option
92069-13301	020
92069-13302	020
92069-13303	020
92069-13304	020
92069-13305	020
92069-13306	020
92069-13311	020
92069-13309	022
92069-13401	040
92069-13404	041

92069-13402	042
92069-13403	042
92069-13405	044
92069-13406	044
92069-13501	050
92069-13502	051

3.34 + (92070A) RTE-L Operating System

	Filename	Part Number	Rev	Change
	$CLIBL	92070-12009	2140	
	$CMDLB	92070-12004	1941	
*	$DKLIB	92070-12013	2040	--> 2540
*	$FDSLB	24998-12004	2340	--> 2540
*	$FMP	92070-12003	2011	--> 2540
*	$FNDLB	24998-12005	2226	--> 2227
	$HPIB	92070-12005	2026	
	$LDRLB	92067-16470	2026	
	$LDRLN	92084-12005	2140	
*	$MLIB1	24998-12001	2340	--> 2540
*	$MLIB2	24998-12001	2340	--> 2540
	$MXLB	92070-12002	2101	
	$PLIB	92832-16700	2101	
*	$SYS..	92070-12001	2040	--> Deleted
*	$SYSA	92070-12001	New	--> 2540
*	$SYSLB	92070-12012	2140	--> 2540
	%4XREF	92067-16012	2001	
	%AB2MI	92070-16241	2026	
	%ASMBC	92070-16279	2040	
*	%AUTOR	92070-16252	1941	--> 2540
	%CLASS	92070-16093	1941	
	%COMND	92070-16076	1941	
*	%COPYL	92070-16336	2326	--> 2327
	%D.RTR	92070-16037	2001	
	%DD.00	92070-16083	1941	
	%DD.12	92070-16086	2001	
	%DD.20	92070-16084	1941	
	%DD.30	92070-16085	1941	
	%DD.36	92070-16298	2326	
*	%DECAR	24306-16001	New	--> 2540
*	%DECAR	24306-60001	2340	--> Deleted
	%EDITR	92070-16135	1941	
	%ERLOG	92070-16147	1941	
	%EXEC	92070-16136	2040	
*	%FMGR	92070-16310	2014	--> 2540
	%FORMT	92070-16337	2213	

	%FTN4L	92070-16287	2026	
	%HPIBM	92070-16242	2026	
*	%ID*37	92070-16095	New	--> 2540
*	%ID*50	92070-16097	New	--> 2540
	%ID.00	92070-16082	1941	
	%ID.36	92070-16299	1941	
*	%ID.37	92070-16095	2040	--> Deleted
	%ID.43	92070-16096	1941	
*	%ID.50	92070-16097	1941	--> Deleted
*	%IDM00	12040-16002	2340	--> 2440
	%IDS00	24997-16003	2340	
*	%INSTL	92070-16090	1941	--> 2001
	%LOAD	92070-16156	1941	
	%LOADR	92070-16108	2026	
	%LOADX	92070-16339	2140	
	%LOCK	92070-16145	1941	
	%MERGE	92067-16334	2301	
	%MI2AB	92070-16276	2001	
	%OPMSG	92070-16151	1941	
	%PFORM	92070-16288	2001	
	%RTIOL	92070-16092	1941	
	%RTLGN	92070-16077	2026	
	%SAM	92070-16137	1941	
	%SCHED	92070-16141	1941	
	%START	92070-16160	1941	
	%STAT	92070-16154	1941	
	%STRNG	92070-16143	1941	
	%SWAP	92070-16158	1941	
	%SYCOM	92070-16149	1941	
	%TIME	92070-16139	1941	
	%XCMND	92070-16152	1941	
*	&AUTOR	92070-18252	1941	--> 2540
	&LHELP	92070-18236	1941	
	&START	92070-18160	1941	
*	A92070	92070-18999	2340	--> 2540
	BOOTEX	02145-16001	2001	

Manual Part#	Title	Edition/Update
5958-9151	Errata Sheet for RTE-L/XL Manuals	1/-

Media Part#	Media Option
92070-13401	041
92070-13501	050
92070-13502	051

3.35 (92070B) RTE-L Operating System (Execute only)

Filename	Part Number	Rev
$CMDLB	92070-12004	1941
$DKLIB	92070-12013	2040
$FDSLB	24998-12004	2340
$FMP	92070-12003	2011
$FNDLB	24998-12005	2226
$HPIB	92070-12005	2026
$LDRLB	92067-16470	2026
$LDRLN	92084-12005	2140
$MLIB1	24998-12001	2340
$MLIB2	24998-12001	2340
$MXLB	92070-12002	2101
$PLIB	92832-16700	2101
$SYS..	92070-12001	2040
$SYSLB	92070-12012	2340
%AB2MI	92070-16241	2026
%AUTOR	92070-16252	1941
%CLASS	92070-16093	1941
%COMND	92070-16076	1941
%COPYL	92070-16336	2326
%D.RTR	92070-16037	2001
%DD.00	92070-16083	1941
%DD.12	92070-16086	2001
%DD.20	92070-16084	1941
%DD.30	92070-16085	1941
%DD.36	92070-16298	2326
%DECAR	24306-60001	2340
%EDITR	92070-16135	1941
%ERLOG	92070-16147	1941
%EXEC	92070-16136	2040
%FMGR	92070-16310	2014
%FORMT	92070-16337	2213
%ID.00	92070-16082	1941
%ID.36	92070-16299	1941
%ID.37	92070-16095	2040
%ID.43	92070-16096	1941
%ID.50	92070-16097	1941
%IDM00	12040-16002	2340
%IDS00	24997-16003	2340
%INSTL	92070-16090	1941
%LOAD	92070-16156	1941
%LOADR	92070-16108	2026
%LOADX	92070-16339	2140
%LOCK	92070-16145	1941
%MERGE	92067-16334	2301
%MI2AB	92070-16276	2001

%OPMSG	92070-16151	1941
%PFORM	92070-16288	2001
%RTIOL	92070-16092	1941
%RTLGN	92070-16077	2026
%SAM	92070-16137	1941
%SCHED	92070-16141	1941
%START	92070-16160	1941
%STAT	92070-16154	1941
%STRNG	92070-16143	1941
%SWAP	92070-16158	1941
%SYCOM	92070-16149	1941
%TIME	92070-16139	1941
%XCMND	92070-16152	1941
&AUTOR	92070-18252	1941
&LHELP	92070-18236	1941
&START	92070-18160	1941
B92070	92070-18997	2340
BOOTEX	02142-16001	2110
BOOTEX	02145-16001	2001

Manual Part#	Title	Edition/Update
5958-9151	Errata Sheet for RTE-L/XL Manuals	1/-

3.36 + (92071A) RTE-XL Operating System

	Filename	Part Number	Rev	Change
*	"EDIT	92074-17004	New	--> 2440
*	"EDIT.	92074-17004	2340	--> Deleted
	"FCHLP	92084-17150	2226	
	"M.ERR	92059-18011	2226	
	"MACLB	92059-18012	2301	
*	#ED1KL	92074-17002	2213	--> 2440
	#FCL	92071-17001	2302	
	$CMDLB	92071-12004	2041	
*	$DKLIB	92070-12013	2040	--> 2540
*	$DTCLB	92071-12015	2226	--> 2540
*	$ED1KL	92074-12004	2340	--> 2440
	$FCL1	92084-12067	2340	
	$FCL2	92084-12068	2340	
	$FCLBL	92071-12016	2340	
*	$FDSLB	24998-12004	2340	--> 2540
*	$FMP	92071-12003	2226	--> 2440
*	$FNDLB	24998-12005	2226	--> 2227
	$HPIB	92071-12005	2213	

	$LDRLB	92067-16470	2026	
	$LDRLN	92084-12005	2140	
*	$MLIB1	24998-12001	2340	--> 2540
*	$MLIB2	24998-12001	2340	--> 2540
	$MXLB	92071-12002	2140	
	$PLIB	92854-16003	2144	
	$SHSLB	92854-16004	2144	
*	$SYS..	92071-12001	2213	--> Deleted
*	$SYSA	92071-12001	New	--> 2540
*	$SYSLB	92071-12012	2226	--> 2340
	%AB2MI	92071-16241	2041	
*	%ATRAN	92059-16013	2226	--> 2540
*	%AUTOR	92070-16252	1941	--> 2540
	%BUILD	92071-16336	2150	
	%CLASS	92071-16093	2213	
	%COMND	92070-16076	1941	
*	%COPYL	92070-16336	2326	--> 2327
	%CSYS	92071-16405	2226	
	%D.RTR	92071-16037	2041	
*	%DD.00	92071-16083	2340	--> 2440
*	%DD.12	92071-16086	2326	--> 2440
	%DD.20	92071-16084	2326	
	%DD.23	92071-16312	2340	
	%DD.30	92071-16085	2326	
	%DD.33	92071-16394	2340	
	%DD.36	92070-16298	2326	
*	%DECAR	24306-16001	New	--> 2540
*	%DECAR	24306-60001	2340	--> Deleted
*	%EDITA	92074-12001	2340	--> 2440
*	%EDITB	92074-12002	2340	--> 2440
	%EDITR	92070-16135	1941	
	%ERLOG	92071-16147	2041	
*	%EXEC	92071-16136	2226	--> 2440
	%FC0	92084-12056	2340	
	%FC1	92084-12057	2340	
	%FC2	92084-12058	2340	
	%FC3	92084-12059	2340	
*	%FC4	92071-12021	New	--> 2440
*	%FC4	92084-12060	2340	--> Deleted
	%FC5	92084-12065	2340	
	%FC6	92084-12066	2340	
*	%FCML	92071-12013	2340	--> 2440
*	%FMGR	92071-16310	2226	--> 2540
*	%FORMC	92071-16427	New	--> 2440
*	%FORMC	92084-16827	2302	--> Deleted
	%FORMT	92070-16337	2213	
	%FTEST	02145-16009	2301	
	%HPIBM	92071-16242	2213	
*	%ID*50	92071-16097	New	--> 2540
*	%ID.00	92071-16082	2326	--> 2440

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  %ID.36                92071-16299  2326
* %ID.37                92071-16408  2326  --> 2540
  %ID.43                92071-16096  2240
* %ID.50                92071-16097  2326  --> Deleted
  %ID.52                92071-16365  2326
* %IDM00                12040-16002  2340  --> 2440
  %IDS00                24997-16003  2340
  %INSTL                92071-16090  2213
  %LIF                  24998-12006  2301
* %LOAD                 92071-16156  2140  --> 2440
  %LOADR                92071-16108  2140
  %LOCK                 92071-16145  2041
* %MACR0                92059-16002  2340  --> 2540
* %MACR1                92059-16003  2340  --> 2540
* %MACR2                92059-16004  2340  --> 2540
* %MACR3                92059-16005  2340  --> 2540
* %MACR4                92059-16006  2340  --> 2540
* %MACR5                92059-16007  2340  --> 2540
* %MACR6                92059-16008  2340  --> 2540
* %MACR7                92059-16009  2340  --> 2540
* %MACRO                92059-16001  2340  --> 2540
  %MERGE                92067-16334  2301
  %MI2AB                92071-16276  2213
* %OLDRE                92059-16010  2226  --> 2227
  %OPMSG                92071-16151  2041
  %PFORM                92071-16288  2150
* %RTIOL                92071-16092  2226  --> 2440
  %RTLGN                92071-16077  2301
  %SAM                  92071-16137  2041
  %SCHED                92071-16141  2041
  %STAT                 92071-16154  2041
  %STRNG                92071-16143  2041
  %SWAP                 92071-16158  2101
  %SYCOM                92071-16149  2041
  %TIME                 92071-16139  2041
  %XCMND                92071-16152  2041
* &AUTOR                92070-18252  1941  --> 2540
  &LHELP                92070-18236  1941
* =PLIB                 92833-16051  2326  --> Deleted
* =PLIB                 92854-16005  New   --> 2144
* =PRERS                92833-16053  2226  --> Deleted
* =SHSLB                92833-16052  2326  --> Deleted
* =SHSLB                92854-16006  New   --> 2144
* A92071                92071-18999  2340  --> 2540
  BOOTEX                92071-16409  2213
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Manual Part#	Title	Edition/Update
5958-9151	Errata Sheet for RTE-L/XL Manuals	1/-

Media Part#	Media Option
92071-13301	022
92071-13401	041
92071-13415	041
92071-13406	042
92071-13407	042
92071-13408	042
92071-13413	042
92071-13414	042
92071-13416	042
92071-13417	042
92071-13425	042
92071-13427	042
92071-13501	050
92071-13511	050
92071-13502	051
92071-13512	051

3.37 + (92073A) Image/1000L

	Filename	Part Number	Rev	Change
	#DBBLD	92069-18309	2340	
	#DBDS	92069-18308	2340	
	#DBMS1	92069-18304	2340	
	#DBMS2	92069-18305	2340	
	#DBMS3	92069-18306	2340	
*	#IMAGE	92069-18288	2340	--> 2540
*	#IMAGL	92069-18289	2340	--> 2540
*	#RDBA	92069-17001	New	--> 2540
*	$DBBLL	92069-12009	2340	--> 2540
*	$DBDSL	92069-12010	2213	--> 2540
	$DSDB	92069-12007	2340	
	%BAIMX	92069-16255	2026	
*	%DBBLX	92069-16001	2340	--> 2540
*	%DBCOP	92069-16256	1912	--> 2540
	%DBDRT	92069-16310	2340	
*	%DBDSX	92069-16015	2340	--> 2540
*	%DBLOX	92069-16128	2226	--> 2540
*	%DBMS	92069-12002	2340	--> 2540
	%DBRED	92069-16160	2340	
	%DBRSX	92069-16126	2140	
	%DBSPX	92069-16133	2140	
*	%DBSTX	92069-16125	2140	--> 2540

* %DBULX	92069-16127	2140	--> 2540
* %LOCAL	92069-12006	2340	--> 2540
* %NO\DS	92069-12005	2340	--> Deleted
* %NO_DS	92069-12005	New	--> 2540
%RD.TB	92069-16257	2340	
* %RDBA	92069-12003	2340	--> 2540
%RDBAM	92069-16258	2340	
%RDBAP	92069-16259	2340	
* %RECVX	92069-16134	2140	--> 2540
* %REMOT	92069-12004	2340	--> 2540
* *A92073	92073-18999	REV.	--> Deleted
* *DBUP	92069-12001	2340	--> 2540
* *IMAGA	92069-18230	2340	--> 2540
* *IMAGE	92069-18287	2340	--> 2540
* *IMAGX	92069-18303	2340	--> 2540
* A92073	92073-18999	2341	--> 2540

Manual Part#	Title	Edition/Update
(no manual changes)		

Media Part#	Media Option
92073-13302	022
92073-13401	041
92069-13402	042
92073-13501	050
92073-13502	051

3.38 (92076A) Basic/1000-L

Filename	Part Number	Rev
$ABLIB	92076-12002	2213
$BSLBL	92076-12001	2226
%BASIC	92076-16001	2326
%BATBL	92076-16002	2040
%SRV.L	92076-16004	2040
*BASIC	92076-18027	2001
*BATBL	92076-18028	2040
*TBFIL	92076-18029	2001
A92076	92076-18999	2326

3.39 + (92077A) RTE-A Operating System

	Filename	Part Number	Rev	Change
	Directory: /RTE_A/			
*	!ARSTM	92077-16662	2340	--> 2540
*	!ARSTR	92077-16639	2326	--> 2540
*	!PBV	92077-16416	2302	--> 2441
*	!PBVM	92077-16661	2340	--> 2441
	"CDSLB	92059-18027	2326	
*	"EDIT	92074-17004	New	--> 2440
*	"EDIT.	92074-17004	2340	--> Deleted
	"FCHLP	92084-17150	2226	
*	"M.ERR	92059-18025	2326	--> 2440
	"MACLB	92059-18026	2326	
	#AB2MI	92077-17030	2326	
*	#ANS	92077-17197	New	--> 2540
*	#APLDA	92077-17132	New	--> 2440
*	#ARSTR	92077-17101	2326	--> 2440
*	#ASAVE	92077-17100	2326	--> 2440
	#AUTOR	92077-17042	2340	
*	#BIGLB	92077-17046	2326	--> Deleted
	#BUILD	92077-17036	2326	
*	#CIA	92077-17026	2340	--> 2540
*	#CIX	92077-17105	2340	--> 2540
*	#CLSDS	92077-17019	2326	--> 2440
	#COMND	92077-17043	2326	
	#COPYL	92077-17038	2326	
*	#CSYS	92077-17035	2326	--> 2540
*	#D.RTR	92077-17016	2326	--> Deleted
*	#DDERR	92077-17133	New	--> 2440
*	#DDRTR	92077-17016	New	--> 2440
*	#DL	92077-17028	2340	--> 2440
	#DRSTR	92077-17110	2401	
	#DSAVE	92077-17111	2401	
	#DSRTR	92077-17018	2326	
*	#ED1KA	92074-17005	2326	--> 2540
*	#ERTSH	92077-17214	New	--> 2526
*	#EXER	24398-17016	New	--> 2540
*	#EXER1	24398-17015	New	--> 2540
*	#FCA	92077-17008	2340	--> 2540
	#FMGR	92077-17032	2326	
*	#FORMA	92077-17213	New	--> 2526
*	#FORMC	92077-17034	2326	--> 2540
*	#FORMF	92077-17104	2326	--> 2440
*	#FORMT	92077-17041	2401	--> 2440
*	#FOWN	92077-17029	2326	--> 2440

*	#FPACK	92077-17012	2326	--> 2440
	#FPUT	92077-17013	2326	
*	#FREES	92077-17011	2326	--> 2440
*	#FSCON	92077-17014	2326	--> 2440
	#FTEST	92077-17037	2326	
*	#FVERI	92077-17015	2326	--> 2440
	#INSTL	92077-17039	2326	
*	#IO	92077-17027	2326	--> 2440
*	#IS	92077-17112	New	--> 2440
*	#LI	92077-17108	2340	--> 2440
*	#LIF	92077-17033	2326	--> 2440
*	#LINDX	92077-17021	2326	--> 2440
*	#LINK	92077-17020	2326	--> 2440
*	#LINK2	92077-17134	New	--> 2440
*	#LTEST	92077-17196	New	--> 2440
	#MACRO	92059-17004	2340	
	#MERGE	92077-17023	2326	
*	#METER	92077-17130	New	--> 2440
	#MI2AB	92077-17031	2326	
	#OLDRE	92059-17002	2213	
*	#PBV	92077-17010	2302	--> 2540
*	#PRINO	92077-17025	2326	--> 2440
*	#PRINT	92077-17024	2326	--> 2440
*	#RS	92077-17115	New	--> 2440
*	#RTAGN	92077-17040	2326	--> 2440
*	#SAM	92077-17131	New	--> 2440
*	#TF	92077-17102	2326	--> 2440
	#TRFAS	92077-17017	2326	
*	#WH	92077-17022	2326	--> 2440
*	$BIGLB	92077-12006	2401	--> 2540
*	$CMDLB	92077-12004	2326	--> 2540
*	$COMPT	92077-12031	New	--> 2441
*	$CRLIB	92077-12025	2340	--> 2540
*	$DBULB	92077-12027	2401	--> 2540
*	$DDLIB	92077-12030	New	--> 2441
*	$DKLIB	92077-12024	2401	--> 2540
*	$DSLDR	92077-12015	2326	--> 2441
*	$DTCLB	92071-12015	2226	--> 2540
*	$ED1KA	92074-12011	2340	--> 2540
*	$EMCLB	92077-12007	2213	--> 2214
*	$FCDS	24998-12011	2326	--> Deleted
*	$FCL1	92084-12067	2340	--> Deleted
*	$FCL1	92084-12085	New	--> 2540
*	$FCL2	92084-12068	2340	--> Deleted
*	$FCL2	92084-12086	New	--> 2540
*	$FCLBA	92077-12023	2326	--> Deleted
*	$FDSLB	24998-12004	2340	--> 2540
*	$FLIB	24998-12008	2340	--> 2540
*	$FMGR	92077-12005	2326	--> 2540
*	$FMP	92077-12003	2340	--> 2540

* $FMPC	92077-12018	2340	--> 2540
* $FNDLB	24998-12005	2226	--> 2227
* $FNEWF	24998-12010	2326	--> 2540
* $FOLDF	24998-12009	2340	--> 2540
* $HPIB	92077-12021	2326	--> 2540
* $LDRLN	92084-12038	2340	--> 2540
* $MATH	24998-12007	2326	--> 2540
* $PBULB	92077-12019	2326	--> 2540
* $PLIB	92833-16005	2326	--> 2440
* $PLIBC	92833-16228	New	--> 2440
* $PLIBN	92833-16054	2326	--> 2440
* $PRINT	92077-12008	2213	--> 2540
* $SHSLB	92833-16006	2326	--> 2440
* $SYSA	92077-12001	2326	--> 2540
* $SYSLB	92077-12012	2401	--> 2540
* $TFLIB	92077-12020	2340	--> 2540
* $VLB6B	12829-12002	2213	--> 2214
* $VLBA1	92077-12014	2226	--> 2227
* $WFCLB	92077-12022	2326	--> 2327
* %$M000	92089-16002	New	--> 2540
* %$MWB1	92077-16097	2226	--> 2227
* %AB2MI	92077-16433	2326	--> 2441
* %ABORT	92077-16826	New	--> 2540
* %APLDA	92077-16098	New	--> 2540
* %ARSTR	92077-16587	2326	--> 2540
* %ASAVE	92077-16586	2326	--> 2540
* %ATRAN	92059-16013	2226	--> 2540
* %AUTOR	92077-16385	2340	--> 2540
* %BIGHD	92077-16073	2401	--> Deleted
* %BUILD	92077-16336	2326	--> 2540
* %CA000	92077-16740	New	--> 2540
* %CI	92077-16445	2340	--> 2540
* %CI000	92077-16737	New	--> 2540
* %CISUB	92077-16535	2340	--> 2540
* %CIX	92077-16651	2340	--> 2540
* %CKTRM	92077-16748	New	--> 2441
* %CL000	92077-16781	New	--> 2441
* %CLASS	92077-16442	2340	--> 2540
* %CLSDS	92077-16463	2326	--> 2441
* %CMPBF	92077-16415	2302	--> 2303
* %COMND	92077-16076	2213	--> 2214
* %COPYL	92070-16336	2326	--> 2327
* %CR000	92077-16739	New	--> 2540
* %CSYS	92077-16636	2326	--> 2540
* %CX000	92077-16738	New	--> 2540
* %D.RTR	92077-16455	2340	--> Deleted
* %DD*00	92077-16699	New	--> 2540
* %DD*12	92077-16758	New	--> 2441
* %DD*20	92077-16727	New	--> 2441
* %DD*23	92077-16730	New	--> 2441

* %DD*24	92077-16648	New	--> 2402
* %DD*30	92077-16669	New	--> 2540
* %DD*33	92077-16668	New	--> 2540
* %DD*36	92077-16732	New	--> 2441
* %DD.00	92077-16699	2401	--> Deleted
* %DD.12	92071-16086	2326	--> Deleted
* %DD.20	92071-16084	2326	--> Deleted
* %DD.23	92071-16312	2340	--> Deleted
* %DD.24	92077-16648	2401	--> Deleted
* %DD.30	92077-16669	2401	--> Deleted
* %DD.33	92077-16668	2401	--> Deleted
* %DD.36	92070-16298	2326	--> Deleted
* %DDC12	92077-16386	2401	--> 2402
* %DDERR	92077-16778	New	--> 2540
* %DDM30	92077-16666	2401	--> 2540
* %DDRTR	92077-16455	New	--> 2540
* %DE000	92077-16779	New	--> 2540
* %DECAR	24306-16001	New	--> 2540
* %DECAR	24306-60001	2340	--> Deleted
* %DL	92077-16447	2340	--> 2540
* %DL000	92077-16759	New	--> 2540
* %DRSTR	92077-16701	2401	--> 2540
* %DSAVE	92077-16702	2401	--> 2540
* %DSQ	92077-16721	New	--> 2540
* %DSRTR	92077-16462	2340	--> 2540
* %ED000	92074-16055	New	--> 2540
* %EDIT	92074-12008	New	--> 2540
* %EDITA	92074-12001	2340	--> Deleted
* %EDITB	92074-12002	2340	--> Deleted
* %ERLOG	92077-16147	2340	--> 2540
* %ERTLB	92077-16816	New	--> 2526
* %ERTSH	92077-16815	New	--> 2526
* %EXEC	92077-16136	2340	--> 2540
* %EXER	24398-16062	New	--> 2540
* %EXER1	24398-16066	New	--> 2540
* %FC0	92084-12056	2340	--> Deleted
* %FC0	92084-15042	New	--> 2540
* %FC000	92077-16787	New	--> 2536
* %FC1	92084-12057	2340	--> Deleted
* %FC1	92084-15043	New	--> 2540
* %FC2	92084-12058	2340	--> Deleted
* %FC2	92084-15044	New	--> 2540
* %FC3	92084-12059	2340	--> Deleted
* %FC3	92084-15045	New	--> 2540
* %FC4	92084-12060	2340	--> Deleted
* %FC4	92084-15046	New	--> 2540
* %FC5	92084-12065	2340	--> Deleted
* %FC5	92084-15047	New	--> 2540
* %FC6	92084-12066	2340	--> Deleted
* %FC6	92084-15048	New	--> 2540

* %FCMA	92077-12016	2340	--> 2540
* %FFL	92077-16067	2213	--> 2441
* %FMGR	92077-16310	2326	--> 2540
* %FORMA	92077-16814	New	--> 2536
* %FORMC	92077-16786	New	--> 2536
* %FORMC	92084-16827	2302	--> Deleted
* %FORMF	92077-16393	2342	--> 2540
* %FORMT	92077-16697	2401	--> 2540
* %FOWN	92077-16449	2326	--> 2441
* %FPOOO	92077-16768	New	--> 2441
* %FPACK	92077-16451	2326	--> 2441
* %FPUT	92077-16452	2326	--> 2327
* %FROOO	92077-16770	New	--> 2540
* %FREES	92077-16450	2326	--> 2540
* %FSCON	92077-16453	2326	--> 2540
* %FTOOO	92077-16773	New	--> 2540
* %FTEST	92077-16637	2401	--> 2402
* %FVOOO	92077-16764	New	--> 2540
* %FVERI	92077-16454	2340	--> 2540
* %FWOOO	92077-16766	New	--> 2441
* %GEN27	92077-16629	2342	--> 2540
* %ID*00	92077-16756	New	--> 2540
* %ID*01	92077-16390	New	--> 2540
* %ID*27	92077-16628	New	--> 2536
* %ID*36	92077-16722	New	--> 2441
* %ID*37	92077-16696	New	--> 2540
* %ID*43	92077-16096	New	--> 2540
* %ID*50	92077-16667	New	--> 2540
* %ID*52	92077-16753	New	--> 2441
* %ID.00	92071-16082	2326	--> Deleted
* %ID.01	92077-16390	2326	--> Deleted
* %ID.27	92077-16628	2401	--> Deleted
* %ID.36	92071-16299	2326	--> Deleted
* %ID.37	92077-16696	2401	--> Deleted
* %ID.43	92077-16096	2340	--> Deleted
* %ID.50	92077-16667	2401	--> Deleted
* %ID.52	92071-16365	2326	--> Deleted
* %IDM00	12040-16002	2340	--> Deleted
* %IDM00	92077-16754	New	--> 2540
* %IDM37	92077-16700	2401	--> 2402
* %IDS00	24997-16003	2340	--> Deleted
* %IDS00	92077-16755	New	--> 2441
* %INSTL	92077-16090	2340	--> 2441
* %IO	92077-16446	2401	--> 2540
* %IOOOO	92077-16761	New	--> 2540
* %IOMOD	92077-16471	2340	--> 2540
* %IORQ	92077-16827	New	--> 2540
* %IS	92077-16724	New	--> 2441
* %LI	92077-16646	2340	--> 2441
* %LIF	92077-16638	2326	--> 2540

* %LINDX	92077-12026	2340	--> 2540
* %LINKA	92077-16464	2340	--> 2540
* %LINKB	92077-16466	2340	--> 2540
* %LK000	92077-16749	New	--> 2540
* %LOAD	92077-16156	2326	--> 2540
* %LOCK	92077-16484	2326	--> 2540
* %LTEST	02145-16020	2340	--> 2341
* %MACR0	92059-16015	2340	--> 2540
* %MACR1	92059-16016	2340	--> 2540
* %MACR2	92059-16017	2340	--> 2540
* %MACR3	92059-16018	2340	--> 2540
* %MACR4	92059-16019	2340	--> 2540
* %MACR5	92059-16020	2340	--> 2540
* %MACR6	92059-16021	2340	--> 2540
* %MACR7	92059-16022	2340	--> 2540
* %MACRO	92059-16014	2340	--> 2540
* %MAPOS	92077-16728	New	--> 2441
* %MAPS	92077-16828	New	--> 2540
* %MDMLB	92077-16392	2340	--> 2540
* %MEMRY	92077-16469	2340	--> 2540
* %MERGE	92077-16431	2340	--> 2441
* %METER	92077-16733	New	--> 2540
* %MEXPL	92077-16663	New	--> 2401
* %MI2AB	92077-16432	2326	--> 2540
* %MODEM	92077-16391	2340	--> 2540
* %MSGS	92077-16474	2326	--> Deleted
* %MSGTB	92089-16001	New	--> 2441
* %MSOUT	92077-16776	New	--> 2540
* %MTEXR	92077-16649	New	--> 2401
* %MUXUP	92077-16660	2340	--> 2341
* %OLDRE	92059-16010	2226	--> Deleted
* %OLDRE	92059-16023	New	--> 2540
* %OPMSG	92077-16151	2326	--> 2327
* %PBV	92077-16414	2302	--> 2441
* %PERR	92077-16472	2326	--> 2540
* %PR000	92077-16714	New	--> 2540
* %PRERS	92833-16007	2226	--> 2440
* %PRINO	92077-16054	2326	--> 2441
* %PRINT	92077-16009	2326	--> 2540
* %PROGS	92077-16829	New	--> 2540
* %RPL60	92077-16475	2326	--> 2327
* %RPL61	92077-16476	2326	--> 2327
* %RPL70	92077-16477	2326	--> 2327
* %RPL71	92077-16478	2326	--> 2327
* %RPL90	92077-16479	2326	--> 2327
* %RS	92077-16731	New	--> 2540
* %RS000	92077-16784	New	--> 2540
* %RTAGN	92077-16077	2326	--> 2540
* %RTIOA	92077-16470	2340	--> 2540
* %SAM	92077-16443	2326	--> 2441

*	%SAMON	92077-16736	New	--> 2540
*	%SAMU	92077-16734	New	--> 2540
*	%SCHED	92077-16141	2326	--> 2441
*	%SECON	92077-16783	New	--> 2441
*	%SPCOM	92077-16744	New	--> 2540
*	%SPSLG	92077-16745	New	--> 2540
*	%STAT	92077-16154	2326	--> 2441
*	%STRNG	92077-16444	2326	--> 2327
*	%SWAP	92077-16735	New	--> 2540
*	%SYCOM	92077-16149	2326	--> 2540
*	%TF	92077-16598	2340	--> 2540
*	%TIME	92077-16438	2326	--> 2540
*	%TRFAS	92077-16461	2326	--> 2540
*	%UTIL	92077-16830	New	--> 2540
*	%VCTR	92077-16473	2340	--> 2540
*	%VEMA	92077-16741	New	--> 2540
*	%VISOA	92077-16383	2301	--> 2302
*	%WH	92077-16110	2326	--> 2540
*	%WH000	92077-16760	New	--> 2540
*	%WHSUB	92077-16111	2326	--> 2540
*	%XCMND	92077-16152	2326	--> 2540
*	&ABORT	92077-18826	New	--> 2540
*	&AUTOR	92077-18385	2340	--> 2540
*	&BIGLB	92077-18073	New	--> 2540
*	&FFL	92077-18067	2213	--> 2441
*	&PRNHD	92077-18823	New	--> 2540
*	*COHLP	92077-17259	New	--> 2540
*	*RTEA1	92077-17194	New	--> 2540
*	*RTEA2	92077-17195	New	--> 2440
*	=PLIB	92833-16051	2326	--> 2440
*	=PRERS	92833-16053	2226	--> 2440
*	=SHSLB	92833-16052	2326	--> 2440
*	>LK000	92077-16750	New	--> 2540
*	>TF000	92077-16763	New	--> 2540
	???	92077-17099	2326	
	?AS	92077-17048	2326	
	?AT	92077-17049	2326	
	?BR	92077-17050	2326	
	?CD	92077-17051	2326	
*	?CI	92077-17045	2326	--> 2540
	?CL	92077-17052	2326	
	?CN	92077-17053	2326	
*	?CO	92077-17054	2340	--> 2440
	?CR	92077-17055	2326	
*	?CRDIR	92077-17056	2326	--> 2440
	?DC	92077-17057	2326	
*	?DL	92077-17058	2340	--> 2440
	?DT	92077-17059	2326	
*	?ECHO	92077-17117	New	--> 2440
	?ERROR	92077-17060	2326	

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  ?EX                92077-17061  2326
  ?FOWN              92077-17063  2326
  ?FPACK             92077-17065  2326
  ?FREES             92077-17062  2326
* ?FVERI             92077-17064  2326  --> 2440
  ?GO                92077-17066  2326
* ?IF                92077-17118  New   --> 2440
  ?IN                92077-17067  2326
* ?IO                92077-17068  2326  --> 2440
* ?IS                92077-17119  New   --> 2440
* ?LI                92077-17069  2326  --> 2440
* ?LINDX             92077-17070  2326  --> 2440
* ?LINK              92077-17044  2326  --> 2440
  ?MACRO             92059-17003  2326
* ?MASK              92077-17071  2326  --> 2440
* ?MC                92077-17072  2326  --> 2440
  ?MERGE             92077-17073  2340
* ?METER             92077-17128  New   --> 2440
  ?MO                92077-17074  2326
  ?OF                92077-17075  2326
  ?OWNER             92077-17076  2326
  ?PR                92077-17077  2326
* ?PRINT             92077-17079  2326  --> 2440
  ?PROT              92077-17080  2326
* ?PS                92077-17120  New   --> 2540
* ?PU                92077-17081  2326  --> 2440
  ?RN                92077-17082  2326
  ?RP                92077-17083  2326
* ?RS                92077-17121  New   --> 2440
* ?RU                92077-17084  2340  --> 2440
* ?SAM               92077-17129  New   --> 2440
* ?SET               92077-17123  New   --> 2440
  ?SS                92077-17086  2326
  ?SZ                92077-17087  2326
* ?TM                92077-17088  2326  --> 2440
  ?TO                92077-17089  2326
* ?TR                92077-17090  2326  --> 2440
  ?UL                92077-17091  2326
  ?UNPU              92077-17092  2326
* ?UNSET             92077-17125  New   --> 2440
  ?UP                92077-17093  2326
  ?VS                92077-17094  2326
  ?WD                92077-17095  2340
  ?WH                92077-17096  2326
* ?WHILE             92077-17126  New   --> 2440
  ?WS                92077-17097  2326
  ?XQ                92077-17098  2340
* A92077             92077-18999  2401  --> 2540
* A92077             92077-18999  REV.  --> Deleted
* ADVLINK.HLP        92077-17258  New   --> 2540
```

* BIGLB.MRG	92077-17239	New	--> 2540
* BIGLB_BLD.CMD	92077-17260	New	--> 2540
* BOOTEX	92077-16364	2401	--> 2540
* CINFOM	24998-16621	New	--> 2540
* CINFOS	24998-16620	New	--> 2540
* CINFRM	24998-16629	New	--> 2540
* CINFRS	24998-16628	New	--> 2540
* EDIT.HLP	92074-17007	2401	--> Deleted
* FCO	92077-16808	New	--> 2540
* FCOM	92077-16809	New	--> 2540
* FORMF	92077-16810	New	--> 2540
* FORMFM	92077-16811	New	--> 2540
* FORMT	92077-16812	New	--> 2540
* FORMTM	92077-16813	New	--> 2540
* FRMER	92077-16849	New	--> 2540
* FRMERM	92077-16850	New	--> 2540
* M92077	92077-18998	2401	--> 2540
* MONITOR.LOD	92077-17257	New	--> 2540
* MONITOR.REL	92077-12033	New	--> 2540
* TINFOM	24998-16623	New	--> 2540
* TINFOS	24998-16622	New	--> 2540
* TINFRM	24998-16627	New	--> 2540
* TINFRS	24998-16626	New	--> 2540

Manual Part#	Title	Edition/Update
92059-90001	MACRO/1000 Reference Manual	1/7
92077-90002	RTE-A User's Manual	3/1
92077-90004	RTE-A Utilities Manual	2/5
92077-90007	RTE-A Programmer's Reference Manual	3/1
92077-90011	RTE-A Driver Reference Manual	4/-
92077-90013	RTE-A System Design Manual	3/1
92077-90019	RTE-A Driver Designer Reference Manual	2/2
92077-90034	RTE-A System Generation and Installation Manual	3/1
92077-90035	RTE-A LINK User's Manual	2/1
92077-90036	RTE-A Index and Glossary	2/1
92077-90037	Relocatable Libraries Reference Manual RTE-A.RTE-6/VM	2/2
92077-90038	RTE-A Primary System Software Installation	4/-
92077-90039	Getting Started With RTE-A	1/3
92077-90050	RTE-A Software Entry Point Directory	2/-

Media Part#	Media Option
92077-13305	022
92077-13311	022
92077-13312	022
92077-13401	041
92077-13402	041
92077-13403	041
92077-13404	041
92077-13405	041
92077-13406	041
92077-13407	041
92077-13408	041
92077-13409	041
92077-13410	041
92077-13411	041
92077-13412	041
92077-13413	041
92077-13494	041
24998-13423	042
24998-13424	042
24998-13425	042
24998-13426	042
24998-13427	042
24998-13428	042
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92077-13442	042
92077-13443	042
92077-13444	042
92077-13445	042
92077-13446	042
92077-13447	042
92077-13448	042
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24998-13444	044
24998-13445	044
24998-13446	044
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24998-13463	044
24998-13464	044
92077-13416	044
92077-13469	044
92077-13470	044
92077-13471	044
92077-13472	044
92077-13473	044
92077-13474	044
92077-13475	044
92077-13476	044
92077-13477	044
92077-13478	044
92077-13479	044
92077-13480	044

92077-13481	044
92077-13482	044
92077-13483	044
92077-13484	044
92077-13485	044
92077-13486	044
92077-13487	044
92077-13498	044

3.40 + (92078A) RTE-A Virtual Code+ (VC+)

	Filename	Part Number	Rev	Change
	Directory: /VCPLUS/			
*	#CICDS	92078-17010	2340	--> 2540
*	#CIXC	92078-17013	2340	--> 2540
*	#LOGOF	92078-17018	New	--> 2440
*	#LOGON	92078-17005	2326	--> 2440
*	#OUTPT	92078-17003	2326	--> 2440
*	#PATH	92078-17020	New	--> 2440
*	#PROMT	92078-17007	2326	--> 2440
*	#RESTR	92078-17030	New	--> 2540
*	#RINFO	92078-17014	New	--> 2440
*	#SINFO	92078-17016	New	--> 2440
*	#SMP	92078-17004	2326	--> 2440
*	#SP	92078-17001	2326	--> 2440
*	#SPGET	92078-17002	2326	--> 2440
*	#USERS	92078-17006	2326	--> 2440
*	#WHOSD	92078-17019	New	--> 2440
*	$BGCDS	92078-12003	New	--> 2540
*	$CDS	92078-12001	2340	--> 2540
*	$CRCDS	92078-12002	2340	--> 2540
*	$FCDS	24998-12011	New	--> 2540
*	$LNLIB	92078-16029	New	--> 2540
*	%CDSFH	92078-16001	2326	--> 2441
*	%CICDS	92078-16016	2340	--> 2540
*	%CIXC	92077-16652	2340	--> Deleted
*	%CIXC	92078-16033	New	--> 2540
*	%LN000	92078-16028	New	--> 2540
*	%LOGOF	92078-16021	New	--> 2540
*	%LOGON	92078-16013	2326	--> 2540
*	%OUTPT	92078-16005	2326	--> 2540
*	%PATH	92078-16026	New	--> 2540
*	%PM000	92078-16027	New	--> 2540
*	%PROMT	92078-16015	2326	--> 2540

*	%PT000	92078-16024	New	--> 2540
*	%RE000	92078-16032	New	--> 2540
*	%RESTR	92078-16031	New	--> 2540
*	%RINFO	92078-16019	New	--> 2441
*	%RPL62	92078-16008	2326	--> Deleted
*	%RPL63	92078-16009	2326	--> 2441
*	%RPL72	92078-16010	2326	--> 2327
*	%RPL73	92078-16011	2326	--> 2327
*	%RPL91	92078-16012	2326	--> 2327
*	%RT000	92078-16023	New	--> 2540
*	%SINFO	92078-16020	New	--> 2441
*	%SMP	92078-16007	2326	--> 2540
*	%SP	92078-16002	2326	--> 2540
*	%SP000	92078-16022	New	--> 2540
*	%SPGET	92078-16004	2326	--> 2540
*	%SPOOL	92078-16003	2326	--> 2540
*	%SPRT	92078-16006	2326	--> 2540
*	%USERS	92078-16014	2326	--> 2540
*	%WHOSD	92078-16025	New	--> 2441
*	&BGCDS	92078-18030	New	--> 2540
*	*VC1	92078-17023	New	--> 2540
*	*VC2	92078-17024	New	--> 2540
*	*VCCOHLP	92078-17034	New	--> 2540
*	?PATH	92078-17022	New	--> 2440
*	?RINFO	92078-17015	New	--> 2540
*	?SINFO	92078-17017	New	--> 2540
	?SP	92078-17011	2326	
	?USERS	92078-17009	2326	
*	?WHOSD	92078-17021	New	--> 2440
*	A92078	92078-17999	2340	--> 2540
*	BGCDS.MRG	92078-17033	New	--> 2540

Manual Part#	Title	Edition/Update
92078-90001	RTE-A VC+ System Extension Package	3/-

Media Part#	Media Option
92078-13301	022
92078-13401	041
92078-13406	042
92078-13407	042
92078-13418	042
92078-13416	044
92078-13417	044
92078-13419	044
92078-13501	050

92078-13502 051

3.41 + (92080A) Datacap/1000-II

	Filename	Part Number	Rev	Change
*	#DCIM2	92080-17002	New	--> 2226
*	#DCIML	92080-18591	2140	--> 2540
	#DCMON	92080-18212	2140	
	#DCRCV	92080-18590	2140	
	#RT4GN	92080-17003	2226	
	#RT6GN	92080-17004	2226	
	#TGP	92080-18321	2140	
	#TIME	92080-18209	2140	
	#TMPGN	92080-18412	2140	
	#TMSL4	92080-18604	2140	
	#TMSL6	92080-18605	2140	
	$GPLB4	92080-12001	2226	
	$TGPLB	92080-12300	2226	
	$TMGL1	92080-12401	2140	
	$TMGLB	92080-12400	2226	
	$TMSL1	92080-12101	2140	
	$TMSL4	92080-12002	2226	
	$TMSL6	92080-12003	2226	
*	$TMSLB	92080-12100	2226	--> Deleted
*	$TMSLX	92080-12100	New	--> 2540
*	%DBMS	92069-12002	2213	--> Deleted
	%DCIMX	92080-16608	2226	
*	%DCMNS	92080-16200	2226	--> 2540
*	%DCRCV	92080-16584	2226	--> 2540
	%IOM70	92080-16560	2226	
	%IOM75	92080-16570	2226	
	%IOM82	92080-16607	2226	
*	%LOCAL	92069-12006	2213	--> Deleted
	%OFLPO	92080-16580	2140	
	%R2140	92080-16582	2140	
	%STORA	92080-16540	2140	
	%STORB	92080-16550	2140	
	%TG10S	92080-16307	2140	
	%TG11S	92080-16308	2140	
	%TG12S	92080-16309	2226	
	%TG13S	92080-16310	2140	
	%TG14A	92080-16391	2226	
	%TGP	92080-16350	2226	
	%TGP0A	92080-16351	2140	
	%TGP1S	92080-16301	2226	
	%TGP2S	92080-16302	2140	

	%TGP3A	92080-16358	2140	
	%TGP4A	92080-16359	2140	
	%TGP5S	92080-16303	2226	
	%TGP6S	92080-16304	2140	
	%TGP7S	92080-16311	2140	
	%TGP8S	92080-16305	2140	
	%TGP9S	92080-16306	2140	
	%TIME	92080-16213	2140	
	%TMG0A	92080-16452	2226	
	%TMG1A	92080-16453	2226	
	%TMG2A	92080-16454	2140	
	%TMG3A	92080-16455	2226	
	%TMG4A	92080-16456	2140	
	%TMG5A	92080-16457	2226	
	%TMPGN	92080-16451	2226	
	%TSE	92080-16520	2226	
	%TSMG	92080-16530	2140	
	%XMLIM	92080-16594	2140	
*	%ZTMP	92080-16510	2226	--> 2540
*	&DISXB	92080-18611	New	--> 2226
*	&GPBC2	92080-18609	New	--> 2226
*	&VALXB	92080-18610	New	--> 2226
*	*DATCA	92080-18204	2140	--> 2540
*	*DCMTL	92080-18583	2140	--> Deleted
	*TYPE0	92080-18203	2140	
*	/TGP	92080-18319	2140	--> Deleted
*	/TMPGN	92080-18410	2140	--> Deleted
*	A92080	92080-18210	2226	--> 2540
*	OFTGP	92080-18320	New	--> 2141
*	OFTMPG	92080-18413	New	--> 1937
*	RPTGP	92080-18319	New	--> 2141
*	RPTMPG	92080-18410	New	--> 2141
*	\TGP	92080-18320	2140	--> Deleted
*	\TMPGN	92080-18413	2140	--> Deleted

Manual Part#	Title	Edition/Update
(no manual changes)		

Media Part#	Media Option
92080-13301	020
92080-13302	020
92080-13309	020
92080-13310	020
92080-13311	020
92080-13313	022
92080-13501	050

92080-13502 051

3.42 + (92081A) Image/1000-II

Filename	Part Number	Rev	Change
Directory: /IMAGE2/			
* "DBUTL	92081-17025	2401	--> Deleted
* %AR000	92081-16067	New	--> 2540
* %BL000	92081-16068	New	--> 2540
* %DB000	92081-16069	New	--> 2540
* %EM000	92081-16070	New	--> 2540
* %LB000	92081-16071	New	--> 2540
* %LO000	92081-16072	New	--> 2540
* %QY000	92081-16073	New	--> 2540
* %RB000	92081-16074	New	--> 2540
* %RF000	92081-16075	New	--> 2540
* %SA000	92081-16076	New	--> 2540
* %ST000	92081-16077	New	--> 2540
* %UT000	92081-16078	New	--> 2540
* &ADD	92081-18831	2340	--> 2540
* &CCRSH	92081-18833	2340	--> 2540
* &CRASH	92081-18836	2340	--> 2540
* &LOGGR	92081-18835	2340	--> 2540
* &SLOB	92081-18832	2340	--> 2540
* &TRADE	92081-18834	2340	--> 2540
* >QY000	92081-17024	New	--> 2540
* A92081	92081-18999	2420	--> 2540
* AC_ZOO.UTL	92081-17190	New	--> 2540
* BACKUP_TF.CMD	92081-17192	New	--> 2540
* BACKUP_ZOO.UTL	92081-17185	New	--> 2540
* BK_ZOO.UTL	92081-17191	New	--> 2540
* CDS_DBMS.REL	92081-12023	New	--> 2540
* CDS_DBMS1.CMD	92081-17175	New	--> 2440
* CDS_DBMS2.CMD	92081-17176	New	--> 2440
* CDS_DBMS3.CMD	92081-17177	New	--> 2440
* CDS_LOCAL.REL	92081-12024	New	--> 2440
* CDS_RDBA.REL	92081-12025	New	--> 2540
* CDS_REMOT.REL	92081-12026	New	--> 2540
* CMDZOO	92081-18837	2340	--> 2540
* CREATE_ZOO.CMD	92081-17183	New	--> 2540
* DB6S1.CMD	92081-17027	2401	--> 2540
* DB6S2.CMD	92081-17028	2401	--> 2540
* DB6S3.CMD	92081-17029	2401	--> 2540
* DBARC.LOD	92081-17004	2401	--> 2540

```
* DBARC.REL              92081-16630  2401  --> 2540
* DBBLD.LIB              92081-12007  New   --> 2540
* DBBLD.LOD              92081-17005  2401  --> 2540
* DBBLD.REL              92081-16013  2401  --> 2540
* DBBLL.LIB              92081-12007  2401  --> Deleted
* DBCLN.LOD              92081-17017  New   --> 2540
* DBCLN.REL              92081-16830  New   --> 2540
* DBDS.LIB               92081-12008  New   --> 2540
* DBDS.LOD               92081-17006  2401  --> 2540
* DBDS.REL               92081-16014  2401  --> 2540
* DBDSL.LIB              92081-12008  2401  --> Deleted
* DBEMA.LIB              92081-12010  2403  --> 2540
* DBLOD.LOD              92081-17007  2401  --> 2540
* DBLOD.REL              92081-16670  2401  --> 2540
* DBMON.LIB              92081-12009  New   --> 2540
* DBMON.LOD              92081-17008  2401  --> 2540
* DBMON.REL              92081-16015  2401  --> 2540
* DBMS.REL               92081-12001  2401  --> 2540
* DBMS1.CMD              92081-17021  2401  --> 2540
* DBMS2.CMD              92081-17022  2401  --> 2540
* DBMS3.CMD              92081-17023  2401  --> 2540
* DBRBR.LOD              92081-17009  2401  --> 2540
* DBRBR.REL              92081-16016  2401  --> 2540
* DBRFR.LIB              92081-16560  New   --> 2540
* DBRFR.LOD              92081-17010  2401  --> 2540
* DBRFR.REL              92081-16017  2401  --> 2540
* DBRST.LOD              92081-17011  2401  --> 2540
* DBRST.REL              92081-16760  2401  --> 2540
* DBSPA.LOD              92081-17012  2401  --> 2540
* DBSPA.REL              92081-16770  2401  --> 2540
* DBSPL.LOD              92081-17013  2401  --> 2540
* DBSPL.REL              92081-16775  2401  --> 2540
* DBSTR.LOD              92081-17014  2401  --> 2540
* DBSTR.REL              92081-16765  2401  --> 2540
* DBULD.LOD              92081-17015  2401  --> 2540
* DBULD.REL              92081-16780  2401  --> 2540
* DBULL.LIB              92081-12011  2401  --> Deleted
* DBUPGRADE.LOD          92081-17182  New   --> 2540
* DBUPGRADE.REL          92081-16060  New   --> 2540
* DBUTL.HLP              92081-17025  New   --> 2540
* DBUTL.LIB              92081-12011  New   --> 2540
* DBUTL.LOD              92081-17016  2401  --> 2540
* DBUTL.REL              92081-16018  2401  --> 2540
* DEMON.LOD              92081-17017  2401  --> Deleted
* DEMON.REL              92081-16830  2401  --> Deleted
* DMONL.LIB              92081-12009  2401  --> Deleted
* DSDB.LIB               92081-12006  2401  --> 2540
* IMAGE6.CMD             92081-17001  2420  --> 2540
* IMAGEA.CMD             92081-17002  2420  --> 2540
* INIT_IMAGE.UTL         92081-17184  New   --> 2540
```

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* LOCAL.REL              92081-12002  2401  --> 2440
* NEW_LOGSET.CMD         92081-17186  New   --> 2540
* NEW_LOGSET.UTL         92081-17187  New   --> 2540
* NO\DS.REL              92081-12005  2401  --> Deleted
* NO_DS.REL              92081-12005  New   --> 2440
* OHNO_GOTTA_GO.UTL      92081-17197  New   --> 2540
* OVRD.REL               92081-16281  2401  --> Deleted
* PASCAL.LIB             92833-16113  2401  --> 2440
* PASCAL_CDS.LIB         92833-16104  2401  --> 2440
* QRYXL.LIB              92081-12012  2401  --> Deleted
* QSHELP                 92081-17024  2321  --> Deleted
* QUERY.LIB              92081-12012  New   --> 2540
* QUERY.LOD              92081-17018  2401  --> 2540
* QUERY.REL              92081-16019  2401  --> 2540
* RDBA.REL               92081-12003  2401  --> 2540
* RDBAM.REL              92081-16880  2401  --> 2440
* RDBAM6.LOD             92081-17179  New   --> 2540
* RDBAMA.LOD             92081-17174  New   --> 2540
* RDBAP.REL              92081-16020  2401  --> 2540
* RDBAP6.LOD             92081-17180  New   --> 2540
* RDBAPA.LOD             92081-17181  New   --> 2540
* RDBCLN.LOD             92081-17178  New   --> 2540
* RDTB.REL               92081-16410  2401  --> 2440
* RECOVER_RB.CMD         92081-17193  New   --> 2540
* RECOVER_RB.UTL         92081-17194  New   --> 2540
* RECOVER_RF.CMD         92081-17195  New   --> 2540
* RECOVER_RF.UTL         92081-17196  New   --> 2540
* REMOT.REL              92081-12004  2401  --> 2540
* RFLL.LIB               92081-16560  2401  --> Deleted
* SAM6I.REL              92081-16022  2401  --> 2440
* SAMAI.REL              92081-16021  2401  --> 2440
* SHORT_DBOPN.REL        92081-16281  New   --> 2540
* SHSLB.LIB              92833-16220  New   --> 2440
* SHUTDOWN.UTL           92081-17189  New   --> 2540
* STARTUP.UTL            92081-17188  New   --> 2540
* USNUM.REL              92081-16577  2401  --> 2440
* ZOOBLD                 92081-18838  2340  --> 2540
* ZOORT                  92081-18839  2340  --> 2540
```

Manual Part#	Title	Edition/Update
92081-90001	IMAGE/1000-II Database Management System Reference Manual	4/-
92081-90002	IMAGE/1000-II Database Management System Configuration Guide	4/-

Media Part#	Media Option
92081-13301	022
92081-13401	044
92081-13402	044
92081-13403	044
92081-13404	044
92081-13405	044
92081-13407	044
92081-13408	044
92081-13409	044
92081-13501	050
92081-13502	051

3.43 (92082A) Accel/1000

Filename	Part Number	Rev
$PRLIB	92082-12001	2001
%CPLOT	92082-16009	2001
%CTRAC	92082-16001	2001
%DVR36	13197-16001	1605
%MDEP	92061-16004	1634
%MDES	92061-16005	1926
%MICRO	92061-16001	2013
%MONTR	92082-16008	2001
%MXREF	92061-16002	2013
%PTGEN	92061-16003	1813
%WLOAD	13197-16003	1813
A92082	92082-18999	2026

3.44 (92083A) Profile Monitor

Filename	Part Number	Rev
$PRLIB	92082-12001	2001
%APLOT	92083-16002	2226
%ATRAC	92083-16001	2226
%CPLOT	92082-16009	2001
%CTRAC	92082-16001	2001
%MONTR	92082-16008	2001
A92083	92083-18999	2226

3.45 + (92084A) RTE-6/VM Operating System

	Filename	Part Number	Rev	Change
*	!BCK10	92084-16736	2302	--> 2540
*	!BCK11	92084-16736	2302	--> 2540
*	!BCK12	92084-16736	2302	--> 2540
*	!BCK13	92084-16736	2302	--> 2540
*	!BCK14	92084-16736	2302	--> 2540
*	!BCKO1	92084-16736	2302	--> 2540
*	!BCKO2	92084-16736	2302	--> 2540
*	!BCKO3	92084-16736	2302	--> 2540
*	!BCKO4	92084-16736	2302	--> 2540
*	!BCKO5	92084-16736	2302	--> 2540
*	!BCKO6	92084-16736	2302	--> 2540
*	!BCKO7	92084-16736	2302	--> 2540
*	!BCKO8	92084-16736	2302	--> 2540
*	!BCKO9	92084-16736	2302	--> 2540
	!MTLDR	92067-16512	2126	
*	"CMD	92084-17004	2301	--> 2440
*	"EDIT	92074-17004	New	--> 2440
*	"EDIT.	92074-17004	2340	--> Deleted
	"FCHLP	92084-17150	2226	
*	"HELP	92084-17001	2340	--> 2540
*	"M.ERR	92059-18025	2326	--> 2440
	"MACLB	92059-18026	2326	
*	#CI6	92084-17207	2340	--> 2540
*	#CIX	92077-17105	New	--> 2540
*	#CIX	92084-17260	2340	--> Deleted
*	#CIX6	92077-17247	New	--> 2540
*	#CLSDS	92084-17254	2340	--> 2440
*	#D.RTR	92084-17211	2340	--> Deleted
*	#DL	92077-17028	2340	--> 2440
*	#DSRTR	92084-17212	2340	--> 2440
*	#ED1K6	92074-17003	2340	--> 2540
*	#FC6	92084-17151	2302	--> 2540
*	#FORMC	92077-17034	New	--> 2540
*	#FORMC	92084-17125	2340	--> Deleted
	#FORMT	92084-17029	2340	
*	#FOWN	92077-17029	New	--> 2440
*	#FOWN	92084-17255	2340	--> Deleted
*	#FPACK	92077-17012	New	--> 2440
*	#FPACK	92084-17256	2340	--> Deleted
*	#FREES	92077-17011	New	--> 2440
*	#FREES	92084-17257	2340	--> Deleted
*	#FSCON	92077-17014	New	--> 2440
*	#FSCON	92084-17258	2340	--> Deleted
*	#FVERI	92077-17015	New	--> 2440
*	#FVERI	92084-17259	2340	--> Deleted

*	#IS	92077-17112	New	--> 2440
*	#LI	92077-17108	2340	--> 2440
*	#LIF	92077-17033	New	--> 2440
*	#LINDX	92084-17209	2340	--> 2440
*	#LINK	92084-17210	2340	--> 2440
	#MACRO	92059-17004	2340	
	#MERGE	92084-17208	2340	
*	#MLLD6	92084-17189	2226	--> 2540
	#OLDRE	92059-17002	2213	
*	#PATH	92084-17270	New	--> 2440
*	#PCOPY	92084-17152	2340	--> 2540
*	#PRINO	92084-17265	New	--> 2440
*	#PRINT	92084-17266	New	--> 2440
*	#PRSTR	92084-17154	2340	--> 2540
*	#PSAVE	92084-17153	2340	--> 2540
	#PSPAR	92084-17155	2340	
	#READR	92084-17005	2340	
*	#RT6GN	92084-17268	New	--> 2540
	#SAVER	92084-17006	2340	
	#SCOM	92084-17036	2340	
*	#SGMTR	92084-17106	2121	--> 2540
*	#SWTCH	92084-17039	2340	--> 2440
*	#SXREF	92084-17264	New	--> 2440
*	#TF	92077-17102	2326	--> 2440
*	#TRFAS	92084-17253	2340	--> 2440
*	#WHOSD	92084-17269	New	--> 2440
*	$6FCLB	92084-12035	2340	--> 2540
*	$6SYLB	92084-12001	2340	--> 2540
*	$ACCLB	92068-12018	2340	--> 2540
*	$BCKUP	92084-12050	2302	--> 2540
*	$BEGGT	92084-12051	2302	--> 2540
*	$CRLIB	92077-12025	2340	--> 2540
*	$DSCLB	92084-12062	2226	--> 2540
*	$DTCLB	92084-12053	2226	--> 2540
*	$ED1K6	92074-12005	2340	--> 2540
*	$EMCLB	92084-12002	2121	--> 2540
*	$FCL1	92084-12067	2340	--> Deleted
*	$FCL1	92084-12085	New	--> 2540
*	$FCL2	92084-12068	2340	--> Deleted
*	$FCL2	92084-12086	New	--> 2540
*	$FCLBA	92077-12023	2326	--> Deleted
*	$FDSLB	24998-12004	2340	--> 2540
*	$FLIB	24998-12008	2340	--> 2540
*	$FMP6	92084-12071	2340	--> 2540
*	$FMPC	92077-12018	2340	--> Deleted
*	$FNDLB	24998-12005	2226	--> 2227
*	$FNEWF	24998-12010	2326	--> 2540
*	$FOLDF	24998-12009	2340	--> 2540
*	$IB6A	92084-12036	2340	--> 2540
*	$LDRLN	92084-12038	2340	--> 2540

* $MATH	24998-12007	2326	--> 2540
* $MLSLB	92084-12015	2121	--> 2122
* $ONLIN	92084-12061	2121	--> 2122
* $PLIB	92833-16005	2326	--> 2440
* $PLIBN	92833-16054	2326	--> 2440
* $PRINT	92084-12077	New	--> 2540
* $R6GNL	92084-12076	New	--> 2540
* $RBLIB	92084-12018	2121	--> 2441
* $RSLIB	92068-12006	2240	--> 2540
* $SGMLB	92084-12084	New	--> 2540
* $SHSLB	92833-16006	2326	--> 2440
* $TFLIB	92077-12020	2340	--> 2540
* $UTLIB	92084-12033	2301	--> 2540
* $VCLIB	92084-12016	2226	--> 2227
* %$CNFG	92084-12011	2340	--> 2540
* %$DVTB	12792-16005	2340	--> 2341
* %$DVTN	12792-16009	2340	--> 2341
* %$LDR	92084-12013	2226	--> 2540
* %$TA32	92067-16507	2001	--> Deleted
* %$TA32	92084-16604	New	--> 2540
* %$TB32	92067-16509	2001	--> Deleted
* %$TB32	92084-16605	New	--> 2441
* %$TM33	92084-16652	2301	--> 2441
* %0DV05	92001-16028	2140	--> 2141
* %4AUTR	92067-16118	2340	--> 2441
* %4DP43	92067-16004	1926	--> 2540
* %4PVMP	92067-16001	1805	--> 1806
* %6DA37	92084-16593	2340	--> 2540
* %6DV37	92084-16592	2340	--> 2540
* %6MTM	92084-12029	2121	--> 2122
* %ACCTS	92067-16361	2340	--> 2540
* %ATRAN	92059-16013	2226	--> 2540
* %BMPG1	92084-12003	2340	--> 2540
* %BMPG2	92084-12014	2340	--> 2540
* %BMPG3	92084-12004	2340	--> 2540
* %CI	92077-16445	2340	--> 2540
* %CI000	92077-16737	New	--> 2540
* %CISU6	92084-16945	2340	--> 2540
* %CIX	92077-16651	2340	--> 2540
* %CKTRM	92077-16748	New	--> 2441
* %CL000	92077-16781	New	--> 2441
* %CLOAD	92084-16525	2121	--> 2441
* %CLSDS	92077-16463	2326	--> 2441
* %CMD	92084-12030	2121	--> 2540
* %COMM	92084-16915	2212	--> 2213
* %COMPL	92084-16524	2121	--> 2441
* %CR000	92077-16739	New	--> 2540
* %CR6S1	92084-12024	2340	--> 2540
* %CR6S2	92084-12025	2340	--> 2540
* %CR6S3	92084-12026	2340	--> 2540

* %CSERR	92084-12054	2121	--> 2122
* %CX000	92077-16738	New	--> 2540
* %D.RTR	92077-16455	2340	--> Deleted
* %DBUGR	92084-12019	2121	--> 2441
* %DDT05	12792-16011	New	--> 2540
* %DDV05	12792-16003	2340	--> 2540
* %DDV12	12792-16004	2140	--> 2141
* %DECAR	24306-16001	New	--> 2540
* %DECAR	24306-60001	2340	--> Deleted
* %DL	92077-16447	2340	--> 2540
* %DL000	92077-16759	New	--> 2540
* %DRREL	92084-12009	2226	--> 2540
* %DRRPL	92084-12010	2121	--> 2540
* %DSCHD	09580-16126	A	--> 2540
* %DSRTR	92077-16462	2340	--> 2540
* %DVA05	92084-16607	2121	--> 2122
* %DVA12	92001-16020	1826	--> 1827
* %DVA13	91200-16001	1648	--> 1649
* %DVA32	92084-16708	2340	--> 2540
* %DVB12	92062-16004	2340	--> 2540
* %DVC12	92068-16110	2340	--> 2540
* %DVC32	92084-16709	2340	--> 2540
* %DVD12	92068-16129	New	--> 2540
* %DVM00	12792-16002	2301	--> 2441
* %DVM33	92084-16650	2302	--> 2540
* %DVM72	09580-16079	2340	--> 2341
* %DVN00	12792-16008	2301	--> 2540
* %DVN33	92084-16651	2302	--> 2540
* %DVP32	92084-16710	2340	--> 2540
* %DVR00	92084-16637	2301	--> 2441
* %DVR12	29028-60002	1805	--> Deleted
* %DVR12	92084-15028	New	--> 1806
* %DVR23	92202-16001	2340	--> 2341
* %DVR31	92084-16712	2121	--> 2540
* %DVR32	92084-16711	2340	--> 2540
* %DVR33	92084-16713	2121	--> 2122
* %DVS23	92084-15050	New	--> 2540
* %DVT00	12792-16010	New	--> 2441
* %E.FFP	92084-16951	2340	--> Deleted
* %ED000	92074-16055	New	--> 2540
* %EDI6R	92084-16395	2140	--> Deleted
* %EDIT	92074-12008	New	--> 2540
* %EDITA	92074-12001	2340	--> Deleted
* %EDITB	92074-12002	2340	--> Deleted
* %F.FFP	92084-16952	2340	--> Deleted
* %F.FPB	92084-16953	2340	--> Deleted
* %F.SIS	92084-16954	2340	--> Deleted
* %F.VIS	92084-16955	2340	--> Deleted
* %FCO	92084-12056	2340	--> Deleted
* %FCO	92084-15042	New	--> 2540

* %FC000	92077-16787	New	--> 2536
* %FC1	92084-12057	2340	--> Deleted
* %FC1	92084-15043	New	--> 2540
* %FC2	92084-12058	2340	--> Deleted
* %FC2	92084-15044	New	--> 2540
* %FC3	92084-12059	2340	--> Deleted
* %FC3	92084-15045	New	--> 2540
* %FC4	92084-12060	2340	--> Deleted
* %FC4	92084-15046	New	--> 2540
* %FC5	92084-12065	2340	--> Deleted
* %FC5	92084-15047	New	--> 2540
* %FC6	92084-12066	2340	--> Deleted
* %FC6	92084-15048	New	--> 2540
* %FCM6	92084-12055	2340	--> 2540
* %FFL	92077-16067	New	--> 2441
* %FORMC	92077-16786	New	--> 2536
* %FORMC	92084-16827	2302	--> Deleted
* %FORMT	92067-16554	2040	--> 2540
* %FOWN	92077-16449	2326	--> 2441
* %FP000	92077-16768	New	--> 2441
* %FPACK	92077-16451	2326	--> 2441
* %FR000	92077-16770	New	--> 2540
* %FREES	92077-16450	2326	--> 2540
* %FSCON	92077-16453	2326	--> 2540
* %FV000	92077-16764	New	--> 2540
* %FVERI	92077-16454	2340	--> 2540
* %FW000	92077-16766	New	--> 2441
* %GENIX	92084-12031	2121	--> 2441
* %HELP	92084-12032	2121	--> 2540
* %INDXR	92084-12006	2121	--> 2540
* %IS	92077-16724	New	--> 2441
* %KEYS	92060-16052	2340	--> 2441
* %KYDMP	92060-16053	2340	--> 2540
* %LGTAT	92084-16166	2301	--> 2302
* %LI	92077-16646	2340	--> 2441
* %LIF	24998-12006	2301	--> Deleted
* %LIF	92077-16638	New	--> 2540
* %LINDX	92077-12026	2340	--> 2540
* %LINKA	92084-12070	2340	--> 2540
* %LINKB	92084-16946	2340	--> 2540
* %LINKC	92084-16947	2340	--> 2540
* %LINKD	92084-16948	2340	--> 2540
* %LINKE	92084-16949	2340	--> 2540
* %LP31	92062-16003	1805	--> 2441
* %LUPRN	92068-16125	2326	--> 2540
* %M*LIB	92084-16362	New	--> 2540
* %M.FFP	92084-16950	2340	--> Deleted
* %M.LIB	92084-16362	2226	--> Deleted
* %MACR0	92059-16015	2340	--> 2540
* %MACR1	92059-16016	2340	--> 2540

* %MACR2	92059-16017	2340	--> 2540
* %MACR3	92059-16018	2340	--> 2540
* %MACR4	92059-16019	2340	--> 2540
* %MACR5	92059-16020	2340	--> 2540
* %MACR6	92059-16021	2340	--> 2540
* %MACR7	92059-16022	2340	--> 2540
* %MACRO	92059-16014	2340	--> 2540
* %MDMLB	92084-16958	New	--> 2540
* %MERGE	92077-16431	2340	--> 2441
* %MLLDA	92084-12064	2226	--> 2540
* %MLLDB	92084-12063	2226	--> 2540
* %MLLDR	92084-16361	2226	--> 2540
* %MODEM	92077-16391	New	--> 2540
* %MSAFD	92064-16086	2001	--> 2002
* %NSESN	92084-12023	2121	--> 2122
* %OLDRE	92059-16010	2226	--> Deleted
* %OLDRE	92059-16023	New	--> 2540
* %PATH	92078-16026	New	--> 2540
* %PCOPY	92084-16655	2121	--> 2427
* %PROOO	92077-16714	New	--> 2540
* %PRERS	92833-16007	New	--> 2440
* %PRINO	92077-16054	New	--> 2441
* %PRINT	92077-16009	New	--> 2540
* %PRSTR	92084-16657	2302	--> 2427
* %PSAVE	92084-16656	2302	--> 2540
* %PSPAR	92084-16700	2301	--> 2427
* %PVMOO	12792-16001	2032	--> 2034
* %READR	92068-16054	2240	--> 2241
* %READT	92084-16568	2226	--> 2441
* %RT6GN	92084-12007	2340	--> 2540
* %RT6OS	92084-16957	2340	--> Deleted
* %RT6VM	92084-16956	2340	--> 2341
* %SAVER	92068-16053	2240	--> 2241
* %SCOM	92084-12083	New	--> 2540
* %SCOM	92084-16432	2340	--> Deleted
* %SGMTR	92084-12034	2121	--> 2540
* %SMON1	92084-12021	2340	--> 2540
* %SMON2	92084-12022	2121	--> 2441
* %SPOL1	92084-12027	2121	--> 2122
* %SPOL2	92084-12028	2340	--> 2540
* %SRQ.P	59310-16005	1805	--> 1806
* %SSTCH	92084-12008	2340	--> 2540
* %SXREF	92084-12017	2121	--> 2441
* %T5IDM	92084-16528	2208	--> 2209
* %TF	92077-16598	2340	--> 2540
* %TRFAS	92077-16461	2326	--> 2540
* %TVLIB	91200-16002	1648	--> 1649
* %TVVER	91200-16004	1648	--> 1649
* %VMACK	92084-16423	2121	--> Deleted
* %WHOSD	92078-16025	New	--> 2441

*	%WHZAT	92084-16526	2340	--> 2540
*	%WRITT	92084-16569	2301	--> 2302
	&$CMND	92084-18463	2121	
*	&$TA32	92067-18507	2001	--> Deleted
*	&$TA32	92084-18604	New	--> 2540
*	&$TB32	92067-18509	2001	--> Deleted
*	&$TB32	92084-18605	New	--> 2441
*	&$TM33	92084-18652	2301	--> 2441
*	&4AUTR	92067-18456	2340	--> 2441
	&C*TAB	92084-18135	2340	
*	&D.BUF	92084-18394	2121	--> Deleted
*	&FFL	92077-18067	New	--> 2441
	*BCKCT	92084-17158	2212	
	*BCKMT	92084-17156	2212	
*	*COHLP	92084-17263	2340	--> 2440
*	*INCI	92084-17262	2340	--> 2540
*	*LOAD6	92084-17279	New	--> 2540
*	*LODCI	92084-17261	2340	--> 2540
	*PBULD	92084-17157	2121	
*	*STIME	92084-17100	New	--> 2440
*	=AVL2	92084-16943	2340	--> 2341
*	=EXT	92084-16941	2340	--> 2540
*	=FLAG	92084-16942	2340	--> 2540
*	=FPORT	92084-16944	2340	--> 2341
*	=PLIB	92833-16051	2326	--> 2440
*	=PRERS	92833-16053	2226	--> 2440
*	=SHSLB	92833-16052	2326	--> 2440
*	>TF000	92077-16763	New	--> 2540
	???	92077-17099	2326	
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	?AS	92084-17214	2340	
	?BL	92084-17215	2340	
	?BR	92084-17216	2340	
*	?CI	92077-17045	2326	--> 2540
	?CL	92077-17052	2326	
	?CN	92084-17217	2340	
*	?CO	92077-17054	2340	--> 2440
	?CR	92077-17055	2326	
*	?CRDIR	92077-17056	2326	--> 2440
	?CU	92084-17218	2340	
	?DC	92077-17057	2326	
*	?DL	92077-17058	2340	--> 2440
	?DN	92084-17219	2340	
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	?ERROR	92084-17221	2340	
	?EX	92084-17222	2340	
	?FOWN	92077-17063	2326	
	?FPACK	92084-17223	2340	
	?FREES	92077-17062	2326	

*	?FVERI	92077-17064	2326	--> 2440
	?GO	92084-17224	2340	
	?HE	92084-17225	2340	
*	?IF	92077-17118	New	--> 2440
*	?IN	92084-17226	2340	--> 2440
*	?IS	92077-17119	New	--> 2440
	?IT	92084-17227	2340	
*	?LI	92077-17069	2326	--> 2440
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*	?LINK	92084-17229	2340	--> 2440
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	?MC	92084-17232	2340	
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	?MO	92077-17074	2326	
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	?ON	92084-17234	2340	
	?OWNER	92084-17235	2340	
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	?PR	92084-17236	2340	
*	?PRINT	92084-17267	New	--> 2440
	?PROT	92084-17237	2340	
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	?QU	92084-17238	2340	
	?RN	92077-17082	2326	
	?RP	92084-17239	2340	
	?RU	92084-17240	2340	
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	?SS	92084-17242	2340	
	?ST	92084-17243	2340	
	?SZ	92084-17244	2340	
	?TI	92084-17245	2340	
	?TM	92084-17246	2340	
	?TO	92084-17247	2340	
*	?TR	92077-17090	2326	--> 2440
	?UL	92084-17248	2340	
	?UNPU	92077-17092	2326	
*	?UNSET	92077-17125	New	--> 2440
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	?UR	92084-17250	2340	
	?VS	92077-17094	2326	
	?WD	92077-17095	2340	
	?WH	92084-17251	2340	
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*	?WHOSD	92078-17021	New	--> 2440
	?WS	92084-17252	2340	
	?XQ	92077-17098	2340	
*	A92084	92084-17999	2340	--> 2540

* FORMT	92084-16737	2301	--> 2540
* M92084	92084-17998	New	--> 2540
* PCOPY	92084-16740	2301	--> 2540
* PRSTR	92084-16739	2301	--> 2540
* PSAVE	92084-16741	2301	--> 2540
* PSPAR	92084-16738	2301	--> 2540
SEP.6	92084-17205	2340	
*]E^FFP	92084-17274	New	--> 2440
*]F^FFP	92084-17275	New	--> 2440
*]F^FPB	92084-17276	New	--> 2440
*]F^SIS	92084-17277	New	--> 2440
*]F^VIS	92084-17278	New	--> 2440
*]M^FFP	92084-17273	New	--> 2440
*]RT6OS	92084-17271	New	--> 2440
*]RT6VM	92084-17272	New	--> 2440

Manual Part#	Title	Edition/Update
92059-90001	MACRO/1000 Reference Manual	1/7
92062-90004	2608A Line Printer Driver DVB12	4/2
92084-90004	RTE-6/VM Terminal User's Reference Manual	1/5
92084-90005	RTE-6/VM Programmer's Reference Manual	1/5
92084-90006	RTE-6/VM Batch and Spooling Reference Manual	1/2
92084-90007	RTE-6/VM Utility Programs Reference Manual	2/3
92084-90008	RTE-6/VM Loader Reference Manual	1/3
92084-90009	RTE-6/VM System Manager's Reference Manual	3/1
92084-90010	RTE-6/VM On-Line Generator Reference Manual	2/1
92084-90011	RTE-6/VM Software Installation Manual	2/1
92084-90025	RTE-6/VM DVM33/DVN33 Reference Manual	1/4
92084-90026	RTE Driver DVA37 for HP59310B Interface Bus Programming and Operating Manual	2/2
92084-90036	RTE-6/VM CI User's Manual	2/1
92084-90038	RTE-6/VM LINK User's Manual	2/1
92084-90039	RTE-6/VM Software Entry Point Directory	2/-
92084-90040	RTE Driver DVS23 for HP 7974A Magnetic Tape Installation & Programming Manual	1/-

Media Part#	Media Option
2540-6AA	020
2540-6AB	020
2540-6AC	020
2540-6AD	020
2540-6AE	020
2540-6AF	020
2540-6AG	020
2540-6AH	020
2540-6AI	020
2540-6AJ	020
2540-6AK	020
2540-6AL	020
2540-6AM	020
2540-6AN	020
2540-6AO	020
2540-6AP	020
2540-6AQ	020
2540-6AR	020
2540-6AS	020
2540-6AT	020
2540-6AU	020
2540-6AV	020
2540-6AW	020
2540-6AX	020
2540-6AY	020
2540-6AZ	020
2540-6BA	020
2540-6BB	020
2540-6BC	020
2540-6BD	020
2540-6BE	020
2540-6BF	020
2540-6BG	020
2540-6BH	020
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2540-6BJ	020
2540-6BK	020
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2540-6BM	020
2540-6BN	020
2540-6BO	020
2540-6BP	020
2540-6BQ	020
2540-6BR	020
2540-6BS	020
2540-6BT	020

2540-6BU	020
2540-6BV	020
2540-6BW	020
92084-13302	022
92084-13303	022
92084-13304	022
92084-13302	031
92084-13303	031
92084-13304	031
92084-13302	032
92084-13303	032
92084-13304	032
92084-13302	033
92084-13303	033
92084-13304	033
92084-13307	022
92084-13527	050
92084-13528	051
92084-13520	052
92084-13521	053
92084-13520	054
92084-13521	055
92084-13520	060
92084-13521	061

3.46 + (92091A) HPSPICE

	Filename	Part Number	Rev	Change
	#SIMIN	92091-17007	2201	
*	#SIMSP	92091-17001	2326	--> 2540
*	#SPICE	92091-17002	2201	--> 2540
	#SPIIN	92091-17008	2201	
	#SYNIN	92091-17009	2201	
	#SYNTX	92091-17003	2201	
	%ACAN	92091-16007	2201	
*	%COMMS	92091-16012	2201	--> 2540
	%DCOP	92091-16006	2201	
	%DCTR1	92091-16005	2201	
	%DCTR2	92091-16022	2201	
*	%ERRCD	92091-16014	2201	--> 2540
	%ERRCK	92091-16003	2201	
	%GRAPH	92091-16016	2201	
*	%HELPR	92091-16015	2201	--> 2540
	%HPUTL	92091-16021	2201	
	%OVTPT	92091-16008	2201	
*	%PARSR	92091-16013	2240	--> 2540

	%READN	92091-16002	2201	
	%SETUP	92091-16004	2201	
	%SIMSP	92091-16001	2201	
*	%SPICE	92091-16011	2326	--> 2540
	%SYNTX	92091-16020	2201	
*	%SYSTM	92091-16019	2240	--> 2540
*	%UTIL1	92091-16017	2201	--> 2540
*	%UTIL2	92091-16018	2201	--> 2540
	%UTILA	92091-16010	2201	
	%UTILF	92091-16009	2201	
*	*SPICE	92091-17010	2011	--> 2540
*	A92091	92091-17999	2326	--> 2540
	EMITR	92091-17006	2201	
	TTL	92091-17005	2201	
	VERIF	92091-17004	2201	

Manual Part#	Title	Edition/Update
(no manual changes)		

Media Part#	Media Option
92091-13301	022
92091-13501	050
92091-13502	051

3.47 (92101A) Basic/1000D

Filename	Part Number	Rev
#BASIC	92101-17001	2140
#RTETG	92101-17002	2140
%694BS	29102-16003	C
%A2313	29102-60016	B
%ALARM	92413-16007	B
%BAIN1	92101-16001	2140
%BAIN2	92101-16005	2213
%BAIN3	92101-16007	2213
%BAMLB	92101-12002	2140
%BASLB	92101-12003	2213
%BATG3	92101-16024	2013
%BATG4	92101-16023	2013
%BATGN	92101-16008	2013
%BBUFF	92101-16034	2140
%DTRAP	92101-16035	2140

%TSKSC	92101-16013	A
&BBUFF	92101-18034	2140

3.48 (92130A) QDM/1000

Filename	Part Number	Rev
!RXX	92130-17240	2303
"RPGER	92130-17214	2303
_#ARCHV	92130-17131	2340
_#CRPDS	92130-17101	2340
_#DATIN	92130-17201	2340
_#DBMEN	92130-17002	2340
_#DBMSR	92130-17003	2340
_#DCTRY	92130-17037	2340
_#FIX2	92130-17027	2303
_#FIXER	92130-17102	2303
_#GCHEK	92130-17341	2340
_#GETNM	92130-17103	2340
_#GRPKG	92130-17227	2303
_#MANRD	92130-17089	2303
_#MONIT	92130-17207	2303
_#PDGEN	92130-17123	2340
_#PDMON	92130-17001	2303
_#PDSYS	92130-17004	2303
_#PEDIT	92130-17026	2340
_#PGPED	92130-17010	2303
_#PULL	92130-17132	2340
_#QCHEK	92130-17158	2303
_#QCNFG	92130-17092	2340
_#QDSS	92130-17019	2303
_#QDSUP	92130-17104	2303
_#QERLB	92130-17036	2303
_#RAWDT	92130-17204	2303
_#RDB	92130-17159	2340
_#RMONT	92130-17203	2303
_#RPGEN	92130-17202	2340
_#SDOWN	92130-17130	2303
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$ESC	92130-12005	2303
$FLIBL	92130-12004	2303
$FLIBR	92130-12003	2303
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$GRFMT	92130-12006	2303
$GRPLB	92130-12013	2303
$QCNLB	92130-12010	2303
$QERLB	92130-12011	2303

$RDBLB	92130-12001	2303
$RMTLB	92130-12008	2340
$RPGL1	92130-12012	2303
$RPGLB	92130-12009	2340
%ARC21	92130-16092	2340
%ARC22	92130-16093	2340
%ARC23	92130-16094	2340
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%ARC31	92130-16100	2340
%ARC32	92130-16101	2340
%ARC33	92130-16102	2340
%ARC34	92130-16103	2340
%ARC35	92130-16104	2340
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%BLKDR	92130-16201	2301
%CKFDL	92130-16319	2303
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Computer Museum

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3.49 (92400A) DAS Utility Library

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3.50 (92425C) MTIS (ATS/1000)

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3.51 (92427A) Device Subroutine Library

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&LCRMP	09580-18516	2140
&LCRSW	09580-18517	2140

&LETED	09580-18037	1840
&MATSW	09580-18052	1840
&MODAN	09580-18481	2126
&MODAS	09580-18515	2126
&MODES	09580-18015	2140
&MODSW	09580-18046	1840
&MOUTP	09580-18019	2140
&MPGSC	09580-18288	1840
&MSADV	09580-18554	2226
&MSAS	09580-18563	2226
&MSCAL	09580-18553	2226
&MSCTL	09580-18561	2226
&MSDGA	09580-18581	2226
&MSDGC	09580-18583	2226
&MSDGD	09580-18584	2226
&MSDGF	09580-18580	2226
&MSDGI	09580-18589	2226
&MSDGO	09580-18588	2226
&MSDGP	09580-18582	2226
&MSDGR	09580-18590	2226
&MSDGS	09580-18586	2226
&MSDGV	09580-18587	2226
&MSDGX	09580-18585	2226
&MSDL	09580-18548	2226
&MSDLT	09580-18562	2226
&MSHP	09580-18546	2226
&MSIN	09580-18544	2226
&MSINT	09580-18550	2226
&MSKEY	09580-18552	2226
&MSMD	09580-18549	2226
&MSRD	09580-18547	2226
&MSST	09580-18545	2226
&MSSWP	09580-18555	2226
&MSTF	09580-18559	2226
&MSTG	09580-18560	2226
&MSTXT	09580-18551	2226
&MSVI	09580-18557	2226
&MSVM	09580-18558	2226
&MSVP	09580-18556	2226
&MUXSW	09580-18053	1840
&NASU	09580-18270	1926
&PGNSA	09580-18032	1840
&PGNSD	09580-18033	1840
&PGNSR	09580-18034	1840
&PGNSS	09580-18035	1840
&PINIT	09580-18153	1840
&PMFLG	09580-18059	2126
&PPGIM	09580-18305	1926
&PPGMY	09580-18304	1926
&PPGOM	09580-18306	1926

&PPGSS	09580-18307	1926
&PROEN	09580-18566	2226
&PROIC	09580-18567	2226
&PROID	09580-18568	2226
&PSCTL	09580-18412	1926
&PSP	09580-18031	1840
&PSPRG	09580-18319	1926
&PULSE	09580-18148	1840
&PWMMU	09580-18235	1840
&PWMSU	09580-18234	1840
&RASW	09580-18368	2001
&RCONF	09580-18149	1840
&RESIS	09580-18470	2101
&RFMOD	09580-18278	1840
&RFOSM	09580-18280	1840
&RFOSO	09580-18279	2001
&RFSU	09580-18277	1926
&RLCDM	09580-18276	1840
&RLCMU	09580-18268	2101
&RLCSU	09580-18267	1840
&RLCTM	09580-18275	1840
&RMSSU	09580-18294	2026
&RRFFT	09580-18469	2101
&RSTAT	09580-18142	1840
&RTX1	09580-18164	1840
&S3330	09580-18269	1840
&SCANC	09580-18055	1840
&SCAND	09580-18054	1840
&SCNSU	09580-18359	2001
&SDLY	09580-18140	1840
&SETHI	09580-18151	1840
&SETLU	09570-18528	
&SFAMP	09580-18311	2001
&SFFUN	09580-18314	2126
&SFGEN	09580-18310	2226
&SFGMD	09580-18312	1926
&SFGMY	09580-18309	2101
&SFMWC	09580-18449	2001
&SGNBU	09580-18302	1840
&SGNLS	09580-18299	1926
&SGNMD	09580-18300	1926
&SGNMY	09580-18301	1840
&SGNSU	09580-18298	2126
&SGNSW	09580-18303	1840
&SLAMP	09580-18570	2240
&SLFRQ	09580-18569	2240
&SLFUN	09580-18573	2240
&SLSTR	09580-18572	2240
&SLSWP	09580-18571	2240
&SSGAS	09580-18508	2126

&SSGFA	09580-18502	2126
&SSGMD	09580-18504	2126
&SSGMK	09580-18506	2126
&SSGOF	09580-18503	2126
&SSGSW	09580-18505	2126
&STGET	09580-18443	2013
&STREF	09580-18143	1840
&SWAID	09580-18050	2126
&SWCID	09580-18048	2126
&SWCON	09580-18056	2126
&SWFRQ	09580-18426	1926
&SWMAP	09580-18049	2126
&SWSET	09580-18144	1840
&SWTST	09580-18051	2126
&SWVHF	09580-18575	2240
&TIMRD	09580-18322	1926
&TIMRS	09580-18321	1926
&TIPRB	09580-18292	1840
&TRIGF	09580-18018	2140
&TSASU	09580-18323	2013
&TSYCL	09580-18458	2001
&TSYFM	09580-18453	2026
&TSYOM	09580-18456	2026
&TSYSD	09580-18457	2001
&TSYSM	09580-18454	2001
&TSYTL	09580-18459	2001
&TSYTM	09580-18455	2001
&UCDSP	09580-18529	2140
&UCFUN	09580-18537	2140
&UCGAT	09580-18530	2226
&UCINP	09580-18531	2140
&UCMAT	09580-18532	2140
&UCRED	09580-18533	2226
&UCSPC	09580-18534	2226
&UCSTT	09580-18535	2140
&UCTRG	09580-18536	2140
&VARPG	09580-18308	1926
&VHFSW	09580-18047	1840
&VVM	09580-18272	1840
&WAVSA	09580-18318	2001
&WAVSU	09580-18317	2101
&WTEK	09580-18232	1840
&WTKLS	09580-18233	1840
&XCONF	09570-18547	A
&XDLY	09570-18548	B
&XDTU	09570-18549	B
&XNIT	09570-18551	A
&XPREF	09570-18555	A
&XPSUP	09570-18556	A
&XPSWL	09570-18557	A

&XSCTL	09570-18559	A
&XSERN	09570-18560	D
&XSTAT	09570-18562	A
&XTREF	09570-18563	1826
&XTUTO	09570-18568	A
&XULSE	09570-18569	B
&XWSET	09570-18572	A
A92427	92427-18999	2240

3.52 (92832A) Pascal/1000 (RTE-IVB)

Filename	Part Number	Rev
"PERRS	92832-18511	2101
#PASCL	92832-18503	2101
#PCLF	92832-18505	2101
#PCLM	92832-18507	2101
#XREF1	92832-18513	2101
#XREF2	92832-18515	2101
$PLIB	92832-16700	2101
$SHSLB	92832-16701	2101
%..GER	92832-16302	2101
%FFRC	92832-16603	2101
%MAN	92832-16602	2101
%MFRC	92832-16604	2101
%MSC01	92832-16601	2101
%PASCL	92832-16070	2101
%PRERS	92832-16301	2101
%PSG01	92832-16600	2101
%TRACA	92832-16305	2101
%TRACB	92832-16310	2101
%TRACC	92832-16315	2101
%XREF1	92832-16800	2101
%XREF2	92832-16810	2101
**MSC	92832-18522	2101
**PSG	92832-18521	2101
*LDPAS	92832-18502	2101
*LDXF1	92832-18512	2101
*LDXF2	92832-18514	2101
*LOAD	92832-18501	2101
*OFPCL	92832-18510	2101
*OFXRF	92832-18518	2101
*PCLF	92832-18504	2101
*PCLM	92832-18506	2101
*PUPCL	92832-18509	2101
*PUXRF	92832-18517	2101
*SPPCL	92832-18508	2101

*SPXRF	92832-18516	2101
*UNL.C	92832-18519	2101
*UNL.T	92832-18520	2101
*UNLOA	92832-18500	2015
A92832	92832-18999	2101

3.53 (92833A) Pascal/1000 (RTE-6/VM, RTE-A)

Filename	Part Number	Rev
Directory: /PASCAL/		
A92833	92833-17998	2401
CONFIG_GUIDE.DOC	92833-17085	2401
Directory: /PASCAL/CMP/		
ALB.REL	92833-16061	2401
CDSOF.REL	92833-16063	2401
CDSON.REL	92833-16064	2401
DCT.REL	92833-16067	2401
PASCAL.ERR	92833-17021	2401
Directory: /PASCAL/CMP/CDS/		
CAT.REL	92833-16171	2401
DBG.REL	92833-16172	2401
DCL.REL	92833-16173	2401
DLB.REL	92833-16174	2401
ELB.REL	92833-16175	2401
ERW.REL	92833-16176	2401
EV1.REL	92833-16177	2401
EV2.REL	92833-16178	2401
EV3.REL	92833-16179	2401
EV4.REL	92833-16180	2401
EV5.REL	92833-16181	2401
EXP.REL	92833-16182	2401
FLD.REL	92833-16183	2401
INSTALL_C	92833-17077	2401
INT.REL	92833-16184	2401
MAN.REL	92833-16185	2401
MEX.REL	92833-16186	2401
MIM.REL	92833-16187	2401
MNU.REL	92833-16188	2401
NFS.REL	92833-16189	2401
OPT.REL	92833-16190	2401

PASCAL.REL	92833-16191	2401
PASCAL_C.LOD	92833-17048	2401
PASCOMP_C.LOD	92833-17045	2401
PRG.REL	92833-16192	2401
SAMER.REL	92833-16208	2401
SCN.REL	92833-16193	2401
SG00P.REL	92833-16194	2401
SG01P.REL	92833-16195	2401
SLB.REL	92833-16196	2401
SSL.REL	92833-16197	2401
STF.REL	92833-16198	2401
STM.REL	92833-16199	2401
STP.REL	92833-16200	2401
SUM.REL	92833-16226	2401
TLM.REL	92833-16201	2401
ULB.REL	92833-16202	2401
UNT.REL	92833-16203	2401
UTL.REL	92833-16204	2401
XFM.REL	92833-16205	2401

Directory: /PASCAL/CMP/STD/

CAT.REL	92833-16062	2401
DBG.REL	92833-16065	2401
DCL.REL	92833-16066	2401
DCV.REL	92833-16227	2401
ERW.REL	92833-16071	2401
ETC.LIB	92833-16223	2401
EV1.REL	92833-16072	2401
EV2.REL	92833-16073	2401
EV3.REL	92833-16074	2401
EV4.REL	92833-16075	2401
EV5.REL	92833-16076	2401
EXP.REL	92833-16077	2401
FCB.REL	92833-16137	2401
FDUBL.REL	92833-16069	2401
FLD.REL	92833-16078	2401
FORCE.REL	92833-16131	2401
GO.REL	92833-16132	2401
INSTALL_6	92833-17079	2401
INSTALL_A	92833-17078	2401
INT.REL	92833-16079	2401
MAN.REL	92833-16080	2401
MEU.REL	92833-16133	2401
MEX.REL	92833-16081	2401
MIM.REL	92833-16082	2401
MSC.LIB	92833-16134	2401
NOTEL.REL	92833-16135	2401
NUM.REL	92833-16136	2401
OPT.REL	92833-16085	2401

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PASCAL.REL              92833-16103  2401
PASCAL_6.LOD            92833-17047  2401
PASCAL_A.LOD            92833-17046  2401
PASCOMP_6.LOD           92833-17033  2401
PASCOMP_A.LOD           92833-17032  2401
PASS.LIB                92833-16138  2401
PCIOF.REL               92833-16140  2401
PCIOR.REL               92833-16139  2401
PICK.LIB                92833-16141  2401
PRG.REL                 92833-16086  2401
SAM6.REL                92833-16142  2401
SAMA.REL                92833-16143  2401
SAMER.REL               92833-16207  2401
SCN.REL                 92833-16087  2401
SEGTB.REL               92833-16144  2401
SG00P.REL               92833-16088  2401
SG01P.REL               92833-16089  2401
SG02P.REL               92833-16145  2401
SG03P.REL               92833-16146  2401
SG04P.REL               92833-16147  2401
SG05P.REL               92833-16148  2401
SG06P.REL               92833-16149  2401
SG07P.REL               92833-16150  2401
SG08P.REL               92833-16151  2401
SG09P.REL               92833-16152  2401
SG10P.REL               92833-16153  2401
SG11P.REL               92833-16154  2401
SG12P.REL               92833-16155  2401
SG13P.REL               92833-16156  2401
SG14P.REL               92833-16157  2401
SG15P.REL               92833-16158  2401
SG16P.REL               92833-16159  2401
SG17P.REL               92833-16160  2401
SG18P.REL               92833-16161  2401
SG19P.REL               92833-16224  2401
SSC.REL                 92833-16163  2401
STF.REL                 92833-16092  2401
STM.REL                 92833-16093  2401
STP.REL                 92833-16094  2401
SUM.REL                 92833-16225  2401
TLM.REL                 92833-16095  2401
TRACE.REL               92833-16164  2401
TRACE1.REL              92833-16165  2401
UNT.REL                 92833-16097  2401
UTL.REL                 92833-16098  2401
XFM.REL                 92833-16099  2401

Directory: /PASCAL/ETC/ALTER/

ALTER.DAT               92833-17049  2401
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ALTER.DOC	92833-17100	2401
ALTER.LOD	92833-17050	2401
ALTER.REL	92833-16209	2401

Directory: /PASCAL/INSTALL/

CONFIG_CMP	92833-17073	2401
INSTALL	92833-17071	2401
INSTALL_ALTER	92833-17083	2401
INSTALL_ALT_LIBS	92833-17089	2401
INSTALL_CDS_LIBS	92833-17087	2401
INSTALL_CMP	92833-17074	2401
INSTALL_ERR_FILE	92833-17090	2401
INSTALL_FMGR_LIBS	92833-17088	2401
INSTALL_LIBS	92833-17072	2401
INSTALL_STD_LIBS	92833-17086	2401
LINKSZ.LOD	92833-17098	2401
RESTORE_ALTER	92833-17094	2401
RESTORE_CDS_CMP	92833-17093	2401
RESTORE_LIBS	92833-17091	2401
RESTORE_STD_CMP	92833-17092	2401
SAMPLE.PAS	92833-17062	2401
SIZE_UP_LINK_6	92833-17097	2401
SIZE_UP_LINK_A	92833-17096	2401
SIZE_UP_LINK_C	92833-17095	2401
TEST_CDS	92833-17076	2401
TEST_STD	92833-17075	2401

Directory: /PASCAL/LIB/CDS/

PASCAL_CDS.LIB	92833-16104	2401
PASCAL_CERR.REL	92833-16167	2401
PASCAL_CTRA.REL	92833-16116	2401

Directory: /PASCAL/LIB/STD/

PASCAL.LIB	92833-16113	2401
PASCAL_ERR.REL	92833-16125	2401
PASCAL_ERR_ALT.REL	92833-16222	2401
PASCAL_FMGR.LIB	92833-16107	2401
PASCAL_FMGR_ALT.LIB	92833-16210	2401
PASCAL_LH2.REL	92833-16117	2401
PASCAL_TRA.REL	92833-16168	2401
PASCAL_TRB.REL	92833-16169	2401
PASCAL_TRC.REL	92833-16170	2401
SHSLB.LIB	92833-16220	2401
SHSLB_ALT.LIB	92833-16221	2401

3.54 (92834A) Fortran-4X Compiler

Filename	Part Number	Rev
"FTN4X	92834-17001	2226
#FTN4X	92834-17002	2226
$F4XCS	92834-12001	2303
%F4X1	92834-16002	2226
%F4X2	92834-16003	2303
A92834	92834-17999	2303

3.55 (92835A) Signal/1000

Filename	Part Number	Rev
$HPFFT	92835-12001	
&CFFT	92835-18002	
&CFFT1	92835-18003	
&FFTRP	92835-18004	
&RFFT	92835-18001	
&S0.1	92835-18007	2140
&S0.2	92835-18008	2140
&S0.3	92835-18009	2140
&S0.4	92835-18010	
&S1.1	92835-18011	
&S1.2	92835-18012	2140
&S1.3	92835-18013	
&S1.4	92835-18014	2140
&S1.5	92835-18015	
&S1.5S	92835-18016	
&S1.6	92835-18017	
&S1.7	92835-18018	2140
&S1.8	92835-18019	
&S1.9E	92835-18021	
&S1.9M	92835-18020	
&S1.9S	92835-18022	
&S2.1	92835-18023	2140
&S2.2	92835-18024	2140
&S2.3	92835-18025	2140
&S3.1	92835-18027	2140
&S3.1T	92835-18026	
&S4.1	92835-18028	2140
&S4.2	92835-18029	
&S4.3	92835-18030	2140
&S5.1	92835-18031	2140
&S5.2	92835-18032	

&S5.3	92835-18033	2140
&S5.4	92835-18034	2140
&S6.1	92835-18035	
&S6.11	92835-18036	2140
&S6.12	92835-18037	2140
&S6.13	92835-18038	2140
&S6.14	92835-18039	2140
&S6.15	92835-18040	2140
&S6.1S	92835-18041	2140
&S6.2	92835-18042	2140
&S6.3	92835-18043	2140
&S6.4	92835-18044	
&S7.1	92835-18045	
&S7.2	92835-18046	
&S8.1	92835-18047	
&S8.2	92835-18048	2140
&S8.3	92835-18049	
&SDIAG	92835-18006	
&SGCAL	92835-18005	
*L1.1	92835-17002	2140
*L1.2	92835-17003	2140
*L1.3	92835-17004	2140
*L1.4	92835-17005	2140
*L1.5	92835-17006	2140
*L1.6	92835-17007	2140
*L1.7	92835-17008	2140
*L1.8	92835-17009	2140
*L1.9E	92835-17011	2140
*L1.9M	92835-17010	2140
*L2.1	92835-17012	2140
*L2.2	92835-17013	2140
*L2.3	92835-17014	2140
*L3.1	92835-17015	2140
*L3.1T	92835-17016	2140
*L4.1	92835-17017	2140
*L4.2	92835-17018	2140
*L4.3	92835-17019	2140
*L5.1	92835-17020	2140
*L5.2	92835-17021	2140
*L5.3	92835-17022	2140
*L5.4	92835-17023	2140
*L6.1	92835-17024	2140
*L6.2	92835-17025	2140
*L6.3	92835-17026	2140
*L6.4	92835-17027	2140
*L7.1	92835-17028	2140
*L7.2	92835-17029	2140
*L8.1	92835-17030	2140
*L8.2	92835-17031	2140
*L8.3	92835-17032	2140

*LDIAG	92835-17001	2140
@D1.3	92835-18051	
@D1.6	92835-18052	
@D1.7	92835-18053	
@D1.9M	92835-18054	
@D2.1	92835-18055	
@D2.2	92835-18056	
@D2.3	92835-18057	
@D3.1	92835-18058	
@D3.11	92835-18059	
@D5.1	92835-18060	
@D5.2	92835-18061	
@D5.3	92835-18062	
@D5.4	92835-18063	
@D6.11	92835-18064	
@D6.12	92835-18065	
@D6.13	92835-18066	
@D6.14	92835-18067	
@D6.15	92835-18068	
@D6.2	92835-18069	
@D6.3	92835-18070	
@D6.4	92835-18071	
@D8.1	92835-18072	
@D8.2	92835-18073	
@D8.3	92835-18074	
DIREC	92835-18050	2140

3.56 + (92836A) Fortran-77 Compiler

	Filename	Part Number	Rev	Change
*	"FTN7X	92836-17001	2340	--> 2540
*	#FTN7X	92836-17002	2401	--> 2540
*	$F7XCS	92836-12001	2401	--> 2540
*	$FCLBA	92836-12002	New	--> 2540
*	%F7X1	92836-16002	2401	--> 2540
*	%F7X2	92836-16003	2401	--> 2540
	%FRPLS	92836-16004	2326	
*	%FX000	92836-16006	New	--> 2540
	&FRPLS	92836-18004	2326	
*	A92836	92836-17999	2401	--> 2540

Manual Part#	Title	Edition/Update
92836-90001	FORTRAN 77 Programmer's Reference	4/-

Media Part#	Media Option
92836-13301	020
92836-13302	020
92836-13304	020
92836-13303	022
92836-13401	041
92836-13402	042
92836-13404	042
92836-13403	044
92836-13405	044
92836-13501	050
92836-13502	051

3.57 (92840A) Graphics/1000

Filename	Part Number	Rev
%DCT02	92840-16005	1940
%DCT03	92840-16006	1913
%DCT08	92840-16009	1913
%DCT23	92840-16020	1940
%DVG01	92840-16003	2001
%DVG02	92840-16004	1940
%DVG04	92840-16010	2213
%DVG05	92840-16011	2213
%DVG06	92840-16008	2013
%DVG07	92840-16007	1913
%DVZ12	92840-16012	2213
%GCBIM	92840-16002	2013
%GPSC1	92840-16001	2213
%GPSC2	92840-16021	2013
&DLTBL	92840-18136	2001
&GPSBM	92840-18137	2213
A92840	92840-18114	2226
FONT1	92840-16013	
FONT2	92840-16014	
FONT3	92840-16015	
FONT4	92840-16016	
FONT5	92840-16017	
FONT6	92840-16018	

3.58 + (92841A) Graphics/1000-II DGL

	Filename	Part Number	Rev	Change
	#RTRAN	92841-18536	2140	
*	$A0001	92841-12003	2301	--> 2401
*	$A0017	92841-12032	2140	--> 2401
*	$B0001	92841-12004	2301	--> 2401
*	$B0004	92841-12013	2140	--> 2401
*	$B0017	92841-12033	2140	--> 2401
*	$D0001	92841-12002	2326	--> 2540
*	$D0002	92841-12009	2301	--> 2540
*	$D0003	92841-12012	2301	--> 2540
*	$D0006	92841-12019	2301	--> 2540
*	$D0007	92841-12022	2301	--> 2540
*	$D0008	92841-12023	2301	--> 2540
*	$D0009	92841-12024	2301	--> 2540
*	$D0010	92841-12025	2301	--> 2540
*	$D0015	92841-12026	2301	--> 2540
*	$D0016	92841-12027	2301	--> 2540
*	$D0018	92841-12044	2301	--> 2540
*	$D0019	92841-12028	2326	--> 2540
*	$D0021	92841-12045	2301	--> 2540
*	$D0026	92841-12038	2301	--> 2540
*	$D0027	92841-12048	2301	--> 2540
*	$D0028	92841-12049	2301	--> 2540
*	$D0029	92841-12050	2301	--> 2540
*	$D0030	92841-12051	2301	--> 2540
*	$D0031	92841-12053	2301	--> 2540
*	$D0032	92841-12055	2301	--> 2540
*	$D0036	92841-12058	2326	--> 2540
*	$DIDD1	92841-12057	2326	--> 2540
*	$DIDD2	92841-12047	2326	--> 2401
*	$K0001	92841-12005	2301	--> 2401
*	$K0017	92841-12034	2140	--> 2401
*	$L0001	92841-12006	2301	--> 2401
*	$L0002	92841-12010	2226	--> 2401
*	$L0004	92841-12014	2226	--> 2401
*	$L0005	92841-12017	2301	--> 2401
*	$L0006	92841-12020	2226	--> 2401
*	$L0017	92841-12035	2140	--> 2401
*	$L0018	92841-12046	2226	--> 2401
*	$L0019	92841-12029	2301	--> 2401
*	$L0027	92841-12052	2226	--> 2401
*	$L0031	92841-12054	2226	--> 2401
*	$L0032	92841-12056	2226	--> 2401
*	$P0001	92841-12007	2301	--> 2401
*	$P0002	92841-12011	2226	--> 2401
*	$P0004	92841-12015	2226	--> 2401

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* $P0005                92841-12018  2226  --> 2401
* $P0006                92841-12021  2226  --> 2401
* $P0017                92841-12036  2140  --> 2401
* $P0019                92841-12030  2301  --> 2401
* $RTRB1                92841-12039  2301  --> 2401
* $RTRB2                92841-12041  2301  --> 2440
  $RTRB3                92841-12042  2301
* $RTRBN                92841-12040  2301  --> 2540
* $V0001                92841-12008  2301  --> 2401
* $V0004                92841-12016  2226  --> 2401
* $V0017                92841-12037  2140  --> 2401
* $V0019                92841-12031  2301  --> 2401
* %COLDM                92841-12059  2301  --> 2401
  %MOCOM                92841-16161  2326
  %PGNDM                92841-16702  2301
* %RMAIN                92841-12043  2140  --> 2540
* %RTRA1                92841-16461  2140  --> 2540
* %RTRA2                92841-16462  2140  --> 2540
* %RTRA3                92841-16463  2140  --> 2540
  &CHRT1                24998-18468  2040
  &CHRT2                24998-18469  2040
  &GRAF1                24998-18466  2040
  &GRAF2                24998-18467  2040
  &M1NAM                92841-18535  2140
* &T1INT                92841-18707  2301  --> Deleted
* &T1INT                92841-18743  New   --> 2401
  &Z0BFR                92841-18343  2040
  &Z1CTB                92841-18790  2301
* &Z1PTB                92841-18707  New   --> 2301
* &Z1PTB                92841-18743  2301  --> Deleted
* *CART                 92841-18358  2301  --> Deleted
* *CTRNS                24998-18465  2040  --> Deleted
  *DIDD                 92841-18690  2213
* *FLOP                 92841-18357  2301  --> Deleted
* *FTRNS                24998-18474  2040  --> Deleted
  *MDGL                 92841-18689  2213
* *MFLOP                92841-18313  2301  --> Deleted
* *MFTRN                24998-18479  2126  --> Deleted
* *MTRNS                24998-18475  2040  --> Deleted
  *RTRAN                92841-18537  2140
* *TAPE                 92841-18356  2301  --> Deleted
* A92841                92841-18999  2326  --> 2540
  [PDGL1                92841-18344  2301
  [PDGL2                92841-18345  2301
```

Manual Part#	Title	Edition/Update
(no manual changes)		

Media Part#	Media Option
92841-13301	020
92841-13302	020
92841-13303	020
92841-13304	020
92841-13305	020
92841-13306	020
92841-13307	020
92841-13308	020
92841-13309	020
92841-13310	020
92841-13311	020
92841-13312	020
92841-13313	020
92841-13315	020
92841-13317	020
92841-13318	020
92841-13314	022
92841-13401	041
92841-13402	042
92841-13403	042
92841-13404	042
92841-13405	044
92841-13406	044
92841-13407	044
92841-13501	050
92841-13502	051

3.59 + (92842A) Graphics/1000-II AGP

	Filename	Part Number	Rev	Change
*	$UPLI1	92042-12003	2301	--> Deleted
*	$UPLI1	92842-12003	New	--> 2540
*	$UPLI2	92842-12004	2326	--> 2401
*	$UPLI3	92842-12005	2301	--> 2540
*	$WSPL1	92842-12006	2301	--> 2401
*	$WSPL2	92842-12007	2301	--> 2401
	%COM	92842-12008	2301	
*	%SDUM	92842-12009	2301	--> 2401
*	%WPGDM	92842-12011	2301	--> 2401
	%WSP	92842-16349	2040	
*	%ZMNTL	92842-12002	2326	--> 2440
	%ZMNTR	92842-12001	2301	

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* &CHRT3                24998-13547  2301  --> Deleted
* &CHRT3                24998-18547  New   --> 2301
* &CHRT4                24998-13548  2301  --> Deleted
* &CHRT4                24998-18548  New   --> 2301
  &HOUSE                24998-18463  2040
  &HOUSP                24998-18464  2301
  &KONTB                92842-18454  2140
  &KOPAG                92842-18376  2040
  &KOSDF                92842-18377  2040
  &K1FIL                92842-18464  2301
  &VIEW                 24998-18462  2140
  &WSP                  92842-18349  2040
* *CTUS                 24998-18459  2301  --> Deleted
* *FLOPY                92842-18436  2301  --> Deleted
* *FLP                  24998-18460  2301  --> Deleted
* *MAG                  92842-18435  2301  --> Deleted
  *MAGP3                92842-18458  2213
* *MFLP                 24998-18478  2301  --> Deleted
* *MFLPY                92842-18446  2301  --> Deleted
* *MINI                 92842-18434  2301  --> Deleted
* *MT                   24998-18458  2301  --> Deleted
  *UPLIB                92842-18442  2040
  *WSPLB                92842-18441  2040
* A92842                92842-18999  2326  --> 2540
  FONT1                 92842-16428  2040
  FONT2                 92842-16429  2040
  FONT3                 92842-16430  2040
  FONT4                 92842-16431  2040
  FONT5                 92842-16432  2040
  FONT6                 92842-16433  2040
  [PAGP1                92842-18447  2301
  [PAGP2                92842-18448  2301
* [PAGP3                92842-18449  2301  --> 2401
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Manual Part#	Title	Edition/Update
(no manual changes)		

Media Part#	Media Option
92842-13301	020
92842-13302	020
92842-13313	020
92842-13315	022
92842-13401	041
92842-13402	042
92842-13404	042
24998-13412	044

92842-13405	044
92842-13407	044
92842-13501	050
92842-13502	051

3.60 + (92843X) Graphics/1000-II Device Handlers

	Filename	Part Number	Rev	Change
*	"SPINE	92843-18001		--> 2340
*	#ALPHA	92843-18113		--> 2126
*	#BUTTN	92843-18114		--> 2126
*	#DISPL	92843-18115		--> 2340
*	#DTEMP	92843-18116		--> 2126
*	#KEYBD	92843-18117		--> 2126
*	#LOCTR	92843-18118		--> 2126
*	#PICK	92843-18119		--> 2126
*	#VALU	92843-18120		--> 2126
	%TDPAT	92843-16139	2340	
	%TDRED	92843-16142	2340	
*	%TFILL	92843-16140	2340	--> 2540
	%TPGCP	92843-16143	2340	
	%ZPGDI	92843-16141	2340	
*	&MOIXX	92843-18002		--> 2340
*	&MIDXX	92843-18003		--> 2440
*	&TBEGE	92843-18004		--> 2340
	&TCMAP	92843-18122	2340	
*	&TECHO	92843-18005		--> 2340
*	&TEDRW	92843-18006		--> 2126
*	&TENDE	92843-18007		--> 2126
*	&THCLP	92843-18008		--> 2126
	&TICTB	92843-18123	2340	
*	&ZOACD	92843-18009		--> 2126
*	&ZOADV	92843-18010		--> 2126
*	&ZOAIN	92843-18011		--> 2126
*	&ZOBCD	92843-18012		--> 2126
*	&ZOBDV	92843-18013		--> 2126
*	&ZOBIN	92843-18014		--> 2126
	&ZOCTB	92843-18124	2340	
*	&ZODCD	92843-18015		--> 2340
	&ZODCT	92843-18125	2340	
*	&ZODDV	92843-18016		--> 2126
*	&ZODIN	92843-18017		--> 2340
*	&ZODLM	92843-18018		--> 2126
*	&ZOESC	92843-18059	d	--> Deleted
	&ZOEXT	92843-18126	2340	
*	&ZOIXX	92843-18019		--> 2340

* &ZOKCD	92843-18020		--> 2126
* &ZOKDV	92843-18021		--> 2126
* &ZOKIN	92843-18022		--> 2126
* &ZOLCD	92843-18023		--> 2340
* &ZOLDV	92843-18024		--> 2126
* &ZOLIN	92843-18025		--> 2126
* &ZOLLM	92843-18026		--> 2340
* &ZONAT	92843-18027		--> 2340
&ZONCA	92843-18127	2340	
&ZONPA	92843-18128	2340	
* &ZOPCD	92843-18028		--> 2340
* &ZOPDV	92843-18029		--> 2126
* &ZOPIN	92843-18030		--> 2126
* &ZOPLM	92843-18031		--> 2126
* &ZOVCD	92843-18032		--> 2126
* &ZOVDV	92843-18033		--> 2126
* &ZOVIN	92843-18034		--> 2126
* &ZAEND	92843-18035		--> 2126
* &ZAINT	92843-18036		--> 2340
* &ZALPH	92843-18037		--> 2340
* &ZBEND	92843-18038		--> 2126
* &ZBINT	92843-18039		--> 2340
* &ZBUTN	92843-18040		--> 2340
* &ZCOLR	92843-18041		--> 2340
* &ZCSIZ	92843-18042		--> 2340
&ZDCOL	92843-18129	2340	
* &ZDEND	92843-18043		--> 2340
&ZDINT	92843-18044	2340	
* &ZDRAW	92843-18045		--> 2340
* &ZHIGH	92843-18046		--> 2126
&ZIACS	92843-18047	2340	
&ZICOL	92843-18130	2340	
* &ZIESC	92843-18048		--> 2340
* &ZKEND	92843-18049		--> 2126
* &ZKEND	92843-18050	d	--> Deleted
&ZKINT	92843-18050	2340	
* &ZKYBD	92843-18051		--> 2340
* &ZLEND	92843-18052		--> 2126
* &ZLINT	92843-18053		--> 2340
* &ZLSTL	92843-18054		--> 2340
* &ZLWID	92843-18055		--> 2340
&ZMARK	92843-18056	2340	
* &ZMOVE	92843-18057		--> 2126
* &ZNEWF	92843-18058		--> 2340
&ZOESC	92843-18059	2340	
* &ZPEND	92843-18060		--> 2126
&ZPGDD	92843-18131	2340	
* &ZPICK	92843-18061		--> 2340
* &ZPINT	92843-18062		--> 2340
* &ZPOLY	92843-18063		--> 2126

*	&ZSLOC	92843-18064		--> 2340
*	&ZSVAL	92843-18065		--> 2340
*	&ZTEXT	92843-18066		--> 2126
*	&ZVEND	92843-18067		--> 2126
*	&ZVINT	92843-18068		--> 2340
*	&ZWLOC	92843-18069		--> 2340
*	&ZWVAL	92843-18070		--> 2340
*	*ALPHA	92843-18071		--> 2126
*	*BUTTN	92843-18072		--> 2126
*	*DISPL	92843-18073		--> 2340
*	*KEYBD	92843-18074		--> 2126
*	*LOCTR	92843-18075		--> 2126
*	*PICK	92843-18076		--> 2126
*	*VALU	92843-18077		--> 2126
*	A92843	92843-18999	2340	--> 2540
	[ALIAS	92843-18121	2340	
*	[MOIOT	92843-18078		--> 2126
*	[MOIXX	92843-18079		--> 2126
*	[ZOACD	92843-18080		--> 2126
*	[ZOADV	92843-18081		--> 2126
*	[ZOAIN	92843-18082		--> 2126
*	[ZOBCD	92843-18083		--> 2126
*	[ZOBDV	92843-18084		--> 2126
*	[ZOBFI	92843-18085		--> 2126
*	[ZOBIN	92843-18086		--> 2126
*	[ZOBUF	92843-18087		--> 2126
*	[ZOCAT	92843-18088		--> 2126
*	[ZOCON	92843-18089		--> 2126
*	[ZOCOR	92843-18090		--> 2126
	[ZOCPA	92843-18132	2340	
	[ZOCTB	92843-18133	2340	
*	[ZODCD	92843-18091		--> 2340
	[ZODCT	92843-18134	2340	
*	[ZODDV	92843-18092		--> 2126
*	[ZODIN	92843-18093		--> 2340
*	[ZODLM	92843-18094		--> 2126
	[ZOEXT	92843-18135	2340	
*	[ZOIXX	92843-18095		--> 2126
*	[ZOKCD	92843-18096		--> 2126
*	[ZOKDV	92843-18097		--> 2126
*	[ZOKIN	92843-18098		--> 2126
*	[ZOLCD	92843-18099		--> 2340
*	[ZOLDV	92843-18100		--> 2126
*	[ZOLIN	92843-18101		--> 2126
*	[ZOLLM	92843-18102		--> 2126
*	[ZONAT	92843-18103		--> 2340
	[ZONCA	92843-18137	2340	
	[ZONPA	92843-18138	2340	
*	[ZOPCD	92843-18104		--> 2340
*	[ZOPDV	92843-18105		--> 2126

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* [ZOPIN                92843-18106         --> 2126
* [ZOPLM                92843-18107         --> 2126
  [ZOPTB                92843-18136  2340
* [ZOSYS                92843-18108         --> 2340
  [ZOVCD                92843-18109  2126
* [ZOVDC                92843-18109  d       --> Deleted
* [ZOVDV                92843-18110         --> 2126
* [ZOVIN                92843-18111         --> 2126
* [ZOWRK                92843-18112         --> 2126
```

Manual Part#	Title	Edition/Update
(no manual changes)		

Media Part#	Media Option
92843-13301	022
92843-13501	050
92843-13502	051

3.61 + (92857A) Basic/1000C

Filename	Part Number	Rev	Change
Directory: /BASIC/			
"BERRS	92857-17009	2401	
* A92857.SNF	92857-17999	2420	--> 2540
BASIC_ERRORS.SRC	92857-17010	2401	
* M92857.MNF	92857-17998	New	--> 2540
* PASCAL.LIB	92833-16113	2401	--> 2440
* PASCAL_CDS.LIB	92833-16104	2401	--> 2440
* PASCAL_ERR.REL	92833-16125	New	--> 2440
Directory: /BASIC/COMPILER/			
* BDAT.LOD	92857-17018	2401	--> 2540
BDAT.REL	92857-16239	2401	
B_EIO.REL	92857-16291	2401	
B_EMA.REL	92857-16249	2401	
B_MLE.EDIT	92857-17022	2401	
B_MLV.EDIT	92857-17023	2401	
B_VMA.REL	92857-16250	2401	
* CBASIC1.REL	92857-12013	2420	--> 2540

*	CBASIC2.REL	92857-12016	2401	--> 2540
*	CBASIC_CDS1.REL	92857-12014	2420	--> 2540
*	CBASIC_CDS2.REL	92857-12017	2401	--> 2540
	CBASIC_CDS_LIB.MERG	92857-17029	2401	
	CBASIC_CMP.LIB	92857-12012	2401	
	CBASIC_LIB.MERG	92857-17028	2401	
*	CBA_1.REL	92857-12010	2401	--> 2540
	CBA_123.MERG	92857-17021	2401	
*	CBA_2.REL	92857-12011	2401	--> 2540
*	CBA_3.REL	92857-12015	2401	--> 2430
	CDSOF.REL	92857-16379	2401	
	CDSON.REL	92857-16378	2401	
	CDS_B_EIO.REL	92857-16380	2401	
	CDS_B_EMA.REL	92857-16381	2401	
*	CDS_B_VMA.REL	92857-16382	2401	--> 2440
	CDS_FMPSTUFF.REL	92857-16305	2401	
	CDS_IB_XX.MAC	92857-18302	2401	
	CDS_IB_XX.REL	92857-16302	2401	
	CDS_L_EMA.REL	92857-16383	2401	
	CDS_MMGT2.REL	92857-16303	2401	
*	CDS_MMGT2_ENI.REL	92857-16347	New	--> 2440
	CDS_RT_AM.REL	92857-16304	2401	
	FMPSTUFF.REL	92857-16306	2401	
	F_EMA.REL	92857-16240	2401	
	IB_XX.MAC	92857-18241	2401	
	IB_XX.REL	92857-16241	2401	
*	INSTALL_6.CMD	92857-17019	2420	--> 2540
	INSTALL_6.LOD	92857-17013	2401	
	INSTALL_A.CMD	92857-17020	2420	
	INSTALL_A.LOD	92857-17014	2401	
	INSTALL_AC.CMD	92857-17025	2420	
*	LINK_E.LOD	92857-17015	2401	--> 2540
*	LINK_ENI.LOD	92857-17030	New	--> 2540
*	LINK_ENI_CDS.LOD	92857-17031	New	--> 2540
*	LINK_E_CDS.LOD	92857-17027	2401	--> 2540
	LINK_L.LOD	92857-17016	2401	
	LINK_L_CDS.LOD	92857-17026	2401	
*	LINK_V.LOD	92857-17017	2401	--> 2540
*	LINK_V_CDS.LOD	92857-17024	2401	--> 2540
	L_EMA.REL	92857-16242	2401	
	MMGT2.REL	92857-16243	2401	
*	MMGT2_ENI.REL	92857-16346	New	--> 2440
	RT_6M.REL	92857-16244	2401	
	RT_AM.REL	92857-16245	2401	
	SAM6C.REL	92857-16248	2401	
	SAMAC.REL	92857-16247	2401	
	S_EMA.MAC	92857-18246	2401	
	S_EMA.REL	92857-16246	2401	

Directory: /BASIC/INTERPRETER/

*	BAS_6.LOD	92857-17002	2401	--> 2540
*	BAS_A.LOD	92857-17001	2401	--> 2540
*	BBMG.LOD	92857-17003	2401	--> 2440
	BCALL.LIB	92857-16132	2401	
	BEXEC.REL	92857-16215	2401	
*	BLIB1.LIB	92857-12006	2401	--> 2540
*	BLIB2.LIB	92857-12007	2401	--> 2540
*	BMSKL.REL	92857-12003	2401	--> 2540
*	BSSKL.REL	92857-12004	2401	--> 2540
*	BXLUEX.REL	92857-16421	New	--> 2540
	B_T12.REL	92857-16131	2401	
*	FOB_6.REL	92857-16387	New	--> 2540
*	FOB_A.REL	92857-16386	New	--> 2540
*	FOX_6.REL	92857-16144	2401	--> 2540
*	FOX_A.REL	92857-16145	2401	--> 2540
*	INSTALL_6_BAS.CMD	92857-17008	2420	--> 2540
	INSTALL_A_BAS.CMD	92857-17007	2420	
*	LBMGL.LIB	92857-12002	2401	--> 2540
*	MRBAS.MER	92857-17011	2401	--> 2440
	MRRBX.MER	92857-17012	2401	
	RBX_6.LOD	92857-17006	2401	
	RBX_A.LOD	92857-17005	2401	
	RINTR.LOD	92857-17004	2401	
*	RINTR.REL	92857-16128	2401	--> 2540
*	RLIB1.LIB	92857-12008	2401	--> 2540
*	RLIB2.LIB	92857-12009	2401	--> 2540
*	RLIB3.LIB	92857-12001	2401	--> 2540
*	RLIB4.LIB	92857-12018	2401	--> 2540
*	RXSKL.REL	92857-12005	2401	--> 2540
*	SAM6.REL	92857-16411	New	--> 2540
*	SAMA.REL	92857-16410	New	--> 2540
	SAM_6.REL	92857-16151	2401	
	SAM_A.REL	92857-16152	2401	

Manual Part#	Title	Edition/Update
92857-90001	BASIC/1000C Reference Manual	2/-
92857-90002	BASIC/1000C Installation and Configuration Guide	3/-

Media Part#	Media Option
92857-13301	022
92857-13401	041
92857-13402	041
92857-13403	041

92857-13420	041
92857-13421	041
92857-13404	042
92857-13405	042
92857-13406	042
92857-13407	042
92857-13408	042
92857-13409	042
92857-13410	042
92857-13411	042
92857-13422	042
92857-13423	042
92857-13424	042
92857-13428	042
92857-13431	042
92857-13432	042
92857-13439	042
92857-13412	044
92857-13413	044
92857-13414	044
92857-13415	044
92857-13416	044
92857-13417	044
92857-13418	044
92857-13419	044
92857-13425	044
92857-13426	044
92857-13427	044
92857-13429	044
92857-13433	044
92857-13434	044
92857-13440	044
92857-13501	050
92857-13502	051

3.62 + (92860A) Symbolic Debug/1000

	Filename	Part Number	Rev	Change
	Directory: /DEBUG/			
*	BLDDB.LOD	92860-17007	New	--> 2540
*	BLDDB.REL	92860-12083	New	--> 2540
*	DEBUG.ERR	92860-17003	2401	--> 2540
*	DEBUG.ISTL	92860-17008	2401	--> Deleted
*	DEBUG.SNF	92860-17999	2401	--> 2540

```
* DEBUG6.LOD              92860-17001  New    --> 2540
* DEBUG6.REL              92860-12082  New    --> 2540
* DEBUGA.LOD              92860-17005  New    --> 2540
* DEBUGA.REL              92860-12081  New    --> 2540
* INSTALL.CMD             92860-17008  New    --> 2540

  Directory: /DEBUG/LOAD_COMMAND/

* BLDDB.LOD               92860-17007  2401   --> Deleted
* DEBUG_NEW6.LOD          92860-17001  2401   --> Deleted
* DEBUG_NEWA.LOD          92860-17005  2401   --> Deleted

  Directory: /DEBUG/RELOC/

* BDLIB.REL               92860-16045  2401   --> Deleted
* BDREV.REL               92860-16069  2401   --> Deleted
* BILDS.REL               92860-16062  2401   --> Deleted
* BLDDB.REL               92860-16040  2401   --> Deleted
* BLOCK.REL               92860-16041  2401   --> Deleted
* BUIL0.REL               92860-16042  2401   --> Deleted
* BUIL1.REL               92860-16043  2401   --> Deleted
* BUIL2.REL               92860-16044  2401   --> Deleted
* CDS_ON_6.REL            92860-16080  2401   --> Deleted
* CONT.REL                92860-16038  2401   --> Deleted
* CRAM.REL                92860-16053  2401   --> Deleted
* DBREV.REL               92860-16048  2401   --> Deleted
* DEBU0.REL               92860-16009  2401   --> Deleted
* DEBU1.REL               92860-16015  2401   --> Deleted
* DEBU2.REL               92860-16019  2401   --> Deleted
* DEBU3.REL               92860-16013  2401   --> Deleted
* DEBU4.REL               92860-16020  2401   --> Deleted
* DEBU5.REL               92860-16033  2401   --> Deleted
* DEBU6.REL               92860-16034  2401   --> Deleted
* DEBU7.REL               92860-16035  2401   --> Deleted
* DEBU9.REL               92860-16037  2401   --> Deleted
* DEBUG.REL               92860-16002  2401   --> Deleted
* DEBUG_DATA.REL          92860-16070  2401   --> Deleted
* DEBUX.REL               92860-16047  2401   --> Deleted
* DEST6.REL               92860-16003  2401   --> Deleted
* DESTL.REL               92860-16022  2401   --> Deleted
* DISASSEMBLE.REL         92860-16068  2401   --> Deleted
* DPACK.REL               92860-16018  2401   --> Deleted
* FMPNAMR.REL             92860-16067  2401   --> Deleted
* GETVAR.REL              92860-16060  2401   --> Deleted
* GETVL.REL               92860-16007  2401   --> Deleted
* GKLIB.REL               92860-16008  2401   --> Deleted
* GSORT.REL               92860-16021  2401   --> Deleted
* GTFLD.REL               92860-16050  2401   --> Deleted
* HISTOGRAM.REL           92860-16079  2401   --> Deleted
* INIT6.REL               92860-16012  2401   --> Deleted
```

* INITL.REL	92860-16023	2401	--> Deleted
* INITS.REL	92860-16014	2401	--> Deleted
* LINKU.REL	92860-16063	2401	--> Deleted
* MDATA.REL	92860-16001	2401	--> Deleted
* OUTRC.REL	92860-16065	2401	--> Deleted
* POKE6.REL	92860-16004	2401	--> Deleted
* POKEA.REL	92860-16030	2401	--> Deleted
* POKEL.REL	92860-16025	2401	--> Deleted
* PREP6.REL	92860-16011	2401	--> Deleted
* PREPL.REL	92860-16024	2401	--> Deleted
* PUTIM.REL	92860-16064	2401	--> Deleted
* RDVAL.REL	92860-16017	2401	--> Deleted
* RMOVD.REL	92860-16010	2401	--> Deleted
* SCREEN_IO.REL	92860-16066	2401	--> Deleted
* SETB.REL	92860-16039	2401	--> Deleted
* SET_RMPARMS.REL	92860-16061	2401	--> Deleted
* SINIT.REL	92860-16046	2401	--> Deleted
* SSTEP.REL	92860-16049	2401	--> Deleted
* SSTEP_DATA.REL	92860-16055	2401	--> Deleted
* SSTEP_PCAL6.REL	92860-16052	2401	--> Deleted
* SSTEP_PCALA.REL	92860-16051	2401	--> Deleted
* STEPB_DATA.REL	92860-16057	2401	--> Deleted
* STEPB_PCAL6.REL	92860-16059	2401	--> Deleted
* STEPB_PCALA.REL	92860-16058	2401	--> Deleted
* SWAPI.REL	92860-16005	2401	--> Deleted
* SWICH.REL	92860-16006	2401	--> Deleted
* WRVAL.REL	92860-16016	2401	--> Deleted
* A92860	92860-17999	Dele	--> Deleted

Manual Part#	Title	Edition/Update
92860-90001	Symbolic Debug/1000 Reference Manual	3/-
92860-90002	Symbolic Debug/1000 Configuration Guide	5/-

Media Part#	Media Option
92860-13301	022
92860-13401	041
92860-13402	042
92860-13403	042
92860-13406	042
92860-13404	044
92860-13405	044
92860-13407	044
92860-13501	050
92860-13502	051

3.63 + (92861A) Graphics/1000-II DGL Version 2.0

	Filename	Part Number	Rev	Change
	Directory: /GRAPHICSV2/			
*	A0000.LIB	92861-12121	2420	--> 2540
*	A0000_CDS.LIB	92861-12122	2420	--> 2540
*	A0001.LIB	92861-12003	2420	--> 2540
*	A0001_CDS.LIB	92861-12070	2420	--> 2540
*	A0017.LIB	92861-12032	2420	--> 2540
*	A0017_CDS.LIB	92861-12115	2420	--> 2540
*	A0025.LIB	92861-12149	New	--> 2420
*	A0025_CDS.LIB	92861-12150	New	--> 2420
*	A92861	92861-18999	2420	--> 2540
*	B0000.LIB	92861-12123	2420	--> 2540
*	B0000_CDS.LIB	92861-12124	2420	--> 2540
*	B0001.LIB	92861-12004	2420	--> 2540
*	B0001_CDS.LIB	92861-12071	2420	--> 2540
*	B0004.LIB	92861-12013	2420	--> 2540
*	B0004_CDS.LIB	92861-12072	2420	--> 2540
*	B0017.LIB	92861-12033	2420	--> 2540
*	B0017_CDS.LIB	92861-12116	2420	--> 2540
	CHART_DGL.FTN	24998-18579	2420	
*	COLDM.REL	92861-12145	2420	--> 2540
*	COLDM_CDS.REL	92861-12146	2420	--> 2540
*	D0001.LIB	92861-12002	2420	--> 2540
*	D0001_CDS.LIB	92861-12073	2420	--> 2540
*	D0002.LIB	92861-12009	2420	--> 2540
*	D0002_CDS.LIB	92861-12074	2420	--> 2540
*	D0003.LIB	92861-12012	2420	--> 2540
*	D0003_CDS.LIB	92861-12075	2420	--> 2540
*	D0006.LIB	92861-12019	2420	--> 2540
*	D0006_CDS.LIB	92861-12076	2420	--> 2540
*	D0007.LIB	92861-12022	2420	--> 2540
*	D0007_CDS.LIB	92861-12077	2420	--> 2540
*	D0008.LIB	92861-12023	2420	--> 2540
*	D0008_CDS.LIB	92861-12078	2420	--> 2540
*	D0009.LIB	92861-12024	2420	--> 2540
*	D0009_CDS.LIB	92861-12079	2420	--> 2540
*	D0010.LIB	92861-12025	2420	--> 2540
*	D0010_CDS.LIB	92861-12080	2420	--> 2540
*	D0015.LIB	92861-12026	2420	--> 2540
*	D0015_CDS.LIB	92861-12081	2420	--> 2540
*	D0016.LIB	92861-12027	2420	--> 2540
*	D0016_CDS.LIB	92861-12082	2420	--> 2540
*	D0018.LIB	92861-12044	2420	--> 2540
*	D0018_CDS.LIB	92861-12083	2420	--> 2540

* D0019.LIB	92861-12028	2420	--> 2540
* D0019_CDS.LIB	92861-12084	2420	--> 2540
* D0020.LIB	92861-12127	2420	--> 2540
* D0020_CDS.LIB	92861-12128	2420	--> 2540
* D0021.LIB	92861-12045	2420	--> 2540
* D0021_CDS.LIB	92861-12085	2420	--> 2540
* D0025.LIB	92861-12147	New	--> 2540
* D0025_CDS.LIB	92861-12148	New	--> 2540
* D0026.LIB	92861-12137	2420	--> 2540
* D0026_CDS.LIB	92861-12138	2420	--> 2540
* D0027.LIB	92861-12048	2420	--> 2540
* D0027_CDS.LIB	92861-12110	2420	--> 2540
* D0028.LIB	92861-12049	2420	--> 2540
* D0028_CDS.LIB	92861-12111	2420	--> 2540
* D0029.LIB	92861-12050	2420	--> 2540
* D0029_CDS.LIB	92861-12112	2420	--> 2540
* D0030.LIB	92861-12051	2420	--> 2540
* D0030_CDS.LIB	92861-12113	2420	--> 2540
* D0031.LIB	92861-12053	2420	--> 2540
* D0031_CDS.LIB	92861-12087	2420	--> 2540
* D0032.LIB	92861-12055	2420	--> 2540
* D0032_CDS.LIB	92861-12088	2420	--> 2540
* D0036.LIB	92861-12058	2420	--> 2540
* D0036_CDS.LIB	92861-12089	2420	--> 2540
* D0045.LIB	92861-12164	New	--> 2540
* D0045_CDS.LIB	92861-12163	New	--> 2540
* D0046.LIB	92861-12129	2420	--> 2540
* D0046_CDS.LIB	92861-12130	2420	--> 2540
* D0047.LIB	92861-12131	2420	--> 2540
* D0047_CDS.LIB	92861-12132	2420	--> 2540
* D0048.LIB	92861-12133	2420	--> 2540
* D0048_CDS.LIB	92861-12134	2420	--> 2540
* D0053.LIB	92861-12139	2420	--> 2540
* D0053_CDS.LIB	92861-12140	2420	--> 2540
* D0054.LIB	92861-12141	2420	--> 2540
* D0054_CDS.LIB	92861-12142	2420	--> 2540
* D0055.LIB	92861-12143	2420	--> 2540
* D0055_CDS.LIB	92861-12144	2420	--> 2540
* D0058.LIB	92861-12165	New	--> 2540
* D0058_CDS.LIB	92861-12166	New	--> 2540
* D0059.LIB	92861-12157	New	--> 2540
* D0059_CDS.LIB	92861-12158	New	--> 2540
* D0060.LIB	92861-12159	New	--> 2540
* D0060_CDS.LIB	92861-12160	New	--> 2540
* D0061.LIB	92861-12167	New	--> 2540
* D0061_CDS.LIB	92861-12169	New	--> 2540
* D0063.LIB	92861-12168	New	--> 2540
* D0063_CDS.LIB	92861-12170	New	--> 2540
* D0065.LIB	92861-12181	New	--> 2540
* D0065_CDS.LIB	92861-12182	New	--> 2540

* D0066.LIB	92861-12179	New	--> 2540
* D0066_CDS.LIB	92861-12180	New	--> 2540
* D0067.LIB	92861-12175	New	--> 2540
* D0067_CDS.LIB	92861-12176	New	--> 2540
* D0068.LIB	92861-12183	New	--> 2540
* D0068_CDS.LIB	92861-12184	New	--> 2540
DEMOS_DGL.TXT	24998-19009	2420	
* DIDD.LIB	92861-12109	2420	--> 2540
* DIDD_CDS.LIB	92861-12069	2420	--> 2540
GRAPH_DGL.FTN	24998-18578	2420	
* K0000.LIB	92861-12125	2420	--> 2540
* K0000_CDS.LIB	92861-12126	2420	--> 2540
* K0001.LIB	92861-12005	2420	--> 2540
* K0001_CDS.LIB	92861-12090	2420	--> 2540
* K0017.LIB	92861-12034	2420	--> 2540
* K0017_CDS.LIB	92861-12117	2420	--> 2540
* K0025.LIB	92861-12151	New	--> 2420
* K0025_CDS.LIB	92861-12152	New	--> 2420
* L0001.LIB	92861-12006	2420	--> 2540
* L0001_CDS.LIB	92861-12091	2420	--> 2540
* L0002.LIB	92861-12010	2420	--> 2540
* L0002_CDS.LIB	92861-12092	2420	--> 2540
* L0004.LIB	92861-12014	2420	--> 2540
* L0004_CDS.LIB	92861-12093	2420	--> 2540
* L0005.LIB	92861-12017	2420	--> 2540
* L0005_CDS.LIB	92861-12094	2420	--> 2540
* L0006.LIB	92861-12020	2420	--> 2540
* L0006_CDS.LIB	92861-12095	2420	--> 2540
* L0017.LIB	92861-12035	2420	--> 2540
* L0017_CDS.LIB	92861-12118	2420	--> 2540
* L0018.LIB	92861-12046	2420	--> 2540
* L0018_CDS.LIB	92861-12096	2420	--> 2540
* L0019.LIB	92861-12029	2420	--> 2540
* L0019_CDS.LIB	92861-12097	2420	--> 2540
* L0027.LIB	92861-12052	2420	--> 2540
* L0027_CDS.LIB	92861-12114	2420	--> 2540
* L0031.LIB	92861-12054	2420	--> 2540
* L0031_CDS.LIB	92861-12098	2420	--> 2540
* L0032.LIB	92861-12056	2420	--> 2540
* L0032_CDS.LIB	92861-12099	2420	--> 2540
* L0046.LIB	92861-12135	2420	--> 2540
* L0046_CDS.LIB	92861-12136	2420	--> 2540
* L0059.LIB	92861-12153	New	--> 2540
* L0059_CDS.LIB	92861-12154	New	--> 2540
* L0060.LIB	92861-12188	New	--> 2540
* L0060_CDS.LIB	92861-12187	New	--> 2540
* L0061.LIB	92861-12171	New	--> 2540
* L0061_CDS.LIB	92861-12173	New	--> 2540
* L0063.LIB	92861-12172	New	--> 2540
* L0063_CDS.LIB	92861-12174	New	--> 2540

* L0067.LIB	92861-12177	New	--> 2540
* L0067_CDS.LIB	92861-12178	New	--> 2540
* L0068.LIB	92861-12185	New	--> 2540
* L0068_CDS.LIB	92861-12186	New	--> 2540
M0COM.REL	92861-16161	2420	
* MANUAL_SET	02861-00001	2420	--> Deleted
* P0001.LIB	92861-12007	2420	--> 2540
* P0001_CDS.LIB	92861-12100	2420	--> 2540
* P0002.LIB	92861-12011	2420	--> 2540
* P0002_CDS.LIB	92861-12101	2420	--> 2540
* P0004.LIB	92861-12015	2420	--> 2540
* P0004_CDS.LIB	92861-12102	2420	--> 2540
* P0005.LIB	92861-12018	2420	--> 2540
* P0005_CDS.LIB	92861-12103	2420	--> 2540
* P0006.LIB	92861-12021	2420	--> 2540
* P0006_CDS.LIB	92861-12104	2420	--> 2540
* P0017.LIB	92861-12036	2420	--> 2540
* P0017_CDS.LIB	92861-12119	2420	--> 2540
* P0019.LIB	92861-12030	2420	--> 2540
* P0019_CDS.LIB	92861-12105	2420	--> 2540
* P0059.LIB	92861-12155	New	--> 2540
* P0059_CDS.LIB	92861-12156	New	--> 2540
* P0060.LIB	92861-12189	New	--> 2540
* P0060_CDS.LIB	92861-12190	New	--> 2540
PDGL1.PASI	92861-18344	2420	
PDGL2.PASI	92861-18345	2420	
PGNDM.REL	92861-16901	2420	
PGNDM_CDS.REL	92861-16902	2420	
T1INT.FTN	92861-18707	2420	
* V0001.LIB	92861-12008	2420	--> 2540
* V0001_CDS.LIB	92861-12106	2420	--> 2540
* V0004.LIB	92861-12016	2420	--> 2540
* V0004_CDS.LIB	92861-12107	2420	--> 2540
* V0017.LIB	92861-12037	2420	--> 2540
* V0017_CDS.LIB	92861-12120	2420	--> 2540
* V0019.LIB	92861-12031	2420	--> 2540
* V0019_CDS.LIB	92861-12108	2420	--> 2540
* V0059.LIB	92861-12161	New	--> 2540
* V0059_CDS.LIB	92861-12162	New	--> 2540
* V0060.LIB	92861-12192	New	--> 2540
* V0060_CDS.LIB	92861-12191	New	--> 2540
Z0BFR.FTN	92861-18343	2420	
Z1CTB.FTN	92861-18790	2420	
Z1PTB.FTN	92861-18743	2420	

Manual Part#	Title	Edition/Update
92861-90003	Device Handler Manual, Vol. 2	2/-

Media Part#	Media Option
92861-13301	022
92861-13401	044
92861-13402	044
92861-13403	044
92861-13404	044
92861-13405	044
92861-13406	044
92861-13407	044
92861-13408	044
92861-13409	044
92861-13410	044
92861-13411	044
92861-13412	044
92861-13413	044
92861-13414	044
92861-13415	044
92861-13416	044
92861-13501	050
92861-13502	051

3.64 + (92862A) Graphics/1000-II AGP Version 2.0

	Filename	Part Number	Rev	Change
	Directory: /GRAPHICSV2/			
*	A92862	92862-18999	2420	--> 2540
	CHART_AGP.FTN	24998-18580	2420	
*	COM.REL	92862-12020	2420	--> 2540
	DEMOS_AGP.TXT	24998-19010	2420	
	FONT1.DAT	92862-16428	2420	
	FONT2.DAT	92862-16429	2420	
	FONT3.DAT	92862-16430	2420	
	FONT4.DAT	92862-16431	2420	
	FONT5.DAT	92862-16432	2420	
	FONT6.DAT	92862-16433	2420	
	HOUSE_AGP.FTN	24998-18582	2420	
*	HOUSE_AGP.PAS	24998-18583	2420	--> 2440
	KONTB.FTN	92862-18454	2420	
	KOPAG.FTN	92862-18376	2420	
	KOSDF.FTN	92862-18377	2420	
	K1FIL.FTN	92862-18464	2420	

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* MANUAL_SET            02862-00001  2420  --> Deleted
  PAGP1.PASI            92862-18447  2420
  PAGP2.PASI            92862-18448  2420
  PAGP3.PASI            92862-18449  2420
  SDUM.REL              92862-12021  2420
  SDUM_CDS.REL          92862-12022  2420
* UPLIB.LIB             92862-12016  2420  --> 2540
* UPLIB_CDS.LIB         92862-12017  2420  --> 2540
* VIEW_AGP.FTN          24998-18581  2420  --> 2440
* WPGDM.REL             92862-12023  2420  --> 2540
* WPGDM_CDS.REL         92862-12024  2420  --> 2540
* WSP.FTN               92862-18349  2420  --> 2540
* WSP.REL               92862-16349  2420  --> 2540
  WSPLB.LIB             92862-12018  2420
  WSPLB_CDS.LIB         92862-12019  2420
* WSP_CDS.REL           92862-16642  2420  --> 2540
* ZMNTL.REL             92862-12002  2420  --> 2540
* ZMNTR.REL             92862-12001  2420  --> 2540
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Manual Part#	Title	Edition/Update
92862-90003	Device Handler Manual, Vol. 2	2/-

Media Part#	Media Option
92862-13301	022
92862-13401	044
92862-13402	044
92862-13403	044
92862-13404	044
92862-13405	044
92862-13501	050
92862-13502	051

3.65 + (94200B) PCIF/1000

Filename	Part Number	Rev	Change
Directory: /PCIF/CORE/			
!PCC01	94200-17017	2525	
!PCC02	94200-17019	2340	
!PCC03	94200-17021	2340	
!PCC04	94200-17023	2340	

	!PCC05	94200-17025	2340	
	!PCC07	94200-17029	2340	
	!PCC08	94200-17031	2340	
	!PCC09	94200-17033	2340	
	!PCC11	94200-17037	2340	
	!PCCB5	94200-17027	2340	
	!PCCB9	94200-17035	2340	
	!PCP01	94200-17011	2525	
	!PCP02	94200-17013	2340	
	!PCP03	94200-17015	2340	
	"CDSLB	92059-18027	2326	
	"PCC01	94200-17018	2340	
	"PCC02	94200-17020	2340	
	"PCC03	94200-17022	2340	
	"PCC04	94200-17024	2340	
	"PCC05	94200-17026	2340	
	"PCC07	94200-17030	2340	
	"PCC08	94200-17032	2340	
	"PCC09	94200-17034	2340	
	"PCC11	94200-17038	2340	
	"PCCB5	94200-17028	2340	
	"PCCB9	94200-17036	2340	
	"PCERR	94200-17005	2525	
	"PCMER	94200-17102	2340	
	"PCMSG	94200-17101	2340	
	"PCP01	94200-17012	2340	
	"PCP02	94200-17014	2340	
	"PCP03	94200-17016	2340	
	#AUTOR	94200-17108	2525	
	#PCFOC	94200-17004	2525	
	#PCLDM	94200-17103	2422	
	#PCLGC	94200-17227	2525	
	#PCLGE	94200-17002	2525	
	#PCLHL	94200-17106	2422	
	#PCLOP	94200-17104	2340	
	#PCLTM	94200-17105	2422	
	#PCTST	94200-17404	2422	
	$PCGEC	94200-12200	2525	
	$PCGEN	94200-12002	2525	
*	$PCLBC	94200-12003	2525	--> 2540
*	$PCLIB	94200-12001	2525	--> 2540
	%AUTOR	94200-16109	2525	
	%DDP61	94200-16359	2340	
	%PCC11	94200-16041	2340	
	%PCCCP	94200-16042	2525	
	%PCCLI	94200-16032	2340	
	%PCCON	94200-16031	2340	
	%PCCT1	94200-16033	2340	
	%PCCT2	94200-16034	2340	
	%PCCT3	94200-16035	2340	

```
  %PCCT4                94200-16036  2525
  %PCCT5                94200-16037  2525
  %PCCT7                94200-16038  2340
  %PCCT8                94200-16039  2525
  %PCCT9                94200-16040  2340
  %PCCUT                94200-16046  2340
  %PCDMX                94200-16220  2525
  %PCFOI                94200-16045  2525
  %PCHLT                94200-16223  2525
  %PCMC0                94200-16412  2525
  %PCMC1                94200-16413  2525
  %PCMC2                94200-16414  2525
  %PCMC3                94200-16415  2525
  %PCMC4                94200-16416  2525
  %PCMC5                94200-16417  2525
  %PCMC6                94200-16418  2525
  %PCMC7                94200-16419  2525
  %PCMN0                94200-16201  2525
  %PCMN1                94200-16202  2525
  %PCMN2                94200-16203  2525
  %PCMN3                94200-16204  2525
  %PCMN4                94200-16205  2525
  %PCMN5                94200-16206  2525
  %PCMN6                94200-16207  2525
  %PCMN7                94200-16208  2525
  %PCMUX                94200-16047  2525
  %PCOPN                94200-16221  2525
  %PCS0                 94200-16209  2525
  %PCS0C                94200-16107  2525
  %PCS1                 94200-16210  2525
  %PCS1C                94200-16108  2525
  %PCTMO                94200-16222  2525
* %PCTST                94200-16404  2525  --> 2606
  &AUTOR                94200-18109  2525
* &PCTST                94200-18404  2525  --> 2606
  *PCIF                 94200-17001  2525
  *PCIFC                94200-17107  2525
* B94200                94200-17999  2525  --> 2606
  [PCHHL                94200-18302  2340
  [PCPGE                94200-18010  2525
  [PCPGF                94200-18407  2525
  [PCPHL                94200-18301  2525

  Directory: /PCIF/F1000/

  FCOMM.REL             94250-16502  2520
  FLULB.LIB             94250-12524  2520
  FOBLK.REL             94250-16504  2520
  FOCLO.REL             94250-16505  2520
  FOFLL.LIB             94250-12528  2520
```

FOLCL.TXT	94250-17542	2520	
FOPRL.LIB	94250-12538	2520	
FRULB.LIB	94250-12546	2520	
FUSE9.REL	94250-16514	2520	

Directory: /PCIF/GSWPCIF/

* ABMOD2.CRS	94200-16519	New	-->	2606
* ABMOD3.CRS	94200-16520	New	-->	2606
* ABMOD5.CRS	94200-16522	New	-->	2606
* COURSE0.REL	94200-16502	New	-->	2606
* GMOD2.CRS	94200-16512	New	-->	2606
* GMOD3.CRS	94200-16513	New	-->	2606
* GMOD4.CRS	94200-16514	New	-->	2606
* GMOD5.CRS	94200-16515	New	-->	2606

Manual Part#	Title	Edition/Update
94200-90002	PCIF/1000 Reference Manual	2/1

Media Part#	Media Option
94200-13302	022
94200-13303	022
94200-13405	044
94200-13406	044
94200-13407	044
94200-13408	044
94200-13409	044
94200-13410	044
94200-13411	044
94200-13412	044
94200-13503	051
94200-13504	051

3.66 + (94202A) PCIF/1000 Handler for Allen-Bradley PCs

Filename	Part Number	Rev	Change

Directory: /PCIF/AB/

* !PCCA6	94202-17009	New	-->	2606
!PCFAB	94202-16003	2525		
* "PCCA6	94202-17010	New	-->	2606

```
  #ABDN                 94202-17003  2435
  #ABTST                94202-17004  2435
  #ABUP                 94202-17002  2435
* $ABLBC                94202-12002  New   --> 2606
* $ABLIB                94202-12001  2435  --> 2606
* %ABDN                 94202-16007  2422  --> 2606
  %ABTST                94202-16008  2435
* %ABUP                 94202-16006  2422  --> 2606
* %PCCHA                94202-16016  New   --> 2606
* %PCHAB                94202-16002  2525  --> 2606
* %PCHAC                94202-16013  2525  --> 2606
* %PCPAB                94202-16001  2525  --> 2606
* %PCPAC                94202-16012  2525  --> 2606
* &ABDN                 94202-18007  2422  --> 2606
* &ABLBC                94202-18018  New   --> 2606
* &ABLIB                94202-18009  2435  --> 2606
  &ABTST                94202-18008  2435
* &ABUP                 94202-18006  2422  --> 2606
  *AB                   94202-17001  2525
* A94202                94202-17999  2525  --> 2606
* [PCHAB                94202-18005  2340  --> 2606
* [PCHAC                94202-18011  2525  --> 2606
* [PCPAB                94202-18004  2340  --> 2606
* [PCPAC                94202-18010  2525  --> 2606
```

Manual Part#	Title	Edition/Update
94202-90001	Allen-Bradley Handler Manual for PCIF/1000	2/-

Media Part#	Media Option
94202-13301	022
94202-13401	044
94202-13402	044
94202-13502	051

3.67 + (94203A) PCIF/1000 Handler for Modicon PCs

```
 Filename              Part Number  Rev    Change
--------------------- -----------  ----  --------

Directory: /PCIF/GM/

#GMDN                 94203-17002  2525
```

```
  #GMUP                94203-17001  2525
* $GMLIB               94203-12001  2525  --> 2540
* %GMDN                94203-16008  2525  --> 2540
* %GMDNO               94203-16012  2525  --> 2540
* %GMUP                94203-16007  2525  --> 2540
* %GMUPO               94203-16011  2525  --> 2540
* %PCHGC               94203-16015  2525  --> 2540
* %PCHGM               94203-16002  2525  --> 2540
* %PCPGC               94203-16014  2525  --> 2540
* %PCPGM               94203-16001  2525  --> 2540
* &GMDN                94203-18008  2525  --> 2540
* &GMDNO               94203-18012  2525  --> 2540
* &GMLIB               94203-18010  2525  --> 2540
* &GMUP                94203-18007  2525  --> 2540
* &GMUPO               94203-18011  2525  --> 2540
  *GM                  94203-17005  2525
* A94203               94203-17999  2525  --> 2540
  [PCHGC               94203-18016  2525
  [PCHGM               94203-18005  2525
* [PCPGC               94203-18017  2525  --> 2540
* [PCPGM               94203-18004  2525  --> 2540
```

Manual Part#	Title	Edition/Update
94203-90001	Gould-Modicon Handler Manual for PCIF/1000	1/-

Media Part#	Media Option
94203-13301	022
94203-13401	044
94203-13402	044
94203-13502	051

3.68 + (94204A) Siemens Handler

Filename	Part Number	Rev	Change
Directory: /PCIF/SIEMENS/			
!PCCS6	94204-17005	2525	
!PCCSD	94204-17007	2525	
!PCFSI	94204-16003	2525	
"PCCS6	94204-17006	2525	

	"PCCSD	94204-17008	2525	
	#SIDN	94204-17003	2525	
	#SIUP	94204-17002	2525	
	$SILIB	94204-12001	2525	
	%PCCHS	94204-16015	2525	
	%PCCPS	94204-16014	2525	
*	%PCHSC	94204-16013	2525	--> 2540
*	%PCHSI	94204-16002	2525	--> 2540
*	%PCPSC	94204-16012	2525	--> 2540
*	%PCPSI	94204-16001	2525	--> 2540
*	%SIDN	94204-16007	2525	--> 2540
*	%SIUP	94204-16006	2525	--> 2540
*	&SIDN	94204-18007	2525	--> 2540
	&SILIB	94204-18009	2525	
*	&SIUP	94204-18006	2525	--> 2540
*	*SI	94204-17001	2525	--> 2540
*	A94204	94204-17999	2525	--> 2540
*	[PCHSC	94204-18011	2525	--> 2540
*	[PCHSI	94204-18005	2525	--> 2540
*	[PCPSC	94204-18010	2525	--> 2540
*	[PCPSI	94204-18004	2525	--> 2540

Manual Part#	Title	Edition/Update
94204-90001	Siemens Handler Manual for PCIF/1000	2/-

Media Part#	Media Option
94204-13301	022
94204-13401	044
94204-13502	051

3.69 (94250A) Forms/1000

Filename	Part Number	Rev
!FBD01	94250-17091	2340
!FBD02	94250-17092	2340
!FBD03	94250-17093	2340
!FBD04	94250-17094	2340
!FBD06	94250-17096	2340
!FBD07	94250-17097	2340
!FBD08	94250-17098	2340
!FDEM1	94250-17101	2340
!FDEM2	94250-17102	2340

!FDEM3	94250-17103	2340
!FDEM4	94250-17104	2340
"FBD01	94250-17071	2340
"FBD02	94250-17072	2340
"FBD03	94250-17073	2340
"FBD04	94250-17074	2340
"FBD05	94250-17075	2340
"FBD06	94250-17076	2340
"FBD07	94250-17077	2340
"FBD08	94250-17078	2340
"FDEM1	94250-17081	2340
"FOLCL	94250-17899	2340
#LFBAS	94250-17004	2340
#LFBEF	94250-17002	2340
#LFDAS	94250-17064	2340
#LFDEF	94250-17062	2340
#LFIAS	94250-17024	2340
#LFIEF	94250-17022	2340
#LFNAS	94250-17034	2340
#LFNEF	94250-17032	2340
#LFOAS	94250-17014	2340
#LFOEF	94250-17012	2340
#LPIAS	94250-17044	2340
#LPIEF	94250-17042	2340
#LPNAS	94250-17054	2340
#LPNEF	94250-17052	2340
$FBUTI	94250-12002	2340
$FLULB	94250-12004	2340
$FOFLL	94250-12003	2340
$FOFRL	94250-12006	2340
$FOPLL	94250-12005	2340
$FOPRL	94250-12008	2340
$FRULB	94250-12007	2340
%FBILD	94250-12001	2340
%FCOMM	94250-16393	2340
%FDEMO	94250-16500	2340
%FOBLK	94250-16171	2340
%FOCLO	94250-16391	2340
%FUSE1	94250-16172	2340
%FUSE2	94250-16173	2340
%FUSE3	94250-16174	2340
%FUSE4	94250-16175	2340
%FUSE5	94250-16176	2340
%FUSE6	94250-16177	2340
%FUSE7	94250-16178	2340
%FUSE8	94250-16179	2340
%FUSE9	94250-16180	2340
&FDEMO	94250-18500	2340
&FUSEX	94250-18195	2340
*LFBAS	94250-17003	2340

*LFBEF	94250-17001	2340
*LFDAS	94250-17063	2340
*LFDEF	94250-17061	2340
*LFIAS	94250-17023	2340
*LFIEF	94250-17021	2340
*LFNAS	94250-17033	2340
*LFNEF	94250-17031	2340
*LFOAS	94250-17013	2340
*LFOEF	94250-17011	2340
*LPIAS	94250-17043	2340
*LPIEF	94250-17041	2340
*LPNAS	94250-17053	2340
*LPNEF	94250-17051	2340
A94250	94250-17999	2340

3.70 Current Firmware Revisions

3.70.1 A600 Minifloppy Controller

Prom 1	U73	5180-0136
Prom 2	U63	5180-0137
Prom 3	U43	5180-0144
CPU	U22	1820-2298
Cntlr	U105	1820-2456
GPIB	U12	1820-2549

3.70.2 A600 CPU FIRMWARE

12101-60001
12101-80002 (U0706)
12101-80003 (U0806)
12101-80004 (U1006)
12101-80005 (U0506)
12101-80006 (U0606)
12101-80007 (U1106)
12101-80008 (U0906)
12101-80009 (U0305)
12101-80010 (U0505)
12101-80011 (U0605)#
12101-80012 (U0705)#
12101-80013 (U0805)#
12101-80014 (U1005)#

Revision 4000
Original Release

 # These parts are bundled in with the 12101-60001 processor board. The 12101-60002 assembly no longer includes these PROMs.

```
12101-60001
12101-80002 (U0706)
12101-80003 (U0806)
12101-80021 (U1006)*
12101-80005 (U0506)
12101-80006 (U0606)
12101-80007 (U1106)
12101-80008 (U0906)
12101-80009 (U0305)
12101-80010 (U0505)
12101-80011 (U0605)#
12101-80012 (U0705)#
12101-80013 (U0805)#
12101-80014 (U1005)#
```

* Changed to fix bug. .FDIV with E-Register set returns incorrect results.
(See S/N 12101A-01)

Revision 4000

\# These parts are bundled in with the 12101-60001 processor board. The 12101-60002 assembly no longer includes these PROMs.

```
12101-60002
12101-80024 (U0706)*
12101-80025 (U0806)*
12101-80027 (U1006)*
12101-80022 (U0506)*
12101-80023 (U0606)*
12101-80028 (U1106)*
12101-80026 (U0906)*
12101-80029 (U0305)*
12101-80030 (U0505)*
12101-80031 (U0605)*
12101-80032 (U0705)*
12101-80033 (U0805)*
12101-80013 (U1005)*
```

* Update 12101-60001 to 12101-60002 by removing four socketed mapping PROMs (12101-80001, 80012, 80013, and 80014). Firmware adds Data2 map instruction.

REQUIRED TO RUN RTE-A

(See S/N 2106AD-02)

Revision 401

```
12101-60002
12101-80024 (U0706)
12101-80025 (U0806)
12101-80027 (U1006)
12101-80022 (U0506)
12101-80023 (U0606)
12101-80028 (U1106)
12101-80026 (U0906)
12101-80034 (U0305)*
12101-80035 (U0505)*
12101-80031 (U0605)
12101-80032 (U0705)
12101-80033 (U0805)
12101-80013 (U1005)
```

* Changed to fix bug. .PWR2 causes Unimplemented Instruction Trap Interrupt

(See S/N 2106AK-01)

Revision 401

```
12101-60002
12101-80037 (U0706)*
12101-80025 (U0806)
12101-80027 (U1006)
12101-80022 (U0506)
12101-80036 (U0606)*
12101-80028 (U1106)
12101-80026 (U0906)
12101-80034 (U0305)
12101-80035 (U0505)
12101-80031 (U0605)
12101-80032 (U0705)
12101-80033 (U0805)
12101-80013 (U1005)
```

* Changed to fix bug. Power-Fail routine is not executed at power-fail.

(See S/N 2106AK-01)

Revision 401

```
12101-60002
12101-80040 (U0706)*
12101-80041 (U0806)*
12101-80043 (U1006)*
12101-80038 (U0506)*
12101-80039 (U0606)*
12101-80044 (U1106)*
12101-80042 (U0906)*
12101-80034 (U0305)
12101-80035 (U0505)
12101-80031 (U0605)
12101-80032 (U0705)
12101-80033 (U0805)
12101-80013 (U1005)
```

* .FDV produces incorrect results for certain operands.

(See S/N 2106AK-04)

This firmware is included in upgrade kits 12101-60045 and 12101-60046.

Revision 1001

3.70.3 A600+ CPU FIRMWARE

12105-80002 (U0405)	Original Release
12105-80003 (U0505)	
12105-80004 (U0605)	
12105-80005 (U0705)	
12105-80006 (U0805)	
12105-80007 (U0905)	
12105-80008 (U1005)	
12105-80009 (U0308)	
12105-80010 (U0808)	

3.70.4 A600/A600+ VCP HISTORY

5180-0173 (U606) 5180-0174 (U706)	Original Release Revision 4
5180-0189 (U606)* 5180-0190 (U706)*	* Changed to fix bugs. Two power-fails in quick succession may result in an incorrect auto-restart. Booting remotely over FDL causes system to hang. Erroneous parity error message if memory is lost. Also several inconveniences are fixed and enhancements added. Revision 6 (Supported) (See S/N 12102A-01)
12102-80003 (U606)* 12102-80004 (U706)*	* Changed to run with VC+. Also adds boot loaders for 1600 BPI Map Tape, 3.5" Micro Floppy, and 10 Mb mini-winchester disc. VCP size is 8K and resides in EPROM. Included in 12107A A600+ Upgrade Kit. (See S/N 2106AK-3) Revision 4001 (Supported)
5180-4253 (U606)* 5180-4254 (U706)*	* Changed to fix bug. If system disc and CPU are powered up simultaneously the CPU will not auto boot. (See S/N 2106AK-6A) Revision 4004 (Supported)
5180-4263 (U606)* 5180-4264 (U706)*	* Changed to fix bug. Break disable did not work. Added boot loader for the 55 Mbyte disc drive. Included in 12107A A600+ Upgrade Kit Included in ROM Upgrade Kit 5180-4267. Revision 4011 (Supported)

3.70.5 A700 BASE SET HISTORY

12152-80011 (U91) 12152-80012 (U101) 12152-80013 (U111) 12152-80014 (U121)	Original Release
12152-80031 (U91)* 12152-80032 (U101)* 12152-80033 (U111)* 12152-80034 (U121)*	* Changed to fix bug. DDS will skip incorrectly.
12152-80035 (U91)* 12152-80036 (U101)* 12152-80037 (U111)* 12152-80038 (U121)*	* Add Code and Data Separation Instructions. Also several bugs were fixed. .LWD1 and .LWD2 are not privileged instructions. Any instruction in the A/B-Registers which causes an MP violation freezes the computer. REQUIRED TO RUN VC+ (See S/N 2107AK-01) This firmware is included in upgrade kit 12152-60043. (Supported)
12152-80053 (U91)* 12152-80054 (U101)* 12152-80055 (U111)* 12152-80056 (U121)*	*Changed to be compatible with the I/O Extender. (Supported)

3.70.6 A700 FLOATING POINT HISTORY

12156-80005 12156-80006 12156-80007 12156-80008

12156-80013 12156-80014 12156-80015 12156-80016

12156-80017 12156-80018 12156-80019 12156-80020

12156-80025 12156-80026 12156-80027 12156-80028

12156-80029 12156-80030 12156-80031 12156-80032

12156-80033 12156-80034 12156-80035 12156-80036

(See S/N 2107AK-1)

3.70.7 A700 VCP HISTORY

5180-0173 (U15) 5180-0174 (U35)	Original Release Revision 4
5180-0189 (U15)* 5180-0190 (U35)*	* Changed to fix bugs. Two power-fails in quick succession may result in an incorrect auto-restart. Booting remotely over FDL causes system to hang. Erroneous parity error message if memory is lost. Also several inconveniences are fixed and enhancements added. Revision 6 (See S/N 12102A-01)
12152-80039 (U15)* 12152-80040 (U35)* 12152-80041 (U55)* 12152-80042 (U65)*	* Changed to run with VC+. Also adds boot loaders for 1600 BPI Map Tape, 3.5" Micro Floppy, and 10 Mb mini-winchester disc. Revision 4001 (See S/N 2107AK-01)
12152-80043 (U15)* 12152-80044 (U35)* 12152-80045 (U55)* 12152-80046 (U65)*	* Changed to fix bug. If system disc and CPU are powered up simultaneously, the CPU will not auto boot. Included in Upgrade Kit 12152-60043. Revision 4004 (Supported) (See S/N 2107AK-2A)
12152-80058 (U15)* 12152-80059 (U35)* 12152-80060 (U55)* 12152-80061 (U65)*	* Changed to fix bug. Break disable did work. Added boot loader for the 55 Mbyte disc drive. Included in Upgrade Kit 12152-60064. Revision 4011 (Supported)

3.70.8 A900 FIRMWARE HISTORY

12201-80003 (U0803) 12201-80004 (U0802) 12201-80005 (U0801) 12201-80006 (U1103) 12201-80007 (U1102) 12201-80008 (U1101) 12201-80009 (U0703) 12201-80010 (U0702) 12201-80011 (U0701) 12201-80012 (U1003) 12201-80013 (U1002) 12201-80014 (U1001) 12201-80015 (U0603) 12201-80016 (U0602) 12201-80017 (U0601) 12201-80018 (U0903) 12201-80019 (U0902) 12201-80020 (U0901) 12201-80021 (U1407) 12201-80022 (U1607)	Original Release
12201-80024 (U0803)* 12201-80025 (U0802)* 12201-80026 (U0801)* 12201-80027 (U1103)* 12201-80028 (U1102)* 12201-80029 (U1101)* 12201-80030 (U0703)* 12201-80031 (U0702)* 12201-80032 (U0701)* 12201-80033 (U1003)* 12201-80034 (U1002)* 12201-80035 (U1001)* 12201-80036 (U0603)* 12201-80037 (U0602)* 12201-80038 (U0601)* 12201-80039 (U0903)* 12201-80040 (U0902)* 12201-80041 (U0901)* 12201-80042 (U1407)* 12201-80043 (U1607)*	* Rewrite firmware to execute Code and Data Separation Instructions. Firmware change must be accompanied by a new Cache Control Board: 12203-60004. REQUIRED TO RUN RTE-A AND VC+. This firmware is included in the 12203A Opt 001 Retrofit Kit.

12201-80024 (U0803)
12201-80044 (U0802)*
12201-80026 (U0801)
12201-80027 (U1103)
12201-80028 (U1102)
12201-80029 (U1101)
12201-80030 (U0703)
12201-80031 (U0702)
12201-80032 (U0701)
12201-80033 (U1003)
12201-80034 (U1002)
12201-80035 (U1001)
12201-80036 (U0603)
12201-80037 (U0602)
12201-80038 (U0601)
12201-80039 (U0903)
12201-80040 (U0902)
12201-80041 (U0901)
12201-80042 (U1407)
12201-80043 (U1607)

* Computer does not Power-Fail Auto-restart. When power is restored, the computer comes up in VCP mode.

(See S/N 2139A-01)

12201-80045 (U0803)*
12201-80046 (U0802)*
12201-80047 (U0801)*
12201-80048 (U1103)*
12201-80049 (U1102)*
12201-80050 (U1101)*
12201-80030 (U0703)
12201-80031 (U0702)
12201-80032 (U0701)
12201-80033 (U1003)
12201-80034 (U1002)
12201-80035 (U1001)
12201-80036 (U0603)
12201-80037 (U0602)
12201-80038 (U0601)
12201-80039 (U0903)
12201-80040 (U0902)
12201-80041 (U0901)
12201-80042 (U1407)
12201-80043 (U1607)

* If negative indicies for EMA arrays are used, incorrect addresses are generated. This may appear as a Memory Protect error.

(See S/N 2139A-2)

12201-80052 (U0803)*
12201-80053 (U0802)*
12201-80054 (U0801)*
12201-80055 (U1103)*
12201-80056 (U1102)*
12201-80057 (U1101)*
12201-80030 (U0703)
12201-80031 (U0702)
12201-80032 (U0701)
12201-80033 (U1003)
12201-80034 (U1002)
12201-80035 (U1001)
12201-80036 (U0603)
12201-80037 (U0602)
12201-80038 (U0601)
12201-80039 (U0903)
12201-80040 (U0902)
12201-80041 (U0901)
12201-80042 (U1407)
12201-80043 (U1607)

* Changed to fix bug. Computers with battery backup will not auto-restart. Also, a compare byte instruction (CBT) incorrectly clears the X-Register.

(See S/N 2139A-2)

(Supported)

12201-80060 (U0803)*
12201-80053 (U0802)
12201-80054 (U0801)
12201-80055 (U1103)
12201-80061 (U1102)*
12201-80062 (U1101)*
12201-80030 (U0703)
12201-80031 (U0702)
12201-80032 (U0701)
12201-80033 (U1003)
12201-80034 (U1002)
12201-80035 (U1001)
12201-80036 (U0603)
12201-80037 (U0602)
12201-80038 (U0601)
12201-80039 (U0903)
12201-80040 (U0902)
12201-80041 (U0901)
12201-80042 (U1407)
12201-80043 (U1607)

* A900 TBG runs too slow. The TBG loses approximately 24 seconds per day due to a firmware bug.

(See S/N 2139A-4)

This firmware is included in Upgrade Kit 12201-60051.

Revision 11 (Supported)

12201-80060 (U0803)
12201-80053 (U0802)
12201-80054 (U0801)
12201-80055 (U1103)
12201-80061 (U1102)
12201-80062 (U1101)
12201-80063 (U0703)*
12201-80064 (U0702)*
12201-80065 (U0701)*
12201-80066 (U1003)*
12201-80067 (U1002)*
12201-80068 (U1001)*
12201-80036 (U0603)
12201-80037 (U0602)
12201-80038 (U0601)
12201-80039 (U0903)
12201-80040 (U0902)
12201-80041 (U0901)
12201-80042 (U1407)
12201-80043 (U1607)

*Changed to fix bug.
Erroneous results returned when .FPWR is followed by .FAD in MACRO code. This code is generated by the FORTRAN compiler in the expression B=2*A**3

(See S/N 2139A-6)

This firmware is included in Upgrade Kit 12201-60069.

12201-80060 (U0803)
12201-80053 (U0802)
12201-80054 (U0801)
12201-80055 (U1103)
12201-80061 (U1102)
12201-80062 (U1101)
12201-80063 (U0703)
12201-80064 (U0702)
12201-80065 (U0701)
12201-80066 (U1003)
12201-80067 (U1002)
12201-80068 (U1001)
12201-80070 (U0603)*
12201-80071 (U0602)*
12201-80072 (U0601)*
12201-80073 (U0903)*
12201-80074 (U0902)*
12201-80075 (U0901)*
12201-80042 (U1407)
12201-80043 (U1607)

*Changed to fix bug.
When using the .NGL instruction in MACRO to convert double precision floating point to single precision floating point, incorrect results were obtained if the instruction immediately following .NGL used address 000000 or 000001 to reference the A or B registers.

(See S/N 2139A-8)

12201-80076 (U0803)*
12201-80077 (U0802)*
12201-80078 (U0801)*
12201-80079 (U1103)*
12201-80080 (U1102)*
12201-80081 (U1101)*
12201-80063 (U0703)
12201-80064 (U0702)
12201-80065 (U0701)
12201-80066 (U1003)
12201-80067 (U1002)
12201-80068 (U1001)
12201-80070 (U0603)
12201-80071 (U0602)
12201-80072 (U0601)
12201-80073 (U0903)
12201-80074 (U0902)
12201-80075 (U0901)
12201-80042 (U1407)
12201-80043 (U1607)

*Changed to fix bug.
Interim bank that contains SQRT fix but not I/O Extender changes. When taking the square root of floating point numbers that had all ones in the mantissa and exponent combinations of 4*16**n, an incorrect result was obtained.

12201-80084 (U0803)*
12201-80085 (U0802)*
12201-80086 (U0801)*
12201-80087 (U1103)*
12201-80088 (U1102)*
12201-80089 (U1101)*
12201-80063 (U0703)
12201-80064 (U0702)
12201-80065 (U0701)
12201-80066 (U1003)
12201-80067 (U1002)
12201-80068 (U1001)
12201-80070 (U0603)
12201-80071 (U0602)
12201-80072 (U0601)
12201-80073 (U0903)
12201-80074 (U0902)
12201-80075 (U0901)
12201-80042 (U1407)
12201-80043 (U1607)

*Changed to fix bug.
This revision contains both the SQRT fix and changes for the I/O Extender.

(See S/N 2139A-9)

This firmware is included in Upgrade Kit 12201-60083.

12201-80090 (U0803)* 12201-80091 (U0802)* 12201-80092 (U0801)* 12201-80093 (U1103)* 12201-80094 (U1102)* 12201-80095 (U1101)* 12201-80063 (U0703) 12201-80064 (U0702) 12201-80065 (U0701) 12201-80066 (U1003) 12201-80067 (U1002) 12201-80068 (U1001) 12201-80070 (U0603) 12201-80071 (U0602) 12201-80072 (U0601) 12201-80073 (U0903) 12201-80074 (U0902) 12201-80075 (U0901) 12201-80042 (U1407) 12201-80043 (U1607)	*Changed to fix bug. Fixed break disable problem (needed in conjunction with rev. 4011 of VCP).

3.70.9 A900 VCP FIRMWARE HISTORY

12203-80002 (U0908) 12203-80003 (U1208)	Original Release
12203-80005 (U0908)* 12203-80006 (U1208)*	* REQUIRED TO RUN RTE-A AND VC+ Included in the 12203A Opt. 001 Retrofit Kit. Revision 4001 (Supported)
12203-80007 (U0908)* 12203-80008 (U1208)*	* Add boot loaders for 1600 BPI Map Tape, 3.5" Microfloppy, and 10 Mb mini-winchester disc. VCP is now in 8K eproms. Revision 4001 (Supported)

(See S/N 2139A-3)

12203-80009 (U0908)*
12203-80010 (U1208)*

* Changed to fix bug. If system disc and CPU are powered up simultaneously, the CPU will not auto boot.

Revision 4004 (Supported)

(See S/N 2139A-2)

5180-4253 (U0908)
5180-4254 (U1208)

These are new VCP ROMs to be used in the new A900 Cache board, part no. 12203-60011. The new board was needed for I/O Extender compatibility, and also includes field improvements. This set of ROMs is identical to those in the A600+.

Note: The old cache board, part no. 12203-60004, must have the old ROMs and the new cache board must have the new ROMs.

(See S/N 2139A-10)

5180-4263 (U0908)*
5180-4264 (U1208)*

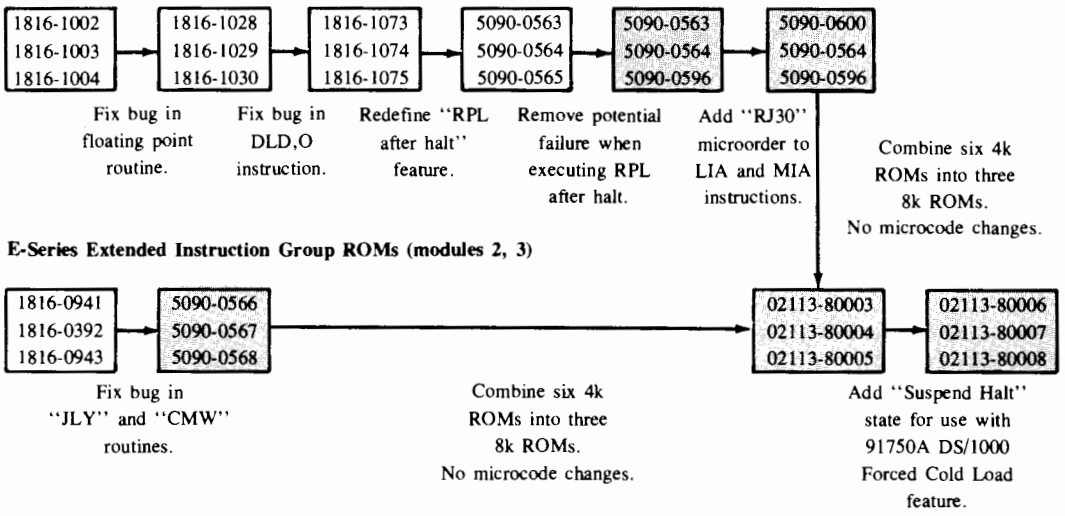
* Changed to fix bug. Break disable did not work. To fix break disable the latest revision of the Base Set firmware is also needed. Added boot loader for the 55 Mbyte disc drive.

Included in Upgrade Kit 5180-4267.

Revision 4011 (Supported)

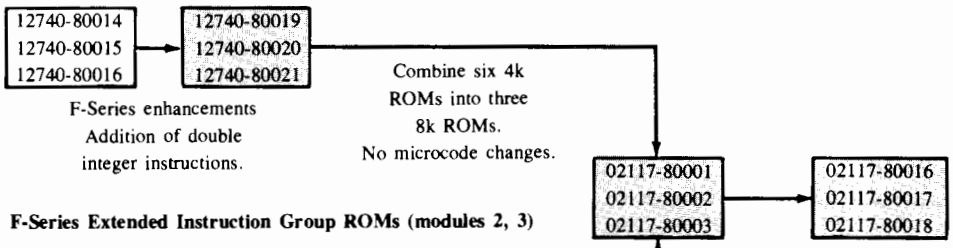
ROM PART NUMBER HISTORY (1 of 4)

E-Series Base Set ROMs (modules 0, 1)

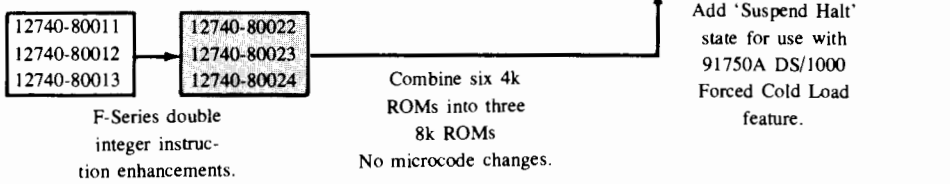


E-Series Extended Instruction Group ROMs (modules 2, 3)

F-Series Base Set ROMs (modules 0, 1)



F-Series Extended Instruction Group ROMs (modules 2, 3)



ROM PART NUMBER HISTORY (2 of 4)

E/F-Series RTE-6/VM Extended Memory Area/Virtual Memory Area ROMs (modules 36, 37)

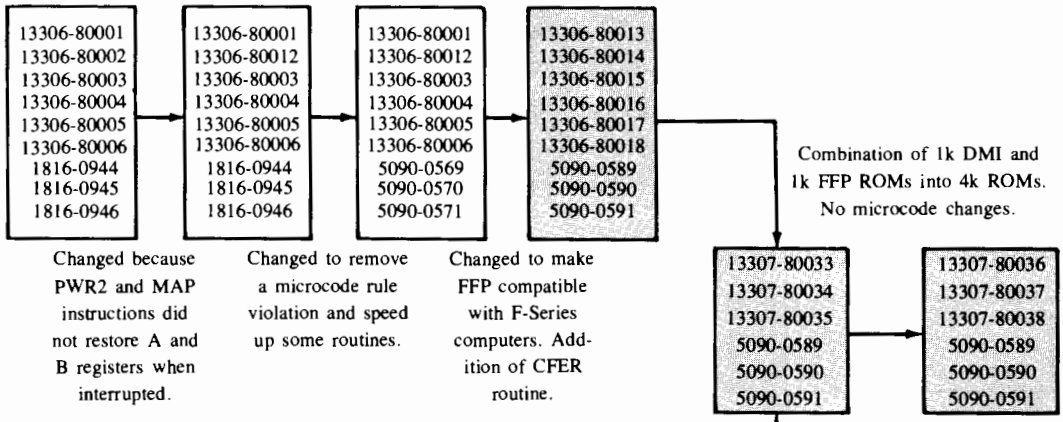
Original Release
92084-80004
92084-80005
92084-80006

E/F-Series RTE-6/VM Operating System ROMs (E-Series modules 44, 45; F-Series modules 16, 17)

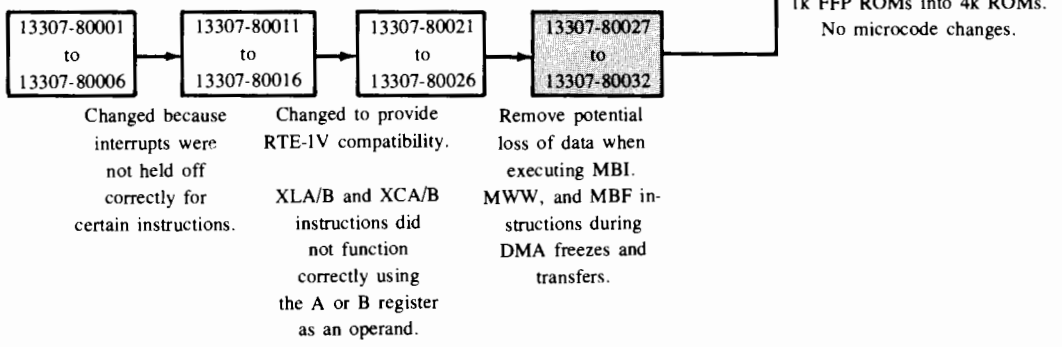
Original Release	Rev #6B	7B	107B	10B
92084-80001	92084-80001	92084-80001	92084-80001	92084-80007
92084-80002	92084-80102	92084-80102	92084-80102	92084-80008
92084-80003	92084-80103	92084-80103	92084-80103	92084-80009

ROM PART NUMBER HISTORY (3 of 4)

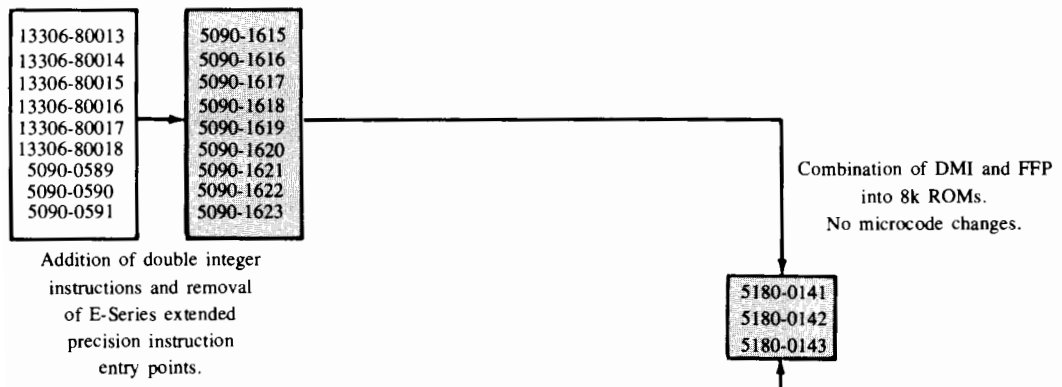
E-Series Fast FORTRAN Processor ROMs (modules 33, 34, 35)



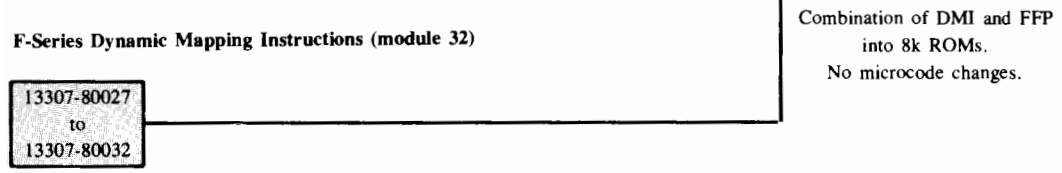
E-Series Dynamic Mapping Instructions (module 32)



F-Series Fast FORTRAN Processor ROMs (modules 33, 34, 35)



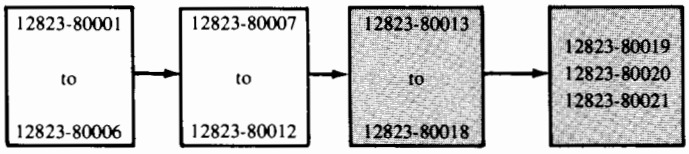
F-Series Dynamic Mapping Instructions (module 32)



Original Release

ROM PART NUMBER HISTORY (4 of 4)

F-Series Scientific Instruction Set ROMs (modules 40, 41, 42, 43)



Addition of DPOLY, IATLG, FPWR, and TPWR routines as well as double precision capability.

Fix a bug in the /CMRT routine.

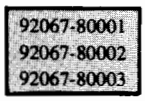
Combination of six 4k ROMs into three 8k ROMs. No microcode changes.

F-Series Vector Instruction Set ROMs (modules 12, 13, 14, 15)

Original release.

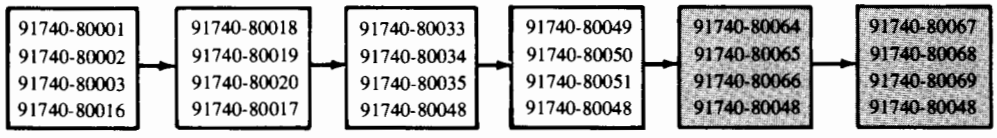
Combination of six 4k ROMs into three 8k ROMs. No microcode changes.

E/F-Series RTE-IVA/B Extended Memory Area ROMs (modules 36, 37)



Original release.

E/F-Series DS/1000 ROMs (modules 38, 39)



Date code 1740

Changed located of microcode addressing from modules 44/45 to 38/39.

Date code 1813

Enhance download capability.

Date code 1826

Enhance communication line noise immunity.

Date code 1913

Removal of potential download problems.

Date code 2003

Change ROM vendor for problems when installed on a FAB computer with in a 2 UCS boards.

Date code 2003

Chapter 4
Usage Considerations

This chapter discusses any significant changes in generation, installation, and usage and their impact for the products that have changed in this revision. The Miscellaneous section at the end contains general information that is relevant to more than one product.

4.1 (24612A) Offline Diagnostics (A-Series)

The DDL source programs have been renamed. They were previously named @MOD (ex. @CPU and @IOM), but now start with the left-parenthesis (ex. (CPU).

4.2 (24398B) Peripheral Diagnostics (L, A-Series)

EXER has been enhanced to include the removable portion of the 7907 disc.

4.3 (91711B) Online Diagnostics (M,E,F-Series)

Several enhancements and bug fixes were added to this product at this revision. The following are the page requirements (F-Series) for changed programs:

TXPF1 = 5 pages	TXPM0 = 5 pages
TXPF2 = 5 pages	TXPM1 = 9 pages
	TXPM2/TXPM3 = no size changes

Page requirements will be somewhat higher for M and E series machines depending on the installed firmware.

There were several enhancements which made this product easier to use. TXPM1, TXPM2 and TXPM3 now respond to system break. TXPM1 has quiet, normal and verbose modes of operation. TXPM0, TXPF1 and TXPF2 all will show runstring information if the first parameter is "?". Please refer to the 91711B section in Chapter 2

for more information about these enhancements.

4.4 (91747A) Datashare/1000

4.4.1 Usage Changes

The major change in this revision is that the Datashare version of D.RTR can now also handle CI volumes and files (CI files cannot be shared, but they may co-exist on a system with shared FMGR cartridges). This means that all the standard RTE-6 utilities can be loaded onto a Datashare system using the same loading procedures as in a standard RTE-6 system; that is, the library $FMP6C no longer needs to be used. Also, the system generation answer file can be set up the same as a standard RTE-6 answer file - with $FMP6, CI and CIX utilities, etc. - with the normal Datashare additions: $DSHAR library and appropriate track map table adjustments, and using the Datashare %BMPG1, %BMPG2, %BMPG3 files in place of the RTE-6 versions.

Only FMGR cartridges may be shared (as before), and these cartridges can only be manipulated (mounted, dismounted, initialized) by FMGR. However, the files on these shared cartridges may be accessed using both FMGR and CI file system subroutine calls, and with the normal RTE-6 utilities (CI, TF, EDIT, LINK, etc.)

One further note: in Datashare systems, LU 2 and 3 are typically made very large to make room for many type 6 files (type 6 files RP'ed from a system disc do not have to be copied to the system track area before being executed). With the introduction of CI volumes into the system, the user has the alternative of putting type 6 files on a CI volume (e.g., /PROGRAMS) because type 6 files RP'ed from a CI volume (using FmpRpProgram, FmpRunProgram, or the CI RP command) are also not copied to the system track area.

4.4.2 Size Changes

The major size change is that D.RTR on Datashare is now 32 pages

instead of 14 pages.

4.5 (91750A) DS/1000-IV

4.5.1 Changes to RTE-A Answer File

The DS/1000-IV driver ID.66 has been renamed to ID*66 to conform to current file name conventions. All mentions of this driver must be modified in the generation answer file. In addition, the table extents needed has increased from 18 to 20 words (TX:20). The new generation record inside ID*66 has 20 words specified, so that defaulting the TX: specification will bring in the correct extent size.

The module D$EQT which was relocated in labeled common is no longer required in RTE-A systems. The only required entry point (D$XS5) has been added to the module RESA which is also relocated in labeled common. D$EQT should be removed completely from the generation.

The changes to ID.66 has the same impact on the generations for RTE-L and RTE-XL system. The deletion of D$EQT applies only to RTE-A (not to L and XL).

4.5.2 Other Impacts

The programs RMOTE and LOG3K had to be forced-loaded on RTE-A/XL systems due to an undefined enternal reference to SPOPN. This is no longer the case (i.e., do NOT force-load these programs anymore).

DSLIN, the program used to enable Bisync connections to a DS/3000 node, has been modified to ask an additional question at the beginning. This will require the user to modify their DSLIN command files. The new first question is "Open or Close this LU?". Valid answers are "OPEN", "CLOSE", or "/D" (for the default of open). This question has always been asked if DSLIN were run interactively, but a response of OPEN was always assumed if a command file was used. With this change, the responses to an interactive dialogue are more compatible with the reponses expected in a command file. The LU to OPEN or CLOSE must still be

supplied in the run-string if a command file is used.

4.6 (91781A) RJE/1000-II

4.6.1 Enhancements

A new job management postprocessor example, ROUTE, has been added into the RJE product. The two pertinent files are ROUTE.PAS and the relocatable ROUTE.REL. The source code ROUTE.PAS may be compiled and used as is or be used as a point of departure for a custom processing module.

The purpose of this new postprocessor is to show how a simple job routing facility may be built using the RJE/1000-II feature set. The technique used involves including a special comment card image in the JCL portion of the file being submitted to the host. When the output of the job is returned, the file is scanned to retrieve this "ROUTE" card. The card image contains such information as the desired destination directory for the received data, a secondary postprocessor, etc.

4.6.2 Installation Changes

The transfer file used to load the RJE modules (RJE.CMD) has been changed to include the linking of the new postpocessor ROUTE. A description of this postprocessor can be found in the RJE-II reference manual (part number 91781-90001).

4.7 (91782A) DSN/MRJE 1000

4.7.1 Peripheral Support Changes

MRJE print formatting has been upgraded to support the 2563A, 2564A, and 2566A printers with option 214 (HPIB) on RTE-A systems only.

4.7.2 Installation Changes

A new revision of the PSI interface driver (DVN00) is required on RTE-6 systems. This driver replaces the A.85 DVN00. System

generation instructions provided in the MRJE/1000 Reference Manual (part number 91782-90001) still apply.

Revision DSD4.0 supports a user-editable configuration file for MRJE. This requires a conversion from all previous configuration files to this new format. Instructions for performing this process are described in chapter 3 of the MRJE Reference Manual.

The transfer file for loading the MRJE modules (MRJE.CMD) has been documented to facilitate installation. No other changes have been made to the installation process.

4.8 (91823A) Control/1000

ID.70, the Control/1000 driver, has been replaced by ID*70. Please upgrade to this version as soon as possible since it contains some major fixes (see Chapter 2 in this Communicator).

An impact from these fixes is that the DVTX area has grown by nine words, from 88 to 97.

4.9 (92068A) RTE-IVB Operating System

The changes to RTE-IVB include bug fixes and porting of the spooling system from RTE-6/VM. RTE-IVB now has all the benefits of the bug fixes in RTE-6's spooling, in addition to freeing up some room in Table Area II.

Bug fixes in $BALC may have indirect impact on existing customer systems. ($BALC is called by DS and system session to allocate SAM.) If DS is generated in, $BALC will require 17 more words in SSGA.

RTE-IVB shares some modules with RTE-6/VM, such as %DECAR, $MATH, $FLIB, $FOLDF, and drivers. Please see the RTE-6 section for discussions about the size changes in these shared modules. Also note that the DVC12 line printer driver no longer needs extents (X=0).

Thus, no changes are needed in your A.85 answer file. Having a nonzero extent for DVC12 is not detrimental; it just wastes some

words in memory.

4.10 (92069A) Image/1000

4.10.1 File Name Changes

%NO\DS has been renamed to %NO_DS to avoid problems with CI using '\' as a special character.

4.11 (92077A) RTE-A Operating System

4.11.1 Peripheral Support Changes

Support of the following peripherals has been added.

Product	Description and Interface
2225A	Thinkjet printer - interfaced via the MUX(12040)
2393A	Monochrome terminal - interfaced via the MUX(12040) and ASIC(12005)
2397A	Color graphics terminal - interfaced via the MUX(12040) and ASIC(12005)
2686B	Laserjet with more memory - interfaced via the MUX(12040)
9133L	40MB hard disc with floppy drives - supported as a peripheral disc via the HP-IB(12009) interface
Vectra	Personal computer terminal - interfaced via the MUX(12040)
2564A	600 LPM graphics printer - interfaced via the MUX(12040) and HP-IB(12009)
7440A	Low-cost 8-pen plotter - interfaced via the MUX (12040) and HP-IB(12009)
7550A	Desktop plotter - interfaced via the MUX(12040) and HP-IB(12009)
12120A accessory	20MB hard disc and double-sided micro-floppy drive (630KB) for the Micro/1000 product line
12121A accessory	20MB hard disc with no floppy drive for the Micro/1000 product line

For more information about these new devices and how to generate them into the system, please refer to the System Generation and Installation Manual (92077-90034) and the individual peripheral

manuals.

4.11.1.1 12120A and 12121A Accessories

Micro/1000 customers have the option to upgrade their present option 111 (15MB hard disc with single-sided floppy drives) to accessory product 12120A or 12121A. Please refer to the chapter "Procedure to Move 15MB System to a 20MB System Using Integrated Floppy Drives on Micro 1000 Products" in the Small Disc User's Manual (5958-9152).

4.11.1.2 FORMA and ERTSH

In order to improve the reliability of the Micro/1000 integrated disc drives and to have a more comprehensive formatting/sparing capability, we are introducing two new utilities: FORMA and ERTSH.

The previous formatter FORMF does not necessarily locate all the defective areas on a disc, and therefore it does not spare them out of use. FORMA replaces the function of FO (format) with two commands: IN (initialize media) and SS (spare sector). FORMA when used with ERTSH (Error Rate Test program) produces more reliable results. The combination of FORMA and ERTSH completely replace the function of FORMF in the area of integrated hard disc formatting. However, FORMA and FORMF are not compatible. That is, a drive once formatted with FORMA should not be reformatted with FORMF. FORMF will still be used for all discs other than the Micro/1000's integrated disc. For information about their usage, please refer the RTE-A Utilities Manual (92077-90004).

4.11.2 Generation and Installation Changes

4.11.2.1 Update Procedures

The update procedures at DSD4.0 are similar to those at A.85, but much simpler. Here is ONE easy way to do the updating.

1. Backup your system.
2. On your existing A.85 system, link up the new RTAGN, using the new $LDRLN generator library.
3. Overlay the directory /CATALOGS with the new catalog files.
4. Modify your answer file, following the directions discussed in Generation Considerations below. Run RTAGN to get a new system and snap file.
5. Create a directory /TARGETPROGRAMS. Read and understand *RTEA1, *RTEA2, *VC1 and *VC2. Transfer to the command files *RTEA1 and *RTEA2 to link up essential RTE-A

programs and *VC1 and *VC2 for VC+ programs. That is,

```
TR *RTEA1 <newsnap> TARGETPROGRAMS
TR *RTEA2 <newsnap> TARGETPROGRAMS
TR *VC1 <newsnap> TARGETPROGRAMS <source>
TR *VC2 <newsnap> TARGETPROGRAMS
```

where <newsnap> = the snap file just generated
<source> = global directory where the DSD4.0 software is located

6. Copy the new system and snap files to the boot LU and copy the snap file to SNAP.SNP::SYSTEM.
7. Modify your boot file. The SY and SN commands should point to your new system and snap files. The programs RP'ed should come from /TARGETPROGRAMS. Also modify your welcome file to RP programs from /TARGETPROGRAMS.
8. Boot up your new system. Note: BOOTEX has changed due to some minor bug fixes (refer to Chapter 2) but your A.85 BOOTEX will work here as well. If you want to take advantage of these bug fixes, after your DSD4.0 system is up, you may want to overlay your BOOTEX with the new one or install a second BOOTEX after the existing one. Please refer to the RTE-A Generation and Installation manual (92077-90034) for more details about BOOTEX.
9. Rename /PROGRAMS to /OLDPROGRAMS and /TARGETPROGRAMS to /PROGRAMS. Copy all the DSD4.0 libraries to /LIBRARIES and the help files to /HELP. Also edit your boot file and welcome files to RP programs from /PROGRAMS again.

4.11.2.2 The Primary Answer File

The primary system has been designed to be booted from either an ASIC or a MUX. To achieve this, the system console has to be dynamically configured during the boot process. Thus the system console is not configured into the answer file. DO NOT attempt this with your own generations -- it WILL NOT WORK. There is special software support (only available in the primary) to allow the system console to be left out of the generation and configured in at boot time.

If you intend to use #ANS as a model for your own generation answer file, you MUST configure in a system console. If you want your console on an ASIC, uncomment the lines starting with *~ac by removing the "*~ac" from the beginning of each line. If you want your console on PORT 0 of a MUX card, uncomment the lines starting with *~mx by removing the "*~mx" from the beginning of each line. When configuring in the system console, some lines in #ANS will have to be converted to comments as they are

no longer needed. These lines are clearly marked in the relevant sections. Finally, don't forget to update the node lists when configuring in your system console.

#ANS is a non-VC+ system. To convert it to VC+, uncomment the lines starting with *~vc by removing the "*~vc" from the beginning of each line.

To configure DS/1000-IV into your system, uncomment the lines starting with *~ds by removing the "*~ds" from the begining of each line.

The 15MB 248x Integrated Disc has two different layouts defined at DSD4.0: the new 2-LU layout and the original 4-LU layout. If you already have a 15MB disc with the 4-LU layout and you do not want to change, then comment out the new 2-LU layout and uncomment the old 4-LU layout and regenerate the system. Do NOT configure in both layouts simultaneously. If you want the new 2-LU scheme, no action is required because that is the new current system configuration.

4.11.2.3 Generation Considerations

The modifications that you need to make in your A.85 answer file involve system partitioning, file name changes and ID*66.

DS driver ID*66 now requires a table extent size of 20, not 18. A new generation record in ID*66 has 20 words specified, so that defaulting the TX: specification will bring in the correct extent. The module D$EQT which was relocated in labeled common is no longer required in RTE-A systems. The only required entry point (D$XS5) has been added to the module RESA which is also relocated in labeled common. D$EQT should be removed completely from the generation.

Please read the subsection "File Name Changes" in this RTE-A discussion for more details about file name changes.

DSD4.0 provides 2-3 additional pages of table space in the system map through extensions to system partitioning. As a consequence, the user needs to be aware of five NEW operating system modules:

ABORT
IORQ
PROGS
MAPS
UTIL

With the exception of IORQ, these new modules are not partitionable. This, however, does NOT mean a large increase in the size of the non-partitioned section of the O.S. with corresponding

reduction in table space. The reason is that any code that could be partitioned was moved out of non-partitioned modules into partitioned modules, with the net effect of an increase in available table space in a fully partitioned system. In doing so, some previously non-partitioned modules have been made partitionable. In total, the partitionable modules are

perr	xcmnd	stat	dsq
vema	lock *	load	time *
memry	iorq *	cdsfh	class *

* These modules are now partitionable at DSD4.0; they were not at A.85.

We STRONGLY suggest that you look at #ANS, the primary answer file, for ideas on how to set up partitioning for all these modules. (The DSD4.0 primary has been set-up as a fully partitioned system. That is, all partitionable modules have been partitioned.)

Here is a brief word about selecting modules to partition. Each time you put a module in a partition you are increasing the overhead of the system (in mapping into and out of the partition). Therefore your choice of which modules to partition can have a strong impact on the performance of your system. Below you will find a list of the partitionable modules in order of selection for a typical program development environment. Note, there are many environments where a different ordering would be much more suitable. Included with each module name is a brief description of the module's function. For detailed descriptions, please see the System Design Manual (part-number 92077-90013).

(In regard to partitionable modules involved in doing I/O -- if a module is involved in I/O operations, its performance is still a concern even though I/O is very slow compared to the CPU. The reason is that once an I/O request has been initiated, the OS can continue with other activities. Therefore the quicker an I/O request can be initiated the quicker the OS can go on with other activities, thus increasing the overall throughput of the system.)

Module	Size	Comment
PERR	524 words	The parity error module is only

		entered when there is a problem with memory (parity errors). This should always be the first choice in module selection for partitioning.
XCMND	871 words	Handles various commands. This is not a performance-critical module.
STAT	513 words	Handles more commands plus a few status information EXEC calls. This also is not a performance critical module.
LOCK	564 words	Handles LU locking and unlocking. Typically, it is not a time critical operation.

The above four modules can be partitioned with very minimal impact on system performance. The modules below have to be chosen very carefully.

VEMA	387 words	Initializes VMAIO I/O requests. If the VMAIO routine is used heavily - that is, 30% or more of the I/O requests generated on the system - then special consideration should be given to this module.
CDSFH	711 words	The CDS fault handler. This module is not relevant for non-VC+ systems. For VC+ systems, however, if a large percentage of your programs run in CDS mode and some of the segments reside on disc, partitioning this module will lead to performance degradation in the system as a whole, not necessarily just in the CDS program. The system's throughput would be reduced.
LOAD	1268 words	Loads and swaps in/out programs. If your system has a high dispatch rate (5 or more per second), avoid partitioning this module.
DSQ	315 words	Handles the Class I/O rethreading and used mainly by DS/1000-IV. Its performance is a concern if you have a large volume (20% of I/O) of DS

		traffic.
TIME	982 words	Handles any time-schedule requests. Its performance is not a concern if you have very little time-scheduling in your system.
CLASS	993 words	The class system is used very heavily by the multi-user code in the system (CI, CM, PROMT, LOGON, LOGOF, etc). However, class I/O is usually coupled with human response, thus its performance under these conditions is not important (relative to the time spent waiting for user response. But if there is also much DS traffic, program to program communication or program to non-interactive device communication, its performance becomes a concern.
MEMRY	1962 words	This is the memory manager and is typically very frequently used. Only partition this if you really need the space.
IORQ	1028 words	Initializes I/O requests. Partition this only if you need the space. If you have critical real-time applications with high I/O volumes of short transactions (30% of I/O under 12 bytes), avoid partitioning this module.

In RTE-A, any routine from the system library that is needed by modules in O.S. partitions must be relocated in with the non-partitioned part of the O.S. With this in mind, A600 (not A600+) users need to be aware of the following paragraph. Other users (A600+, A700, A900) can skip it.

The two routines .DMP and .DDI must be relocated with the non-partitioned O.S. code because they are required by code that is in an O.S. partition. Do these two relocations at the end of the system relocation section. This has already been done for you in #ANS:

```
re,/rtea/$math,.dmp
re,/rtea/$math,.ddi
```

If you are using an A600+, A700 or A900, then the

references to .DMP and .DDI should be converted to a comment by placing an "*" at the beginning of each line. If you fail to do this, duplicate entry point errors will appear in your generation.

4.11.2.4 System Table Space

The difference in table space available in revisions A.85 and DSD4.0 RTE-A is due to four major factors:

1. The DSD4.0 generator has been enhanced to put tables in the space between the system relocation and the start of the driver partitions, if they fit, thus making use of space that was wasted before.
2. DSD4.0 RTE-A has four more modules partitioned (IORQ, CLASS, TIME and LOCK).
3. At DSD4.0, large operating system modules were segmented into smaller pieces to reduce their base page link requirements.
4. DSD4.0's tag area requirements have been reduced, by eliminating the need for tags for external routines.

The order in which modules are relocated and the number of page boundaries crossed can make significant differences in the number of pre-links, post-links, and base page links required to relocate a module (and thus the differences in the size of seemingly similar systems). Below are sample generated systems and their sizes. No attempt was made to align modules on page boundaries or re-order them to optimize the number of links used. All systems were generated with modules in the same order.

The comparisons were done with 4 different systems. All systems had 16 MUX LUs, 1 system console with CTUs, and 1 ID segment.

Minimum - only required modules
Small - The modules required to load and run programs (STRNG, SCHED, SYCOM, CLASS, LOAD, MEMRY, XCMND, and STAT) plus 10 CS80 LUs were added.
Medium - DS, CDS, error logging and spooling capability (LOCK, TIME, OPMSG, ERLOG, SPOOL, DSQ, CDSFH) plus 7 DS LUs were added.
Large - Powerfail, EMA/VMA, and parity error handling (ID*43, VEMA, PERR) were added.

The systems had other resources as follows:

	class #'s	resource #'s	users	shared progs	mb	max LU
Minimum	0	0	0	0	0	27
Small	50	25	10	10	0	67
Medium	100	50	20	20	1024	117
Large	200	100	30	30	1024	217

Each of these systems was generated in five different ways:

1. With no OS partitions and A.85 relocs and RTAGN (2440_UN)
2. With no OS partitions and DSD4.0 relocs and RTAGN (2540_UN)
3. With max A.85 OS partitions and A.85 relocs and RTAGN (2440_PT)
4. With same OS partitions as #3, but DSD4.0 relocs and RTAGN (2540_PT)
5. With max DSD4.0 OS partitions and DSD4.0 relocs and RTAGN (2540_MX)

The following table summarizes the results.

generated system	last word system	last word table	Base page left	# words wasted	tag area	# words table space	# MUX LU's	# ID segs
MIN_2440_UN	21032	31600	667	745	0	46177	200	261
MIN_2540_UN	21525 (21770)	31335	1110	7	0	46442	202	263
MIN_2440_PT	21032	31600	667	745	0	46177	200	261
MIN_2540_PT	21525 (21770)	31335	1110	7	0	46442	202	263
MIN_2540_MX	20007 (21771)	27621	1063	6	31	50156	210	274
SML_2440_UN	36172	51512	352	1605	9	26265	117	152
SML_2540_UN	36744 (37777)	50477	626	0	11	27300	122	159
SML_2440_PT	26117	41512	513	1660	438	36265	159	207
SML_2540_PT	26333 (27777)	40066	666	0	224	37711	167	217
SML_2540_MX	22416 (23771)	34157	700	6	301	43620	187	244
MED_2440_UN	47227	64773	173	550	13	13004	57	63
MED_2540_UN	50122 (51762)	65153	476	15	19	12624	56	62
MED_2440_PT	35300	52773	312	477	517	25004	110	120
MED_2540_PT	35403 (35767)	52427	450	10	259	25350	112	123
MED_2540_PT	26710 (27765)	43736	576	12	465	34041	147	161
LRG_2440_UN	51530	70135	135	247	17	7642	40	44
LRG_2540_UN	52435 (53765)	70625	433	12	23	7152	37	41
LRG_2440_PT	36123	56135	361	1654	593	21642	93	102
LRG_2540_PT	36160 (37777)	54336	521	0	311	23441	102	112
LRG_2540_MX	27427 (27772)	45612	555	5	517	32165	137	150

The "last word of system" column is the last word relocated before starting OS/driver partition relocation. The numbers in parentheses under this column are the last word of system table relocated by the DSD4.0 generator in this space. Remember that the DSD4.0 generator now tries to insert system tables in the space after the regular system relocation and before the start of the OS/driver partition. Thus, the difference between these two numbers is savings you get in the system map at DSD4.0.

Addresses and numbers of words are in octal, numbers of MUX LUs and ID segments are in decimal. Note that for every 8 MUX LUs, one MUX

IFT must be generated, and that every ID segment requires 3 swap descriptors and 2 memory descriptors (4 MDs for CDS systems). These factors have been taken into account in the above table.

4.11.2.5 Installation Considerations

Due to internal code growth within BOOTEX, boot command files that mount LU's containing a large number of global directories will cause FMP error -215 (too many directories). BOOTEX contains its own dedicated copy of D.RTR that is sized to 31 pages, while the regular run-time D.RTR is sized to 32. This difference is a result of the size restriction on BOOTEX as a whole. Since DSD4.0's D.RTR grew internally, there is less free memory used for open flags and global directories in BOOTEX's D.RTR, while the impact on the regular D.RTR is much less noticeable. The BOOTEX D.RTR will start having problems with about 46 global directories. When this happens, just mount fewer LU's from the boot file -- mount these LU's after boot-up.

*VC1 now has a third parameter -- the name of the global directory where the RTE-A software resides. This is necessary so that the #CIXC and #CICDS load files can be modified to access files from both 92077(RTE-A) and 92078 (VC+) product directories. Please refer to the Virtual Code+ Installation Manual (92078-90001) for more information.

*VC2 has been enhanced to link the RESTR program, which aids in restoring your VC+ system if you run out of SAM. For more information about the new RESTR, please see the RTE-A User's Manual (92077-90002), chapter 5.

Because new entry points were added to $VCTR, programs linked on DSD4.0 systems cannot be transported back to any system of previous revisions. However, programs linked on pre-DSD4.0 systems can be transported to DSD4.0 systems.

Please make sure LINK's old catalog file is overlaid by the new catalog file, >LK000, on directory /Catalogs. If you have an old >LK000, an error FMP-401 may appear when you run LINK or certain LINK errors will be reported by number only and not decoded.

4.11.3 Performance

Please refer to the RTE-A Performance Brief (part-number 5953-8753), available at your local sales office, for discussions about RTE-A's performance.

4.11.4 Size Changes

As an aid for your software development efforts, we list here the size differences from the last update in operating system modules and system libraries. Dots are place-holders, meaning that the module does not exist at that update. The percentage difference reported on the last row of the table is the average percentage change of THOSE modules that have been changed. There is a summary following the table. The "#size difference" is the number of modules that existed in both A.85 and DSD4.0 and have changed in size. The "deletions" is the number of modules that existed in the A.85 column and not in DSD4.0, while "additions" is the number not in A.85 but in DSD4.0.

4.11.4.1 Operating System Size Differences

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
.....:	.....	-->	ABORT :	459	459	100
.....:	.....	-->	IORQ :	1029	1029	100
.....:	.....	-->	MAPS :	770	770	100
.....:	.....	-->	PROGS :	731	731	100
.....:	.....	-->	UTIL :	1023	1023	100
CLASS :	974	-->	CLASS :	994	20	2
DD.00 :	1074	-->	DD.00 :	1057	-17	-1
DD.24 :	1101	-->	DD.24 :	1095	-6	0
DD.33 :	1539	-->	DD.33 :	1696	157	10
DDM30 :	743	-->	DDM30 :	1023	280	37
ERLOG :	1721	-->	ERLOG :	1727	6	0
EXEC :	3065	-->	EXEC :	1014	-2051	-66
ID.00 :	462	-->	ID.00 :	473	11	2
ID.01 :	992	-->	ID.01 :	1003	11	1
ID.27 :	887	-->	ID.27 :	894	7	0
ID.37 :	1464	-->	ID.37 :	1448	-16	-1
ID.50 :	324	-->	ID.50 :	370	46	14
IOMOD :	1219	-->	IOMOD :	1022	-197	-16
LOAD :	1265	-->	LOAD :	1269	4	0
LOCK :	511	-->	LOCK :	565	54	10
MEMRY :	1979	-->	MEMRY :	1963	-16	0
PERR :	523	-->	PERR :	525	2	0
RTIOA :	2541	-->	RTIOA :	956	-1585	-62
SPCOM :	160	-->	SPCOM :	162	2	1
SPSLG :	1755	-->	SPSLG :	1962	207	11
SYCOM :	671	-->	SYCOM :	676	5	0
TIME :	1035	-->	TIME :	983	-52	-5
VCTR :	323	-->	VCTR :	329	6	1
XCMND :	872	-->	XCMND :	873	1	0
	-----			-----	-----	----
	27200			28091	891	3

```
      #size differences =    24
              deletions =     0
              additions =     5
total file size change =   891
   total file % change =     2%
```

4.11.4.2 BIGLB Size Differences

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
.....	.....	-->	/FMPUNIQUETIME/	0	0	100
.....	.....	-->	BLDNM	421	421	100
.....	.....	-->	CALL_DECPC	15	15	100
.....	.....	-->	D2AD	169	169	100
.....	.....	-->	DAYS70	91	91	100
.....	.....	-->	DECHD	0	0	100
.....	.....	-->	DEFAULT_LOGON	3	3	100
.....	.....	-->	DINTTODECIMALR	67	67	100
.....	.....	-->	DINTTOOCTALR	39	39	100
.....	.....	-->	IEEE	0	0	100
.....	.....	-->	INTCV	96	96	100
.....	.....	-->	INTTODECIMALR	48	48	100
.....	.....	-->	INTTOOCTALR	33	33	100
.....	.....	-->	MOVTX	89	89	100
.....	.....	-->	MVC77	22	22	100
.....	.....	-->	PROGRAMSID	128	128	100
.....	.....	-->	QBITS	162	162	100
.....	.....	-->	QBLNK	49	49	100
.....	.....	-->	QCH77	51	51	100
.....	.....	-->	QCN77	71	71	100
.....	.....	-->	QCNTR	103	103	100
.....	.....	-->	QCOM	92	92	100
.....	.....	-->	QDECI	228	228	100
.....	.....	-->	QDINR	140	140	100
.....	.....	-->	QDINT	73	73	100
.....	.....	-->	QEN77	33	33	100
.....	.....	-->	QENH	40	40	100
.....	.....	-->	QFILL	62	62	100
.....	.....	-->	QFMPR	78	78	100
.....	.....	-->	QFTIM	122	122	100
.....	.....	-->	QHEX	125	125	100
.....	.....	-->	QINIT	39	39	100
.....	.....	-->	QINT	124	124	100
.....	.....	-->	QINTR	198	198	100
.....	.....	-->	QJULI	173	173	100
.....	.....	-->	QLOGL	323	323	100
.....	.....	-->	QLUER	30	30	100
.....	.....	-->	QMOV1	59	59	100

```
.................: ..... --> QMOVE            :    49     49   100
.................: ..... --> QMSGN            :    57     57   100
.................: ..... --> QNAMR            :   386    386   100
.................: ..... --> QNMCK            :    37     37   100
.................: ..... --> QNSCR            :   111    111   100
.................: ..... --> QOCT             :   113    113   100
.................: ..... --> QOCTR            :   180    180   100
.................: ..... --> QOPSY            :   232    232   100
.................: ..... --> QPNAM            :   175    175   100
.................: ..... --> QPUT             :    31     31   100
.................: ..... --> QSET             :    54     54   100
.................: ..... --> QSHFT            :    81     81   100
.................: ..... --> QSPCL            :   168    168   100
.................: ..... --> QSQSH            :    80     80   100
.................: ..... --> QSTMP            :   141    141   100
.................: ..... --> QTAB             :    35     35   100
.................: ..... --> QTIME            :   226    226   100
.................: ..... --> QTRAL            :    40     40   100
.................: ..... --> QWRIT            :    93     93   100
.................: ..... --> QWRTE            :    54     54   100
.................: ..... --> SAVINGRESOURCES  :    22     22   100
.................: ..... --> SESSINIT         :     4      4   100
$EMA$            :   103 --> $EMA$             :   101     -2    -1
$INIT            :    86 --> $INIT             :    96     10    11
$OPEN            :   153 --> $OPEN             :   152     -1     0
$PALC            :    98 --> $PALC             :   102      4     4
$PRTN            :   173 --> $PRTN             :   177      4     2
$VMA$            :  1283 --> $VMA$             :  1301     18     1
.ASKD            :    40 --> .ASKD             :    42      2     5
.DSNH            :   122 --> .DSNH             :   125      3     2
.FFCN            :   165 --> .FFCN             :   164     -1     0
.FFIN            :   526 --> .FFIN             :   524     -2     0
.FFRW            :    95 --> .FFRW             :    99      4     4
.FMCV            :   685 --> .FMCV             :   698     13     1
.FMFP            :   682 --> .FMFP             :   687      5     0
.FMLD            :   584 --> .FMLD             :   612     28     4
.FMUI            :   603 --> .FMUI             :   607      4     0
.XFXD            :    15 --> .XFXD             :    14     -1    -6
ACINF            :     9 --> ACINF             :    10      1    11
ALTEROLDTONEW    :   147 --> ALTEROLDTONEW     :   162     15    10
ATACH            :   147 --> ATACH             :   162     15    10
ATCRT            :    34 --> ATCRT             :    48     14    41
BLD.X            :   117 --> BLD.X             :   119      2     1
CALC_DEST_NAME   :   243 --> CALC_DEST_NAME    :   239     -4    -1
CRNTOLU          :    57 --> CRNTOLU           :    72     15    26
DFCHI            :   384 --> DFCHI             :   380     -4    -1
DFCIH            :   332 --> DFCIH             :   328     -4    -1
DINTTODECIMAL    :    89 --> DINTTODECIMAL     :    78    -11   -12
DINTTOOCTAL      :    81 --> DINTTOOCTAL       :    59    -22   -27
DSCPR            :   158 --> DSCPR             :   170     12     7
```

DTACH	:	111	-->	DTACH	:	131	20	18
ELAPSEDTIME	:	48	-->	ELAPSEDTIME	:	59	11	22
ERO.E	:	1	-->	ERO.E	:	2	1	100
EXTRACT	:	56	-->	EXTRACT	:	29	-27	-48
FATTENMASK	:	213	-->	FATTENMASK	:	216	3	1
FCHI	:	243	-->	FCHI	:	237	-6	-2
FCIH	:	269	-->	FCIH	:	263	-6	-2
FIND_DELIM	:	74	-->	FIND_DELIM	:	45	-29	-39
FMPBUILDEITHER	:	137	-->	FMPBUILDEITHER	:	188	51	37
FMPBUILDPATH	:	190	-->	FMPBUILDPATH	:	211	21	11
FMPCOPY	:	1356	-->	FMPCOPY	:	1363	7	0
FMPDOTYPE012	:	221	-->	FMPDOTYPE012	:	294	73	33
FMPINITMASK	:	732	-->	FMPINITMASK	:	763	31	4
FMPLASTFILENAME	:	105	-->	FMPLASTFILENAME	:	109	4	3
FMPLIST	:	526	-->	FMPLIST	:	801	275	52
FMPMASKNAME	:	114	-->	FMPMASKNAME	:	136	22	19
FMPMOVEDATA	:	182	-->	FMPMOVEDATA	:	276	94	51
FMPPARSENAME	:	176	-->	FMPPARSENAME	:	202	26	14
FMPPARSEPATH	:	230	-->	FMPPARSEPATH	:	240	10	4
FMPRPPROGRAM	:	497	-->	FMPRPPROGRAM	:	516	19	3
FMPSETEOF	:	120	-->	FMPSETEOF	:	131	11	9
FMPUNIQUENAME	:	161	-->	FMPUNIQUENAME	:	162	1	0
GETRESETINFO	:	439	-->	GETRESETINFO	:	440	1	0
GRAN	:	57	-->	GRAN	:	61	4	7
IDINF	:	178	-->	IDINF	:	179	1	0
IDRPL	:	813	-->	IDRPL	:	822	9	1
INTTODECIMAL	:	47	-->	INTTODECIMAL	:	46	-1	-2
INTTOOCTAL	:	40	-->	INTTOOCTAL	:	36	-4	-10
IRANP	:	62	-->	IRANP	:	65	3	4
ISIGN	:	22	-->	ISIGN	:	19	-3	-13
LOGIT	:	19	-->	LOGIT	:	32	13	68
MASKPROPERNAME	:	104	-->	MASKPROPERNAME	:	109	5	4
MASKSECURITY	:	17	-->	MASKSECURITY	:	34	17	100
OLDLUINFO	:	59	-->	OLDLUINFO	:	74	15	25
ON..	:	160	-->	ON..	:	173	13	8
OTHERMATCH	:	276	-->	OTHERMATCH	:	274	-2	0
PAU.E	:	1	-->	PAU.E	:	2	1	100
PL..	:	740	-->	PL..	:	743	3	0
PREENTMATCH	:	161	-->	PREENTMATCH	:	182	21	13
RHPAR	:	293	-->	RHPAR	:	246	-47	-16
SEARCHTABLE	:	40	-->	SEARCHTABLE	:	59	19	47
SPLIT_DIRPATH	:	156	-->	SPLIT_DIRPATH	:	161	5	3
STRIPTRAILING	:	57	-->	STRIPTRAILING	:	29	-28	-49
URAN	:	85	-->	URAN	:	95	10	11
VFNAM	:	342	-->	VFNAM	:	341	-1	0
VMAOPEN	:	404	-->	VMAOPEN	:	402	-2	0
VMAREAD	:	215	-->	VMAREAD	:	216	1	0
VREAD	:	211	-->	VREAD	:	205	-6	-2
XREIO	:	169	-->	XREIO	:	170	1	0
XTACH	:	241	-->	XTACH	:	196	-45	-18

```
LOGOF_USER      :   185 --> .................: .....   -185  -100
                  -----                        -----  -----  ----
                  18566                        25078   6512    35

     #size differences =    75
             deletions =     1
             additions =    61
total file size change =  6512
   total file % change =     7%
```

4.11.4.3 BGCDS Data Size Differences

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
.....	.....	-->	!IAV.	0	0	100
.....	.....	-->	.IAV.	40	40	100
.....	.....	-->	/FMPUNIQUETIME/	0	0	100
.....	.....	-->	PROGRAMSID	0	0	100
.....	.....	-->	SAVINGRESOURCES	0	0	100
.....	.....	-->	VMAREAD	16	16	100
!FMCV	12	-->	!FMCV	14	2	16
!FMIO	7	-->	!FMIO	8	1	14
.FFCN	2	-->	.FFCN	1	-1	-50
ALT.PARAM.COUNT	1	-->	ALT.PARAM.COUNT	4	3	300
CALENDAR	1	-->	CALENDAR	26	25	2500
CLOCK	1	-->	CLOCK	36	35	3500
CODE^DATA	135	-->	CODE^DATA	183	48	35
DTACH	1	-->	DTACH	2	1	100
FMPBUILDEITHER	10	-->	FMPBUILDEITHER	13	3	30
FMPCOPY	61	-->	FMPCOPY	59	-2	-3
FMPDOTYPE012	0	-->	FMPDOTYPE012	3	3	100
FMPLIST	49	-->	FMPLIST	56	7	14
FMPMOVEDATA	0	-->	FMPMOVEDATA	3	3	100
FMPUNIQUENAME	21	-->	FMPUNIQUENAME	17	-4	-19
SPLIT_DIRPATH	4	-->	SPLIT_DIRPATH	7	3	75
EXTRACT	4	-->	.....	.....	-4	-100
FIND_DELIM	0	-->	.....	.....	0	-100
LOGOF_USER	20	-->	.....	.....	-20	-100
STRIPTRAILING	3	-->	.....	.....	-3	-100
	332			488	156	46

```
     #size differences =    15
             deletions =     4
             additions =     6
total file size change =   156
   total file % change =     6%
```

4.11.4.4 BGCDS Code Size Differences

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
.....	.....	-->	!IAV.	93	93	100
.....	.....	-->	.IAV.	0	0	100
.....	.....	-->	/FMPUNIQUETIME/	0	0	100
.....	.....	-->	PROGRAMSID	124	124	100
.....	.....	-->	SAVINGRESOURCES	32	32	100
.....	.....	-->	VMAREAD	185	185	100
!EIO!	815	-->	!EIO!	818	3	0
!FFRW	91	-->	!FFRW	95	4	4
!FIO.	676	-->	!FIO.	705	29	4
!FMCV	738	-->	!FMCV	745	7	0
!FMUI	540	-->	!FMUI	546	6	1
.FFIN	524	-->	.FFIN	522	-2	0
ALTEROLDTONEW	112	-->	ALTEROLDTONEW	127	15	13
ATACH	134	-->	ATACH	150	16	11
ATCRT	41	-->	ATCRT	55	14	34
CALC_DEST_NAME	250	-->	CALC_DEST_NAME	236	-14	-5
CALENDAR	27	-->	CALENDAR	0	-27	-100
CLOCK	34	-->	CLOCK	0	-34	-100
CODE^DATA	55	-->	CODE^DATA	74	19	34
CRNTOLU	56	-->	CRNTOLU	71	15	26
DTACH	101	-->	DTACH	119	18	17
FATTENMASK	216	-->	FATTENMASK	218	2	0
FMPBUILDEITHER	165	-->	FMPBUILDEITHER	206	41	24
FMPBUILDPATH	180	-->	FMPBUILDPATH	194	14	7
FMPCOPY	1359	-->	FMPCOPY	1369	10	0
FMPDOTYPE012	215	-->	FMPDOTYPE012	295	80	37
FMPINITMASK	770	-->	FMPINITMASK	793	23	2
FMPLASTFILENAME	132	-->	FMPLASTFILENAME	136	4	3
FMPLIST	515	-->	FMPLIST	805	290	56
FMPMASKNAME	113	-->	FMPMASKNAME	132	19	16
FMPMOVEDATA	178	-->	FMPMOVEDATA	272	94	52
FMPPARSEPATH	241	-->	FMPPARSEPATH	247	6	2
FMPRPPROGRAM	568	-->	FMPRPPROGRAM	589	21	3
FMPSETEOF	115	-->	FMPSETEOF	126	11	9
FMPUNIQUENAME	143	-->	FMPUNIQUENAME	148	5	3
GETRESETINFO	230	-->	GETRESETINFO	229	-1	0
MASKPROPERNAME	124	-->	MASKPROPERNAME	127	3	2
MASKSECURITY	25	-->	MASKSECURITY	39	14	55
OLDLUINFO	61	-->	OLDLUINFO	76	15	24
OTHERMATCH	249	-->	OTHERMATCH	247	-2	0
PREENTMATCH	152	-->	PREENTMATCH	168	16	10
SPLIT_DIRPATH	216	-->	SPLIT_DIRPATH	218	2	0
XTACH	247	-->	XTACH	202	-45	-18
EXTRACT	71	-->	.....	.....	-71	-100
FIND_DELIM	82	-->	.....	.....	-82	-100

```
LOGOF_USER      :   168 --> ................: .....   -168  -100
STRIPTRAILING   :    82 --> ................: .....    -82  -100
                  -----                       -----  -----  ----
                  10811                       11533    722     6

    #size differences =    37
            deletions =     4
            additions =     6
total file size change =   722
   total file % change =     2%
```

4.11.4.5 FDSLB Size Differences

```
         A.85                        DSD4.0            Difference
-----------------------     -----------------------  -----------
Module Name        Size     Module Name        Size  Words     %
.DSCL           :   230 --> .DSCL           :   242     12     5
.DSIN           :   532 --> .DSIN           :   547     15     2
.DSRW           :    90 --> .DSRW           :    94      4     4
                  -----                       -----  -----  ----
                    852                         883     31     3

    #size differences =     3
            deletions =     0
            additions =     0
total file size change =    31
   total file % change =     1%
```

4.11.4.6 FNDLB Size Differences

```
         A.85                        DSD4.0            Difference
-----------------------     -----------------------  -----------
Module Name        Size     Module Name        Size  Words     %

    #size differences =     0
            deletions =     0
            additions =     0
total file size change =     0
   total file % change =     0%
```

4.11.4.7 CI and CIX

At DSD4.0, CI's code has grown, leading to less free space for the command stack and user-defined variables. This may impact the user if many variables are defined and/or a very large command stack is needed and CI is sized to the minimum size. Therefore, CI should always be sized as large as possible for best performance. In addition, CIX's code has grown as well. Sizing the DSD4.0 CIX to the same size as A.85's will cause some file commands to run relatively slower. Sizing CIX larger will cause them to run faster. The

standard Link command files for CI and CIX have the largest sizes specified.

4.11.5 File Name Changes

The following filenames have been changed in order to conform to the CI file system. This will require modifications to the user's answer file before generating version DSD4.0.

Part #	Old Name			New Name
92077-16096	2441	%ID.43	-->	%ID*43
92077-16390	2540	%ID.01	-->	%ID*01
92077-16628	2536	%ID.27	-->	%ID*27
92077-16648	2402	%DD.24	-->	%DD*24
92077-16667	2540	%ID.50	-->	%ID*50
92077-16668	2540	%DD.33	-->	%DD*33
92077-16669	2540	%DD.30	-->	%DD*30
92077-16696	2540	%ID.37	-->	%ID*37
92077-16699	2540	%DD.00	-->	%DD*00
92077-16722	2441	%ID.36	-->	%ID*36
92077-16727	2441	%DD.20	-->	%DD*20
92077-16730	2441	%DD.23	-->	%DD*23
92077-16732	2441	%DD.36	-->	%DD*36
92077-16753	2441	%ID.52	-->	%ID*52
92077-16756	2540	%ID.00	-->	%ID*00
92077-16758	2441	%DD.12	-->	%DD*12
92077-17239	2440	#BIGLB	-->	BIGLB.MRG
92077-18073	2440	%BIGHD	-->	&BIGLB
92078-17022	2440	*VC.1	-->	*VC1
92078-17024	2440	*VC.2	-->	*VC2
92078-17033			-->	BGCDS.MRG

4.11.6 Other Enhancements and Fixes

4.11.6.1 AdvanceLink/1000

AdvanceLink's terminal emulation and file transfer capabilities for the Vectra, IBM PC, and the HP150 are now supported with the A-Series using a 12040B or 12040C multiplexer card. The personal computer must be connected to the multiplexer card with an RS-232 cable. The utility on the HP1000 side must be loaded as "/programs/monitor.run". The new system includes a help file called "monitor, a relocatable called %monitor and a load file called #monitor. Besides AdvanceLink's terminal emulation, files can be transferred from

MS-DOS to RTE and visa-versa. Notice that the AdvanceLink software MUST be purchased separately from Hewlett Packard. The only purpose of the monitor utility is to interact with AdvanceLink on the personal computer and transfer information to and from RTE-A.

4.11.6.2 Future $OPSY Values

The $OPSY value did not change in this revision; it is still -53. However, we will change it in the future whenever we make extensive improvements to the operating system. The following information should be useful in helping you determine what $OPSY might be used in the future on RTE-A and RTE-6. The planned values for RTE-A are -61, -125, -117, -101, and -109 (listed in order to be used). The planned future $OPSY for RTE-6 is -25. Not all these numbers will necessarily be used; they will only be employed when new ones are needed. To make checking easier, the following ranges can be used to determine if the currect operating system is RTE-6 or RTE-A:

```
RTE-6: -17 through -28
RTE-A: -33 through -128
```

4.11.6.3 LINK Warnings

There are two new warning messages, 140 and 141, that may be reported by LINK. Please refer to the LINK User's Manual (92077-90035) for an explanations of these.

4.11.6.4 CDS VmaRead and VmaWrite

Before DSD4.0, a CDS VMA program could not use the CDS versions of FMP routines because the VMA routines (VmaRead and VmaWrite) were not themselves CDS, and non-CDS code cannot call CDS code. Thus, a user program's data space would be decreased by the amount VMA code. In this revision, we are supplying CDS versions of VmaRead and VmaWrite to help free up more DATA space for user programs. This is SR#2200010066.

4.11.6.5 VMA Backing Store Files

Previously, backing store files that were created on the top FMGR cartridge would not be purged automatically. With DSD4.0, these files will be given names in the same format as if they were placed on the scratch cartridge, so that they will be automatically purged. This is SR#2200009050.

4.11.6.6 Password Length

At DSD4.0, passwords will be restricted to 14 characters, shortened from 16, because LOGON does not processed the 15th and 16th character

correctly. If a user tries to use 16 character passwords in DSD4.0, "Incorrect password" will be reported. Such passwords should be changed using the USERS program before the DSD4.0 system is brought up. This also affects programmatic logons. This is SR#2200017038.

4.11.6.7 X.25

DDX00.REL is used for both the DVT and IFT statements in the answer file. However, due to a problem in the generator, using DDX00.REL in the DVT will cause generation errors. In order to avoid them, please remove the file name from the DVT statement. For example,

```
IFT,DDX00.REL,TX:1,EIDX00
DVT,,,LU:60,TX:2,EIDX00
```

This is SR#2200032466 and it will be fixed in the next update.

4.11.7 Mirrored Image Driver

DSD4.0 RTE-A is incompatible with the Mirrored-Image portion (DDT33) of the Customed Engineering software product 93696T (Mirrored Image and Dual Port/Dual CPU Drivers). To obtain an updated version that is compatible with DSD4.0, please write to

Data Systems Division
Hewlett Packard
11000 Wolfe Road
Cupertino, CA 95014-9974
Attention: Lou Cortez

4.12 (92080A) Datacap/1000-II

The changes are all bug fixes. Please reinstall Datacap with the transfer file *DATCA.

4.13 (92081A) Image/1000-II

4.13.1 New Files

Several new files have been added to the product: for example, command file examples of backup, logging and recovery. In addition, the name of the clean-up program has been changed from DEMON to DBCLN. Finally, a program called DBUPGRADE has been added to upgrade

Image-II rootfiles to Revision DSD4.0 format which allows databases to reside on CI volumes. For more information, please refer to the Image-II Reference Manual and the Image-II Database Management System: System Configuration Guide (92081-90003).

4.13.2 Installation Changes

Image now requires the directory /CATALOGS for NLS (Native Language Support). Also, since the installation transfer files need MERGE, make sure MERGE is on /PROGRAMS or RP'ed before the transfer files are run.

4.13.3 CI File System Enhancements

Prior to this revision, databases could only be on FMGR cartridges while all other Image files could be on CI volumes. For DSD4.0 we are introducing support of databases on CI volumes. Root file names can be up to 63 characters, while Data set names can be no longer than 6 characters, plus a four-character file extension. Utilities such as QUERY and DBUTL have been enhanced to follow CI conventions.

Note: On RTE-6, the CI directories must have read/write access for all users in order for IMAGE to function properly. This does not apply to RTE-A systems.

The following is just one easy way to upgrade your database into CI format.

1. Reload IMAGE-II.
2. Run DBUPGRADE on the root file with the root file residing on a FMGR disc LU.
3. Run DBUTL and re-enable the access for the database because the DBUPGRADE program disabled it when it performed the conversion.
4. Create a temporary CI directory on a volume large enough to accommodate the database.
5. Copy the database to this directory using the CI copy command.
6. Rename or dismount the FMGR LU that contains the old FMGR database.
7. Rename the temporary CI directory to the old FMGR CRN (cartridge reference number).
8. Run QUERY to check out the database on the new CI directory.
9. Reload ALL database application programs with the new IMAGE-II libraries.

Note: If all application programs are not reloaded, IMAGE error 138 may result from the DBOPN call when first trying to access the database. For another discussion on the DBUPGRADE procedure, please refer to the System Configuration Guide (92081-90003). For more information on DBUPGRADE, please refer to the

IMAGE/1000-II Reference manual, appendix H.

4.13.4 Short_Dbopen

To support databases on CI volumes, the DBOPN call causes additional routines to be loaded which results in a size increase of 2770 words. If this impacts the user, a workaround has been provided to reduce this size back to that of Revision A.85 by relocating the relocatable Short_Dbopen.rel BEFORE the normal Image library. When using Short_Dbopen.rel, the security code of the root file must be negative (that is, negate positive security codes). Otherwise, an error #117, incorrect security code, will be reported. Also, the full path name of the root file must be supplied in the DBOPN call. (This size increase only affects Image-II. Image-I does not support CI volumes.) For more information, please refer to the Image-II Reference Manual (92081-90001).

4.13.5 Other Enhancements

Please refer to the IMAGE/1000-II Reference Manual (92081-90001) for more details of the items discussed here.

4.13.5.1 QUERY

The "/" command allows you to display the commands which were entered during an interactive session. For security purposes, the level word will not appear in this command stack.

The following commands can be abbreviated.

- END (EN or E)
- EXIT (EX or E)
- FIND (F)
- FINDA (FA)
- REPORT (R)
- UPDATE REPLACE (U R)
- UPDATE DELETE (U D)
- UPDATE ADD (U A)

4.13.5.2 FINDA

The FINDA command retrieves data entries from the database and appends the record addresses of the retrieved entries to the current select file. Before initiating this command, a FIND command should be executed.

4.13.5.3 Wildcard Finds

When searching for a data item which consists of ASCII characters (type X data item), several values can be specified by using the wildcard characters "-" and "@".

4.13.5.4 END

The END at the end of the FIND command is optional. You may now terminate this command string with just the semi-colon(;). This also applies to the new command FINDA. However, when using END in conjunction with the REPORT command it must be used in its complete form, i.e., END;.

4.13.5.5 REPORT ALL Command

The REPORT ALL command now lets you specify the number of lines to skip between items of a data entry when printing. The default is single spacing. Also, in order to support printers with 512 columns, the print line length has been increased from 132 to 512 columns.

4.13.5.6 Elimination of Quotes

Previously, item values were enclosed in quotes. At DSD4.0, the quotation marks are optional. However, when the item value contains commas, semi-colons, blanks or periods, it must be enclosed in quotes.

4.13.5.7 DD*24

IMAGE now supports the magnetic tape driver DD*24 on RTE-A. This makes it possible for the 7974 and 7978 tape drives to use IMAGE utilities on RTE-A.

4.13.5.8 Backup Format

The volume, file and data headers for the backup utilities have changed to accommodate new file names.

Old DBSTR tapes cannot be used by the new DBRST utility due to the change in the root file format. Therefore, it is recommended that the old DBSTR tape be restored using the DBRST of a corresponding revision on the existing system. Then convert the restored database into the new format by running DBUPGRADE. Create a new backup tape using the new DBSTR, after the new DSD4.0 IMAGE version is loaded.

If the operating system has already been converted into DSD4.0 and the new IMAGE version loaded on the system, restore the old DBSTR tape by using an old DBRST of the corresponding revision.

DBULD tapes from IMAGE/1000-I and II (including those tapes made from previous versions) are accepted by the new DBLOD.

4.14 (92084A) RTE-6/VM Operating System

4.14.1 Peripheral Support Changes

Support of the following peripherals has been added.

Product	Description
7907A	21 Mb/ 21Mb fixed/removable peripheral disc - interfaced via HP-IB(12821A)
7941A	24 Mb peripheral disc - interfaced via HP-IB(12821A)
7942A	24 Mb peripheral disc with Cartridge tape drive - interfaced via HP-IB(12821A)
7945A	55 Mb peripheral disc - interfaced via HP-IB(12821A)
7946A	55 Mb peripheral disc with Cartridge tape drive - interfaced via HP-IB(12821A)
2393A	Monochrome graphics terminal - interfaced via the MUX(12792) and BACI(12966)
2397A	Color graphics terminal - interfaced via the MUX(12792) and BACI(12966)
2686B	Laserjet with more memory - interfaced via the MUX (12792)
Vectra	Personal computer terminal - interfaced via the MUX(12792)
7974A	800/1600 BPI Magnetic tape drive - interfaced via the HP-IB(12821A)
7440A	8-pin low-cost plotter - interfaced via the MUX(12792) and HP-IB(12821A)
2564A	600 LPM graphics printer - interfaced via the HP-IB(12821A)
7550A	Plotter - interfaced via the MUX(12792) and the HP-IB(12821A)

For more details about these new devices and information on how to generate them into your system, please refer to the System Manager's Reference Manual (92084-90009) and the individual peripheral manuals.

The 7941A and 7945A are supported as "peripheral discs". Since these discs do not have a method of restoring primary operating systems to the disc media, they are not supported as "system discs". However, RTE-6/VM operating systems can be installed on the 7941A and 7945A by

using the utility SWTCH, and copying system files to the disc. The 7942A and 7946A are supported as "system discs". All four of these discs need the 12992J CS/80 loader ROM to boot.

The 7974A magnetic tape drive is now supported. !BCKOF has been enhanced to recognize this tape drive. In addition, a loader ROM and exerciser have been created. For more information, please refer to the Utility Programs Reference Manual (92084-90007).

4.14.2 Generation Considerations

The following items affect your A.85 answer file.

%C6000 no longer exists and should be deleted from your answer file.

For the X.25 subsystem, make sure the table extent size for DVM00 is 33 words (X=33).

The line printer driver DVC12 has been modified to need no extents (X=0). Specifying a nonzero extent is not detrimental; it just wastes some words in memory.

4.14.3 Installation Considerations

The installation transfer files have been improved in 4.0. They should provide the user an almost automatic installation of new software. The order of execution is important, however. You should start with the *LODCI FMGR transfer file even if you generated CI and CIX into your system, which is recommended. Next, if you are using or plan to use the CI file system you will execute the CI transfer file *INCI. This file will optionally schedule FMGR and execute the *LOAD6 transfer file. You can also use the current (old) version of LINK and LINDX and *INCI will make new ones for you. *LODCI's main purpose is to create the SNAP file for LINK. Note: This SNAP file is only built once and requires you to anticipate the final location of the libraries referenced by the SNAP.

It is very IMPORTANT that you read and understand these transfer files before you start. Please pay attention to the assumptions of these files and follow the directions that are stated inside them.

4.14.4 Size Changes

As an aid for your software development efforts, we list here the size differences from the last update in operating system modules and system libraries. Dots are place-holders, meaning that the module does not exist at that update. The percentage difference reported in

the last row of the table is the average percentage change of THOSE modules that have changed. There is a summary following the table. The "#size difference" is the number of modules that existed in both A.85 and DSD4.0 and have changed in size. The "deletions" is the number of modules that existed in the A.85 column and not in DSD4.0, while "additions" is the number not in A.85 but in DSD4.0.

4.14.4.1 Operating System Size Differences

$6SYLB:

A.85		DSD4.0		Difference	
Module Name	Size	Module Name	Size	Words	%
EQTRQ	365	EQTRQ	367	2	0%
GETST	192	GETST	114	-78	-40%
ATACH	37	ATACH	54	17	45%
$BALC	306	$BALC	304	-2	0%
DSCPR	366	DSCPR	367	1	0%
LDTYP	275	LDTYP	268	-7	-2%
VREAD	216	VREAD	217	1	0%
VMAIO	144	VMAIO	166	22	15%
.IAV.	92	.....	.....	-92	-100%
IFDVR	77	IFDVR	56	-21	-27%
ACINF	172	ACINF	137	-35	-20%
.....	.....	ACINF_OR_SOMETHI	0	0	100%
.....	.....	SSNID	32	32	100%
.....	.....	$FINDIDEXT	63	63	100%
.....	.....	$SETIDEXT	26	26	100%
.....	.....	$SETDRIDEXT	39	39	100%
.....	.....	$LKLU2	25	25	100%
.....	.....	$FREEIDEXT	69	69	100%
	2242		2304	62	2%

```
    #size differences =    10
            deletions =     1
            additions =     7
total file size change =    62
  total file % change =     0%
```

%$CNFG:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
$CNF1	1294	-->	$CNF1	1296	2	0%
$CNFX	2692	-->	$CNFX	2754	62	2%
	3986			4050	64	1%

```
    #size differences =     2
            deletions =     1
            additions =     1
total file size change =    64
   total file % change =    1%
```

%CR6S1:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
RTCOM	1204	-->	RTCOM	1205	1	0%
RTEMA	560	-->	RTEMA	561	1	0%
DISP6	1510	-->	DISP6	1516	6	0%
DISPX	925	-->	DISPX	926	1	0%
	4199			4208	9	0%

```
    #size differences =     4
            deletions =     0
            additions =     0
total file size change =    9
   total file % change =    0%
```

%CR6S2:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
MAPOS	443	-->	MAPOS	438	-5	-1%
SCHD6	1895	-->	SCHD6	1926	31	1%
	2338			2364	26	1%

```
    #size differences =     2
            deletions =     0
            additions =     0
```

```
total file size change =    26
   total file % change =    0%
```

%CR6S3:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
OS2SC	1395	-->	OS2SC	1393	-2	0%
OS3SC	1942	-->	OS3SC	1977	35	1%
OS5IO	1255	-->	OS5IO	1256	1	0%
	4592			4626	34	0%

```
    #size differences =    3
            deletions =    0
            additions =    0
total file size change =   34
   total file % change =    0%
```

4.14.4.2 Libraries Size Differences

$FDSLB:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
.DSRW	90	-->	.DSRW	94	4	4%
.DSCL	230	-->	.DSCL	242	12	5%
.DSIN	532	-->	.DSIN	547	15	2%
	852			883	31	3%

```
    #size differences =    3
            deletions =    0
            additions =    0
total file size change =   31
   total file % change =    1%
```

$FLIB:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
RHPAR	293	-->	RHPAR	246	-47	-16%
.FMCV	685	-->	.FMCV	698	13	1%

.FMFP	:	682	-->	.FMFP	:	687	5	0%
.FMLD	:	584	-->	.FMLD	:	612	28	4%
.FMUI	:	603	-->	.FMUI	:	607	4	0%
PAU.E	:	1	-->	PAU.E	:	2	1	100%
ERO.E	:	1	-->	ERO.E	:	2	1	100%
.....	:	.....	-->	.IAV.	:	92	92	100%
		2849				2946	97	3%

```
    #size differences =     7
            deletions =     0
            additions =     1
total file size change =    97
   total file % change =     1%
```

$FMP6:

A.85				DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
VMAREAD	: 215	-->	VMAREAD	: 216	1	0%
FMPLIST	: 526	-->	FMPLIST	: 801	275	52%
OTHERMATCH	: 276	-->	OTHERMATCH	: 274	-2	0%
PREENTMATCH	: 161	-->	PREENTMATCH	: 182	21	13%
FATTENMASK	: 213	-->	FATTENMASK	: 216	3	1%
MASKPROPERNAME	: 104	-->	MASKPROPERNAME	: 109	5	4%
OLDLUINFO	: 59	-->	OLDLUINFO	: 74	15	25%
ALTEROLDTONEW	: 147	-->	ALTEROLDTONEW	: 162	15	10%
FMPINITMASK	: 732	-->	FMPINITMASK	: 763	31	4%
CRNTOLU	: 57	-->	CRNTOLU	: 72	15	26%
MASKSECURITY	: 17	-->	MASKSECURITY	: 34	17	100%
FMPMASKNAME	: 114	-->	FMPMASKNAME	: 136	22	19%
FMPCOPY	: 1356	-->	FMPCOPY	: 1363	7	0%
CALC_DEST_NAME	: 243	-->	CALC_DEST_NAME	: 239	-4	-1%
SPLIT_DIRPATH	: 156	-->	SPLIT_DIRPATH	: 161	5	3%
FMPPARSEPATH	: 230	-->	FMPPARSEPATH	: 240	10	4%
FIND_DELIM	: 74	-->	FIND_DELIM	: 45	-29	-39%
EXTRACT	: 56	-->	EXTRACT	: 29	-27	-48%
FMPBUILDPATH	: 190	-->	FMPBUILDPATH	: 211	21	11%
FMPBUILDEITHER	: 137	-->	FMPBUILDEITHER	: 188	51	37%
STRIPTRAILING	: 57	-->	STRIPTRAILING	: 29	-28	-49%
FMPLASTFILENAME	: 105	-->	FMPLASTFILENAME	: 109	4	3%
FMPSETEOF	: 120	-->	FMPSETEOF	: 131	11	9%
FMPUNIQUENAME	: 161	-->	FMPUNIQUENAME	: 162	1	0%
FMPDOTYPE012	: 221	-->	FMPDOTYPE012	: 294	73	33%
FMPMOVEDATA	: 182	-->	FMPMOVEDATA	: 276	94	51%
FMPPARSENAME	: 176	-->	FMPPARSENAME	: 202	26	14%
ELAPSEDTIME	: 48	-->	ELAPSEDTIME	: 59	11	22%
INTTODECIMAL	: 47	-->	INTTODECIMAL	: 46	-1	-2%

```
INTTOOCTAL       :    40 --> INTTOOCTAL       :    36     -4  -10%
DINTTOOCTAL      :    81 --> DINTTOOCTAL      :    59    -22  -27%
DINTTODECIMAL    :    89 --> DINTTODECIMAL    :    78    -11  -12%
BUSYPROCESS      :    28 --> BUSYPROCESS      :    41     13   46%
FMPRPPROGRAM     :   613 --> FMPRPPROGRAM     :   634     21    3%
................: ..... --> /FMPUNIQUETIME/  :     0      0  100%
................: ..... --> BLDNM            :   421    421  100%
................: ..... --> INTTODECIMALR    :    48     48  100%
................: ..... --> INTTOOCTALR      :    33     33  100%
................: ..... --> DINTTOOCTALR     :    39     39  100%
................: ..... --> DINTTODECIMALR   :    67     67  100%
................: ..... --> DAYS70           :    91     91  100%
................: ..... --> DEFAULT_LOGON    :    25     25  100%
................: ..... --> SESSINIT         :    11     11  100%
................: ..... --> PAS.NONCDS       :     0      0  100%
                  -----                       -----  -----  ----
                   7031                        8406   1375   19%

    #size differences =    34
            deletions =     0
            additions =    10
total file size change =  1375
   total file % change =     4%
```

$FNEWF:

```
            A.85                          DSD4.0        Difference
 ----------------------      ----------------------  ----------
 Module Name        Size     Module Name        Size  Words     %
 .FFRW           :    95 --> .FFRW           :    99      4    4%
 .FFIN           :   526 --> .FFIN           :   524     -2    0%
 .FFCN           :   165 --> .FFCN           :   164     -1    0%
                   -----                       -----  -----  ----
                    786                         787      1    0%

    #size differences =     3
            deletions =     0
            additions =     0
total file size change =     1
   total file % change =     0%
```

$FOLDF:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
.FFRW	88	-->	.FFRW	92	4	4%
.FFCL	223	-->	.FFCL	235	12	5%
.FFIN	532	-->	.FFIN	547	15	2%
	843			874	31	3%

#size differences = 3
deletions = 0
additions = 0
total file size change = 31
total file % change = 1%

$MATH:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
FCHI	243	-->	FCHI	237	-6	-2%
FCIH	269	-->	FCIH	263	-6	-2%
DFCHI	384	-->	DFCHI	380	-4	-1%
DFCIH	332	-->	DFCIH	328	-4	-1%
IRANP	62	-->	IRANP	65	3	4%
GRAN	57	-->	GRAN	61	4	7%
URAN	85	-->	URAN	95	10	11%
.DSNH	122	-->	.DSNH	125	3	2%
ISIGN	22	-->	ISIGN	19	-3	-13%
.XFXD	15	-->	.XFXD	14	-1	-6%
.....	.....	-->	IEEE	0	0	100%
	1591			1587	-4	0%

#size differences = 10
deletions = 0
additions = 1
total file size change = -4
total file % change = 0%

4.14.4.3 Drivers Size Differences

%4DP43:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
DVP43 :	416	-->	DVP43 :	421	5	1%
	416			421	5	1%

```
    #size differences =     1
            deletions =     0
            additions =     0
total file size change =    5
   total file % change =    1%
```

%6DA37:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
DVA37 :	1183	-->	DVA37 :	1181	-2	0%
	1183			1181	-2	0%

```
    #size differences =     1
            deletions =     0
            additions =     0
total file size change =   -2
   total file % change =    0%
```

%6DV37:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
DVA37 :	1570	-->	DVA37 :	1603	33	2%
	1570			1603	33	2%

```
    #size differences =     1
            deletions =     0
            additions =     0
total file size change =   33
   total file % change =    2%
```

%DVA32:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
DVA32	: 1347	-->	DVA32	: 1348	1	0%
	1347			1348	1	0%

```
    #size differences =     1
            deletions =     0
            additions =     0
total file size change =    1
   total file % change =    0%
```

%DVB12:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
DVB12	: 921	-->	DVB12	: 934	13	1%
	921			934	13	1%

```
    #size differences =     1
            deletions =     0
            additions =     0
total file size change =   13
   total file % change =    1%
```

%DVC12:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
DVC12	: 1437	-->	DVC12	: 1218	-219	-15%
	1437			1218	-219	-15%

```
    #size differences =     1
            deletions =     0
            additions =     0
total file size change =  -219
   total file % change =   -15%
```

%DVM33:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
DVM33	: 1847	-->	DVM33	: 1929	82	4%
	1847			1929	82	4%

```
    #size differences =     1
            deletions =     0
            additions =     0
total file size change =    82
   total file % change =    4%
```

Note: In A.85, the code of DVM33 plus the subroutine code it pulls in totalled about two pages. In DSD4.0, the total of the two is much smaller (even though the code inside DVM33 grew slightly) so that the driver now fits comfortably into a 2-page partition.

%DVN00:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
DVN00	: 1659	-->	DVN00	: 1573	-86	-5%
	1659			1573	-86	-5%

```
    #size differences =     1
            deletions =     0
            additions =     0
total file size change =   -86
   total file % change =   -5%
```

%DVR31:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
DVR31	: 700	-->	DVR31	: 701	1	0%
	700			701	1	0%

```
    #size differences =     1
            deletions =     0
```

```
             additions =     0
total file size change =     1
   total file % change =     0%
```

4.14.4.4 Miscellaneous Size Differences

%BMPG2:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
$DMGR	1	-->	.....	.....	-1	-100%
D.RTR	72	-->	D.RTR	74	2	2%
NEWPOSITION	81	-->	NEWPOSITION	85	4	4%
NEWPURGE	106	-->	NEWPURGE	87	-19	-17%
NEWRENAME	114	-->	NEWRENAME	117	3	2%
MOUNTNEWDISC	449	-->	MOUNTNEWDISC	458	9	2%
NAMEOFFILE	277	-->	NAMEOFFILE	280	3	1%
DIRENTRYTONAME	177	-->	DIRENTRYTONAME	182	5	2%
NEWTRUNCATE	63	-->	NEWTRUNCATE	74	11	17%
NEWINFO	51	-->	NEWINFO	59	8	15%
INITIALIZE	91	-->	INITIALIZE	93	2	2%
FINISH	60	-->	FINISH	62	2	3%
OLDOPEN	75	-->	OLDOPEN	89	14	18%
OPENOLDFILE	213	-->	OPENOLDFILE	214	1	0%
CLOSEOLDFILE	127	-->	CLOSEOLDFILE	140	13	10%
POSITIONOLDFILE	138	-->	POSITIONOLDFILE	141	3	2%
FINDOLDFILE	403	-->	FINDOLDFILE	418	15	3%
RENAMEOLDFILE	162	-->	RENAMEOLDFILE	165	3	1%
CHECKOLDFLAGS	116	-->	CHECKOLDFLAGS	145	29	25%
OLDCLEARLOCK	32	-->	OLDCLEARLOCK	35	3	9%
OLDSETLOCK	95	-->	OLDSETLOCK	98	3	3%
OLDMCRECOVER	5	-->	OLDMCRECOVER	7	2	40%
OLDMCFLAGS	5	-->	OLDMCFLAGS	7	2	40%
OLDDISMOUNT	112	-->	OLDDISMOUNT	115	3	2%
OLDMOUNT	167	-->	OLDMOUNT	190	23	13%
OLDMCOPEN	5	-->	OLDMCOPEN	7	2	40%
DEADOWNER	52	-->	DEADOWNER	58	6	11%
GETADISC	134	-->	GETADISC	147	13	9%
D.ERR	414	-->	D.ERR	415	1	0%
D.ER000	1272	-->	D.ER000	1641	369	29%
.....	.....	-->	BMPG2	0	0	100%
.....	.....	-->	$DMGR.REV	1	1	100%
.....	.....	-->	OLDRPERROR	47	47	100%
.....	.....	-->	MCLIB	11	11	100%
	5069			5662	593	11%

```
     #size differences =    29
             deletions =     1
             additions =     4
total file size change =   593
   total file % change =     3%
```

%BMPG3:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
$BALB	1	-->	.....	.....	-1	-100%
BLD.X	117	-->	BLD.X	119	2	1%
DIRCV	2550	-->	.....	.....	-2550	-100%
XQPRG	387	-->	XQPRG	389	2	0%
CLONE	205	-->	CLONE	207	2	0%
IDDUP	399	-->	IDDUP	302	-97	-24%
$OPEN	153	-->	$OPEN	152	-1	0%
IDRPL	916	-->	IDRPL	789	-127	-13%
.....	.....	-->	BMPG3	0	0	100%
.....	.....	-->	$BALB.REV	1	1	100%
.....	.....	-->	DIRCV_P	2548	2548	100%
	4728			4507	-221	-4%

```
     #size differences =     6
             deletions =     2
             additions =     3
total file size change =  -221
   total file % change =    -1%
```

%SMON1:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
LOGON	3373	-->	LOGON	3478	105	3%
	3373			3478	105	3%

```
     #size differences =     1
             deletions =     0
             additions =     0
total file size change =   105
   total file % change =     1%
```

%SPOL2:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
SMP :	2517	-->	SMP :	2721	204	8%
OS6SP :	825	-->	OS6SP :	847	22	2%
	3342			3568	226	6%

```
    #size differences =     2
            deletions =     0
            additions =     0
total file size change =   226
   total file % change =     3%
```

%WHZAT:

A.85			DSD4.0		Difference	
Module Name	Size		Module Name	Size	Words	%
WHZAT :	3472	-->	WHZAT :	3506	34	0%
	3472			3506	34	0%

```
    #size differences =     1
            deletions =     0
            additions =     0
total file size change =    34
   total file % change =     0%
```

4.14.4.5 CI and CIX

Please refer to "CI and CIX" in the RTE-A section.

4.14.5 File Name Changes

The following filename has been changed in order to conform to the CI file system.

Part #	Old Name		New Name
92084-16362	2540 %M.LIB	-->	%M*LIB

4.14.6 Other Enhancements

4.14.6.1 $OPSY

Please refer to "Future $OPSY Values" in the RTE-A section for a discussion about RTE-6's $OPSY.

4.14.6.2 LINK

There are three new warning messages, 141, 142, and 143, that may be reported by LINK. Please refer to the LINK User's Manual (92084-90038) for an explanation of these.

4.14.6.3 RT6GN

The RTE-6 generator has been enhanced to allow it to build track map entries for stand-alone CTU's which use immediate reporting. Immediate reporting is required to allow streaming on these devices. In other words, the 9144 tape drive on the same HPIB as the system disc can perform streaming at DSD4.0. Please see the RTE-6/VM On-Line Generator Reference Manual (92084-90010) for details on CTU configuration.

4.15 (92836A) Fortran-77

The installation of FTN7X has been altered such that the compiler needs a new file called %FX000. Please see the installation guide file "FTN7X for all the details.

4.16 (92857A) Basic/1000C

4.16.1 Installation Changes

Two new relocatables, SAMA.REL and SAM6.REL are used by the Basic Interpreter at its load-time. The Pascal short-error handler (Pascal_Error.rel) is used by the Basic Compiler utility BDAT on RTE-6 systems at its load-time. These files are now provided with the product.

4.16.2 Size Changes

The Basic Interpreter's editor (BASIC) is now a VMA program and can

load much larger user programs. As a result, a larger partition size (working set of 50 for optimum performance) is required for the editor.

4.17 (92860A) Symbolic Debug/1000

4.17.1 Installation Changes

This product is now shipped as merged relocatables DEBUGA.REL and DEBUG6.REL, and the file DEBUG.ISTL has been renamed to INSTALL.CMD. To install Debug:

1. Create a global directory /DEBUG and make it your working directory.

2. Restore the Debug software from the shipped media onto the /DEBUG directory.

3. From the CI prompt, enter

```
[tr,] install <os>
```

   where <os> is replaced by A for RTE-A system or 6 for RTE-6. Example:

```
CI> install a
```

The install file contains the commands necessary to update /programs/debug.run, /programs/blddb.run, and /system/debug.err.

The install file will automatically OF DEBUG and BLDDB in case previous versions are RP'ed, so the messages

```
NO SUCH PROG                          (RTE-6)
No ID segment for this program...     (RTE-A)
```

should be ignored.

4.18 (92861A) Graphics/1000-II DGL Version 2.0

Several peripheral handlers have been added to this product and they are documented in the updates to the Graphics/1000-II Version 2.0 Device Handlers Manual (92861-90003). The handlers added include HP2393 and HP2397 terminals, Laserjet and Laserjet Plus printers, HP26061A Vector Graphics PCA (for HP256X printers), and serial

plotter (the HP7440, HP7470, HP7475, HP7550, HP758X plotters) handlers, along with an HPIB handler for the HP7440 plotter. Serial handlers are for the MUX card only. Configuration information is detailed in the respective handler sections of the Device Handlers Manual (part-number 92861-90003).

4.19 (92862A) Graphics/1000-II AGP Version 2.0

Please see the section for 92861A.

4.20 Miscellaneous

4.20.1 Source Recompilation

For source/relocatable compatibility, all RTE-A and RTE-6/VM software have been recompiled with the latest compilers. Therefore, users linking these new relocatables should link with the latest versions of the RTE-A and RTE-6/VM libraries; otherwise, undefined external references will be reported.

In chapter 3, any relocatable with its revision number increased by one from A.85 to DSD4.0 means that this module has been changed only by recompilation. For example, 2440 becomes 2441.

4.20.2 RP List for Firmware

This section lists the RP's for the HP/1000 M-Series, HP/1000 E-Series and the HP/1000 F-Series, and specifies which RP's are operating system dependent. The following conventions have been chosen:

^ = Applies only to RTE-IVB and RTE-6/VM Operating Systems; it indicates that the specified RP does not need to be included in the Generation Answer File because it is part of the module RPLIB in the system library.

\+ = Applies only to RTE-6/VM Operating System.

\- = Applies only to RTE-IVB Operating System.

Note that RTE-6/VM users now have transfer files that can be used during generation that contain this information. See the System Manager's Manual (92084-90010).

4.20.3 RP's for the HP/1000 M-Series

```
*****************************************************
*                                                   *
*           ENTRY POINT CHANGES                     *
*           FOR THE HP/1000 M-Series                *
*                                                   *
*****************************************************
*
*     ***** INTEGER ARITHMETIC ENTRY POINTS *****
*
.MPY,RP, 100200^     * INTEGER MULTIPLY
.DIV,RP, 100400^     * INTEGER DIVIDE
.DLD,RP, 104200^     * DOUBLE LOAD
.DST,RP, 104400^     * DOUBLE STORE
*
*     ***** EAU AND HFP ENTRY POINTS *****
*
.FAD,RP, 105000^     * FLOATING POINT ADD
.FSB,RP, 105020^     * FLOATING POINT SUBTRACT
.FMP,RP, 105040^     * FLOATING POINT MULTIPLY
.FDV,RP, 105060^     * FLOATING POINT DIVIDE
IFIX, RP,105100^     * REAL TO INTEGER FIX
FLOAT,RP,105120^     * INTEGER TO REAL FLOAT
*
*    ***** MOVE & COMPARE WORDS ******
*
.MVW,RP, 105777^     * MOVE WORDS
.CMW,RP, 105776^     * COMPARE WORDS
*
*    ***** BIT & BYTE INSTRUCTIONS *****
*
.CBT,RP, 105766^     * COMPARE BYTES
.LBT,RP, 105763^     * LOAD BYTE
.SBT,RP, 105764^     * STORE BYTE
.MBT,RP, 105765^     * MOVE BYTES
.SFB,RP, 105767^     * SCAN FOR BYTE
.CBS,RP, 105774^     * CLEAR BITS
.SBS,RP, 105773^     * SET BITS
.TBS,RP, 105775^     * TEST BITS
*
```

Computer Museum

```
*     *****   MISCELLANEOUS   ******
*
*      CLRIO IS GENERATED BY THE COMPILER, BUT IS NOT USED IN
*      RTE.  THEREFORE THIS ENTRY POINT IS MERELY AN RSS
*      (UNCONDITIONAL SKIP).
*
CLRIO,RP,2001        * NOTE: THE CLRIO ROUTINE IS USED BY QUERY
*                    *   SO COMMENT OUT THE RP IF USING 92063A IMAGE
*
*       Z$INT AND Z$LPP ARE ENTRY POINTS USED BY FTN4X COMPILER.
*
Z$INT,RP,1           * INTEGERS ARE STORED IN 1 WORD (DEFAULT=1)
Z$LPP,RP,73          * # OF LINES/PAGE (DEFAULT=73 OCTAL/59 DECIMAL)
*
*       Z$DBL IS AN ENTRY POINT USED BY THE FTN4 COMPILER (REV 1901
*         OR LATER)
*       IF IT CONTAINS 3, DOUBLE PRECISION VALUES WILL BE 3 WORDS
*       IF IT CONTAINS 4, DOUBLE PRECISION VALUES WILL BE 4 WORDS
*
Z$DBL,RP, 3
*
*       FOR RP'S NEEDED BY THE FTN7X COMPILER, USE %FRPLS
*       (92836-16004)
*
*
*      ***** FFP ENTRY POINTS *****
*
DBLE, RP,105201       * CONVERT REAL TO EXTENDED REAL
SNGL, RP,105202       * CONVERT EXTENDED REAL TO REAL
.DFER,RP,105205       * 3 WORD MOVE (EXTENDED REAL TRANSFER)
.XPAK,RP,105206       * NORMALIZE, ROUND AND PACK WITH EXPONENT
*                     *   AN EXTENDED REAL MANTISSA
.XCOM,RP,105215       * COMPLEMENT AN EXTENDED REAL UNPACKED
*                     *   MANTISSA IN PLACE
..DCM,RP,105216       * COMPLEMENT AN EXTENDED REAL
DDINT,RP,105217       * TRUNCATE AN EXTENDED REAL
.XFER,RP,105220       * 3 WORD MOVE (EXTENDED REAL TRANSFER)
.GOTO,RP,105221       * TRANSFER CONTROL TO LOCATION
..MAP,RP,105222       * CAL THE ADR OF A 2 OR 3D ARRAY ELEMENT
.ENTR,RP,105223       * TRANSFER THE TRUE ADDRESS OF PARAMETERS
*                     *   USED IN A SUBROUTINE CALL
.ENTP,RP,105224       * SAME AS .ENTR, EXCEPT MUST BE THIRD
*                     *   INSTRUCTION AFTER THE ENTRY POINT
.PWR2,RP,105225       * CALCULATE REAL X AND INTEGER N, Y=X*2**N
.FLUN,RP,105226       * UNPACK REAL (EXPONENT IN A, LOWER PART OF
*                     *   MANTISSA IN B)
*
$SETP,RP,105227       * SET UP A LIST OF POINTERS
*                     * NOTE: $SETP REPLACES .SETP AS OF 1913
```

```
*
.PACK,RP,105230       * CONVERT SIGNED MANTISSA OF REAL INTO
*                     *   NORMALIZE REAL FORMAT
.XADD,RP,105213       * EXTENTED REAL ADDITION
*                     *   (IN E AND M SERIES ONLY)
.XSUB,RP,105214       * EXTENDED REAL SUBTRACTION
*                     *   (IN E AND M SERIES ONLY)
.XMPY,RP,105203       * EXTENDED REAL MULTIPLY
*                     *   (IN E AND M SERIES ONLY)
.XDIV,RP,105204       * EXTENDED REAL DIVIDE
*                     *   (IN E AND M SERIES ONLY)
*
*********************************************************************
*
*     XADD, XSUB, XMPY AND XDIV ARE USED FOR FTN INTERFACES
*
XADD,RP,105207       * EXTENDED REAL ADDITION
*                    *   (IN E AND M SERIES ONLY)
XSUB,RP,105210       * EXTENDED REAL SUBTRACTION
*                    *   (IN E AND M SERIES ONLY)
XMPY,RP,105211       * EXTENDED REAL MULTIPLICATION
*                    *   (IN E AND M SERIES ONLY)
XDIV,RP,105212       * EXTENDED REAL DIVISION
*                    *   (IN E AND M SERIES ONLY)
*
*********************************************************************
```

4.20.4 RP's for the HP/1000 E-Series

```
*************************************************
*                                               *
*           ENTRY POINT CHANGES                 *
*           FOR THE HP/1000 E-Series            *
*                                               *
*************************************************
*
*     The RP's in an E-Series CPU are Op-System dependent.
*     Conforming to the conventions specified at the beginning
*     of this section:
*                       "+"  indicates RTE-6/VM,  and
*                       "-"  indicates RTE-IVB.
*
*     ***** INTEGER ARITHMETIC ENTRY POINTS *****
*
.MPY, RP,100200^     * INTEGER MULTIPLY
.DIV, RP,100400^     * INTEGER DIVIDE
.DLD, RP,104200^     * DOUBLE LOAD
.DST, RP,104400^     * DOUBLE STORE
*
*     ***** EAU ENTRY POINTS *****
*
.FAD, RP,105000^     * FLOATING POINT ADD
.FSB, RP,105020^     * FLOATING POINT SUBTRACT
.FMP, RP,105040^     * FLOATING POINT MULTIPLY
.FDV, RP,105060^     * FLOATING POINT DIVIDE
IFIX, RP,105100^     * REAL TO INTEGER FIX
FLOAT,RP,105120^     * INTEGER TO REAL FLOAT
*
*    ***** MOVE & COMPARE WORDS ******
*
.MVW, RP,105777^     * MOVE WORDS
.CMW, RP,105776^     * COMPARE WORDS
*
*    ***** BIT & BYTE INSTRUCTIONS *****
*
.CBT,RP, 105766^     * COMPARE BYTES
.LBT,RP, 105763^     * LOAD BYTE
.SBT,RP, 105764^     * STORE BYTE
.MBT,RP, 105765^     * MOVE BYTES
.SFB,RP, 105767^     * SCAN FOR BYTE
.CBS,RP, 105774^     * CLEAR BITS
.SBS,RP, 105773^     * SET BITS
.TBS,RP, 105775^     * TEST BITS
*
*
*     *****   MISCELLANEOUS   ******
*
```

```
*     CLRIO IS GENERATED BY THE COMPILER, BUT IS NOT USED IN
*     RTE.  THEREFORE THIS ENTRY POINT IS MERELY AN RSS
*     (UNCONDITIONAL SKIP).
*
CLRIO,RP,2001       * NOTE: THE CLRIO ROUTINE IS USED BY QUERY
*                   *   SO COMMENT OUT THE RP IF USING 92063A IMAGE
*
*      Z$INT AND Z$LPP ARE ENTRY POINTS USED BY FTN4X COMPILER.
*
Z$INT,RP,1          * INTEGERS ARE STORED IN 1 WORD (DEFAULT=1)
Z$LPP,RP,73         * # OF LINES/PAGE (DEFAULT=73 OCTAL/59 DECIMAL)
*
*      Z$DBL IS AN ENTRY POINT USED BY THE FTN4 COMPILER (REV
*        1901 OR LATER)
*      IF IT CONTAINS 3, DOUBLE PRECISION VALUES WILL BE 3 WORDS
*      IF IT CONTAINS 4, DOUBLE PRECISION VALUES WILL BE 4 WORDS
*
Z$DBL,RP,3          * DOUBLE PRECISION VALUES ARE STORED ON 3
*                   *   WORDS.
*
*      FOR RP'S NEEDED BY THE FTN7X COMPILER, USE %FRPLS
*      (92836-16004)
*
*
*     ***** FFP ENTRY POINTS *****
*
DBLE, RP,105201     * CONVERT REAL TO EXTENDED REAL
SNGL, RP,105202     * CONVERT EXTENDED REAL TO REAL
.DFER,RP,105205     * 3 WORD MOVE (EXTENDED REAL TRANSFER)
.XPAK,RP,105206     * NORMALIZE, ROUND AND PACK WITH EXPONENT
*                   *   AN EXTENDED REAL MANTISSA
.XCOM,RP,105215     * COMPLEMENT AN EXTENDED REAL UNPACKED
*                   *   MANTISSA IN PLACE
..DCM,RP,105216     * COMPLEMENT AN EXTENDED REAL
DDINT,RP,105217     * TRUNCATE AN EXTENDED REAL
.XFER,RP,105220     * 3 WORD MOVE (EXTENDED REAL TRANSFER)
.GOTO,RP,105221     * TRANSFER CONTROL TO LOCATION
..MAP,RP,105222     * CAL THE ADR OF A 2 OR 3D ARRAY ELEMENT
.ENTR,RP,105223     * TRANSFER THE TRUE ADDRESS OF PARAMETERS
*                   *   USED IN A SUBROUTINE CALL
.ENTP,RP,105224     * SAME AS .ENTR, EXCEPT MUST BE THIRD
*                   *   INSTRUCTION AFTER THE ENTRY POINT
.PWR2,RP,105225     * CALCULATE REAL X AND INTEGER N, Y=X*2**N
.FLUN,RP,105226     * UNPACK REAL (EXPONENT IN A, LOWER PART OF
*                   *   MANTISSA IN B)
*
$SETP,RP,105227     * SET UP A LIST OF POINTERS
*                   * NOTE: $SETP REPLACES .SETP AS OF 1913
*
.PACK,RP,105230     * CONVERT SIGNED MANTISSA OF REAL INTO
```

```
*                    *   NORMALIZE REAL FORMAT
.CFER,RP,105231      * MOVE 4 WORDS (COMPLEX TRANSFER)
.XADD,RP,105213      * EXTENDED REAL ADDITION
*                    *   (IN E AND M SERIES ONLY)
.XSUB,RP,105214      * EXTENDED REAL SUBTRACTION
*                    *   (IN E AND M SERIES ONLY)
.XMPY,RP,105203      * EXTENDED REAL MULTIPLY
*                    *   (IN E AND M SERIES ONLY)
.XDIV,RP,105204      * EXTENDED REAL DIVIDE
*                    *   (IN E AND M SERIES ONLY)
*
*********************************************************************
*
*     XADD, XSUB, XMPY AND XDIV ARE USED FOR FTN INTERFACES
*
XADD,RP,105207       * EXTENDED REAL ADDITION
*                    *   (IN E AND M SERIES ONLY)
XSUB,RP,105210       * EXTENDED REAL SUBTRACTION
*                    *   (IN E AND M SERIES ONLY)
XMPY,RP,105211       * EXTENDED REAL MULTIPLICATION
*                    *   (IN E AND M SERIES ONLY)
XDIV,RP,105212       * EXTENDED REAL DIVISION
*                    *   (IN E AND M SERIES ONLY)
*
*********************************************************************
*
*
*  ***** EMA ENTRY POINTS (F AND E SERIES IN RTE-IVB ONLY) *****
*
.EMAP,RP,105257-     * RESOLVE REFERENCES TO EMA ELEMENTS
.EMIO,RP,105240-     * USED FOR I/O FROM EMA ARRAYS
MMAP, RP,105241-     * MAPS PHYSICAL PAGES INTO LOGICAL ADR SPACE
*
*
*********************************************************************
*
*  **** VMA/EMA ENTRY POINTS (F AND E SERIES IN RTE-6/VM ONLY) **
*
.PMAP,RP,105240+     * MAP EMA/VMA PAGE IN MAP REGISTER
$LOC ,RP,105241+     * MEMORY RESIDENT NODES LOAD ON CALL
.IMAP,RP,105250+     * SINGLE INT FTN4X ARRAY CALC + MAP
.IMAR,RP,105251+     * SINGLE INT SUBSCRIPT ARRAY CALC.
.JMAP,RP,105252+     * DOUBLE INT FTN4X ARRAY CALC. + MAP
.JMAR,RP,105253+     * DOUBLE INT SUBSCRIPT ARRAY CALC.
.LPXR,RP,105254+     * TWO DEF POINTER ADD & MAP
.LPX ,RP,105255+     * A&BREG POINTER + DEF OFFSET & MAP
.LBPR,RP,105256+     * ONE DEF POINTER & MAP
.LBP ,RP,105257+     * MAP POINTER IN A&BREG
*
*   **** USER CALLABLE OP SYS ENTRY POINTS
```

```
*        (F AND E SERIES IN RTE-6/VM ONLY)    ******
*
$LIBR,RP,105340+    * EMULATE SYSTEM ENTRY $LIBR
$LIBX,RP,105341+    * EMULATE SYSTEM ENTRY $LIBX
*$SIP ,RP,0    +    * USE $SIP,RP,0 ONLY IF THE SYSTEM
*                   *   IS PRIVILEGED OR A MICROINSTRUCTION
*                   *   IS STORED IN A TRAP CELL
.FNW ,RP,105345+    * FIND WORD WITH USER INCREMENT
.LLS ,RP,105347+    * LINKED LIST SEARCH
.CPM ,RP,105352+    * COMPARE WORDS IN MEMORY
.ENTN,RP,105354+    * ENTRY POINT RESOLVER
.ENTC,RP,105356+    * ENTRY POINT RESOLVER
*********************************************************************
```

4.20.5 RP's for the HP/1000 F-Series

```
*****************************************************
*                                                   *
*           ENTRY POINT CHANGES                     *
*           FOR THE HP/1000 F-Series                *
*                                                   *
*****************************************************
*
*     The RP's in an F-series CPU are Op-System dependent.
*     Conforming to the conventions specified at the beginning
*     of this chapter:
*                       "+"  indicates RTE-6/VM,  and
*                       "-"  indicates RTE-IVB.
*
*     ***** INTEGER ARITHMETIC ENTRY POINTS *****
*
.MPY, RP,100200^      * INTEGER MULTIPLY
.DIV, RP,100400^      * INTEGER DIVIDE
.DLD, RP,104200^      * DOUBLE LOAD
.DST, RP,104400^      * DOUBLE STORE
*
*     ***** EAU AND HFP ENTRY POINTS *****
*
.FAD, RP,105000^      * FLOATING POINT ADD
.FSB, RP,105020^      * FLOATING POINT SUBTRACT
.FMP, RP,105040^      * FLOATING POINT MULTIPLY
.FMP, RP,105040^      * FLOATING POINT MULTIPLY
.FDV, RP,105060^      * FLOATING POINT DIVIDE
IFIX, RP,105100^      * REAL TO INTEGER FIX
FLOAT,RP,105120^      * INTEGER TO REAL FLOAT
.FIXD,RP,105104       * REAL TO DOUBLE INTEGER FIX
*                     *  (IN F SERIES ONLY)
.FLTD,RP,105124       * REAL TO DOUBLE INTEGER FLOAT
*                     *  (IN F SERIES ONLY)
*
*    ***** MOVE & COMPARE WORDS ******
*
.MVW,RP, 105777^      * MOVE WORDS
.CMW,RP, 105776^      * COMPARE WORDS
*
*    ***** BIT & BYTE INSTRUCTIONS *****
*
.CBT,RP, 105766^      * COMPARE BYTES
.LBT,RP, 105763^      * LOAD BYTE
.SBT,RP, 105764^      * STORE BYTE
.MBT,RP, 105765^      * MOVE BYTES
.SFB,RP, 105767^      * SCAN FOR BYTE
.CBS,RP, 105774^      * CLEAR BITS
.SBS,RP, 105773^      * SET BITS
```

```
.TBS,RP, 105775^      * TEST BITS
*
*     *****   MISCELLANEOUS   **********
*
*      CLRIO IS GENERATED BY THE COMPILER, BUT IS NOT USED IN
*      RTE.  THEREFORE THIS ENTRY POINT IS MERELY AN RSS
*      (UNCONDITIONAL SKIP).
*
CLRIO,RP,2001         * NOTE: THE CLRIO ROUTINE IS USED BY QUERY
*                     *   SO COMMENT OUT THE RP IF USING 92063A IMAGE
*
*       Z$INT AND Z$LPP ARE ENTRY POINTS USED BY FTN4X COMPILER.
*
Z$INT,RP,1            * INTEGERS ARE STORED IN 1 WORD (DEFAULT=1)
Z$LPP,RP,73           * # OF LINES/PAGE (DEFAULT=73 OCTAL/59 DECIMAL)
*
*       Z$DBL IS AN ENTRY POINT USED BY THE FTN4 COMPILER (REV 1901
*         OR LATER).
*       IF IT CONTAINS 3, DOUBLE PRECISION VALUES WILL BE 3 WORDS
*       IF IT CONTAINS 4, DOUBLE PRECISION VALUES WILL BE 4 WORDS
*
Z$DBL,RP,3
*
*       FOR RP'S NEEDED BY THE FTN7X COMPILER, USE %FRPLS
*       (92836-16004)
*
*
*      ***** FFP ENTRY POINTS *****
*
DBLE, RP,105201       * CONVERT REAL TO EXTENDED REAL
SNGL, RP,105202       * CONVERT EXTENDED REAL TO REAL
.DFER,RP,105205       * 3 WORD MOVE (EXTENDED REAL TRANSFER)
.XPAK,RP,105206       * NORMALIZE, ROUND AND PACK WITH EXPONENT
*                     *   AN EXTENDED REAL MANTISSA
.XCOM,RP,105215       * COMPLEMENT AN EXTENDED REAL UNPACKED
*                     *   MANTISSA IN PLACE
..DCM,RP,105216       * COMPLEMENT AN EXTENDED REAL
DDINT,RP,105217       * TRUNCATE AN EXTENDED REAL
.XFER,RP,105220       * 3 WORD MOVE (EXTENDED REAL TRANSFER)
.GOTO,RP,105221       * TRANSFER CONTROL TO LOCATION
..MAP,RP,105222       * CAL THE ADR OF A 2 OR 3D ARRAY ELEMENT
.ENTR,RP,105223       * TRANSFER THE TRUE ADDRESS OF PARAMETERS
*                     *   USED IN A SUBROUTINE CALL
.ENTP,RP,105224       * SAME AS .ENTR, EXCEPT MUST BE THIRD
*                     *   INSTRUCTION AFTER THE ENTRY POINT
.PWR2,RP,105225       * CALCULATE REAL X AND INTEGER N, Y=X**2**N
.FLUN,RP,105226       * UNPACK REAL (EXPONENT IN A, LOWER PART OF
*                     *   MANTISSA IN B)
*
$SETP,RP,105227       * SET UP A LIST OF POINTERS
```

```
*                    * NOTE: $SETP REPLACES .SETP AS OF 1913
*
.PACK,RP,105230      * CONVERT SIGNED MANTISSA OF REAL INTO
*                    *   NORMALIZE REAL FORMAT
.CFER,RP,105231      * MOVE 4 WORDS (COMPLEX TRANSFER)
*
*                    * ..FCM, ..TCM, .BLE, AND .NGL ARE AS OF REV 1926
*
..FCM,RP,105232      * COMPLEMENT A REAL
*                    *   (IN F SERIES ONLY)
..TCM,RP,105233      * NEGATE A DOUBLE REAL
*                    *   (IN F SERIES ONLY)
.BLE, RP,105207      * CONVERT REAL TO DOUBLE REAL
*                    *   (IN F SERIES ONLY)
.NGL, RP,105214      * CONVERT DOUBLE REAL TO REAL
*                    *   (IN F SERIES ONLY)
*
*
*     ***** 3-WORD ENTRY POINTS (IN F SERIES ONLY) *****
*
.XADD,RP,105001      * EXTENDED REAL ADDITION
.XSUB,RP,105021      * EXTENDED REAL SUBTRACTION
.XMPY,RP,105041      * EXTENDED REAL MULTIPLICATION
.XDIV,RP,105061      * EXTENDED REAL DIVISION
.XFXS,RP,105101      * EXTENDED REAL TO INTEGER FIX
.DINT,RP,105101      * EXTENDED REAL TO INTEGER FIX (NOTE .DINT FOR
*                    *   FTN INTERFACE, SAME ENTRY POINT AS .XFXS
.XFXD,RP,105105      * EXTENDED REAL TO DOUBLE INTEGER FIX
.XFTS,RP,105121      * INTEGER TO EXTENDED REAL FLOAT
.IDBL,RP,105121      * INTEGER TO EXTENDED REAL FLOAT  (NOTE: FTN
*                    *   INTERFACE SAME ENTRY POINT AS .XFTS)
.XFTD,RP,105125      * DOUBLE INTEGER TO EXTENDED REAL FLOAT
*
*     ***** 4-WORD ENTRY POINTS (IN F SERIES ONLY) *****
*
.TADD,RP,105002      * DOUBLE REAL ADDITION
.TSUB,RP,105022      * DOUBLE REAL SUBTRACTION
.TMPY,RP,105042      * DOUBLE REAL MULTIPLY
.TDIV,RP,105062      * DOUBLE REAL DIVIDE
.TFXS,RP,105102      * DOUBLE REAL TO INTEGER FIX
.TINT,RP,105102      * DOUBLE REAL TO INTEGER FIX  (NOTE: FTN
*                    *   INTERFACE SAME ENTRY POINT AS .TFXS)
.TFXD,RP,105106      * DOUBLE REAL TO DOUBLE INTEGER FIX
.TFTS,RP,105122      * INTEGER TO DOUBLE REAL FLOAT
.ITBL,RP,105122      * INTEGER TO DOUBLE REAL FLOAT (NOTE: FTN
*                    *   INTERFACE SAME ENTRY POINT AS .TFTS)
.TFTD,RP,105126      * DOUBLE INTEGER TO DOUBLE REAL FLOAT
*
* **** DOUBLE INTEGER ENTRY POINTS (FFP) (IN F SERIES ONLY) *****
*
```

```
.DAD ,RP,105014     * DOUBLE INTEGER ADDITION
.DSB ,RP,105034     * DOUBLE INTEGER SUBTRACTION
.DMP ,RP,105054     * DOUBLE INTEGER MULTIPLICATION
.DDI ,RP,105074     * DOUBLE INTEGER DIVISION
.DSBR,RP,105114     * DOUBLE INTEGER SUBTRACTION (REVERSED)
.DDIR,RP,105134     * DOUBLE INTEGER DIVISION (REVERSED)
.DNG ,RP,105203     * DOUBLE INTEGER NEGATE
.DIN ,RP,105210     * DOUBLE INTEGER INCREMENT
.DDE ,RP,105211     * DOUBLE INTEGER DECREMENT
.DIS ,RP,105212     * DOUBLE INTEGER INCREMENT AND SKIP IF 0
.DDS ,RP,105213     * DOUBLE INTEGER DECREMENT AND SKIP IF 0
.DCO ,RP,105204     * DOUBLE INTEGER COMPARE
*
*     ***** SIS ENTRY POINTS (IN F SERIES ONLY) *****
*
TAN  ,RP,105320     * TANGENT
SQRT ,RP,105321     * SQUARE ROOT
ALOG ,RP,105322     * NATURAL LOGARITHM LN(X)
ATAN ,RP,105323     * ARCTANGENT
COS  ,RP,105324     * COSINE
SIN  ,RP,105325     * SINE
EXP  ,RP,105326     * EXPONENTIAL E**X
ALOGT,RP,105327     * LOGARITHM LOG10(X)
TANH ,RP,105330     * HYPERBOLIC TANGENT
*
TRNL ,RP,105331     * EVALUATE THE QUOTIENT OF 2 POLYNOMIALS IN
*                   * DOUBLE PRECISION
DPOLY,RP,105331     * EVALUATE THE QUOTIENT OF 2 POLYNOMIALS IN
*                   * DOUBLE PRECISION
*                   * NOTE: DPOLY REPLACES TRNL AS OF 1926 (SAME
*                   *       ROUTINE DPOLY IS USED IN OTHER SUB-
*                   *       ROUTINES SUCH AS DCOS AND DSIN)
*
*                   * /CMRT, /ATLG, .FPWR, AND .TPWR ARE AS OF
*                   *   REV 1926
*
/CMRT,RP,105332     * RANGE REDUCTION FUNCTION
/ATLG,RP,105333     * COMPUTE (1-X)/(1+X) IN DOUBLE PRECISION
.FPWR,RP,105334     * COMPUTE X**I FOR REAL X AND UNSIGNED INTEGER I
.TPWR,RP,105335     * COMPUTE X**I FOR DOUBLE REAL X AND UNSIGNED
*                   *   INTEGER I
*
*********************************************************************
*
*     ***** VIS ENTRY POINTS (F SERIES IN RTE-IVB ONLY) *****
*
.VECT,RP,101460-    * FIRST OF TWO WORDS (USED BY SOFTWARE IN %VLIB
*                   *   TO GET TO TWO WORD OPCODES)
VPIV ,RP,101461-    * PIVOT ROUTINE
VABS ,RP,101462-    * ABSOLUTE VALUE ROUTINE
```

```
VSUM ,RP,101463-    * SUM THE ARRAY ELEMENTS
VNRM ,RP,101464-    * SUM THE ABSOLUTE VALUE OF THE ELEMENTS
VDOT ,RP,101465-    * DOT PRODUCT ROUTINE
VMAX ,RP,101466-    * FIND THE LARGEST  ARRAY ELEMENT
VMAB ,RP,101467-    * FIND THE LARGEST  ARRAY ELEMENT(ABSOLUTE VALUE)
VMIN ,RP,101470-    * FIND THE SMALLEST ARRAY ELEMENT
VMIB ,RP,101471-    * FIND THE SMALLEST ARRAY ELEMENT(ABSOLUTE VALUE)
VMOV ,RP,101472-    * COPY AN ARRAY INTO AN OTHER ARRAY
VSWP ,RP,101473-    * EXCHANGE ELEMENTS OF TWO ARRAYS
.ERES,RP,101474-    * CAL 2 WORD OFFSET FOR EMA ARRAY ELEMENTS
.VSET,RP,101476-    * CAL MAP TABLE FORM .ERES INFORMATION
.ESEG,RP,101475-    * PERFORM THE MAPPING FROM THE MAP TABLE
*                   *   FOUND WITH .VSET
.DVCT,RP,105460-    * FIRST OF TWO WORDS (USED BY SOFTWARE IN %VLIB
*                   *   TO GET TO TWO WORD OPCODES)
DVPIV,RP,105461-    * PIVOT ROUTINE FOR DOUBLE REAL ARRAYS
DVABS,RP,105462-    * ABSOLUTE VALUE ROUTINE FOR DOUBLE REAL ARRAYS
DVSUM,RP,105463-    * SUM THE ARRAY ELEMENTS FOR DOUBLE REAL ARRAYS
DVNRM,RP,105464-    * SUM THE ABSOLUTE VALUE OF THE ELEMENTS IN A
*                   *   DOUBLE REAL ARRAY
DVDOT,RP,105465-    * DOT PRODUCT ROUTINE FOR DOUBLE REAL ARRAYS
DVMAX,RP,105466-    * FIND THE LARGEST ARRAY ELEMENT IN A DOUBLE
*                   *   REAL ARRAY
DVMAB,RP,105467-    * FIND THE LARGEST ARRAY ELEMENT IN A DOUBLE
*                   *   REAL ARRAY (ABSOLUTE VALUE)
DVMIN,RP,105470-    * FIND THE SMALLEST ARRAY ELEMENT IN A DOUBLE
*                   *   REAL ARRAY
DVMIB,RP,105471-    * FIND THE SMALLEST ARRAY ELEMENT IN A DOUBLE
*                   *   REAL ARRAY (ABSOLUTE VALUE)
DVMOV,RP,105472-    * COPY A DOUBLE REAL ARRAY INTO ANOTHER DOUBLE
*                   *   REAL ARRAY
DVSWP,RP,105473-    * EXCHANGE ELEMENTS OF TWO DOUBLE REAL ARRAYS
*
*
*   **** EMA ENTRY POINTS (F AND E SERIES IN RTE-IVB ONLY) ****
*
*
.EMAP,RP,105257-    * RESOLVE REFERENCES TO EMA ELEMENTS
.EMIO,RP,105240-    * USED FOR I/O FROM EMA ARRAYS
MMAP, RP,105241-    * MAPS PHYSICAL PAGES INTO LOGICAL ADR SPACE
*
*************************************************************************
*
*   ***** VIS ENTRY POINTS (F SERIES IN RTE-6/VM ONLY) *****
*
.VECT,RP,101460+    * FIRST OF TWO WORDS (USED BY SOFTWARE IN %VLIB)
*                   *   TO GET TO TWO WORD OPCODES
VPIV ,RP,101461+    * PIVOT ROUTINE
VABS, RP,101462+    * ABSOLUTE VALUE ROUTINE
VSUM ,RP,101463+    * SUM THE ARRAY ELEMENTS
```

```
VNRM ,RP,101464+     * SUM THE ABSOLUTE VALUE OF THE ELEMENTS
VDOT ,RP,101465+     * DOT PRODUCT ROUTINE
VMAX ,RP,101466+     * FIND THE LARGEST  ARRAY ELEMENT
VMAB ,RP,101467+     * FIND THE LARGEST  ARRAY ELEMENT(ABSOLUTE VALUE)
VMIN ,RP,101470+     * FIND THE SMALLEST ARRAY ELEMENT
VMIB ,RP,101471+     * FIND THE SMALLEST ARRAY ELEMENT(ABSOLUTE VALUE)
VMOV ,RP,101472+     * COPY AN ARRAY INTO AN OTHER ARRAY
VSWP ,RP,101473+     * EXCHANGE ELEMENTS OF TWO ARRAYS
.DVCT,RP,105460+     * FIRST OF TWO WORDS (USED BY SOFTWARE IN %VLIB
*                    *   TO GET TO TWO WORD OPCODES)
DVPIV,RP,105461+     * PIVOT ROUTINE FOR DOUBLE REAL ARRAYS
DVABS,RP,105462+     * ABSOLUTE VALUE ROUTINE FOR DOUBLE REAL ARRAYS
DVSUM,RP,105463+     * SUM THE ARRAY ELEMENTS FOR DOUBLE REAL ARRAYS
DVNRM,RP,105464+     * SUM THE ABSOLUTE VALUE OF THE ELEMENTS IN A
*                    *   DOUBLE REAL ARRAY
DVDOT,RP,105465+     * DOT PRODUCT ROUTINE FOR DOUBLE REAL ARRAYS
DVMAX,RP,105466+     * FIND THE LARGEST  ARRAY ELEMENT IN A DOUBLE
*                    *   REAL ARRAY
DVMAB,RP,105467+     * FIND THE LARGEST  ARRAY ELEMENT IN A DOUBLE
*                    *   REAL ARRAY (ABSOLUTE VALUE)
DVMIN,RP,105470+     * FIND THE SMALLEST ARRAY ELEMENT IN A DOUBLE
*                    *   REAL ARRAY
DVMIB,RP,105471+     * FIND THE SMALLEST ARRAY ELEMENT IN A DOUBLE
*                    *   REAL ARRAY (ABSOLUTE VALUE)
DVMOV,RP,105472+     * COPY A DOUBLE REAL ARRAY INTO ANOTHER DOUBLE
*                    *   REAL ARRAY
DVSWP,RP,105473+     * EXCHANGE ELEMENTS OF TWO DOUBLE REAL ARRAYS
*
*
*   ***  VMA/EMA ENTRY POINTS (F SERIES IN RTE-6/VM ONLY)  ****
*
*
.PMAP,RP,105240+     * MAP EMA/VMA PAGE IN MAP REGISTER
$LOC ,RP,105241+     * MEMORY RESIDENT NODES LOAD ON CALL
.IMAP,RP,105250+     * SINGLE INT FTN4X ARRAY CALC. + MAP
.IMAR,RP,105251+     * SINGLE INT SUBSCRIPT ARRAY CALC.
.JMAP,RP,105252+     * DOUBLE INT FTN4X ARRAY CALC. + MAP
.JMAR,RP,105253+     * DOUBLE INT SUBSCRIPT ARRAY CALC.
.LPXR,RP,105254+     * TWO DEF POINTER ADD & MAP
.LPX ,RP,105255+     * A&BREG POINTER + DEF OFFSET & MAP
.LBPR,RP,105256+     * ONE DEF POINTER & MAP
.LBP ,RP,105257+     * MAP POINTER IN A&BREG
*
*       *** USER CALLABLE OP SYS ENTRY POINTS
*           (F AND E SERIES IN RTE-6/VM ONLY)  *****
*
$LIBR,RP,105340+     * EMULATE SYSTEM ENTRY $LIBR
$LIBX,RP,105341+     * EMULATE SYSTEM ENTRY $LIBX
*$SIP ,RP,0    +     * USE $SIP,RP,0 ONLY IF THE SYSTEM IS
*                    *   PRIVILEGED OR A MICROINSTRUCTION
```

```
*                    *    IS STORED IN A TRAP CELL
.FNW ,RP,105345+     * FIND WORD WITH USER INCREMENT
.LLS ,RP,105347+     * LINKED LIST SEARCH
.CPM ,RP,105352+     * COMPARE WORDS IN MEMORY
.ENTN,RP,105354+     * ENTRY POINT RESOLVER
.ENTC,RP,105356+     * ENTRY POINT RESOLVER
*********************************************************************
```

Chapter 5
Media Installation and Update Procedures

Customers on Support Services, AMS/RCS/SMS, will receive updates to software on paper tapes, mini-cartridges, mag tapes, flexible discs and/or CTDs, depending on the options they have ordered. This chapter contains information concerning the format of update/new media, and should be used in conjunction with your product's configuration/installation manuals when removing software from the media.

```
**************************************************************
*                                                            *
*   Look at the media label and determine what format        *
*   is used. Then find the section in this chapter           *
*   which corresponds to the media format (sections          *
*   are organized by format). Follow the instructions        *
*   in that section to restore the files from the            *
*   media.                                                   *
*                                                            *
**************************************************************
```

5.1 General Information for Update Customers

1. *BACK UP YOUR DISC BEFORE PROCEEDING.*
   This will insure that you can always return to your original system and start over.

2. *VERIFY YOUR BACKUP COPY.*
   It is suggested that you make two copies and verify them both.

3. The typical procedure for updating your system is to replace the existing files on your system with the files supplied on the

media. You may, when it's possible, want to store the new file to disc on a different CRN or volume. Then, when you're sure it has transferred correctly, purge your old copy. This is just to ensure that you get a good copy of the new file before you destroy your old one.

After you have installed your software:

1. Generate your new system right away. If there have been any errors in the transfer process, they probably will be detected this way.

2. Check the revision codes of your software as they appear in the generation map against those listed in the software numbering catalog or file, and make sure you have not left out any modules.

3. Boot, initialize and use your newly generated system to make sure that it works correctly.

4. Make backup copies of your newly generated system. Use a new tape to backup your system. Keep the old copy until it's time to update once again, and then use it to backup the next 'new' system. This way you will keep at least two revisions backed-up by rotating your media.

5. Keep the update media together with your old backup media. If you discover problems later, you will always be able to get back to where you started and go through the installation procedure again.

NOTE

If Operating System software has not changed and there are no changes affecting your generation (e.g., generated-in libraries), then regeneration is not necessary and on-line reloading will be sufficient. Otherwise regeneration is necessary before reloading on-line.

5.2 Media Content

All the updates to the software for a product are distributed on the media requested by the customer. Depending on the product, there will be differences in what software is included on the media. The following table provides an overview of the different configurations possible with respect to update software content and format:

Media Option		Format	Operating Systems	Subsystems
010	Paper Tape	FMGR 'ST'	(A)	(A)
020	Mini-Cartridge	READR/SAVER	(B)	(B)
		FMGR 'ST'	(B)	(B)
		CI 'CO'	-	(B)
022	CS/80 CTD	FC	(C)	(C)
		TF	(C)	(C)
		VCP Bootable	(C)	(C)*
041	Floppy Disc	Mountable FMGR CRN	(B)	(B)
		Mountable CI volume	-	(B)
042	Mini-Floppy	Mountable FMGR CRN	(B)	(B)
		Mountable CI volume	-	(B)
044	Micro-Floppy	Mountable FMGR CRN	(B)	(B)
		Mountable CI volume	-	(B)
050	Mag Tape 800	READR/SAVER	(C)	(C)
		FC	(C)	(C)
		FMGR 'ST'	(C)	(C)
		TF	(C)	(C)
051	Mag Tape 1600	READR/SAVER	(C)	(C)
		FC	(C)	(C)
		FMGR 'ST'	(C)	(C)
		TF	(C)	(C)

* Restored Off-line

(A) Only the files that have changed will be included on the media.

(B) Each individual media part no. (i.e. one mini-cartridge, one disc, one mag tape) contains a certain subset of the files belonging to a product. If one or more of these files change, the entire media part containing that file or files will be shipped. For example, suppose the following media part numbers for a product contain the following files:

9xxxx-1xx01 - File A, File B, File C
9xxxx-1xx02 - File D, File E
9xxxx-1xx03 - File F, File G, File H

If file B, file F, and file H are updated, the customer receiving this option would receive the media part numbers 9xxxx-1xx01 and 9xxxx-1xx03. Notice that the customer would also get files A, C, and G even though these files haven't changed.

(C) All the files belonging to the product will be sent.

5.3 Media Installation Procedures

Software is stored on media in one of several formats. The above table shows the formats currently being used for different media types. Note that each physical media carries a label identifying the part number of the media, a description and a revision code.

On media with files to be restored to hard disc (e.g., all floppies; TF, FC, Saver, and FMGR 'ST' (store) tapes; and mini-cassettes) there is a file called "HPHPHP" which describes each of the software parts. Information provided for each part includes

Part number
Software revision code
Module number
File type
File name

All media (i.e., each tape, mini-cartridge, floppy, etc.), with a revision code after 2340 (all software updated at DSD4.0 is 2540 or greater) will have an HPHPHP file and a transfer file for getting the files off the media. The exception to this rule is diagnostics: they do not have the HPHPHP file.

The information in HPHPHP is helpful to the user who wants to know what files are on the medium. For example, if the medium was missing a software module that was listed in HPHPHP, the user would call his/her support office and request the missing software.

On each tape or mini-cartridge, HPHPHP is the first file. On floppies, HPHPHP is the first file appearing in the directory listing. The HPHPHP file has no part number. Diagnostics and

primary systems do not require an HPHPHP file.

5.4 'FC' Format for CS/80 CTD and Mag Tapes

Please consult with the Utilities Reference Manual (92077-90004 or 92084-90007) on how to use the 'FC' utility.

A CTD tape contains one or more products, each product being identified by a CRN (Graphics or other products may have more than one CRN). To find out if more than one CRN is on the tape, proceed as follows:

```
:ru,fc
FC:cl,-<lu>          where <lu> is the LU of the media
```

If only one CRN is on the tape do the following:

```
:ru,fc
FC:co,-<lu>{::xx},::yy,v
```

where <lu> = is the LU of the CTD or mag tape drive
xx = CRN identifying the files for a given product on tape
yy = CRN on your disc.
v = verify

This will copy all the files from the tape with reference to CRN 'xx' onto the disc on CRN 'yy' and will verify each transfer. Files with duplicate names will not be copied and FMGR-002 errors will occur. Use the 'D' option if you want to replace the files that have duplicate names.

If more than one CRN is on the tape, use the FC group command as follows:

```
:ru,fc
FC:gr
FC:co,-<lu>{::x1},::y1,v      Commands to move CRNs from the tape
FC:co,-<lu>{::x2},::y2,v      to the destination disc cartridge.
    .          .     .        For example, co,-13{32754},::30,v
    .          .     .        moves CRN 32754 from the tape LU 13
    .          .     .        to the disc CRN 30. Use a CO command
FC:co,-<lu>{::xn},::yn,v      for each CRN that is to be removed
FC:eg                         from the tape.
FC:ex
```

Where <lu> is the tape LU number, x1 through xn are the CRNs on the

tape that you wish to move to the disc, and y1 through yn are the destination CRNs or LUs to which the files will be stored.

5.5 'TF' Format for CS/80 CTD and Mag Tapes

Please consult with the Utilities Reference Manual (92077-90004 or 92084-90007) on how to use the 'TF' utility.

A CTD tape contains one or more products, each product being identified by a global directory. The HPHPHP file contains a list of all files on that tape. Here is an example on how to use 'TF':

```
CI> tf
TF: co,<lu>,,v
```

This would copy all files from the tape LU to your disc under the directory names that the files are stored on the tape.

The above is the preferred and less complicated way. However, if you want to selectively restore certain products, follow the directions below.

```
CI> tf
TF: co,<lu>{/global1/@},/global2/@,v
```

```
where     <lu>    = LU of the tape
          global1 = Global directory identifying the
                    files for a given product on the tape.
          global2 = Global directory on your system
          v       = verify
```

This will copy all the files from the tape with global directory /GLOBAL1 onto the disc on directory /GLOBAL2 and will verify each transfer. Files with duplicate names will not be copied and duplicate file errors will occur. To replace duplicate files, use the 'D' option.

5.6 READR/SAVER Format for Mini-Cassette and Mag Tapes

SAVER stores the software on to the tape file-by-file in a packed format. The tape can only be read using the READR utility; refer to the READR/SAVER Utility Reference Manual (92068-90016) for detailed information on how to update your files. The recommended procedure is to use the UPdate function of READR to replace existing files on

the system with new files from tape.

With this update there are four library files for RTE-6/VM which cannot fit on a single mini-cartridge. The files each have been split into two parts. The files and their parts are

The file:		...has been split into:
$TFLIB	--->	$TFLB1, $TFLB2
$FMP6	--->	$FMP6X, $FMP6Y
$FMP6C	--->	$FM6CX, $FM6CY
$BMPG2	--->	$BMP2X, $BMP2Y

It will be necessary for customers receiving updates in this format to use the MERGE utility (refer to the RTE-6/VM Utilities Reference Manual (92084-90007)) to merge the pieces back into the original libraries.

To restore files from a READR/SAVER mini-cartridge, use the following procedure:

```
:ru,readr              ( run READR )

Command? mt,n1         ( n1 = source tape LU )

Command? oc,-n2        ( n2 = destination LU )

Command? al            ( restore all files  )

Command? /e            ( exit READR )
```

READR may have to be resized if there are more files on the tape than READR can store in its program space.

5.7 FMGR ST Format for Mini-Cartridge and Mag Tapes

Usually, three or more files are stored on a tape. The first file is the HPHPHP file. The second file is a transfer file used to restore all the files from the medium. All the files, including the transfer file, are stored on tape in ST-format in the order in which they appear in the transfer file.

The following two procedures will restore the software from ST-formatted media.

A. To restore files from a ST-formatted tape when there is an HPHPHP file as the first file and a FMGR transfer file as the second file, use the following procedure:

1. You can store the first file on the media, giving it the name HPHPHP, or you can skip the first file on the media.

   Use the following command to store the first file on <lu>:

   :st,<tapelu>,hphphp::-<lu>

   Or alternatively, use the following command to skip the first file:

   :cn,<tapelu>,ff

2. Restore the transfer file from <tapelu> to <lu>:

   :st,<tapelu>,<transfile>::-<lu>

3. List and review the transfer file to check all the values needed for the global variables used in the next step.

   :li,<transfile>::-<lu>

4. Transfer control to the transfer file.

   :tr,<transfile>::-<lu>,1G,2G,3G,4G

   where 1G -- is the LU of the tape from which you are copying.
   2G -- is the CRN or -LU to which you are copying.
   3G -- is the optional security code to be put on files.
   4G -- is the PURGE option to delete the files already on the LU to which you are copying.

B. If the second file on the tape is not a FMGR restore transfer file, you need to use this method. Store down the directory file or first file on the tape. Modify the first file so as to store the files individually onto disc with FMGR ST commands, giving the disc files the file names specified in a directory file. When creating the disc files, use the file type according to the type given in the directory file. Also, it's recommended that a file size of -1 be specified so FMGR can make the file as big as it needs.

For example:

Directory Entry	FMGR Command
FILEA S	:st,5,filea:rt:32767::-1,as
FILEB B	:st,5,fileb:rt:32767::-1,br
FILEC A	:st,5,filec:rt:32767::-1,ba
FILED D	:st,5,filed:rt:32767::-1,bn

Remember, when restoring files from the tape, either purge the existing copy of the file before restoring the new one to disc, or store the file to a different CRN and purge the old file after the transfer is successful.

5.8 CI CO Format for Mini-Cartridge and Mag Tapes

To restore files from tapes in CI COpy format, use the following procedure:

1. You can either copy the first file from the media or skip the first file.

   Use the following command to copy the first file from your media LU, giving it the name HPHPHP:

   ```
   CI> co <lu> hphphp
   ```

   Or alternatively, use the following command to skip the first file on your media:

   ```
   CI> cn <lu> ff
   ```

2. Copy the transfer file from the media to hard disc.

   ```
   CI> co <lu> <transfile>
   ```

3. List and review the transfer file to check all the values needed for the global variables used in the next step.

   ```
   CI> li <transfile>
   ```

4. Transfer control to the transfer file to restore the remaining files to the hard disc.

   ```
   CI> tr <transfile> $1 $2 $3 $4
   ```

   where $1 = the LU of your media (same as the LU in step 1 above)
   $2 = the new file system LU to create the global directory

used in conjunction with CRDIR command
$3 = destination CRN or -LU (if files are to be restored on FMGR CRNs rather than a CI volume)
$4 = security code (if files are to be restored on FMGR CRNs rather than a CI volume)

5.9 Floppies in FMGR Format

If you have CI on your system, please do the following:

1. Mount the drive while in FMGR.

```
CI> fmgr
:mc,<lu>
:ex
```

2. Copy the software to your CI volume. Note that you should use the 'D' option in the CO command if you are replacing files.

```
CI> co @::-<lu> @::<dest crn> d
```

where <lu> is the LU of the drive and <dest crn> is your FMGR CRN or -LU.

3. Dismount the drive.

```
CI> dc,<lu>
```

Note that you can mount FMGR CRNs in FMGR and can dismount them in CI.

If you do not have CI on your system, please follow the procedure below:

1. Insert the floppy containing the software into the drive and mount the drive.

```
:mc,<lu>
```

2. List the transfer file FLPRST.

```
:li,flprst::-<lu>
```

Note the use of the four global parameters in FLPRST. Global parameters 1G (LU as in steps 1 and 2 above) and 2G (destination LU) are required. Global parameters 3G (security

code) and 4G (PURGE existing files of the same name) are optional.

3. Transfer control to file FLPRST.

   :tr,flprst,-<lu>,<dest crn>,[,sc,PURGE]

   <lu> is the LU number of the source LU, and <dest crn> is the destination CRN or -LU. If you want the files being copied to <dest crn> to have a security code, specify a value for optional parameter SC. If you want a file on the floppy to overwrite a file by the same name that already exists on <dest crn>, include the word PURGE for the optional fourth parameter. (Note that the brackets indicate optional parameters.)

   If a duplicate file exists on <dest crn> and the purge option was not used, you will get a FMGR -002 error. If you want to avoid this error, use the purge option. Otherwise, when you get the error, enter:

   :tr

   This will continue execution of the transfer file but will not replace the duplicate file on <dest crn>.

4. Dismount the drive.

   :dc,-<lu>,rr

5. Repeat steps 1 through 4 for all floppies containing the software you are installing.

5.10 Floppies in CI Format

On CI formatted floppies, /F/RESTORE_FLOPPY, a CI transfer file will restore the software to the hard disc. In addition, almost all CI formatted floppies have /F as the only global directory. This means that if you are supposed to be sent a file /PASCAL/PASCAL.LIB, you will instead be sent /F/PASCAL/PASCAL.LIB. All directories are subordinated to /F to allow the CI transfer file, RESTORE_FLOPPY to put files in the correct directory without having a duplicate directory error. Note, however, that files on the hard disc will not have the /F global directory.

Restore software from a CI formatted floppy using the following procedure:

1. Make sure the directory /F does not already exist on any CI mounted volume. Verify this by entering:

   CI> dl /

   If a /F directory exists, rename the directory. The floppy has a /F global directory and if a /F directory already exists and is mounted before the user mounts his new floppy, CI will issue the following message and the contents of the floppy will be inaccessible:

   Duplicate Directory /F

2. Insert the floppy containing the software into the drive and mount the drive.

   CI> mc <lu>

3. List file RESTORE_FLOPPY.

   CI> li /f/restore floppy

   RESTORE_FLOPPY contains the commands to create directories and copy the software modules from the floppy to the hard disc. When listing the file, note the use of variable parameter $1. You will supply a value for this parameter when transferring control to RESTORE_FLOPPY. Also, note the file names used in the CO (copy) commands. When you transfer control to RESTORE_FLOPPY, a file being copied from the floppy will overwrite a file on the hard disc that has the same name and destination path. If you want to save the file currently residing on the hard disc, either rename the file or copy the file to the removable media before transferring control to RESTORE_FLOPPY.

4. Transfer control to file RESTORE_FLOPPY.

   CI> tr /f/restore floppy <lu>

   Where <lu> at the end of the command indicates the LU where you would like to create the new global directories.

   RESTORE_FLOPPY contains CRDIR (create directory) commands. When a CRDIR command is executed and the directory already exists, a duplicate directory error message is issued and execution of RESTORE_FLOPPY continues with the next command in the file. You can ignore the error message.

5. Dismount the drive.

```
CI> dc <lu>
```

6. Repeat steps 2 through 5 until you have copied all files from the floppies.

   The rationale for the /F scheme is as follows. Suppose a floppy is sent without the /F directory and the top directory is called /PASCAL. Now the user wants to restore the floppy to disc. The destination directory can not be called /PASCAL because only one /PASCAL can exist at one time. So, the user will have to call the destination directory something else. The /F scheme will prevent this problem.

5.11 VCP Bootable Format for CS/80 CTD

"VCP Bootable" means that these files are loaded directly from tape into memory, then executed by following the instructions in the appropriate diagnostic manual. The CTD media update in this format replaces the older version of the media. Refer to the appropriate Diagnostic Manual.

5.12 Paper Tape

A single file is stored on the tape in FMGR 'ST' format. The file type of this file must be determined from the specific Software Numbering Catalog, Configuration Guide or Reference Manual for the product. The file is restored by using the FMGR 'ST' command (ex. :ST,4,FILEA:RT:32767::-1,BR).

5.13 Customized Update Tapes

5.13.1 TF Format for RTE-A and RTE-6

All Customized Update tapes for RTE-A and RTE-6 are now in TF format. Some products that were previously sent out in FC or are in FC format on other options will be shipped out in TF format on Customized Update tapes.

The following products are currently shipped out in various

Customized Update tapes:

DIRECTORIES	PROD.NAME	PROD.NUMBER	STANDARD FMT
/VIS/	VIS for RTE-6/VM	12928A	FC
/D-LINK/	Datalink	91732A	FC
/D-SAFE/	Datasafe	91745A	FC
/D-SHARE/	Datashare	91747A	FC
/DS/	DS/1000	91750A	FC
/X.25/	X.25	91751A	TF
/X.25_Srcs/	X.25 Sources	91751X	TF
/RJE/	RJE/1000	91781A	TF
/MRJE/	MRJE/1000	91782A	TF
/PMF/	PMF/1000	91784A	TF
/CONTROL/	Control/1000	91823A	FC
/LAN/	LAN/1000	12076A	TF
/A700_MICROPROG/	Microprog for A700	92045A	FC
/A900_MICROPROG/	Microprog for A900	92049A	TF
/D-PAIR/	Datapair/1000	92050A	TF
/IMAGE1/	Image/1000 I	92069A	FC
/RTE_A/	RTE-A	92077A	TF
/VCPLUS/	VCPlus	92078A	TF
/VCPLUS_SRCS/	VCPlus Sources	92078X	TF
/D-CAP/	Datacap/1000	92080A	FC
/IMAGE2/	Image/1000 II	92081A	TF
/RTE-6/	RTE-6 VM/OS	92084A	TF
/HPSPICE/	HP Spice	92091A	FC
/PC-LINK/	PC-Link/1000	92140A	FC
/Pascal/	Pascal/1000	92833A	TF
/SIGNAL/	Signal/1000	92835A	FC
/FTN7X/	Fortran 77	92836A	FC
/DGL/	DGL/1000	92841A	FC
/AGP/	AGP/1000	92842A	FC
/DGL-SKEL/	DGL-Skel	92843X	FC
/BASIC/	Basic/1000-C	92857A	TF
/DEBUG/	Symbolic Debug	92860A	TF
/GRAPHICSV2/	DGL/1000 V2	92861A	TF
/GRAPHICSV2/	AGP/1000 V2	92862A	TF
/PCIF/	PCIF/1000 #1	94200B	TF
/PCIF/	PCIF/Get_Start #2	94200B	TF
/PCIF/AB/	PCIF/AB Handler	94202A	TF
/PCIF/GM/	PCIF/GM Handler	94203A	TF
/PCIF/SIEMENS/	PCIF/Siemens Hndlr	94204A	TF
/Forms/	Forms/1000A	94250A	TF
/F1000/	Forms/1000B	94250B	TF

There are two methods for restoring the contents of the customized update tape to the hard disc:

1. The first method is to use TF to copy the entire tape to the

CI directories. Then copy the products that have FC as a standard format to a FMGR cartridge and purge the CI directory that was associated with it. This method is used if your system has a CI volume with enough space to contain all the files on the customized update tape.

```
CI> tf
TF: co <lu> ,, v                (Copy tape to specified directories)
TF: ex
CI> co /Directory/ ::crn1 p     (One CO command for each product whose
                                 standard format is FC)
```

For example, suppose Pascal, DataLink, Fortran 77, and Image-II are all on a single customized update tape. You would enter the following command sequence:

```
CI> tf
TF: co 9 ,, v                   (Copy the entire tape to a CI volume)
TF: ex
CI> co /ftn7x/ ::F7 p           (Copy the contents of /FTN7X to cartridge F7
CI> pu /ftn7x                    and purge directory /FTN7X)
CI> co /d-link/ ::D2 p          (Copy the contents of /D-LINK to cartridge D2
CI> pu /d-link                   and purge /D-LINK)
```

In this example, LU 9 is the LU of the tape drive on which the customized update tape is mounted. Cartridges F7 and D2 must exist on your system. Also, by defaulting the destination parameter in the TF CO command, Pascal and Image-II are copied to directories /PASCAL and /IMAGE2 respectively.

2. The second method is to enter TF and use the group copy command to copy all the products directly to the disc. This method is used if your system does not have a CI volume with enough space to contain all the files on the customized update tape.

   Enter one TF CO command for each product in the customized update tape. All products whose standard format is FC are copied directly from the tape to a FMGR cartridge and all products whose standard format is TF are copied directly to a CI volume.

```
CI> tf
TF: gr
TF: co <lu>{/Directory/} ::crn1 v  (One TF CO command for each product
     .                              whose standard format is FC)
     .
     .
TF: co <lu>{/Directory/} ,, v      (One TF CO command for each product
     .                              whose standard format is TF)
```

```
      .
      .
TF: eg
TF: ex
```

For example, suppose Pascal, DataLink, Fortran 77, and Image-II are all on a single customized update tape. You would use the following command sequence:

```
CI> tf
TF: gr
TF: co 9{/Pascal/},,v          (Copy Pascal to directory /PASCAL)
TF: co 9{/Image2/},,v          (Copy Image II to directory /Image2)
TF: co 9{/Ftn7x/},::F7,v       (Copy Fortran 7X to cartridge F7)
TF: co 9{/D-Link/},::D2,v      (Copy D-Link to cartridge D2)
TF: eg
TF: ex
```

In this example, LU 9 is the LU of the tape drive on which the customized update tape is mounted. Cartridges F7 and D2 must exist on your system.

As you can see from method 2 above, you can copy down products selectively if you do not have enough disc space or for some other reason.

5.13.2 FC Format for RTE-IVB and RTE-XL

Each customized tape may contain files from one or more CRNs. In order to remove these, do the following:

```
:RU,FC
 FC: CL,-xx                      Command to list CRNs stored on FC
                                 tape, where xx is the source tape lu
                                 (e.g. CL,-13 if CS80 tape lu is 13).
 FC: GR
 FC: CO,-xx{::nnnnn},ddddd,VF    Commands to move CRNs from tape
     .    .    .    .            to destination disc cartridge.
     .    .    .    .            (e.g. CO,-13{::32754},30,VF
     .    .    .    .            moves CRN 32754 from tape to
     .    .    .    .            disc CRN 30). Use a CO command
 FC: CO,-xx{::nnnnn},ddddd,VF    for each CRN that is to be
 FC: EG                          removed from tape.
```

Where "nnnnn" is the CRN on tape that you wish to move to disc, and "ddddd" is the destination disc CRN or LU onto which the information will be stored (refer to the Utilities Manual (92077-90004 or 92084-90007)) for more information on FC.

The following products are currently shipped out in various Customized Update tapes:

CRN	PROD.NAME	PROD.NUMBER	STANDARD FMT
::32754	RTE-IVB OS	92068A	FC
::32699	RTE-L MASTER	92070A	FC
::32758	RTE-LX MASTER	92071A	FC
::32758	RTE-LX SOURCES	92071X	FC
::32757	IMAGE-L	92073A	FC

5.14 Additional Formats

For media in other formats such as ASAVE, PUSHBUTTON SAVE, LSAVE, and READT/WRITT, refer to the appropriate utilities manual and/or installation guide.

Note that some subsystem software may have a transfer file or other means of restoring files from media. See the appropriate configuration guide or reference manual for specific information.

2200001107, 2-32
2200001198, 2-112
2200002279, 2-139
2200002378, 2-3
2200002675, 2-29, 2-75, 2-137
2200002790, 2-25, 2-120
2200002949, 2-27, 2-122
2200003632, 2-169
2200003723, 2-69
2200003780, 2-43, 2-79, 2-143
2200004192, 2-178
2200004234, 2-148
2200005579, 2-24, 2-112
2200005611, 2-182
2200005686, 2-9, 2-148
2200006015, 2-50, 2-116
2200006155, 2-151
2200006197, 2-27, 2-132
2200006734, 2-95
2200007047, 2-52
2200007443, 2-149
2200007849, 2-76, 2-139
2200008136, 2-94, 2-158
2200008235, 2-30, 2-152
2200008706, 2-84
2200009050, 2-95
2200009324, 2-76, 2-139
2200009704, 2-93, 2-157
2200009738, 2-59, 2-125
2200010082, 2-50, 2-116
2200010272, 2-31, 2-153
2200010314, 2-72
2200010587, 2-171
2200010595, 2-81
2200010611, 2-43, 2-79, 2-144
2200011130, 2-156
2200011502, 2-20
2200011718, 2-58
2200011791, 2-99
2200011833, 2-36
2200011908, 2-55
2200012070, 2-27, 2-132
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