DECSYSTEM-1Ø MONITOR

TABLE DESCRIPTIONS

Revision 1 - TOPS-1Ø Version 7.Ø1

June, 198Ø

This document reflects:

Operating System:	TOPS-1Ø V7.Ø1
Assembler:	MACRO%53
Hardware:	DECsystem-1Ø7Ø through DECsystem-1Ø99

Educational Services

Digital Equipment Corporation

Marlboro, Massachusetts

EY-CD002-TL-006

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This page is for notes.

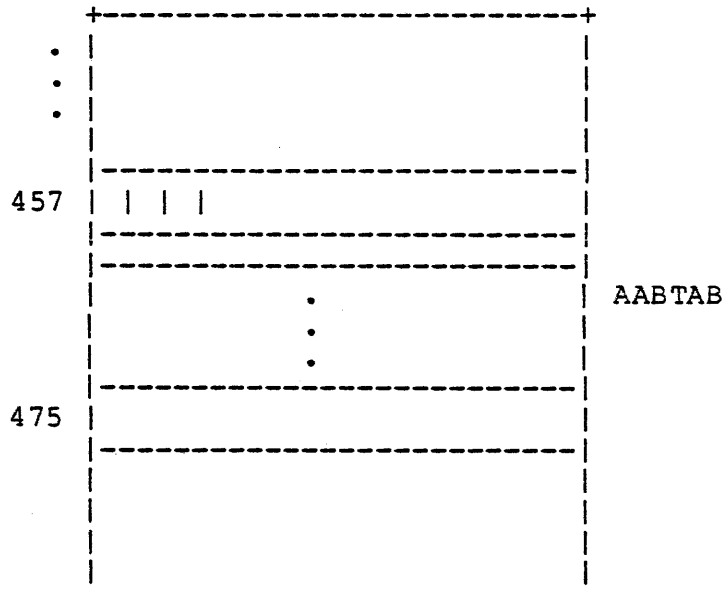
Name: AABTAB Access Allowed Bit Table

Description: Table of bits, located in UPMP from locations 457 to 475, which reflects whether access is allowed to a user page or not. IPCF and the UUO Page UUO handler routines reference this table.

Defined In: S.MAC

Used By: VMSER

Format: UPMP



Name: ACC ACCESS TABLE

Description: Contains information needed in order to gain access to a specific "version" of a specific file.

One table for each existing version of each open file.

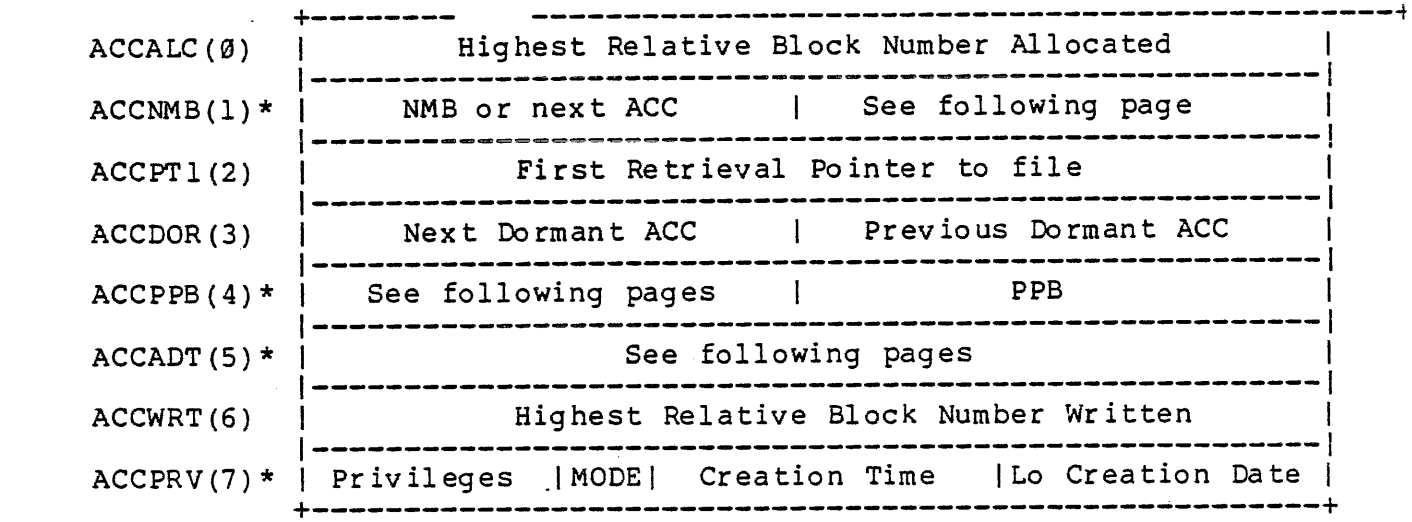
The access table for the current and possibly a superseding version of the file are linked to the corresponding NMB. Also, each disk device data block contains a pointer to the access table for the file currently being accessed.

Defined In: COMMOD

Used By: FILFND, FILIO, FILUUO, SYSINI

See also: NMB, PPB

Format:



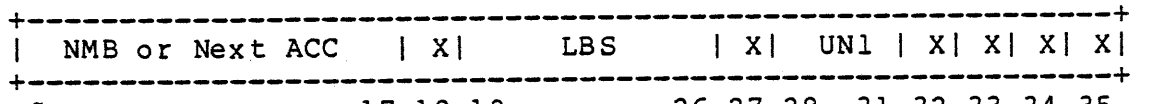
*Details on following pages.

Special Notes:

1. When all users have closed a file, its access table is considered dormant. Dormant access tables are linked into a doubly linked list through ACCDOR, and are not deleted until their core space is needed. If a table is not dormant, ACCDOR contains zero.

2. ACCWRT and ACCALC do not include the second RIB.

ACCNMB (1) Byte Definitions



Word Label	Bits	Byte	Bit Label or Pointer	Content
ACCNMB		Ø-17		Address of next ACC for same name and PPN if there is one.
ACCABC		18	ACPABC	This file always has bad checksum.
ACCLBS		19-26	ACYLBS ACZLBS	Number of words in last data block of file.
ACC1PT		27	ACP1PT	File has only one retrieval pointer.
ACCUN1		28-31		Logical unit number, within STR where file begins.
ACCDIR		32	ACPDIR	This file is a directory.
ACCNDL		33	ACPNDL	This file cannot be deleted.
ACCSBC		34	ACPSBC	Sometimes bad checksum.
ACCGRB		35	ACPGRB	Don't grab access table

Notes:

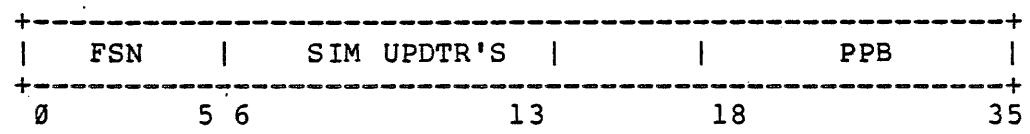
1. Normally there is only one ACC linked to an NMB. But while a file is being superseded, both the old and the new versions of the file have ACC's linked to the NMB.

2. The low order two bits of a pointer to another ACC will be zero. The pointer back to the NMB points to the last word, NMBACC. Hence, its low order

bits will not be zero.

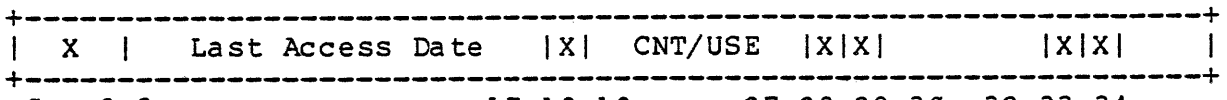
3. There may be an arbitrary number of ACC's for older versions of a file, which are still being read. However, these ACC's are not linked to the NMB. The only pointers to them are in the DDB's of the readers.

ACCPPB (4) Byte Definitions



Word Label	Bits	Bit label or Byte Pointer	Content
ACCFSN	Ø-5	ACYFSN ACZFSN	File structure number of STR to which this file belongs.
ACCWCT	6-13	ACYWCT ACZWCT	Write count for simultaneous updates
ACCPPB	18-35		Core address of project-programmer data block.

ACCADT (5) Byte Definitions



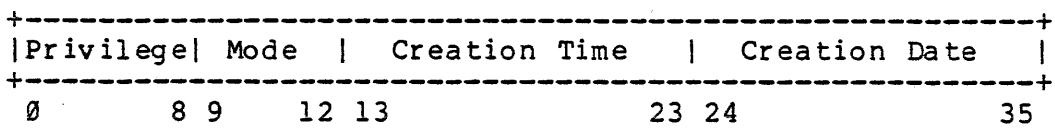
Word Label	Bits	Bit Label or Byte Pointer	Content
ACCADT	0-2		High-order 3 bits of creation date. Low-order part is in ACCCDT.
ACCADT	3-17		Date this file was last accessed for more than just LOOKUP.
ACCNIU	18	ACPNIU	File not in UFD
ACCCNT	19-27	ACMCNT	Count of user channels with LOOKUP in force for this version of this file or SFD use count.
ACCREN	28	ACPREN	Rename in progress.
ACCDEL	29	ACPDEL	File to be deleted when all readers finished.
ACCSTS	30-32	ACYSTS	Access Table Status Code
ACCSMU	33	ACPSMU	This file being simultaneously updated.
ACCPAL	34	ACPPAL	Pre-allocated File

Notes:

1. Access Table State Codes

ACRCRE	4	File being created ACPCRE (40)
ACRSUP	2	File superseding another ACPSUP (20)
ACRUPD	1	File being updated ACPUPD (10)

ACC (cont.)
ACCPRV Byte Definitions



Word Label	Bits	Bit Label or Byte Pointer	Content
ACCPRV	Ø-8	ACYPRV	Privileges
ACCMOD	9-12		Data mode of file
ACCCTM	13-23		File creation time
ACCCDT	24-35		Low-order 12 bits of file creation date. Upper 3 bits in ACCADT.

Note: Privilege Codes

Bits Ø-2 Apply to job which is "owner" of file
Bits 3-5 Apply to any job with matching project number.
Bits 6-8 Apply to all other jobs.

A job is considered the owner of a file if:
A) INDPPN set to Ø at MONGEN (default) and programmer number matches or
B) INDPPN set to -1 at MONGEN and both project and programmer number match.

Privilege Codes for User Files

Code	Highest Privileges
7	None
6	Execute
5	Read
4	Append (Allocate, Deallocate)
3	Update
2	Write (Supersede, Truncate)
1	Rename (Change attributes)
Ø	Change privileges

Privilege Codes for Directories

Code	Privilege Given by Bit Being Lit
4	Allows lookups in this directory
2	Allows creates
1	Allow directory to be read as a data file

-- Any combination of these bits may be set.

Name: AVALTB AVAILABLE RESOURCE TABLE

Description: Contains flags to indicate that a sharable device has become available. Each entry referenced by its own label.

Entry is nonzero if the corresponding sharable resource has become available since the last scheduling and some job is waiting for it.

Defined In: COMMON

Used By: COMMON, CLOCK1, SCHED1, SYSINI

Format:

Special Notes:

1. Table REQTAB has entries corresponding to the AVALTB entries.

2. The AVALTB entries are built by the conditionally assembled RWAITS MACRO entries in S.MAC; therefore, all of the above listed entries will not be present in most systems.

3. This table is initialized to zero.

Name: BAF BAD ALLOCATION FILE

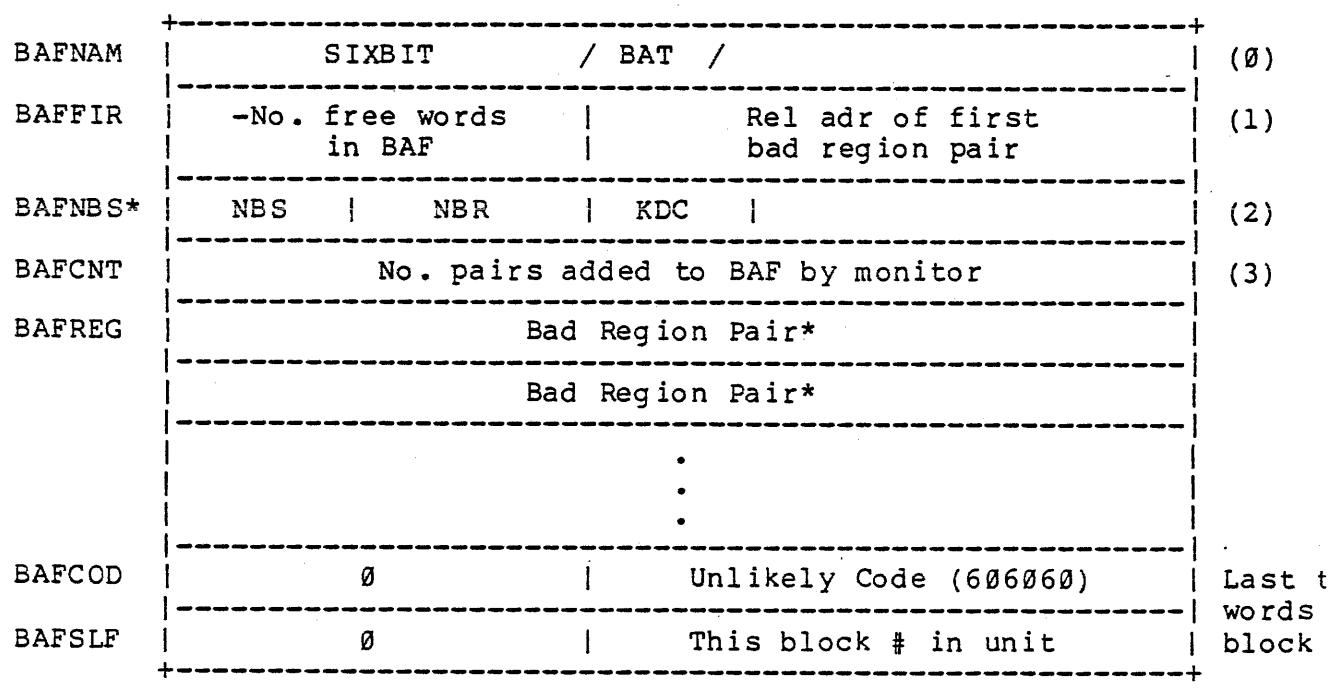
Description: Disk block in which all known bad regions in a STR are recorded.

The BAF is always the next block after the home block in HOME.SYS.

Defined In: COMMOD

Used By: FILUUO, ONCMOD, REFSTR

Format:



*Details on following pages.

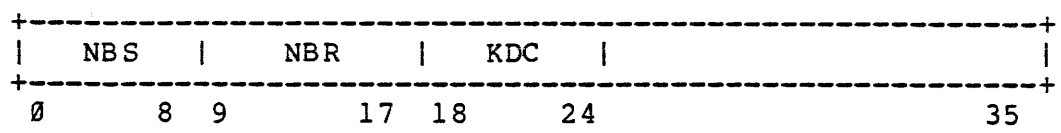
Special Notes:

1. The label BAFREG should not be used by programs which look at this block. They should use RH BAFFIR to determine location of the first Bad Region Pair.

2. The Map Program is a stand alone program which checks all disk blocks and writes an initial BAF. As the monitor finds bad blocks it makes additional entries in the BAF.

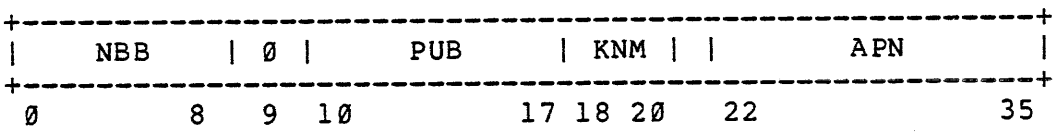
3. Both halves of BAFFIR are written by the mapping program and are never changed by the Monitor. LH is always an even number.

BAFNBS Byte Definitions



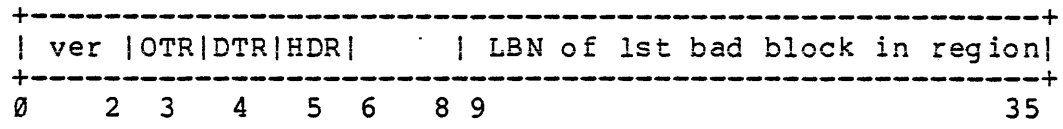
Word Label	Bits	Byte Pointer	Content
BAFNBS	Ø-8		Number of bad blocks found by the map program.
BAFNBR	9-17	BAYNBR	Number of bad regions found by the map program. (Number entries in following table.)
BAFKDC	18-24	BAYKDC	Controller device code used by map program.

First Word of Each Bad Region Pair - Byte Definitions



Word Label	Bits	Byte Pointer or Bit Label	Content
BAFNBB	Ø-8	BAYNBB	Number of bad blocks -1 in this bad region (not clusters).
BAFOTH	9	BAPOTH	Non-zero if this bad regions is detected on another controller or processor than the one which originally added the entry.
BAFPUB	1Ø-17		Physical unit within controller. Bit 17-N represents unit N, where N = 1Ø-17.
BAFKNM	18-2Ø	BAYKNM	Logical controller number, of this type. From UNIKNM.
	21	BAPNTP	Non-zero if new style BAT block entry.
BAFAPN	22-35	BAYAPN	Serial number of APR running when error was detected.

Second Word of Bad Region Pair



BAFVER	Ø-2	Version number of entry (presently Ø)
BAPOTR	3	Other error (not data or search error)
BAPDTR	4	Data error (parity or ECC hard)
BAPHDR	5	Search error or header compare error

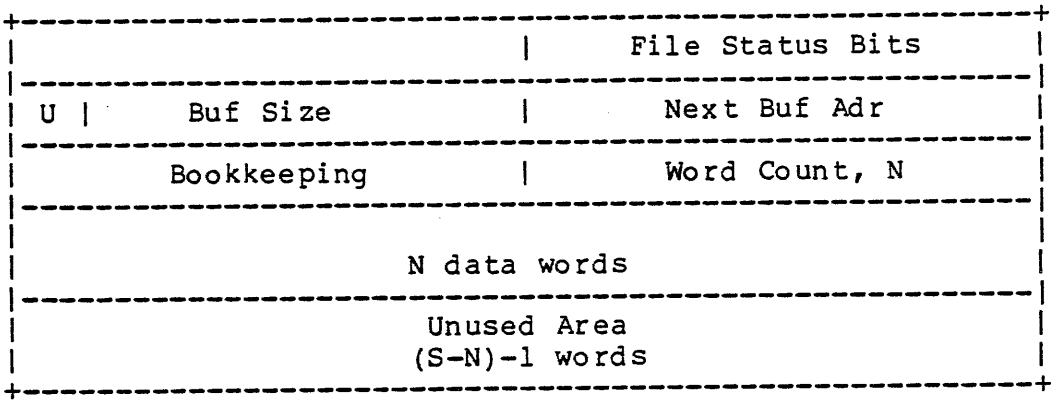
Notes: Values of the word labels are relative to the beginning of the Bad Region Pair, i.e., Ø and 1.

Name: Buffer Ring

Description: Contains pointers and storage area for I/O data. Set up by user programs as needed.

Defined in: Status bits defined in S.MAC

Format:



File Status Bits, First Word

Bit	Meaning
18	Improper Mode
19	Device Detected Error
20	Data error, e.g., checksum failure
21	Block too large
22	End of file
23	Device is actively transmitting or receiving data
24-29	Device dependent parameters
30	Synchronous input. Stop device after each buffer is filled
31	Word count supplied by user for output. (Monitor normally computes word count)
32-35	Data mode

Second Word

Bit	Meaning
Ø	"Use" bit is set as follows:

I/O	In Progress	Finished
Input	Ø	1
Output	1	Ø

1-17	Size of buffer, not counting first two words
18-35	Address of second word of next buffer of ring.

Third Word

Bit	Meaning
Ø-17	Depends on type of device and mode
18-35	Word count.

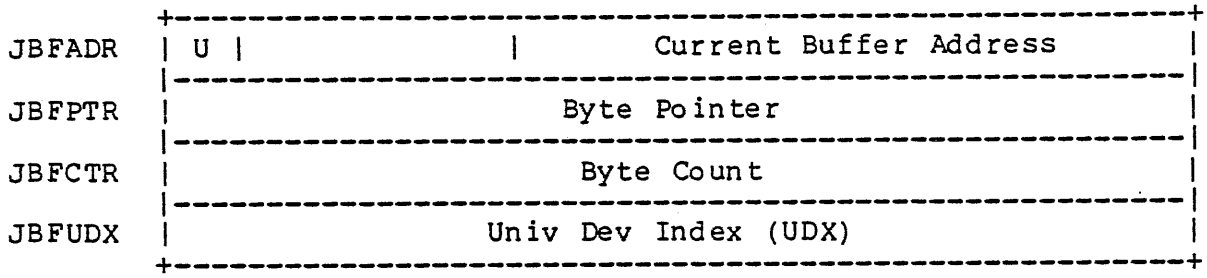
Normally computed by monitor for the device being used.

Name: Buffer Control Block (Buffer Ring Header)

Description: Contains information by which user programs access their I/O buffers.

Defined in: S.MAC

Format:



Label values are relative to the beginning of the buffer ring header.

JBFADR	Bit Ø	IOUSE bit -- Will be 1 if buffer ring has been set up but not referenced.
	Bits 18-35	Address of second word of the buffer currently available to the user program.
JBFPTR		Byte pointer for user to access next byte of buffer with ILDB or IDPB.
JBFCTR		Number of bytes remaining, available to user.
JBFUDX		UDX for MSGSER

Notes:

1. Ring header must be set up within user program.

2. Values are initialized by each INPUT or OUTPUT UUO, for the buffer made available to the user.

3. User program must keep JBFPTR and JBFCTR up to date as it uses the buffer.

Name: CDB CPU DATA BLOCK

Description: There is one CPU data block (CDB) for each CPU on a system. The block contains both a constant and a variable data area. Routine addresses, pointers, bit masks and processor dependent instructions are representative of the data found in the constant area. The variable area is cleared at initialization and on 403 restarts. This area contains current status words for a CPU including current job information, protected job data locations, scheduler and swapper parameters, etc.

Reference can be made to a CDB location without indexing. The symbols used in this case will be in the format of .Cn??? where n is the logical number of the CPU (i.e., .C0??? or .C1???).

A 'C' macro is used to generate labels and data for the constant area. All of the 'C' macros are contained in a second macro, CDBCON. CDBCON will be called once for each CDB to be generated after defining the 'C' macro for the call.

The 'V' macro is used for symbol definition are entry counting for the variable area. No data is generated on a 'V' macro call. The count is used to assign absolute values to variable locations in the CDB and also to reserve a block for the variable data.

Defined in: COMMON

Used by: CLOCK1, CP1SER, ERRCON, KISER, KLSER, KSSER, PSISER, SCHED1, SYSINI, UUOCON

GETTAB table no.: 45 (.C0CDB), 47 (.C1CDB)

NOTE

All 'CDB SYMBOL' entries on the following pages require .CP, .CØ or .C1 prefixes. The 'OLD SYMBOL' entry indicates the symbolic reference used prior to 5.Ø4 and retained in some 5.Ø4 modules.

The table as displayed here is a KL dual-processor assembled table. Entries vary both in the constants and variables area if it is a KI, KA, KS or non-VM.

CDB SYMBOL	OLD SYMBOL	
CDB		Address of next CDB,, Ø
ASN		APR serial number
OK		This CPU running OK. If greater than Ø, this CPU has stopped running correctly. Contents are No. of jiffies CPU has been stopped.
TOS		Trap offset value Location of Exec page maps for KI, KL
LOG		Logical CPU name SIXBIT/CPUn/ (n=Ø,1---)
PHY		Physical CPU name SIXBIT/CPxn/ (x=6,A,I,L) (n=Ø,1,...
TYP		CPU Type (1-PDP-6, 2-KA1Ø, 3-KI1Ø, 4-KL1Ø, 5-KS1Ø)
MPT		Pointer to bad address subtable bits. Bits Ø-8 length, RH=rel adr in CDB
RTC		Real time clock (DK1Ø) DDB
RTD		DK1Ø DDB if HI prec. time acct. Ø if low (APR clock)
PAR		Pointer to parity subtable bits Ø-8 length, RH=rel adr in CDB
RSP		Pointer to response subtable bits Ø-8 length, RH-rel adr in CDB
DKX		Number of DK1Øs on this CPU
EBS		EBOX ticks per second
MBS		MBOX ticks per second

NMT	Pointer to NXM subtable bits Ø-8 length, RH=rel adr in CDB
CSB	Pointer to CPU Status Block
DSB	Pointer to Device Status Block
SDP	Pointer to SBDIAG subtable
BPA	Performance analysis subtable ptr
CNP	CPU Number
SKØ	Generate SKPCPU(Ø)
SK1	Generate SKPCPU(1)
OK1	Address of other CPU's OK word
SLF	Pointer to start of CDB
SCN	Scheduler run queue scan list (SSCAN or SSCAN1)
SST	Address of subqueue scanning table
NPD	Null PDL pointer
EPD	Error PDL pointer
NJD	Address of Null job data area (offset by 2Ø)
STO	Scanner once a tick routine
ISR	Scanner once a second routine
DLK	Used to call DSKLOK
SCD	Scheduler interlock flag
RES	Restore after power fail
NBI	Number interrupts broken by BRKLOK

ABK	Return address for CPNBPT
KAF	Keep alive failure dispatch addr
RUN	CPU run flags Bit Ø = don't run jobs Bit 1 = run jobs
NAP	CONSO, CONI Bits all PIs except APR PI in progress
APP	CONSO, CONI BITS APR PI in progress
API	APR PI channel for this CPU
CHL	Address of interrupt PC for interrupt level (APØCHL OR AP1CHL)
CKL	Addr of interupt PC for clock lev.
CON	APR CONSO Mask
EEB	Exec enabled bits
IEF	Mask to clear all interrupting APR error flags except memory parity and clock (and sweep done)
CCF	Clear clock flag instruction
HCT	Instruction to skip if clock has ticked.
MPI	Address of CPUn parity sweep instruction (CPAMPI## or CPIMPI## or CPLMPI##)
MPS	Bits to request parity sweep,, Address of parity sweep subroutine
NXM	Bits to test for non-existent memory
MPE	Mask to set/clear APR Parity err

DBM	CPU Doorbell word
EBR	Exec base register on this CPU
FEF	Front end flag - set when FE interrupts
CTN	RH = CTY Number LH = DLS Line number on DTE
DTN	Number of DTEs on this CPU
CAC	CRASH AC's
STT	K?SER temp for trap processing
ST1	Save T1 on page traps
ST2	Save T2 on page traps
EJ1	K?SER temp for IME processing
EJ2	K?SER temp for IME processing
EJ3	K?SER temp for IME processing
EJ4	K?SER temp for IME processing
RCT	Real time PI Channel Table
RDT	Real time Dismiss Table
CPI	PI Status
SVA	JSR here to save all AC sets
SVB	Where to go to save AC sets
TRP	MUUO during crash
RTT	RTTRP in progress flag
TML	Value of time at last clock tick
OCB	Ø if this CDB isn't owned by a CPU

AID	-1 if restart(vs. initial startup)
DWD	Recursion interlock for DIE
CML	Address of LDB of line on which command is being processed on this CPU
SPR	Instruction to cause parity error Interrupt (KL)
CPR	Clear parity error flag (KL)
SBØ	SBDIAG function Ø here on errors
SØA	Answer returned here
SB1	SBDIAG function 1 here on errors
S1A	Answer returned here
TDA	Addr of typeout routine for CPU
TIV	Addr of vector with input routines
EDV	Code "EDV",,length of EXEC data vector
ED1	Length of address swapping block
ED2	Relocated contents of .JBSYM
ED3	Relocated contents of .JBUSY
ED4	Address of word for DDT to use
HSF	Word for DDT to use
SYB	Length of address swapping block
SY1	Number of words to swap
SY2	First word to swap
SY3	Place where new map may be found
SY4	Place to save old contents

CPU DATA BLOCK Variable Area

Variable areas are cleared at system startup and 403 restarts.

CDB SYMBOL	OLD SYMBOL	
	CORMAX	Largest Address +1 allowed to user
	CORLST	Pointer to last free block possible
	CORTAL	Free + Dormant + Idle core blocks
	SHFWAT	Job number shuffler has temporarily stopped for its IO devices to become inactive before shuffling
	HOLEF	Absolute address of lowest hole in core
UPT	UPTIME	Uptime for this CPU in clock ticks
	SHFWRD	Total number of words shuffled by system
	STUSER	Job currently using the system tape
	HIGHJB	Highest job number currently assigned
	CLRWRD	Number of words cleared by 'CLRCOR'
LST	LSTWRD	Lost time on this CPU in jiffies
	MEMSIZ	Size of physical memory in words
TPE		Total parity errors
SPE		Total spurious parity errors (did not recur)

MPC		Memory parity continues for this CPU
MPA		Memory parity address of first bad address
MPW		Contents of first bad word found.
MPP		Memory Parity PC exclusive of parity sweep.
	EPOCNT	Number of PDL OVF's at UUO level not recovered
	EPOREC	Number of PDL OVF's at UUO level recovered
	MAXMAX	Highest legal value of CORMAX
	SYSKTM	Count-down timer for set KSYS command
	CORMIN	Lower bound on CORMAX
ABC		Address break count on this CPU
ABA		Address break address on this CPU
LJR		Last Job run on this CPU
ODA		Obsolete
STS	STOPTS	Stop timesharing on this CPU. Contains job no. which did TRPSET UUO.
ORU		Operator controlled scheduling for this CPU. Bit Ø = Run jobs Bit 1 = Don't run jobs
NUL		Null time for this CPU in jiffies
EDI		No. of exec don't care interrupts

JOB	JOB	Current job on this CPU
OHT		Overhead time for this CPU in jiffies
EVM		Max amount of exec space for jobs mapped in exec mode by lock UUO.
EVU		Total EXEC Virt Addr. space currently being used to map user segments
LLC		Lock Loop Count. Number of times this CPU has looped waiting for other CPU
TUC		Total number of UUO's on this CPU
TJC		Total job context-switches
TNE		Total NXM's
SNE		Total non-reproducible NXM's
NJA		Total jobs crashed this NXM
MNA		First address found with NXM
EBJ		EBOX ticks/jiffy
MBJ		MBOX ticks/jiffy
PBA		Physical address with bad parity on last parity trap
TBD		Contents of bad word on last parity trap
TGD		Good contents of word after we recovered parity trap
NPT		Total number of parity traps
AER		Results of RDERA on strange APR INA

PEF	Results of CONI APR, on parity int
PSB	Results of SBDIAG's on parity int.
PPC	PC on last parity trap
PFW	Page fail word on last parity trap
HPT	No. hard AR/ARX parity traps
SPT	No. soft AR/ARX parity traps
PTP	No. page table parity traps
CSN	No. cache sweeps started
CLN	Times job skipped because cache sweep done first
CLT	Time in jiffies the CPU ran the null job because of cache state
CSD	Cache - swapper delay count
CRN	Cache sweep request sweep count
CEC	No. non-recoverable AR/ARX parity errors involving cache
PTR	Retry word for AR/ARX parity trap
TSD	AR/ARX trap routine has already saved APR, ERA, SB diags, etc.
REP	Parity/NXM recovery routines used to determine which type errors should be listed
NDB	Number of times this CPU's doorbell was rung
SBR	LH = unused; RH = bits telling which status blocks have been read on this CPU

BPF	Background Performance Analysis Flag - LT zero is meter enabled
FBI	File blocks input (read)
FBO	File blocks output (written)
SBI	Swapping blocks input (read)
SBO	Swapping blocks output (written)
SNC	Number of CPU stopcodes
SND	Number of DEBUG stopcodes
SNJ	Number of JOB stopcodes
SJN	Job number as last stopcode
SNM	LH = Name of last stopcode RH = PC+1 of last stopcode
SPN	Program running at last stopcode
STN	TTY name at last stopcode
SUP	User PC at time of last stopcode
SUU	UUO at time of last stopcode
EJN	Job number at last parity/NXM err
EPN	Program at last parity/NXM error
PPI	Results of CONI PI, on parity/NXM interrupt
TPI	Results of CONI PI, on parity/NXM trap
	Response sub-tables
	Memory parity subtable
	Memory NXM sub-table

		CPU Status Block
		Device Status Block
ADR	JOBADR	Same as JBTADR (J) and AC R
REL	USRREL	Highest rel addr for current user
XTM		Time of last switch from monitor cycle to user job or vice versa
LS2		Additional lost time (fractional jiffy)
NL2		Additional null time (fractional jiffy)
OH2		Additional overhead time (fractional jiffy)
TNT		Time interval since last at clock level
HTM		Hung device time check
SEC		Seconds left before doing once a minute code
RCU		Count of real time CONSOs of skip chain
RIT		Real time initialization table
DMI		Real time dismiss instruction
CKF	CLKFLG	Non-zero when CLK interrupt (PI 7) requested
TMF	TIMEF	Non-zero when APR clock ticked
SCF		Force scheduling from exec mode
RTF		Non-zero on realtime reschedule required

ISF	In scheduler flag
SUD	Scan used for this scheduling scan
HQU	Force scheduling to new HPQ
PLT	Potentially lost time
CLF	Potential cache lost time
CL2	Low order cache lost time
SDA	Number cache sweeps for core deallocation
CSR	Cache sweep request flag for this CPU
AEF	APR error flag
SAC	Saved copy of .CPAEF
APC	APR error PC on this CPU while job running on this CPU
NJE	Error in null job if non-zero
SFC	Scheduler fairness count
SQF	Non-zero if current job from subqueues
APR	State of MI prog dis switch
IPI	Interval timer PI assignment
CN1	CONSO mask for APR interrupts user wants to handle.
DTO	last DATAO to set RELOC and PROT
SP	Place to save P on APR interrupt
S17	Place to save AC17 on CLK interrupt

A00	17 (octal) words to store AC's on parity sweep on PAR PI
A17	20th (octal) word for storing AC's on parity sweep PAR PI
LPP	Last mem par PC
LSB	Las seg BLTed to detect bad parity
LCI	Time of last Parity/NXM interrupt caused by channel reference
PIP	Pointer to real interrupt PC
PSP	Parity/NXM sweep in progress on this CPU
CHE	Channel error reporting in progress on this CPU
TCX	Results of DATAI PAG, on error trp
TCT	Triad counter for 60HZ leap jiffies
PJB	Owner of performance meter (job#)
MJB	Measured job of PERF. UUO.
MJ1	Job enable condition
PMR	# 0 means perf. meter is running
PAE	Used to store perf. analysis enables
PRQ	Semaphore used on testing and giving meter away
APS	Non-zero means ACCT and PERF meters should be kept in sync.
MM0	"Virtual Perf Meter's" High order mem ref count

MM1	Low Order
BPC	Background Performance Anaylysis (B.P.A.) sample interval (ticks)
BPI	B.P.A. saved PACTAB index
BPT	B.P.A. saved RDTIME at start of current interval
TIM	Clock Interrupt flag for KL1Ø's
ETM	SOSN done on this location every minute to make sure chunks don't stay allocated forever
EAD	LH = address of last KL error chnk RH = addr of first KL error chunk
KPB	KLINIT parameter buffer
2ØF	LH = flags about RSX2ØF front end RH = count of characters currently being output
2ØB	Buffer for 16 bit data to RSX2ØF
PTH	Trap happened during parity sweep
STE	ERA contents on sweep trap
PTF	Count of page table, parity traps between clock ticks -- used to crash system if too high.
PWF	Power fail AC block save area (holds four sets of ACs)
CTQ	SCNSER output queue header for CTY on this CPU; for KL1Ø, is header for all RSX2ØF lines
QUE	Queue for I/O requests on other CPUs. Emptied into CPUDSQ once a tick

SWP	Non-zero if swap request for other CPU
QND	End of queue above
TAP	Ø if no tape waiting for sweep -1 if no tape IO waiting for sweep Ø,,-1 if tape waiting, DSKTIC did sweep
PIS	Save PI states for SYSPIN
DPI	Save PI state for DEVPIN
BTI	Save PI state for BTSOFF
IUT	Uptime a second ago
NTF	NETSER software interrupt flag
QTS	QUESER variables
CPG	Result of DATAI PAG, done by SVSETS with bits set so that DATAO will restore current AC set
ACA	Address of 2Ø word block in which SVSETS saved the current AC set

* Details follow

Notes:

1. CKF-CLKFLG (175) This location takes the place of a hardware interrupt flag.

2. TMF-TIMFF (176) Set so CLK interrupt routines will know another jiffy has passed.

3. SCF - (177) Normally CLK interrupts are dismissed when they interrupt exec mode. This flag set after monitor detects an error and desires to force rescheduling.

Name: CDT CONNECTED DEVICE TABLE

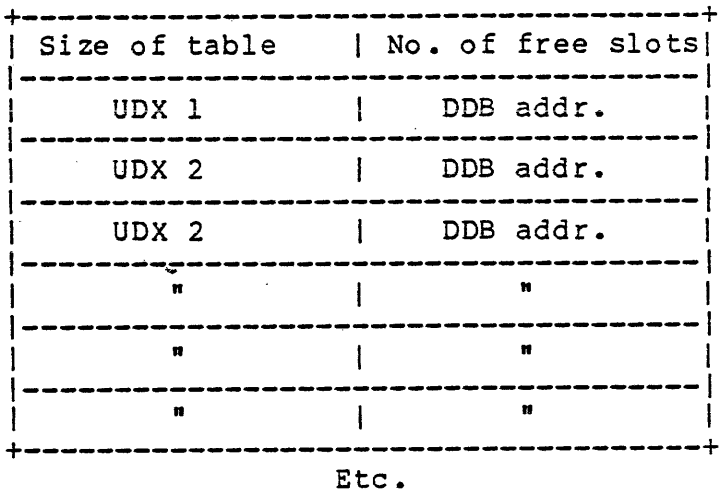
Description: Used to point to DDB's of devices connected to the Multiplexed I/O Facility (MPX). This table contains the connected device's UDX number and DDB address. This table is sorted by UDX number.

The left half of the DEVXTR word of the MPX DDB points to the CDT table.

Defined In: MSGSER

Used By: MSGSER

Format:



Name: CHKTAB UUO CHECK BIT TABLE

Description: Contains bits for checking UUO's which can be executed on CPU1 (UU.CP1), Effective Address (UU.EA) and LOOKUP, ENTER and RENAME (UU.LER).

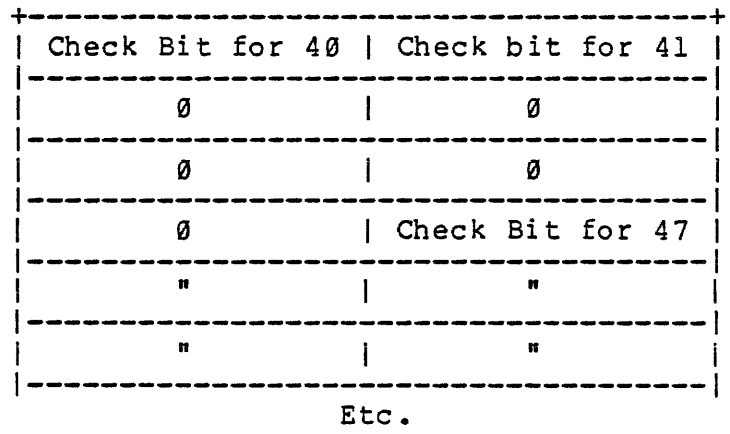
The table is in the same order as UUOTAB so the UUOTAB index in AC T2 serves to get the CHKTAB entry.

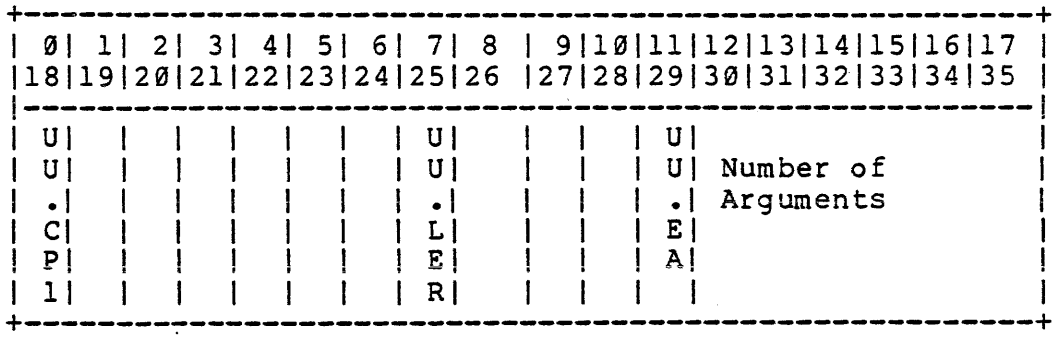
If a check bit is specified for the requested UUO, UUOCON goes to the UUOCHK routine in VMSER.

Defined In: UUOCON

Used By: UUOCON, CPNSER

Format:





Name	Bit	Description
UU.CP1	18	UUO can be executed on CPU1
UU.LER	25	LOOKUP/ENTER/RENAME
UU.EA	29	Check effective address

Name: CHKTBC CALL AND CALLI UUO CHECK BIT TABLE

Description: Contains validity check bits for CALL and CALLI UUO's.

This table is in the same order as UCLTAB so the UCLTAB index in AC T2 serves to get the CHKTBC entry.

If a check bit is specified for the requested UUO, UUOCON goes to the UUOCHK routine in VMSER.

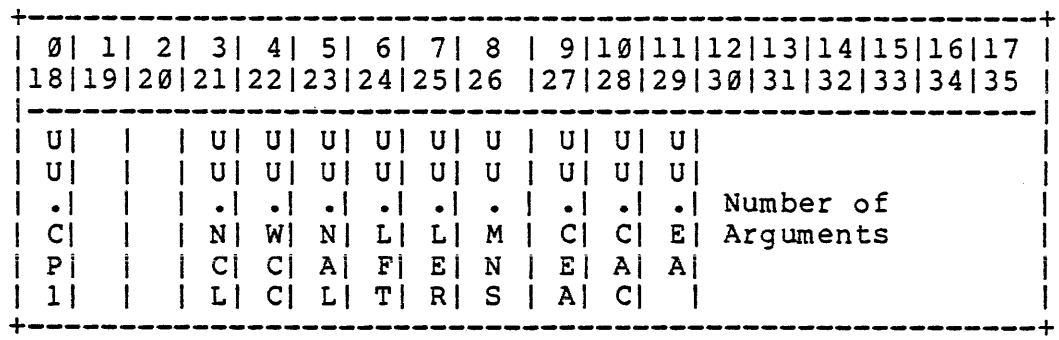
Defined In: UUOCON

Used By: UUOCON, CPNSER

Format:

Check Bit for RESET	Check Bit for DDTIN
Check Bit for SETDDT	Check Bit for DDTOUT
Check Bit for DVCHR	CPOPJ
"	"

Etc.



Name	Bit	Description
UU.CP1	18	UUO can be executed on CPU1
UU.NCL	21	Negative argument (repeat) count is legal
UU.WCC	22	Working set can change
UU.NAL	23	Not allowed if locked
UU.LFT	24	Use left half
UU.LER	25	LOOKUP/ENTER/RENAME
UU.MNS	26	Minus number of arguments
UU.CEA	27	Use C (effective address)
UU.CAC	28	Use C (Ac)
UU.EA	29	Check effective address

Name: CHTABL Special Character Table

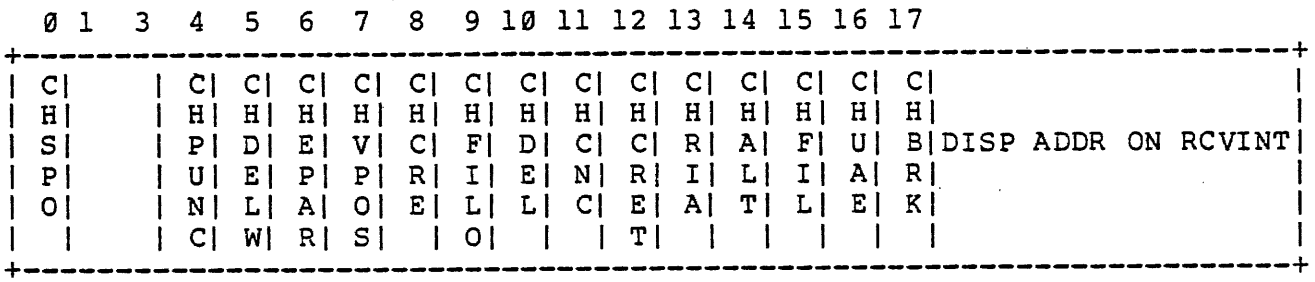
Description: One table entry for each ASCII character, specifying characteristics and, in some cases, address of a special action routine.

Index value is the binary value of the character.

Defined in: SCNSER

Used By: SCNSER, PTYSER

Word Format



Bit	Label	Meaning
Ø	CHSPO	Requires special checking on output
1-3		Undefined
4	CHPUNC	Punctuation character
5	CHDELW	Character is CONTROL/W
6	CHEPAR	Character is even parity
7	CHVPOS	Vertical positioning simulated with line feeds
8	CHCRE	Gets CRLF after its echoing (see CHUAE)

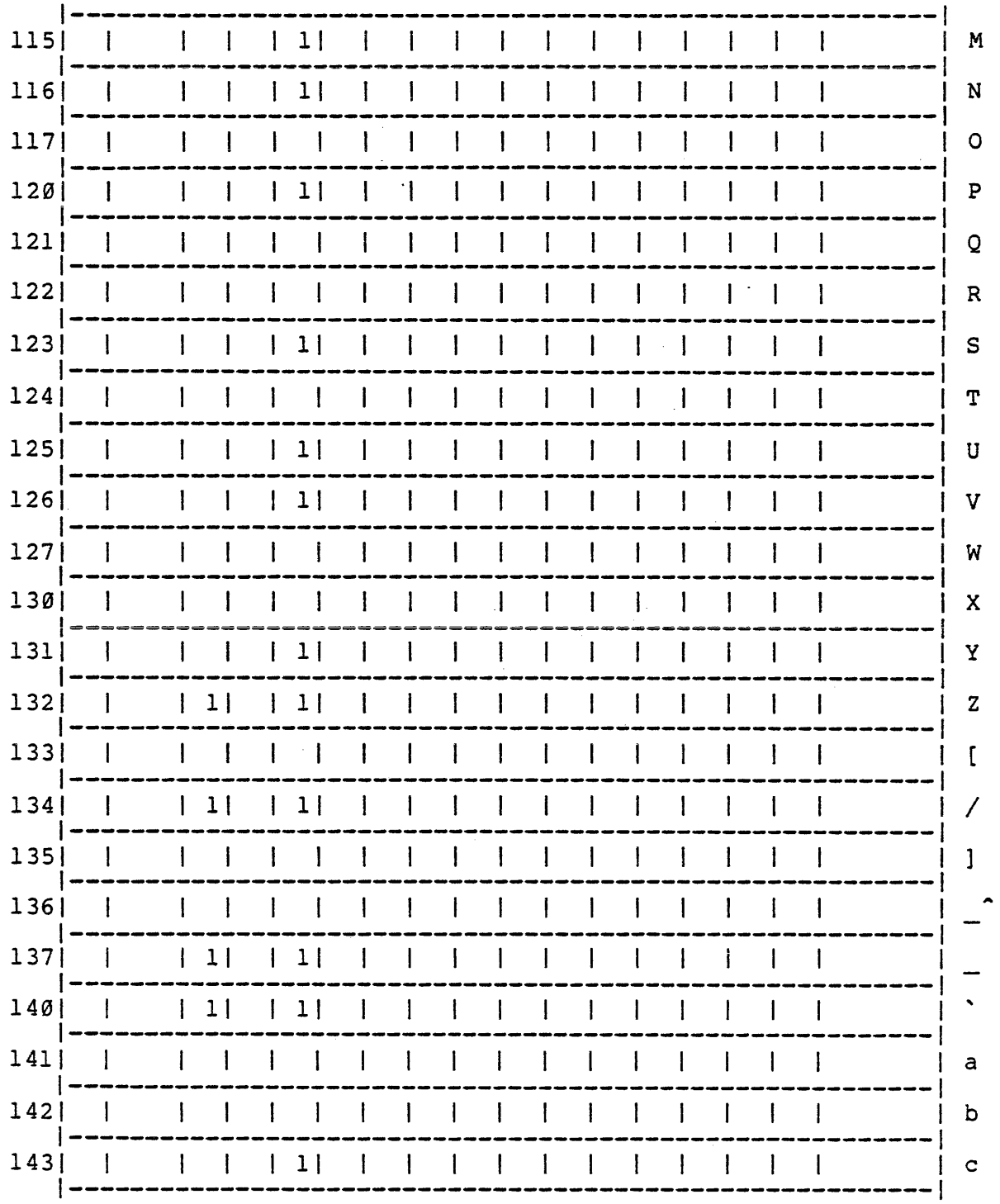
9	CHFILO	Bit for output filler routine (not in table)
10	CHDEL	This is Delete
11	CHCNC	This is Control C
12	CHCRET	This is a Carriage Return
13	CHRIA	RCV interrupt level action required
14	CHALT	This is an altmode (one of three)
15	CHFIL	Requires fillers at some speeds
16	CHUAE	Echoes as ^A, ^B, ^C, ^D, ^O ^P, ^Q, ^S, ^T, ^U, OR ^Z
17	CHBRK	This is a break character

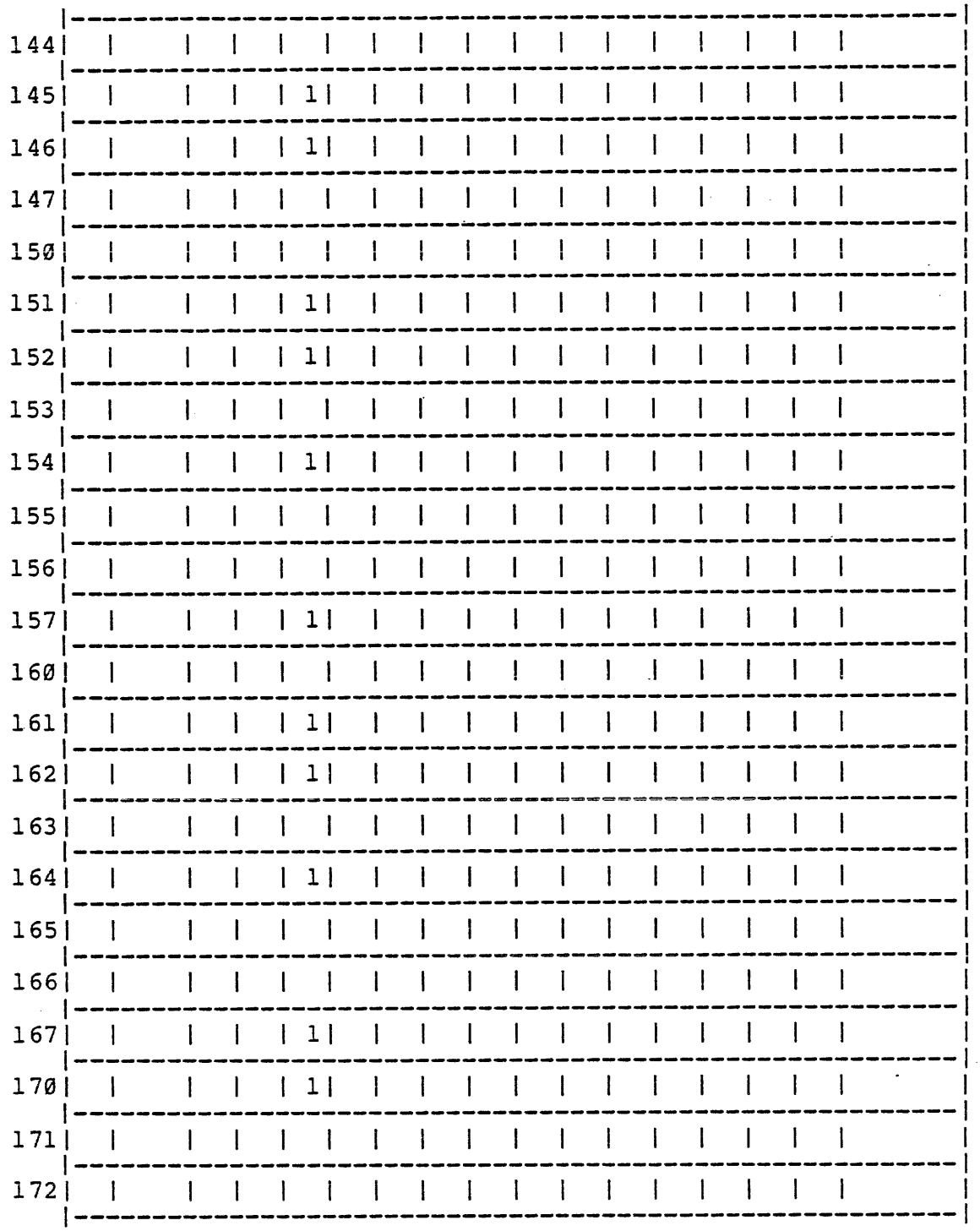
	CHSPO		CHPUNC	CHDELW	CHEPAR	CHVPOS	CHCRE	CHFILO	CHDEL	CHCNC	CHCRET	CHRIA	CHALT	CHFIL	CHUAE	CHBRK	DISP ADDR ON RCVINT	
000	1		1		1							1					RINUL	NULL
001	1		1									1			1		RICA	_^A
002	1		1									1			1		RICB	_^B
003	1		1		1		1			1		1			1	1	RICC	_^C
004	1		1									1			1		RICD	_^D
005	1		1		1										1			_^E
006	1		1		1										1			_^F
007	1		1													1		_^G BELL

010	1		1								1				RIBSP	_^H BS
011	1		1		1								1			_^I TAB
012	1		1		1								1		1	_^J LF
013	1		1			1							1		1	_^K VT
014	1		1		1	1							1		1	_^L FF
015	1		1							1	1				RICM	_^M CR
016	1		1											1		_^N
017	1		1		1						1			1	RICO	_^O SI
020	1		1								1			1	RICP	_^P DLE
021	1		1		1						1		1	1	RICQ	_^Q XON
022	1		1		1						1		1	1	1	RICR	_^R TAPE
023	1		1								1		1	1		RICS	_^S XOFF
024	1		1		1						1		1	1	1	RICT	_^T NTAI
025	1		1				1				1			1	1	RICU	_^U NAK
026	1		1											1			_^V SYN
027	1		1	1	1				1		1			1	1	RIDEL	_^W ETB
030	1		1		1									1			_^X CAN
031	1		1											1			_^Y EM
032	1		1				1							1	1		_^Z SUB
033	1		1		1						1	1		1	1	RIALT	ESCAPE
034	1		1											1			
035	1		1		1									1			
036	1		1		1									1			

037	1		1											1			
040																	SPACE
041			1		1												!
042			1		1												"
043			1														_#
044			1		1												$
045			1														_%
046			1														_&
047			1		1												'
050			1		1												(
051			1														)
052			1														*
053			1		1												+
054			1														,
055			1		1												-
056			1		1												.
057			1														/
060					1												0
061																	1
062																	2
063					1												3
064																	4
065					1												5

066					1													6
067																		7
070																		8
071			1															9
072			1		1													:
073			1															;
074			1		1													<
075			1															=
076			1															>
077			1		1													?
100			1															@
101					1													A
102					1													B
103																		C
104					1													D
105																		E
106																		F
107					1													G
110					1													H
111																		I
112																		J
113					1													K
114																		L


115 M
116 N
117 O
120 P
121 Q
122 R
123 S
124 T
125 U
126 V
127 W
130 X
131 Y
132 Z
133 [
134 /
135]
136 _^
137 _
140 `
141 a
142 b
143 c


144 d
145 e
146 f
147 g
150 h
151 i
152 j
153 k
154 l
155 m
156 n
157 o
160 p
161 q
162 r
163 s
164 t
165 u
166 v
167 w
170 x
171 y
172 z

173			1		1												{
174																	|
175	1			1		1							1	1			RIALT Escape
176	1			1		1							1	1			RIALT Escape
177	1			1						1			1			1	RIDEL Delete

NOTES:

1. CHUAE is also set for entries 1, 2, 5, 6, 16, 20, 27, 30, 31, 34, 35, 36, 37.

2. CHEPAR is set for entries whose binary index contains an even number of 1 bits.

3. Table is referenced by the routine SPCHEK in SCNSER.

4. Entries 1, 2, and 20 will only have CHRIA and the dispatch address set if FTMIC is non zero.

Name: CHN CHANNEL DATA BLOCK

Description: Contains information pertaining to all devices on one data channel.

One CHN for each data channel, e.g., CHN3CB for the fourth data channel.

Defined In: COMMOD

Used By: FILIO, VMSER

Format:

.CHBSY	(Number requests on this channel) -1 is IDLE	
.CHSYS	ADR of next CHN Ø if last / Last UDB with error	.CHLU
.CHICW	Initial Control Word on Last Error	
.CHFCW	ICWAD+1 after last error	
.CHCW2	Command word -2 on last error	
.CHCW1	Command word -1 on last error	
.CHCWØ	Command word on last error	
.CHDW2	Data Word -2 on last error	
.CHDW1	Data Word -1 on last error	
.CHDWØ	Data word on last error	
.CHMPE	Number of memory parity errors	
.CHDPE	Number of data parity errors (from device)	
.CHNXM	Number of non-existent memory errors or data late errors (overrun)	

.CHCSR	Bits to request CPU to sweep core	Last DDB Address	.CHLD
.CHTCW	Expected termination control word of last error		

The remaining words apply only to disk channels

CHNECT	Error count on current data transfer	
CHNRCT	Current recalibrate count	
CHNQUE	First DDB in TWQ	Job Number of LH
CHNIFP*	Initial fairness count for positioning	
CHNCFP	Current fairness count for positioning	
CHNIFT	Initial fairness count for transfers	
CHNCFT	Current fairness count for transfers	
CHNIFS	Initial swapping fairness count	
CHNCFS	Current swapping fairness count	
CHNWAT	Ø if no I/O file I/O pending	
CHNNUM	Number of blocks currently being transferred	
CHNQUL	Length of XFER Wait Queue	
CHNTCW	Expected termination control word if no error indication from controller	

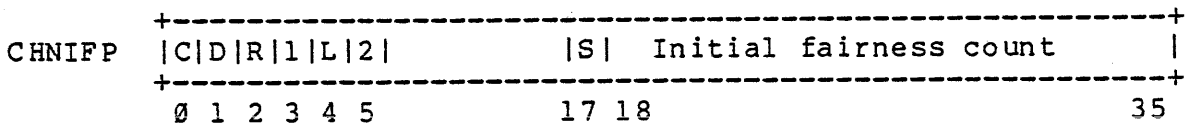
Special Notes:

1. The errors referred to in the Channel data block are both soft and hard errors.

2. TWQ = Transfer Wait Queue

3. CHNECT is -1 while recalibrating.

* Description of CHNIFP Bytes



Word Label	Bits	Byte Label	Meaning
CHB22B	Ø	CP.22B	This is a 22-bit channel
	1	CP.DX1	This is a DX1Ø channel
	2	CP.RH2	This is an RH2Ø channel
	3	CP.R11	This is a RH11
	4	CP.LP2	This is a LP2Ø
	5	CP.CD2	This is a CD2Ø
	17	CP.SWF	Cache sweep must be done before interrupt exit in FILIO
CHNIFP	18-35		Initial fairness count for positioning

Name: CIPWT CLOCK REQUEST QUEUE

Description: Allow a monitor routine to be run after a specific time interval. One entry for each job number plus three more.

Position of entry in table is of no importance. Each entry occupies 2 words.

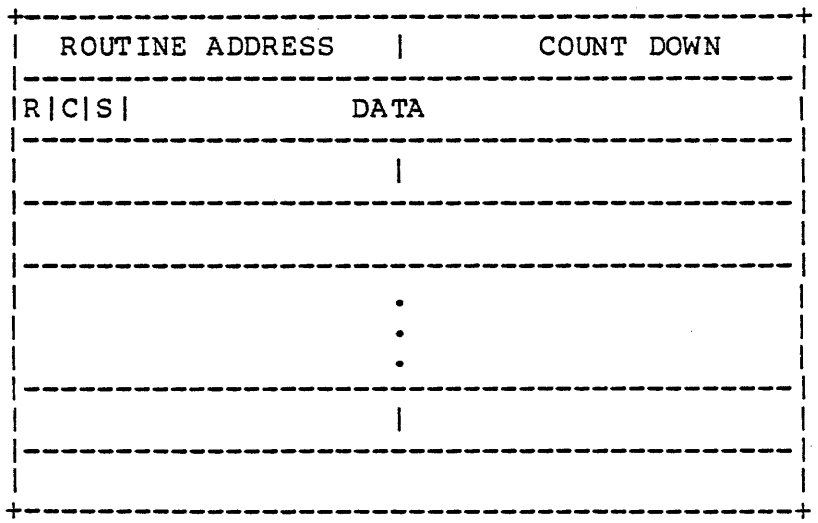
Each Count is decremented by Control Routine. When any countdown reaches Ø, (or goes negative), the contents of the second word of the entry are put into T1 and a PUSHJ is done to the address in the left half of the first word.

CLOCK is a 36 bit byte pointer to the highest in-use entry. Routines which make requests to be stored in this table will reference CLOCK. When an entry is eliminated from the table, the last entry is copied into its place, and CLOCK is decremented.

Defined In: COMMON

Used By: FILIO, DISSER, DLSINT, SCNSER, UUOCON, VBCSER

Format:



The bits in the second word are defined as follows:

Bit	Meaning
Ø	Request is CPU specific
1-3	CPU Number
4	Scanned by CLOCK1
5-35	Data

Name: COMTAB COMMAND TABLE

Description: Specifies legal command names. There are corresponding entries in DISP which give routine adr, and legality conditions for each command.

One entry for each monitor command.

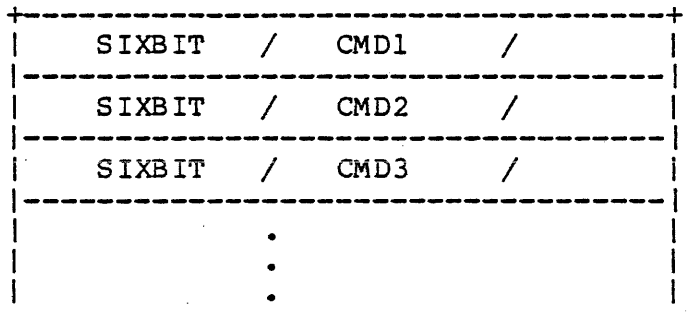
Position in table is of no significance, but COMTAB and DISP entires must be in corresponding positions.

Defined In: COMMON

Used By: UUOCON,COMCON

GETTAB Table No.: 30(octal)

Format:



Name: COMTB2 SET COMMAND TABLE

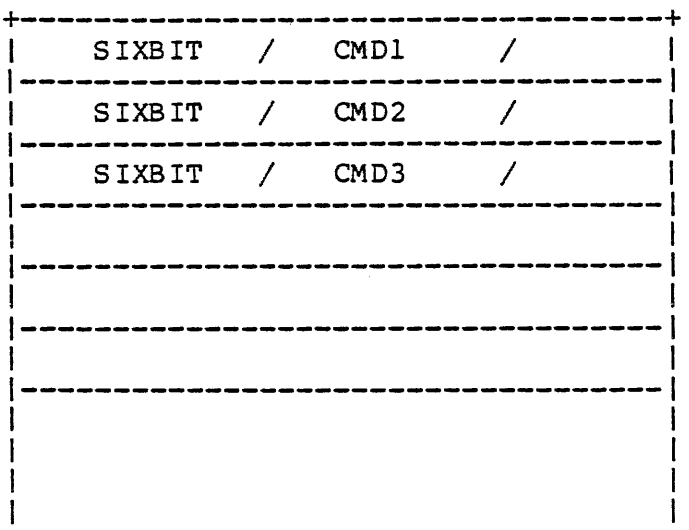
Description: When the command decoder has determined that a SET Command is to be executed it does a table lookup on the SET Command argument to determine the dispatch address. The SET Command argument table is named COMTB2 and is in the same format as COMTAB (q.v.). The dispatch table for the SET Commands is named DISP2. COMTB2 and DISP2 entries must be in corresponding positions.

Defined In: COMMON

Used By: UUOCON,COMCON

GETTAB Table No.: 43(octal)

Format:



Name: DDB DEVICE DATA BLOCK

Description: Contains information needed to perform I/O operations. One such block for each device or, in the case of disk, one for each INIT or ASSIGN.

Number of entries in the DDB varies with the device.

The label of a DDB entry is defined as the location of that entry relative to the beginning of the block. Such labels must be indexed by an AC containing the address of the beginning of the DDB. AC F is normally used for this purpose in the monitor.

The start of the DDB chain is accessible as GETTAB [%CNDEV] from a user program, or in location DEVLST in the Monitor. DDB's for some peripherals have their own tags in the Monitor and some sub-chains are also tagged:

TTYLST - Start of TTY sub-chain
PTYLST - Start of PTY sub-chain
LPxDDB - Tag for LPTx on I/O bus
CRxDDB - Tag for CDRx on I/O bus
FLxDDB - Tag for LPTx off console front end (1091)
FCxDDB - Tag for CDRx off console front end (1091)

Defined In: Device Service Routines and in S.UNV

Used By: Device Service Routines

Format:

DEVNAM	Physical Device Name *	Device Number *
DEVCHR	See bit definitions	See bit definitions
DEVIOS	See bit definitions	See bit definitions
DEVSER	Adr of next DDB	Adr-device dispatch tbl
DEVMOD	See bit definitions	See bit definitions

DEVLOG	Logical Device Name *		
DEVBUF	Output Ring Hdr Adr		Input Ring Hdr Adr
DEVIAD		R	Current input buffer adr
DEVOAD		R	Current output buffer adr
DEVSTS	Word for Devce CONI		
DEVSTA	See bit definitions		
DEVXTR	Extra word		
DEVEVM	Word to keep track of Exec Vir. Mem		
DEVPSI	Word to keep track of software interrupts		
DEVESE	PSI vector offset		
DEVHCW	Hardware characteristics		
DEVCPU	CPU related information		
DEVJOB	Job owning DDB and unit #		
DEVCTR	Buffer Item Count for Short Dispatch Table Devices		

* - in Sixbit code

DEVIAD and DEVOAD point to the buffer currently available to the interrupt routine.

DEVIAD, DEVOAD
Bits 14-17 are index register R

For long DDBs, DEVCTR is replaced with

DEVFIL	File name
DEVEXT	File extension
DEVPPN	File PPN
DEVNBF	Number buffers swept for | Number buffers not swept
DEVSBF	Saved DEVNBF
DEVCSN	Cache sweep serial number when I/O requested

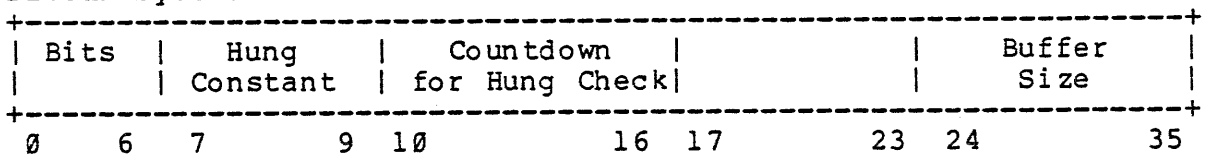
Notes:

1. Labels for DDB's are defined in S.MAC. Each device service routine contains a DDB for that device. For devices with more than one DDB, the DDB's are set dynamically as needed or at system initialization time. The new DDB's are modeled after the one contained in the device service routine.

2. Each DDB in use by a job is linked to that job. The job # is in bits 27-35 of DEVJOB, accessed in the Monitor by the byte pointer PJOBN. Also the DDB address is in the Job Device Assignment table in the Job Data Area for that job.

3. The unit number is in bits 18-26 of DEVJOB, accessed in the Monitor by the byte pointer PUNIT.

DEVCHR byte definitions



Byte Name	Bits	Use
DVLPTL	0	Device is a lower case LPT
DVCMDA	1	Device is controlled by mountable device allocator
	2	***free***
DVDIBP	3	Device is a Batch PTY
DVCNET	4	Device is controlled by NETSER
DVOFLN	5	Device was offline the last time the device service routine polled
DVC2IO	6	Device can do simaltaneous input and output
PDVTIM	7-9	Hung Constant (2**n-1 seconds). If 0, the device cannot be hung.
PDVCNT	10-16	Countdown for hung device check
	24-35	Buffer size in words. This determines the size of the buffers set up by the Monitor for this device.

DEVIOS Bit Definitions

Device Dependent Bits	IOEN D	IOST BL	IOFS T	IOBE G	IOW	IOIM PM	IODE RR	IODT ER	IOBK TL	IOAC T	Mag Tape Den- sity	IONR CK	IOCN	IOWC	Data Mode (Ø-17)

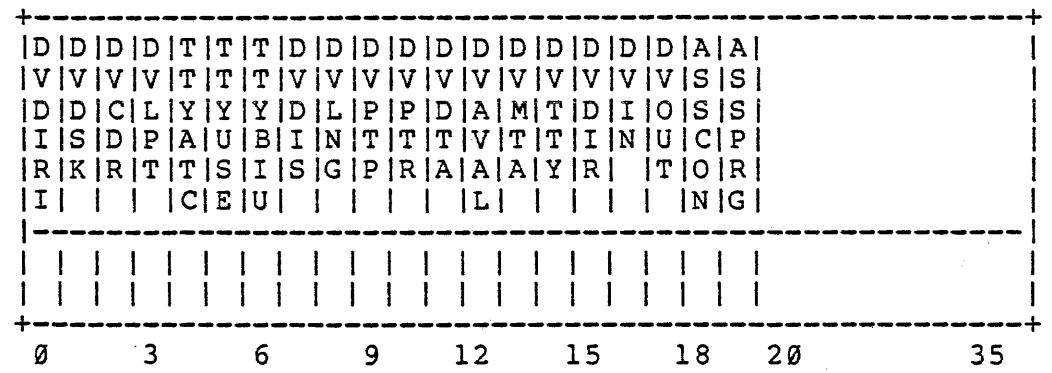
*Device dependent bits - those listed are for the Magtape.

Bit	Label	
12	IOEND	Service routine has transmitted last data
13	IO	Out = 1; In = Ø
14	IOSTBL	Device Error Flag (system)
15	IOFST	Next item will be the first item of a buffer
16	IOBEG	Virgin device
17	IOW	I/O Wait
18	IOIMPM	Improper mode detected; e.g., write on write-locked device
19	IODERR	Device error; e.g., search error
2Ø	IODTER	Date error; e.g., parity error
21	IOBKTL	Block too large or block # too large
23	IOACT	Device active
24*	IOBOT	Beginning of magtape
25*	IOTENT	End of magtape

26*	IOPAR	1 means write even parity on magtape
27-28*		Magtape density ØØ = installation standard Ø1 = 2ØØ BPI 1Ø = 556 BPI 11 = 8ØØ BPI
29*	IONRCK	Read with no reread check
3Ø	IOCON	1 means stop device between each buffer transferred
31	IOWC	Don't compute word count on OUTPUT
32-35		Data Mode; e.g., ASCII, ASCII line, DUMP, etc.

DDB (cont.)

DEVMOD Bit Definitions



Bits	Label	Meaning
0	DVDIRI	DECtape directory is in core
1	DVDSK	Device is a disk
2	DVCDR	Device is a card reader
3	DVLPT	Device is a line printer
4	TTYATC	This TTY attached to a job
5	TTYUSE	TTY DDB in use (as user console)
6	TTYBIU	TTY DDB in use (as console or I/O device)
7	DVDIS	Device is a display
8	DVLNG	Device has a long device dispatch table
9	DVPTP	Device is a paper tape punch
10	DVPTR	Device is a paper tape reader
11	DVDTA	Device is a DECtape
12	DVAVAL	1 if device is available to this job

13	DVMTA	Device is a magtape
14	DVTTY	Device is a TTY
15	DVDIR	Device has a directory
16	DVIN	Device can do input
17	DVOUT	Device can do output
18	ASSCON	This device has been assigned by a console.
19	ASSPRG	This device has been assigned by a program (i.e., INIT done)
20-35		If data mode n is legal , bit (35-n) is set.

DEVSTA Byte Definitions

Word Label	Bits	Bit Label or Byte Pointer	Content
DEVSPL	Ø	DEPSPL	This DDB is for a spooled device
DEVADV	1	DEPADV	Don't de-advance buffers on error intercept
DEVSTA	2	DEPLEN	Device has variable length buffers
DEVSTA	3	DEPRAS	Device has restricted assignment
DEVTYP	4-9	PDVTYP	Type of device (see DEVSTA word in Disk DDB)
DEVTYP	1Ø	DEPIBC	Inhibit clearing of output buffers
	11-12		Unusual Spool Bits
DEVSPL	13	.SPCDR	Spooled card reader
DEVSPL	14	.SPCDP	Spooled card punch
DEVSPL	15	.SPPTP	Spooled paper tape punch
DEVSPL	16	.SPPLT	Spooled plotter
DEVSPL	17	.SPLPT	Spooled line printer
DEVAIO	18	DEPAIO	Program is doing asynchronous I/O
DEVAIO	19	DEPIND	Input not yet done (asynchronous)
DEVAIO	2Ø	DEPOND	Output not yet done (asynchronous)
DEVAIO	21	DEPECS	Non-superseding enter done
DEVAIO	22	DEPMSG	Device is controlled by MSGSER
DEVAIO	23	DEPEVM	Device needs EVM
DEVAIO	24	DEPDER	Disable error recovery
DEVAIO	25	DEPDEL	Disable error logging

DEVPRI	26-29	DEXPRI DEYPRI DEZPRI	Device priority (Disk)
DEVSTA	30-35	PDVSTA	Station number (node) of device

DEVXTR Byte Definitions

Bits	Meaning
0-17	If an MPX DDB, address of connected device table If a device controlled by MSGSER, flags (same definition as LH of USRJDA)
18-35	If an MPX DDB, number of connected devices If a device controlled by MSGSER, address of MPX DDB

DEVEVM Byte Definitions

Bits	Meaning
Ø-17	UVA of buffer
18-26	Exec. page number
27-35	Number of pages

DEVESE Byte Definitions

Bits	Meaning
Ø-8	Unused
9-17	PSI Vector Offset
18-26	Unused
27-35	Extended software error status

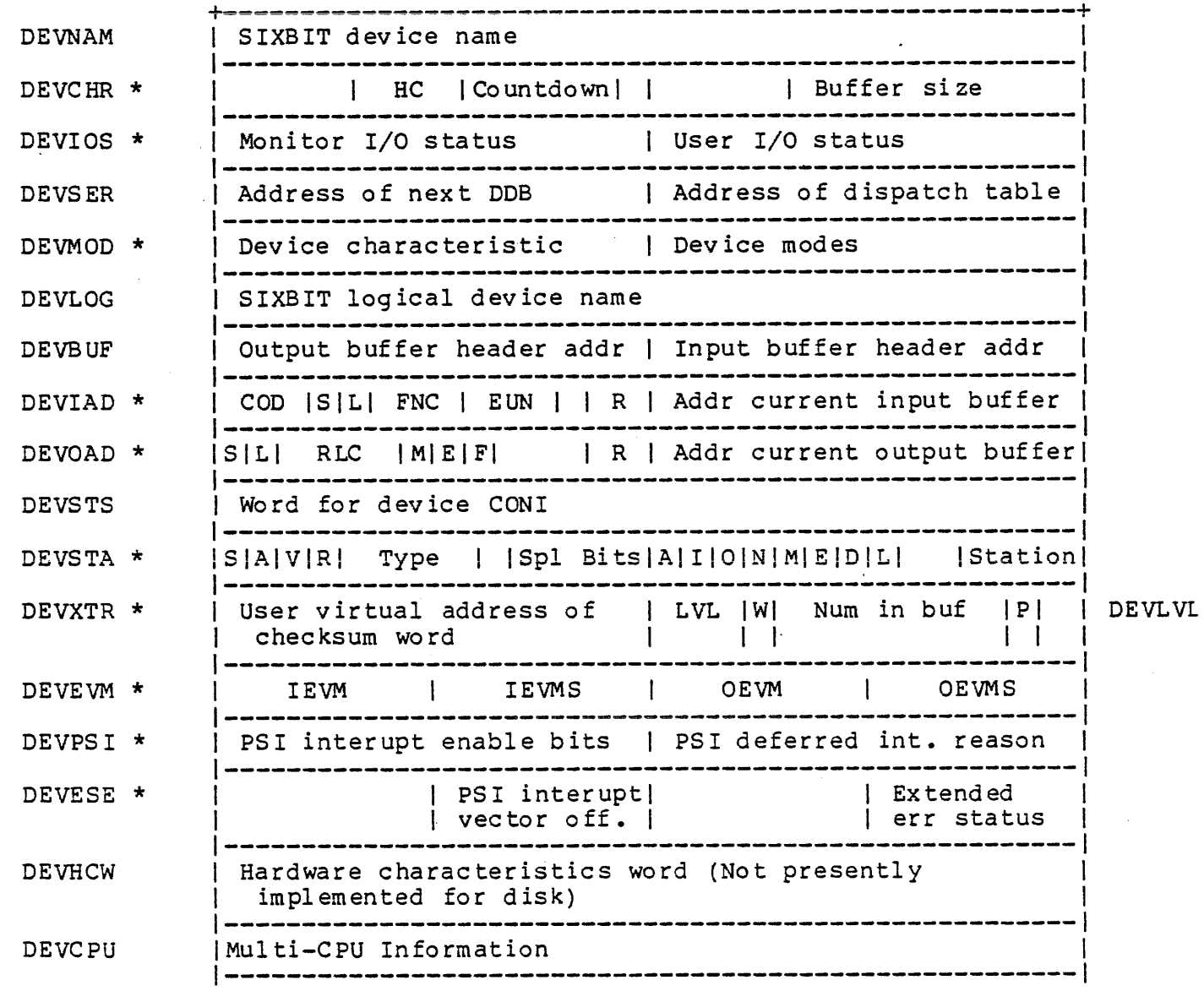
DEVJOB Byte Definitions

Bits	Byte Pointer	Meaning
Ø-17		Unused
18-26	PUNIT	Unit number (within device type)
27-35	PJOBN	Job number this device assigned to

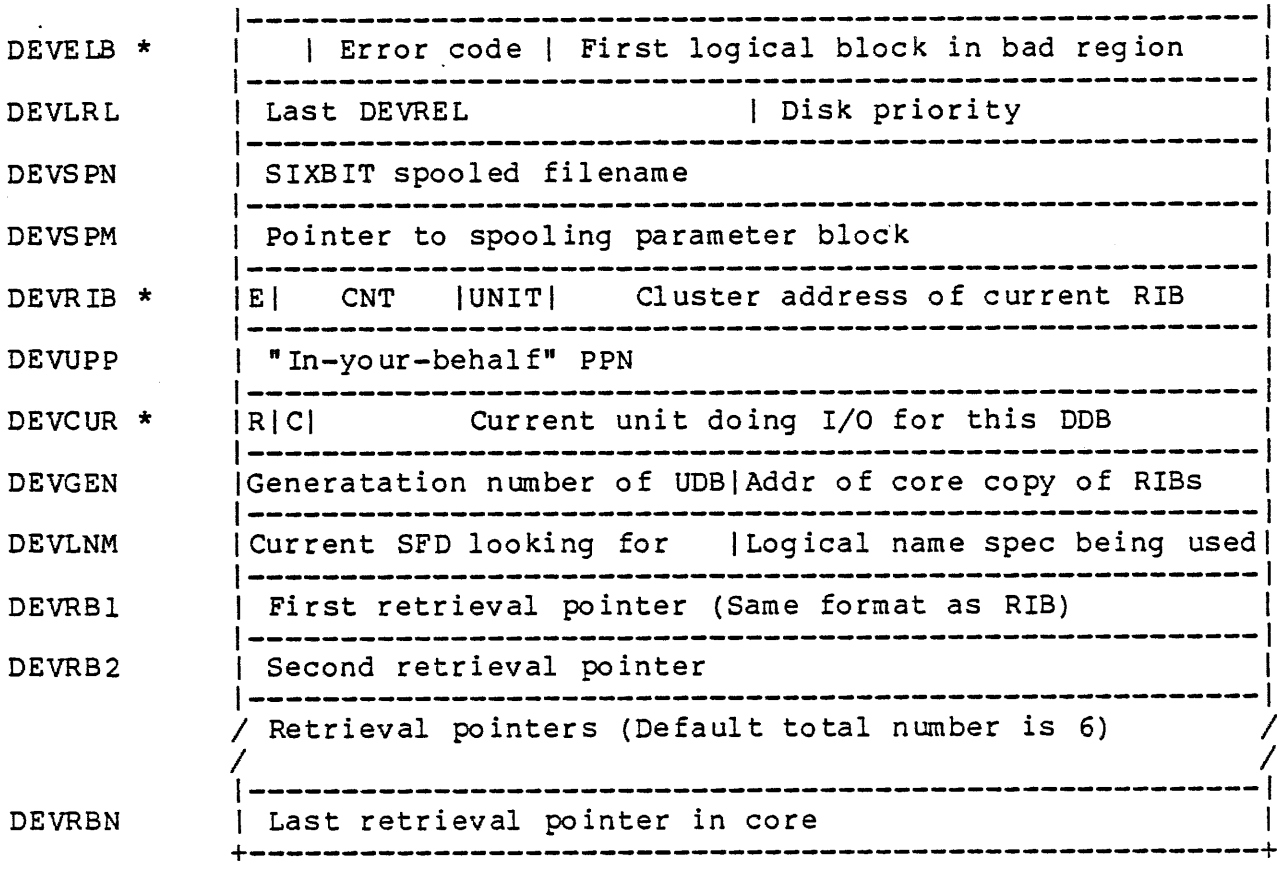
Name: DDB Disk device data block

Description: Contains information to translate UUO's into specific actions on a disk file. One DDB for each active user software channel. DSKDDB is the address of the prototype DDB.

Defined in: COMMOD, S



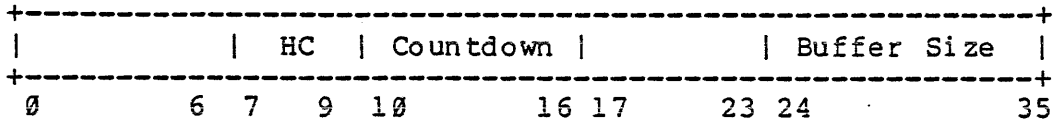
DEVJOB *		Old FSN	Job Number	DEVFSN
DEVFIL	Filename on last LOOKUP/ENTER (arg to FNDFIL)			
DEVEXT	File extension on last LOOKUP/ENTER		Number blocks left in current group	DEVLFN
DEVPPN	PPN on last LOOKUP/ENTER			
DEVNBF	Number buffers swept for		Buffers not swept for	
DEVSBF	Saved value of DEVSBF			
DEVCSN	Cache sweep serial number			
DEVDMP	Current IOWD for dump mode			
DEVRET		Ø	Addr of current retrieval pointer in DDB	
DEVREL	Relative block number in file to read or write next			DEVDIA
DEVUNI	Addr of original UDB (where RIB is)		Addr of current UDB	
DEVUFB			Addr of UFD data block	
DEVSFD			Addr of NMB for father SFD	
DEVBLK	Logical block number in unit to read or write next			
DEVRSU	-Num of unused pointer positions in RIB		Addr of access table entry for user channel	DEVACC
DEVMBF	IOWD to monitor buffer (Ø if user channel has none)			
DEVFLR	Block number of file which first in-core ptr points to			
DEVFUN	Addr of UDB to which first in-core pointer points to			
DEVQUE	Addr of next DDB in PWQ or TWQ		Job number of DDB in LH in-core pointer points to	



* Byte definitions given below

Disk Device Data Block (Continued)

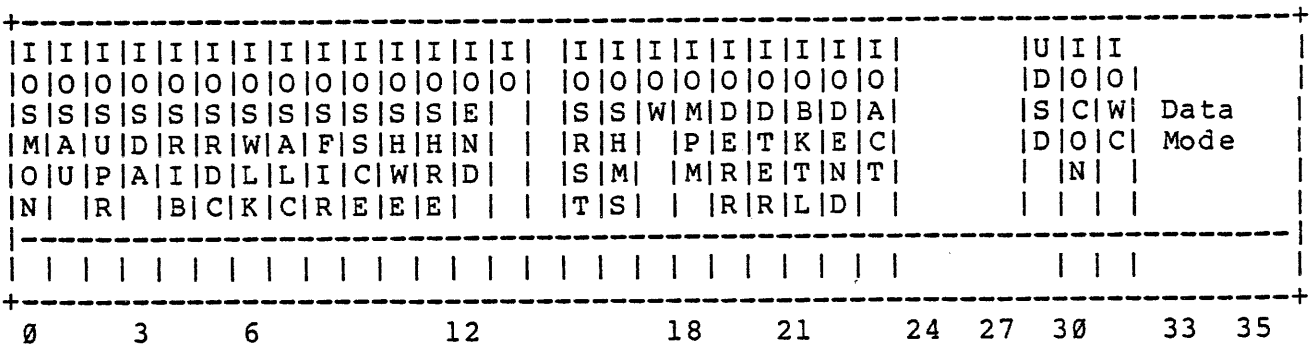
DEVCHR Byte Definitions



Bits	Byte Pointer	Content
7-9	PDVTIM	Hung Constant. Value is 3 for disk. If this is Ø, the device cannot be hung. A value of N says that the device is hung after 2**N-1 seconds.
1Ø-16	PDVCNT	Countdown - Number seconds until device will be considered hung.
24-35		Buffer size - 129 words (including word count).

Disk Device Data Block (Continued)

DEVIOS Bit Definition



Bit	Label	Meaning
Ø	IOSMON	The IO request currently in this DDB is for the monitor (e.g., reading RIB)
1	IOSAU	This file has the Alter UFD resource
2	IOSUPR	Super USETO or USETI in effect
3	IOSDA	This file has the Disk Allocation Resource
4	IOSRIB	RIB is in a monitor buffer.
5	IOSRDC	This user channel has read count up for file.
6	IOSWLK	STR is software write-locked.
7	IOSALC	Do not change AKBALC when giving up blocks of a file.
8	IOSFIR	First block of group being accessed (compute or check checksum in pointer)
9	IOSSCE	Software checksum error encountered.
1Ø	IOSHWE	Hard write error encountered
11	IOSHRE	Hard read error encountered.

12	IOEND	End of file reached at interrupt level.
13	IO	Doing output (Ø if doing input).
14	IOSTBL	Device error (system)
15	IOSRST	RESET or RELEASE done on spooled device.
16	IOSHMS	Hung device message already typed.
17	IOW	Job is in IO Wait due to the request in this DDB.
18	IPIMPM	Improper mode (miscellaneous software detected errors).
19	IODERR	Device error.
2Ø	IODTER	Data error; e.g., parity error or checksum fail.
21	IOBKTL	Block too large (also illegal unit, quota overdrawn, or RIB overflow)
22	IODEND	User has reached end of file.
23	IOACT	This DDB contains a current IO request.
29	UDSD	SUSET. UUO request to write disk pack headers.
3Ø	IOCON	Synchronous IO - transfer oly one buffer per IN or OUT UUO.
31	IOWC	Do not compute word count on output.
32-35	PIOMOD	Data mode.

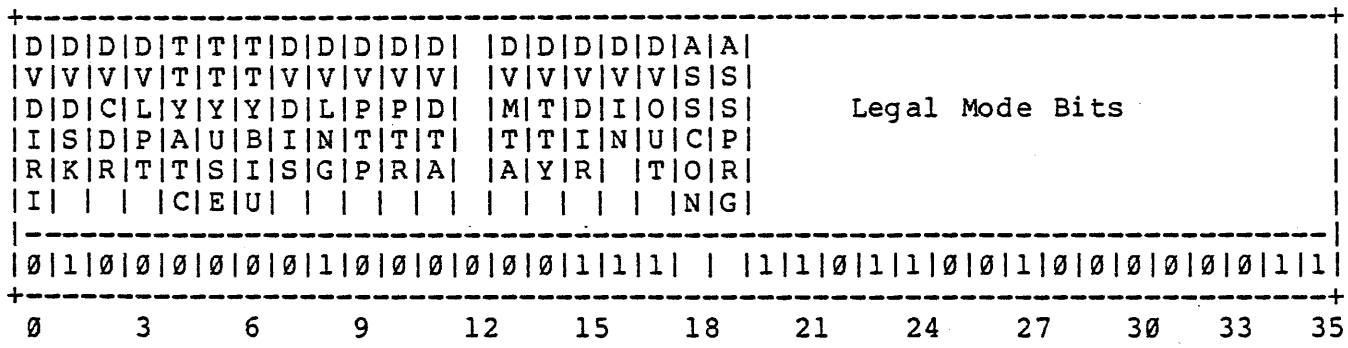
Legal modes are

Ø - ASCII
1 - ASCII line
2 - Packed image
3 - Byte mode
1Ø - Image mode
13 - Image binary mode
14 - Binary
15 - Scope dump mode

16 - Dump by records
17 - Dump across records

Disk Device Data Block (Continued)

DEVMOD Bit Definitions

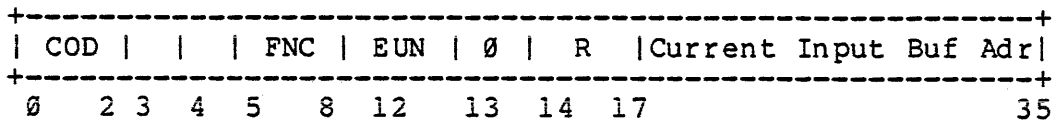


Bit	Label	Meaning
0	DVDIRI	DECtape directory is in core.
1	DVDSK	Device is a disk.
2	DVCDR	Device is a card reader
3	DVLPT	Device is a line printer
4	TTYATC	This TTY attached to a job.
5	TTYUSE	TTY DDB in use (as user console)
6	TTYBIU	TTY DDB in use (as console or I/O device)
7	DVDIS	Device is a display.
8	DVLNG	Device has a long device dispatch table.
9	DVPTP	Device is a paper tape punch.
10	DVPTR	Device is paper tape reader.
11	DVDTA	Device is DECtape.
13	DVMTA	Device is a magtape.
14	DVVTY	Device is a TTY.

15	DVDIR	Device has a directory.
16	DVIN	Device can do input.
17	DVOUT	Device can do output.
18	ASSCON	This device has been assigned by a console.
19	ASSPRG	This device has been assigned by a program (i.e., INIT done).
20-35		If data mode n is legal, bit (35-n) is set. See PIOMOD.

Disk Device Data Block (Continued)

DEVIAD Byte Definitions



Word Label	Bits	Label or Byte Pointer	Content
DEVCOD	Ø-2	DEYCOD	File status code as in UNISTS. See below.
DEVSCN	3	DEYSCN	Scanning switch for SFD's.
DEVLPC	4	DEPLPC	Last RIB pointer is in core.
DEVFNC	5-8	DEYFNC	Code for highest function permitted.
DEYEUN	9-12	DEYEUN	Logical unit within STR on which error begins.
DEVIAD	13		Ø - Indirect addressing bit.
DEVIAD	14-17		Index field bits for AC R.
DEVIAD	18-35		Address of second word of buffer to be filled next. (Relative address within job's area.)

File Status Codes

Value	Symbol	Meaning
Ø	ICOD	Idle
1	SWCOD	Seek Wait
2	SCOD	Seeking
3	PWCOD	Position Wait
4	PCOD	Positioning
5	TWCOD	Transfer wait
6	TCOD	Doing Transfer

NOTES:

1. Seek means to move the access arms without having a transfer ready to initiate. Position means to move the access mechanism to the position required for a waiting transfer.

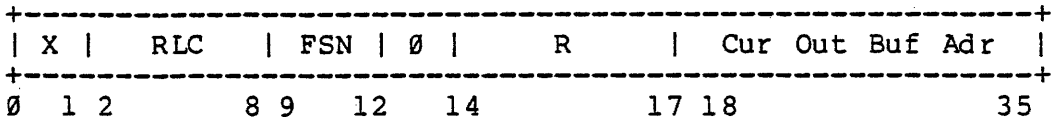
2. AC R will contain the absolute address of the job's core area.

3. Function codes for DEVFNC are listed below:

Values	Symbol	Meaning
Ø		Code not yet stored.
1	FNCEXC	Execute only
2	FNCRED	Read
3	FNCALL	Allocate
4	FNCDLL	Deallocate
5	FNCAPP	Append
6	FNCUPD	Update
7	FNCCRE	Create
1Ø	FNCSUP	Supersede
11	FNCTRN	Truncate
12	FNCCAT	Change attributes other than privilege, name, and directory
13	FNCDEL	Delete
14	FNCCNM	Change name
15	FNCCPR	Change privilege

Disk Device Data Block (Continued)

DEVOAD Byte Definitions



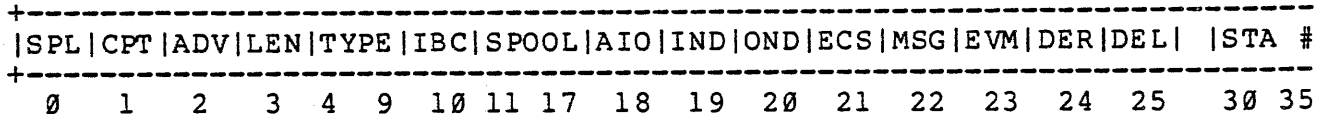
Word Label	Bits	Byte Pointer or Bit Label	Content
DEVSWP	Ø	DEPSWP	1 for swapping DDB
DEVLIB	1	DEPLIB	1 if lookup from LIB/SYS
DEVRLC	2-8	DENRLC	Relative position within RIB of first retrievel pointer in the DDB
DEVFSN	9-12	DENFSN	File structure Number (Last lockup/enter)
DEVOAD	13		Ø - Indirect addressing bit
DEVOAD	14-17		Index field bits for AC R.
DEVOAD	18-35		Address of second word of buffer to be written next. (Relative address within job's area.)

Note:

AC R will contain the absolute address of the job's core area.

Disk Device Data Block (Continued)

DEVSTA Byte Definitions



Bits	Pointer	Meaning
0	DEPSPL	This DDB is for a Spooled Device
1	DEPCPT	Read file in 10/11 compatability mode
2	DEPADV	Don't advance buffers on error intercept
3	DEPLEN	Variable length buffer capability
4-9	DEYTYP	Type of device.

00 - DSK (.TYDSK)
01 - DTA (.TYDTA)
02 - MTA (.TYMTA)
03 - TTY (.TYTTY)
04 - PTR (.TYPTR)
05 - PTP (.TYPTP)
06 - DIS (.TYDIS)
07 - LPT (.TYLPT)
10 - CDR (.TYCDR)
11 - CDP (.TYCDP)
12 - PTY (.TYPTY)
15 - MPX device (.TYMPX)
16 - PA611R reader (.TYPAR)
17 - PC11 reader/DC44 (.TYPCR)
20 - PA611P on DC44 (.TYPAP)
21 - LPC11 on DC44 (.TYLPC)
22 - PC11 punch/DC44 (.TYPCP)
23 - WTY on DC44 (.TYWTY)
24 - Network TSK (.TYTSK)
25 - DAS78 (.TYD78)
26 - Remote data entry (.TYRDA)
27 - Host command interpreter (.TYEST

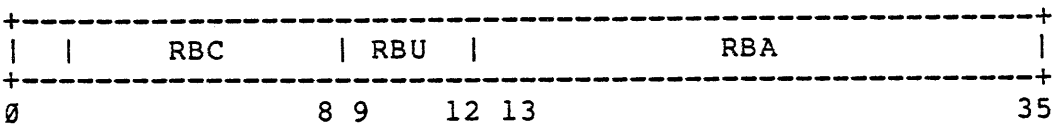
13 - PLT (.TYPLT) 30 - DRA (.TYDRA)

14 - External task (.TYXTR)

10	DEPIBC	Inhibit clearing output buffers
11-17	DEYSPL	Spool Bits 11 - 12 Unused 13 CDR 14 CDP 15 PTP 16 PLT 17 LPT
18	DEPAIO	Doing asynchronous I/O
19	DEPIND	Input not done yet
20	DEPOND	Output not done yet
21	DEPECS	Doing non-superseding enter
22	DEPMSG	This device controlled by MSGSER
23	DEPEVM	Device doesn't need EVM for I/O (KI only)
24	DEPDER	Disable error recovery on this device
25	DEPDEL	Disable error logging on this device
30-35		Station Number

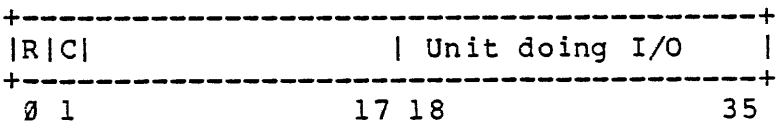
Disk Device Data Block (Continued)

DEVRIB Byte Definitions



Bits	Label	Content
Ø		Set if extended RIB
1-8	DEYRBC	Count of RIB's
9-12	DEYRBU	Logical Unit within STR
13-35	DEYRBA	Cluster address within unit

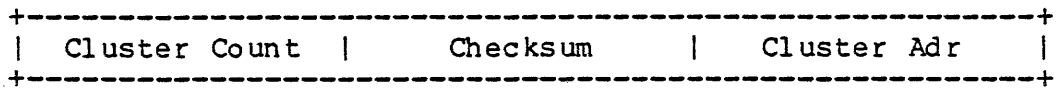
DEVCUR byte definitions



Word Label	Bits	Bit Label	Content
DEVRAD	Ø	DEPRAD	Rename across directories in progress
DEVPRV	1	DEPPRV	Don't check privs in LOOKUP
DEVRRC	2		Auto-rewrite of RIB on change
	6		On if RIB has changed
	7		On if physical only I/O was specified in INIT
DEVCUR	18-35		Current unit doing I/O for this DDB

Disk Device Data Block (Continued)

Retrieval Pointer



Widths of these fields are defined symbolically, and may be different for each file structure. Byte pointer is in STR Data Block.

Field	Byte Pointer
Cluster Count	STYCNP
Checksum	STYCKP
Cluster Address	STYCLP (23 bits maximum)

If cluster count = Ø, the word actually is one of the following:

1. Pointer to new unit, if bit 18 = 1. Bits 19-35 specify logical unit number within file structure.
2. EOF flag, if whole word is zero.

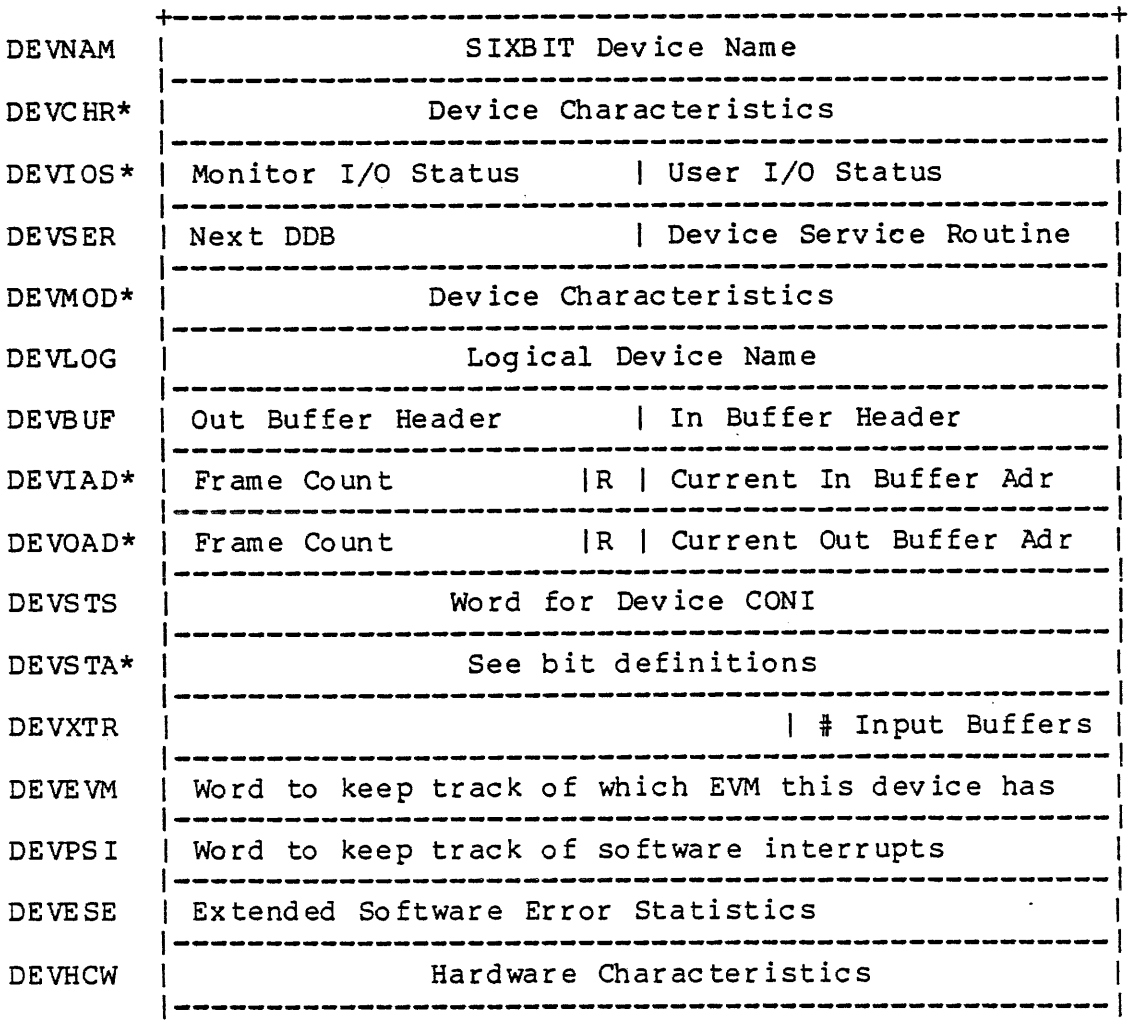
Name: Magtape Device Data Block

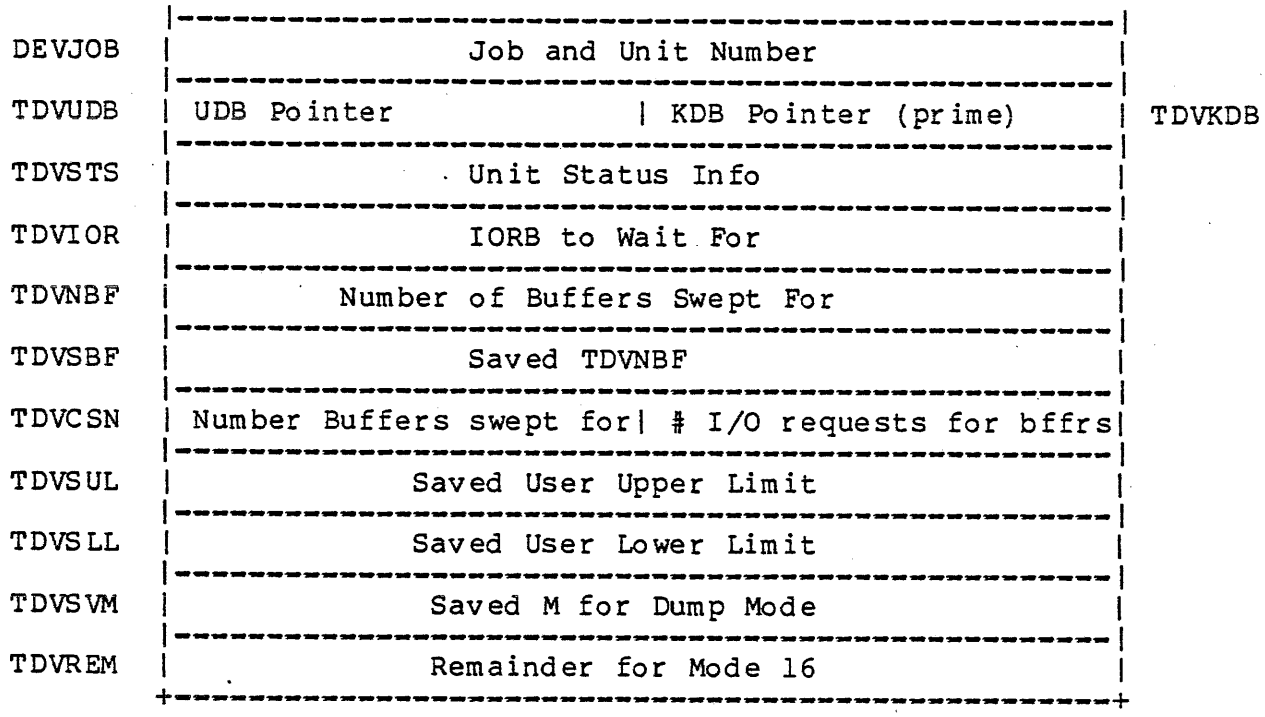
Description: Contains information to perform I/O on a magtape. One for each tape drive on a system.

Defined in: COMDEV

See also: Magtape Unit Data Block, Magtape Kontroller Data Block

Format:




DEVJOB
Job and Unit Number
TDVUDB
UDB Pointer
KDB Pointer (prime)
TDVKDB
TDVSTS
Unit Status Info
TDVIOR
IORB to Wait For
TDVNBF
Number of Buffers Swept For
TDVSBF
Saved TDVNBF
TDVCSN
Number Buffers swept for
I/O requests for bffrs
TDVSUL
Saved User Upper Limit
TDVSLL
Saved User Lower Limit
TDVSVM
Saved M for Dump Mode
TDVREM
Remainder for Mode 16

Name: DEVDSP DEVICE DISPATCH TABLE

Description: Table of JRST's to routines that perform various device dependent functions. For each device, corresponding table entries go to routines to perform a specific function.

The first nine entries are present in each device service routine. Tables which contain the additional entries are referred to as long dispatch tables.

Defined In: Device Service Routines

Used By: Device Service Routines

Format:

Label of entry (Relative to DEVDSP)	Relative Adr	Function
DOFL	-5	Is device off line ?
DDVO	-4	DEVOP. UUO
DSZ	-3	Return Buffer Size
DINI	-2	Device and service routine initialization
DHNG	-1	"Hung device" action
DRL	Ø	Release (Table Base Adr)
DCL	1	Close, Close output
DOU	2	OUTPUT Operation
DIN	3	INPUT Operation
DEN	4	ENTER Operation

DLK	5	LOOKUP Operation
DDO	6	DUMP Mode output
DDI	7	DUMP Mode input
DSO	10	USETO Operation
DSI	11	USETI Operation
DGF	12	UGETF Operation
DRN	13	RENAME Operation
DCLI	14	Close input - dump mode
DCLR	15	Call AC, SIXBIT/UTPCLR/
DMT	16	MTAPE Operation

Labels for table entries, relative to the base address, are defined in S.MAC.

Notes:

1. The actual tables are defined in the device service routines. The base address of the device dispatch table is contained in the corresponding Device Data Block, in RH of DEVSER.

2. The device dispatch table labels are normally indexed by AC T4, which must contain the base address of the appropriate table. The dispatch is usually performed by a PUSHJ P, Dxxx(t4) where Dxxx represents the label of the appropriate table entry.

3. Before attemptint to dispatch to any of the long dispatch table entries, the monitor checks the DVLNG bit of DEVMOD in the Device Data Block for that device.

4. The actual names of the tables are xyzDSP where xyz is the three letter name of the device (e.g., PTRDSP for the paper tape reader).

Name: DISP COMMAND DISPATCH TABLE

Description: Specifies routine address and legality bits for each monitor command. Entries correspond to command names in COMTAB.

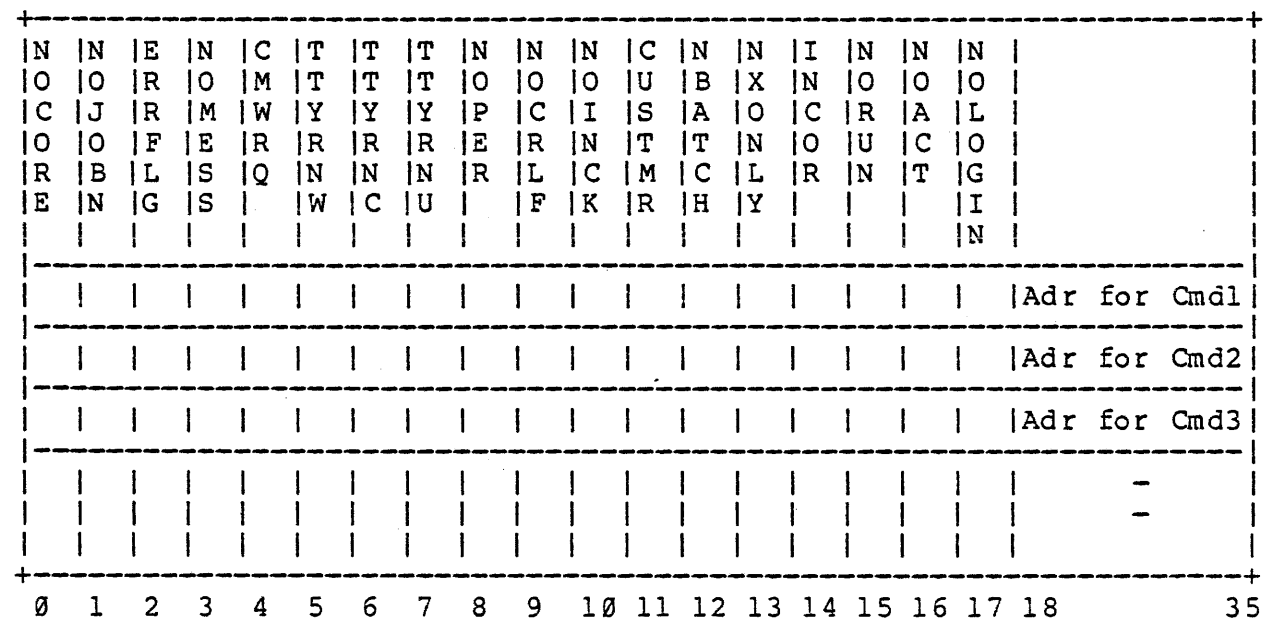
One entry for each command.

Position in table is of no significance, but DISP entry and COMTAB entry must be in same relative position.

Defined In: COMCON (local)

Used By: COMCON

Format:



Bit	Label	Meaning
Ø	NOCORE	No core needed for command
1	NOJOBN	No job number needed for command
2	ERRFLG	Command Error
3	NOMESS	No command response ever
4	CMWRQ	Reque job after command wait
5	TTYRNW	Set TTY to user level and I/O. Wait if in IOW before

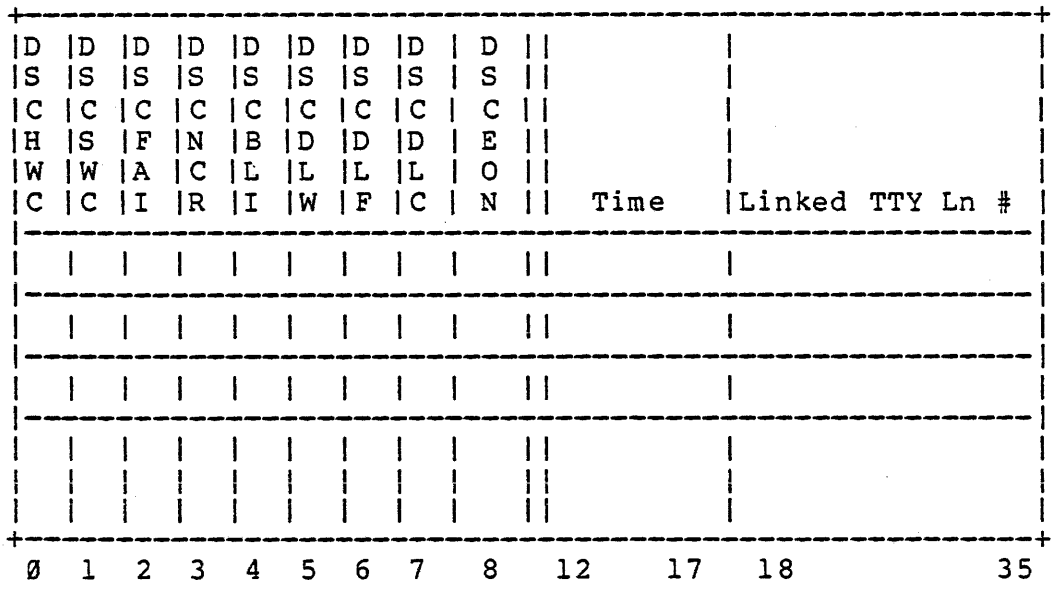
6	TTYRNC	Keep TTY in monitor mode and start job.
7	TTYRNU	Set TTY to user and start job
8	NOPER	No printing of period
9	NOCRLF	No printing of CR-LF
1Ø	NOINCK	No check for job initialization (JNA=Ø)
11	CUSTMR	Reserved for customer definition
12	NBATCH	Not legal for BATCH job
13	NXONLY	Not legal if execute only program
14	INCOR	Job must be in core if it has core
15	NORUN	Job must not be running - C required
16	NOACT	Command must wait until job devices not active
17	NOLOGIN	Job need not be logged in

Bits Ø, 1 and 12-17 checked before dispatching to command.
Bits 2-11 checked after return from command.

Name: DSCTAB Dataset Control Table

Description: Contains information required for timing function on datasets. One entry for each data set which needs timing. Index is contained in Line Data Block, LDBBY2 word.

Defined in: SCNSER and COMMON



Bits	Label	Meaning
Ø	DSCHWC	When last heard from the hardware carrier was on.
1	DSCSWC	Software considers carrier to be on
2	DSCFAI	Carrier went off, but may be brief failure
3	DSCNCR	New Carrier flag, on briefly for clock sync
4	DSCBLI	Blind flag - Ignore everything for 1 second
5	DSCDLW	Dialler wait - waiting for results from dialler

6	DSCDLF	Dialler Fail - Unsuccessful dialler attempt
7	DSCDLC	Dialler Complete - Successful dialler action
8	DSCEON	End of Number - Sent all digits to dialler
12-17	DSTIMP	Time field - for functions which require timing
18-35		Line number for this data set

Name: EXE Format Save Files

Defined in: S.MAC

Used by: FILFND, FILIO

Description: The old .SAV, .LOW, .SHR, .HGH and .XPN files have been replaced by the .EXE type in order to provide a unified format for saved core image files. This type of file consists of two distinct, but related portions:

- information about the structure of the file
- the data in the file

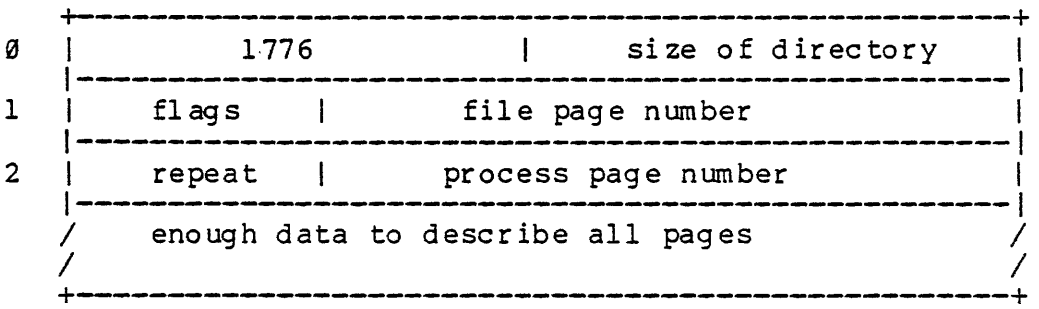
The file information is organized into a variable number of hunks. Each hunk begins with a word containing an identifier code in the left half and the length of the chunk in the right half. At this time, the defined codes are:

1. Directory: 1776

2. End: 1777

Other hunks may be added later as they become necessary. The save file starts with a directory followed by one or more pages of data. All pages of data are stored on page boundaries in exactly the form they will be loaded into the virtual address space. There is no zero compression within pages; only entire pages will be compressed.

The format of the directory is:



Word 0 has 1776 in the left half and the size of the directory in words in the right half.

Word 1 has flag bits in the leftmost nine bits and a file page number in the right 27 bits. If the file page number is zero then the page is allocated but zero. The flag bits are:

bit Ø Set if this is part of the hiseg
bit 1 Set if this page is sharable
bit 2 Set if the page may be written
bit 3 Page is concealed (access by PORTAL only)

Word 2 has a repeat count in its leftmost nine bits for one less than the number of consecutive file and memory pages described by this pointer. The rightmost nine bits describe the process address into which this page should be loaded. Descriptors in the same format as words 1 and 2 are provided for every contiguous piece of the process space with identical access bits.

A typical save file directory for a program with a 2K lowseg and a 1ØK hiseg would contain:

```
ØØ1776,,ØØØØØ5
1ØØØØØ,,ØØØØØ1
ØØ3ØØØ,,ØØØØØØ
6ØØØØØ,,ØØØØØ5
Ø23ØØØ,,ØØØ4ØØ
ØØ1777,,ØØØØØ1
```

followed by 5Ø6 words of zeroes.

.EXE files were implemented to provide an extendable description of a core image not limited tØ 256K. This is especially useful in taking crash dumps of systems greater than 256K. Aside from this, the basic advantages include only 1 LOOKUP to get a program as opposed to as many as 3 previously, and the elimination of the overhead associated with expanding zero-compressed core images and compressing them on a SAVE. The disadvantages are that .EXE files require more disk space because of the directory and the elimination of zero compression within pages and that an additional page, the directory, must be read when the core image is fetched.

If bit 21 in the Monitor word CNFST2 is a 1, the SAVE and SSAVE commands generate .EXE files instead of .SAV, etc. files. This bit may be set by the MONGEN parameter M.EXE.

Name: FETTBL TABLE OF BITS FOR MONITOR FEATURES

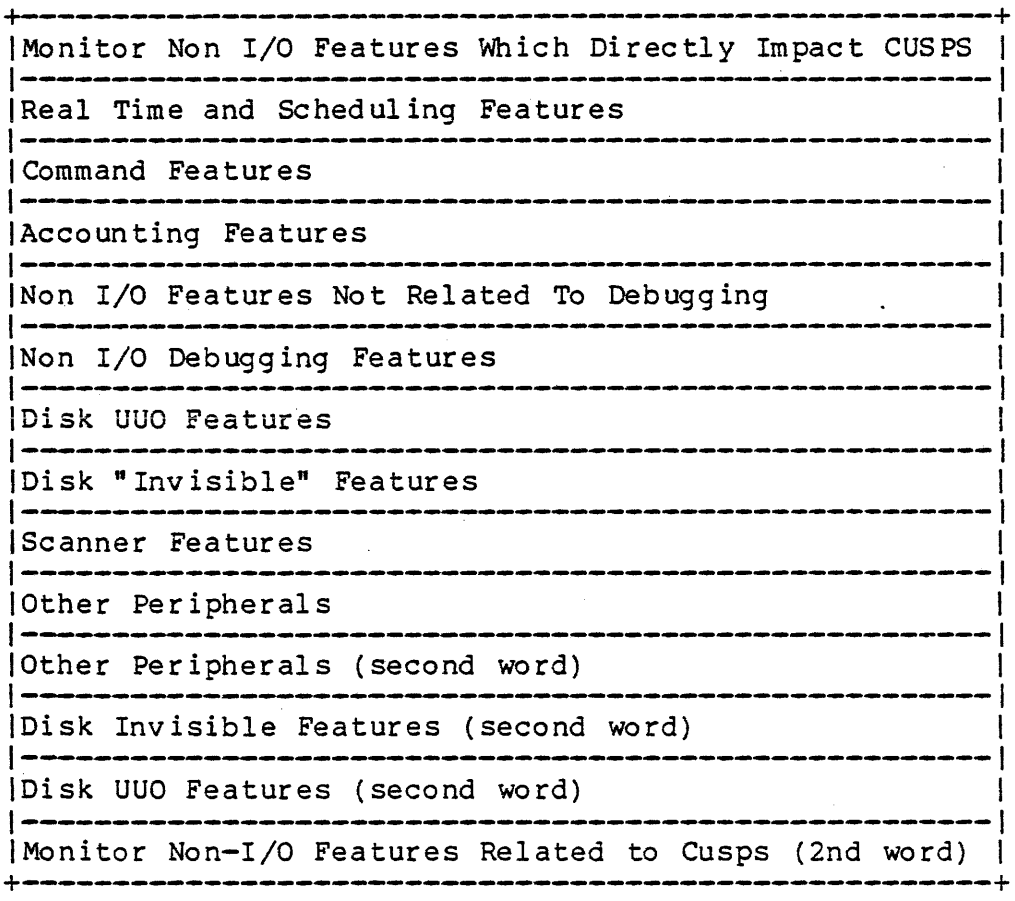
Description: Contains bits for feature test switches.

Defined In: UUOCON (local symbol)

Used By: UUOCON

GETTAB Table No.: 71(octal)

Format:

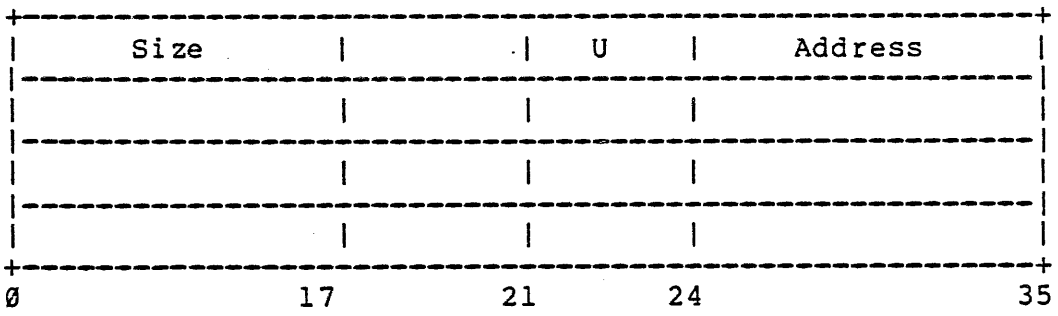


Name: Fragment Table

Description: Contains data needed in order to swap in a fragmented core image.

Set up as required when segments are swapped out.

JBTSWP points to first fragment table for a given segment.



Bits	Content
Ø-17	Number K in fragment
21-23	Unit index is SWPTAB
24-35	Logical K within unit where fragment starts.

Notes:

1. A zero word indicates end of table.

2. Fragment tables are built from four word blocks. If more than one block is required, and they are not contiguous, the last word of the preceding block contains -1 in the left half and the address of the next table in the right half.

Name: HOM HOME BLOCK

Description: Block on each disk unit or pack which contains vital statistics that cannot be "built in" when a monitor is generated. These are primarily parameters of the unit or pack and the STR to which it belongs.

Defined In: COMMOD

Used By: ONCMOD, REFSTR

Format:

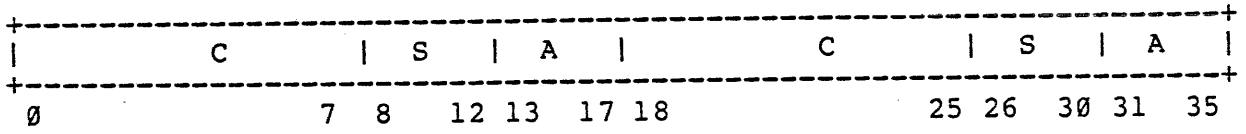
HOMNAM~3	SIXBIT /HOM/	Written by MAP Program.
HOMHID~3	SIXBIT Unit ID	Written by MAP Program.
HOMPHY~3	Physical Disk Adr this Blk on this unit	Physical Disk Adr other Home Blk on this unit
HOMSRC	Position of this STR in System Search List -1 means not in System Search List	
HOMSNM~4	SIXBIT STR Name Ø = Not in File Structure	
HOMNXT~5	Unit ID for next unit in STR Ø = Last or only unit	
HOMPRV~5	Unit ID for previous unit in STR Ø=Last or only unit	
HOMLOG	SIXBIT Logical Unit # within STR	
HOMLUN~5	Logical Unit # within STR	
HOMPPN	Proj-Prog # which refreshed STR under timesharg or Ø	
HOMHOM~6	Logical Blk # for Home Block within unit	Logical Blk # within Unit for extra Home Block
HOMGRP	No blocks per group to try for on output(Not clusters)	
HOMBSC	No blocks per supercluster on this unit	
HOMSCU	No superclusters per unit	

HOMCNP	Byte Ptr for cluster count in Retrieval Pointers	
HOMCKP	Byte Ptr for checksum in Retrieval Pointers	
HOMCLP	Byte Ptr for cluster adr in Retrieval Pointers	
HOMBPC	No Blocks per cluster for this STR	
HOMK4S	No K Words for swapping on this unit Ø means no swapping	
HOMREF~7	Non-Zero if file must be refreshed	
HOMSIC	No SAT Blocks in core	
HOMSID	Unit ID of next unit in active swapping list Ø if last or not in active swapping list	
HOMSUN~8	Logical Unit # in active swapping list	
HOMSLB	First logical block # for swapping on this unit	
HOMCFS	Swapping Class for unit	
HOMSPU	No SAT Blocks per unit	
HOMOVR	Overdraw limit per user on this STR	
HOMGAR	Upper bound on total reserved blocks guaranteed to users	
HOMSAT~9	SAT.SYS*	HOMTAB
HOMHMS	HOME.SYS*	
HOMSWP	SWAP.SYS*	
HOMMNT	MAINT.SYS*	
HOMBAD	BADBLK.SYS*	
HOMCRS	CRASH.EXE*	
HOMSNP	SNAP.SAV*	

HOMRCV	RECOV.SYS*
HOMSUF	SYS [1,4].UFD*
HOMPUF	PRINTR [3,3].UFD*
HOMMFD	MFD [1,1].UFD*
HOMPT1	First retrieval ptr for MFD for structure this unit is in
HOMUN1	Logical unit # where MFD starts
HOMLEN	Table of lengths of files created by refresh - 6 words Needed by CRS, SNP, RCV AND UFDS (in that order)
HOMUTP	Unit type on which HOME block was written (see UNYUTP)
HOMRIP	Used by RIPOFF
HOMKLB	2Ø words used by console front end in KL1Ø systems
HOMKLE	Used to find files for Bootstrap/dump
HOMK4C	K for CRASH.EXE
HOMPVS	Word containing bit which says private STR
HOMSDL HOMEND	Postion of STR in system dump list Last word with valid data
HOMVID	Volume ID (12 PDP11 bytes)
HOMOWN	Owner name
HOMVSY	System type (TOPS-1Ø)
HOMCOD	Ø | (Unlikely code) 7Ø7Ø7Ø
HOMSLF	Ø | This Blk # in unit (Not Cluster)

* Logical Block Number within STR of first RIB.

HOMPHY Byte Definitions



Byte	Meaning
C	Cylinder address
S	Surface
A	Sector address

Special Notes:

1. An extra copy of the home block is maintained on each unit in case the original becomes unreadable. These two home blocks which must be at specific places known to the software. Currently, they are blocks 1 and 10 (decimal) of each unit.

2. Each file structure has one home file HOME.SYS. It is a "Sparse File" with retrieval information in first block of each group. However, only the second block of each group (1 cluster) has data, the remaining ones (if any) are 0. The home file is constructed so that each group is on a separate unit where 'Unit' is a side of a Bryant MDF Disk, one cut of up to four Burroughs fixed head disks, etc.

3. These words are the only ones altered by the MAP program. They are not modified by the Monitor.

4. Ignored by Monitor when a pack is mounted. File STRLST.SYS is final authority for the structure name.

5. Checked by Monitor and PULSAR whenever pack is mounted.

6. Note the restriction that home blocks limited to the first 262,000 blocks on a unit. Knowing logical block address of home blocks is useful only to recovery programs when file structure has been clobbered. Most programs will read home blocks via file HOME.SYS.

7. Some parameter for this unit has been changed. Set by disk Once Only code, checked when system is started and by PULSAR when pack mounted.

8. -1 indicates unit is not in Active Swapping List. (May be changed at Once time without requiring refreshing provided swapping space allocated at refresh time.)

9. The rest of the entries in the home block are written by REFRESH.

Name INTTAB INTERRUPT ROUTINE TABLE

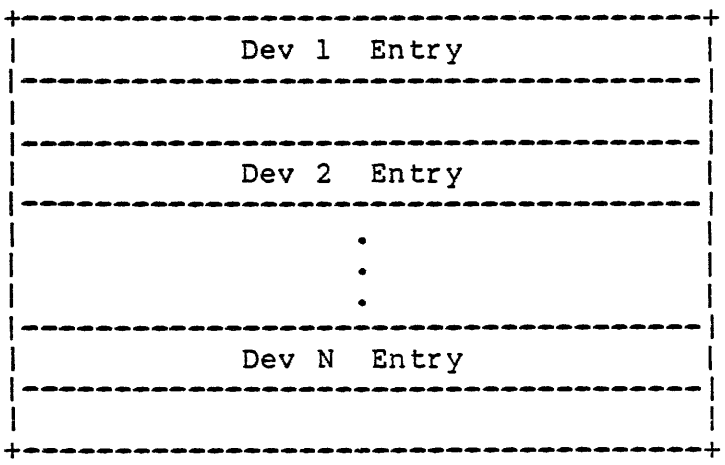
Description: Contains descriptive information about each interrupt routine. One entry, of two words, for each interrupt routine.

Position of an entry in the table is of no significance.

Defined In: COMMON

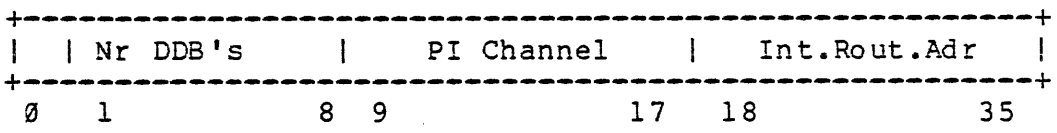
Used By: SYSCHK, ONCE

Format:



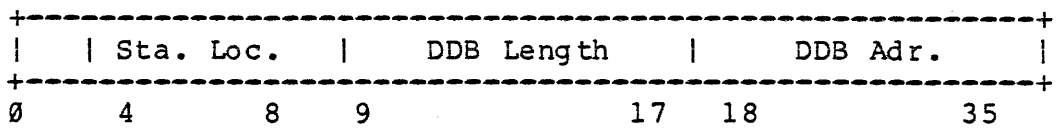
Format of each entry:

Word Ø



Bit Ø = 1 for any type of DECtape routine.

Word 1



Bits Ø-8 contain the station number of the device.
Bits 9-17 contain length of DDB for devices with multiple units.

Special Notes:

1. INTTAB entries are set up by the ASGINT and ASGSV1 macros in COMMON according to parameters specified in HDWCNF.MAC.

2. Table is used by INTLOP in ONCE to build the interrupt routine chain for each channel. Also, used in the long ONCE dialog to print out I/O configuration.

3. Used by Once Only code in COMMON to set up multiple Device Data Blocks.

4. The interrupt routine address is the address of the CONSO in the skip chain.

Name: JBTADR JOB ADDRESS TABLE

Description: Tells core address and length for each segment in core. One entry for each job number and each high segment number.

For low segments the length -1 is the protection setting, and the address in core is the relocation factor.

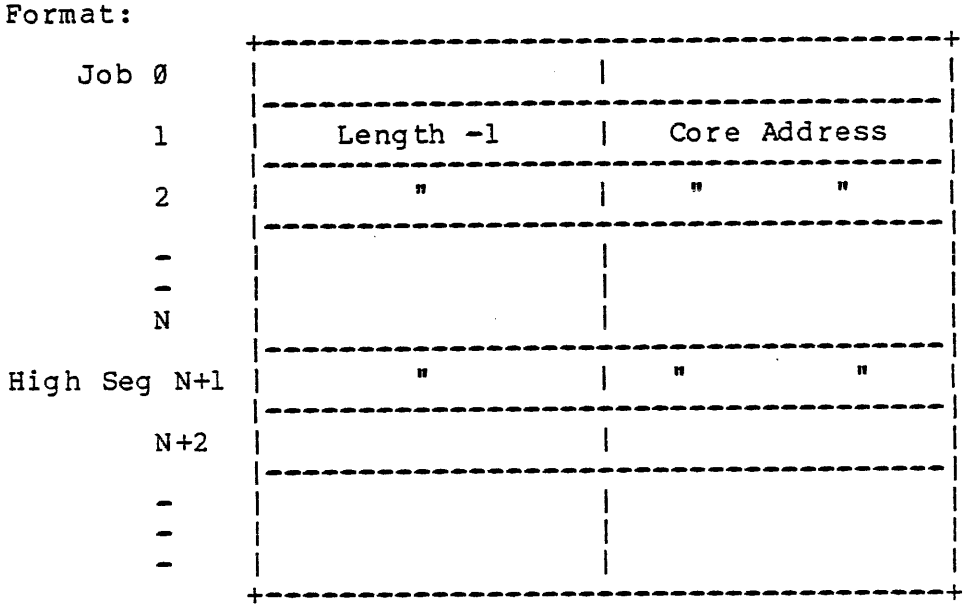
For high segments, protection and relocation are computed from the table entries.

Defined In: COMMON

Used By: FILIO, FILUUO, CDPSER, CLOCK1, COMCON, CORE1, DISSER, DTASRN, ERRCON, KISER, KILOCK, METCON, PSISER, PTYSER, REMDL, SCHED1, SEGCON, SWPSER, TYPSER, UUOCON, VBCSER, VMSER, SYSINI, REFSTR

GETTAB Table No.: 1

Format:



Special Notes:

1. The entry for a job which is swapped out, or being shuffled, is zero.

2. JBTDAT is the same table.

3. During a BLT of the low or high segment, this word contains the source relocation.

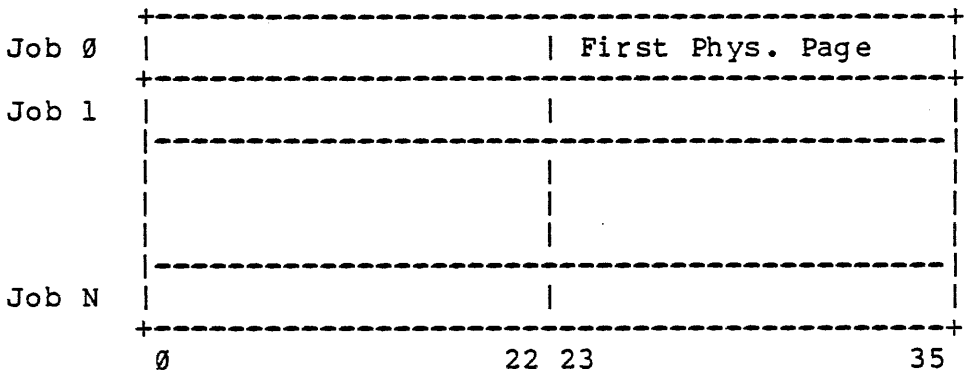
4. The right half of JBTADR contains 371000 unless the segment is locked. JBTADR then contains the core addresses of the segment.

Name: JBTAD2 Second Job Address Table

Description: This table contains the first physical page number for each job's low segment. This table is kept so that the monitor can obtain the page number when the job is not currently mapped or the UPMP is in error. There is one entry per job.

Defined in: COMMON

Format:



Name: JBTCHK SEGMENT CHECKSUM TABLE

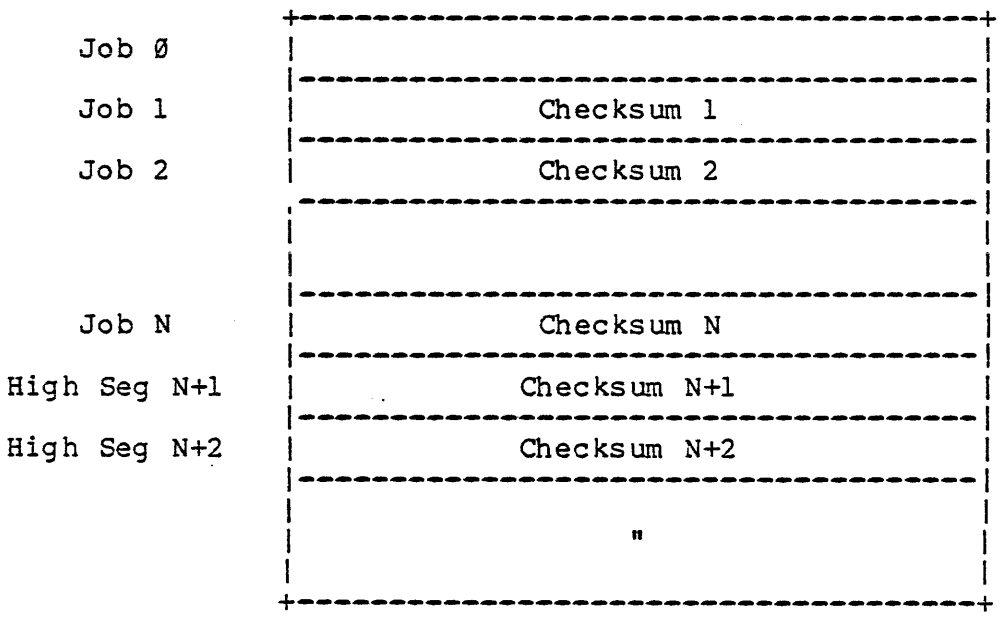
Description: Used to assure correct read-in of swapped segments. One entry for each job number and high seg number. Indexed by job number or high segment number.

Each entry contains the first word of the corresponding segment when that segment is swapped out.

Defined In: COMMON

Used By: SWPSER

Format:



Name: JBTCQ JOB QUEUES TABLE

Description: Contains the master job queues. Each queue is an ordered list of job numbers corresponding to all the jobs in some particular status. There are two sets of queues, one for jobs that are in core and one set for jobs that are swapped out.

The index in the positive direction relative to JBTCQ is by job number. The index in the negative direction is the queue number for the in core master queues and the queue number offset by the maximum number of queues for the out of core master queues.

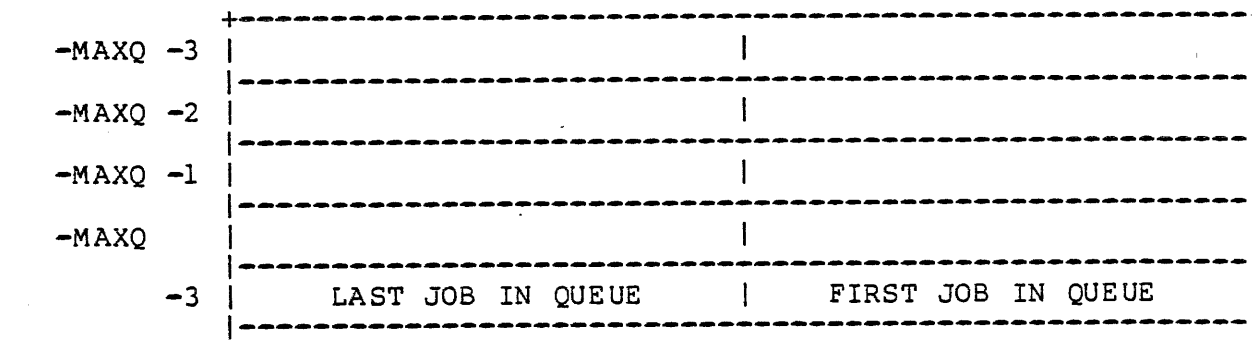
Each queue is an ordered list of job numbers. In JBTCQ, each queue is represented by a forward and backward linked ring of table entries. Each ring begins and ends with a "queue header" entry at the position equal to the negative queue number. A job number in the queue is represented by the entry at the position equal to the job number. This entry contains pointers to the preceding entry and the following entry, thus establishing a unique position for that job number within the queue.

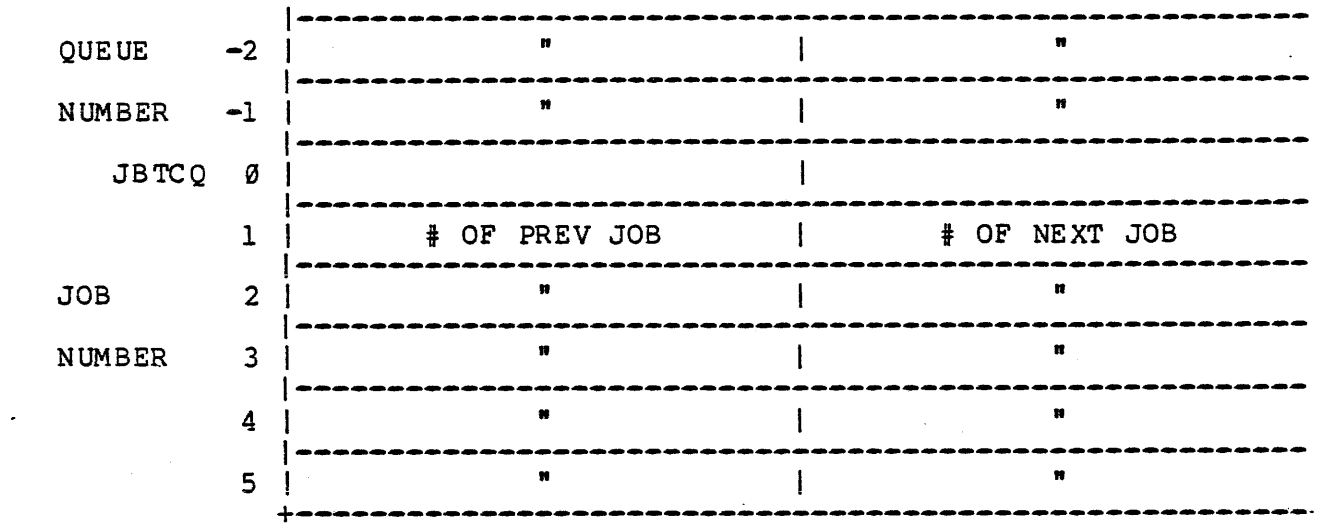
Defined In: COMMON

Used By: SCHED1, UUOCON, SYSINI

GETTAB Table No.: 42(octal)

Format:





Special Notes:

1. Every job number will be in one and only one queue.

2. It is possible for a queue to contain no job numbers. In this case, the queue header entry contains a pointer to itself, the negative queue number, in both halves.

Name: JBTCSQ JOB SUBQUEUES TABLE

Description: Contains the PQ2 Subqueues which partition PQ2 into a number of ordered classes. Each subqueue (or subclass) is an ordered subset of PQ2 job numbers, all of the same class.

Defined In: COMMON

Used By: SCHED1, UUOCON, SYSINI

GETTAB Table No: 125

Format:

		Last Job in Subqueue	First Job in Subqueue
	-SQN		
	-SQ1		
Subqueue Number	-SQØ		
JBTCSQ			
	1	# of Prev. Job	# of Next Job
Job Number	2		
	3		

Special notes:

1. Every job number in PQ2 will be in one and only one subqueue.
2. It is possible for a subqueue to contain no job numbers. In this case, the subqueue header entry contains a pointer to itself, the negative subqueue number, in both halves.
3. The number of classes partitioning PQ2 is specified at MONGEN time.
4. When the Scheduler scans these subqueues, it does so in order, starting with SQØ (Class Ø).

Name: JBTDEV HIGH SEGMENT DEVICE TABLE

Description: One entry for each high segment.

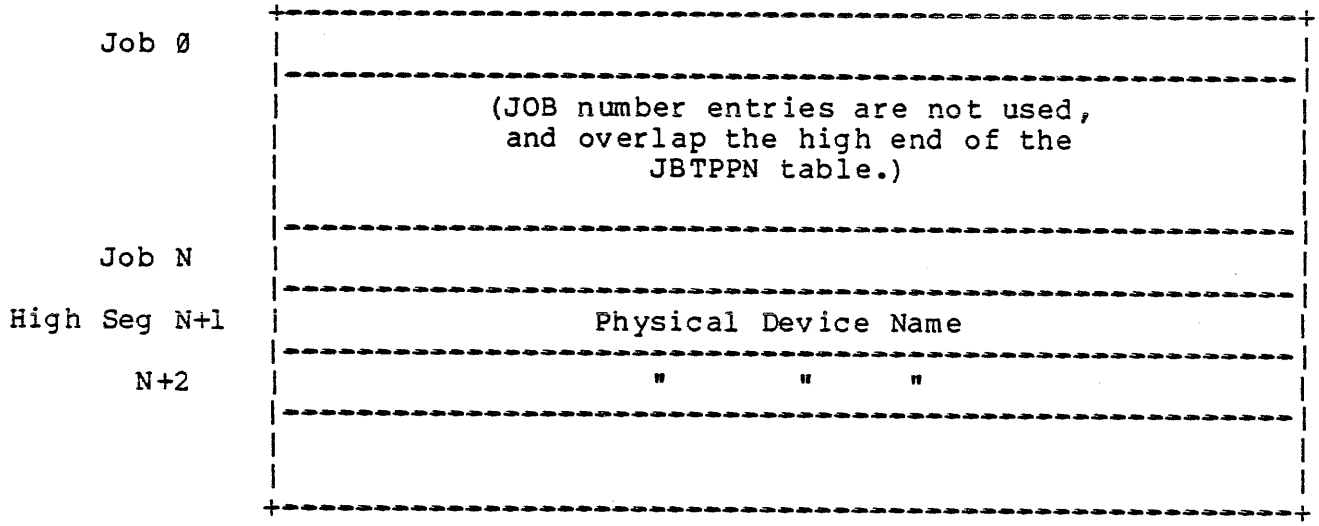
The entry is the high segment's physical device name or file structure number.

Defined In: COMMON

Used By: SEGCON, UUOCON

GETTAB Table No.: 24(octal)

Format: JBTDEV



Name: JBTJIL JUST SWAPPED IN LIST

Description: Special queues containing jobs in PQ2 which have just been swapped in and have not expired their time slice. The format of the queue table is similar to JBTCQ, that is indexed in the positive direction by job number and the negative direction by queue number. The two queue headers are regular (time/sharing) and background batch.

Defined in: COMMON

Used by: SCHED1, SYSINI

Gettab table no.:

Format:

JBTBBQ		
JBTJIQ	LAST JOB IN QUEUE	FIRST JOB IN QUEUE
JBTJIL		
1		
2		
3	No. OF PREVIOUS JOB	No. OF NEXT JOB
n		

Special notes:

1. Jobs in JBTJIL are also in one of the master queues described by JBTCQ.

2. The scheduler will search the time sharing queue for job selection ahead of PQ2 a certain percentage of the time. This percentage is called the response fairness factor and may be modified from the default value of 10% by the SCHED. UUO.

Name: JBTJRQ Job Requeue List

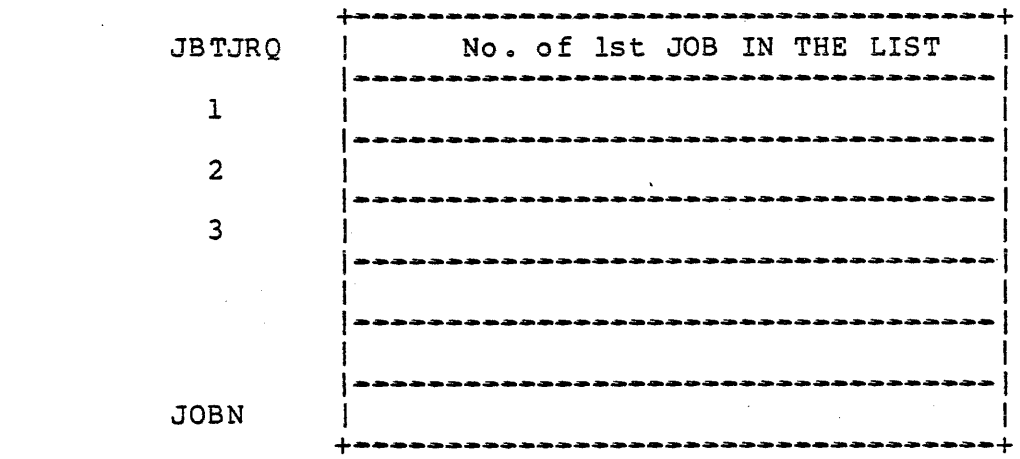
Description: A singly linked first in last out list of jobs waiting to be requeued. The right half of JBTJRQ points to the first entry in the queue. The remainder of the table is indexed by job number with each entry containing the job number of the next job in the queue.

Defined in: COMMON

Used by: CLOCK1, SCHED1

Gettab Table No.:

Format:



Name: JBTLIM JOB TIME LIMIT TABLE

Description: One entry per job, indexed by Job Number.

Bit definitions are found in S.MAC.

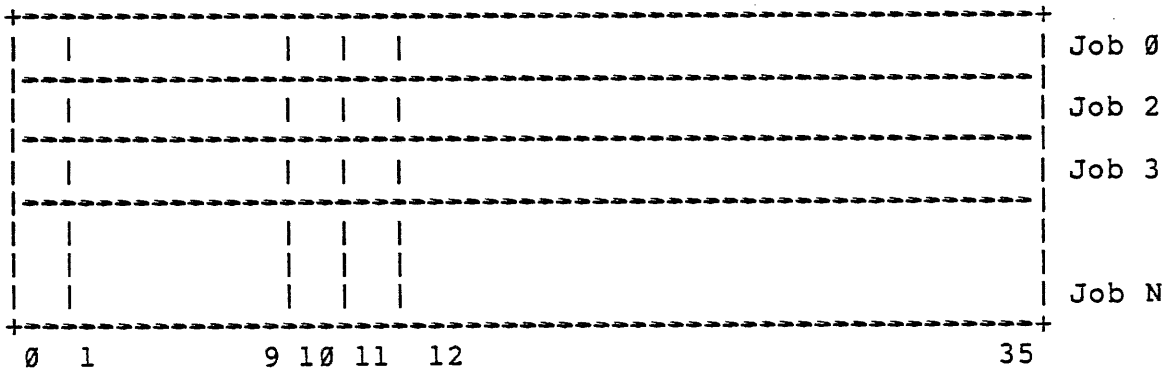
JBTLIM is assembled only if FTTLIM is non-zero.

Defined in: COMMON

Used By: CLOCK1, COMCON, SCNSER, UUOCON

GETTAB Table No.: 40(octal)

Format: JBTLIM:



Bit	Label	Content
0		Unused
1-9	JB.LCR	User Core Limit
10	JB.LBT	Batch Job
11	JB.LSY	Set when file gotten from SYS. Used by BATCON
12-35	JB.LTM	Time limit in jiffies (0 = Infinite) Loaded by the SET TIME COMMAND

Name: JBTLOC JOB LOCATION TABLE

Description: One entry per job number; indexed by job number.

The first entry in the table is the Central Station Number.

The table is used by the LOCATE command and by the NEWJOB routine in COMMON to locate a job at the station number of its controlling terminal.

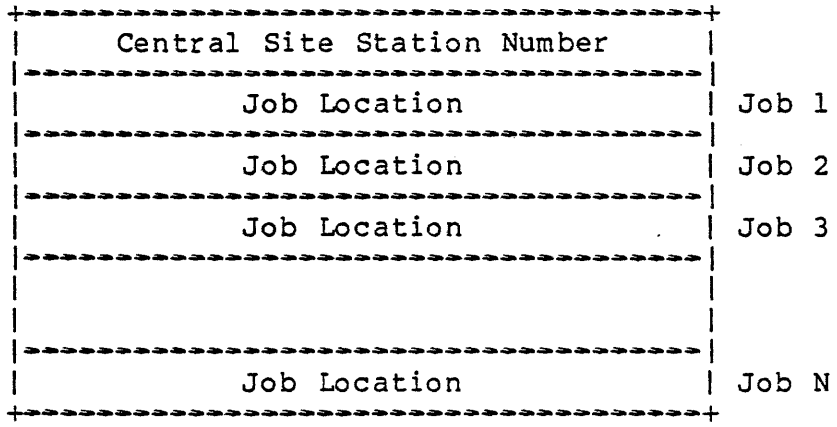
JBTLOC is assembled only if FTREM is non-zero.

Defined In: COMMON

Used By: FILUUO, CLOCK1, COMCON, PTYSER, REMDLX, REMDSX, UUOCON, SYSINI

GETTAB Table No.: 26(octal)

Format:



Name: JBTNAM JOB NAME TABLE

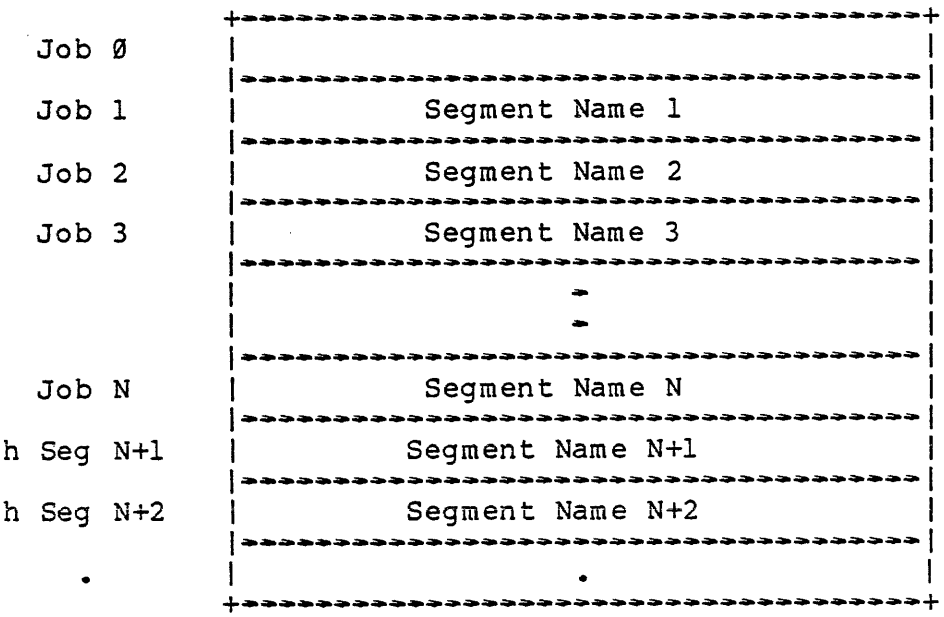
Description: Tells name of each segment, typically, the file it came from. One entry for each job number or high seg number. Indexed by job number or high seg number.

Defined In: COMMON

Used By: CLOCK1, COMCON, SCNSER, SEGCON

GETTAB Table No.: 3

Format:



Special Notes: 1. JBTPRG is the same table.

Name: JBTOLS JOB OUTPUT LIST

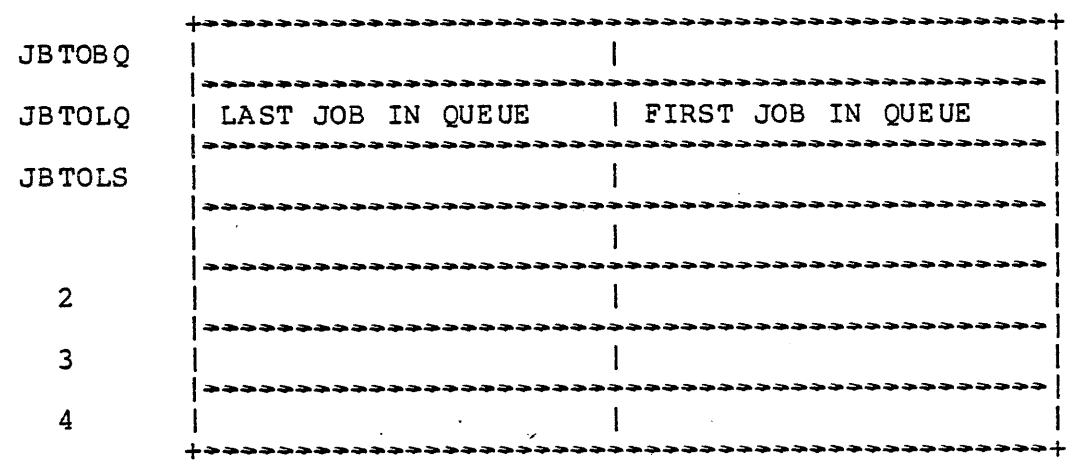
Description: Special queues containing jobs in PQ2 which have exceeded their time slice and consequently have become eligible for swap out. The format of the queue table is similar to that of JBTCQ, in that the table is indexed in the positive direction by job number, and the negative direction by queue number. The two queue headers are regular output (time/sharing) and background batch.

Defined in: COMMON

Used by: CLOCK1, SCHED1

Gettab Table No.:

Format:



Special notes:

1. Jobs in JBTOLS are also in one of the master queues described by JBTCQ.

2. Once a job enters JBTOLS it has a higher priority for swap out.

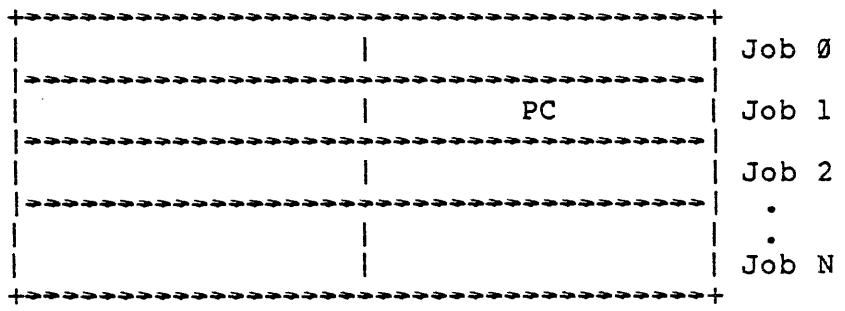
Name: JBTPC USER MODE PC

Description: Contains user program counter for each job in the system

Defined In: COMMON

Used By: CLOCK1, COMCON, ERRCON

Format:



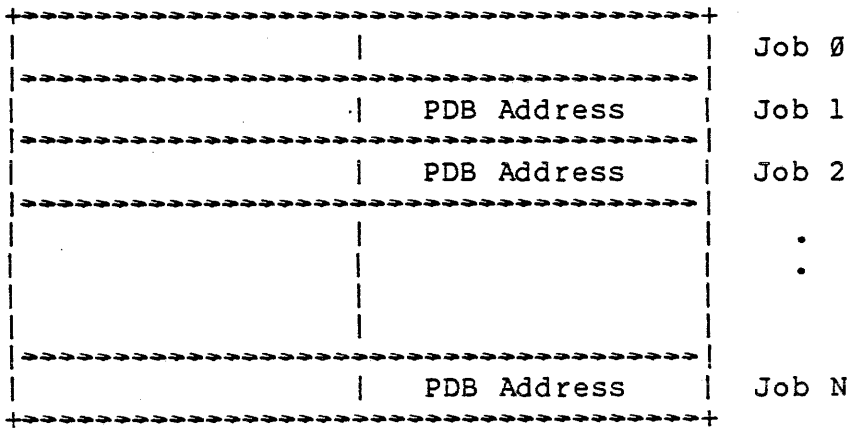
Name: JBTPDB PROCESS DATA BLOCK TABLE

Description: One entry per job, indexed by job number. RH contains the address of this job's Process Data Block.

Defined In: COMMON

Used By: CLOCK1, DATMAN, ERRCON, IPCSER, SCHED1

Format:



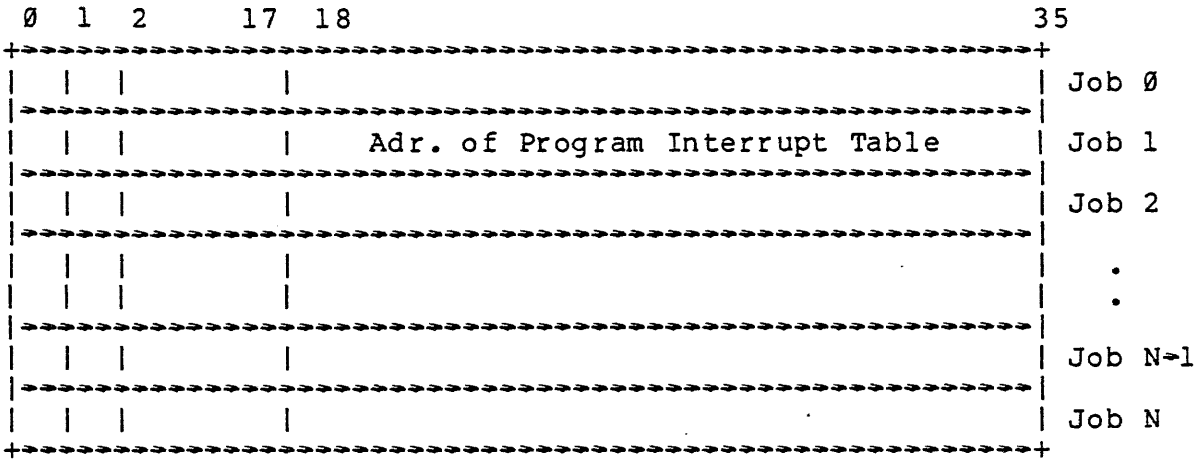
Name: JBTPIA SOFTWARE PROGRAM INTERRUPT TABLE

Description: Contains flags and pointers to program interrupt table for each job which is using the programmed software interrupt facility.

Defined In: COMMON

Used By: CLOCK1, PSISER, UUOCON

Format:



Bit 0 If set, the PI system is turned on.

Bit 1 If set, the PI system is turned off until a DEBRK by the current job.

Name: JBTPPN PROJECT PROGRAMMER NUMBER TABLE

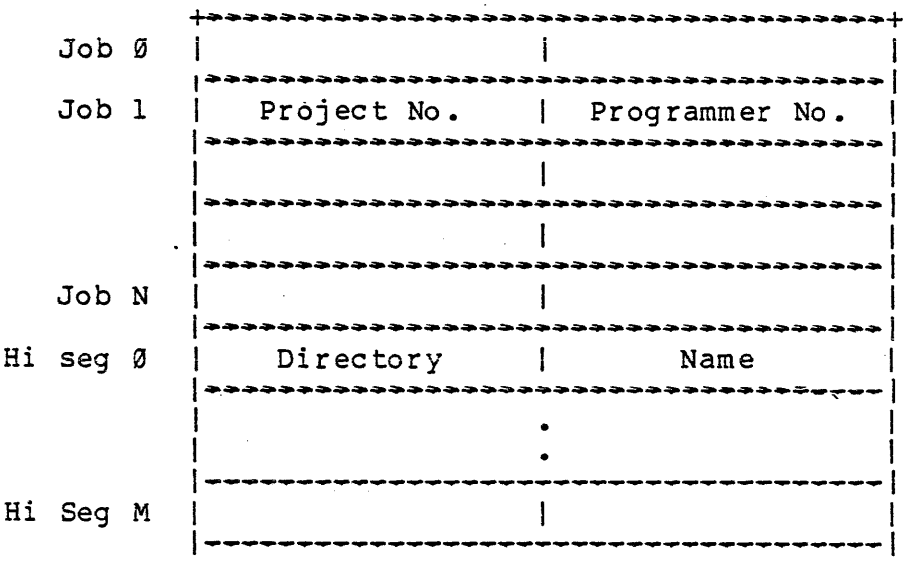
Description: Contains the project programmer number for each logged in job. If the high segment references disk, contains the directory name.

Defined In: COMMON

Used By: FILFND, FILIO, FILUUO, CLOCK1, COMCON, SCNSER, SEGCON, UUOCON

GETTAB Table No.: 2

Format:



Name: JBTPRV JOB PRIVILEGE BITS

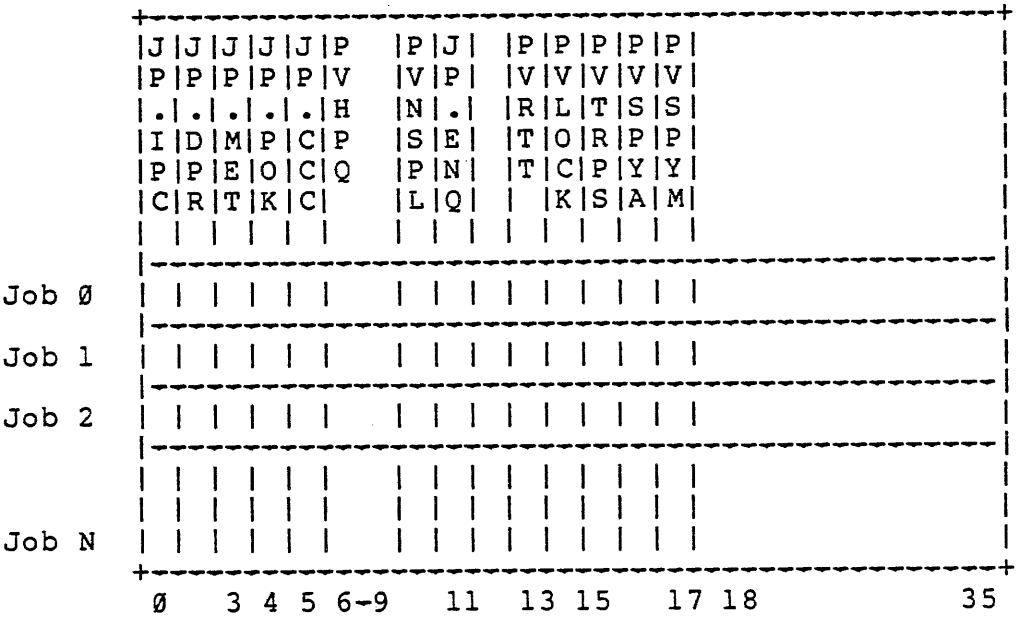
Description: Tells privileges allowed each job. One entry for each job number, indexed by job number. Bits are set by LOGIN from ACCT.SYS File as modified by customer for his particular installation.

Defined In: COMMON. Bits defined in S.UNV.

Used By: COMMOD, FILFND, CLOCK1, COMCON, CP1SER, RTTRP, UUOCON

GETTAB Table No.: 6

Format:



Ø	JP.IPC	Job allowed to use IPCF priv. functions
1-2	JP.DPR	Highest disk priority allowed to the job
3	JP.MET	Job allowed to use METER UUO
4	JP.POK	Job allowed to POKE at Monitor
5	JP.CCC	Job allowed to change CPU specifications
6-9	PVHPQ	Largest HPQ run queue for this job
10	PVNSPL	Job allowed to unspool devices
11	JP.ENQ	Job allowed to use ENQ/DEQ
12		Unused
13	PVRTT	Job allowed to use RTTRP UUO

14	PVLOCK	Job allowed to use LOCK UUO
15	PVTRPS	Job allowed to use TRPSET UUO
16	PVSPYA	Job allowed to spy at all of core using SPY/PEEK UUO's
17	PVSPYM	Job allowed to spy at monitor using SPY/PEEK UUO
18-35		Reserved for special customer defined privileges

Special Notes: JBTPRV is assembled only if FTPRV is non-zero.

Name: JBTRQT JOB RUN-QUEUE TIME TABLE

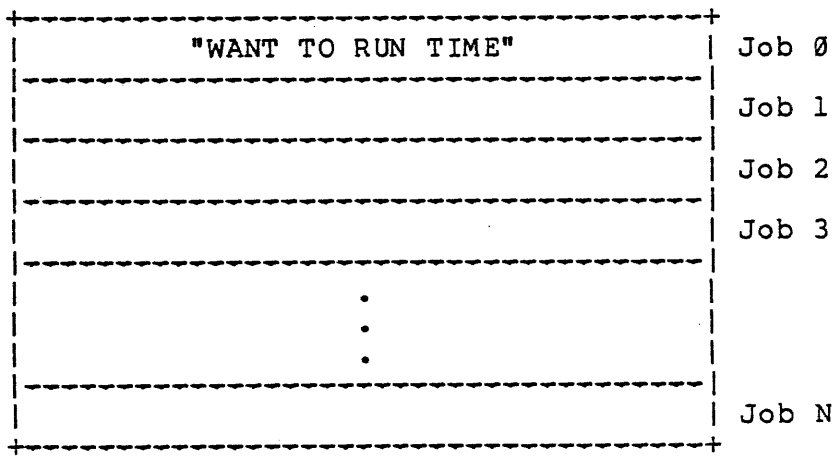
Description: One entry per Job number. Contains a count of the number of ticks a job was in PQ1, PQ2, or PQ3.

Defined In: COMMON

Used By: CLOCK1, SCHED1, UUOCON

GETTAB Table No.: 53 (octal)

Format:



Special Notes: JBTRQT is assembled only if FTRSP is non-zero.

Name: JBTRSP JOB RESPONSE TIME TABLE

Description: This table is assembled if FTRSP is assigned a non-zero value in F.MAC.

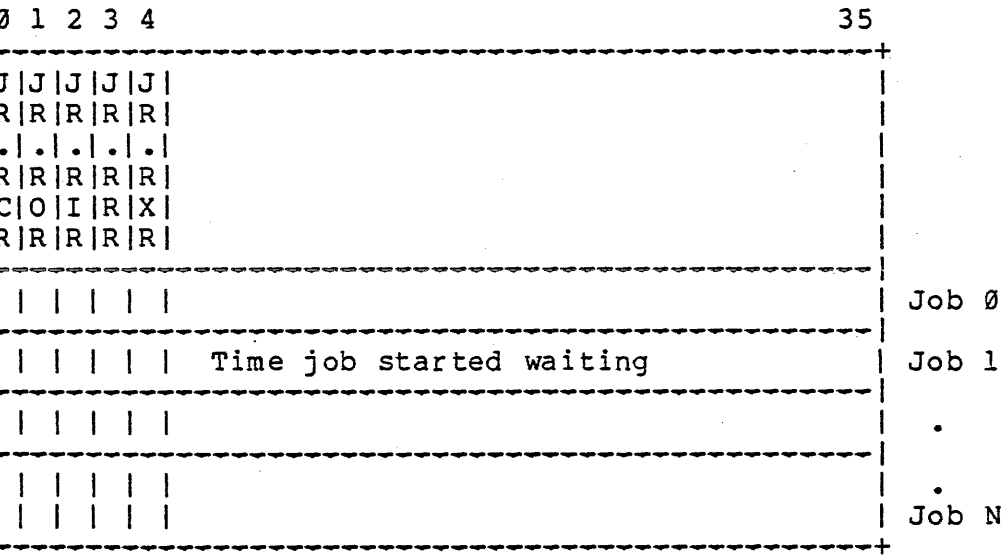
One entry per job number including the null job. The null job entry is not referenced.

Defined In: COMMON. Bits are defined in S.UNV.

Used By: CLOCK1, UUOCON

GETTAB Table No.: 50(octal)

Format:



Bit	Name	Description
0	JR.RCR	Recorded first CPU use
1	JR.ROR	Recorded TTY output UUO
2	JR.RIR	Recorded TTY input UUO
3	JR.RRR	Recorded CPU quantum exceeded requeue
4	JR.RXR	Recorded first of above 3 responses (not JR.RCR)

Bits set to 1 when type of response is recorded, to 0 when user types in.

Special Notes: The entries in the left half of this table are the up times at which the user began to wait for system response. If zero, the user is not waiting. Entries are made in the table when the user's job comes out of TTY Input Wait or types a command which runs a job. The entries are used by the scheduler to calculate SYSRSP, the total system response time, and NUMRSP, the number of system responses.

Name: JBTRTD REAL TIME DEVICES

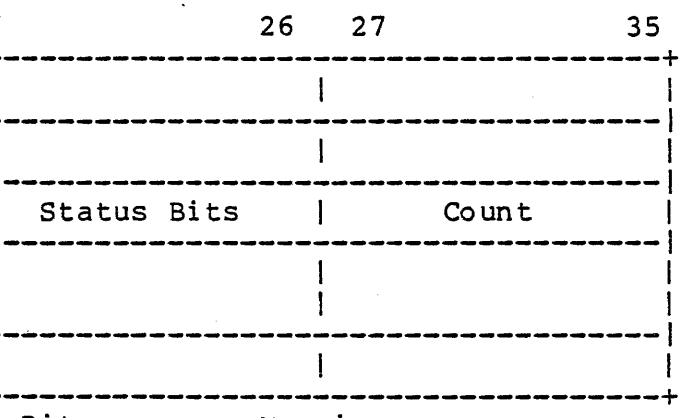
Description: Contains real time status bits in the left half for HPQ's and hibernate-wake. The right half contains a count of the real time devices owned by the job.

Defined In: COMMON

Used By: CLOCK1, IPCSER, PTYSER, RTTRP, SCNSER, UUOCON, SYSINI

GETTAB Table No.: 37(octal)

Format:



Bit	Meaning
Ø	Only an exec process can wake job
1	IPCF event enable
2-5	Console command setting of HPQ for job
6-9	Current HPQ position of job
1Ø	Wake bit - set if wake job by HIBER
11	I/O activity enable
12	PTY activity enable
13	TTY activity enable - line mode
14	TTY activity enable - character mode
15-17	Hibernate protection code for job
23-26	Temporary HPQ (sharable device owner)
27-35	Count of number of real time devices owned by job

Name: JBTSCD JOB SUBQUEUE (CLASS) TABLE

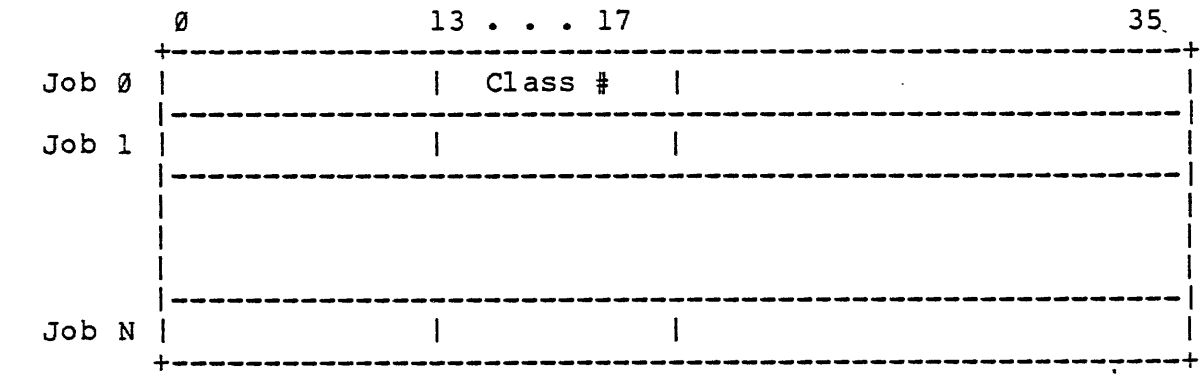
Description: Contains each job's class indexed by Job number. One entry for each job number.

Defined In: COMMON

Used By: CLOCK1, SCHED1, UUOCON

GETTAB Table No.: 120

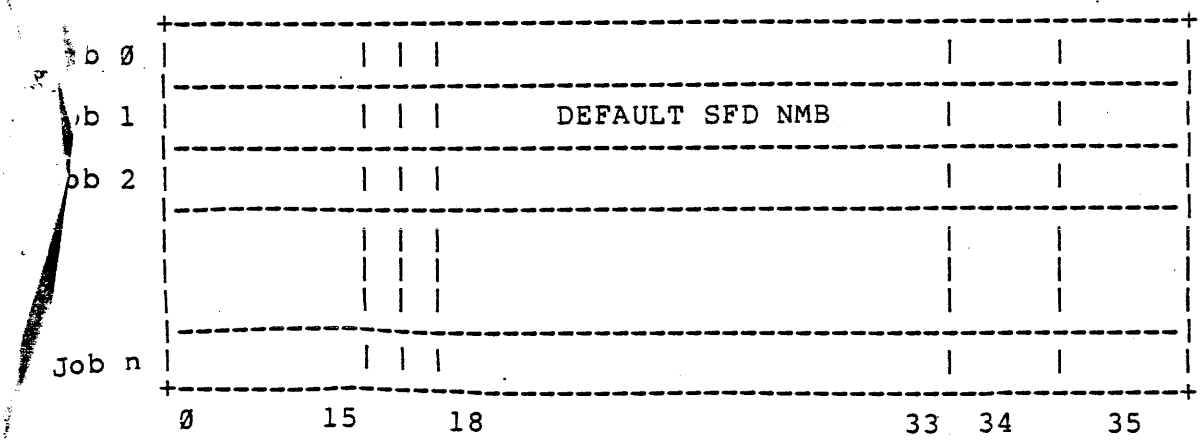
Format:



JBTSFD Sub-File Directory Table

:iption: One entry per job holding search list and SFD information.

ned in: COMMOD



ts	Label	Meaning
Ø-15		Address of library PPN PPB
16	JBPXSY	Search NEW before SYS
17	JBPSYS	Search SYS after DSK
18-33		Location of default SFD NMB or Ø
34	JBPUFB	Bits 18-33 point to a UFB
35	JBPSCN	Scanning is on

Name: JBTSGN JOB SEGMENT TABLE

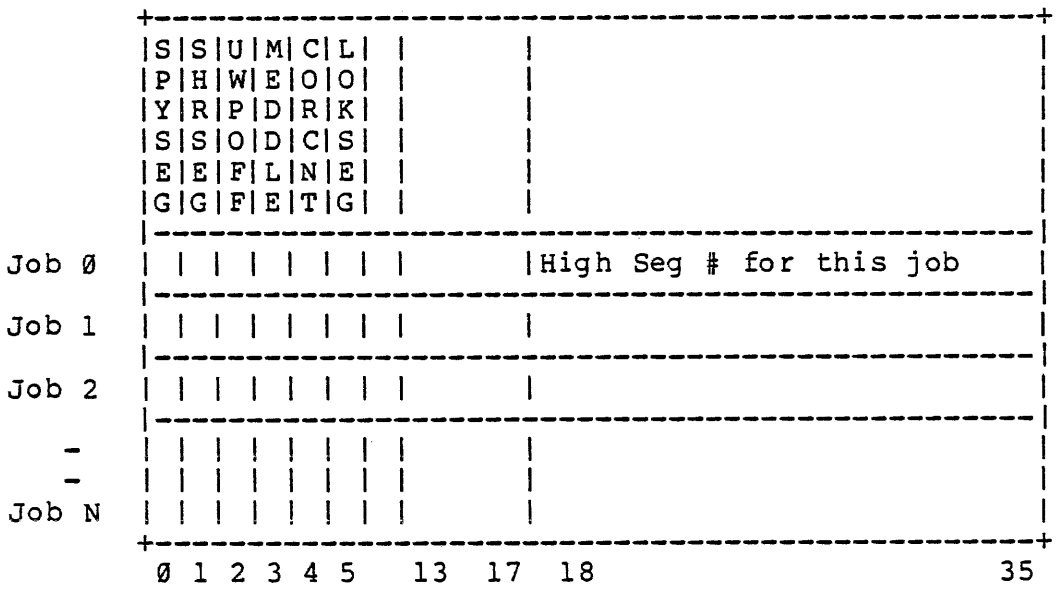
Description: Tells which high segment, if any, each job is using. One entry for each job number. Indexed by job number.

Defined In: COMMON

Used By: COMCON, CORE1, CP1SER, KISER, KILOCK, KLSER, METCON, SCHED1, SEGCON, UUOCON, VMSER

GETTAB Table No.: 14(octal)

Format:



Bit	Label	Meaning
Ø	SPYSEG	High segment is physical core (see SPY UUO).
1	SHRSEG	High segment is sharable.
2	UWPOFF	User mode write protect is off.
3	MEDDLE	User has meddled with sharable program. (See Note 1)
4	CORCNT	High segment's In-Core Count has been incremented
5	LOKSEG	The high segment this job is sharing is locked in core.
13-17		Zeroes so can do "CAI @JBTSGN" to compare RH.

18-35 If SPYSEG set, highest physical address user may see. If no high segment, zero - otherwise, high segment number associated with this job.

1. If the MEDDLE bit is set, program cannot trust itself to turn off UWP or change high seg core assignment.

   Meddling means

   a. START N, or D Command has been executed.
   b. RUN UUO with greater than 1 starting increment.
   c. GETSEG UUO
   d. High seg is physical core (SPY UUO).

2. The SHRSEG bit is also kept in the JBTSTS entry for that high segment.

Name: JBTSPL SPOOL CONTROL TABLE

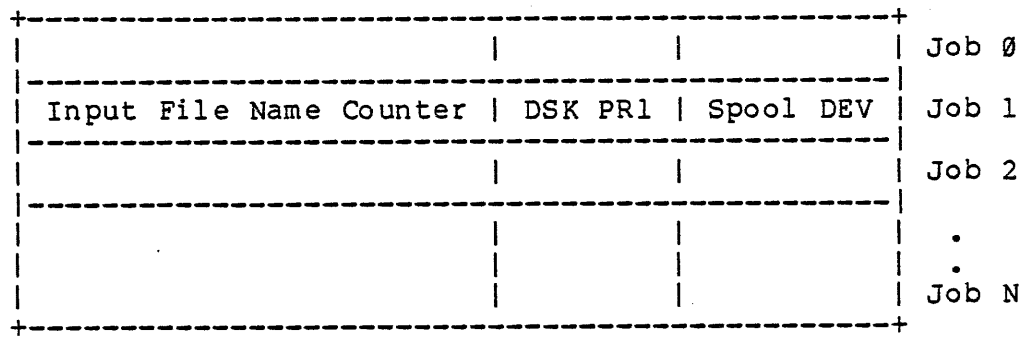
Description: Contains input file name counter, devices being spooled, and disk priority for the job.

Defined In: COMMON

Used By: COMMOD, FILUUO, CLOCK1, COMCON, UUOCON

GETTAB Table No.: 36(octal)

Format:



Name: JBTSPS SECOND PROCESSOR STATUS

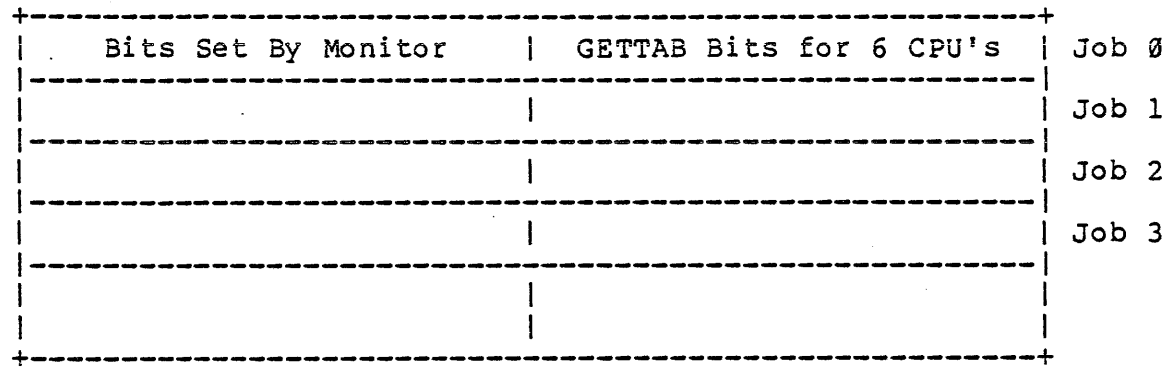
Description: Assembled in multi-processor systems to to indicate second processor status. One entry per Job number.

Defined In: COMMON

Used By: CP1SER, UUOCON

GETTAB Table No.: 54(octal)

Format:



Bit	Label	Meaning
4	SP.NR1	Not runnable on CPU1
5	SP.NRØ	Not runnable on CPUØ
1Ø	SP.CJ1	Current job on CPU1
11	SP.CJØ	Current job on CPUØ
12	SP.ROP	Job forced to policy CPU when policy CPU dies
14	SP.CC1	CTRL/C on CPU1 - stop running job on slave
24-27	-	Reserved for future CPU's
28	SP.SC1	Set CPU command bit for CPU1 (OK as far as user is concerned to run on this CPU even if stopped or not scheduling.)
29	SP.SCØ	Set CPU Command bit for CPUØ
3Ø-33	-	Reserved for future CPU's
34	SP.CR1	Can run on CPU1
35	SP.CRØ	Can run on CPUØ

Name: JBTSTS JOB STATUS TABLE

Description: Contains status information about each job and high segment. One entry for each job number and each high segment number. Indexed by Job number or High segment number.

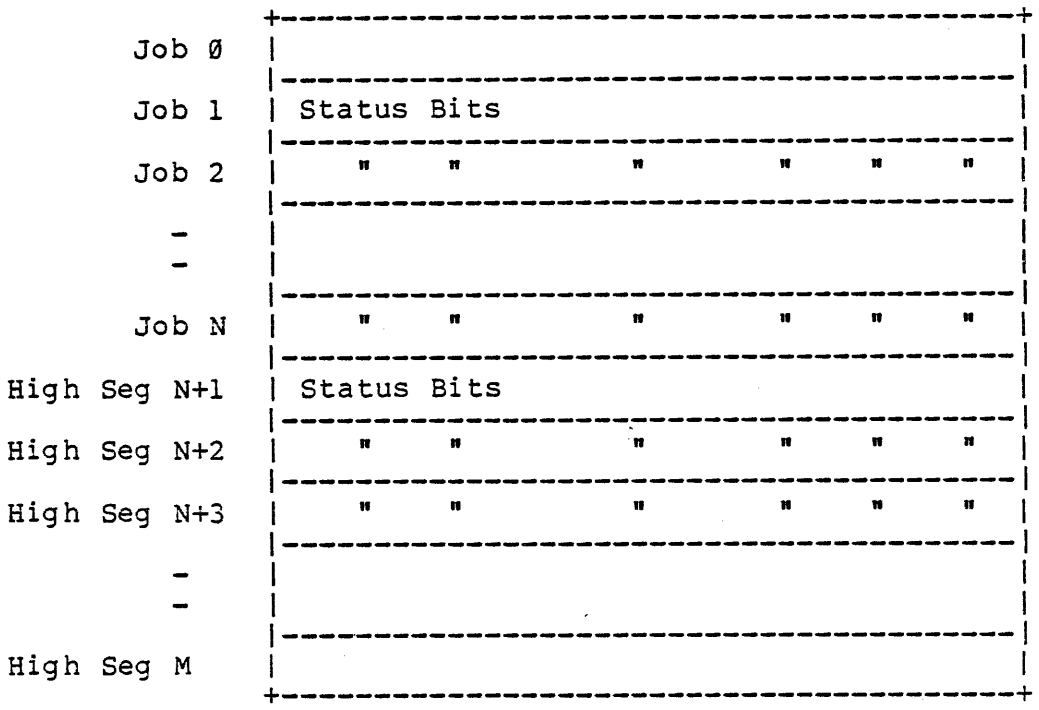
Defined In: COMMON. Bits defined in S.UNV.

Used By: FILFND, FILIO, FILUUO, CLOCK1, COMCOM, CORE1, CP1SER, DISSER, ERRCON, IPCSER, KISER, KILOCK, KLSER, KSSER, METCON, MTXSER, NULSEG, PSISER, PTYSER, REMDSX, RTTRP, SCHED1, SCNSER, SEGCON, UUOCON, VBCSER, VMSER, SYSINI

GETTAB Table No.: Ø

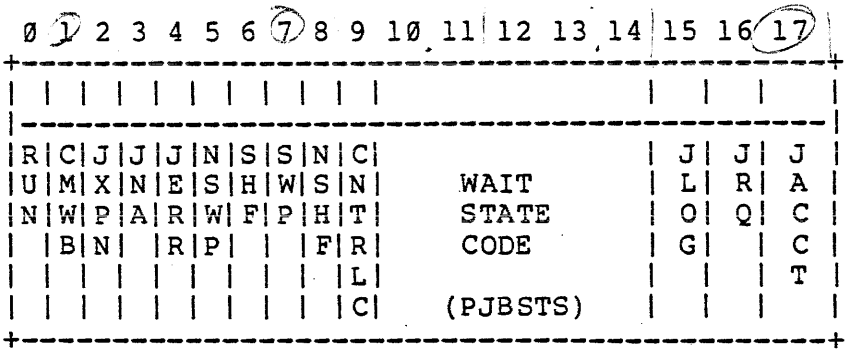
See also: AVALTB, QBITS, Job Queues and Wait State Codes

Format:

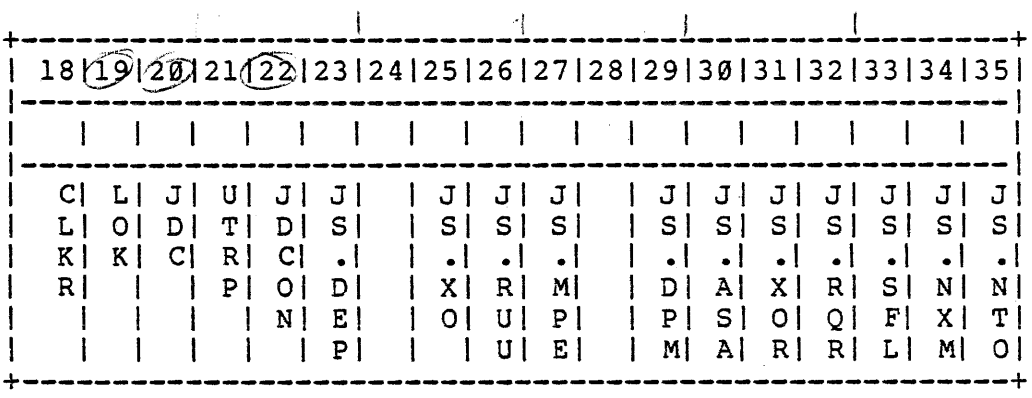


See Bit definitions on following pages.

JBTSTS (cont.) LH OF JOB NUMBER ENTRIES



RH of Job number entries

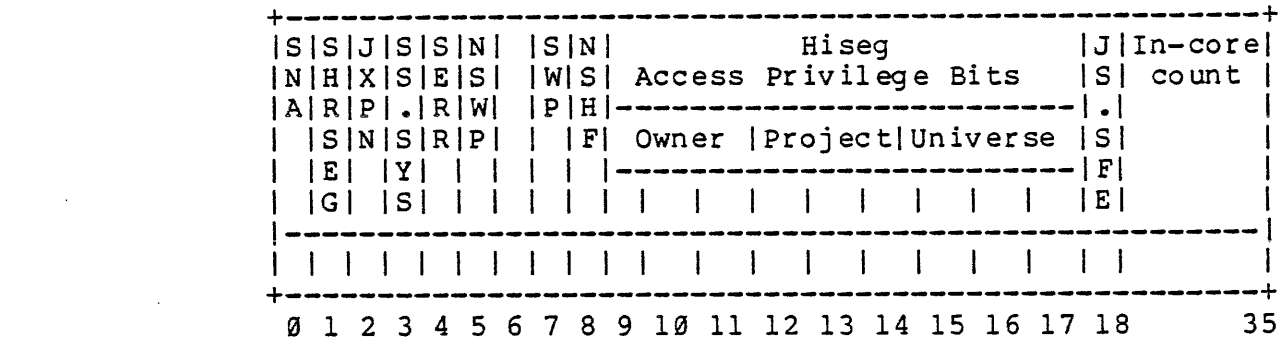


Bit Number	Label	Meaning
0	RUN	Set if user wants job to run.
1	CMWB	Job in Command Wait (e.g., swapped out job has typed command which requires core).
2	JXPN	Job must be swapped out because it is expanding, and there is not enough room in core.
3	JNA	This job number is assigned.
4	JERR	Monitor detected error has occurred.
5	NSWP	Job is not to be swapped.

Bit Number	Label	Meaning
6	SHF	Monitor is waiting to shuffle or swap out this job.
7	SWP	1 if job swapped out or in transit.
8	NSHF	Job is not to be shuffled.
9	CNTRLC	CTRL-C typed while in monitor mode and not in TTY input wait - delay stopping job.
10-14	PJBSTS	Specifies transfer table to requeue job for current conditions. See AVLQTB, QBITS for the names of the tables. These are system dependent values as not all queues will be assembled for all systems. The value here may be used to count 12-bit bytes into STSTBL to get the SIXBIT queue name. See also Job Queues and Wait State Codes.
15	JLOG	Job logged in.
16	JRQ	Job has changed state and must be queued at clock level before rescheduling can take place.
17	JACCT	Privileged system CUSP which cannot be interrupted.
18	CLKR	Job has clock request in.
19	LOK	Job is being locked in core.
20	JDC	Job has typed "DCORE."
21	UTRP	Trap to USER on UUO exit (Reenter DDT).
22	JDCON	Job in CTRL-C state writing to continue from error.
23	JS.DEP	DAEMON Error Pause.
24		Undefined

25	JS.XO	EXECUTE only core image.
26	JS.RUU	RUN UUO or command in progress.
27	JS.MPE	Memory parity error for job.
28		Undefined
29	JS.DPM	DAEMON problem message needed.
30	JS.ASA	Use shadow AC's for UUO ARGS instead of user AC's.
31	JS.XOR	Run UUO or command in progress on execute-only file.
32	JS.RQR	Reset QUANTUM run time.
33	JS.SFL	Stop job if disk is full.
34	JS.NXM	Some page in user's address space is contained in non-existent memory.
35	JS.NTO	Non-blocking TTY output.

LH of High Seg entries



Bit	Symbol	Meaning
Ø	SNA	This High Seg Number assigned.
1	SHRSEG	Sharable Segment.
2	JXPN	High segment is expanding and must be swapped out.
3	SS.SYS	Hiseg came from SYS:.
4	SERR	High Segment Swap Read Error.
5	NSWP	This high Seg is not to be swapped.
7	SWP	1 if segment swapped out or in transit.
8	NSHF	High segment cannot be shuffled.
9-17		Segment access privilege bits - same as disk file.
18	JS.SFE	Hiseg came from an EXE file.
19-35	JBYICC	In-core count of jobs using this high segment.

NOTE: SHRSEG bit is also kept in JBTSGN.

Name: JBTST2 JOB STATUS TABLE 2

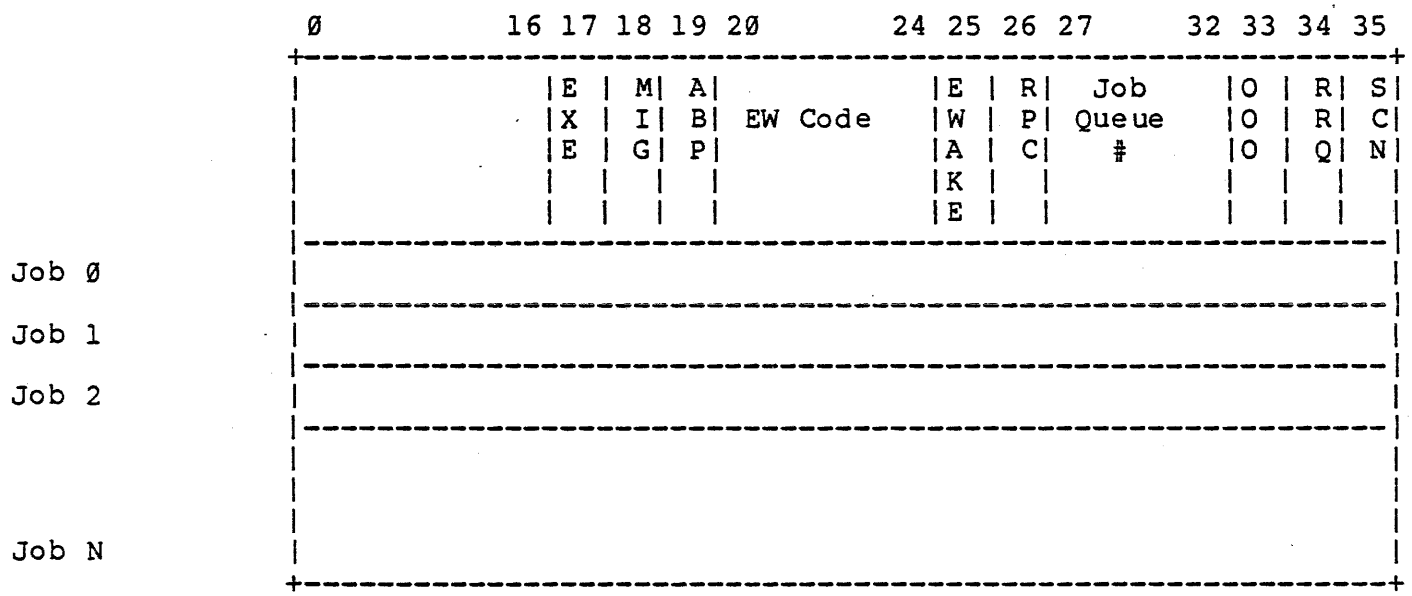
Description: Contains status information about each job. (Extensions to the JBTSTS table) Indexed by job number.

Defined in: COMMON. Bits defined in S.UNV.

Used By: COMCON, SEGCON, UUOCON, CLOCK1, SCHED1, KASER, KISER, KLSER, KSSER, FILFND

GETTAB Table No.: 117

Format:



Bit	Label	Meaning
Ø	JS.IPQ	On if job is in a processor queue. Must be sign bit.
2-3	JS.DEB	Deferred echo bits
4	JS.OLS	Job owns locked structure
5	JS.SIP	On if swapping I/O is in progress for this job
6	JS.FPS	On if long KA-1Ø floating point instructions should be simulated FORCE was JXPN to avoid forgetting FORCE was cleared.

7	JS.NNQ	On if not to assign new quanta on swap-in. Set when job GETSEGs a swapped segment.
8	JS.BBJ	On if job is from background batch.
9	JS.CSQ	On if job is changing subqueue due to SCHED UUO.
10	JS.IGS	In GETSEG (doing a GETSEG UUO).
11	JS.HNG	Job stayed in FORCE too long, causing temporary or permanent system hang. Cleared when swapped in or out.
12	JS.BPR	Bypass program to run checking if set. The current RUN command is allowed despite .PDPGM (used for KJOB).
13	JS.FXO	File DAEMON made this core image execute-only.
14	JS.CFX	Call File DAEMON on program exit.
15	JS.HIB	This job is hibernating
16	JS.NCS	On if the cache bits are not to be turned on in this job's map.
17	JS.EXE	A new save (EXE file) is underway, or on a "GET", the LOOKUP on the EXE file failed. (Prevents EXE file from being LOOKUP'ed again for the low segment.)
18	JS.MIG	Job has migrated to another swapping unit when a disk controller is being taken off-line (FTDHIA).
19	JS.ABP	An address break page fault occurred because of a reference to this user's virtual address space during UUO processing.
20-24	JBYEWT	ESLEEP reason 1 EV.TKW Tape Kontroller 2 EV.REW Rewind 3 EV.LBL Label processing 4 EV.NET Network device 5 EV.IPC IPCF system process receive 6 EV.FEI Front end device input 7 EV.FEO Front end device output 10 EV.D60 DAS60 device (waiting for the PDP11)
25	EWAKEB	EWAKE called (Wakeup waiting)
26	JS.RPC	If = 1, run program in .PDPGM on Control-C
27-32	PJBST2	Queue Number. Also called PJBST1 (for indexing by T1).
33	JS.OOO	User ran out of order. Stop when gives up last resource.

34	JS.TFO	Job forced out by timer.
35	JS.SCN	Job was scanned to run by at least one CPU during last tick.

Name: JBTSWP JOB SEGMENT SWAP AREA

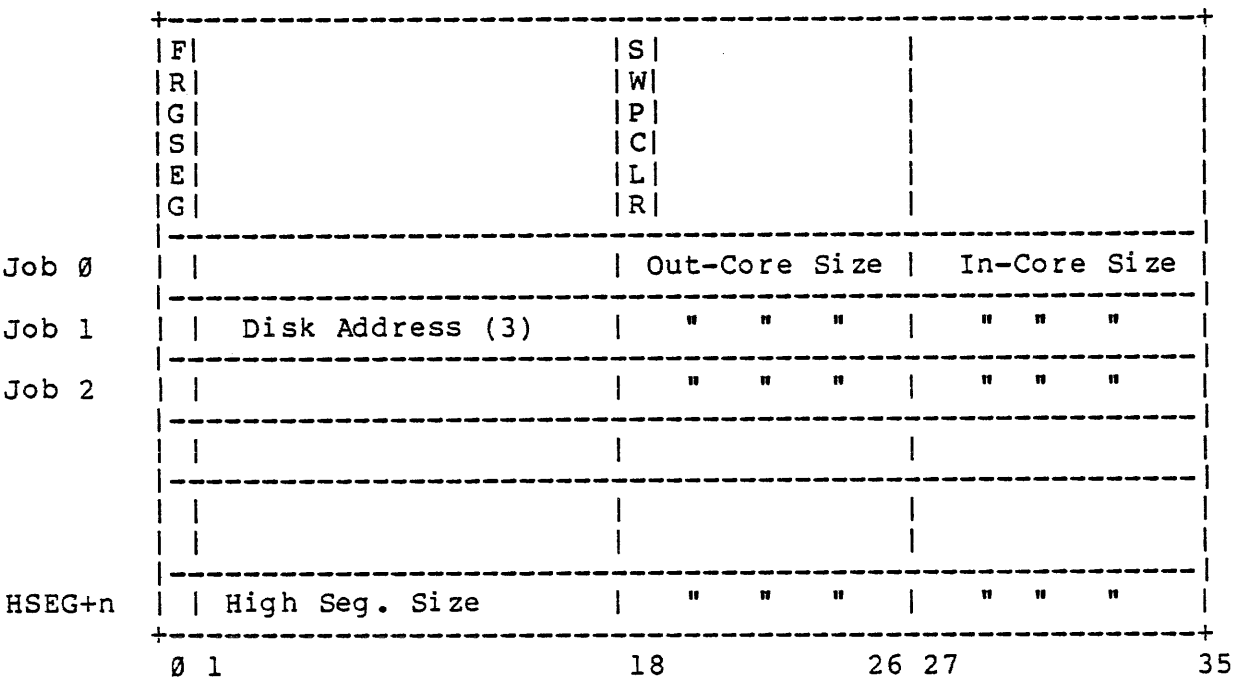
Description: Contains information used when swapping segments. There is one entry for each job number and high segment number. It is indexed by the job number or high segment number.

Defined by: COMMON

Used By: COMCON, KISER, KLSER, KSSER, SCHED1, SEGCON, SWPSER, UUOCON, VMSER

GETTAB Table No.: 7

Format:



Bit	Name	Description
Ø	FRGSEG	1 if low or high segment is fragmented on the swapping device.
18	SWPCLR	1 if job data area should be cleared after swapping.

Special Notes:

1. Fragment table documented separately.

2. For swapped out segments, Out-Core Size is the size of the area in which the segment is written on the swapping device, in 1K blocks; In-Core Size is the size of the core area which it should be read into when it is swapped in. These are usually, but not always, the same. One case in which they would be different is when a segment is expanding in size.

3. Disk Address Bit Definitions

Bits	Meaning
3-5	Index of Unit in SWPTAB (JBYSUN)
6-17	First Logical K on Unit (JBYLKN)
1-17	Core address of Fragment Table if fragmented.

Name: JBTUPM UPMP ADDRESS TABLE

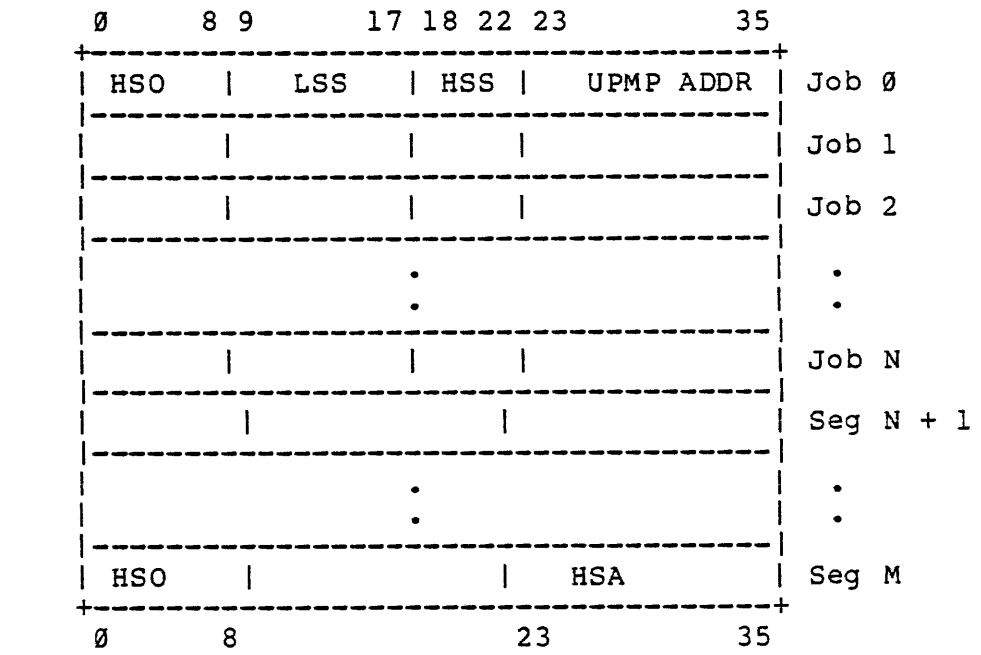
Description: Contains the address for the user page map page for each job and high segment which is in core. This table is also called JBTHSA.

Defined In: COMMON

Used By: KISER, KILOCK, KLSER, SCHED1, SEGCON, SWPSER, UUOCON, VMSER, SYSINI

GETTAB Table No.: 100(octal)

Format:



Description for Low Segment Entry

Bit		Pointer
0-8	JBYHSO	Virtual page number of hi-seg. origin
9-17	JBYLSS	Number of pages less one in low segment the last time the map was set up
18-22	JBYHSS	Number of pages less one in high segment
23-35		Physical page number of UPMP

Description of High Segment Entry

Ø-8	JBYHSO	Virtual page number of high-seg. origin
23-35	JBYHSA	Physical page number of first page of high segment

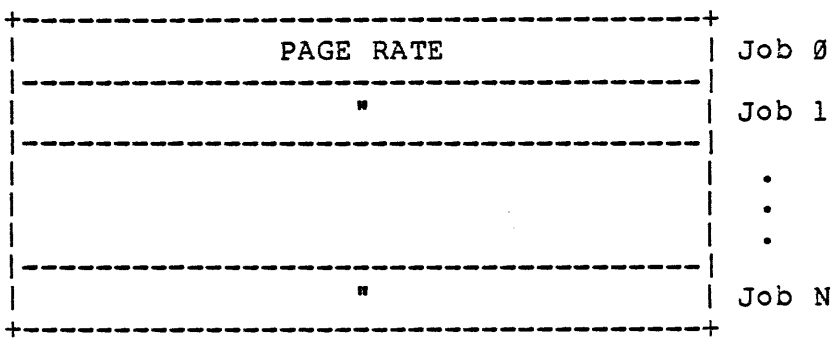
Name: JBTVRT PAGING RATE TABLE

Description: Virtual Memory per job paging rates are ntained in this table.

Defined in: COMMON

Used By: UUOCON, VMSER

Format:



Name: JBTWCH JOB WATCH TABLE

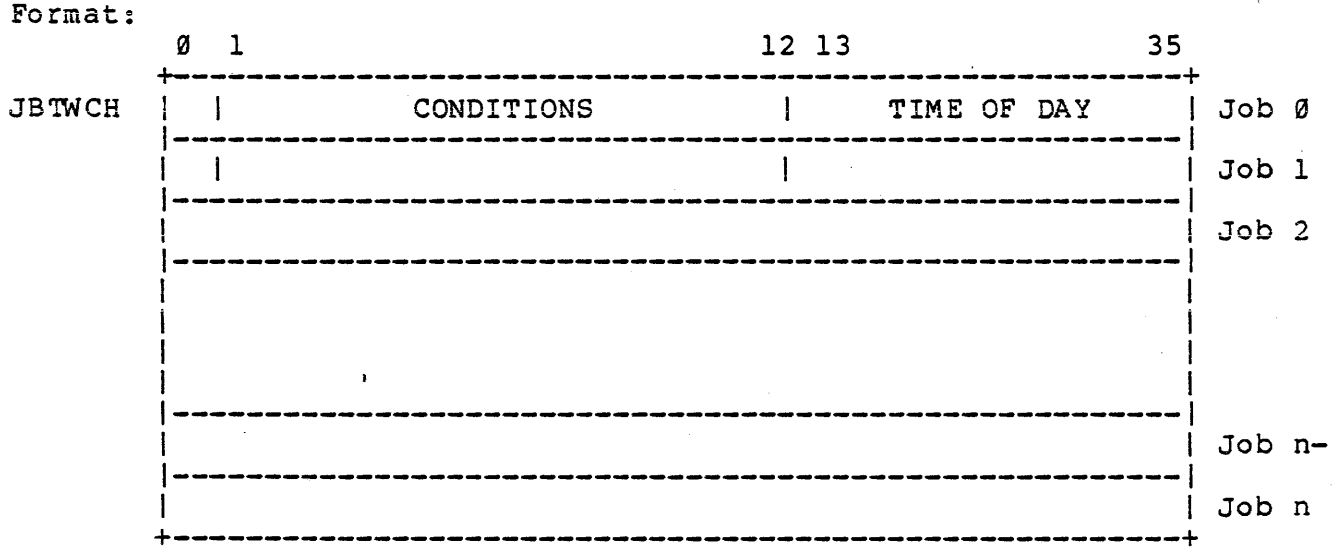
Description: This table is assembled if FTWATCH is assigned a non-zero value in S.MAC. It determines the specific watch parameters to be displayed. There is one entry per job number including the null job. The null job entry is not referenced.

Defined In: COMMON

Used By: COMCON, MTXSER, UUOCON

GETTAB Table No.: 35(octal)

Format:



Bit	Name	Description
1	JB.WDY	Watch time of day started to wait
2	JB.WRN	Watch runtime when return to command level.
3	JB.WWT	Watch wating time when return to command level
4	JB.WDR	Watch number of 128 word disk block read.
5	JB.WDW	Watch number of 128 word disk blocks written.
6	JB.WVR	Watch Versions
7	JB.WMT	Watch number MTA performace statistics
8	JB.WFL	Watch file activity
9	JB.WLM	Long error messages

10	JB.WNM	Normal error messages
11	JB.WPM	Prefix error messages.
13-35		Time of day in Jiffies user started to wait.

Name: JDA JOB DEVICE ASSIGNMENT TABLE

Description: Associates a device or file with each active channel in a user job, and tells which UUO's have been done on that channel.

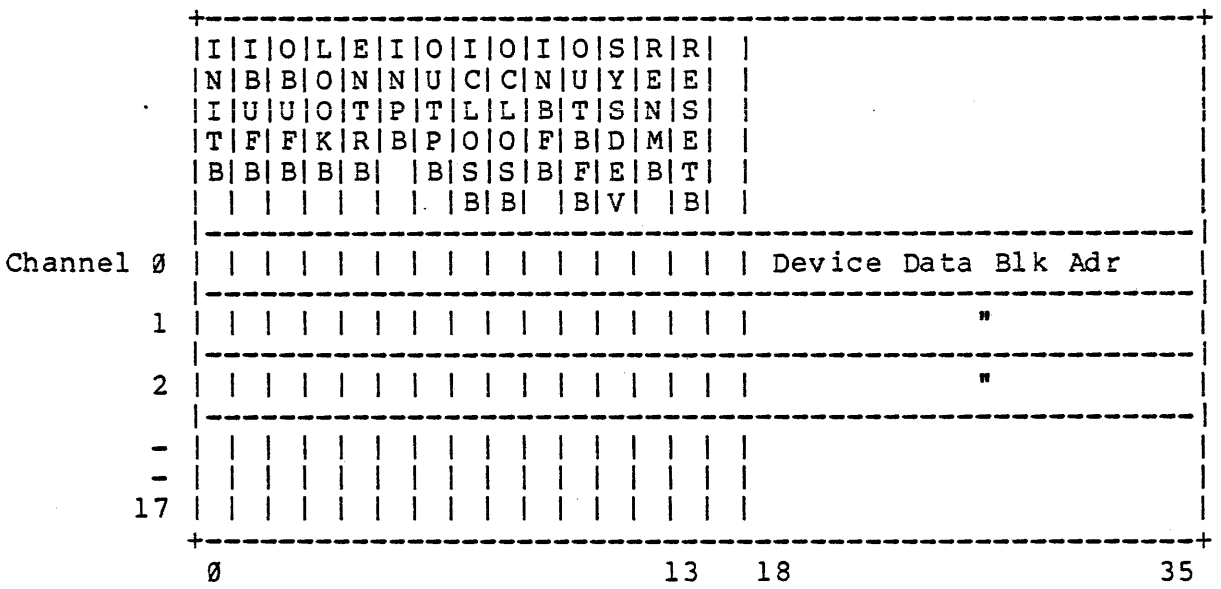
The JDA is part of the job's UPMP. Each JDA contains 16 entries corresponding to the 16 "software channels" of a user job.

Indexed by channel number.

Defined In: COMMON

Used By: FILIO, FILUUO, COMCON, CORE1, DTASRN, MSGSER, PTYSER, SEGCON, UUOCON, VMSER

Format:



Bit	Label	Meaning
Ø	INITB	INIT or OPEN has been done
1	IBUFB	Input ringheader sepcified (by INIT).
2	OBUFB	Output ringheader specified (by INIT).

3	LOOKB	A LOOKUP has been done
4	ENTRB	An ENTER has been doen
5	INPB	An INPUT has been done
6	OUTPB	An OUTPUT has been done
7	ICLOSB	An input CLOSE has been done
8	OCLOSB	An output CLOSE has been done
9	INBFB	An input buffer ring has been set up.
10	OUTBFB	An output buffer ring has been set up.
11	SYSDEV	This is the system tape device or SYSPPN on DSK.
12	RENMB	RENAME UUO in progress.
13	RESETB	RESET UUO in progress.
18-35		Address of Device Data Block for I/O on this software channel.

Notes:

1. If both LOOKB and ENTRB are on, the file is being accessed in update mode.

2. It is not valid for a user job to try to get its JDA in .JBJDA since the Monitor does not leave good data here when the user job runs.

3. Extended channel information is kept in a 64-word table in funny space pointed to by the .UPCTA word in the UPMP. If extended channels are not in use, the word is zero. Each entry in the table is formatted the same as entries in the JDA table.

Name: JOBDAT JOB DATA AREA

Description: Storage area for items of interest to both the monitor and the user.

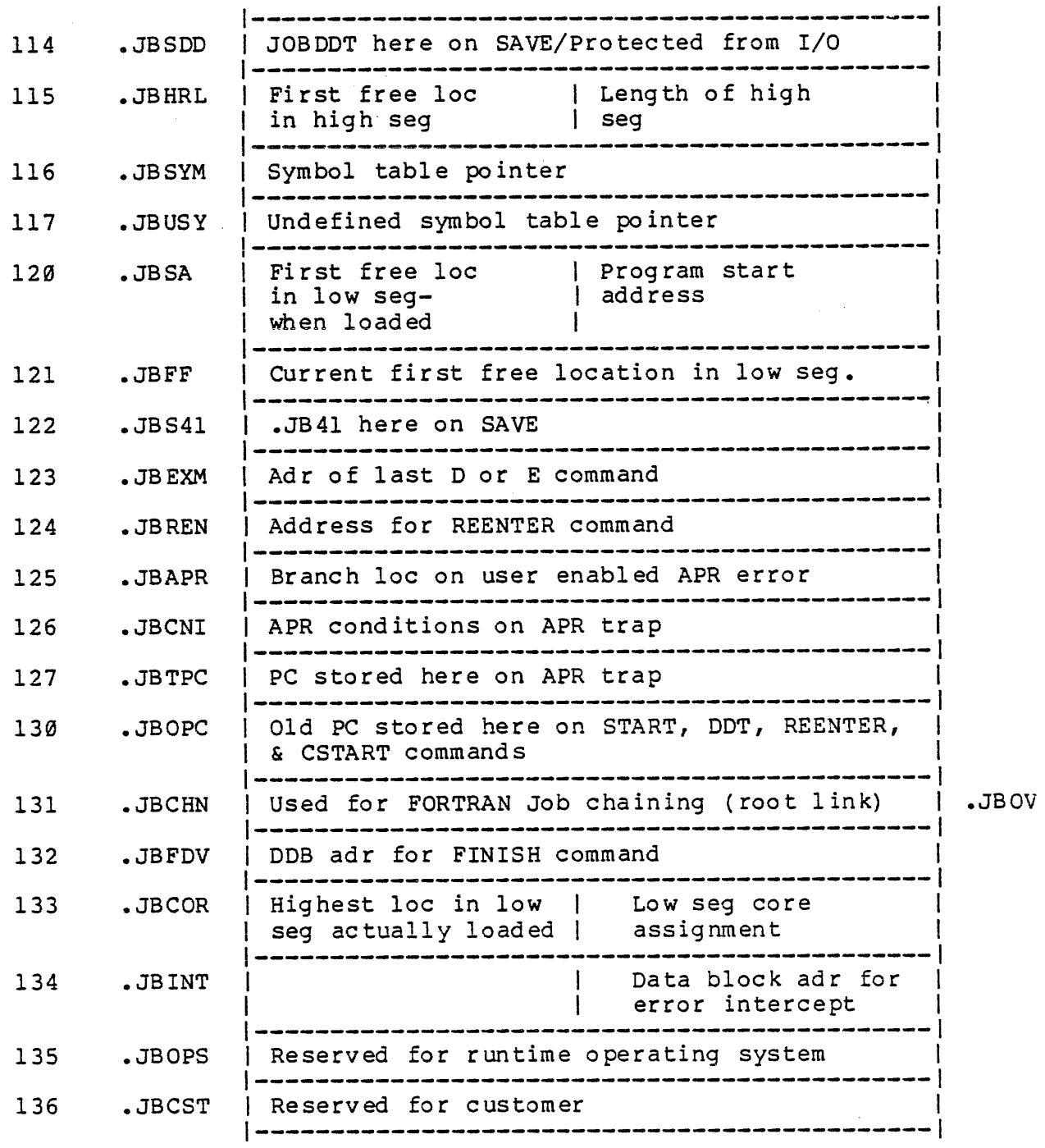
There is one Job Data Area for each job which has a non-zero core allocation. It occupies the first 140 locations of the job's core area, and is swapped out along with the job.

Defined In: COMMON

Used By: COMMON

Format:

Relative Location	Label	
0 - 17	.JBBAC	User AC's during UUO (16 words)
20 - 37	.JBBAC	Hardware AC's while job inactive (16 words)
40	.JBUUO	User UUO stored here
41	.JB41	User UUO branch instruction
42	.JBERR	Unused | Error cnt for RPG
43	.JBENB	Unused | User APR trap flags
44	.JBREL	0 | Length of low seg
45	.JBPDl	Push down list (21 words)
72	.JBHCU	Highest I/O channel in use
73	.JBPC	Job PC when job inactive
74	.JBDDT	Unused | Start Adr of DDT
75	.JBJDA	Job Device Assignment Table 16 words documented separately


114 .JBSDD
JOBDDT here on SAVE/Protected from I/O
115 .JBHRL
First free loc in high seg
Length of high seg
116 .JBSYM
Symbol table pointer
117 .JBUSY
Undefined symbol table pointer
120 .JBSA
First free loc in low seg- when loaded
Program start address
121 .JBFF
Current first free location in low seg.
122 .JBS41
.JB41 here on SAVE
123 .JBEXM
Adr of last D or E command
124 .JBREN
Address for REENTER command
125 .JBAPR
Branch loc on user enabled APR error
126 .JBCNI
APR conditions on APR trap
127 .JBTPC
PC stored here on APR trap
130 .JBOPC
Old PC stored here on START, DDT, REENTER, & CSTART commands
131 .JBCHN
Used for FORTRAN Job chaining (root link)
.JBOV
132 .JBFDV
DDB adr for FINISH command
133 .JBCOR
Highest loc in low seg actually loaded
Low seg core assignment
134 .JBINT
Data block adr for error intercept
135 .JBOPS
Reserved for runtime operating system
136 .JBCST
Reserved for customer

137	.JBVER	Job version number
140		First loc in user's program area

Special Notes:

1. The actual tables are included at the beginning of each user's area.

2. Many of these words contain different values while a SAVE or GET is in progress, and therefore have several different labels.

3. Starting with 7.01, system sensitive locations for all machines are stored in the UPMP instead of the user's core image. If .JBxxx is stored in location yyy, VJBDAT will define the value of the symbol as -1000+yyy (octal).

4. The areas for storage of accumulators are used differently on a KA-10 monitor (6.03A) which has only one hardware block of accumulators. .JBBAC is used to store the user's accumulators on entry into monitor call (UUO) processing, and .JBDAC is used to store the accumulators (either exec or user depending on the level) when the job is not running.

Name: Job Queues and Wait State Codes

Defined In: (See JBTCQ and JBTSTS)

Used In: (See JBTCQ and JBTSTS)

Job queues keep track of a job's priority to run and to be in core and are maintained in table JBTCQ. Wait State Codes keep track of the runnability of a job and are defined in parallel so that a queue number and a wait state code that have the same meaning will also have the same numeric value. Values will differ at different sites due to conditional assembly.

Symbol	Value	Usage	Feature	Meaning
RNQ	ØØ	N		Ready to run
WSQ	Ø1	U		I/O Wait Satisfied
TSQ	Ø2	U		TTY I/O Wait Satisfied
DSQ	Ø3	U		Disk I/O Wait Satisfied
PSQ	Ø4	U		Paging I/O Wait Satisfied
AUQ	Ø5	R		Alter UFD Wait
DAQ	Ø6	R		Disk Space Allocation Wait
CBQ	Ø7	R		Disk core block scan wait
D1Q	11	R		DECtape Controler 1 Wait (DTA)
D2Q	12	R		DECtape Controller 2 Wait (DTB)
DCQ	13	R		DECtape/Magtape Control Wait
MMQ	14	R	FTMP	Memory Management Wait
CAQ	15	R	FTLOCK	Semi-permanent core Wait (LOCK)
EVQ	16	R	FTKI!FTKL	Exec virtual memory Wait
EQQ	17	R	FTEQDQ	Enqueue-Dequeue Wait
IOWQ	2Ø	C		I/O Wait
TIOWQ	21	CQ		TTY I/O Wait
DIOWQ	22	C		Disk I/O Wait
PIOWQ	23	C		Paging I/O Wait
SLPQ	24	CQ		Sleeping (>= 1 second)
EWQ	25	CQ		Event Wait (see JBTST2)
NAPQ	26	C		Napping (sleep < 1 second)
NULQ	27	CQ		Unassigned Jobs
JDCQ	3Ø	CQ	FTDAEM	Job Waiting for DAEMON
STOPQ	31	CQ		Job Stopped (^C State)
PQ1	32	Q		Jobs Starting Up or coming out of TTY I/O wait
PQ2	33	Q		Non interactive jobs
CMQ	34	Q		Command Wait for Swapper (^W State)
HPQ1	35	Q	FTHPQ	High Priority (Real time) Jobs
HPQ2	36	Q	FTHPQ	Higher Priority (Real Time) Jobs

HPQ3 37 Q FTHPQ Highest Priority (Real Time) Jobs

The number of HPQ's is determined by the MONGEN dialogue.

Key to Usage

N No queue header for this WSC. (JBTCQ+Ø contains Ø). Defined in QUEUES macro.

U Wait State Codes for jobs that have become unblocked but need to be processed by QREQ in SCHED1 before being considered to run. Defined in QUEUES macro.

R Wait State Codes for jobs that blocked at UUO level requiring a sharable resource that was unavailable (see REQTAB). Jobs will be unblocked by the Scheduler when the resource becomes available (see AVALTB). Defined in RWAITS macro.

C Wait State Codes for jobs that are blocked waiting for a monitor event such as I/O complete, clock ticks a command, or DAEMON activity before they will be runnable. Defined in CODES macro.

Q These Queues in JBTCQ actually hold jobs. Other symbols have queue headers reserved for them, but jobs are never placed in them. RNQ has no queue header at all.

NOTES:

1. RNQ, IOWQ, DIOWQ, PIOWQ, WSQ, TSQ, DSQ, and PSQ never actually hold jobs. The queues are defined only to define the corresponding Wait State Codes.

2. The values of PQ1, PQ23, CMQ, and STOPQ are never used as wait state codes. Jobs in any of the PQ's have wait state codes of ØØØ. When jobs are put into CMQ or STOPQ they retain their previous codes, so that they can be returned to their previous queues.

Name: KON CONTROLLER DATA BLOCK

Description: There is one KON per disk controller. It contains information specific to that controller, e.g., dispatch addresses into the controller dependent routines. Names for KONs are in the form xxyINT where xx is the controller type and y the controller number (e.g., RP1INT for the second RH1Ø or RH2Ø).

Defined In: COMMOD

Used by: DPXKON, DTASRN, FHXKON, FILIO, FSXKON, ONCE, ONCMOD, SYSCHK, SYSINI, VMSER

Format:

xxnINT	CONSO skip chain entry for this controller*
KONTAB	UDB Address Table - contains address of each UDB associated with this controller - 8 words
KONCOM	Negative of CCWMAX | KONLST
KONLST	Channel command list for this controller Length is CCWMAX (KA) Ø,,Ø (end of command list)
KONRED	Table of controller-dependent dispatch instructions
KONCUA	UDB address of unit doing transfer (or last one)
KONIOC	Address of controller-channel pair in low core
KONCHN	Address of channel data block for this controller
KONPTR	Indirect pointer to index KONTAB (P3)
KONDMP	Holds DEVDMP during dump-mode I/O
KONERR	Dispatch to controller-dependent error-recovery prog.
KONECC	Used for ECC mask and position

KONRRG	Used to hold drive registers
KONECR	Control register on error
KONEDB	Data buffer register on error
KONREG	Length of KONEBK
KONEBK	Place to save drive registers on error

```
* format of these instructions is:
xxnINT:     CONSO xxn,xx'INF    ;SKIP IF INTERRUPT FROM THIS KON
            JRST                ;RESOLVED AT ONCE TIME
IFN FTDHIA,<
            CONSO xxn,7         ;IF NO PI UP,
            JRST  .-2           ;PROBABLY DIAG FIDDLING WITH KON
>;END DTDHIA
            JSR   ssn'SAV       :SAVE INTERRUPT AC'S
            JSP   J,xx'xINT     ;BRANCH INTO CONTROLLER-
                                  ;DEPENDENT CODE
```

Bit Ø of KONTAB is set when the controller is busy.

KONRED Controller-dependent dispatch addresses

KONRED	PI	Address of read program
KONRDS		Address of read, stop-on-error program
KONRDF		Read header and data
KONRDC		Read in 10/11 compatibility mode
KONWRT		Entry point to write program
KONWTS		Entry point to write, stop on error
KONWTF		Write format
KONWTC		Write in 10/11 compatibility mode
KONUNL		Unload drive
KONPOS	F	Position heads-entry zero for fixed-head disk
KONLTM		Compute rotational latency time
KONUPA	U	Test if controller is on-line
KONCPY		Determine type and capacity of unit
KONRCL		Recalibrate
KONSTP		Stop on hung unit

Word	Bit	Function
KONRED	0-2	PI level for controller
KONPOS	0	1 - implies fixed-head devices
KONUPA	0	1 - implies controller is down
	1	1 - controller can seek during transfer

The following notation is used in expressing some of the KON symbols.

X - Controller number (which is really a letter) - A,B,...
XX - Controller type - DP, RP, FS, FH
XXN - Controller symbol - e.g., DP0

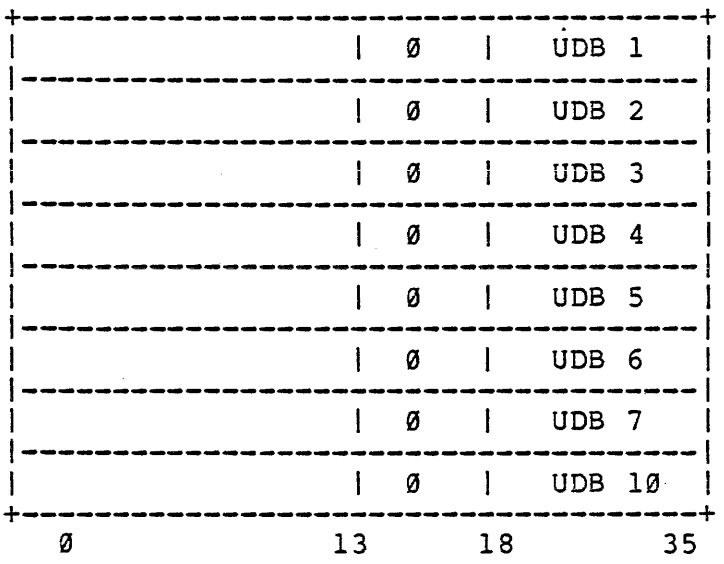
KON (cont.)

KONTAB UDB Address Table within KON

Contains UDB Address for each unit on this controller.

One entry for each unit on the controller.

Indexed by physical unit number with controller.



Notes:

1. Bit Ø of first word set when controller is busy.

2. If controller has fewer than eight units, the additional entries are present, but blank.

KON (cont.)

KONTROLLER DEPENDENT INSTRUCTIONS

The four word block preceding a KONTROLLER DATA BLOCK contains the KONTROLLER dependent instructions used to link the controller to a PI CONSO skip chain.

```
          X - KONTROLLER number (e.g., A,B)
         XX - KONTROLLER type   (e.g., DP, FH)
        XXN - KNOTROLLER symbol (e.g., DPØ, FH1)

XXN'INT:  CONSO XXN,XX'INF
          JRST
          JSR  XXN'SAV
          JSP  J,XX'XINT
```

NAME: LDB Line Data Block

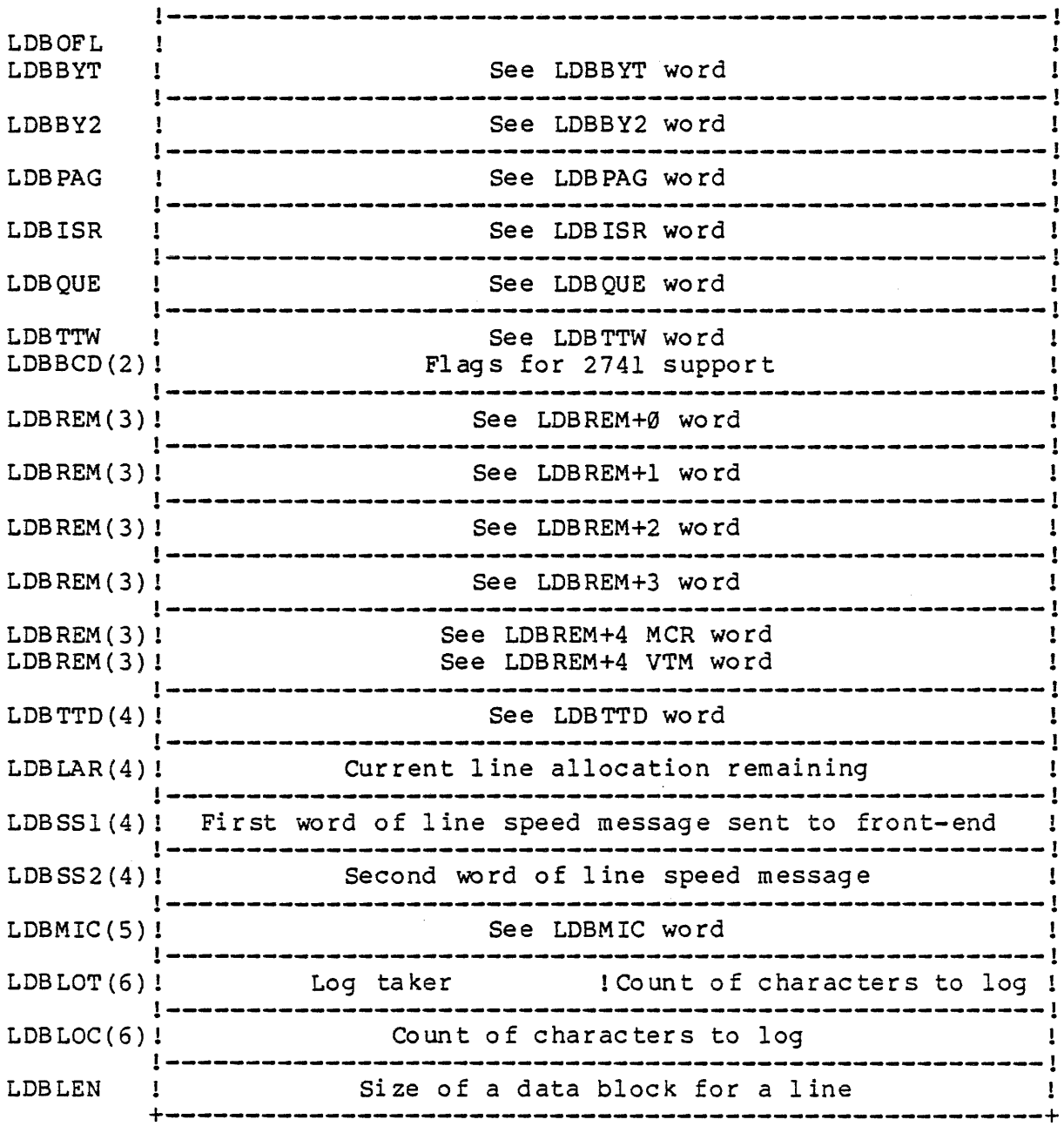
DESCRIPTION: Contains data pertaining to one TTY Line. One LDB per line; including scanner lines, PTY's and CTY. LINTAB serves as directory.

DEFINED IN: SCNSER

USED BY: MSGSER, NETSER, COMCON, XTCSER, PTYSER, SYSINI, COMMON, D76INT, CLOCK1, PSISER, UUOCON

FORMAT:

LDBDDB	See LDBDDB word	Address of Line's attached DDB
LDICLR LDBBKU	Start clearing here on Restart Copy of LDBTIP at last break RECINT	
LDBTIP	T2 to put characters in input buffer	
LDBTIT	T2 to take characters from input buffer	
LDBTIC	Count of echoed characters in input buffer	
LDBBKC	Count of break characters in input buffer	
LDBTOP	T3 to put characters in output buffer	
LDBTOT	T2 to take characters from output buffer	
LDBTOC	Count of characters from output buffer	
LDBECT	T2 to take characters from input for echoing	
LDBECC	Count of characters to echo	
LDBXNP	XON class character pointer for output	
LDBFLP	Filler character pointer for output	
LDBPBK	Up to 4 break characters for Packed Image Mode (PIM)	
LDBHPS LDICLE(1)	Horizontal Position Counter Clear through here on Restart	
LDBDCH	See LDBDCH word	


LDBOFL
LDBBYT
See LDBBYT word
LDBBY2
See LDBBY2 word
LDBPAG
See LDBPAG word
LDBISR
See LDBISR word
LDBQUE
See LDBQUE word
LDBTTW
See LDBTTW word
LDBBCD(2)
Flags for 2741 support
LDBREM(3)
See LDBREM+Ø word
LDBREM(3)
See LDBREM+1 word
LDBREM(3)
See LDBREM+2 word
LDBREM(3)
See LDBREM+3 word
LDBREM(3)
See LDBREM+4 MCR word
LDBREM(3)
See LDBREM+4 VTM word
LDBTTD(4)
See LDBTTD word
LDBLAR(4)
Current line allocation remaining
LDBSS1(4)
First word of line speed message sent to front-end
LDBSS2(4)
Second word of line speed message
LDBMIC(5)
See LDBMIC word
LDBLOT(6)
Log taker
Count of characters to log
LDBLOC(6)
Count of characters to log
LDBLEN
Size of a data block for a line

(1) If FTRSP (measure user TTY input response times) and FTACCT (include support for accounting) are set, the following three words would come directly after LDBHPS and be cleared on a restart:

LDBBCT	Total break character count since system (re)start
LDBICT	Total input character count since system (re)start
LDBOCT	Total output character count since system (re)start

(2) If FTD1ØH (2741 lines on a DC1Ø -- Reassemble DLSINT) the flags are for 2741 support

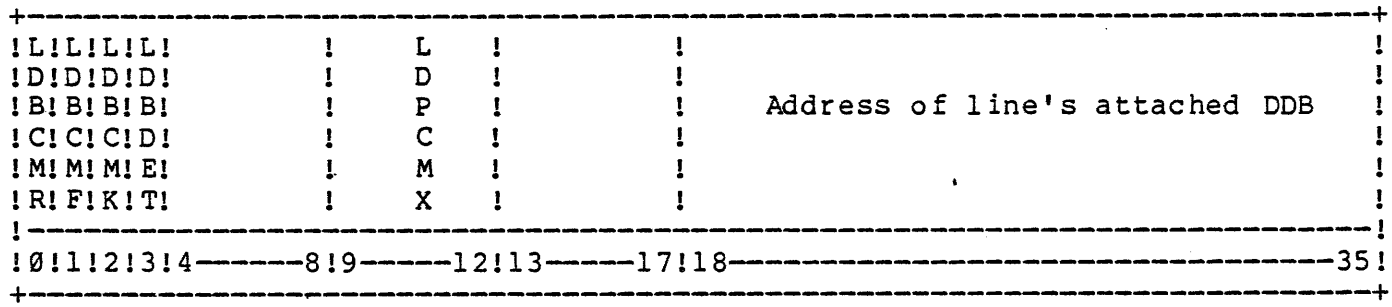
(3) If FTNET (include NCL network software) then five words containing network related LDB fields for remote station terminal status

(4) If FTKL1Ø (include KL1Ø support) the definitions in this word are for support of RSX-2ØF terminals

(5) If FTMIC (include Macro Command Processor) this word for MIC use

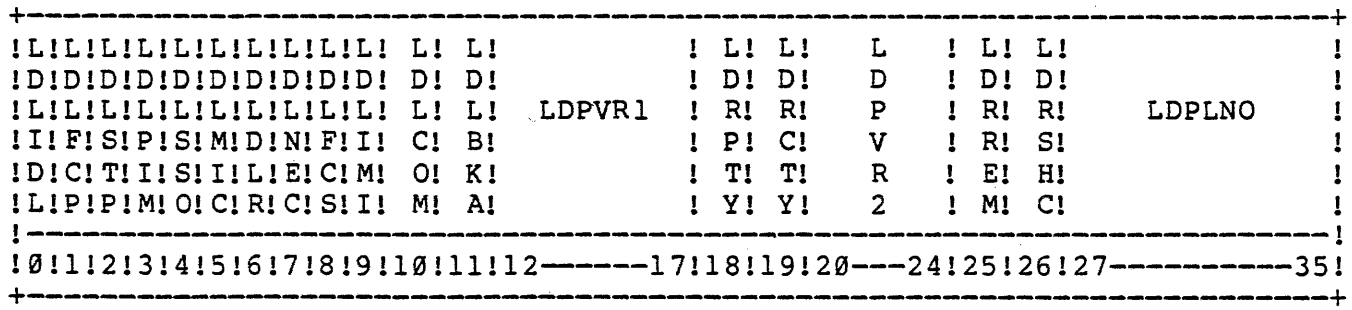
(6) If FTMLOG (include MIC Log File Support) two words for MIC logging

LDBDDB



Bits in LDBDDB	Value	Bit Label or Byte Pointer	Description
0	400000	LDBCMR	Command Request Bit
1	200000	LDBCMF	Command forced
2	100000	LDBCMK	Forcing KJOB Command
3	40000	LDBDET	Job detached from this line during command processing
4-8			
9-12		LDPCMX	Pointer index for forced command
13-17			
18-35			

LDBDCH

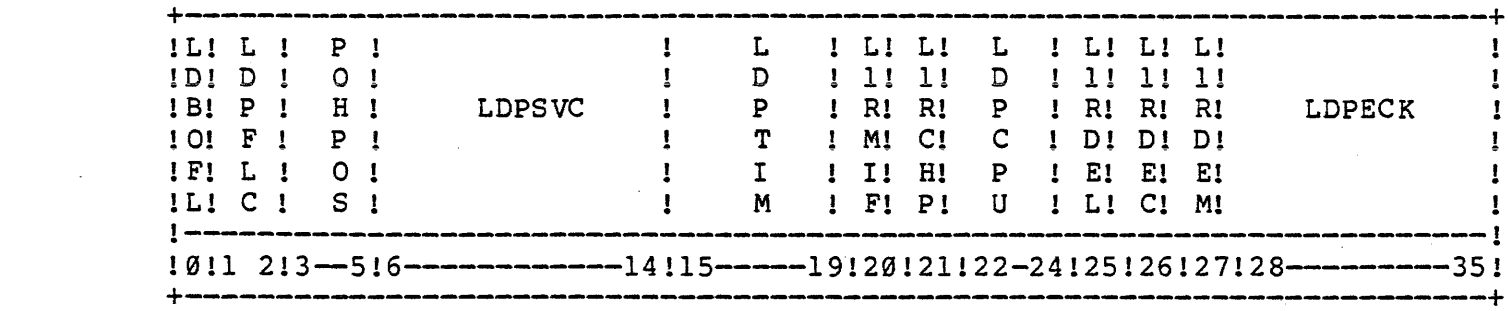


Bits in LDBDCH	Value	Bit Label or Byte Pointer	Description
0	400000	LDLIDL	Line is idle. If clear, we are expecting a transmit interrupt
1	200000	LDLFCP	A force character or fillers are pending
2	100000	LDLSTP	Output was stopped by Control "S"
3	40000	LDLPIM	Terminal was opened in PIM Mode
4	20000	LDLSSO	SCNSER stopped output
5	10000	LDLMIC	LDBMIC is non-zero
6	4000	LDLDLR	Suppress dollar sign
7	2000	LDLNEC	No echo, due to program
8	1000	LDLFCS	Line inited in full character set mode
9	400	LDLIMI	Image input
10	200	LDLCOM	Line is at command level
11	100	LDLBKA	Break on all characters (DDTIN, TTCALL)
12-17		LDPVR1	4 of 6 bits pointed to by GETLP1 for GETLIN
12	40	LDLSLV	Slave, this terminal may be assigned
13	20	LDLLCT (1)	Lower case translate to upper
14	10	LDLTAB (2)	Line accepts tabs, not spaces
15	4	LDLLCP	Local copy (no echo)
16	2	LDLFRM (3)	Line accepts FF and VT (else use LF's)
17	1	LDLNFC	No free Carriage Return at 72 columns
18	400000	LDRPTY	Pseudo-terminal
19	200000	LDRCTY	Console terminal
20-24		LDPVR2	Bits pointed to by LDPVR2
20	100000	LDROSU (4)	Output suppress (Control "O")
21	40000	LDRDSD	Dataset Data Line
22	20000	LDR274	Line is a 2741
23	10000	LDRHLF	Half duplex line (TWX or DC10C)
24	4000	LDRRMT	Remote non-Dataset Line
25	2000	LDRREM	Terminal at remote station
26	1000	LDRSHC	Suppress hung check
27-35		LDPLNO	Pointer to hardware line number
			Bits for GETLIN UUO
	100	GTLRDY	Bit for GETLIN to indicate waiting break character
	20	GTLT37	Model 37 bit (copy of LDLLCT)
	10	GTLT35	Model 35 bit (copy of LDLTAB)

4	GTLLCP	Local copy (copy of LDLLCP)
2	GTLXON	XON is true

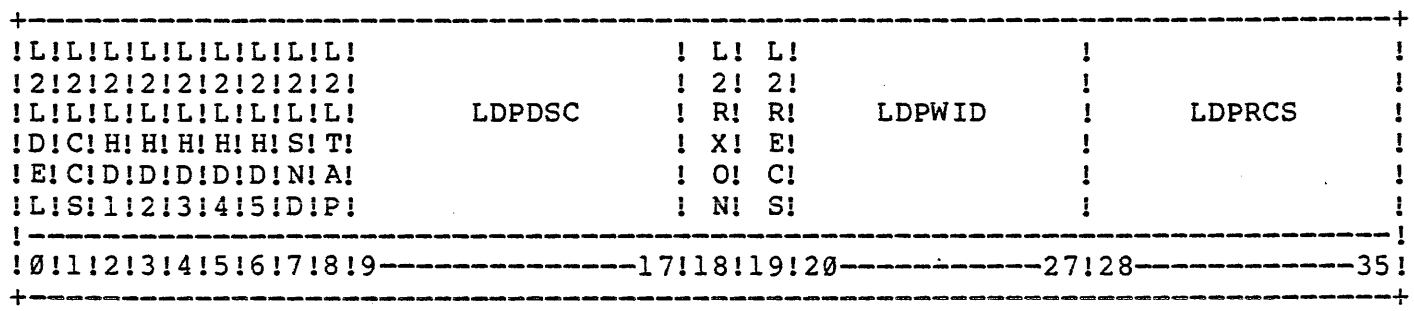
LDPLCT (1)	Pointer to lower case bit
LDPTAB (2)	Pointer to hardware tabs bit
LDPFRM (3)	Pointer to hardware form feed bit
LDPOSU (4)	Pointer to output suppression bit

LDBBYT



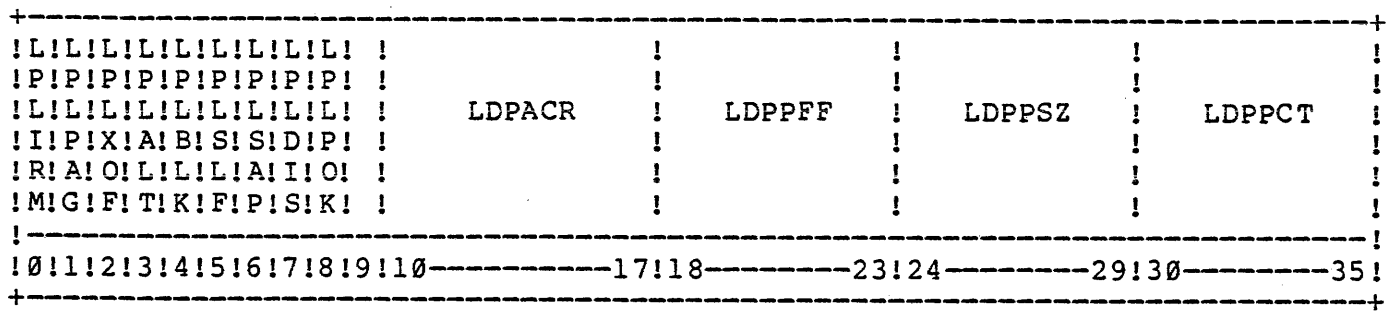
Bits in LDBBYT	Value	Bit Label or Byte Pointer	Description
Ø		LDBOFL (1)	-1 if front end for this line is down
1-2		LDPFLC	Count of number of fillers by class
3-5		POHPOS	Old horizontal position. Needed for tab simulation
6-14		LDPSVC	Save character during free CTLF, Control "X", etc.
15-19		LDPTIM	Timeout on image input
2Ø		L1RMIF	Mic interlock flag
21		L1RCHP	Change hardware parameters queue bit
22-24		LDPCPU	CPU number
25		L1RDEL (3)	Echo may echo 1 line if deferred
26		L1RDEC (3)	Echo may echo 1 characeter if deferred
27		L1RDEM (2)	Deferred echo bit. Set by Set Terminal Defer
28-35		LDPECK (4)	Echo check for half-duplex lines
(1)	4ØØØØØ	L1LOFL	The off-line bit
(2)		LDPDEM	Pointer to L1RDEM
(3)		LDPDEB	Pointer to deferred echo bits
(4)		LDPECK	If FTHDPX (support certain half-duplex terminals) or FTTRACK (leaves useful information in locations in COMMON to aid in debugging crash)

LDBBY2



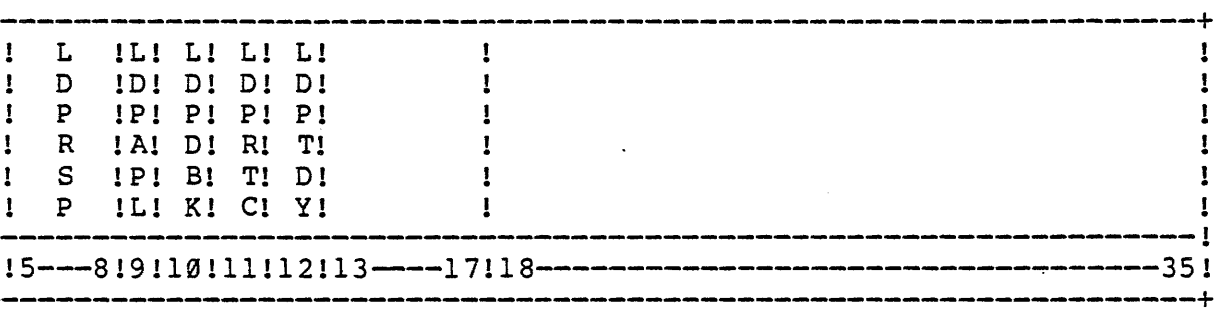
Bits in LDBBY2	Value	Bit Label or Byte Pointer	Description
0	400000	L2LDEL	Last character in was a delete
1	200000	L2LCCS	Last character in was a Control "C"
2	100000	L2LHD1	XMT done flag seen this character on HDX line
3	40000	L2LHD2	RCV done flag seen this character on HDX line
4	20000	L2LHD3	Ignoring RCV interrupts due to echo check error on HDX line
5	10000	L2LHD4	Next RCV interrupt will be q'd after echo check
6	4000	L2LHD5	Receive echo was in fact not same as XMT character
7	2000	L2LSND	Send allowed while busy
8	1000	L2LTAP	Control "Q" from Keyboard turns on L2RXON
9-17		LDPDSC (1)	Dataset Control Table Index back pointer
18	400000	L2RXON	XON is true (paper tape input)
19	200000	L2RECS	Eat command sync
20-27		LDPWID	Width of terminal carriage
28-35		LDPRCS (2)	Most recent received character
(1)		LDPDSC	If modem control code (FTMODM)
(2)		LDPRCS	If FTTRACK (leaves useful information in locations in COMMON to aid in debugging cras

LDBPAG



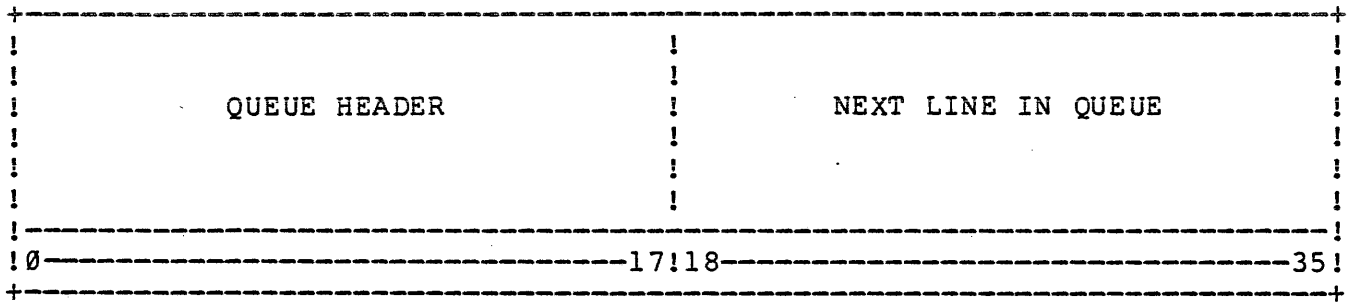
Bits in LDBPAG	Value	Bit Label or Byte Pointer	Description
0	400000	LPLIRM	Terminal not heard from this second
1	200000	LPLPAG	Set terminal page command was executed
2	100000	LPLXOF	Sent XOFF, always send XON later
3	40000	LPLALT (1)	Altmode conversion bit
4	20000	LPLBLK	Suppress blank lines
5	10000	LPLSLF	Suppress line feeds
6	4000	LPLSAP	Send all pending
7	2000	LPLDIS (2)	Set if this is a display terminal
8	1000	LPLPOK	Forcing XMIT start via TOPOKE
9			
10-17		LDPACR	Auto CRLF counter
18-23		LDPPFF	Number LF's remaining on VT and FF simulation
24-29		LDPPSZ	Page size
30-35		LDPPCT	Page counter
(1)		LDPALT (1)	Pointer to altmode conversion bit
(2)		LDPDIS (2)	Pointer to display terminal bit

LDBISR

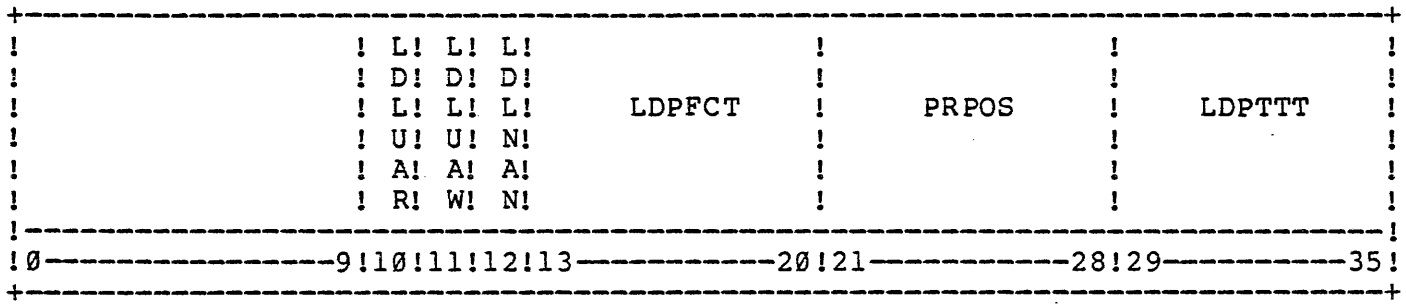


Bits in LDBISR	Value	Bit Label or Byte Pointer	Description
Ø		LILCFE	1 if front end is clever, Ø if dump
1-4		LDPTSP (1)	Transmit speed
5-8		LDPRSP (1)	Receive speed
9		LDPAPL	APL Mode
10		LDPDBK	Line has debreak
11		LDPRTC	Control "R", Control "T" compatiblity
12		LDPTDY	User said "SET TERMINAL TIDY"
13-17			T1 for @LDBISR(U)
18-35			Address of ISR Dispatch Table
	400000	LILCFE	Clever front end
	360000	LILTSP	Transmit Speed
	Ø17000	LILRSP	Receive Speed
	000400	LILAPL	APL Mode
	000200	LILDBK	Line has debreak
	000100	LILRTC	Control "R", Control "T" passed to program
	000040	LILTDY	Do not expand output
(1)		LDPSPD	Both speeds (If FTCAFE, support the DC76)

LDBQUE

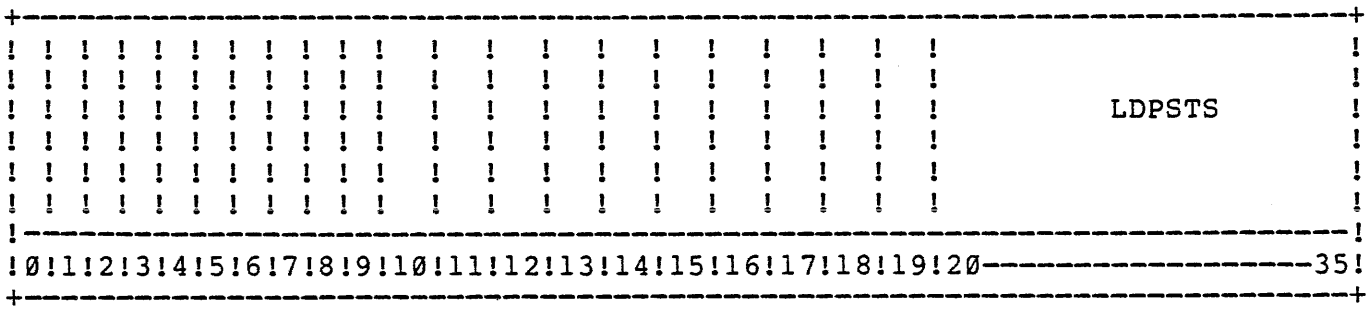


LDBTTW



Bits in LDBTTW	Value	Bit Label or Byte Pointer	Description
0-9			Free
10	200	LDLUAR	On if processing Control "R"
11	100	LDLUAW	On if processing Control "W"
12	40	LDLNAN	On if alpha-numeric seen while processing Control "W"
13-20		LDPFCT	Filler repeat counter
21-28		PRPOS	Position off prompt
29-35		LDPTTT	Terminal type as specified by TTY type commar LDBREM+0

LDBREM

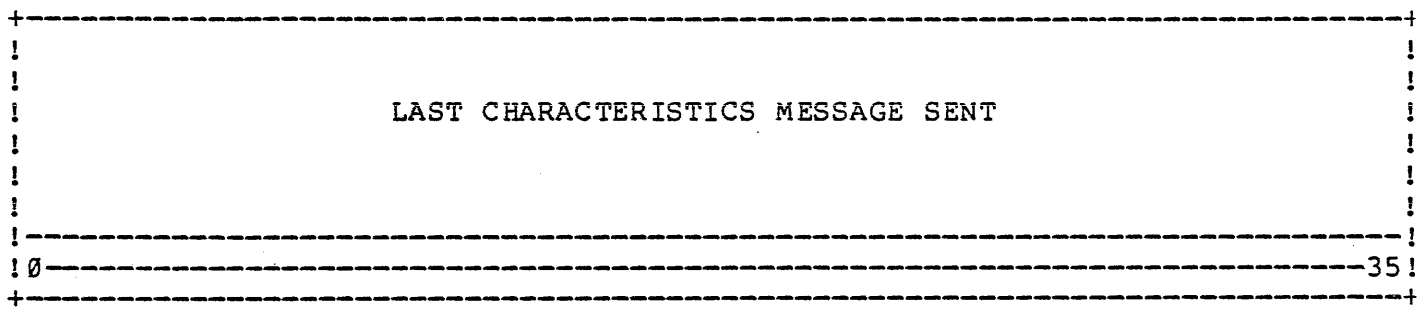


Bits in LDBREM	Value	Bit Label or Byte Pointer	Description
0	400000	LRLVTM (1)	If set, then this is a "local terminal" that has been "SET HOSTed" to another host
1	200000	LRLCON (1)	If set, then terminal is "connected" (ie, NCL connect sequence is complete)
2	100000	LRLSTS (1)	If set, then a "STATUS" message is required. Same bit, but different messages for VTM & MCR
3	40000	LRLSCH (2)	If set, then a "CHARACTERISTICS" message is required (works like "LRLSTS")
4	20000	LRLDST (2)	A "delayed" status message is required (used to optimize traffic. Has priority over "LRLSTS")
5	10000	LRLQED (2)	If set, then VTM line has been "queued" by "VTMENQ"
3	40000	LRLTTO	LDPCHR has the next character to output
4	20000	LRLTTW	Line is waiting for a Data Request
5	10000	LRLSCG	Control "O" action requested (send character gobbler)
6	4000	LRLEPW	Echo pipeline marker waiting to go
7	2000	LRLIMO	Indicates that remote is in image mode output
8	1000	LRLADR	Use of the auto-dialer has been requested
9	400	LRLXOF	An XOFF (Control "S") message has been requested
10	200	LRLCHR	This terminal has received at least 1 CHARACTERISTICS message
11	100	LRLDTR	Ring/carrier Bit (set and cleared by STATUS messages from the -11)
12	40	LRLDSR	The -10's copy of what it thinks LRLDTR should be
13	20	LRLDSL	This line is a data-set line
14	10	LRLATO	Indicates this line possesses the auto-baud capability (set or cleared by the attribute field of the CONNECT Message)
15	4	LRLADL	Indicates this line possesses an auto-dialer (also set by CONNECT Message)
16	2	LRL741	Indicates this is a 2741 line
17	1	LRLTIW	We are in TTY input wait (ie, we should

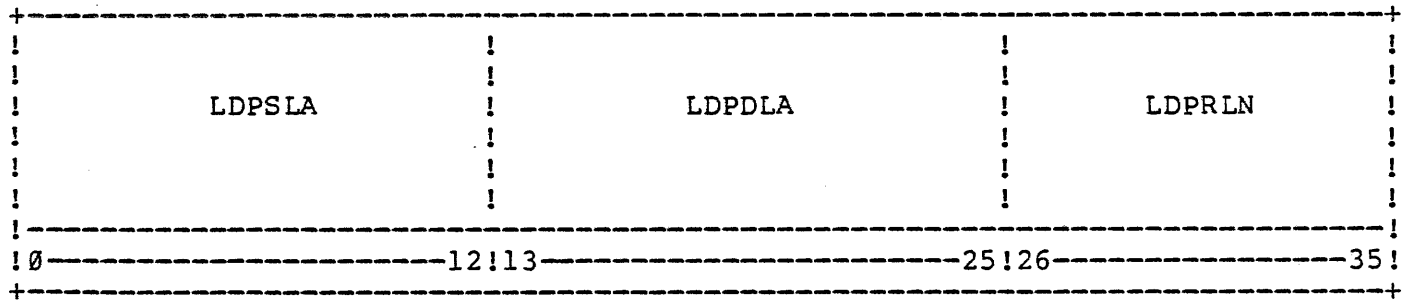
18	400000	LRRSHC	unlock the 2741's Keyboard The line at the other end has "SET HOST capability." (ie, it can respond to DISCONNECT messages)

(1) Bits used by both NETVTM (local SET HOST) and NETMCR (remote terminals)
(2) Bits used only by NETVTM (local SET HOST)
(3) Bits used only by NETMCR ("normal" remote terminals...ala DN87)

LDBREM+1

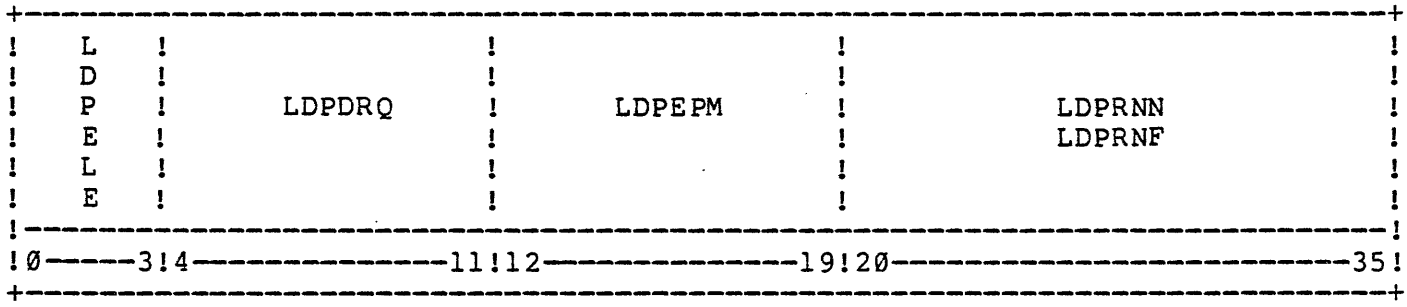


LDBREM+2



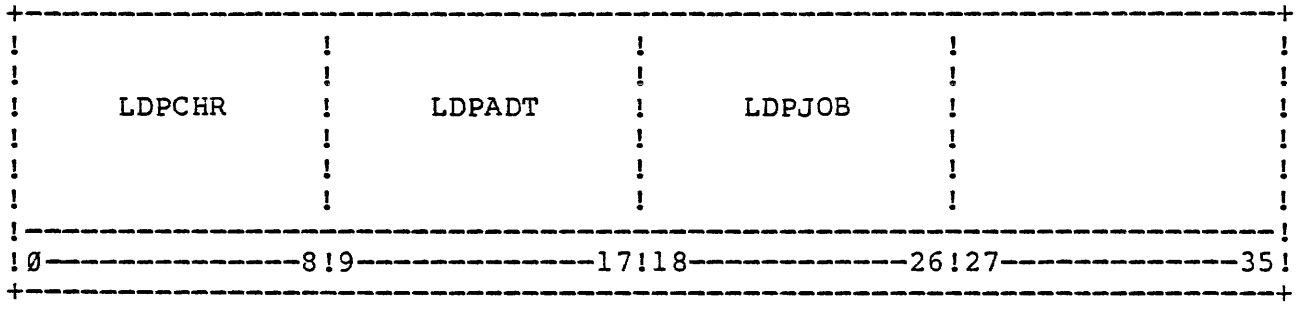
Bits in LDBREM	Value	Bit Label or Byte Pointer	Description
0-12		LDPSLA	Our Source Link Address
13-25		LDPDLA	Our Destination Link Address
26-35		LDPRLN	Line number at Remote Station

LDBREM+3



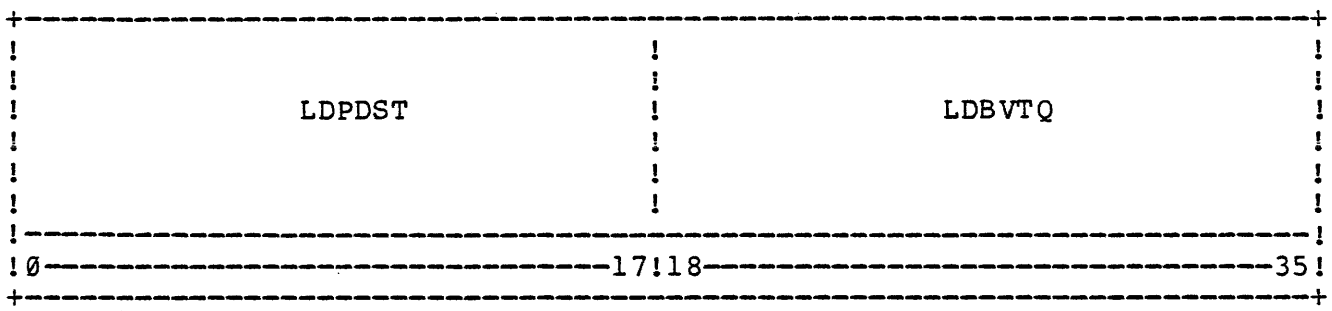
Bits in LDBREM	Value	Bit Label or Byte Pointer	Description
0-3		LDPELE	2741 element number
4-11		LDPDRQ	Number of data requests from remote
12-19		LDPEPM	Serial number of last EPM from remote
20-35		LDPRNN (U)	Number of node owning this TTY
20-35		LDPRNF (F)	Same as LDPRNN except indexed by "F"

LDBREM+4
(MCR)



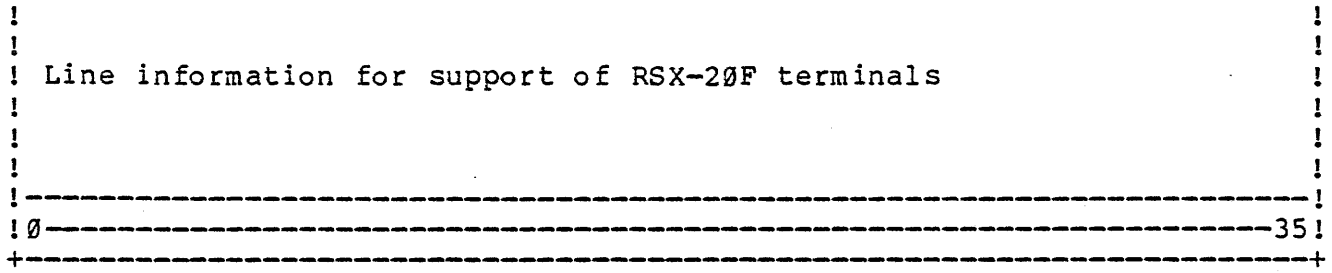
Bits in LDBREM	Value	Bit Label or Byte Pointer	Description
0-8		LDPCHR	If LRLTTO=1, contains the next output character
9-17		LDPADT	Auto-disconnect timer
18-26		LDPJOB	Pointer to job (only for connects)
27-35			Unused

LDBREM+4
(VTM)



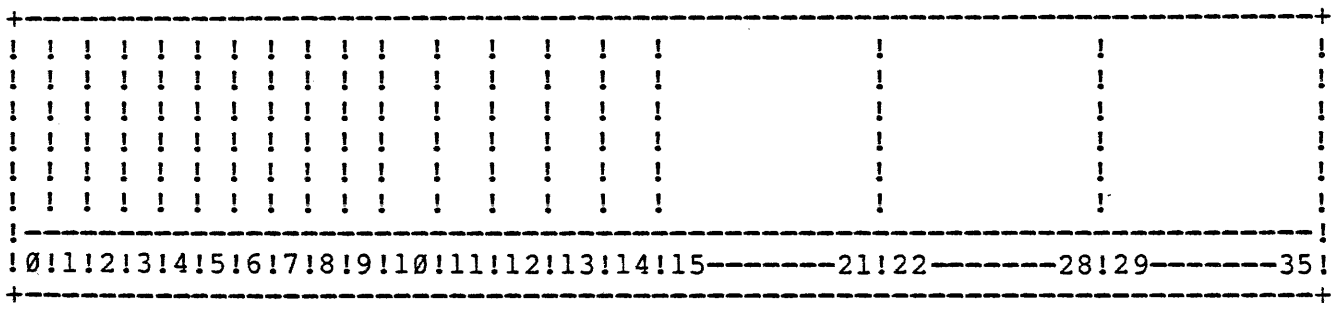
Bits in LDBREM	Value	Bit Label or Byte Pointer	Description
0-17		LDPDST	Delayed-status-message for VTM
18-35		LDBVTQ	VTM-queue-link

LDBTTD



Bits in LDBTTD	Value	Bit Label or Byte Pointer	Description
	740000		Remembered transmit speed
	36000		Remembered receive speed
	1000	LTLXOF	Sent XOFF to -20F
	400	LTLRBS	Remote bit sent for -20F datasets
	200	LTLCTO	Need to send flush output to -20F

LDBMIC



Bits in LDBMIC	Value	Bit Label or Byte Pointer	Description
0	400000	LDLCHK	Set if any bit 1-14 set
1	200000	LDL.CC	Set if Control "C" has been typed
2	100000	LDL.OP	Set if operator character seen in column 1
3	40000	LDL.ER	Set if error character seen in column 1
4	20000	LDL.CP	Set if Control "P" has been typed
5	10000	LDL.CB	Set if Control "B" has been typed
6	4000	LDL.XX	Silence this line
7	2000	LDL.MM	Line in Monitor Mode
8	1000	LDL.TI	Line in User Mode and TI wait or in Monitor Mode and can accept commands
9	400	LDL.TO	Line is in column 1 on output
9	400	LDLCL1	Column 1 bit
10	200	LDL.CA	Set if Control"A" has been typed (abort)
11	100	LDL.RS	Error response
12	40	LDL.SY	Response code sync
13	20	LDL.LG	MIC is logging
14			
15-21			ASCII character to be treated as operator character
22-28			ASCII character to be treated as error character
29-35			MIC Master Job Numbers -- enables more than one MIC to run

Name: LINTAB Line Table

Description: Contains data pertaining to each TTY Line

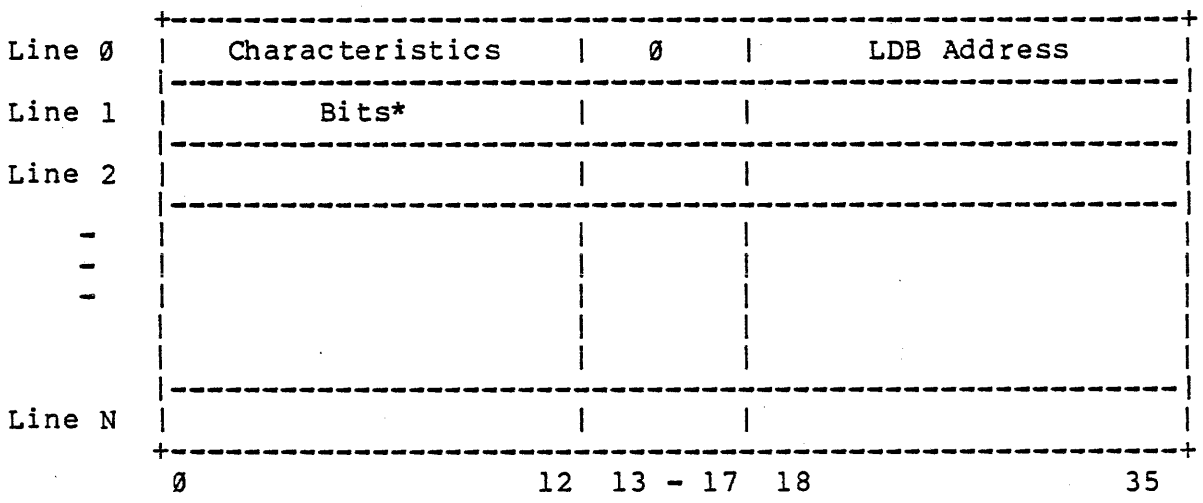
One entry per line (including scanner, CTY, and PTY lines.)

Indexed by line number

Defined: COMDEV

Used in: COMMON, CLOCK1, COMCON, CPNSER, D76INT, DLØINT
DL1INT, DTESER, ERRCON, MSGSER, NETMCR, PTYSER
SCNSER, TTDINT, UUOCON, SYSINI, ONCE

Form:



*Details on following page

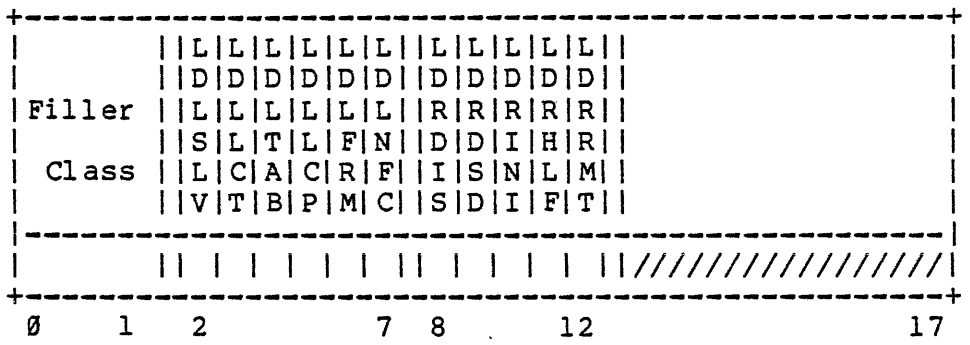
Note:

The device characteristics bits in Ø-12 are copied into various bytes of the LDBDCH word of the corresponding LDB during initialization.

LINTAB is located in COMDEV; bit definitions are in SCNSER and COMDEV

LINTAB (Cont'd.)

LINTAB Byte Definitions



Bits

Ø-1	Copied into bits 1-2 of LDBBYT
2-7	Copied into bits 12-17 of LDBDCH
8-12	Copied into bits 2Ø-24 of LDBDCH

NOTE: These bits are used to initialize the specified areas of Line Data Block. The bits may be changed in the Line Data Block, but not in LINTAB.

See LDBBYT and LDBDCH for bit definitions.

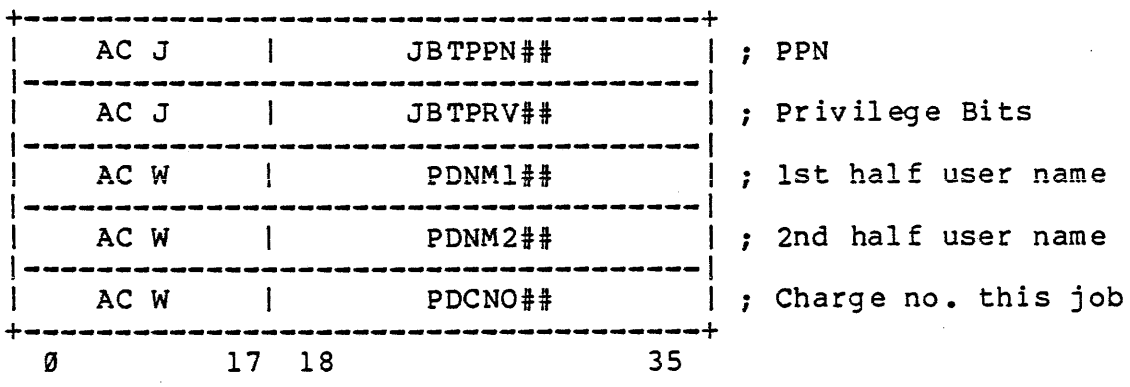
Name: LOGTAB LOGIN JBTTAB POINTER TABLE

Description: Table of pointers to those job tables in which the LOGIN UUO stores statistics.

Defined In: UUOCON (Local Symbol)

Used By: UUOCON

Format:



Special Notes:

1. LOGIN UUO used only by LOGIN or LOGOUT CUSPS

2. User program does:
   LOGIN AC,
   or
   CALLI AC,15
   where AC contains:
   XWD No.-of-entries,location
   which is a list of job statistics to be stored in the monitor tables listed in LOGTAB.

Name: LVDTBL LEVEL D DISK PARAMETER TABLE

Description: Contains parameters for the Level D disk routines. Each entry accessed by its own label.

Defined In: COMMOD

Used By: UUOCON, FILFND, FILUUO, REFSTR, CLOCK1, COMCON, SCNSER, ONCMOD, FILIO, SYSINI, COMMON.

GETTAB Table No.: 16 (.GTLVD)

Format:

LVDTBL:

MFDPPN	(PROJ, PROG) FOR MFD'S [1,1]	
SYSPPN	(PROJ, PROG) for device SYS [1,4]	
FSFPPN	(PROJ, PROG) for FAILSAFE [1,2]	
HELPPN	(PROJ, PROG) for HELP and SYSTAT [2,5]	
PNTPPN	(PROJ, PROG) for printer spooling [3,3]	
SYSPPB	First PPB in System	PPB to start scan for grabable NMB *2
SYSSTR	First STR in System	Index in structure data block for pointer to next structure data block
SYSUNI	First UDB in System	Index in unit data block for pointer to next unit data block
SWPUNI	First swapping UDB	Index in unit data block for pointer to next swapping unit data block
CORNUM	Number of 4 word blocks	
STNPRT	Standard Privilege	
UFDPRT	Standard UFD Privilege	
MBFNUM	Number of monitor buffers	

QUESTR	SIXBIT Name of STR for Queuing Programs
CRUPPN	UFD for dumping crashes
SFDLVL	Number nested SFD levels allowed
SPLPRT	Protection for Spooled Output
SYSPRT	Protection for most System Files
SYSPRY	Protection for System .SYS Files
MUSTMX	Negative Maximum Extended Rib Argument for USETI
MAXTRN	Maximum number of blocks to transfer in one operation
XSYPPN	PPN of experimental System [1,5]
OLDPPN	PPN of old System [1,3]
UMDPPN	User mode diagnostics PPN [6,10]
NUMBF	Default number of disk buffers
MAXSWP	Maximum number of units in active swapping list
ALGPPN	ALGOL library PPN [5,4]
BLIPPN	BLISS library PPN [5,5]
FORPPN	FORTRAN library PPN [5,6]
MACPPN	MACRO library PPN [5,7]
UNVPPN	UNIVERSAL library PPN [5,17]
PUBPPN	User maintained SYS: [1,6]
TEDPPN	TEXT editor library PPN [5,10]
RELPPN	REL file library PPN [5,11]
RNOPPN	RUNOFF library PPN [5,11]
SNOPPN	SNOBOL library PPN [5,13]

DOCPPN	DOC file library PPN [5,14]
FAIPPN	FAIL library PPN [5,15]
MUSPPN	Music library PPN [5,16]
DECPPN	Library for DEC distributed software PPN [10,7]
TABSWP	Pointer to active swap list
BASPPN	BASIC library PPN [5,1]
COBPPN	COBOL library PPN [5,2]
MXIPPN	PDP-11 library PPN [5,3]
NELPPN	NELIAC library PPN [5,20]
DMPPPN	DUMP library PPN [5,21]
POPPPN	POP2 library PPN [5,22]
TSTPPN	Test library PPN [5,23]
ALLOVR	If non-zero, log soft errors if recover from overrun on 1 try
MASERR	DAEMON's pointers to massbuss error locations
BATCHN	DAEMON's pointers to BAT block and channel error info
DBSPPN	DBMS library PPN [5,24]
EXPCHN	Offset of the expected channel terminal word in CHN
MICPPN	MIC library PPN [5,25]
TPSPPN	Text processing system library PPN [5,26]
CTLPPN	CTL file library PPN [5,27]
GAMPPN	Game library PPN [5,30]
ACTPPN	System accounting library PPN [1,7]
APLPPN	APL library PPN [5,31]

RIBECT	RIB error threshold
RIBTOT	Total RIB errors
SYSDOR	Dormant access table pointer
SYSCOR	Free core pointer
INTFNC	Number of times front end (RSX20F) had disk
D60PPN	DAS60 log file area [5,32]
ERTLOC	Starting location of the queue table for DAEMON error reports
ERTPT1	Starting pointer for DAEMON error extract
ERTPT2	Starting pointer for DAEMON error insert
ERTLTH	Length of DAEMON error table
ERTCDA	Offset of UNICDA in UDB
ERTDES	Offset of UNIDES in UDB
SYSPTR	Pointer to in-core copies of retrieval ptrs
MAXSSL	Max. # in system search list | MAX # in job search list
ERTSLB	Offset of UINSLB into UDBs
UTPPPN	UETP Area

Special Notes:

1. MBFNUM may be changed at Once Only time.

2. If RH=0 core grabber should start over at beginning of PPB list (i.e., LH of SYSPPB).

Name: Magtape Kontroller Data Block

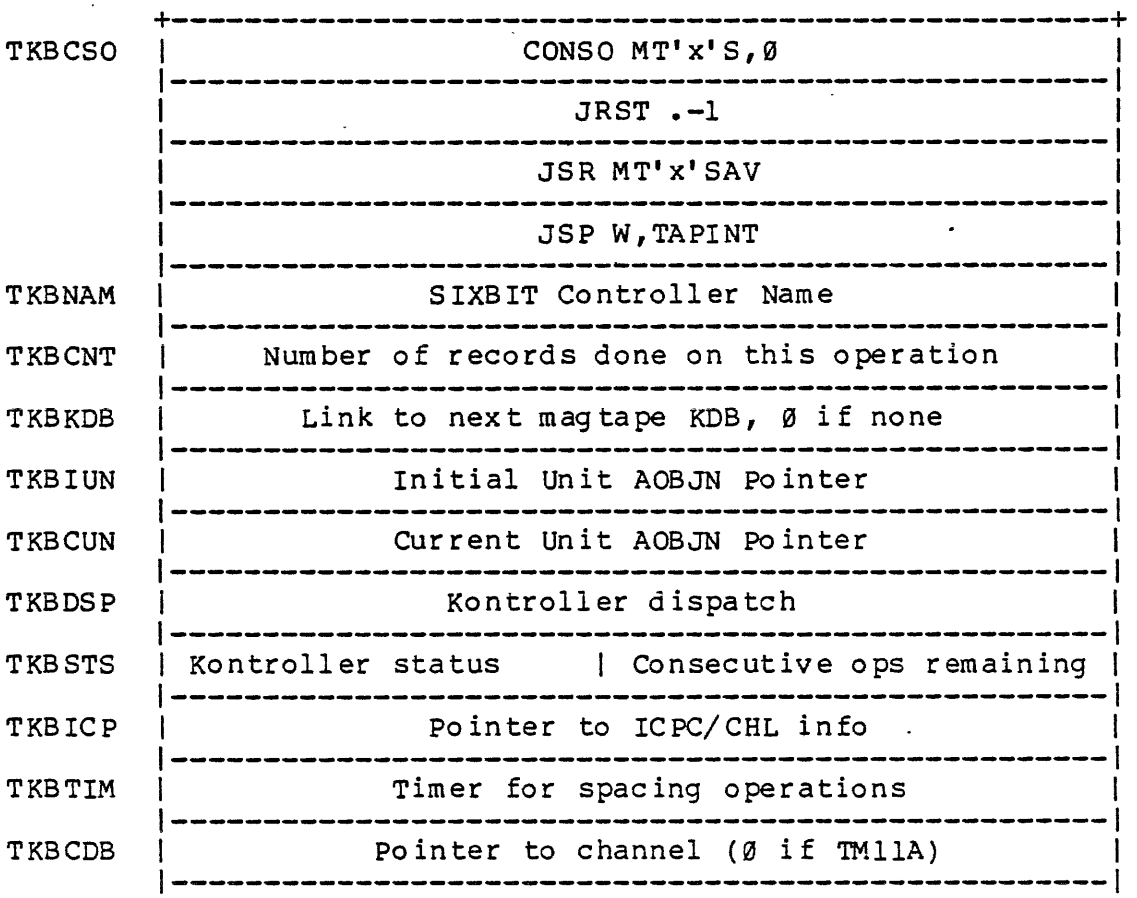
Description: Kontroller dependent information. One KDB for each tape controller on a system. Tags for magtape KDB's are MT'x'KDB, where 'x' is the kontroller number. Tabs for the CONSO instructions are MT'x'INT.

Defined in: COMDEV

Used by: TAPUUO, TM1KON, TMXKON

See also: Magtape Device Data Block, Magtape Unit Data Block

Format:



TKBJOB	Job # of maintenance mode owner
TKBCCL	Channel command list (5 words long)
TKBERB	IORB for error recovery (4 words long)
TKBFCT	Fairness count for Queued I/O
TT2CO1	CONO MTxS,(T1) (TMØ2 only)
TT2CI2	CONI MTxS,T2 (TMØ2 only)
TT2CO3	CONO MTxS,(T3) (TMØ2 only)
TT2DI2	DATAI MTxS,T2 (TMØ2 only)
TT2DO2	DATAO MTxS,T2 (TMØ2 only)
TKBUDB	Pointers to units on this Kontroller (8 words long, found by TKBIUN)

MTAKDB (contd.)

Dispatch Offsets for TKBDSP

Value	Symbol	Meaning
Ø	TPKINI	Initialization code
1	TPKRES	Reset active transfer
2	TPKSIO	Start I/O
3	TPKINT	Interrupt routine
4	TPKCMD	Set device command in list (DX1Ø only)
5	TPKIDL	Set device idle
6	TPKONL	Skip if kontroller online
7	TPKSCH	Cause schedule cycle

TKBSTS Bits (These same bits are also defined for TUBSTS in the UDB)

Bit	Symbol	Meaning
12	TKSMNT	Controller is in maint mode
13	TKSSIL	Request silence about offline condition
14	TKSSCH	Requested scheduled interrupt
15	TKSSTD	Started
16	TKSSEL	Selected
17	TKSOFL	Offline

Name: Magtape Unit Data Block

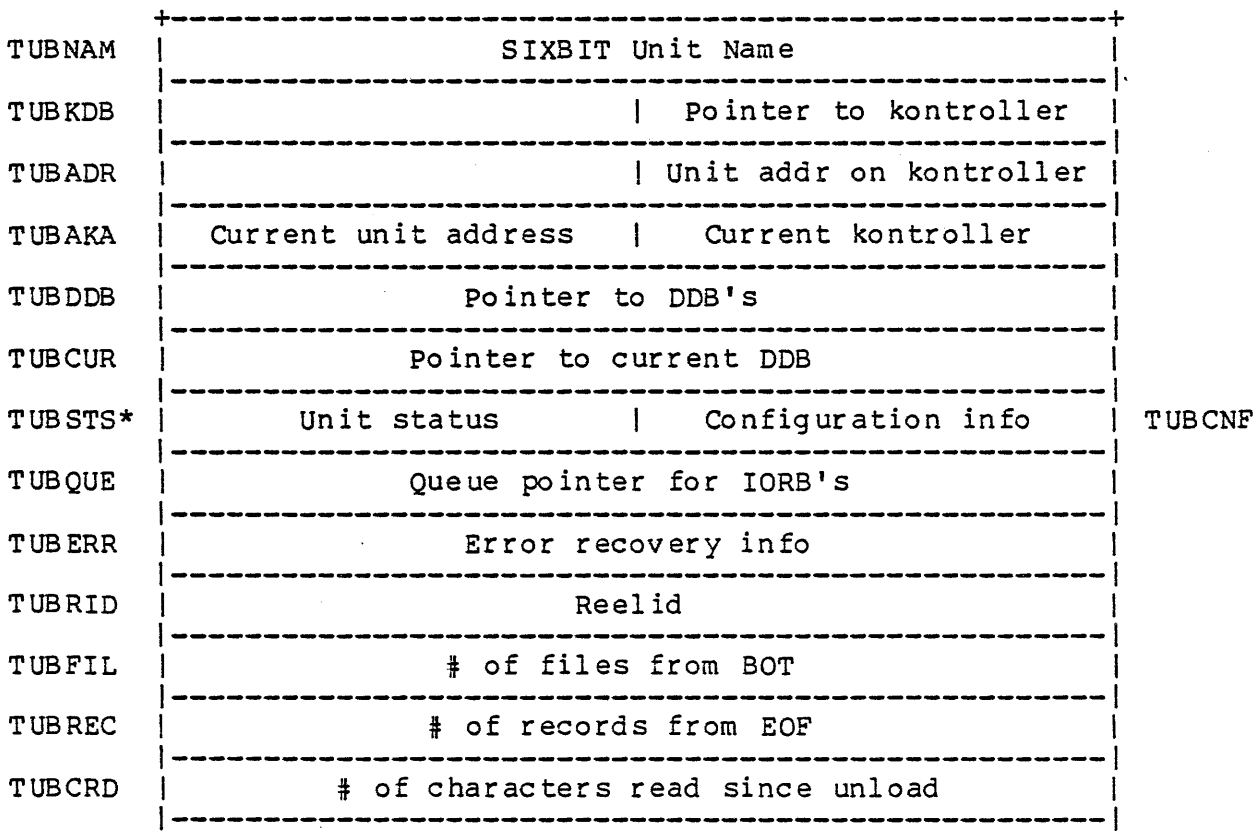
Description: Tape unit dependent information. One UDB for each tape unit on each kontroller on a system. UDB's can be found by tracing them through the pointers in their KDB's (TKBUDB pointed to by TKBIUN) or by tags formed by concatenating "..U" with kontroller number and unit number, e.g., ..U12 for the third unit on the second kontroller (MTB2).

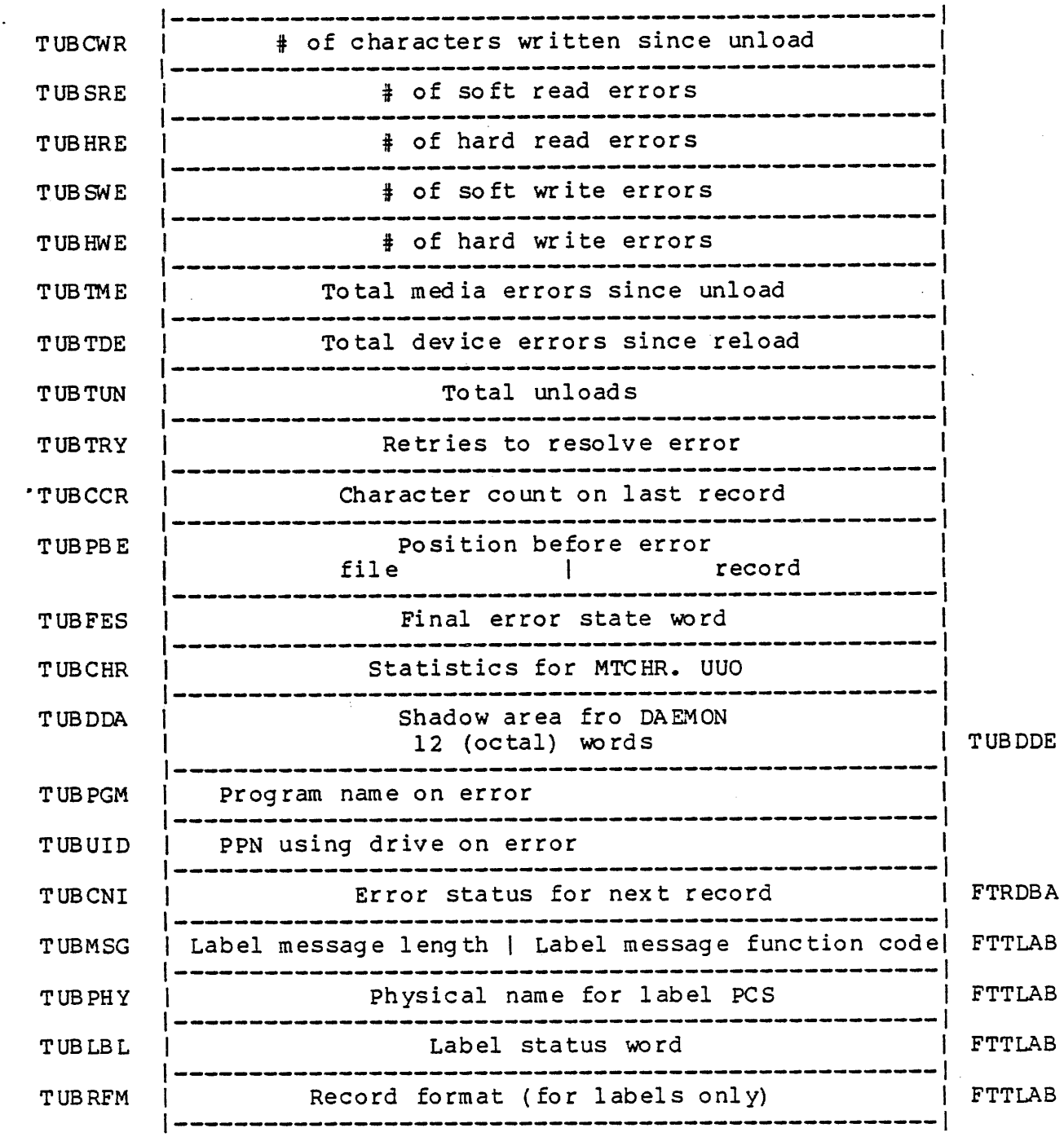
Defined in: COMDEV

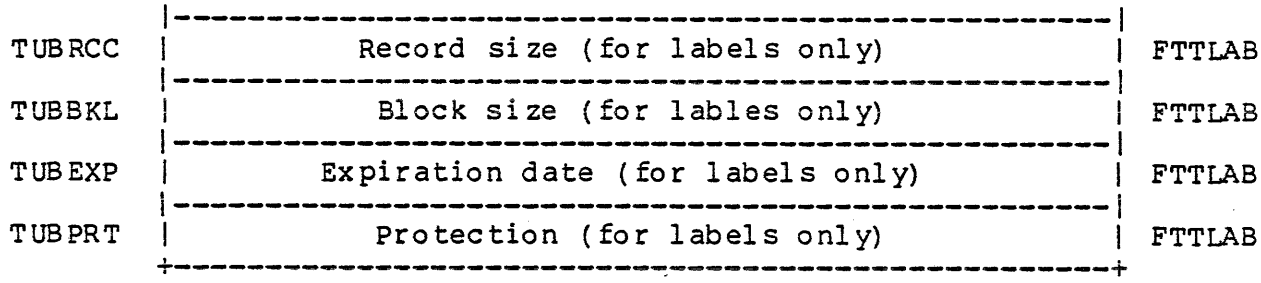
Used by: COMMON, TAPUUO

See also: Magtape Device Data Block, Magtape Kontroller Data Block

Format:




TUBCWR
# of characters written since unload
TUBSRE
# of soft read errors
TUBHRE
# of hard read errors
TUBSWE
# of soft write errors
TUBHWE
# of hard write errors
TUBTME
Total media errors since unload
TUBTDE
Total device errors since reload
TUBTUN
Total unloads
TUBTRY
Retries to resolve error
TUBCCR
Character count on last record
TUBPBE
Position before error
file
record
TUBFES
Final error state word
TUBCHR
Statistics for MTCHR. UUO
TUBDDA
Shadow area fro DAEMON
12 (octal) words
TUBDDE
TUBPGM
Program name on error
TUBUID
PPN using drive on error
TUBCNI
Error status for next record
FTRDBA
TUBMSG
Label message length
Label message function code
FTTLAB
TUBPHY
Physical name for label PCS
FTTLAB
TUBLBL
Label status word
FTTLAB
TUBRFM
Record format (for labels only)
FTTLAB



TUBSTS Bits

Bit	Symbol	Meaning
Ø	TUSNS	Do not schedule this unit (sign bit)
1	TUSBOT	Beginning of tape
2	TUSWTL	Write locked
3	TUSREW	Tape rewinding
12	TKSMNT	Controller is in maint mode (also in TKBSTS)
13	TKSSIL	Req. silence about offline cond. (also in TKBSTS
14	TKSSCH	Requested scheduled interrupt (also in TKBSTS)
15	TKSSTD	Started (also in TKBSTS)
16	TKSSEL	Selected (also in TKBSTS)
17	TKSOFL	Offline (also in TKBSTS)

TUBCNF Bits

Bit	Symbol	Meaning
18	TUC7TK	Seven track
19	TUCIRD	Interrupts when rewind done
2Ø	TUCDMS	Daignostic mode set
21	TUCSNS	Force sense
23	TUCD62	Drive can do 625Ø BPI
24	TUCD16	Drive can do 16ØØ BPI
25	TUCD8Ø	Drive can do 8ØØ BPI
26	TUCD55	Drive can do 556 BPI
27	TUCD2Ø	Drive can do 2ØØ BPI

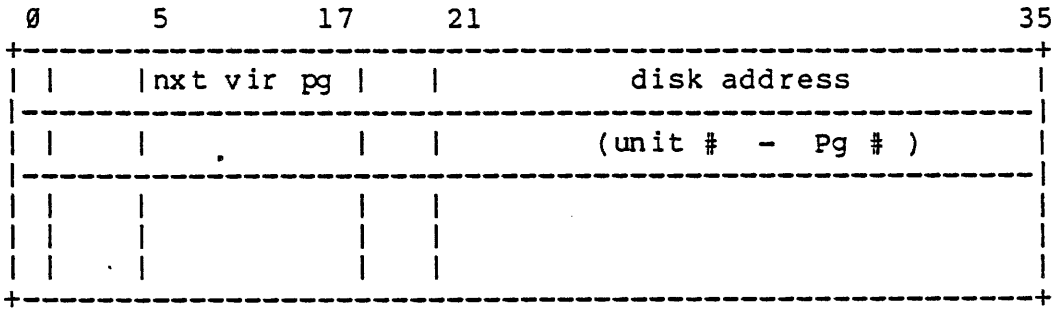
Name: MEMTAB VIRTUAL MEMORY PAGE TABLE

Description: Contians one word per page of core. It is used during swap/page requests in conjunction with the UPMP to keep track of where pages end up on the swapping area, and which page to transmit next.

Defined In: S.MAC

Used By: VMSER

Format:



Notes: Bit 0 is on for the last page in a fragment

Bits 5-17 - next virtual page in this fragment

Bits 21-23 - unit number in active swapping list

Bits 24-35 - Page number on unit.

Name: MFD MASTER FILE DIRECTORY

Description: Disk file which tells location of each UFD, User File Directory, in a file structure. There is one MFD included in each file structure

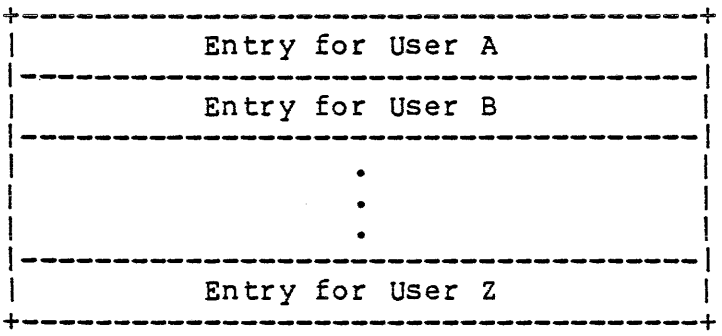
There is one entry in the MFD for each [Proj, Prog] which has files in the structure.

Position of an entry is of no significance.

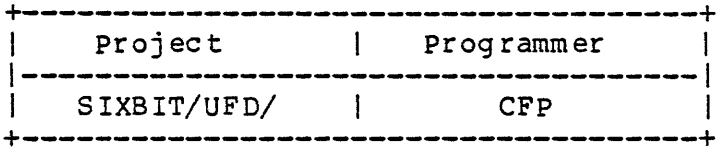
Defined In: COMMOD

Used By: FILFND, FILIO, FILUUO

Format: Format of MFD Data Block



Format of each entry



Special Notes:

1. The MFD is actually the UFD for [1,1]. Project-Programmer Number [1,1] is used only for this purpose.

2. The CFP, Compressed File Pointer, specifies the relative supercluster within the STR where the RIB of the corresponding file can be found.

3. The first entry in the MFD is a pointer to itself (i.e., to [1,1].UFD).

	Relative		Number of	Relative		Number
CFP=	Unit #	x	Superclusters +	Block #	.	Blocks
	within		per	within	-	per
	STR		Unit	that unit	.	Supercluster

The number of clusters in a "supercluster" is determined by

$$\frac{\text{number-clusters-in-structure}}{2(18)}$$

rounded up by 1. Hence, every STR will have fewer than 2**18 superclusters, and the CFP will fit in 18 bits. The concept of a supercluster is used only in connection with Compressed File Pointers.

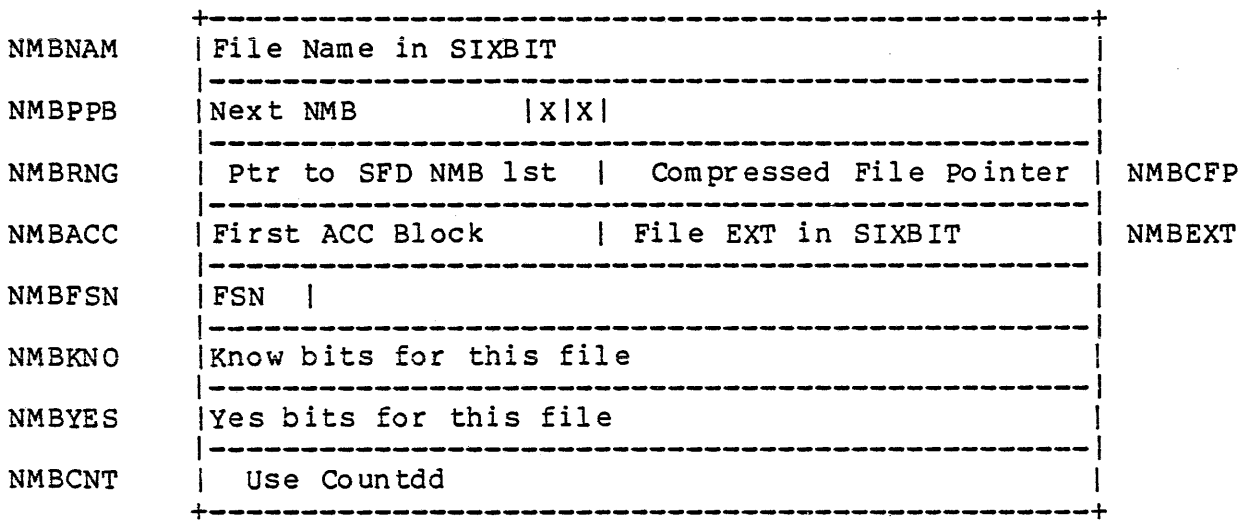
Name: NMB FILE NAME BLOCK

Description: Used to remember file name in a project programmer number across all file structures One NMB for each open file of each PPN regardless of how many versions of the files are in existence. Linked into list for each PPN.

Defined In: COMMOD

Used By: FILFND, FILUUO, FILIO

Format:



Notes:

1. If a file is being superseded, there are Access Blocks corresponding to each existing version of the file, but only one NMB.

2. The compressed file pointer in NMBEXT is copied from the second word of the UFD entry for this file. Its value is the logical super-cluster number within the STR of the file's RIB (See UFD).

3. If this NMB is for an SFD (NMPSFD (bit 34) set in NMBSFD), NMBEXT is a pointer to a NMB list of files under the SFD and the extension is assumed to be 'SFD'.

4. NMBKNO - Bit 36-N set if we know whether or not file exists in STR n (i.e., can be either way, and NMBYES tells which is true).

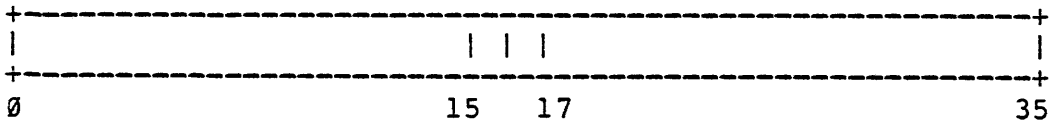
5. NMBYES - Bits 36-N set if file definitely exists in

STR n.

6. Access tables are linked into a ring for each file, starting and ending at NMBACC. All addresses which point to ACC blocks are even multiples of 4; the link back to NMBACC is not. If there are no ACC blocks in the ring at some time, the left half of NMBACC does not contain zero, but rather its own address.

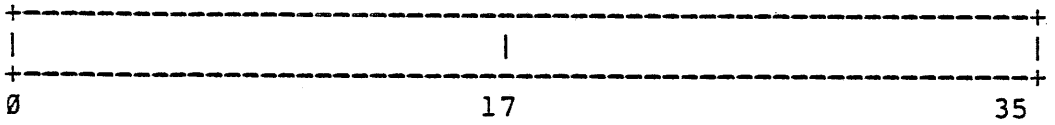
7. NMBFSN holds the file structure number is bits Ø-5.

NMBPPB Byte Definitions.



Word Label	Bits	Bit Label	Content
NMBPPB	Ø-15		Address of next NMB for this directory (low order 2 bits=Ø)
	16	NMPUPT	If this bit is on, NMBPPB is the location of the father SFD for this list of NMB's (only set in the last NMB in the list)
	17	NMPSFU	Bit on in AC, never in core. if the location returned (by UFORSF) is an SFD ACC. Off if the location is a UFB.

NMBACC Byte Definitions



Word Label	Bits	Bit Label	Contents
NMBACC	Ø-17		First ACC in access ring with this filename/PPN. If ring is empty, the bit is not Ø, instead it points to itself. In this way no special checking is needed to add or delete access blocks from ring.
NMBEXT	18-35		Holds the left justified SIXBIT file extension

NAME: NUMTAB TABLE OF GETTAB TABLES

Description: Contains monitor table address and bits which indicate whether there may be segment data or process data.

This is the table which is referenced by the GETTAB UUO to pass back the information requested.

There are 163(octal) GETTAB tables in 7.Ø1 monitors.

Defined In: UUOCON

Used By: UUOCON, COMMON

GETTAB Table No.: 23(octal)

Format:

Bits*	GETTAB Table Address
	JBTSTS
	JBTADR
	JBTPPN
"	"

Special Notes: ABSTAB (loc 41Ø) in COMMON contains absolute address of NUMTAB

Bits Ø-8 hold the maximum size of the table if it is a regular table

Bits 9-11 are interpreted as follows:

Ø - undefined in this monitor
1 - index by item type
2 - index by job number
3 - index by job or segment
4 - index by job data in PDB
5 - index by negative and positive offsets

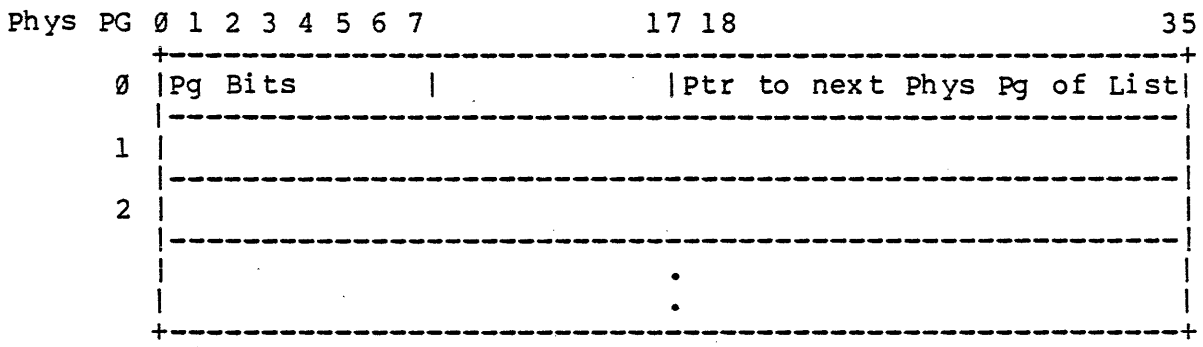
Name: PAGTAB PAGE TABLE

Description: This table is used to keep track of user core. It contains one word for each page of physical core. PAGPTR, defined in COMMON, contains the starting address for the linked list of free pages. In addition, each segment in core has its own linked list of pages and is addressed through the EPMP at location 412.

Defined In: S.MAC

Used By: KISER, KILOCK, KLSER, VMSER, SYSINI

Format:



Notes:

BIT	LABEL	MEANING
Ø	FREPAG	On if page is not in some job's addressing space.
1	LOKPAB	On if this page is contained in a segment which is locked in physically contiguous memory
2	LOKEVB	On if this page is contained in segment which is locked virtually contiguous in the exec addressing space
3	LOKIPB	On if this page is contained in a segment which is locked in place
4	NXMBIT	On if this page is below MEMSIZ but is non-existant.

5	MONTRB	On if this page is contained in the Monitor
6	IPCBIT	On if this page is owned by IPCF
7	TNCSHB	On if this page is temporarily uncached

Name: PDB PROCESS DATA BLOCK

Description: One PDB for each active job. Setup by CREPDB routine in DATMAN when the job is initialized.

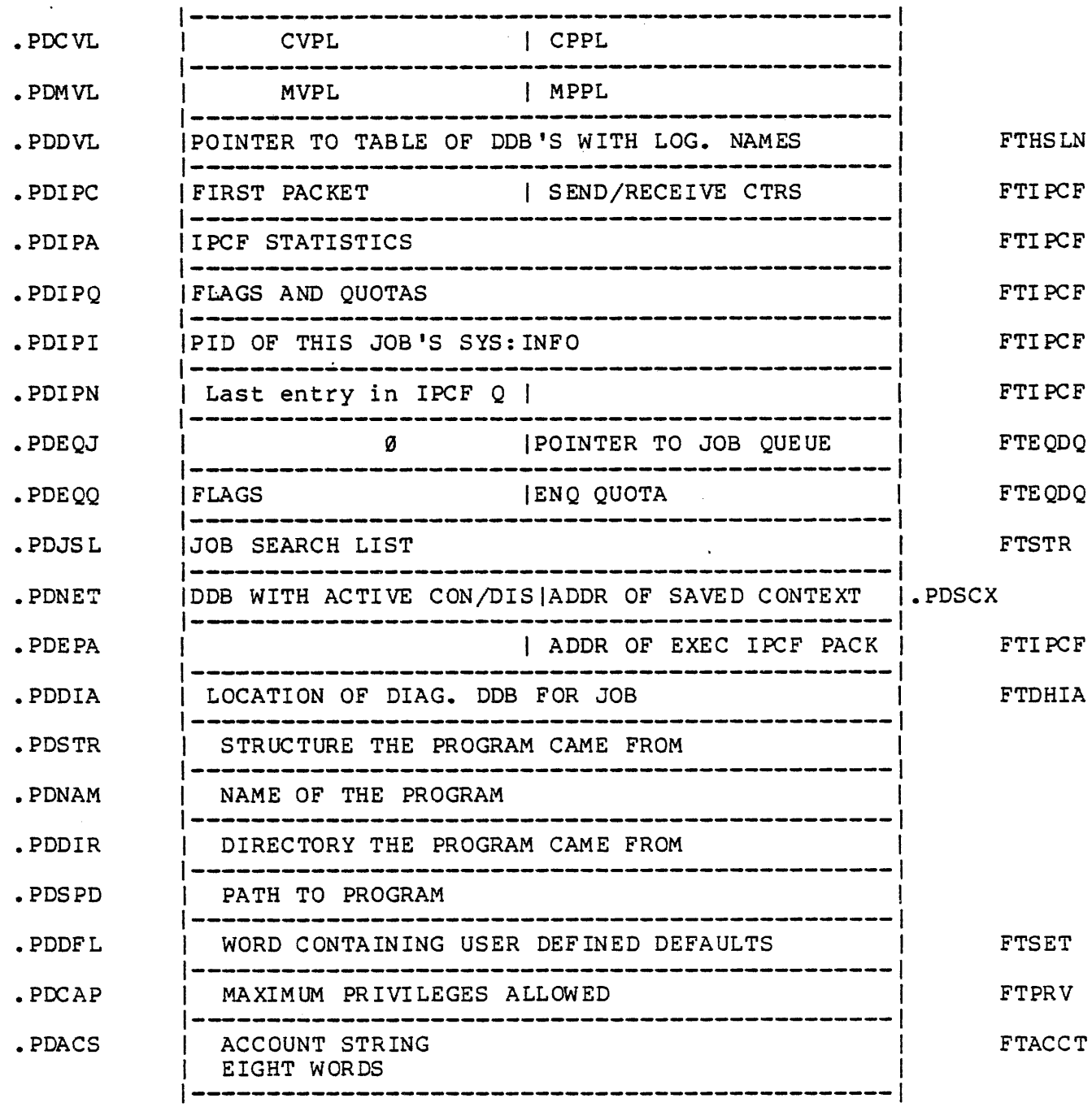
Defined In: DATMAN (modify and find routines), COMMON (prototype)

Used By: KISER, UUOCON, COMCON, CORE1, SEGCON, VMSER, QUESER, IPCSER, COMMON, SCHED1, FILFND, COMMOD, CLOCK1, NETSER, KLSER

GETTAB Table No.: Varies depending upon the entry.

Format:

		Conditional Assembly
.PDIPT	* | ICPT (MCU) | QUANTUM RUN TIME	.PDQNT
.PDCNO	USER'S CHARGE NUMBER	FTCNO
.PDKCT	KILO-CORE TICKS FOR THE JOB	FTKCT
.PDNM1	FIRST HALF OF USER'S NAME IN SIXBIT	FTUNAME
.PDNM2	SECOND HALF OF USER'S NAME IN SIXBIT	FTUNAME
.PDRTM	JOB'S INCREMENTAL RUNTIME	FTTIME
.PDTTM	JOB'S TOTAL RUNTIME	FTTIME
.PDTT2	ADDITIONAL RUNTIME IN FRACTIONAL JIFFIES	FTTIME
.PDEBT	TOTAL EBOX TIME IN JIFFIES	FTKL10,FTTIME
.PDEB2	REMAINDER IN EBOX COUNTS	FTKL10,FTTIME
.PDMBT	TOTAL MBOX TIME IN JIFFIES	FTKL10,FTTIME
.PDMB2	REMAINDER IN MBOX COUNTS	FTKL10,FTTIME
.PDPGM	PROGRAM TO RUN ON CONTROL-C OR RUN	FTSET
.PDABS	ADDR. BREAK SETTINGS | BREAK ADDRESS	


.PDCVL
CVPL
CPPL
.PDMVL
MVPL
MPPL
.PDDVL
POINTER TO TABLE OF DDB'S WITH LOG. NAMES
FTHSLN
.PDIPC
FIRST PACKET
SEND/RECEIVE CTRS
FTIPCF
.PDIPA
IPCF STATISTICS
FTIPCF
.PDIPQ
FLAGS AND QUOTAS
FTIPCF
.PDIPI
PID OF THIS JOB'S SYS:INFO
FTIPCF
.PDIPN
Last entry in IPCF Q
FTIPCF
.PDEQJ
Ø
POINTER TO JOB QUEUE
FTEQDQ
.PDEQQ
FLAGS
ENQ QUOTA
FTEQDQ
.PDJSL
JOB SEARCH LIST
FTSTR
.PDNET
DDB WITH ACTIVE CON/DIS
ADDR OF SAVED CONTEXT
.PDSCX
.PDEPA
ADDR OF EXEC IPCF PACK
FTIPCF
.PDDIA
LOCATION OF DIAG. DDB FOR JOB
FTDHIA
.PDSTR
STRUCTURE THE PROGRAM CAME FROM
.PDNAM
NAME OF THE PROGRAM
.PDDIR
DIRECTORY THE PROGRAM CAME FROM
.PDSPD
PATH TO PROGRAM
.PDDFL
WORD CONTAINING USER DEFINED DEFAULTS
FTSET
.PDCAP
MAXIMUM PRIVILEGES ALLOWED
FTPRV
.PDACS
ACCOUNT STRING
EIGHT WORDS
FTACCT

.PDVKC	VIRTUAL TIME-CORE INTERVAL	FTKCT,FTACCT
.PDUUC	COUNT OF UUOS DONE BY THIS JOB	FTACCT
.PDHZF	HPQ FIT FLAG	FTHPQ
.PDPST	NEGATIVE OF SWAPOUT TIME	FTPSCD
.PDOBI	OPERATOR/BATCH INFORMATION	

NOTES:

1. .PDCHK is used for debugging and stored in JBTCHK when the PDB is swapped out.

2. Bit Ø of .PDIPT is the PDMSWP bit which is set to indicate the expiration of the MCU (minimal care utilization)

3. .PDABS - Address Break Settings

1BØ	OC.BCI	Break on instruction fetch
1B1	OC.BCD	Break on data fetch
1B2	OC.BCW	Break on write
1B3	OC.BCM	Break on MUUO reference to address (software)
1B4	OC.ABE	Address break enabled
1B5	OC.FEP	Follow exec paging
1B6	OC.FUP	Follow user paging
1B7	OC.BSU	Break address and conditions set by UUO.

4. .PDCVL - Bit 18 is set is the CPPL is a limit rather than a guideline.

5. .PDDVL - Pointer to table of pointers to DDB's owned by this job and having logical names, or zero if no such DDB's, or -1 if too many to fit in the table (4 words = 8DDB's).

6. .PDIPC - LH

RH 18-26	Packets sent and not received
RH 27-35	Packets waiting to be received

7. .PDIPA LH Count of sends since LOGIN
   RH Count of receives since LOGIN

8. .PDIPQ

1BO	IP.DBS	Receiver is disabled
1B1	IP.HBS	Quotas have been set
1B2	IP.DPR	At least 1 PID dropped on RESET
1B3	IP.DPL	At least 1 PID dropped on LOGOUT
18-26		Send quota
27-35		Receive quota

9. .PDEQQ 1BØ EQ.HBS The Quota has been set

10. .PDJSL The number of words in the PDB is a function of the maximum number of file structures in a search list (.SLMXJ= D10). For each file structure there will be a 9 bit byte plus an additional two bytes for the fence and stop markers. For file structure bytes the following definitions exist.

1B0	Spare bit
1B1 FS.NCR	No-create
1B2 FS.WLK	Software writelock
B3-B8	File structure number

System search list is maintained in COMMOD starting at location SYSSL and also consists of 9 bit bytes.

The fence marker will have a value 1 greater than the maximum file structure number. The stop marker will have a value 1 greater than the fence marker.

11. Process Data Blocks are swappable but the current default setting of FTPDBS is 0, therefore PDB's remain resident.

12. .PDDFL contains the following fields:

Bits	Description
0-8	Default file protection
9	Non-zero is default protection was specified
10	Non-zero if file daemon specified protection
18-26	File protection from file daemon
27-35	Default number of disk buffers

13. Bits for .PDOBI are:

Bit	Description
0-1	Write to operator values
2-4	Operator values
10	Batch stream number set
11-17	Batch stream number

14. For the values for .PDCAP, see JBTPRV.

Name: PPB PROJECT PROGRAMMER NUMBER DATA BLOCK

Description: Contains information pertaining to all files belonging to one (PROJ,PROG)

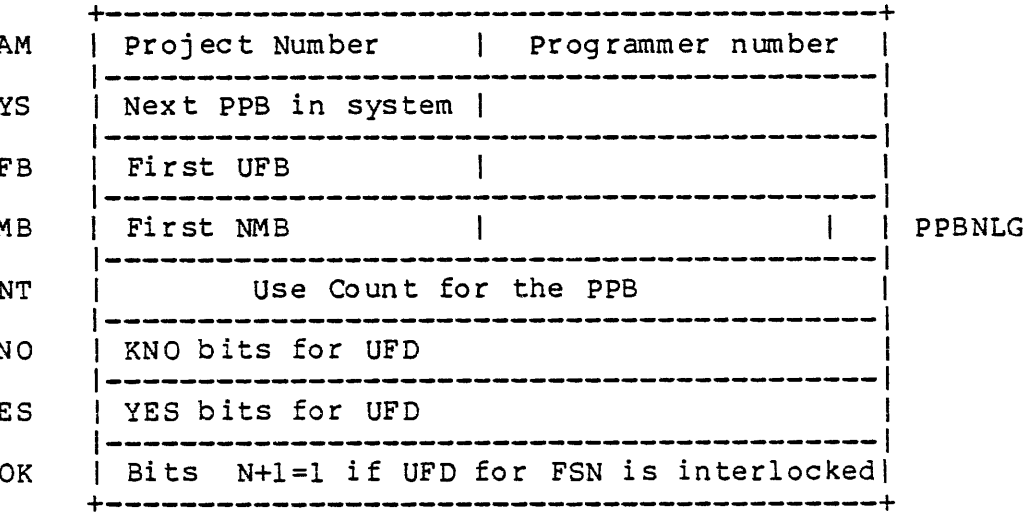
One PPB for each (PROJ,PROG) with any active files.

Linked into list for system starting at SYSPPB and also available through JBTPPB.

Defined In: COMMOD

Used By: FILFND, FILUUO

Format:



Notes:

1. Bit 35 PPBNMB is the PPPNLG bit, [project, programmer] not logged in. This bit when set indicates the PPN is logged in. Used to flush PPB immediately when last file becomes dormant in PPB.

2. PPBKNO - Bit 36-N set if Monitor knows whether or not UFD for this PPN exists in STR N.

3. PPBYES - Bit 36-N is set if the UFD for this PPN definitely exists in STR N.

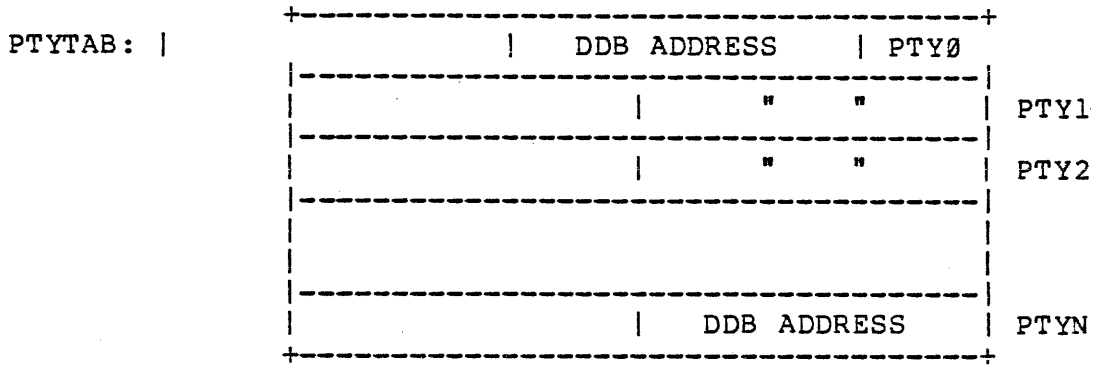
Name: PTYTAB

Description: Table of PTY DDB's. One entry for each PTY in the system.

Defined in: COMMON

Referenced in: SCNSER, SYSINI, PTYSER

See Also: TTYTAB



Name: QBITS WAIT STATE CODE REQUEUE TABLE

Description: Specifies a requeue dispatch address and a transfer table address for requeueing a job as a function of its wait state code.

There is one entry for each wait state code.

The value of the wait state code is the index factor of the table.

Defined In: SCHED1

Used By: SCHED1

Wait State	Dispatch Address	Transfer Table Address
0	QRNT	QRNW
1	QWST	QWSW (-1)
2	QTST	QTSW
3	QDST	QDSW (-1)
4	QPST	QPSW (-1)
5	QAUT	QAUW (-1)
6	QDAT	QDAW (-1)
7	QCBT	QCBW (-1)
10	QD1T	QD1W (-1)
11	QD2T	QD2W (-1)
12	QDCT	QDCW (-1)
13	QCAT	QCAW (-1)
14	QMMT	QMMW
15	QEVT	QEVW

16	QEQT	QEQW
17	QIOWT	QIOWW (-1)
20	QTIOWT	QTIOWW
21	QDIOWT	QDIOWW (-1)
22	QPIOWT	QPIOWW (-1)
23	QSLPT	QSLPW
24	QEWT	QEWW
25	QNAPT	QNAPW (-1)
26	QNULT	QNULW
27	QJDCT	QJDCW
30	QSTOPT	QSTOPW

Note:

1. A transfer table address of (-1) implies that the code at the dispatch address will just modify the wait state code and no physical queue transfer will take place, i.e., a short term state change.

Name: Queue Transfer Table

Description: Contains input parameters for Queue Transfer routine. There is one such table for each different type of queue transfer.

Defined in: SCHED1

Format:

PLACE	FUNCTION
QUANT	DEST

Note:

PLACE>Ø Transfer to beginning of destination queues.

PLACE<Ø Transfer to end of destination queue.

FUNCTION is the address of the QXFER routine to be used. It defines the type of transfer. There are three possible values:

1. QFIX - Destination queue specified in this table
2. QLINK - Destination queue is a function of source queue
3. QJSIZ - Destination queue is a function of job size

DEST specifies the destination queue.

1. If FUNCTION is QFIX, DEST is the destination queue number.
2. If FUNCTION is QLINK, DEST is the address of a Job Size-Queues Progression Table which specifies destination queue as a function of source queue.

3. If FUNCTION is QJSIZ, DEST is the address of a Job-Size-Queue Table which specifies destination queue as a function of job size.

QUANT specifies the change to the job's quantum run time as follows:

If QUANT<Ø, no change to quantum runtime.

If QUANT>Ø, reset the quantum run time as follows:

1. If FUCNTION is QFIX, set quantum run time to the value of QUANT.
2. If FUNCTION is QLINK or QJSIZ, QUANT is the address of a Quantum Time Table, which has entries corresponding to the entries in the table used to determine the destination queue. The entry in the same position as the selected destination queue is used to reset the quantum run time.

See BQFIX and following in SCHED1.

Name: Queue Table - Job Scanning (ISCAN, OSCAN, SSCAN, SSCAN1)

Description: Determines manner in which job queues are scanned by routine QSCAN in SCHED1.

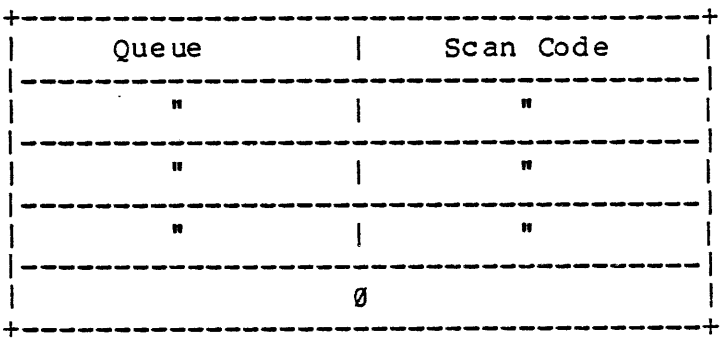
One entry for each queue to be considered.

Entries are in the order that the corresponding queues are to be considered.

Defined in: COMMON

Referenced by: SCHED1

Format:



The Scan Code is the address of a scanning routine in QSCAN. There are four possible values:

QFOR	Scans whole queue forward, first in-core then out-core
QBAK	Scans whole queue backward, first out-core then in-core
IQFOR	Scans in-core queue forward
IQBAK	Scans in-core queue backward
IQFOR1	Scans in-core queue for first member
IQBAK1	Scans in-core queue backward (all but first member)
OQFOR	Scans out-core queue forward
OQBAK	Scans out-core queue backward
OQFOR1	Scans out-core queue for first member
OQBAK1	Scans out-core queue backward (all but first member)
SQFOR	Scans out-core subqueues (PQ2 class swap-in scan)
BGFOR	Scans out-core background batch subqueue (PQ2 class swap-in)
ISSFOR	Scans in-core subqueues (PQ2 class scheduling scan)
IBBFOR	Scans in-core background batch subqueue (PQ2 class scheduling)
OSSFOR	Scans out-core subqueues (PQ2 class lost-time scan)
IRRFOR	Scans just swapped in queue, then QP2 in-core queue
IGFOR	Scans just swapped in queue and jobs waiting for high segment

OLFOR	Scans background batch, B.B. JIL, regular output queue, PQ2 in-core

Queues are scanned, in specified manner, in the order in which their entries appear in the table.

A zero entry terminates the table.

See SSCAN, ISCAN, OSCAN, in COMMON.

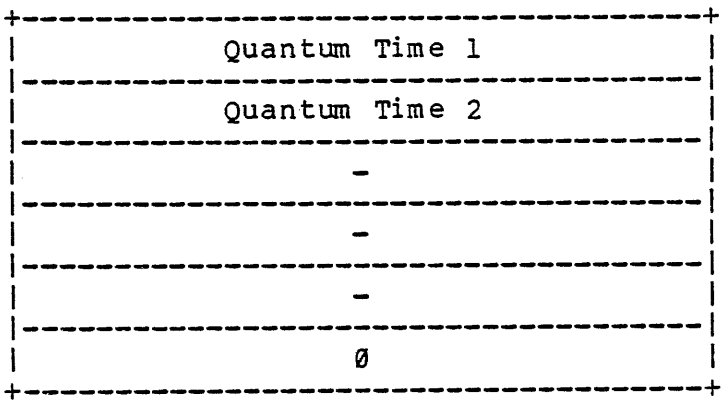
Name: QQSTAB - Quantum Time Queue Table

Description: Specifies value to which a job's quantum run time is reset on certain types of queue transfers.

Defined in: COMMON

Referenced in: SCHED1

FORMAT:



Quantum time is in jiffies (power line frequency).

A Ø entry indicates end of table.

Name: QTTAB - Queue Progression Queue Table

Description: Specifies the queue for a job to be put into as a function of the queue it is in.

A queue Progression Table is specified in the Transfer Table for Link type queue transfers. (Ref. Transfer Table).

Defined in: COMMON

Referenced in: SCHED1

Format:

Source Queue 1	Destination Queue 1
Source Queue 1	Destination Queue 2
-	-
-	-
-	-
Ø	Ø

Each entry is a queue number.

A Ø,,Ø entry indicates end of table.

Name: REQTAB SHARABLE DEVICE REQUEST TABLE

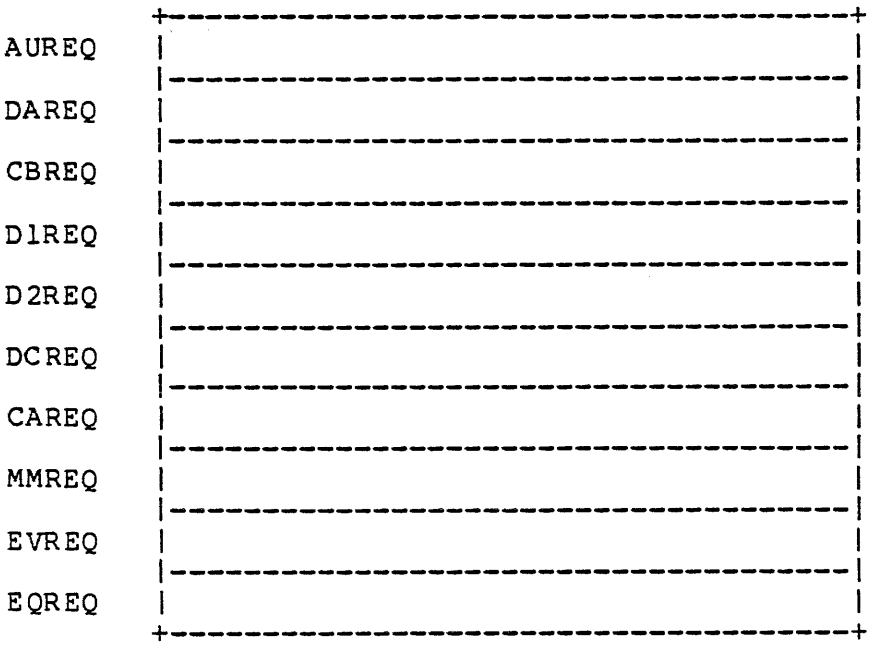
Description: Tells how many jobs require use of each sharable device. Each entry referenced by its own label.

An entry contains -1 if no job wants that resource. If a job uses the device, the entry is incremented to Ø. Each additional job which asks for the device while it is in use increments the entry by one, and must be requeued to the corresponding sharable resource wait queue.

Defined In: SCHED1

Used By: CLOCK1, SYSINI

Format:



Special Notes:

1. Entries in this table may be tested and incremented simultaneously, as follows:

```
AOSE          XXREQ
PUSHJ P,      XXWAIT
  -
  -
  -
```

   If the resource was available, the routine may continue. Otherwise, the job must be requeued to wait for it.

2. Table AVALTB has entries corresponding to the entries in REQTAB.

3. The AVALTB entries are built by the conditionally assembled RWAITS MACRO entries in S.MAC; therefore all of the above listed entries will not be present in most systems.

Name: RIB RETRIEVAL INFORMATION BLOCK

Description: Disk block containing descriptive information about a file. There is one prime RIB for each file. If a file needs more retrieval pointers than can fit in a single RIB, a second (extended) RIB block is allocated to hold the additional pointers (and so on). The last block(s) of a file is (are) a copy of the prime RIB, called the redundant RIB.

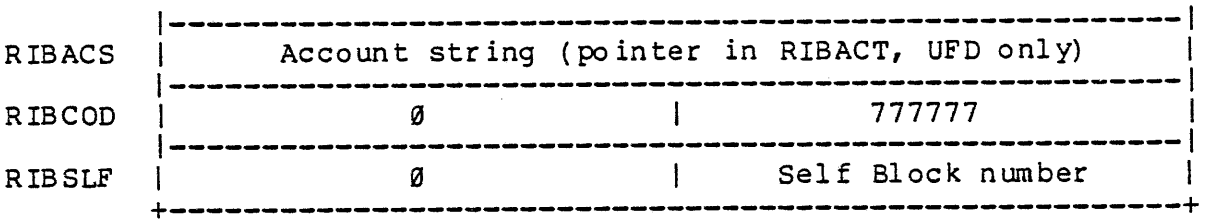
Defined In: COMMOD

Used By: FILFND, FILUUO, FILIO, REFSTR, ONCMOD

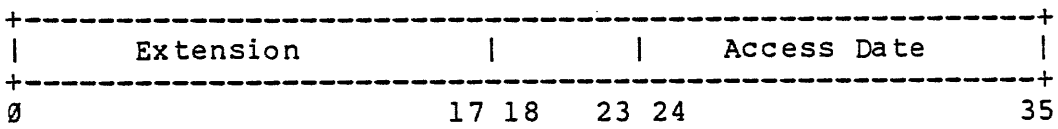
Format:

RIBFIR	-Number of retrieval pointers	First pointer address
RIBPPN	Project #	Programmer #
RIBNAM	File Name in SIXBIT	
RIBEXT*	File Extension	Access Date
RIBPRV*	Access | Mode | Creation Time	Creation Date
RIBSIZ	File length in words	
RIBVER	Version number (as in .JBVER)	
RIBSPL	Possible user file name when spooled	
RIBEST	Estimated length of file in blocks	
RIBALC	Number of blocks allocated for file (Including RIB's)	
RIBPOS	Logical Block # in structure	
RIBFT1	Word for future use by DEC	
RIBNCA	Non-privileged word for customer to define	
RIBMTA	Tape label if File on magtape	

RIBDEV	Name of structure containing file
RIBSTS*	Status Bits
RIBELB	Logical Block # where bad region begins
RIBEUN	Err Unit # in structure | Number bad blks in region
RIBQTF	FCFS Quota for this PPN in this structure (UFD only)
RIBQTO	Logged Out Quota this PPN in this STR (UFD only)
RIBQTR	Reserved Quota this PPN in this STR (UFD only)
RIBUSD	Nr blocks used when job was logged out (UFD only)
RIBAUT	Author - PP# writing the file
RIBNXT	Next STR for this file
RIBPRD	Prev STR for this file
RIBPCA	Privileged Argument for customer use
RIBUFD	Blk # in STR of UFD Data Block with ptr to this RIB
RIBFLR	Relative block # of 1st block in RIB
RIBXRA	Address of next RIB in chain
RIBTIM	Creation date and time in new format
RIBLAD	Last accounting date (UFD only)
RIBDED	Directory expiration date (UFD only)
RIBACT	AOBJN pointer for accounting string (UFD only)
	Retrieval Pointers (details on following pages)



RIBEXT Byte Definitions



Bits	Contents
Ø-17	Filename extension in SIXBIT
24-35	Last access date

RIB (cont.)

RIBPRV Byte Definitions

```
+------------------------------------------------------------+
|  Access       |Mode | Creation Time  |  Creation Date  |
+------------------------------------------------------------+
0             8   12                23               35
```

0-8	Access Code
9-12	Data mode of file
13-23	File creation time
24-35	Low-order twelve bits of file creation date

NOTES:

1. Access Codes

   Bits 0-2 Apply to any job with matching programmer number.
   Bits 3-5 Apply to any job with matching project number.
   Bits 6-8 Apply to all other jobs.

   Privilege Codes for User Files

Code	Highest Privileges
7	None (but owner may read)
6	Execute-only (but owner may read)
5	Read
4	Append (Allocate, Deallocate)
3	Update
2	Write (Supersede, Truncate)
1	Rename (Change attributes)
0	Change privileges

   Privilege Codes for Directories

Code	Privilege
4	Allow lookups in this directory
2	Allow creates
1	Allow directory to be read as a a data file
--	Any combination of these bits may be set.

2. This word is maintained in ACYPRV while the file is being accessed.

3. If the monitor is assembled for File DAEMON, and FILDAE is running, an owner privilege greater than or equal to 4 invokes FILDAE, giving extended access protection modes. See the FILDAE Specification for details.

RIB (cont.)

RIBSTS Byte Definition

Status Bits

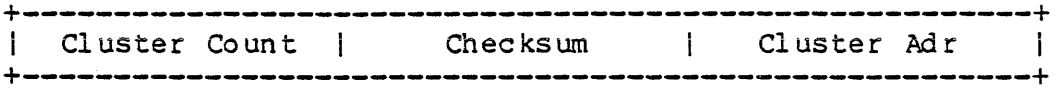
LH bits apply to some file in UFD.

RH bits apply to this specific file.

Bit	Label	Meaning
Ø	RIPLOG	(LH only) User logged in
9,27	RIPSCE	File has had checksum error
1Ø,28	RIPHWE	File has had hard write error
11,29	RIPHRE	File has had hard read error
14,32	RIPBFA	File found bad by FAILSAFE during restore
15,33	RIPCHR	File closed after crash
17,35	RIPBDA	File found bad by assessment cusp
18	RIPDIR	This is a directory
19	RIPNDL	No deletion of this file by any user
21	RIPNFS	Not to be dumped by FAILSAFE
22	RIPABC	Always bad checksum (SWAP.SYS, SAT.SYS)
23	RIPCBS	Compress bit set
7,24	RIPABU	Always BACKUP this UFD/file
31	RIPPAL	Pre-allocated file
25	RIPNQC	Non Quota-checked file

RIB (cont.)

Retrieval Pointers



Widths of these fields are defined symbolically, and may be different for each file structure. Byte pointer is defined in the HOM block, kept in STR Data Block while the structure is mounted.

Field	Byte Pointer
Cluster Count	STYCNP
Checksum	STYCKP
Cluster Address	STYCLP (23 bits maximum)

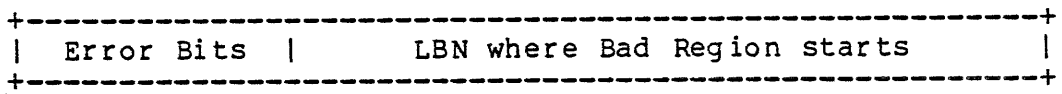
If cluster count = Ø, the word actually is one of the following:

1. Pointer to new unit, if bit 18 = 1. Bits 19-35 specify logical number within file structure.

2. EOF flag, if whole word is zero.

3. Cluster Count is number of clusters in group.

RIBELB Byte Definitions



Bits Ø through 8 give the type of error that occurred. Bits 9 through 35 give the logical block number on the unit where the error occurred.

Bit	Meaning
3	Error other than listed below
4	Data error (parity or ECC hard)
5	Search or header compare error

RIBXRA Byte Definitions (same format as DEVRIB)

Bits	Byte Pointer	Content
Ø		Set to 1
1-8	DEYRBC	Number of RIB (first extended RIB is 1, etc.)
9-12	DEYRBU	Logical unit on which extended RIB exists
13-35	DEYRPA	Cluster address on unit of extended RIB

Name: SAB STORAGE ALLOCATION BLOCK

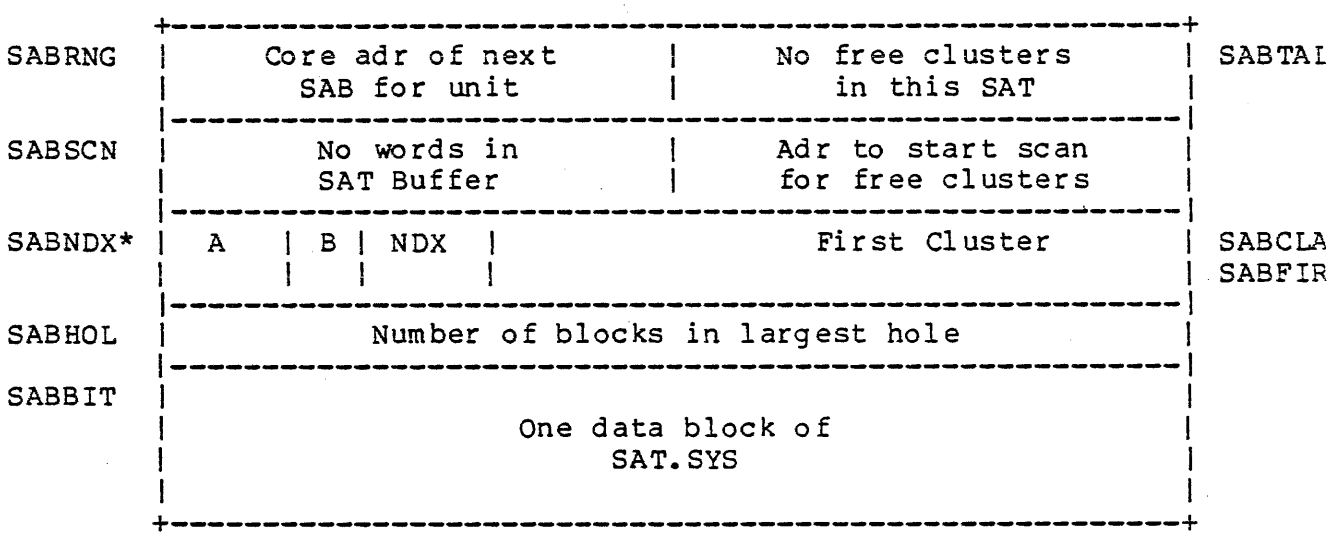
Description: Table describing allocation of clusters of blocks for a file structure.

Each allocation bit represents a corresponding cluster of physical blocks within the STR.

Defined In: COMMOD

Used By: FILFND, FILIO, ONCMOD, REFSTR

Format:



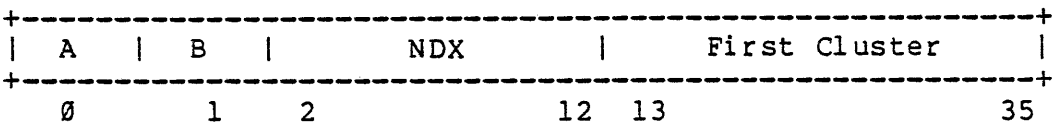
*Details on following page.

NOTE:

See SAT.SYS and SPT

SAB (cont.)

SABNDX Byte Defintions



Word Label	Bits	Bit Label or Byte Pointer	Content
SABFIR	Ø	SAPDIF	Set if table in core different from disk
SABFIR	1	SAPBAD	Set if SAT Block is on a bad block in disk
SABNDX	2-12	SAYNDX	Index value for SPT entry representing this SAT
SABCLA	13-35	SAYCLA	Cluster address within unit of first cluster represented in this SAT

NOTE:

1. The NDX and CLA fields are related by the formula.

$$CLA = \begin{matrix}\text{Number}\\ \text{Cluster}\\ \text{per SAT}\end{matrix} \times (NDX)$$

2. Bits 2-35 are set -1 when the file structure is created to force SAT to be read into SAB.

SAB (cont.)

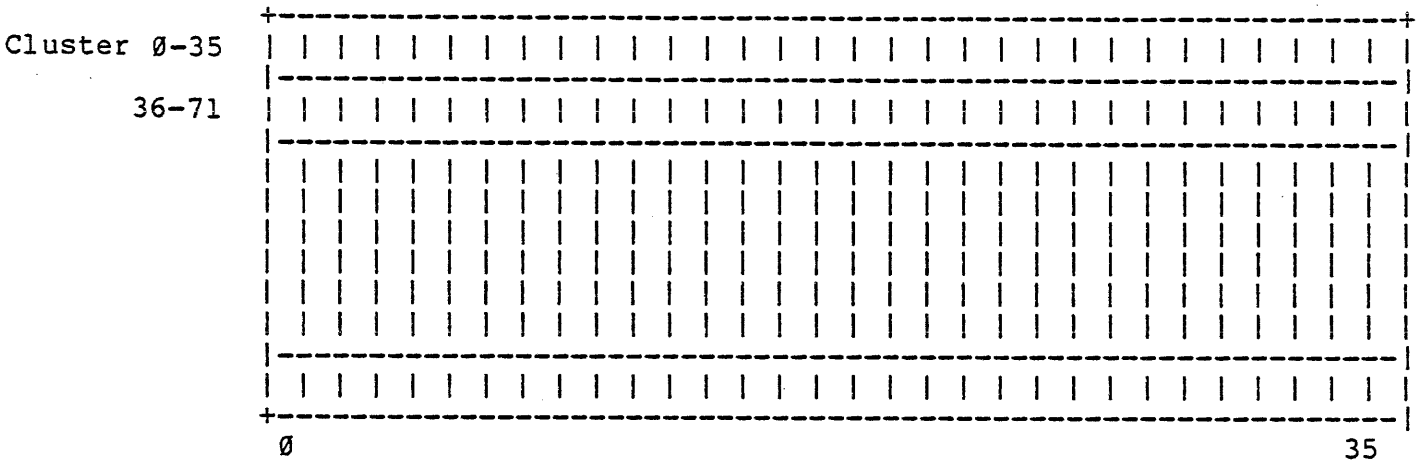
SAT.SYS

Disk file describing the allocation of all clusters of blocks on the file structure.

Contains one bit for each cluster of the file structure.

Bits are in the same order as the clusters which they represent.

Data Block Format



NOTES:

1. SAT blocks are always on the same unit as the clusters which they represent.

2. If more than one SAT block is needed for a single physical unit, each block will be near the clusters which it represents. Hence, only the first block in each group (1 cluster) of SAT.SYS contains data.

3. Programs should not look at bits corresponding to nonexistent clusters. They may or may not be set. (Function of hardware sector length)

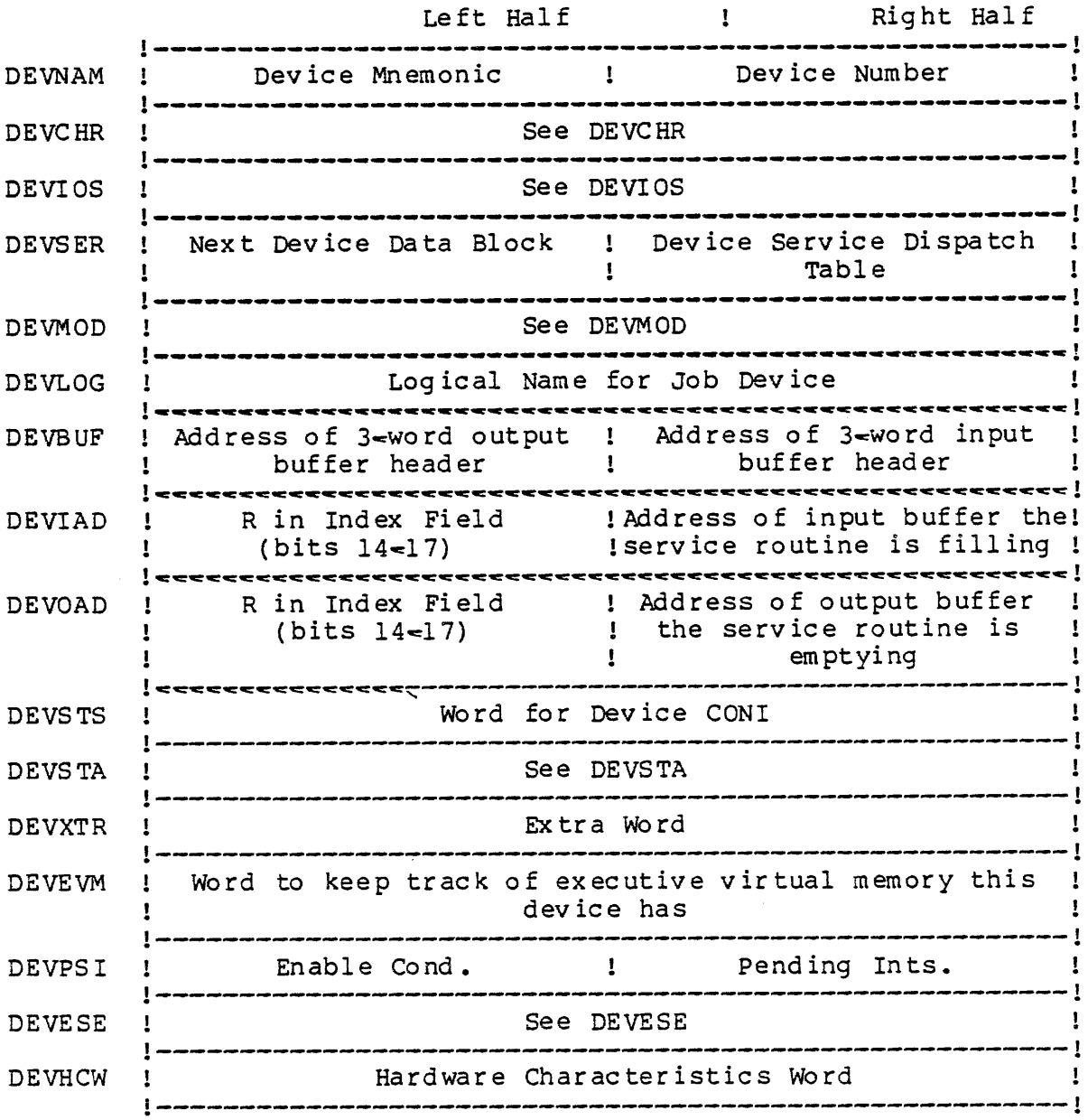
4. Each SAT block has a corresponding entry in the Storage Allocation Pointer Table (SPT) for that unit.

5. The unused bits in the final word of each SAT must be set to 1, as the Monitor depends on this condition when searching for holes.

Name: Scanner (TTY) Device Data Block

Description: The SCANNER DDB contains information needed to perform I/O operations. There is one SCN DDB per job. It is set up and linked into the DDB chain by ONCE.

Defined in: S.MAC

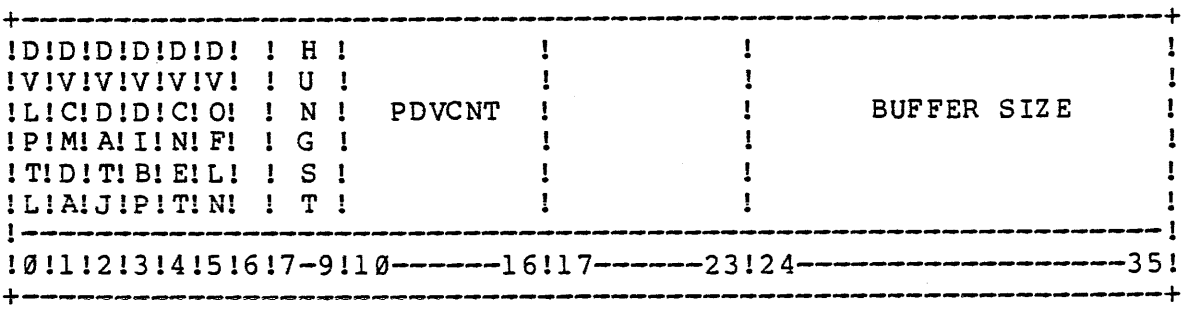


DEVCPU	See DEVCPU	
DEVJOB	Job and Unit Numbers	
DEVLSD	**Length of Short DDB**	
DEVFIL	File Name in SIXBIT	
DEVEXT	Extension	Unused
DEVPPN	Ø	
	If KL1Ø and Master-Slave	
DEVNBF	Number of buffers swept (QPR only)	
DEVSBF	Saved DEVNBF	
DEVCSN	Cache Sweep Number (QPR)	

Notes:

1. The Line Data Block address is set when a specific TTY line is attached to the job. The DDB is always associated with the job, and the LDB is always associated with the line. The linkages may be changes by the ATTACH or DETACH commands.

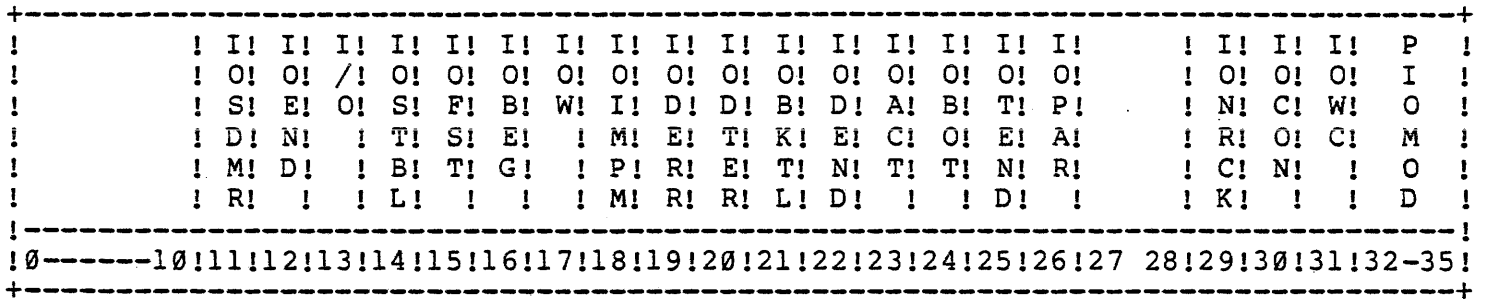
DEVCHR
Device Characteristics Word



Bits in DEVCHR	Value	Bit Label or Byte Pointer	Description
0	400000	DVLPTL	Lower case LPT
1	200000	DVCMDA	Device controlled by mountable device allocator
2	100000	DVDATJ	Device allocated to job in DEVJOB
3	40000	DVDIBP	Device is a batch PTY
4	20000	DVCNET	Device controlled by NETSER
5	10000	DVOFLN	Device off-line last time service routine polled
6			Free
7-9	400	HUNGST	Code for hung device timeout
	0	PDVTIM	0 means device cannot be hung
	1-7		means hung time is 2**N-1 seconds
10-16		PDVCNT(1)	Countdown timer for the hung device
17-23			Free
24-35			Buffer Size

(1) Number of seconds to go before considering device hung. Initialized every time the device is serviced, using the hung constant to determine the value.

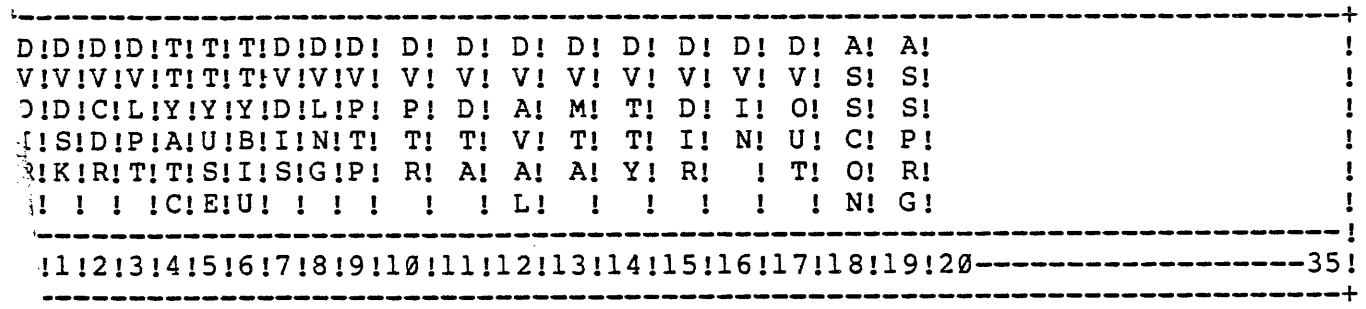
DEVIOS
Device Input/Output Status Word



Bit in DEVIOS	Value	Bit Label or Byte Pointer	Description
0-10			Device Dependent Bits
11	100	IOSDMR	TSKSER only, disable message reassembly
12	40	IOEND	Service routine has transmitted last data
13	20	I/O	Out = 1; In = 0
14	10	IOSTBL	Device error flag
15	4	IOFST	Next item will be the first item of a buffer
16	2	IOBEG	Virgin Device
17	1	IOW	Input/Output Wait
18	400000	IOIMPM	Improper Mode
19	200000	IODERR	Device Error
20	100000	IODTER	Data Error
21	40000	IOBKTL	Block Too Large
22	20000	IODEND	Data End Encountered
23	10000	IOACT	Device Active
24	4000	IOBOT	Beginning of Magnetic Tape
25	2000	IOTEND	End of Magnetic Tape
26	1000	IOPAR	Write even parity if 1 on magnetic tape
27-28			Density of Magnetic Tape
	00		Installation Standard
	01		200 BPI
	10		556 BPI
	11		800 BPI
29		IONRCK	Read with no reread check
30		IOCON	Continuous
31		IOWC	Don't compute word count
32-35		PIOMOD	Data Modes
	0	A	ASCII
	1	AL	ASCII Line
	2	PIMMOD	Packed Image Mode
	3	BYTMOD	Byte Mode
	10	I	Image
	13	IB	Image Binary

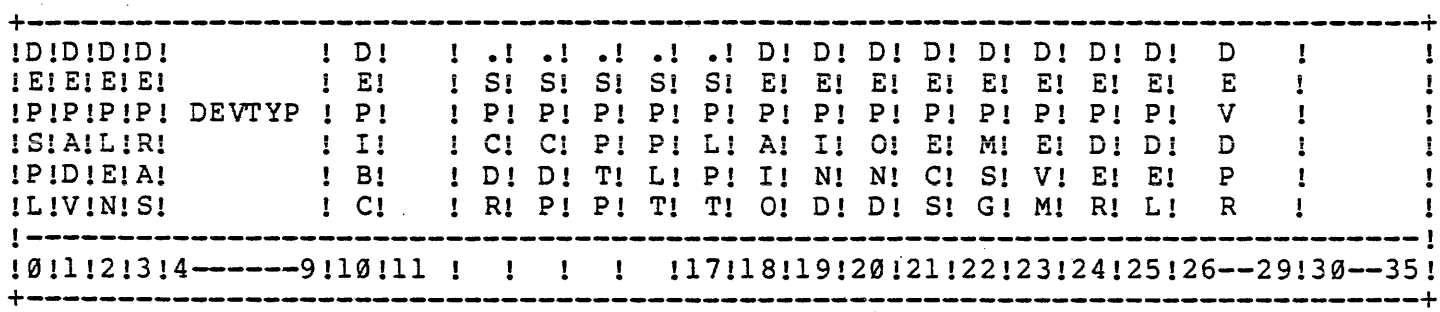
14	B	Binary
15	SD	Scope Dump Mode
16	DR	Dump by Records
17	D	Dump across records

DEVMOD
Device Modes Word



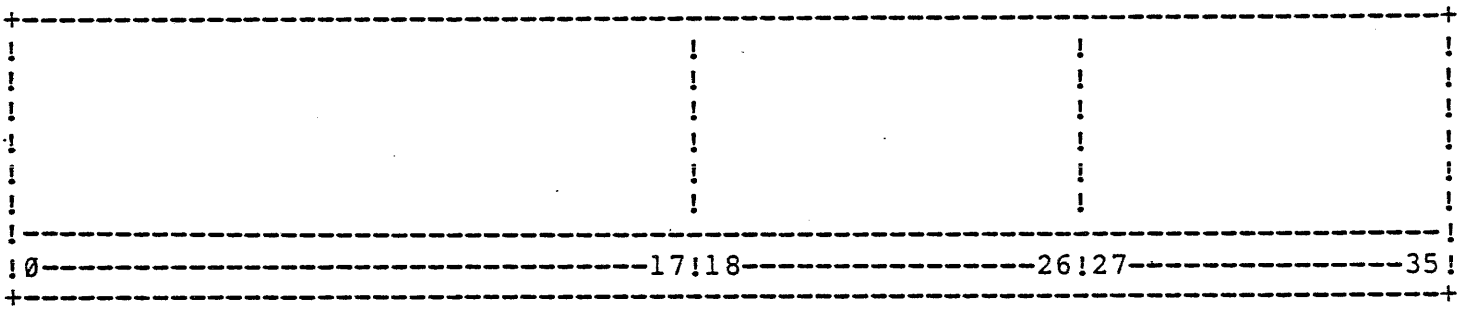
:s in MOD	Value	Bit Label or Byte Pointer	Description
	400000	DVDIRI	DECtape Directory in core if 1
	200000	DVDSK	Is a disk
	100000	DVCDR	Is a card reader
	40000	DVLPT	Is a line printer
	20000	TTYATC	TTY attached to job if 1
	10000	TTYUSE	TTYDDB in use flag
	4000	TTYBIU	TTYDDB in use
	2000	DVDIS	Is a display
	1000	DVLNG	Device has long dispatch table
	400	DVPTP	Is a paper tape punch
	200	DVPTR	Is a paper tape reader
	100	DVDTA	Is a DECtape
2	40	DVAVAL	1 if device available to this job
3	20	DVMTA	Is a magnetic tape (rewind)
4	10	DVTTY	Is a TTY
5	4	DVDIR	Has a directory
6	2	DVIN	Input Device
7	1	DVOUT	Output Device
18	400000	ASSCON	Device Assigned by Console Command ASSIGN
19	200000	ASSPRG	Device Assigned by Program (INIT UUO)
20-35			If data mode n is legal, bit (35-n) is set

DEVSTA
Device Station Word



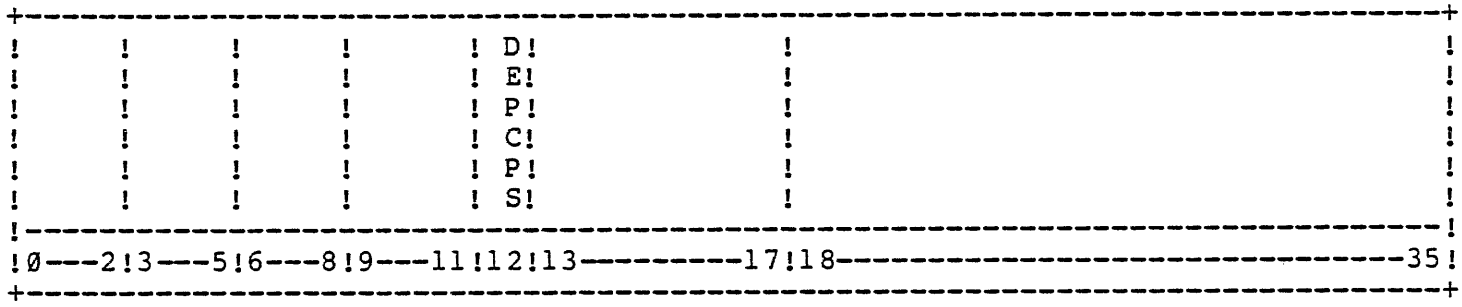
Bits in DEVSTA	Value	Bit Label or Byte Pointer	Description
0	400000	DEPSPL	DDB is for a spooled device
1	200000	DEPADY	1 if a disk in 10/11 compatibility mode
2	100000	DEPLEN	1 if variable length buffers
3	40000	DEPRAS	1 if device has restricted assignment
4-9		DEVTYP	Class
10		DEPIBC	Inhibit Clearing output Buffers
11-17			Spool bits
	37	.SPALL	Change SPALL if add new spooling devices
13	20	.SPCDR	Card Reader Spool Bit
14	10	.SPCDP	Card Punch Spool Bit
15	4	.SPPTP	Paper Tape Punch Spool Bit
16	2	.SPPLT	Plotter Spool Bit
17	1	.SPLPT	Line Printer Spool Bit
18	400000	DEPAIO	Doing Asynchronous Input/Output
19	200000	DEPIND	Input Not Yet done
20	100000	DEPOND	Output Not Yet done
21	40000	DEPECS	On if a non-supercede enter
22	40000	DEPMSG	This device controlled by MSGSER
23	20000	DEPEVM	If 1, device doesn't need EVM
24	10000	DEPDER	Disable error recovery on this device
25	4000	DEPDEL	Disable error logging on this device
16-29	2000	DEVDPR	Disk Priority
30-35			Station Number

DEVESE
Device Extended Software Error Word



Bit in DEVESE	Value	Bit Label or Byte Pointer	Description
0-17			PSISER Device Link
18-26			PSISER Vector Interrupt
27-35			Extended Software Error Status

DEVCPU
Device CPU Word



Bits in DEVCPU	Value	Bit Label or Byte Pointer	Description
0-2			CPU number for 1st CPU owning device
3-5			CPU number for 2nd CPU owning device
6-8			Queue-protocol
9-11			CPU on which in or out last done
12		DEPCPS	1 if bits 30-32 are valid (device on 2 CPU's)
13-17			0
18-35			Address of interlock word

Name: Scheduler Scan Tables

Defined in: COMMON

Referenced in: SCHED1

SSCAN Used by Master processor for selecting a job to run.

SSCAN	-HPQN	IQFOR
	-HPQ1	IQFOR
	-PQ1	IQFOR
	-PQ2	IRRFOR(RR)
	-PQ2	ISSFOR(class)
	-PQ2	IBBFOR(class)

SSCAN1 Used by second processor for selecting a job to run

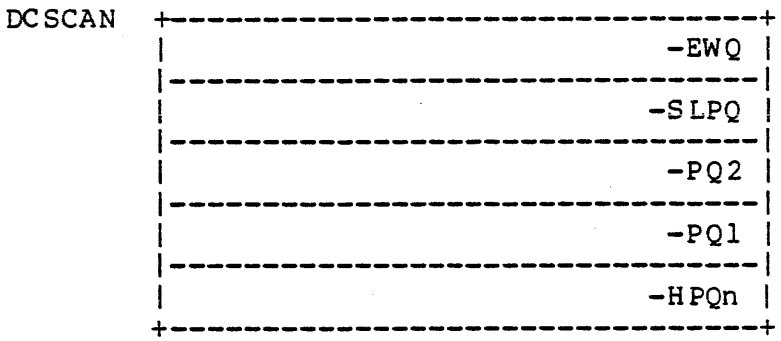
SSCAN	-HPQN	IQFOR
	-HPQ1	IQFOR
	-PQ2	IRRFOR(RR)
	-PQ2	ISSFOR(class)
	-PQ1	IQFOR
	-PQ2	IBBFOR(class)

*SQSCAN Used by SQFOR code

	Subqueue #	Ptrs to Quota Left
SQSCAN	-SQ0	CLSQTA
	-SQ1	CLSQTA+1
	-SQ2	CLSQTA+2
	-SQN	CLSQTA+N

SQFOR - Scan subqueues forward according to SQSCAN table if RRFLAG = 0, (count of classes with non-zero quotas), else scan PQ2 via QFOR routine.

DCSCAN - Used by the scheduler for selecting jobs for ICPT decrementing. This table is not processed by QSCAN but by specific code in the IPCT maintainence routines.



Name: SPT Storage Allocation Pointer Table

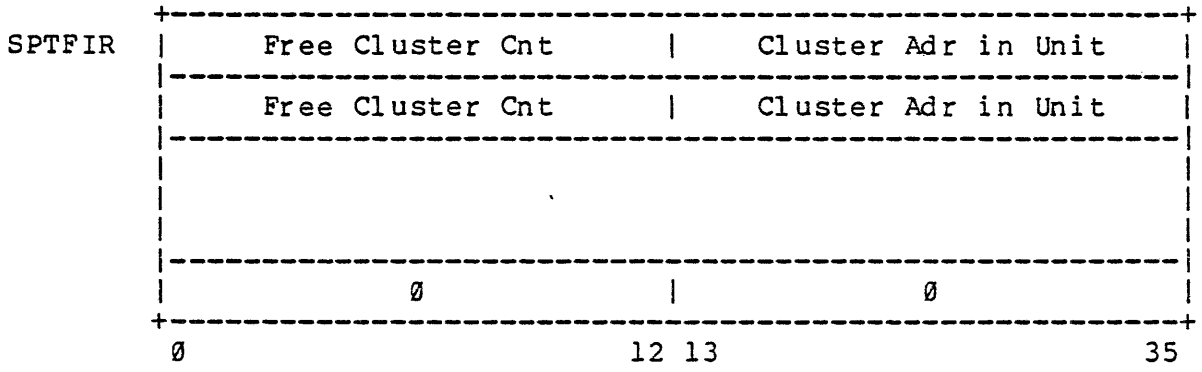
Description: Contains pointers to all SAT blocks for a unit, whether in core or not.

One entry for each SAT block on a unit, in order of the cluster address which they represent.

Zero entry indicates end of table.

Defined in: COMMOD

Referenced in: FILFND, ONCMOD



Bits	Byte Pointer	Content
Ø-12	SPYTAL	Number free clusters represented in this SAT Block.
13-35	SPYCLA	Cluster address within unit for this SAT Block.

Notes:

1. Each Unit Data Block, UDB, contains a pointer to its SPT.

2. Each SAT block which is in core is in a SAB, Storage Allocation Block. The SAB contains the index value for the entry in this table corresponding to the SAT block which it currently contains.

3. The last word in the SPT table will always be zero.

Name: STR File Structure Data Block

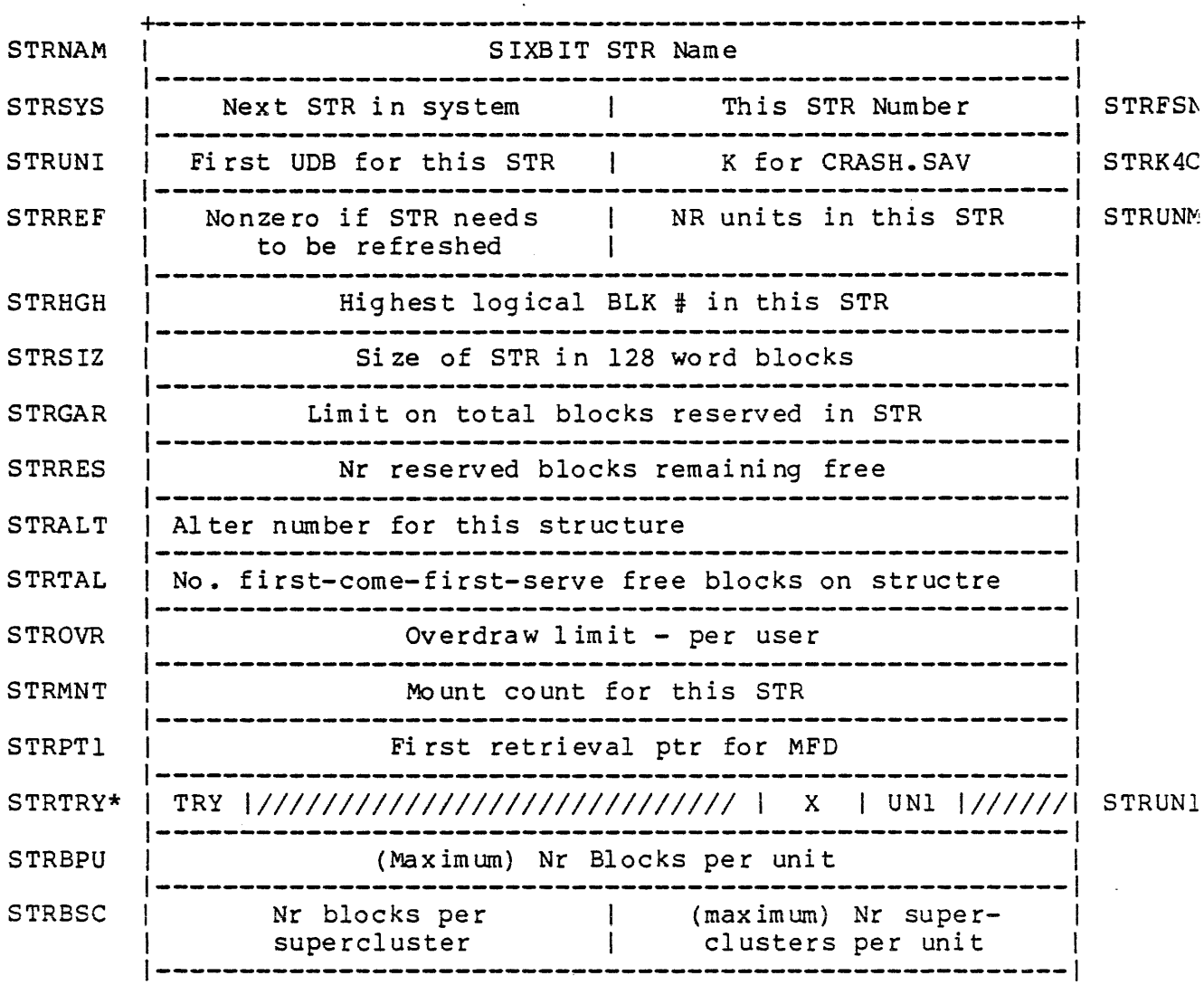
Description: Contains descriptive information about a file structure.

There is a STR Data Block for each STR defined in the system.

Defined in: COMMOD

Referenced in: COMMON,FILIO,FILFND,FILUUO,IPCSER,ONCMOD

Format:



STRJOB	ACCESS	Job # having access or Ø
STYCNP	Byte ptr to RIB cluster count in AC T2	
STYCKP	Byte ptr to RIB checksum field in AC T2	
STYCLP	Byte ptr for cluster adr in AC T2	
STRPPN	PPN of the structure owner	

*Details following.

NOTE:

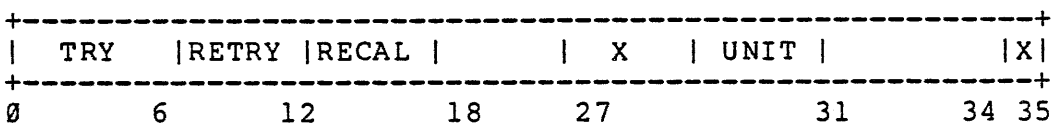
1. All STR Data Blocks are set up by the Once Only Code, according to information found in the Home Blocks. No information pertaining to STR's is coded into the monitor.

2. STRALT is incremented each time a SAT block is written for this structure.

3. ACCESS is -1 if the job in RH is only job with the structure mounted, and it is not single access.

STR (continued)

STRTRY BYTE DEFINTIONS



Word Label	Bits	Byte Label	Content
STRTRY	Ø-5	STYTRY	Number of times to retry before error considered hard.
STRTRY	6-11	STYSER	Number of times to retry on search and data errors
STRTRY	12-17	STYRCL	Number of recalibrates for search and data errors
STR1PT	27	STP1PT	Set if STRPT1 is only retrieval pointer for MFD.
STRUN1	28-31	STYUN1	Logical unit number within this file structure where MFD begins.
STRPVS	35	STYPVS	Non-zero if this is a private structure.

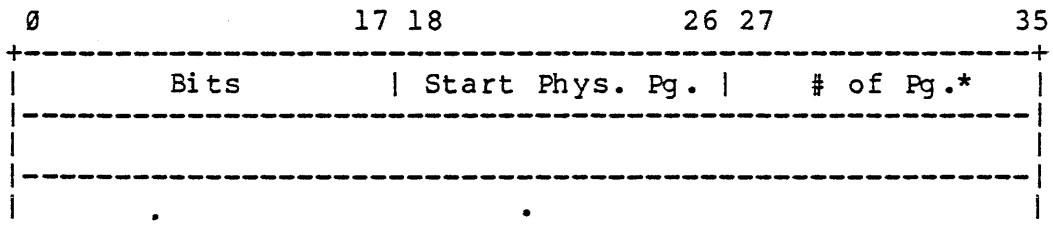
NAME: SWPLST

Description: Table used by the VM swapper in conjunction with MEMTAB to keep track of jobs being swapped or having paging I/O in progress.

Defined In: COMMON

Used By: SCHED1, SWPSER, VMSER

Format:



Notes:

```
SL.FRG = 1BØ   Fragmented Entry
SL.DIO = 1B1   Direction of IO  (1 = out)
SL.SIO = 1B2   Swapping/paging  (1 = swapping)
SL.IOP = 1B3   IO in Progress
SL.IOD = 1B4   IO Done (This swap list entry is done)
SL.IPC = 1B5   On if an IPCF Page
SL.CHK = 1B11  Swapping Checksum Error
SL.ERR = 1B12  IO Error (IODTER, IODERR, or IOIMPM)
SL.CHN = 1B13  Channel Error (IOCHMP or IOCHNX)
```

if not a fragmented entry

Bits 14-26 - starting physical page number (used as an index into MEMTAB)

Bits 27-35 - number of pages

* if fragmented

Bits 18-35 - address of fragment table. The fragment table is linked the same way the JBTSWP entry is, but the entries are as above.

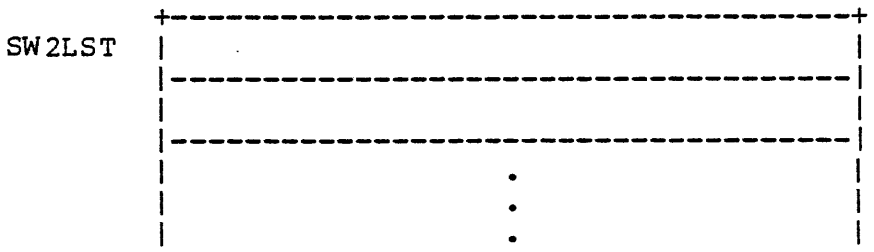
Name: SW2LST

Description: The original SWPLST entry is stored here for cleanup purposes, since SWPLST is modified while I/O is progressing.

Defined In: COMMON

Used By: VMSER

Format:



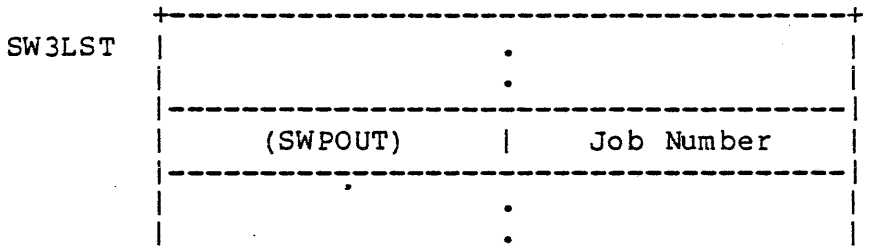
Name: SW3LST

Description: The right half of this table is used to store the job number of the job being swapped or doing paging I/O, and left half holds the contents of SWPOUT.

Defined In: COMMON

Used By: SCHED1, SWPSER, VMSER

Format:

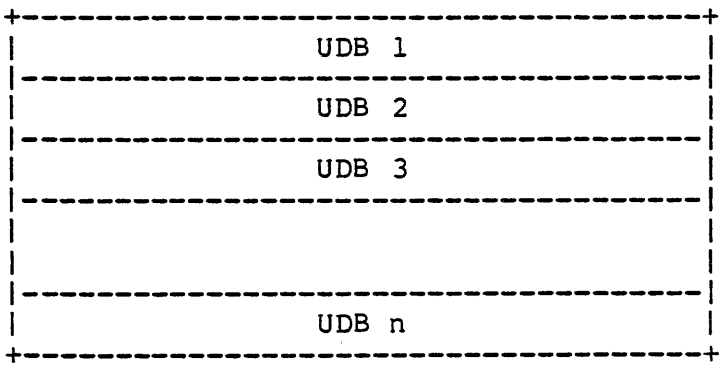


Name: SWPTAB Swapping Table

Description: Contains addresses of the Unit Data Blocks of all units available for swapping.

Defined in: COMMOD

Referenced in: FILFND, FILIO, CPNSER, SEGCON, SWPSER, VMSER, SYSINI, ONCMOD



NOTE:

This table specifies the Active Swapping List.

Name: TABSTR Structure Table

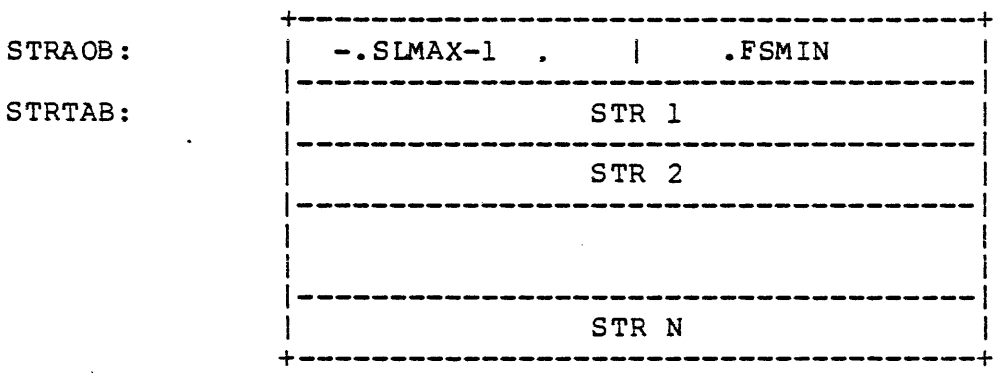
Description: Contains addresses of all File Structure Data Blocks in the system.

File structures are in order of access speed, fastest to slowest.

Index value for each entry is the File Structure Number, FSN.

Defined in: COMMOD

Referenced in: COMMON, FILIO, FILUUO, FILFND, CPNSER, SYSINI, ONCMOD



NOTE:

Number of entries is STRNUM. This value cannot exceed 36.

The first word is an AOBJN pointer to the rest of the table.

Name: Transfer Tables

Description: These tables are used in requeing process to determine the destination queue and quantum runtime for jobs being requeued by the Scheduler.

Defined in: SCHED1

Format:

Although these tables are defined by Macros in COMMON they are represented here in their expanded form.

```
EQFIX== 400000,,QFIX ;SPECIFIES FIX TRANFER TO END OF Q
EQLNKX==400000,,QLNKZ ;SPECIFIES REQUEING AND QUANTUM RUN
                      ; TIME BASED ON CURRENT QUEUE AND
                      ; JOB SIZE

QNULW:          EXP EQFIX  ;NULL QUEUE
                XWD -1,-NULQ

QSTOP::
QSTOPW: EXP EQFIX                   ;STOP QUEUE
        XWD -1,-STOPQ

IFN FTDAEM,
QJDCW:  EXP EQFIX
        XWD -1,-JDCQ
; End of conditional assembly on FTDAEM

QCMW::  EXP EQFIX                   ;COMMAND WAIT QUEUE
        XWD -1,-CMQ

QTSW:                               ;TTY I/O WAIT SATISFIED
QRNW:   EXP EQFIX                   ;JOBS JUST BECAME RUNNABLE
        XWD QADTAB##,-PQ1

QRNW1:  EXP EQFIX                   ;BACK OF QP1, NO QUANTUM CHANGE
        XWD  -1,-PQ1

QRNW2:  EXP EQFIX                   ;BACK OF PQ2, NO QUANTUM CHANGE
        XWD  -1,-PQ1

QTIOWW: EXP EQFIX                   ;TTY I/O WAIT SATISFIED
        XWD -1,TIOWQ

QSLPW:  EXP  EQFIX                  ;SLEEP FOR .GE. 1 SECOND
        XWD  -1,-SLPQ

QEWW:   EXP EQFIX                   ;EVENT WAIT
```

```
            XWD -1,-EWQ

QTIME:      EXP EQLNKZ                  ;WHEN QUANTUM TIME EXCEEDED
            XWD Ø,QRQTBL
```

Name: TTFCOM Forced Commands Table

Description: Allows SCNSER to force a specified command to be executed for a job without having to put the command into the TTY buffer.

One entry, in SIXBIT format, for each command which SCNSER might want to force.

Defined in: SCNSER

Used in: COMCON, UUOCON, SYSINI, ONCE, NETMCR, NETVTM, CLOCK1, NETSER

Label	Content	Command
TTFCXC	HALT	Control-C
TTFCXD	.BYE	Dataphone disconnect
TTFCXH	.HELLO	Dataphone connect
TTFCXR	.RESTA	System restart
TTFCXK	KJOB	Kill job
TTFCXI	INITIA	Call Initializing CUSP
TTFCXJ	.FCONT	Forced Continue
TTFCXU	.DUMP	CCL Run of DUMP
TTFCXT	.TYPE	Retype line
TTFCXW	USESTA	CONTROL/T
TTFCXL	.NETLD	Network Reload
TTFCXS	HALT	CONTROL/C with no trapping
TTFCXX	CTEST	(For patching)

NOTE:

Value of each label is the position of that entry within the table. This value is plugged into LDBDDB when a command is to be forced.

The entries in TTFCOM are conditionally assembled; therefore all of the above listed entries will not be in every Monitor.

NAME: Teletype Buffers (Chunks)

Description: Used to hold characters which need to be typed on a TTY, or characters received from a TTY and not yet read by a program.

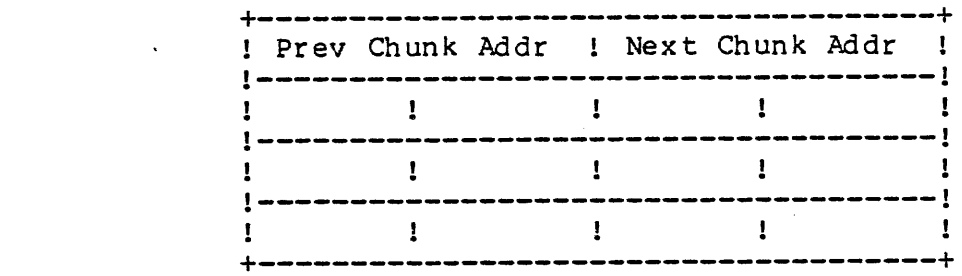
Buffers are set up dynamically, as needed, from a pool of monitor free core reserved for that purpose.

The association between a buffer and a line depends on pointers in the Line Data Block.

Buffers are built from four word "chunks" which are linked together as necessary.

Defined in: SCNSER

Format:



Notes:

1. The ninth bit in each byte of data is used to indicate image mode.

2. If there is not another chunk in a given direction, the corresponding linkage will be zero.

3. All chunks which are not part of a buffer are linked together to form the "free list". The word TTFREE points to the first chunk of the free list.

4. The size of an individual buffer is limited by program action. An output buffer cannot exceed 80 characters. If an input buffer exceeds 80 characters (value of symbol TIWRNN) each receive interrupt will force the output of an XOFF. If an input buffer contains 90 characters (symbol TISTPN) no additional characters will be accepted from that line. A bell will be substituted for the echo of a

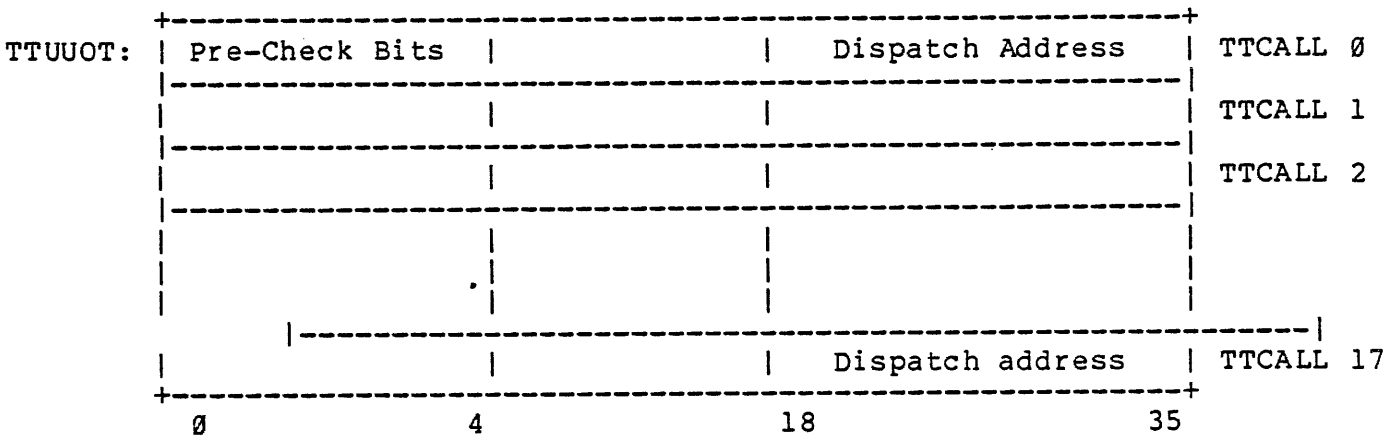
lost character.

5. See Description of Line Data Block for various pointers which are used with the TTY buffer.

Name: TTUUOT - TTCALL Dispatch

Description: This table contains pre-check and dispatch information for TTCALL UUOs. The bits in the LH are checked before dispatching. There is one entry for each TTCALL UUO.

Defined in: SCNSER



BIT	LABEL	MEANING
0	TC.ADR	This function must be address checked
1	TC.USR	This function must be at USER level else return
2	TC.USW	This function must be at USER level else wait
3	TC.ATW	This functin must be attached else wait
4	TC.ATR	This funtion must be attached else return

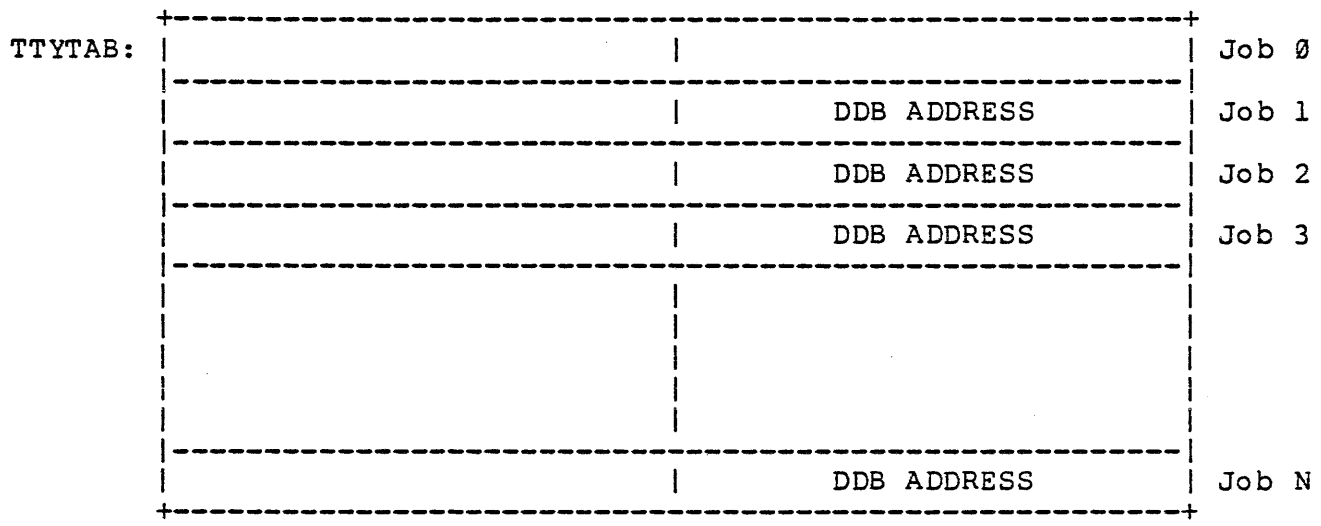
Name: TTYTAB TTY Table

Description: One entry per job, indexed by Job Number.

Table of controlling (attached) terminals for each job.

Defined in: COMMON

Reference in: COMDEV, FILIO, CLOCK1, COMCON, CPNSER, ERRCON, IPCSER, PSISER, PTYSER, SCNSER, UUOCON



A zero entry indicates no attached terminal otherwise RH is controlling DDB for the job. There is always a TTY DDB for every job, even though no TTY need be attached. Thus UUOs look through TTYTAB(n) for a DDB since UUOs come from jobs.

Name: TYPTAB DEVICE TYPES TABLE

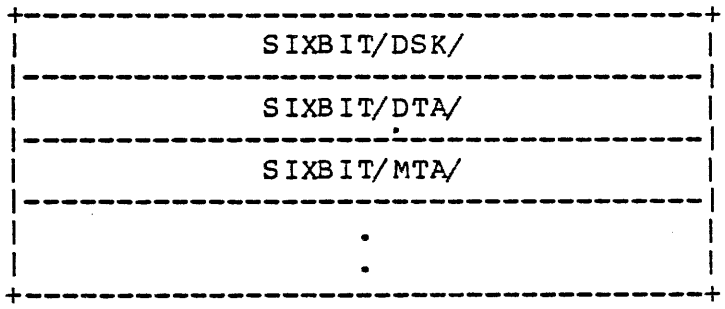
Description: Contains three letter generic device type prefix in SIXBIT format for all possible devices in the system.

Used by UUOCON subroutine which finds a DDB given its universal I/O index.

Defined In: UUOCON (local symbol)

Used By: UUOCON

Format:



Name: UCLJMP CALL and CALLI UUO Dispatch Table

Description: Contains dispatch addresses for CALL and CALLI UUO's.

One entry for each two routines. LH contains address for even numbered routines; RH, odd numbered.

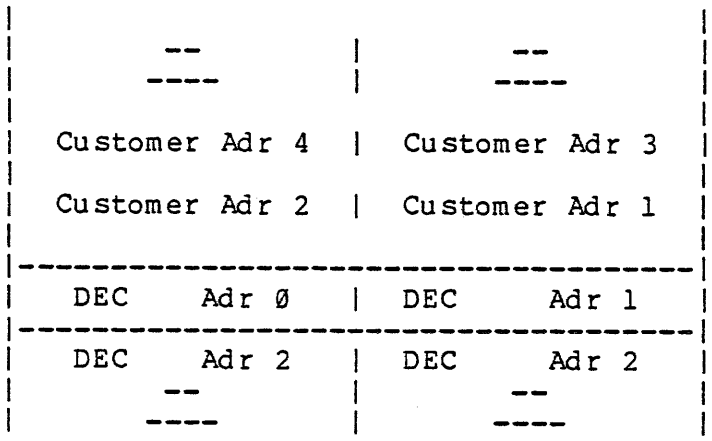
Indexed by one half the CALLI argument.

For CALL UUO's, a table lookup is done in UCLTAB to get routine number; for CALLI UUO's the number is supplied directly. One half this routine number is used as the table index. The LH is taken for even numbers; RH for odd. The CALL routine then dispatches to that address.

Defined In: UUOCON (local symbol)

Used In: UUOCON

Format:



Special Notes:

UCLJMP has entries corresponding to entries in UCLTAB. Table entries may be added in the negative direction by customers, and in the positive direction by DEC. Once a table entry is established, its position can never be changed without invalidating those programs which use the corresponding CALLI.

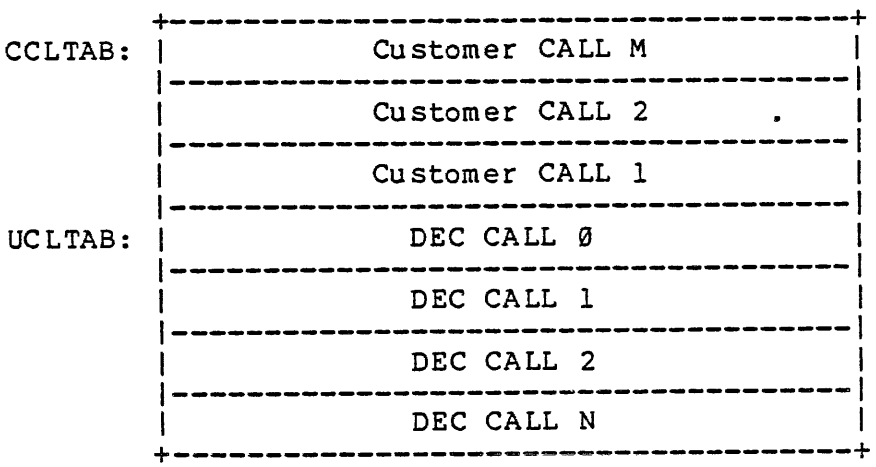
Name: UCLTAB CALL UUO Names Table

Description: Contains names of the CALL UUO's.

One entry for each CALL function.

Indexed by corresponding CALLI value. Customer defined CALL's have negative index values; DEC CALL's have positive values. Table entries are SIXBIT expressions of the CALL names. There are corresponding dispatch addresses in the UCLJMP table.

Format:



Special Notes:

1. Customers may extend the table in the negative direction with as many of their own CALL's as desired.

2. The value specified in a CALLI UUO corresponds to the position of the CALL UUO name in this table. Hence, once an entry is established, its position in the table can never be changed without invalidating any existing programs which use that CALLI.

3. ALL CALL's above CALLI AC,55 do not have a corresponding CALL with a SIXBIT argument. In the future only CALLI's will be added by DEC.

Name: UDB Unit Data Block

Description: One UDB for each physical disk drive on the system (two if the drive is dual ported). Names are formed by concatenating the unit name with "CB", e.g., RPAØCB, DPB3CB.

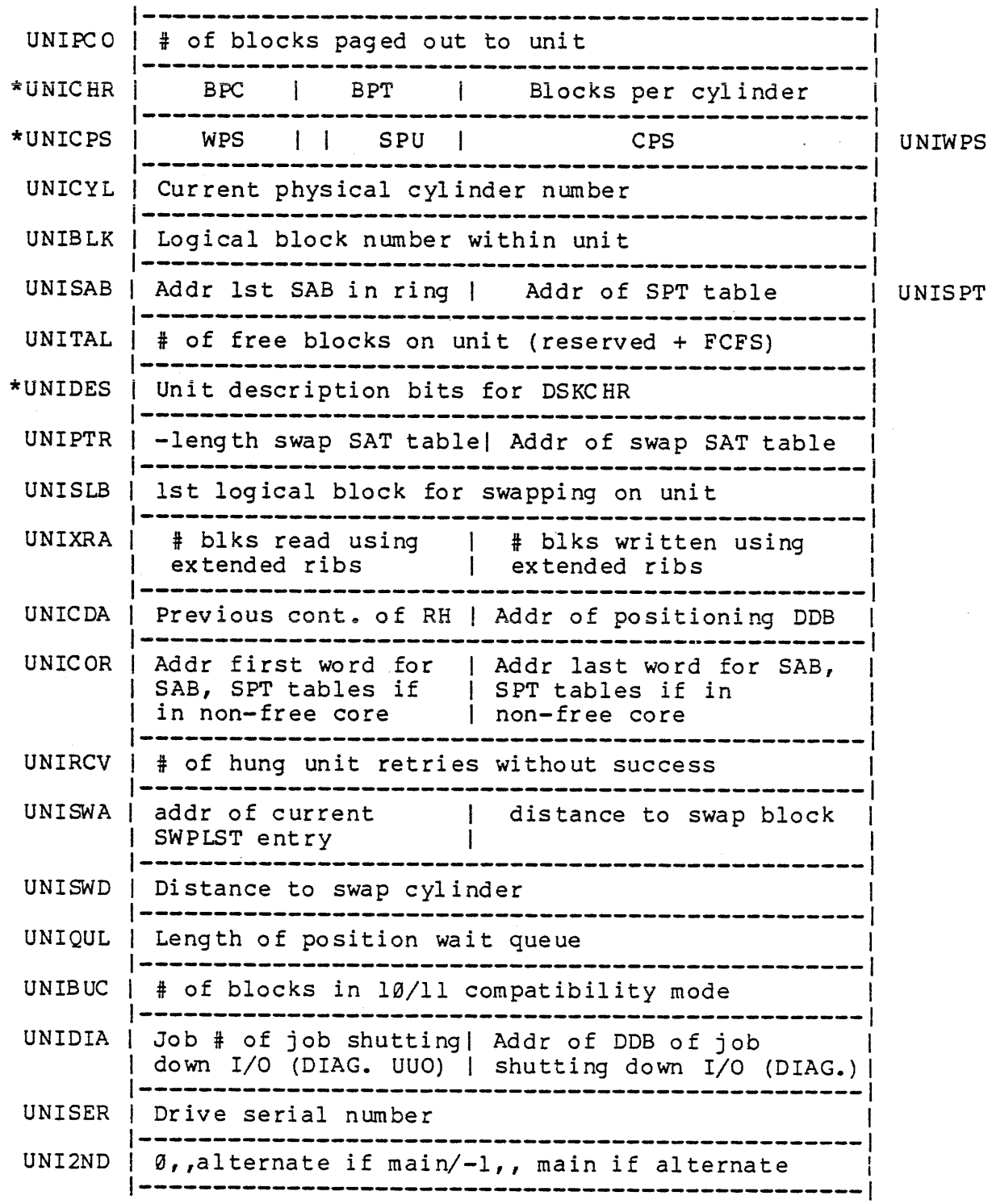
Defined in: COMMOD

Referenced in: FILFND, FILIO, FILUUO, ONCMOD, ERRCON, RPXKON,
VMSER, SYSINI, KLSER, CPNSER, COMMON, DPXKON,
FHXKON, FSXKON

*Indicates that details are shown on following pages

UNINAM	SIXBIT physical unit name		
UNILOG	SIXBIT logical name within structure (HOMLOG)		
UNIHID	SIXBIT home block ID name (HOMHID)		
*UNISYS	Next UDB in system	SIC	LUN
UNISTR	Next UDB for STR	STR Data Block	
UNICHN	Next UDB on Channel	CHN Data Block	
UNIKON	Next UDB on Controller	KON Data Block	
*UNISWP	Next UDB for swapping	CFS	K4S
UNIHCT	Hard disk error statistics		
UNISCT	Soft and hard error statistics		
UNIMCT	Monitor detected error statistics		
UNIERR	Device CONI at time of last hard error		
UNISOF	CONI at time of last error before recovery		
UNIHBN	Last logical block number on hard or soft error		
UNIBRC	Number of buffered mode blocks read on unit		
UNIBWC	Number of buffered mode blocks written on unit		

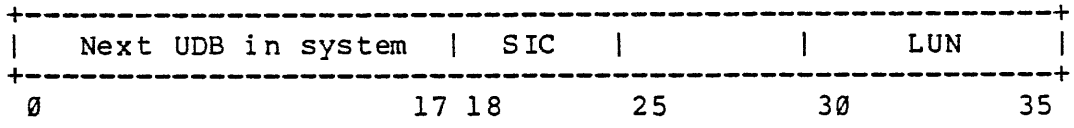
UNIDRC	Number of dump mode blocks read on unit	
UNIDWC	Number of dump mode blocks written on unit	
UNIMRC	Number of Monitor blocks read on unit	
UNIMWC	Number of Monitor blocks written on unit	
UNIICT	Number of blocks swapped in from unit	
UNIOCT	Number of blocks swapped out to unit	
UNIMSC	Number of Monitor + swap seeks on this unit	
UNIUSC	Number of user mode seeks on this unit	
UNIPCT	Number of positioning failures | Number of soft+hard seek incomplete failures	
UNIFKS	Free K for swapping on this unit	
UNISDI	Last DATAI status before recovery attempted	
UNIHDI	Last DATAI status after first recovery failed	
UNIECT	# times error status returned for last operation	
UNIHNG	Hung timeout counters	
*UNISTS	Status code for unit	
*UNICCT	| BCT | # of channel termination errors	
UNIHOM	1st home block address | redundant home blk adr	
UNIQUE	addr. of 1st PWQ DDB | Job NO of PWQ DDB	
UNIGRP	# blocks to try for on output | DDB with operation in progress	UNICDA
UNIBPU	# logical blocks per unit (returned by DSKCHR)	
UNIBPM	# of logical blocks/unit incl. maint. cyls.	
UNIPCI	# of blocks paged in from unit	


UNIPCO
# of blocks paged out to unit
*UNICHR
BPC
BPT
Blocks per cylinder
*UNICPS
WPS
SPU
CPS
UNIWPS
UNICYL
Current physical cylinder number
UNIBLK
Logical block number within unit
UNISAB
Addr 1st SAB in ring
Addr of SPT table
UNISPT
UNITAL
# of free blocks on unit (reserved + FCFS)
*UNIDES
Unit description bits for DSKCHR
UNIPTR
-length swap SAT table
Addr of swap SAT table
UNISLB
1st logical block for swapping on unit
UNIXRA
blks read using extended ribs
blks written using extended ribs
UNICDA
Previous cont. of RH
Addr of positioning DDB
UNICOR
Addr first word for SAB, SPT tables if in non-free core
Addr last word for SAB, SPT tables if in non-free core
UNIRCV
# of hung unit retries without success
UNISWA
addr of current SWPLST entry
distance to swap block
UNISWD
Distance to swap cylinder
UNIQUL
Length of position wait queue
UNIBUC
# of blocks in 10/11 compatibility mode
UNIDIA
Job # of job shutting down I/O (DIAG. UUO)
Addr of DDB of job shutting down I/O (DIAG.)
UNISER
Drive serial number
UNI2ND
0,,alternate if main/-1,, main if alternate

UNITIM	Hung-Timer
UNIJOB	Previous RH UNIJOB | Job no of RH UNICDA
*UNIAJB	DA resource status word
UNIGEN	Generation number of UDB
UNIDS2	Bit Ø=1 is non-removable media
UNILAS	Last command issued to massbus device
UNISCR	Contents of control register at first error
UNIHCR	Contents of control register at end
UNISDR	Contents of data register at first error
UNIHDR	Contents of data register at end
UNIEBK	Drive registers saved here on error. LH has last error, RH has first error. Last word in block is command which cause the error. (Ø-16 words, determined by X'ERNO)

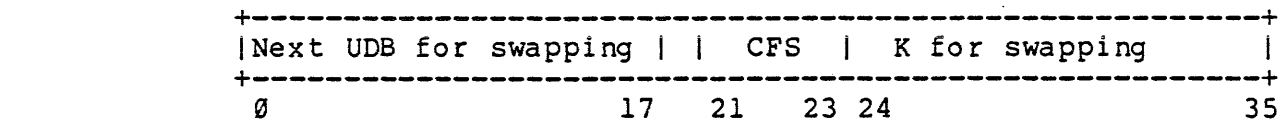
NOTES

UNISYS word (3)



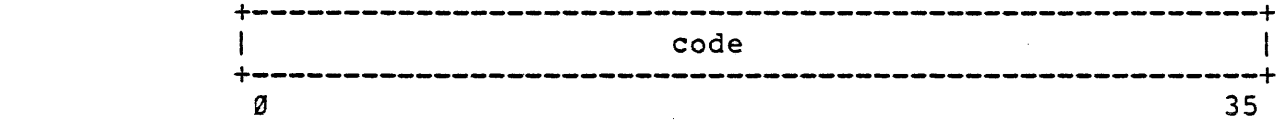
Word	Bits	Byte	Description
UNISYS	Ø-17		Core address of next UDB in system. Zero indicates last unit.
UNISIC	18-25	UNYSIC	Number of SAT blocks in core for this unit.
UNILUN	3Ø-35	UNYLUN	Logical Unit Number within file structure for unit

UNISWP word (7)



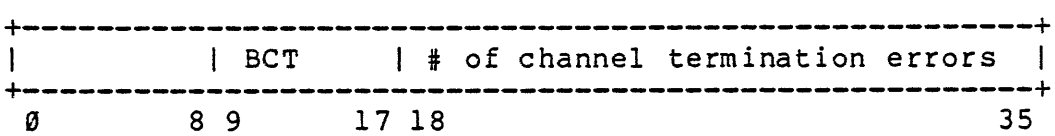
UNISWP	0-17		Address of next UDB for swapping
UNIFCS	21-23	UNYCFS	Swapping Class of unit
UNIK4S	24-35	UNYK4S	Number of K for swapping on the unit

UNISTS word (36)



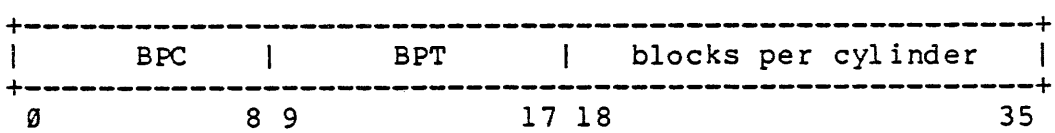
ICOD	0	Unit idle
SWCOD	1	Seek wait; i.e., waiting to position with no implied transfer following
SCOD	2	Seeking
PWCOD	3	Position wait
PCOD	4	Positioning
TWCOD	5	Waiting to transfer data
TCOD	6	Transferring data
MDACOD	7	Unit useable only by MDA (mountable device allocator)
OWCOD	10	Operator wait, file in transfer state
OCOD	11	Operator wait, no file active
OW2COD	12	Same as OWCOD but no message once a minute
O2COD	13	Same as OCOD, but no message once a minute

UNICCT word (37)



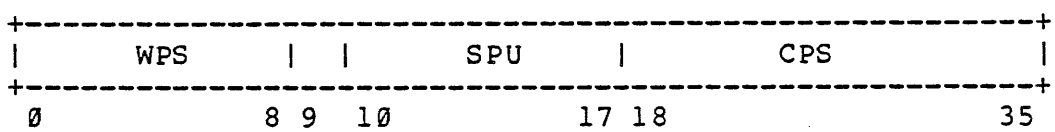
UNIBCT	9-17	UNYBCT	Number of slots left in BAT block for unit
UNICCT	18-35		Number of channel termination errors on this unit

UNICHR word (47)



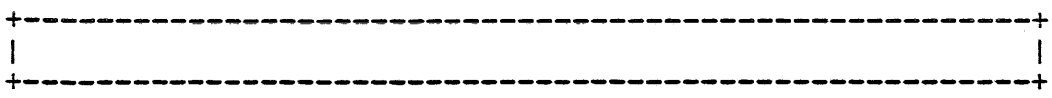
UNIBPC	Ø-8	UNYBPC	Number of blocks per cluster
UNIBPT	9-17	UNYBPT	Number of blocks per track
UNIBPY	18-35	UNYBPY	Number of blocks per cylinder

UNICPS word (5Ø)



UNIWPS	Ø-8	UNYWPS	Number of words per SAT block
UNISPU	9-17	UNYSPU	Number of SAT blocks on the unit
UNICPS	18-35	UNYCPS	Number of clusters per SAT

UNIDES word (55)



Word Label	Bit	Bit Label or Byte Pointer	Content
UNIDES	Ø	UNPRHB	Monitor must reread home block to ensure Pack ID correct. Set when a pack goes offline.
UNIDES	1	UNPOFL	Unit is offline.
UNIDES	2	UNPHWP	Unit is hardware write protected
UNIDES	3	UNPSWP	Unit is in a structure which is software write-protected.
UNIDES	4	UNPSAF	Unit is in a single access structure.
UNIDES	5	UNPZMT	STR mount count is zero.
UNIPRF	6	UNPPRF	Unit is in a private structure.
UNIUST	7-8		Unit Status, as follows:
		UNVPIM	Ø - unit is up and pack mounted.
		UNVPBM	1 - unit is up and pack is being mounted.
		UNVNPM	2 - unit is up, but pack is not mounted.
		UNVDWN	3 - unit is down.
UNIUST	9	UNPMSB	Unit has more than one SAT block.
UNIUST	1Ø	UNPNNA	No new access on STR.
UNIAWL	11	UNPAWL	STR is write protected for all jobs.
UNIAWL	12	UNPFUS	Unit got a file-unsafe.
UNIWMD	13	UNPWMD	Unit waiting for MDA to do something.

UNIWMD	14	UNPALT	Unit is dual-ported.
	15-17*		Code for argument passed to Monitor on DSKCHR UUO.
UNISCN	18-2Ø		Data Channel Number
UNIKTP	21-26	UNYKTP	Controller type, as follows:
		TYPDR	Ø - DR (Future drum, if any)
		TYPFH	1 - FH RC1Ø (Burroughs disk or Bryant drum)
		TYPDP	2 - DP RP1Ø (RPØ1-Ø3 disks)
		TYPMD	3 - MD Bryant mass disk
		TYPFS	4 - FS RH1Ø with RSØ4
		TYPRP	5 - RP RH1Ø with RPØ4-Ø6
UNIKNM	27-29	UNYKNM	Controller number within type.
UNIUTP	3Ø-32	UNYUTP	Unit type
UNIPUN	33-35	UNYPUN	Physical unit number within controller.

*Not present in UDB

NOTES:

1. This word is returned by the DSKCHR UUO. Those items marked with an asterisk are not in the UDB, but are set in the word returned by the DSKCHR UUO.

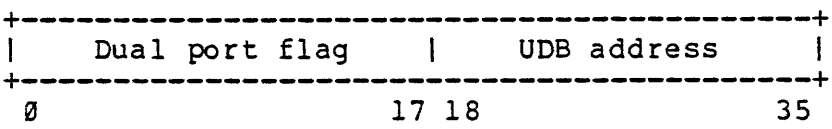
2. DSKCHR Codes - specify argument passed to monitor

   Codes

Ø	Generic device DSK
1	STR name abbreviation
2	STR name
3	Unit within a STR (e.g., DSKAØ, DSKB1)
4	Kontroller class name (e.g., DP, RP)
5	Kontroller name (e.g., DPA, RPC)
6	Physical unit name (e.g., RPAØ, RPC1)

3. KONTROLLER type starts at zero (e.g., DPA=Ø, DPB=1 ...).

UNI2ND Word



Entire word is zero if this unit is not being accessed through dual ports. For units which are dual ported, UNI2ND will be:

XWD Ø,UDB-addr-of-alternate If this is the main port for the unit
XWD -1,UDB-addr-of-main If this is the alternate port

UNIAJB Word

1. Is -1 if no DA in progress on this unit

2. Is +N is Job N is allocating but no other jobs are waiting.

3. Is N,,N is JOB N is allocating and others are waiting to use
the DA resource.

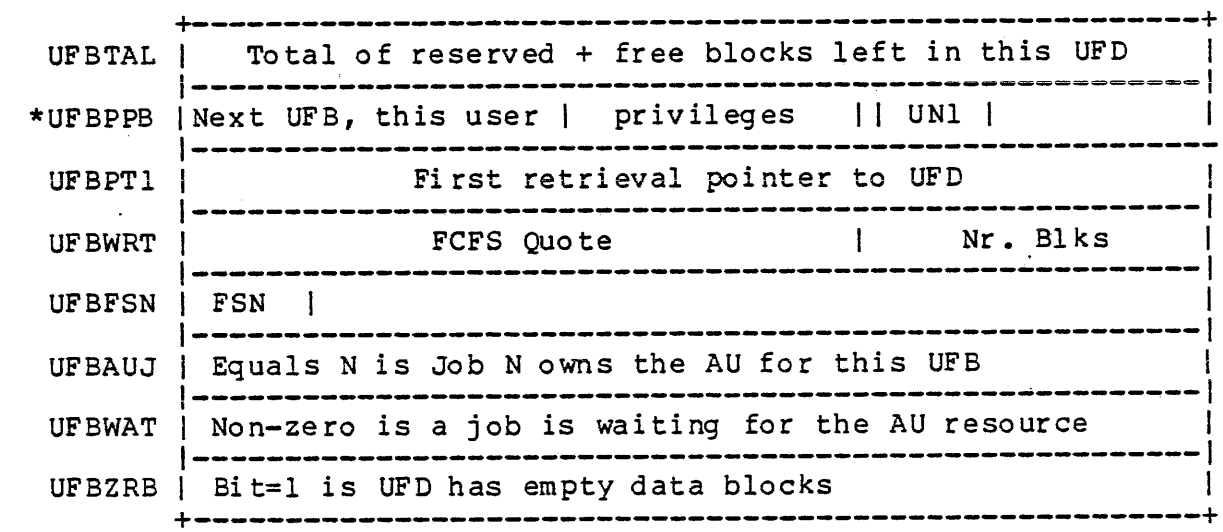
Name: UFB UFD DATA BLOCK.

Description: One data block for every UFD-File Structure pair which has an active file. All blocks for a file structure are linked together.

Defined In: COMMOD

Used By: FILUUO, FILFND, FILIO

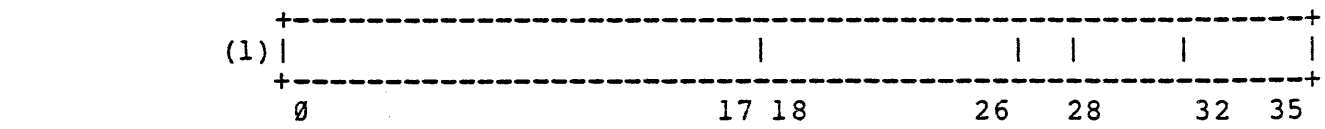
Format:



Notes:

1. UFBTAL - This count will go negative if the user has exceeded quota and is using overdraw. No new ENTER's allowed if this is Ø or negative. Total includes RIB's

2. UFBPPB byte definitions.



Word Label	Bits	Bit Label	Content
UFBPPB	Ø-17		Core address of next UFD data block for this PPN. (i.e., in another file structure).
UFBPRV	18-26		Access privileges for this UFD in this structure. Byte pointer UFYPRV used to load this byte into AC. UFRXLK = 4 Can do LOOKUPS UFRXCR = 2 Can create files UFRXRD = 1 Can read diretory
UFB1PT	27	UFP1PT	Set if UFBPT1 is the only retrieval pointer for this UFD.
UFBUN1	28-31		Logical unit number within file structure associated with first retrieval pointer.

3. UFBWRT - Bits Ø-26= logged in first come first-served quota. This is never decremented. Bits 27-35=number of blocks written in the UFD itself.

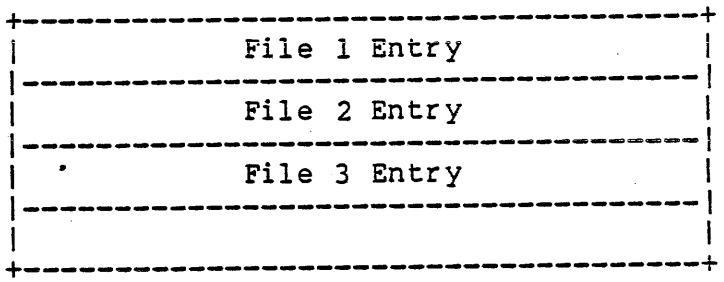
Name: UFD User File Directory

Description: Contains the locations for all files in the STR belonging to a particular project programmer number. One UFD in each STR for each project programmer number having any files in that STR.

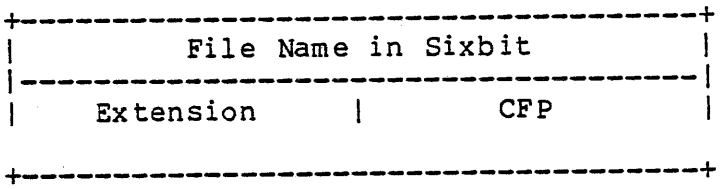
Defined in: COMMOD

Referenced in: FILUUO, FILFND, FILIO

Format:



Format of each entry



Note: The CFP (Compressed File Pointer) specifies the relative supercluster within the STR where the RIB of the file can be found.

$$CFP = \text{Relative Unit \# within STR} \times \text{Number of Superclusters Per unit} + \text{Relative Block \# within that unit} \Big/ \text{Number Blocks per Supercluster}$$

The number of clusters in a "supercluster" is determined by $\frac{\text{number clusters in STR}}{2(18)}$.

Hence, every STR will have fewer than 2(18) superclusters, and the CFP will fit in 18 bits.

The concept of a supercluster is used only in connection with Compressed File Pointers, in directories.

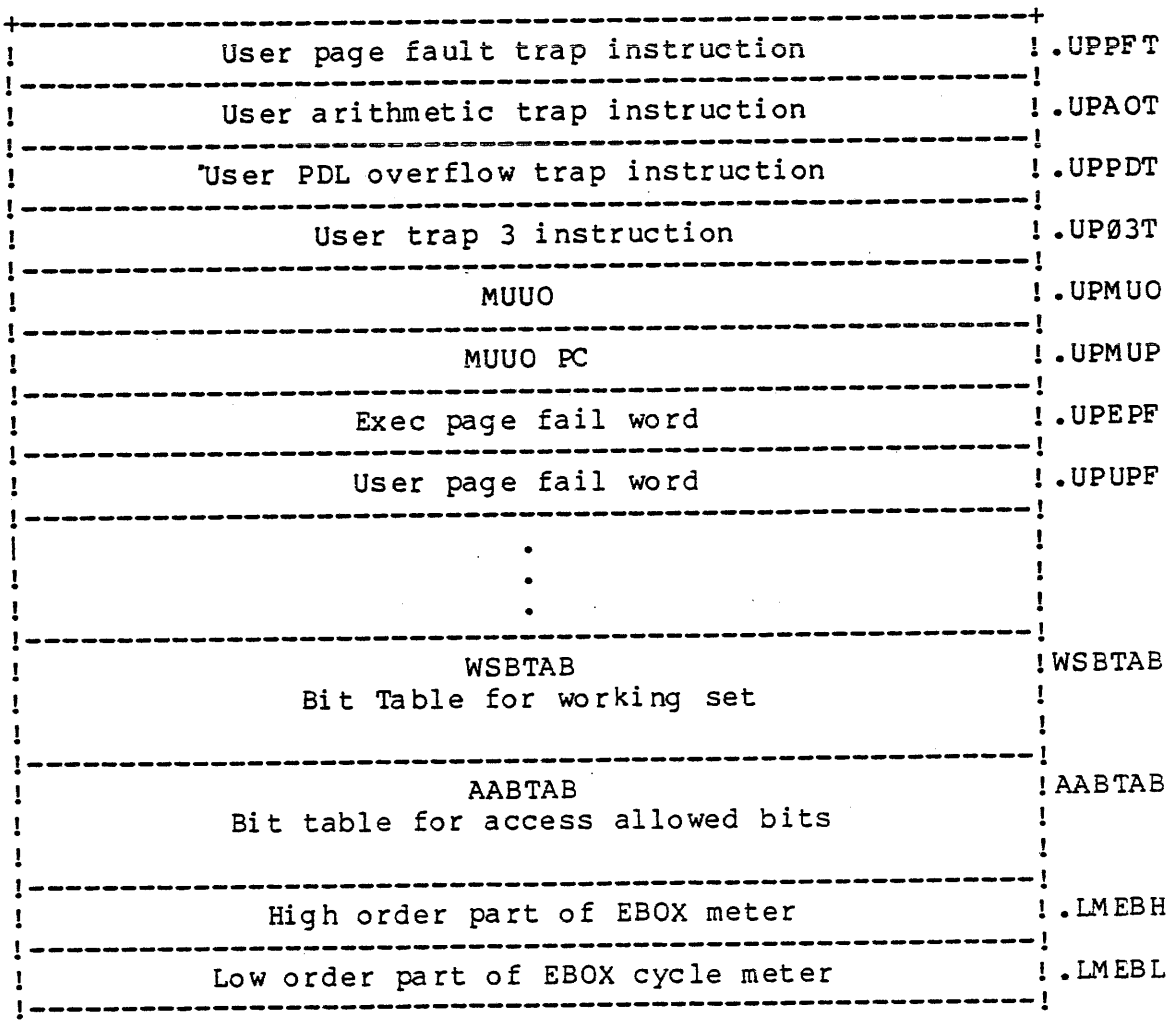
Name: UPMP User Page Map Page

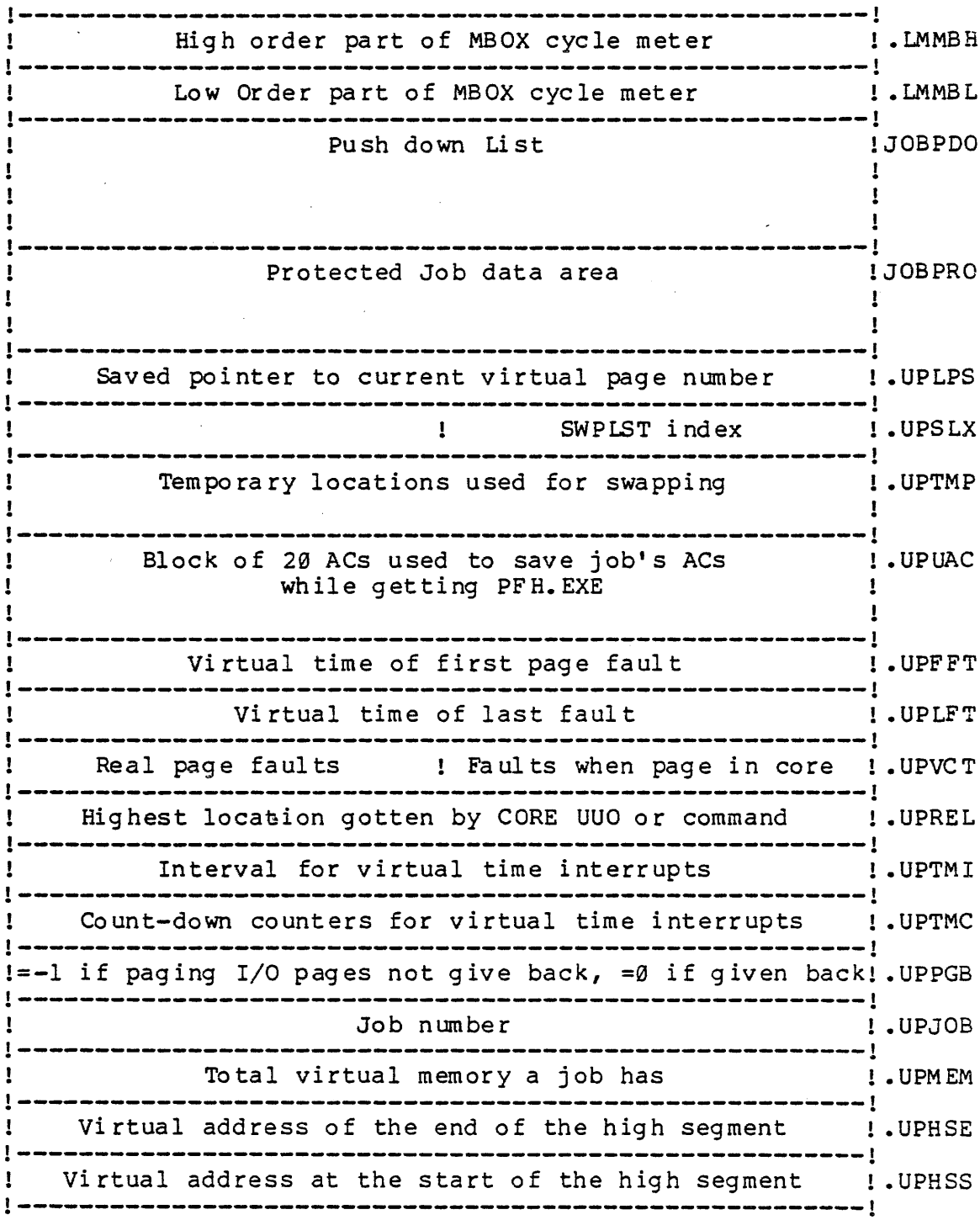
Description: Contains the Virtual Memory data base for each job and many other important job specific locations.

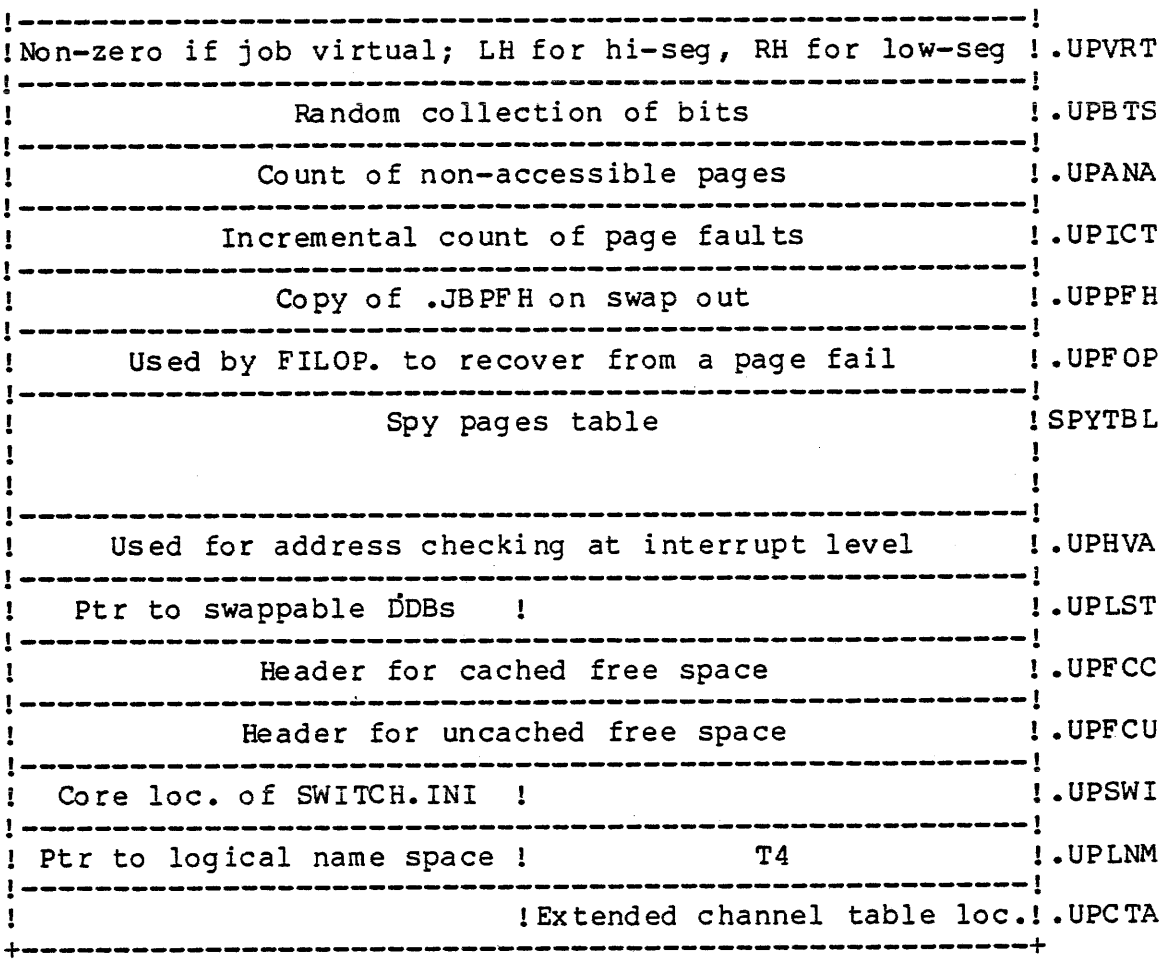
Defined in: S.MAC

Referenced in: VMSER, COMMON

Format:




High order part of MBOX cycle meter
.LMMBH
Low Order part of MBOX cycle meter
.LMMBL
Push down List
JOBPDO
Protected Job data area
JOBPRO
Saved pointer to current virtual page number
.UPLPS
SWPLST index
.UPSLX
Temporary locations used for swapping
.UPTMP
Block of 20 ACs used to save job's ACs while getting PFH.EXE
.UPUAC
Virtual time of first page fault
.UPFFT
Virtual time of last fault
.UPLFT
Real page faults
Faults when page in core
.UPVCT
Highest location gotten by CORE UUO or command
.UPREL
Interval for virtual time interrupts
.UPTMI
Count-down counters for virtual time interrupts
.UPTMC
=-1 if paging I/O pages not give back, =0 if given back
.UPPGB
Job number
.UPJOB
Total virtual memory a job has
.UPMEM
Virtual address of the end of the high segment
.UPHSE
Virtual address at the start of the high segment
.UPHSS


Non-zero if job virtual; LH for hi-seg, RH for low-seg .UPVRT
Random collection of bits .UPBTS
Count of non-accessible pages .UPANA
Incremental count of page faults .UPICT
Copy of .JBPFH on swap out .UPPFH
Used by FILOP. to recover from a page fail .UPFOP
Spy pages table SPYTBL
Used for address checking at interrupt level .UPHVA
Ptr to swappable DDBs .UPLST
Header for cached free space .UPFCC
Header for uncached free space .UPFCU
Core loc. of SWITCH.INI .UPSWI
Ptr to logical name space T4 .UPLNM
Extended channel table loc. .UPCTA

Name: UUOTAB UUO Dispatch Address Table

Description: Contains address of operator-dependent UUO routines.

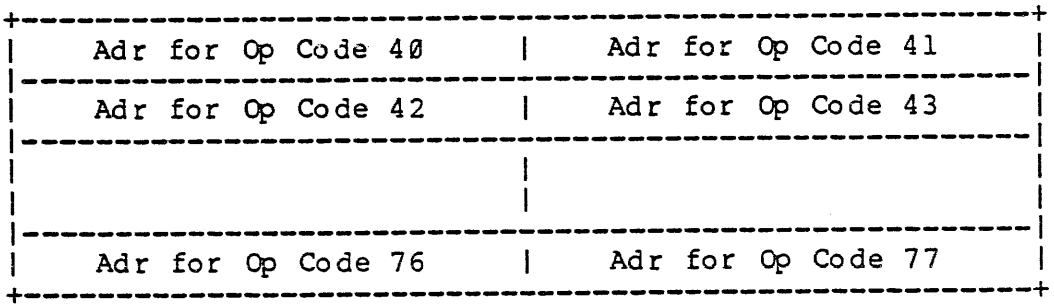
Table is in order of UUO Op Code, with two addresses per entry. Entry N contains entries corresponding to Op Codes 40 + 2N, 41 + 2N

Entries corresponding to invalid Op Codes contain the address of UUOERR. Some of these are reserved for future use by Digital, others for customers. See current listing for specific examples.

Defined In: UUOCON (Local Symbol)

Used By: UUOCON

Format:



Name: WSBTAB WORKING SET BIT TABLE

Description: This bit table is found in the UPMP from location 440 to 456. If a bit is on in this table, then the relative page is in core.

Defined In: S.MAC

Used By: VMSER

Format: