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Featured article

Extra Data Segments and Process Handling With COBOL

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Editor's Note: This is Part 1 of a two-part article. The first part deals with the extra data segment concept, system performance impact of using extra data segments, and presents an extra data segment example from a COBOL main program. In the next Journal issue, Part 2, "Total Stack For A Main Program and Subprograms> 64KB? Use An Extra Data Segment," will demonstrate the use of an extra data segment with a main program and subprograms.

Introduction

Reflect for a few minutes to your introductory training on the HP 3000, where you learned execution is on the basis of processes created and handled by MPE/3000. A process is not a program itself, but the unique execution of a program by a particular user at a particular time; it is the basic executable entity in MPE.

Let's consider a sample standard process. It would consist of a process control block (used by the system to define and monitor the process), a code segment (assume it's a small program with no subroutines so there is only one code segment), and a data area (stack) in which the code segment operates. This is graphically shown in figure 1.

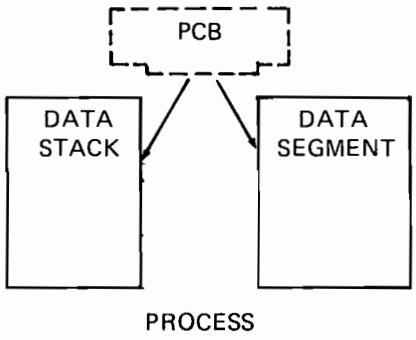

Figure 1

Processes and the elements that make up each process, are invisible to you when accessing MPE via standard capabilities (so you can "forget" about the PCB).

The HP 3000 permits the maximum data stack size to be 65 Kbytes* (there is also a limit on the code segment size). However, because a program can be broken into multiple code segments, each handled by MPE, a program is not limited to 32 kbytes. (Segmentation will not be treated in these articles.**

If you try to compile a program with large in-memory tables, etc., such that the data stack or segment is too large, a compile error results. This is shown in figure 2 (see highlight ①).

```
          001000$CONTROL USLINIT
          001100 IDENTIFICATION DIVISION.
          001200 PROGRAM-ID. BIGWS.
          001300 ENVIRONMENT DIVISION.
          001400 DATA DIVISION.
          001500 WORKING-STORAGE SECTION.
          001600 77  I PIC S9(4) COMP VALUE 20.
          001700 77  X PIC X(10) VALUE "DATA IS OK".
          001800 01  TABLE.
          001900     05 TABLE-ELEMENT OCCURS 900.
          002000        10 A PIC X(10).
          002100        10 B PIC X(10).
          002200 01  OTHER-STUFF.
          002300     05 FILLER PIC X(5000) OCCURS 100.
!!!! ERROR 53     SIZE OF DATA SEGMENT GREATER THAN 65K BYTES.  ← (1)
          002400 PROCEDURE DIVISION.
          002410 BIGWS SECTION.
          002500 MAIN-PARA.
          002600*
          002700     MOVE X TO A (I).
          002800*
          002900     DISPLAY A (I).
          003000*
          003100     STOP RUN.

    CHECKED SYNTAX ONLY.
    CPU TIME = 0:00:01.  WALL TIME = 0:00:05.
END COBOL/3000 COMPILATION. 001 ERROR.   NO WARNINGS.  SEE 000300
```

Figure 2

Extra Data Segments

MPE allows users with Data Segment Management capability to create and access *additional* data segments for their process during a job or session. The extra data segment(s) are used for additional temporary storage of data. Each segment is assigned an identity that either allows it to be shared between different processes in a job or session, or declares it private to the creating process.

Extra data segments are not directly addressable by a user process — rather, data is accessed through MPE intrinsics. These intrinsics move data between the user's stack and the extra data segment(s) (DMOVIN and DMOVOUT). The maximum number of extra data segments allowed per process, and the maximum size allowed to these segments is determined at system configuration time.

Users with Data Segment Management Capability can:

- Create an extra data segment.
- Transfer data from an extra data segment to the stack.
- Transfer data from the stack to an extra data segment.
- Change the size of an extra data segment.
- Delete an extra data segment.

A process can create or acquire an extra data segment with the GETDSEG intrinsic. When an extra data segment is created, the GETDSEG intrinsic returns to the calling process a *logical index number,* assigned by MPE, that allows this process to reference the segment in later intrinsic calls. The GETDSEG intrinsic also is used to assign the segment an *identity* that either allows other processes in the same job or session to share the segment, or that declares it private to the calling process. If the segment is sharable, other

* *All 65 Kbytes are not available for user data; the MPE System uses some of the 65 Kbytes.*

** *For additional information on processes, see Appendix B, Details of Program Execution, MPE Commands Reference Manual dated 7/77 (HP Part No. 30000-90009).*

processes in the same job/session can obtain its logical index (through GETDSEG) and use this index to reference the segment. Thus, the logical index is a local name that identifies the segment throughout any process that obtained the index with the GETDSEG intrinsic call. Note that when using two or more processes, the logical index can only be obtained via GETDSEG intrinsic call; one process cannot get the logical index of another process. The logical index need not be the same value in all processes sharing the same data segment. The GETDSEG intrinsic may return different logical index numbers to different processes even though each process referenced the same data segment in their intrinsic calls. The identity, on the other hand, is a job-wide or session-wide name that allows any process to identify the data segment in order to obtain a logical index for it. The identity can be passed directly from process to process if necessary.

When working with extra data segments, one needs to become familiar with some additional concepts:

displacement - the starting location for the first word transferred to/from the extra data segment.

number - specifies the size (in words), of the data block to be transferred.

location - specifies the starting address of the data block in the user stack that is to be transferred.

target/source (see figure 3) - these are the same; the description depends on direction of information. Moving from your initial stack to the extra data segment is called source, (source of the information that you are moving. Target indicates information in the opposite direction.)

For information on extra data segments, and the specific intrinsics referred to in the example, refer to the MPE Intrinsic Manual 30000-90010 (12/77), Section VIII Data Segment Management Capability.

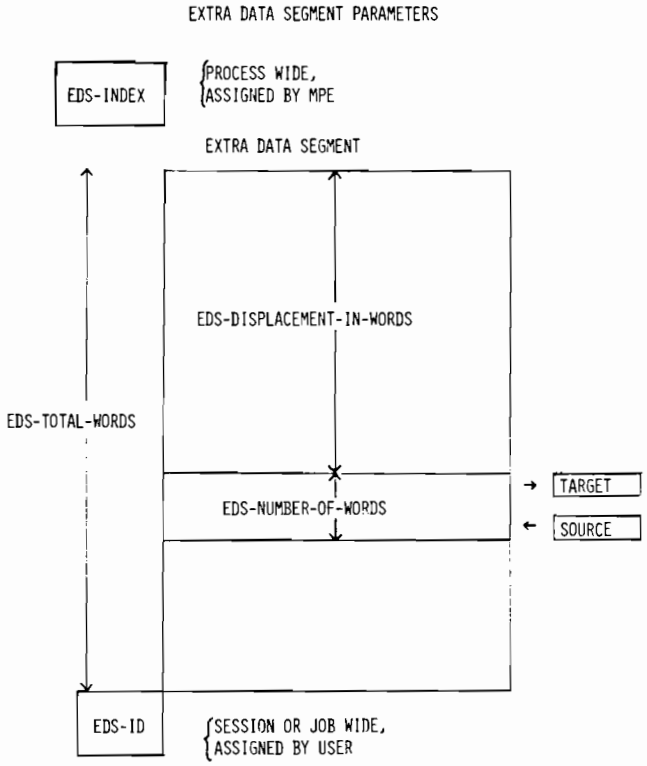

Figure 3

COBOL and Extra Data Segments

A solution to the problem depicted in Figure 2 is to reduce the process's initial data stack to less than 64KB by moving a sufficient number of the in-memory tables to one or more extra data segments. Conceptually this is shown in figure 4. The modified COBOL program is shown in figure 5. The modified program utilizes an SPL routine (see Appendix A for a listing of the SPL routine) to manage the extra data segments.

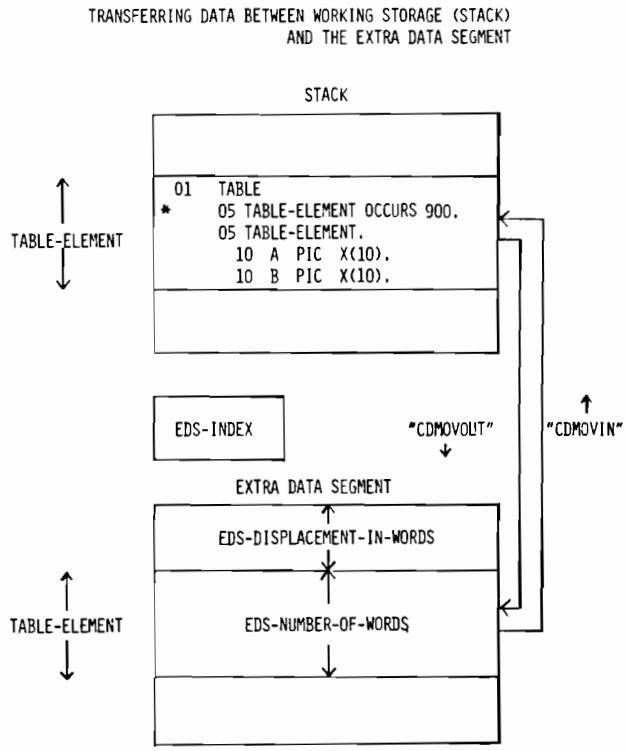

Figure 4

```
001000$CONTROL USLINIT
001100 IDENTIFICATION DIVISION.
001200 PROGRAM-ID. BIGWS.
001300 ENVIRONMENT DIVISION.
001400 DATA DIVISION.
001500 WORKING-STORAGE SECTION.
001600 77  I PIC S9(4) COMP VALUE 9.
001700 77  X PIC X(10) VALUE "DATA IS OK".
001800 01  TABLE.
001900**    05 TABLE-ELEMENT OCCURS 900.          (2)
001910      05 TABLE-ELEMENT.
002000        10 A PIC X(10).
002100        10 B PIC X(10).
002200 01  OTHER-STUFF.
002300      05 FILLER PIC X(500) OCCURS 100.
002310*
002320 01  CC                          PIC S9(11) COMP.
002330     88 CCE VALUE 0.
002340     88 CCG VALUE +1.
002350     88 CCL VALUE -1.
002360 01  CC-9                        PIC +9.
002370 01  EDS-INDEX                   PIC S9(4) COMP.
002380 01  EDS-TOTAL-WORDS             PIC S9(4) COMP VALUE 9000.
002390 01  EDS-ID                      PIC X(2) VALUE "ED".
002391 01  EDS-DISPLACEMENT-IN-WORDS PIC S9(4) COMP.
002392 01  EDS-NUMBER-OF-WORDS         PIC S9(4) COMP VALUE 10.
002393 01  EDS-WORK                    PIC X(20).
002394 01  ERR-CODE                    PIC X(2).
002400 PROCEDURE DIVISION.
002410 BIGWS SECTION.
002500 MAIN-PARA.                                  (4)
002510     CALL "CGETDSEG" USING CC,
002520       EDS-INDEX, EDS-TOTAL-WORDS, EDS-ID.
002530       IF NOT CCE MOVE "01" TO ERR-CODE GO TO ERR-1.
002600*
002700**   MOVE X TO A (I).                        (5)
002710     PERFORM GET-TABLE-1.                    (6)
002720     MOVE X TO A.
002730     PERFORM PUT-TABLE-1.
002800*
002900**   DISPLAY A (I).                          (7)
002910     PERFORM GET-TABLE-1.                    (8)
002920     DISPLAY A.
003000*
003010     CALL "CFREEDSEG" USING CC,              (9)
003020       EDS-INDEX, EDS-ID.
003030       IF NOT CCE MOVE "02" TO ERR-CODE GO TO ERR-2.
003100     STOP RUN.                                        (10)
003110*
003120 GET-TABLE-1.
003130     COMPUTE EDS-DISPLACEMENT-IN-WORDS =
003140       (I - 1) * EDS-NUMBER-OF-WORDS.
003150     CALL "COMDVIN" USING CC,
003160       EDS-INDEX, EDS-DISPLACEMENT-IN-WORDS,
003170       EDS-NUMBER-OF-WORDS, EDS-WORK.
003180       IF NOT CCE MOVE "03" TO ERR-CODE GO TO ERR-1.
003190     MOVE EDS-WORK TO TABLE-ELEMENT.
003200 PUT-TABLE-1.
003210     COMPUTE EDS-DISPLACEMENT-IN-WORDS =
003220       (I - 1) * EDS-NUMBER-OF-WORDS.
003230     CALL "COMDVOUT" USING CC,
003240       EDS-INDEX, EDS-DISPLACEMENT-IN-WORDS,
003250       EDS-NUMBER-OF-WORDS, TABLE-ELEMENT.
003260       IF NOT CCE MOVE "04" TO ERR-CODE GO TO ERR-1.
003270*
003280 ERR SECTION 99.                                  (11)
003290 ERR-1.
003300     PERFORM ERR-2.
003310     CALL "CFREEDSEG" USING CC,
003320       EDS-INDEX, EDS-ID.
003330     MOVE "05" TO ERR-CODE.                 (12)
003340 ERR-2.
003350     MOVE CC TO CC-9.
003360     DISPLAY " BIGWSEDS: ERR-CODE = " ERR-CODE
003370             ", CC = " CC-9.
003380 STOP-RUN.
003390     STOP RUN.

   DATA AREA IS 20615 WORDS.
   CPU TIME = 0:00:03.  WALL TIME = 0:00:20.
END COBOL/3000 COMPILATION.  NO ERRORS.  NO WARNINGS.
```

(3)

Figure 5

Explanations on the annotations of figure 5 follow:

(2) Only the highest level "occurs" need be modified, as shown.

(3) These working storage fields are needed by the SPL routines that manage the extra data segments.

(4) The call to "CGETDSEG" gets the extra data segment.

CC
Condition code returned by the intrinsic; +1=CCG, 0=CCE, -1=CCL.

Refer to the intrinsics manual for an explanation of CCG, CCE, CCL; CCE is usually the "OK" return.

EDS-INDEX
Process-wide index returned by "CGETDSEG"; used when referring to the extra data segment in subsequent calls;
Must be 1 word comp.

EDS-TOTAL-WORDS
Extra data segment length in words;
If not a multiple of 4, rounded up to next multiple of 4 by MPE;
Must be 1 word comp.

EDS-ID
Session-wide shareable/private identification;
If Binary 0:
Private, not accessible by other processes;
If not Binary 0:
Shareable, accessible by other processes;
Must be 1 word.

For private extra data segments, this call must be done once by the process that owns the extra data segment.

For shareable extra data segments, this call must be done once by all processes that are to share the extra data segment.

(5) The previous subscripted reference which modifies a field in the table is removed and replaced by

(6) A "GET" of the table element;
An unsubscripted reference to the required field; and,
A "PUT" of the table element.

This sequence must replace each table reference requiring that a field be modified.

(7) The previous subscripted reference which reads a field in the table is removed and replaced by

(8) A "GET" of the table element; and,
An unsubscripted reference to the required field.

This sequence must replace each table reference requiring that a field be read.

(9) The call to "CFREEDSEG" returns the extra data segment to MPE; and, need only be done once per process.

If the extra data segment is private,
i.e., EDS-ID = Binary 0,
The call is not necessary.
Process termination automatically frees private extra data segments.

If the extra data segment is shareable,
i.e., EDS-ID NOT = Binary 0,
The call is required for this and any other processes sharing the extra data segment.

If, within a session, a process using shareable extra data segments aborts before issuing a call to "CFREEDSEG," the extra data segments are not returned to MPE. To free the extra data segments, the session must be logged off.

If, within a job, a process using shareable extra data segments aborts before issuing a call to "CFREEDSEG," the extra data segments are not returned to MPE until END-OF-JOB.

(10) The code in this paragraph moves the table element from the extra data segment to working storage.

(11) The code in this paragraph moves the table element from working storage to the extra data segment.

For both "CDMOVIN" and "CDMOVOUT"

EDS-DISPLACEMENT-IN-WORDS
Displacement in words from the beginning of the extra data segment to the beginning of the area in the extra data segment to be read or modified;
Must be 1 word comp.

EDS-NUMBER-OF-WORDS
Length in words of the area of the extra data segment to be read or modified;
Must be 1 word comp.

TABLE-ELEMENT
Working storage field that
Receives the information transferred from the extra data segment by "CDMOVIN"; or,
Contains the information to be transferred to the extra data segment by "CDMOVOUT."

FOR "CDMOVIN"

The additional move from EDS-WORK to TABLE-ELEMENT ensures that the move of data from the extra data segment to working storage will not exceed the intended target's boundaries.

(12) When an error occurs,
An attempt is made to return the extra data segment (if previously gotten);
Error messages are displayed.

Figure 6 shows the PREP and two successful runs. Note that the PREP must include the DS capability, and the user performing the PREP must have DS capability. In addition the group and account in which the process executes must have DS capability.

The process is executed twice to demonstrate that the extra data segment is obtained from and returned to MPE successfully.

Notes about timings:

A singly subscripted reference takes about 60 microseconds on a dedicated HP 3000.

A "CDMOVIN," or "CDMOVOUT," takes about 1300 microseconds on a dedicated HP 3000.

The above time for a "CDMOVIN," or "CDMOVOUT" will increase **significantly** *if the extra data segment is not in main memory.*

```
:PREP $OLDPASS,$NEWPASS;RL=SPLSUB.RL;CAP=IA,BA,DS

 END OF PREPARE
:RUN $OLDPASS

DATA IS OK

 END OF PROGRAM
:RUN $OLDPASS

DATA IS OK

 END OF PROGRAM
:EOJ

CPU (SEC) = 9
ELAPSED (MIN) = 2
THU, MAR  9, 1978,  2:59 PM
END OF JOB
```

Figure 6

Additionally, remember that the use of extra data segments increases the amount of real memory required for a process; thus programs which use many large extra data segments will have an impact on other users. Thus the extra data segment capability must be used wisely!

(Note: For Appendix A, see following page.)

```
                              APPENDIX A
00001000  00000 0   $CONTROL SUBPROGRAM,SOURCE
00002000  00000 0   <<
00003000  00000 0     GETDSEG
00004000  00000 0           >>
00005000  00000 0   BEGIN
00006000  00000 1   DEFINE SET'CC=IF <
00007000  00000 1                        THEN CC := -1
00008000  00000 1                        ELSE IF =
00009000  00000 1                                THEN CC := 0
00010000  00000 1                                ELSE CC := +1#;
00011000  00000 1   PROCEDURE CGETDSEG (CC, INDEX, LENGTH, ID);
00012000  00000 1   LOGICAL INDEX, ID;
00013000  00000 1   INTEGER CC, LENGTH;
00014000  00000 1     BEGIN
00015000  00000 2     INTRINSIC GETDSEG;
00016000  00000 2       BEGIN
00017000  00000 3       GETDSEG (INDEX, LENGTH, ID);
00018000  00004 3         SET'CC;
00019000  00016 3       END;
00020000  00016 2     END;
00021000  00000 1   <<
00022000  00000 1     CREATE
00023000  00000 1           >>
00024000  00000 1   PROCEDURE CCREATE (CC, PROGNAME'W, ENTRYNAME, PIN,
00025000  00000 1     PARAM, FLAGS);
00026000  00000 1   ARRAY PROGNAME'W, ENTRYNAME;
00027000  00000 1   INTEGER CC, PIN, PARAM;
00028000  00000 1   LOGICAL FLAGS;
00029000  00000 1     BEGIN
00030000  00000 2     BYTE ARRAY PROGNAME (*) = PROGNAME'W;
00031000  00000 2     INTRINSIC CREATE;
00032000  00000 2       BEGIN
00033000  00004 3       CREATE (PROGNAME,, PIN,, FLAGS);
00034000  00014 3         SET'CC;
00035000  00027 3       END;
00036000  00027 2     END;
00037000  00000 1   <<
00038000  00000 1     DMOVOUT
00039000  00000 1           >>
00040000  00000 1   PROCEDURE CDMOVOUT (CC, INDEX, DISP, NUMBER, LOCATION)
00041000  00000 1   LOGICAL INDEX;
00042000  00000 1   INTEGER CC, DISP, NUMBER;
00043000  00000 1   ARRAY LOCATION;
00044000  00000 1     BEGIN
00045000  00000 2     INTRINSIC DMOVOUT;
00046000  00000 2       BEGIN
00047000  00000 3       DMOVOUT (INDEX, DISP, NUMBER, LOCATION);
00048000  00005 3         SET'CC;
00049000  00017 3       END;
00050000  00017 2     END;
00051000  00000 1   <<
00052000  00000 1     ACTIVATE
00053000  00000 1           >>
00054000  00000 1   PROCEDURE CACTIVATE (CC, PIN, SUSP);
00055000  00000 1   INTEGER CC, PIN;
00056000  00000 1   LOGICAL SUSP;
00057000  00000 1     BEGIN
00058000  00000 2     INTRINSIC ACTIVATE;
00059000  00000 2       BEGIN
00060000  00000 3       ACTIVATE (PIN, SUSP);
00061000  00004 3         SET'CC;
00062000  00016 3       END;
00063000  00016 2     END;
00064000  00000 1   <<
00065000  00000 1     DMOVIN
00066000  00000 1           >>
00067000  00000 1   PROCEDURE CDMOVIN (CC, INDEX, DISP, NUMBER, LOCATION);
00068000  00000 1   LOGICAL INDEX;
00069000  00000 1   INTEGER CC, DISP, NUMBER;
00070000  00000 1   ARRAY LOCATION;
00071000  00000 1     BEGIN
00072000  00000 2     INTRINSIC DMOVIN;
00073000  00000 2       BEGIN
00074000  00000 3       DMOVIN (INDEX, DISP, NUMBER, LOCATION);
00075000  00005 3         SET'CC;
00076000  00017 3       END;
00077000  00017 2     END;
00078000  00000 1   <<
00079000  00000 1     FREEDSEG
00080000  00000 1           >>
00081000  00000 1   PROCEDURE CFREEDSEG (CC, INDEX, ID);
00082000  00000 1   LOGICAL INDEX, ID;
00083000  00000 1   INTEGER CC;
00084000  00000 1     BEGIN
00085000  00000 2     INTRINSIC FREEDSEG;
00086000  00000 2       BEGIN
00087000  00000 3       FREEDSEG (INDEX, ID);
00088000  00003 3         SET'CC;
00089000  00015 3       END;
00090000  00015 2     END;
00091000  00000 1   END.
 PRIMARY DB STORAGE=%000;   SECONDARY DB STORAGE=%00000
 NO. ERRORS=0000;           NO. WARNINGS=0000
 PROCESSOR TIME=0:00:03;    ELAPSED TIME=0:00:07
```

Appendix A

(Please note, this appendix applies to the second article as well, especially CCREATE and CACTIVATE.)

● ● ●

Tips and techniques

MPE III Experience/Advice

An Interview with

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NPD Research
15 Verbena Avenue
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Editor's Note: Recently, James Shroads (Jay) combined a trip to NCC with a stop at HP's General Systems Division in Santa Clara. NPD was a Beta Test Site for MPE III, and Jay went to GSD to provide user feedback to the development team. Jay is also a member of the Operating Systems Technical Committee (Interface Committee) of the HP General Systems Users Group.

During Jay's visit, Ralph Manies of HP Customer Relations took the opportunity for a brief interview, which follows:

Ralph: As an experienced user of MPE III, do you have any comments that you would like to pass on to other users?

Jay: The best piece of advice I can give is that users should carefully review all the new features of MPE III before making major operational changes. There are some major new capabilities in MPE III that require some thought and planning before using.

For example, private volumes and serial discs with STORE/RESTORE with generic names are excellent tools to 'shorten' system backup (use STORE to a disc to backup quickly), but to effectively use this capability requires some thought on accounting structure. As an example, we tend to put programs and job streams in system domain, and use private volume domains for data. Private volumes that are changed/mounted during any day, are pack-to-pack copied each night; the system domain undergoes a dated backup daily and is fully backed-up weekly.

Ralph: Do you have any other 'tips' to pass on to users relative to private volumes?

Jay: Yes. If your log-on group is on a private volume, there are several tips. You should issue a mount command right after log-on, rather than let the system do an implicit mount. Also, because we run our packs 80% full, we must use a file equation to cause SORT to put its scratch file in the system domain. This is easily done if the PUB group of the account is in the system domain, as follows:

:FILE SORTSCR=SORTSCR.PUB
(or any other group in the system domain)

Also, be sure of what you want to do when creating groups in a private volume, because you cannot do an ALTGROUP on a group in the private domain.* That's a piece of feedback we had for the lab team, and I suspect that will be taken care of in a future release.

Actually, you can do an ALTGROUP command but you can't alter the disc space of the group in a private domain.

Ralph: What about user-defined commands?

Jay: You should think about some 'control.' We found that most people implemented almost every system command in their "own" format. That uses up some disc, which is not bad, but it does make it somewhat difficult to move into another user's environment. Establishing installation guidelines on UDCs would be helpful, and you can 'enforce' them via a lockword in COMMAND.PUB.SYS.

Ralph: What are your overall impressions of MPE III?

Jay: It's a major improvement, and after some initial rough spots, we found it to be reliable. MPE III takes care of most major problem areas we had with MPE IIA. For example, with MPE III you have multi-volume STORE/RESTORE and on-line disc compression. There's no question MPE III has improved the efficiency of our operation.

• • •

Author's Correction to Article

by Jack Howard, HP Neely Sales Region
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System Support Representative
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I wish to correct my article, *"Need A Little More Data Stack Space? Try NOCB on Your RUN Statement,"* submitted for the January/February 1978 Journal (see page 7). The article implies that the entire PCBX is removed from the user stack area; actually, only a part of the PCBX is removed. The indicated stack space saved, however, is about right.

• • •

Poor Man's Multidrop

by John A. Beckett
Computer Service Manager
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Collegedale, Tennessee 37315

We have found several applications in which we needed to have more than one terminal share the same multiplexor port on a 2000 or 3000. We have developed a simple method that does the job well (see schematic diagram).

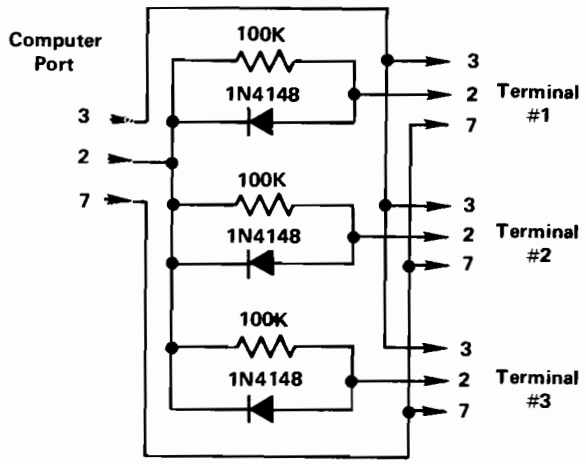
Applications for this technique:

1. Interfacing foreign I/O devices such as the Opscan 17.
2. Setting up several stations on the console line.
3. Logging operations on a port on a hard-copy terminal, but using a CRT for the people to enter on.
4. Situations where more than one terminal must access a given port infrequently.

You may notice that we use only three of the 25 pins available. We have found that it works fine to just leave the other pins disconnected at the back of the CPU, although you may wish to log off when you disconnect a terminal.

The technique works flawlessly for us, but there are some technical problems you can run into:

1. If you are using more than one HP 2640 series terminal on the port, you will have to limit port speed to 1200 baud to avoid control-E/control-F interference.
2. Of course, all terminals must operate at the same baud rate.
3. Control of which terminal may send to the computer is entirely manual. If two or more terminals send data to the computer simultaneously, you will have a problem.
4. Total distance between the ends of your network should be limited to 100 feet and should be in the same building, and should not occur over lines that suffer electrical interference problems.
5. Use of terminals that use control-S/control-Q protocol may present problems. This is the case with all serial matrix printers at 1200 baud and above.



- The system may be built in any type of enclosure, but a BUD Econobox is recommended.
- It may be expanded to more terminals in some cases.
- Only one terminal using buffer handshaking may be used. If multiple HP 264x's, limit speed to 1200 baud.

• • •

Check List for Review of EDP Controls and Security

by Dieter Bailly
Senior Manager
Management Advisory Services (MAS)
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Newport Beach, CA 92660

Editor's Note: Mr. Bailly presented this check list during a local regional users group meeting in San Diego, and it is reprinted in this issue for the benefit of all users.

Physical Site

Location:

Security Measures: (Safes, Sprinklers, Access, etc.)

Miscellaneous: (Unique Architectural Problems, etc.)

Equipment

Manufacturer:

Type and Model:

CPU
- (a) Storage Capacity
- (b) Special Features

Peripheral Equipment
- (a) Readers
- (b) Printers
- (c) Tapes
- (d) Disks
- (e) Other (TP, Drum, etc.)

Unit Record Equipment
- (a) EAM
- (b) Keypunches and Verifiers

Usage
- (a) Number of Shifts
- (b) Metered Hours

Other

Organization

Organization Chart (Sketch if no formal chart is available)

Personnel
- (a) Numbers
- (b) Types (Function)

Financial

Data Processing Budget
- (a) Equipment Costs (Rent or Depreciation)
- (b) Personnel Salaries and Benefits
- (c) Supplies and Forms
- (d) General Overhead and Burden

Is Data Processing a -
- (a) Profit Center
- (b) Cost Center
- (c) Other - Explain

Applications

List all significant computer applications and indicate their stage of development (i.e., planned, operational, etc.) as well as a brief description of the program function.

Answer Yes No

Systems and Program Development:

1. New Systems:
   - (a) Are all new *systems* authorized and approved by appropriate management, i.e., EDP manager and "user" department?
   - (b) Are revisions similarly authorized and approved?
   - (c) Are changes in accounting practices and the effect on comparability with prior periods' figures considered?
2. (a) Are *programs* and revisions approved by appropriate senior personnel in the EDP department?
   - (b) Are they prepared by a separate and adequately supervised systems or programming group, that is -
     - (i) independent of the user departments, and
     - (ii) independent of the data center?
3. (a) Is the final testing of programs and revisions made with data representative of actual conditions?
   - (b) Does testing extend beyond one processing cycle?
   - (c) Where several programs comprise a system, are they tested in their actual use sequence rather than independently?
   - (d) Do tests include transactions designed specifically to violate control procedures and editing routines?
4. Does the documentation provide a complete understanding of the system?

   Indicate which of the following are available:

   System documentation -
   - (a) Feasibility study;
   - (b) Narrative description of the system;
   - (c) System flowchart;
   - (d) Approval.

Answer Yes No

Program documentation -
(a) Specific program name and identification;
(b) Purpose of the program;
(c) Narrative description of the program (including an explanation of any technical terms and background information required for an understanding of the program).
(d) Flowchart, detail diagrams or decision tables showing the logic of the program steps or routines;
(e) Detail layout of i/p and o/p records, master records and computer work areas;
(f) Input data description;
(g) Complete operating instructions (see step 7);
(h) Listings of the source and object decks in use;
(i) Details of changes since the initial program was written including reasons therefor, effective date of change, and indication of retention of initial program listing and listings of revisions (showing periods each was in effect?);
(j) Record of program testing and location of test data.

5. Is there a record of all programs currently in use?
6. Are flowchart and block diagram symbols and procedures, and start-up routines (i/p - o/p control or initialize) standardized?
7. Are complete operator instruction sheets (i.e., run manuals) prepared for each run?

Organizational Controls:

8. Is the data center independent of user departments?
9. Is there a control function (control group or desk) to -
   (a) Receive and control i/p and o/p;
   (b) Review o/p for rasonableness;
   (c) Agree it to predetermined totals;
   (d) Account for sequences and other control procedures?
   (e) Maintain a schedule of i/p and o/p to be processed by the data center?
10. Is the control function independent of the computer operating department?

Physical Controls:

11. Is the data processing installation located in a controlled or protected area?
12. Is the computer center architecturally secure?

Answer Yes No

13. Is access to the data center restricted to operating personnel?
    (a) Are doors and entrances kept locked and monitored?
    (b) Are visitors controlled and escorted?
    (c) Is authorization for access reviewed regularly and accompanied by lock, pass, and key changes?
14. Is fire detection equipment used?
15. Are fire extinguishers readily accessible and of the proper type?
16. Are electrical power panels in a secure location?
17. Are security guards used for low activity periods such as nights, weekends, and holidays?

Library Controls:

18. Are files (tape, disk, etc.) controlled by a librarian in a protected area?
19. Is access to the library restricted?
20. Are the following facilities available for the storage of critical or confidential data?
    (a) Document safe (internally rated not to exceed 425°F for 2 hours).
    (b) Tape safe (internally rated not to exceed 150°F for 2 hours).
21. Is a periodic audit of the library contents conducted?

Data Protection:

22. Is critical information protected with off-site backup for:
    (a) Master data files (including tables)?
    (b) Critical input data for reconstruction such as transactions or file changes?
    (c) Production programs (both source and object)?
    (d) Program libraries on disk?
    (e) Current documentation including run manuals?
    (f) Current JCL decks?
    (g) Copy of operating system currently being used with proper options and fixes applied?
23. Are procedures in effect to insure that back-up material and data are kept current and properly updated?
24. Are priorities assigned to critical data and reviewed on a regular basis?
25. Are current master files and confidential data such as payroll rates maintained in a locked and protected area?
26. Is there an adequate program for recreation of records maintained in card, tape or random access files?

Answer
Yes No

27. Is data controlled to prevent its unauthorized use after it has been released by either the control group or the librarian?
28. Are critical forms such as checks stored in a locked area and controlled by serial numbers or some similar means?

Processing Controls:

29. Are all processing runs recorded on a machine utilization report identifying the run, program, operator, equipment, elapsed time and remarks about unusual conditions?
30. (a) Does the supervisor of the data processing center regularly observe the operators' performance, utilization reports, halt and error correction actions, etc.?
    (b) Are extra or extended shift operations supervised as well as regular shifts?
31. Are systems and programming personnel prohibited from operating the computer during production runs?
32. Are operators assigned to individual processing runs changed periodically so that no one operator has continuous responsibility for any single operation?
33. Are jobs placed in priority and run in the sequence of their importance?
34. Is each program periodically audited for accuracy of performance by the processing of of test data?
35. Are there physical controls to prevent —
    (a) Inadvertent erasure, or
    (b) Premature reuse of magnetic records?
36. Do external tape and disk labels contain:
    (a) Identification of the file?
    (b) Reel or disk number?
    (c) Number of reels or disks in the file?
    (d) Creation date?
    (e) Retention cycle?
37. Do tape header labels or internal disk labels include:
    (a) Reel or disk number?
    (b) Creation date?
    (c) Retention cycle (date obsolete)?
    (d) File identification (including whether master or transaction file, etc.)?
    (e) Program identification (where there is a possibility of files being processed through an incorrect program)?
38. Do trailer labels or internal disk records include:
    (a) Block count, or
    (b) Record count, or

Answer
Yes No

38. (c) Hash totals, and
    (d) End of reel or end of file designation, as appropriate?

Equipment and Disaster Protection:

39. Are preventive maintenance procedures in effect to minimize machine failure?
40. Have adequate provisions been made for adherence to temperature and humidity controls for equipment and tapes as recommended by manufacturers?
41. Is there a disaster plan?
    If so, has it ever been tested?
42. Have arrangements been made to use other similar equipment (backup facilities) in the event of machine or power failure?
    If so, where?
43. Have the backup facilities been tested for compatibility in hardware and software?
44. Are there adequate precautions for the protection of critical data, programs, etc. in the event of destruction of regular material, i.e., off-premises storage, retention of prior master and transaction files, etc.?
45. Are adequate disaster supplies of forms, checks, etc. available or have other alternative arrangements been made?
46. Have telecommunications backup procedures been examined, including alternatives at the remote or terminal sites, if applicable?
47. Have EAM disaster needs been examined?

Insurance and Legal Protection:

48. Are computer records, equipment and supplies adequately insured (including Service Bureau supplies, where applicable)?
49. If the data processing of the client firm is being done by an outside service organization, does a formal contract exist?

Prepared by	Date	Reviewed by	Date

Individual Applications

Answer Yes or No
Application No. 1 2 3 4

Input Controls:

1. (a) Are source documents approved outside the EDP department before processing?
   (b) Are corrections similarly approved?
2. Is control information provided by the originating department?
3. (a) Does the control section use a document or i/p register or equivalent to provide a written record to check against machine totals?
   (b) Are such checks evidenced by initials or other identification?
4. Is conversion of i/p to machine - readable form (punched card, magnetic tape, etc.) adequately checked (self-checking digits, key-verification, batch totals, etc.)?
5. Are instructions to keypunch operators (or equivalent) written in clear concise form?
6. Are i/p data and source documents effectively cancelled to guard against reprocessing?
7. Are i/p control totals checked prior to or at the beginning of the runs?
8. Do procedures -
   (a) Guard against duplicate correction, and
   (b) Provide a record of corrections made?

Programmed Controls:

9. Is i/p data edited prior to production runs?
10. Is control obtained over rejected or incorrect data to ensure eventual processing?
11. Do programs include -
    (a) Routines for checking (where required) console switches, tape units, disk storage units, and header and trailer labels on tapes and disk files prior to processing?
    (b) (i) Record counts, batch totals, hash totals, etc. of i/p data and master files, and
    (ii) Methods of proving them?
    (c) Writing a record of each programmed halt and intervention by operators?
    (d) Check points for lengthy runs?

Processing Controls:

12. Can operators determine at each stage of processing that the data processed is still in balance?
13. Is control established outside the EDP department over prenumbered forms, including effective mutilation of cancelled or unusable forms, checks, etc.?

Answer Yes or No
Application No. 1 2 3 4

14. Are changes in program constants (e.g., rates, cost or selling prices, tables, etc.) dated, initialized by authorized persons and retained as a permanent record?
15. Are such constants printed out from time to time and approved by persons qualified to pass on their correctness?
16. Are printouts of control information (via console typewriter or printer) -
    (a) Intelligible to operators, and
    (b) Reviewed by persons familiar with the activity being performed?

Output Controls:

17. Does the o/p flow directly to the control function?
18. Does the control group:
    (a) (i) Review material for reasonableness, and
    (ii) Have the required criteria for this?
    (b) Agree control totals?
    (c) Balance forms usage and check opening sequence?
    (d) Follow-up differences and report these to an appropriate official?
    (e) Follow reprocessing of rejected data on a positive basis?
19. Are external control totals used wherever possible?
20. Is o/p scrutinized by knowledgeable personnel outside the EDP department before general distribution?
21. Where necessary, is a note appended to reports to outline the significance of processing exceptions or unprocessed data?
22. Is a record of errors (incorrect input, machine failure, reprocessing, etc.) maintained and summarized from time to time to assess the significance of the errors?

No.	Application	Prep. by	Date	Rev. by	Date
1.					
2.					
3.					
4.					

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Contributed Library Corner

Bug In STRESS Programs

by Tony Herbert
Maunsell & Partners Pty. Ltd.
227 William Street, Melbourne, Victoria,
Australia 3000

There is a bug in the current version of STRESS in the EURO groups of the contributed library.

The problem causes the CONSTANTS statement to assign incorrect values of E and G to members when any form of the statement other than "CONSTANTS E value ALL" is used.

One way to fix this bug is to make two changes to subroutine S002A.

(a) Change Statement 501 to read:

```
CALL MATCH (KW,RVAL,0,8,IBUFF,IW)
```

(b) Add a new line immediately after Statement 501:

```
IF(IW.EQ.3) VAL=RVAL
```

The earlier Promon version of STRESS does not have the same bug and the CONSTANTS statement seems to operate satisfactorily in its various forms.

• • •

Software Information Base In New Library

A letter addressed to vendors regarding the development of a software information base for inclusion in the contributed library, has been sent to installation sites as well.

The purpose was to provide an opportunity for those users to be included on the data base and, also to inform installation members of the new resource available on future libraries.

Please note that a reply is acceptable from both vendors of software and installation sites.

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There's Room For Improvement in The Contributed Library

by Wayne E. Holt
Director, Data Processing
Whitman College
Walla Walla, WA 99362

Hopefully, when this article appears in the *Journal* you will have received the new version of the Contributed Library. It is my purpose to describe for you those items that I feel were not properly or adequately addressed by the Library project. Hopefully, you too will already have noted areas that you feel are lacking. Taken together, they should provide the basis for a good discussion at the International Meeting in Denver.

1. **Clean Up Vs. Fix Up.** It is hoped that you will find the file structure of the Library noticeably cleaner than the previous three issues. We have made every effort to insure that source files are found in the SOURCE group, program files in the PUB group, documentation files in the DOC group, etc. This was, of course, the major task during the Library project. What you will not find, I am sure, is a better performing Library. In other words, those programs that failed to work in the previous three issues will continue to fail to work in this issue because we simply did not have the resources to fix them. This in turn shall cause some sites difficulties because they have perhaps previously "fixed" any program problems they may have found. If they install our version, they will be right back where they started from. Personally, I believe the next phase of the Library project should be to initiate a fix-up of programs that do not work and to actively solicit program fixes either from original authors or known Users who have fixed the problems.
2. **Documentation Files.** Although the Library project attempted to provide a documentation file for every contribution in the Library it was recognized early that there was no consistency between documentation files in either the format or the text-processing system used. I feel that the time for a decision has been reached and the options available to us are few. We could request that all documentation files be submitted using EDIT/3000 or perhaps we could use a text-processing system such as GALLEY or EDIT2. Certainly a common format of some sort should be adopted so that vital information is not overlooked.
3. **Grades.** You should have immediately noticed upon examination of the abstracts in the Contributed Library that virtually every program is a Grade C, which implies that no quality assurance statement can be made. Certainly this state of affairs cannot be tolerated if we desire to have a meaningful grading scheme. Users of various routines are simply going to have to report the workability of those routines to the central Library site so that grades can be assigned.

4. **Key Words.** One of the little-used portions of the new Library information base is the proviso for the five key word entries per contribution. The major reason for little use is that a comprehensive set of key words does not exist. What is a key word? A key word should be a tool for looking at the information base data from a different perspective, allowing you to relate seemingly unrelated programs together in new and different ways. As an example, DEL could be considered a key word. For a new User of HP equipment, it would be very helpful to pick from the Library (regardless of the program's category) all those contributions that related to DEL if that new User was just embarking upon a project that used it. It would quickly provide him with the needed background before actually starting his own work. Dozens of other candidates come to mind, but I believe this is a topic that should be openly discussed by the members of the Users Group.
5. **Hardware.** Currently the Library information base registers only software. Granted this software is split in many different directions, all the way from "free" to "fee-paid." Nowhere in the information base is hardware listed although in recent months, vendors have announced pieces of equipment in the *Journal.* There could be some benefit in listing these items in the information base, especially for those sites who join the Users Group later on and have need of this kind of special equipment and who supplies it.
6. **Registry.** Along the same lines as hardware, some thought should be given to a registry of professional contractors, OEM's, or other types of specialists in such a way that a User could quickly locate fee-paid experts in their own local areas with a minimum of fuss. Naturally, there are inherent problems in any such registry and creation of such a registry would have to be very carefully considered by the User Group as a whole. Note that the *Journal* does currently provide an informal registry.

I hope that these items will stimulate some discussion among the members of the Users Group. I look forward to examining them with you at the Denver Meeting in October.

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Contributed Library Software Spotlight

STAN and GETFILE: Two Utilities For :STORE/:SYSDUMP Tapes

A report by Jason M. Goertz
Systems Programmer
Whitman College
Walla Walla, WA 99362

Two utility programs that are available on the General Systems Users Group Library are STAN (Store Tape Analyzer) and GETFILE. They are used to analyze and retrieve files from :STORE/:SYSDUMP tapes.

STAN, contributed by Gerry Wade, is the latest in a series of programs (LISTCRET, LISTSTOR, etc.) that originated in LIB 1. The current version in FORTRAN produces three types of listings, depending upon options put in by the User.

1. A file name listing, obtained by reading the directory at the beginning of the tape. This is useful if a quick listing of the files, groups, and accounts is desired.
2. A file label listing, obtained by reading each file's tape label, which produces a more extensive listing of file code, recsize, EOF, lockword, creator and creation, access and modification dates. This is especially useful if the tape is from another site and the file creator's identity must be known to restore the file.
3. Both of the above listings.

STAN works well on MPE-II, but since MPE-III was not available at our site for testing, no statement can be made as to STAN's compatibility with MPE-III.

GETFILE, contributed by Bernie Staley, allows the restoration of any file from a :STORE/:SYSDUMP tape into the User's log-on group. GETFILE first appeared in LIB 1 and has undergone several modifications since. The present version is the most enhanced to date. According to the author it is usable with MPE-III and allows the User to input up to twenty files to be restored separated by commas, a range of files separated by a slash, or @ for all files. If a single file is specified, it may be renamed. The group and account is then specified, @ indicating all groups or all accounts. GETFILE does not work, however, with IMAGE or KSAM files.

For sites that use tapes for backup purposes, or receive tapes from other sites, these two programs can save a lot of time and system resources.

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The Clearing House

RSPOOL, Remote Spooler Subsystem

RSPOOL is a subsystem which allows remote users of an HP 3000 the capabilities that would be available if they could have a line printer in their office. Without RSPOOL, users find that even with a hard copy terminal, there is no convenient way to send line printer reports to the terminal. RSPOOL provides a convenient way to print reports on both plain paper and special forms. Any report which is now sent to a line printer can be sent to a remote printer witout modification to the program.

RSPOOL is useful for

- Sending production reports to users as soon as they are ready for printing
- Getting special reports in a timely manner
- Printing on special forms such as checks and order forms
- Printing compiler listings

Any hard copy terminal can be spooled. The printer is spooled by logging on as a session and running the program RSPOOL. Any files which are "ready" for printing will be printed at this time. When all "ready" files are printed, RSPOOL is automatically suspended until another file becomes ready. Reports requiring special forms can be held from printing by setting an output priority on the file at a value below the output fence of the printer.

A spooled printer can be controlled from any terminal on the system. For example, all remote printers could be shut down by issuing the command STOP from one terminal which acts as a console. Each remote terminal could also act as a console to control itself. Files can be submitted to the spooler under program control or by a command to the program SPOOLCOM. The system may be used on any HP 3000 owned or leased by the original purchaser. Any enhancements or modifications made to the system will be made available at the cost of distribution. Purchase Price is $1,000.

Contact: DataCon of St. Helens
50 West Street
St. Helens, Oregon 97051
Ken Lessey at (503) 397-1305 or
Terry Branthwaite at (206) 271-3495

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DISSPLA For The HP 3000

DISSPLA, Display Integrated Software Systems and Plotting Language, is presently in use at over 130 installations around the world on most of the large-scale computer systems.

This FORTRAN library of subroutines has been converted to the HP 3000 system and is available from ISSCO (Integrated Software Systems Corporation) in San Diego.

Among the many graphics capabilities of DISSPLA are the abilities to easily use almost any plotting device with the same program, bar charts, pie charts, 3-D, curves, interpolations, shading, 51 character sets and much more.

For more information on DISSPLA for the HP 3000, contact:

Sunny J. Harris
Vice President, Operations
ISSCO
4186 Sorrento Valley Blvd., Suite G
San Diego, CA 92121
Tel. (714) 452-0170

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Software for Civil and Mechanical Engineering on the HP 3000

TDV, a private firm in Graz, Austria, has developed program systems for a wide field of applications in civil and mechanical engineering.

Programs SHEL and PLATE

These programs are based on the Finite Element Method and use an eight node isoparametric element with five or three degrees of freedom per node. They can be used for static and dynamic analysis of plate girder and shel structures.

All loading types encountered in practice may be specified including thermal effects, creep and shrinkage, prestressing, self-weight, surface loads, earth pressure, line loads, gravity (earthquake) loads, support settlement.

The program also allows to compute influence surfaces. The evaluation of the influence surfaces has been automated to a great degree. The user is only required to input the position of vehicles on the bridge by specifying the coordinates of the vehicle centroid and the type of vehicle used. The program then determines the max/min internal forces. To assist the user in positioning the vehicles, influence surfaces can be plotted using contour plots (see also section on examples). In addition the program enables the analysis and combination of many load cases. Yielding or flexible supports may be considered by the use of spring elements.

In addition rigid links may be specified, thus enabling the modeling of parts of the structure which are assumed to be "infinitely" stiff.

The program uses a "Frontal Solution Technique" for solving the system of equations. It can be shown that the "front width" in a structure will always be lower than the "band width" of the usual band algorithm, resulting in lower computing times. As the "front width" is *independent of the node numbering*, design changes may be made without having to renumber the nodes as it would be necessary in a banded solution algorithm.

Plotting capability consists of plotting the undeformed and the deformed structure in axonometry or perspective, the principal stresses on the surface and the principal internal forces (bending moment, shear) using vectors. As mentioned earlier influence surfaces may be plotted showing lines of equal influence (contour plots).

Additionally, the program SHEL allows to consider cracks in the concrete by disconnecting interelement degrees of freedom. This capability was successfully used for the reanalysis of a concrete shell bridge in Vienna which had developed cracks during service.

Program SPACEFRAME (RM)

For the static-, dynamic- and earthquake-analysis and design of continuous beams, plane frames/trusses, plane grids and space frame/trusses.

The input can be made either in batch or conversational mode. All loading types encountered in practice including prestressing may be specified. Input for specifying the cable geometry for load case "prestress" has been automated to a great degree.

The program allows the analysis of various construction stages. The effects of creep and shrinkage may be computed at any stage. Various load cases such as dead load and live load may be analyzed and combined. Max/min internal forces for the design due to various loading combinations may be printed out. In addition, influence lines may be computed and evaluated for live loading. The package also allows the dynamic and earthquake analysis of structures. The earthquake analysis is based on the same principles as used in STARDYNE.

Plotting modules are available for plotting the structure, deformations, vibration modes, bending moment diagrams and influence lines. In addition a postprocessing module is available for the design of crossections using ultimate strength and allowable stress methods.

The program is written in modular form, so a package can be "tailor made" to fit the needs of a specific user.

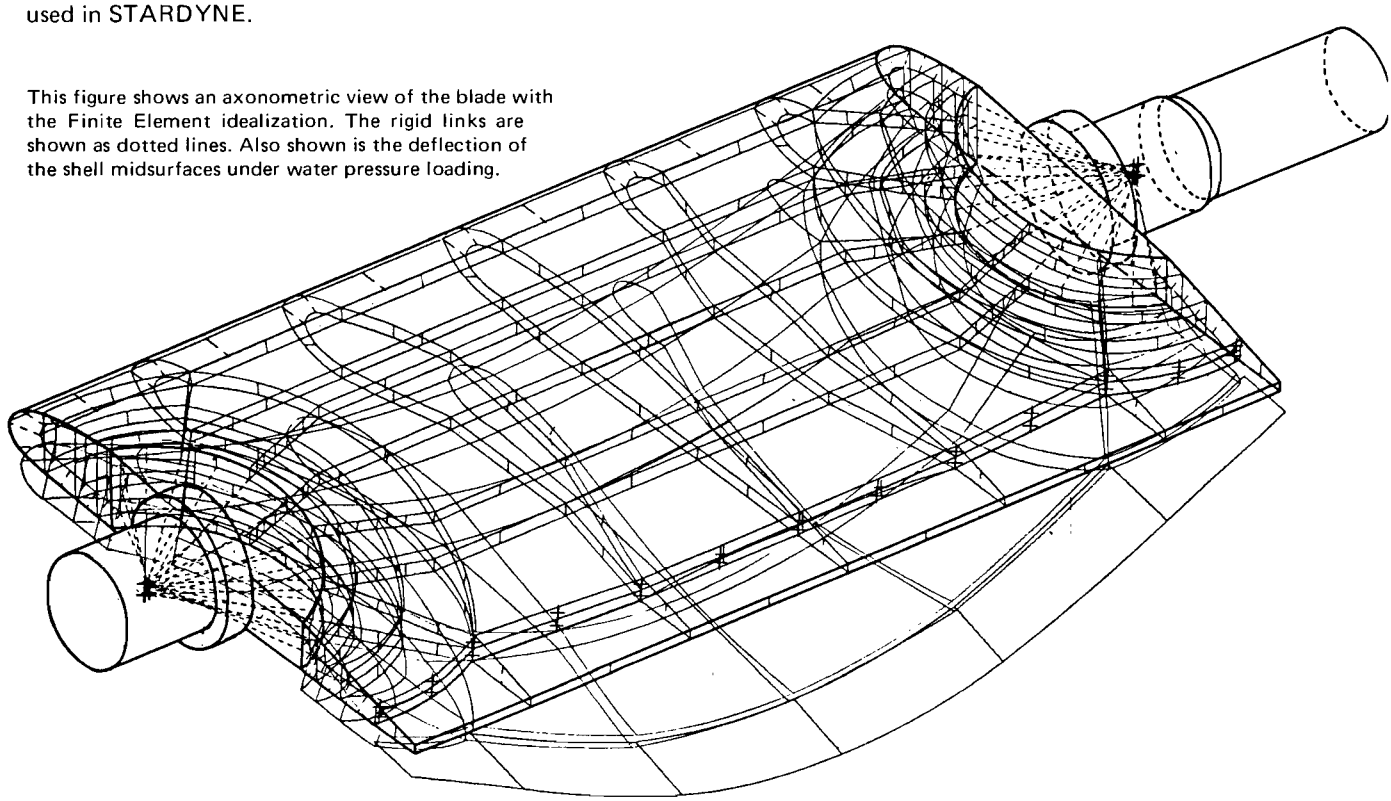
We thus can offer, for example, packages for plane static analysis only, at a lower price for customers not interested in the dynamic and space frame analysis, etc.

The package is currently used extensively at our office for service computing, in particular for prestressed and reinforced concrete bridge design.

A large number of program systems exist, not yet implemented on the HP 3000. Among these are MISES3, for elastic and visco-plastic analysis of two- and three-dimensional structures, with additional modules for stationary and instationary heat flow problems, and for potential flow problems. Program systems for flow in pipe networks, for instationary flow in river systems and for highway design and engineering are available, too.

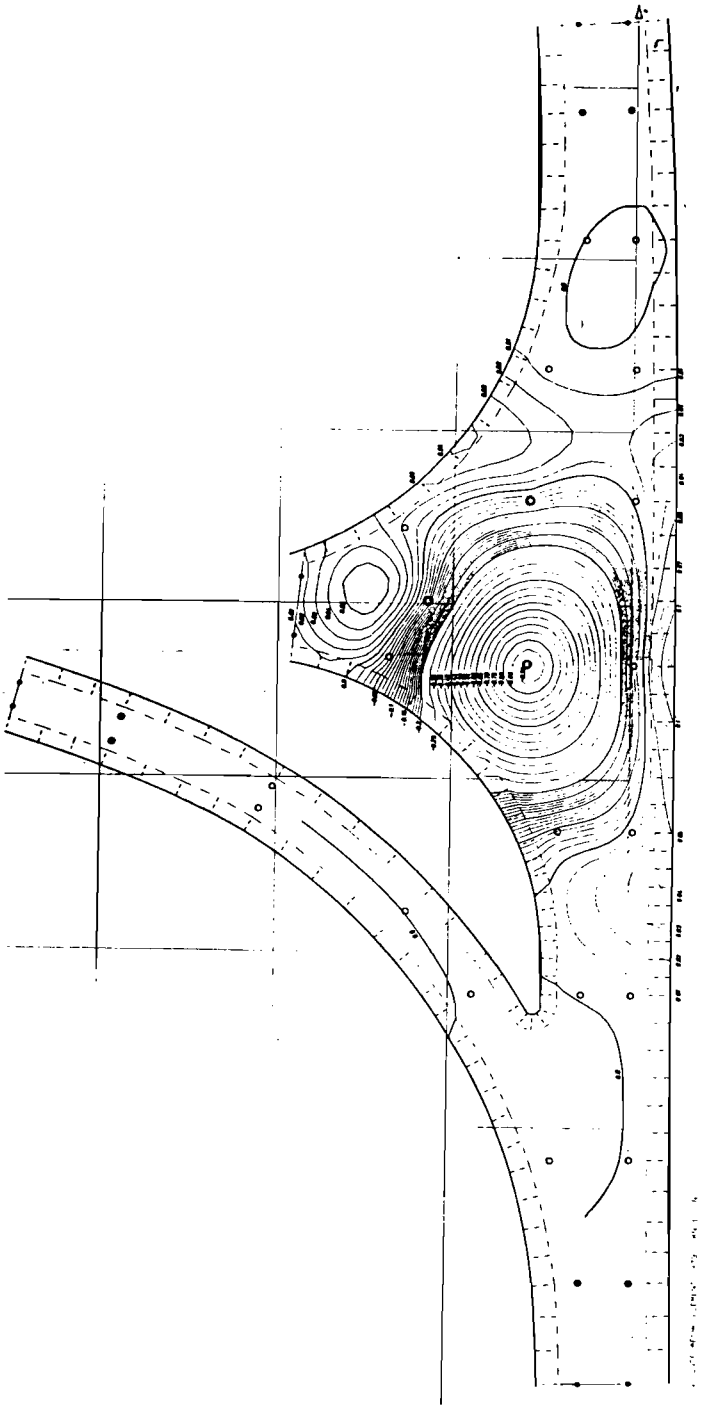
For further information, please write to:

Technische Datenverarbeitung
Dipl.-Ing. Heinz Pircher
Luthergasse 4
A-8010 Graz.
Tel. (0316) 71 5 31
TELEX: 31060 Pirchr a



This figure shows an axonometric view of the blade with the Finite Element idealization. The rigid links are shown as dotted lines. Also shown is the deflection of the shell midsurfaces under water pressure loading.

This figure shows a computer plot of influence surface contours for the normal force in one of the stanchions supporting the bridge.



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Australians Want To Convert

Our need is to locate 3000 users who have worked out a method of converting RSTSE BASIC to 3000 BASIC. We believe that the main problem area relates to strings.

Contact the Editor or reply directly to:

David Chambers
c/o Hewlett-Packard Australia Pty. Ltd.
141 Stirling Highway
Nedlands, W.A. 6009 Australia

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Wanted: General Ledger

A General Ledger package that is available for our HP 3000 Series II, Model 6 (256K). Our search has been confined to a package that costs no more than $2,500. We have all major languages on the system at present.

Please contact:

Robert S. Malik, Operations Manager
RTB Incorporated
253 Blacks Road, Box 766
Cheshire, Connecticut 06410
(Tel.) (203) 272-3597

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Cable Assemblies and Products Built to Order For HP 3000 Users

Custom built products to user specifications, device designs, and cable assemblies are our specialty.

These include dual console switch (for consoles in separate locations); incoming data switch (from modem to printer or directly to CPU), and various cables to replace or extend HP 3000 cables, or connect to special devices.

For additional information, contact:

Where Ends Meet
5926 Whitney Street
Oakland, CA 94609
(Tel.) (415) 652-7748

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All About Us

Election Results

Four positions to The Executive Board were open to voting in the recent election. Bill Bryden, Gil Drynan, Gary Green and Sharad Heda were elected.

Many thanks to the individuals who submitted their names for balloting; whether or not elected, they offered to serve. Thanks also to those who participated in the elective process – all of you who voted.

John Eaton was appointed as Director by The Executive Board, to fill the unexpired term that resulted when Barbara Rahe resigned as director (due to potential conflict of interest). John Eaton will provide representation of the European members of your Users Group.

Many thanks to Dr. Gary Anderson (who could not run again for office after having served two full terms), and to Barbara Rahe for serving so ably on The Executive Board.

Congratulations and thanks to all of you.

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New Executive Director and Office

The Executive Board selected Rella M. Hines as the new Executive Administrative Director of the HP General Systems Users Group, and a new office was established at Baltimore, Maryland (see cover for address).

The Users Group work load has become more intense than The Directors could satisfy on a part-time, volunteer basis in addition to their regular employment. Consequently, a full-time administrator employed by the Users Group will now handle the load.

All future membership and contributed library inquiries should be addressed to The Executive Director. (However, matters relating to the Denver Meeting should still be submitted to the 1978 Meeting Director, Joyce Pleasants – see cover, and contributions to the Journal should be forwarded to The Editor, Elias Zabor – see cover).

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Captain Grace M. Hopper to Give Keynote Address at Denver Convention

Capt. Grace M. Hopper (U.S. Navy), will be the keynote speaker at the 7th International Meeting of the HP General Systems Users Group, October 30th-November 3rd, in Denver. Capt. Hopper is a Phi Beta Kappa graduate from Vassar, with a Ph.D from Yale University. A recipient of numerous awards including "Man-of-the-Year" by the Data Processing Management Association, Achievement Award by the Society of Women Engineers, the Harry Goode Memorial Award from the American Federation of Information Processing Societies. In addition, UNIVAC also initiated the annual Grace M. Hopper Award for young computer personnel to be awarded annually by the Association for Computing Machinery.

A Fellow of the Institute of Electrical & Electronic Engineers, a member of the Association for Computing Machinery, Data Processing Management Association, Fellow of the American Association for the Advancement of Science and a member of the Franklin Institute, the U.S. Naval Institute, and the International Oceanographic Foundation.

Capt. Hopper has written a variety of papers on computer usage. The first in 1952, "The Education of a Computer" to 1976 "David & Goliath" Computers in the Navy. Listed in "Who's Who"; "Who's Who American Women" and "Who's Who American Scientists."

An experienced guest lecturer and speaker, Capt. Hopper's keynote address will be one of the highlights of the Denver convention.

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B.A.R.U.G. Sponsors HP 3000 Users Hardware Course*

B.A.R.U.G. is currently sponsoring an HP 3000 Hardware Course for users. The purposes of this course are:

1. To acquaint users with the HP 3000 hardware architecture.
2. To make users capable of isolating hardware problems so that they can be very specific when placing service calls.
3. To educate users on proper preventative maintenance procedures on their HP 3000.

The course is held on consecutive Fridays, beginning June 16, 1978. The sessions last a full day and are held at the HP Neely Sales Office in Santa Clara. Instructors are HP Customer Engineering personnel. The course consists of two sections: a mandatory basic system section and an optional peripheral section. Sessions in the peripheral section are on specific peripherals and users elect to attend only the sessions (since B.A.R.U.G. members have this information), pertaining to their site's equipment configuration. The course outline is:

(See Following Page)

**Editor's Note: These courses will have already been held by the time readers receive this information. It is included not as an announcement of their availability, but to inform interested parties of the course context, should others want to duplicate these efforts.*

Session I — Friday, June 16, 1978

Basic HP 3000 Hardware Architecture (System Block Diagram)

Stack Concepts

Relationship of Customer Engineer to System

- Service Calls
- Response Times
- After Hours Maintenance
- Contents and Maintenance of System Log Book ("Gold Book")
- Contents of CE Documentation Binders
- What is in the CE Cabinet

Session II — Friday, June 23, 1978

User Preventive Maintenance - How to set up a program of

How to Analyze Log Files

Memory Logging - How to use and what to look for

Microcode Diagnostics - How to use

Use of SADUTIL, RECOVER, and SDUPII

SLEUTH Format and Selected Use of (Recovering Lost Disc Labels)

Contents of the Support Account

Proper System Maintenance

- Scheduled Reloads (frequency, etc.)
- Use of System Utilities (FREE2, etc.)
- System Configuration Changes

HPIB and New Products

Session III — Friday, June 30, 1978

Disc Products

Session IV — Friday, July 7, 1978

Printers

Session V — Friday, July 14, 1978

Magnetic Tapes

Card Readers

Session VI — Friday, July 21, 1978

Data Communications Equipment

We expect this course to benefit both users and Hewlett-Packard. An installation whose personnel are knowledgeable about hardware, diagnostic procedures, and preventive maintenance should have less down-time, and CEs servicing the site should spend their time efficiently.

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About B.A.R.U.G.

The San Francisco Bay Area Regional Users Group (B.A.R.U.G) is an informal group of HP 3000 users who are located in Northern California and Nevada. We have general meetings every two months which last a full day and are usually scheduled as follows:

8:30-9:00	Registration
9:00-9:15	Introductions
9:15-10:00	Users Group Business This usually involves discussions of both B.A.R.U.G and International Group activities.
10:00-10:15	Coffee Break
10:15-11:45	Technical Session(s) May be one general group session or from two to three concurrent sessions.
11:45-1:15	Buffet Lunch (included in registration fee) The lunch period is open to HP for any talks they may wish to give. Often it is used to introduce new personnel or describe reorganizations.
1:15-2:45	Concurrent Technical Sessions (two to three)
2:45-3:00	Coffee Break
3:00-4:00	New Product Update This session is used to inform users of new HP products (software or hardware) which affect HP 3000 sites.
4:00-5:00	Vendor Presentations This time slot is open to persons wishing to describe HP 3000-related products. These products have ranged from CRT cables to application software.

Examples of technical sessions that we have had are:

Installation Management for New Users
Image vs KSAM — a Case Study
Optimizing On-line Programs
Disk Technology
Text Editing Techniques
Electrical Power Considerations for the HP 3000
Data Communications in Depth (three sessions)
HP 264X Terminals - Tips and Techniques
IMAGE in Depth
KSAM in Depth
The MPE/3000 File System
Remote Job Entry on the HP 3000

Because the local HP Neely Sales Office (and S.E. Organization Office) have provided us with meeting rooms at their facilities, we have been able to keep the meeting registration fees to a minimum ($7.00/person at present). These fees are used to provide lunch and cover printing and mailing costs of meeting announcements.

The B.A.R.U.G has no formal membership - the meetings are open to anyone. We have a mailing list which is kept by a user. For additional information, contact:

Chuck Villa
Alter*Ability
154 Laidley St.
San Francisco, CA 94131
(415) 282-8139

or

Bill Gates
Longs Drug Stores, Inc.
141 N. Civic Drive
Walnut Creek, CA 94596
(415) 937-1170

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Swiss Users Group To Hold Meeting

The next meeting will take place on Friday, September 22, 1978 in Thun. A program and registration form will be sent out later.

For additional information, contact:

Computer Center
Habegger Ltd. Engineering Works
CH-3601 Thun
Industriestrasse
(Tel.) 033 21 99 88
Telegram: Hatuma
Telex: 32201

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