TOPS-20 Monitor Table Descriptions

Autopatch Number 22

April 1989

This document describes the internal tables of the TOPS-20 operating system.

This manual is a revision and replaces TOPS-20 Monitor Table Descriptions, order number AA-V917C-RM.

OPERATING SYSTEM: TOPS-20 Version 7.0

SOFTWARE: TOPS-20 Version 7.0

First Printing, October 1980
Revised, May 1984
Revised, April 1986
Revised, April 1989

CONTENTS

PREFACE

This book describes the internal TOPS-20 monitor tables. The sample table on the following page illustrates the information presented in the book. In addition to the tables, this book also contains one appendix which lists in alphabetical order the names of the monitor modules and the tables defined in each.

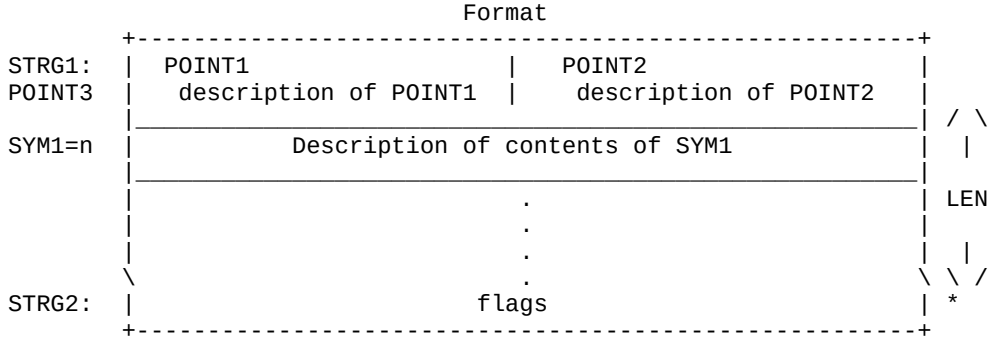
Change bars in the margin identify new tables and/or changes to existing tables. These changes are the result of software changes for TOPS-20 V6, V6.1, and V7.0.

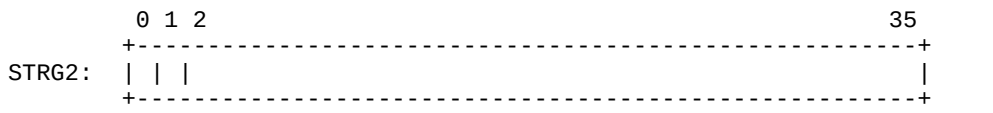
```
               SAMPLE  !This is the title of the table.
```

Text description of the table

```
Defined in:  STG  !This describes where either the storage is
                  !defined or where the symbols are defined or both

Index: Fork number   !This field (optional) describes any standard
                     !index that may exist for the table
```





Symbol	Bits	Pointer	Content
BTO	0	BT%0	System about to crash
BT1	1	BT%1	System crashing
BT235	2-35	BT2%35	Location where system crashes

notes STRG1 and 2 are actual storage locations contained in the monitor. POINT1, 2, and 3 are pointers to words or parts of words usually defined by a DEFSTR macro. SYML is a symbol with a specific value (n) usually to indicate displacements. LEN is the length of a particular section of the table. Numbers are octal except where they indicate bit positions and where they are indicated by D or a decimal point.

"*" indicates further information on the word is found following the table.

AA

This is the ACCEPT call's argument block, which is used by DECnet Session Control and NSP.

Defined in: D36PAR

Format

ACCEPT Argument Block

AASCB	SCB ID for new port
AAPID	NSP's port identifier
AAFLO	Flow control type
AAGOL	Data request goal
AASIZ	Max bytes allowed in a message segment
AASCV	Session control's entry address

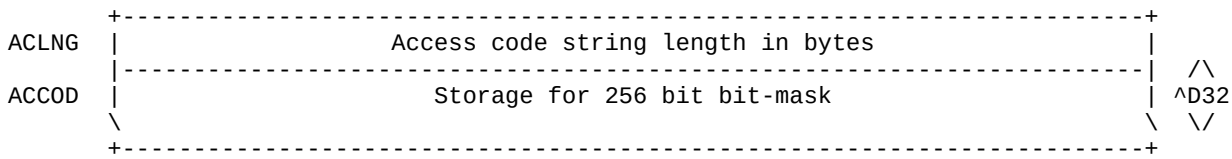
AC

AC is the LAT Host Access Codes portion of the Host Node (HN) data structure. It is a bit mask that defines what groups have access to the host. Note that the bit mask is made up of PDP-11 style 8-bit bytes. Therefore, group zero is represented by bit 7 -- the low order bit in the first byte.

Defined in: LATSRV

Format

ACCESS CODES

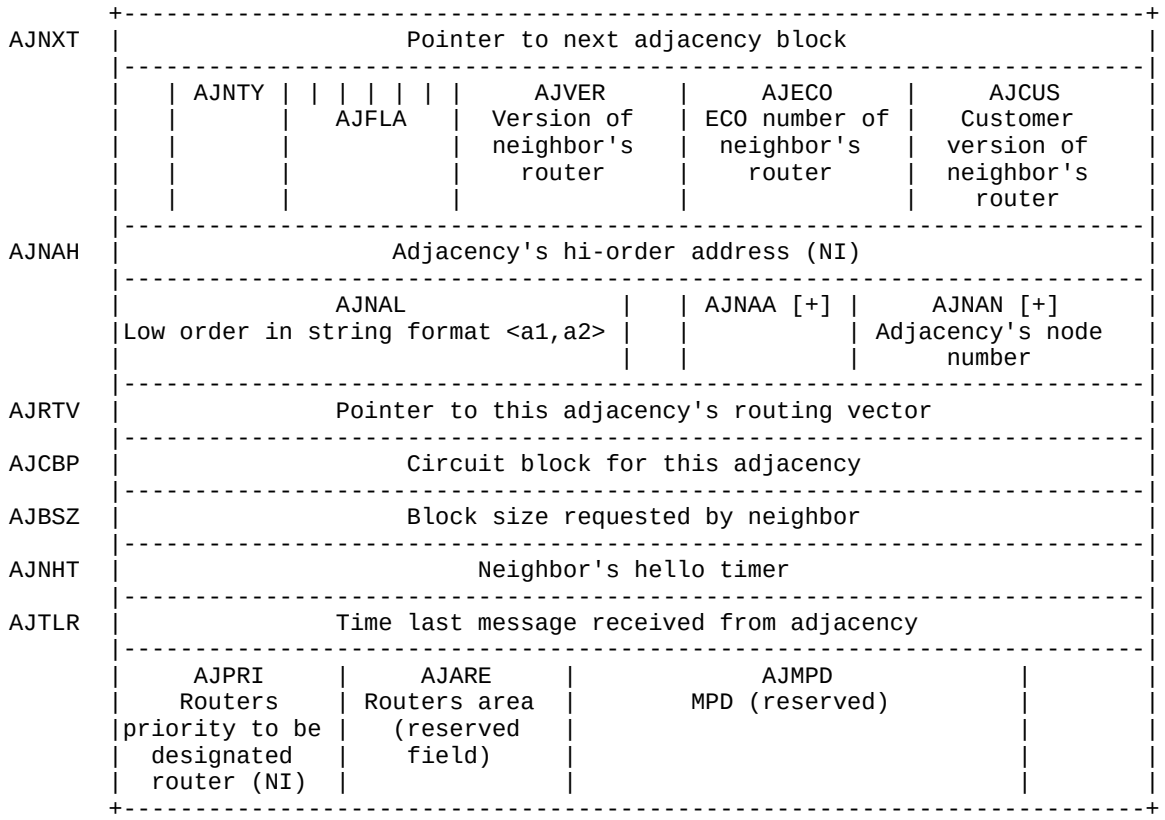


AJ

This is the DECnet Router adjancency block -- AJ.

Defined in: D36PAR

Format



Field AJSTA (0-1) Adjacency state

For field AJFLA(6-11):

AJPH4	6 Phase 4 node
AJVRQ	7 Verification requested by remote
AJBLO	8 Blocking is requested by this node
AJRJF	9 Reject flag
AJMTA	10 No multi-cast traffic accepted

[+] AJADR is a concatenation of AJNAA and AJNAN.

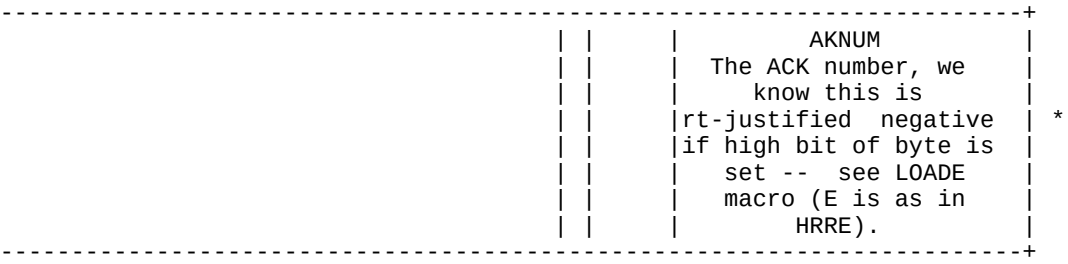
AK

AK is the format of the DECnet logical link ACKNUM field. This structure is expected to be used to pull apart a value held in a register.

Defined in: LLINKS

Format

ACKNUM



Field AKPNT (20-20) Flag set if field is present

Field AKQAL (21-23) Qualifier

AK$QAK=0	0 is ACK
AK$QNK=1	1 is NAK
AK$CAK=2	2 is cross-sub channel ACK
AK$CNK=3	3 is cross-sub channel NAK

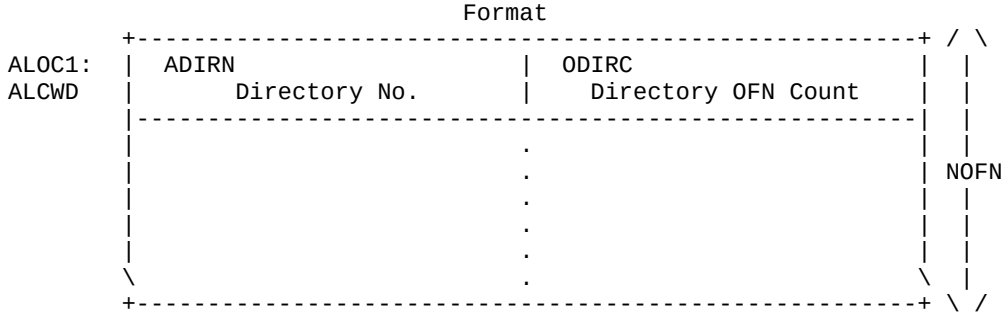
ALOC1

Allocation 1 Table. This non-resident table, the size of the OFN area in SPT, is used to help enforce disk quotas for each active directory.

Defined in: STG

Index: ALOCX portion of an OFN entry in the SPT

Format



The right half of each slot in this table contains a count of all OFNs for files from that directory.

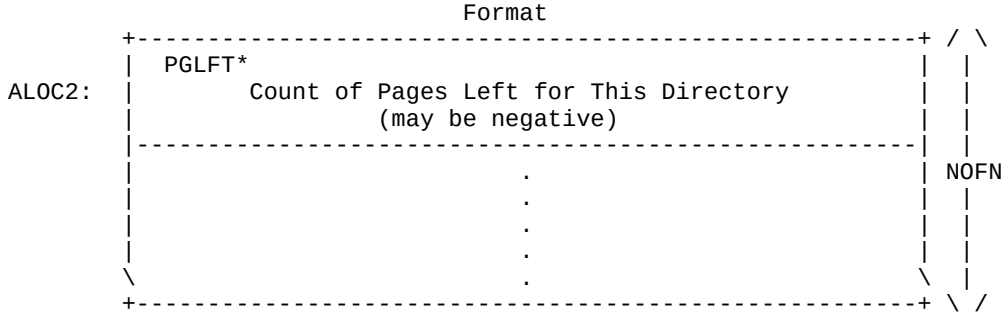
ALOC2

Allocation 2 Table. This non-resident table, the size of the OFN area in SPT, is used in disk quota enforcement for each active directory.

Defined in: STG

Index: ALOCX portion of an OFN entry in the SPT

Format



An alternate use for this word is

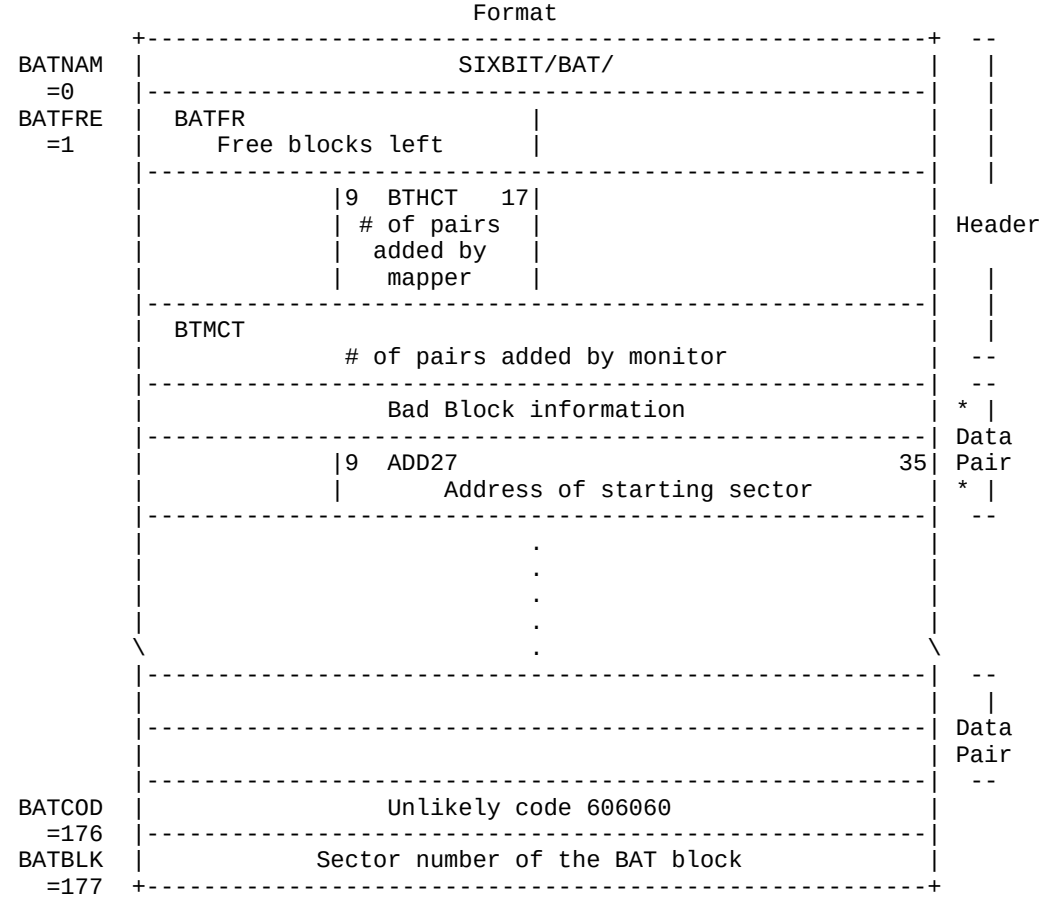
PGPTR
Pointer to CFS data base entry when CFS is used.

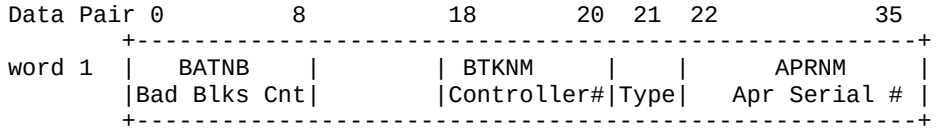
BAT

Bad Allocation Table. The BAT Block is one sector in length (128 words). It consists of 4 words of header, followed by data; each 2 word data entry indicates the bad spots on the disk. The BAT Block is found on section 2 of a disk pack.

Defined in: PROLOG

Format





Bits	Pointer	Content
0-8	BATNB	Count of Bad Blks in Pair
18-20	BTKNB	Massbus Controller #
21	BADT	Type field in BAT Pair
23-35	APRNM	APR Serial #

word 2

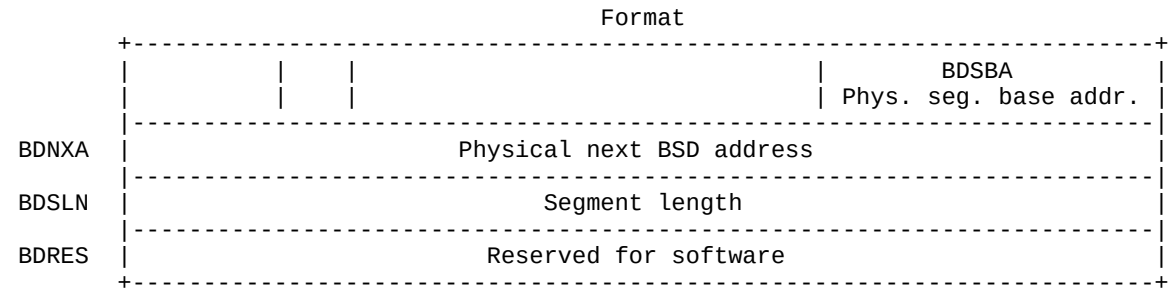
Bits		
18-35	ADD18	Old style disk address of starting sector
9-35	ADD27	New style address of starting sector

BD

BD represents the format of the Buffer Segment Descriptor (BSD) used to describe data buffers passed to and from the NI.

Defined in: PHYKNI

Format



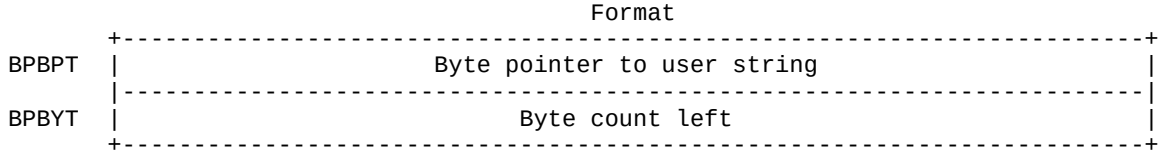
Field BDPAC (6-7) Packing mode

BP

This table contains the byte pointer and count structure used by DECnet. Routines DNGUBY,DNPUBY, and all related DNGUnB require a pointer to this type of structure. All byte pointers are section local (for the moment).

Defined in: D36PAR

Format

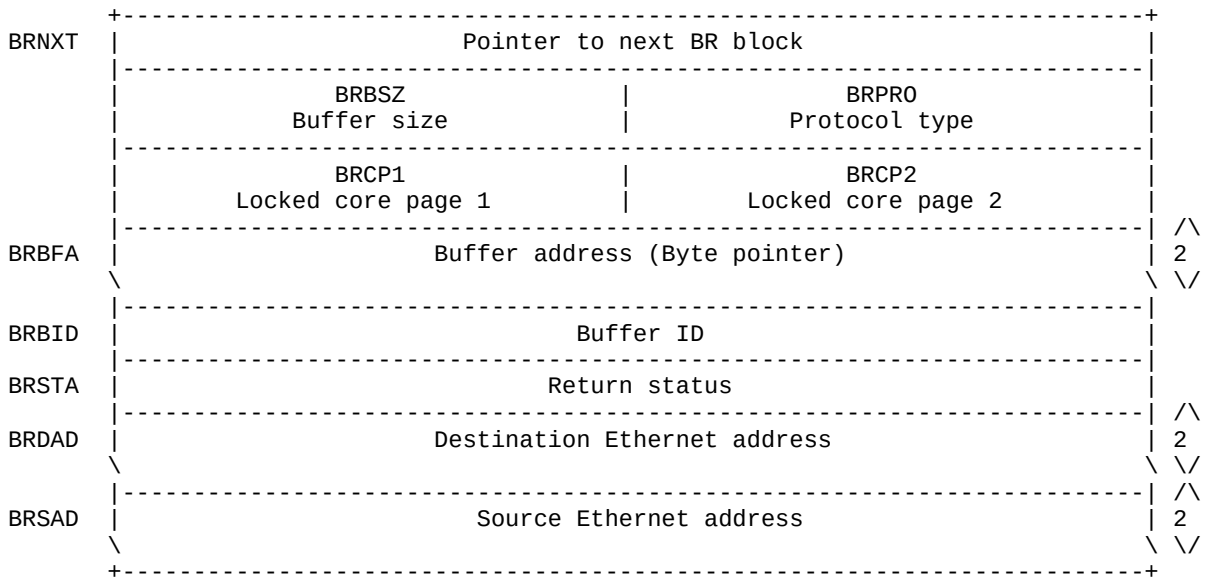


BR

This is the NI% jsys internal buffer descriptor block.

Defined in: NIUSR

Format



BTB

Bit Table for Disk. This table has mapped into it pointers to the file STRNAM:<ROOT-DIRECTORY> DSKBTTBL, when pages are allocated or deallocated from the disk unit(s) belonging to structure, STRNAM. The bit table file as shown below indicates which pages are assigned (bits off) and which are available (bits on).

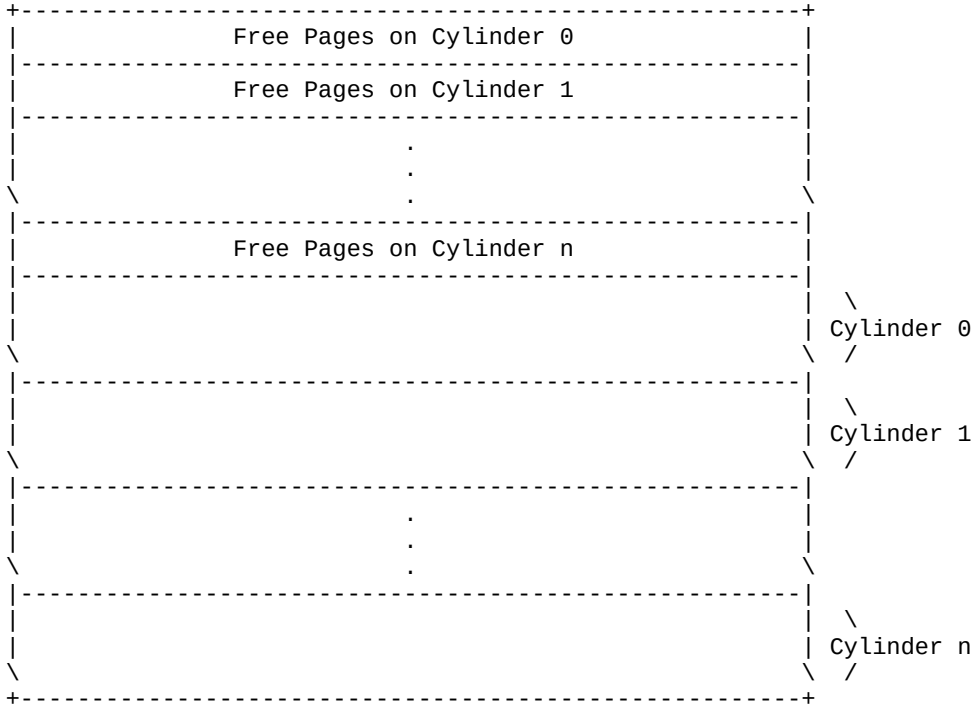
It consists of two parts; the top half contains the number of free pages for each cylinder in the structure and the bottom half contains a bit map (1 bit per page) for all pages of each cylinder in the structure.

At initialization time, the following are assigned in the bit table file:

- All of this structure's pages that belong to the Home blocks
- All of the pages in this structure's swapping space
- Those pages pointed to by the BAT blocks

Defined in: STG

Format



NOTE

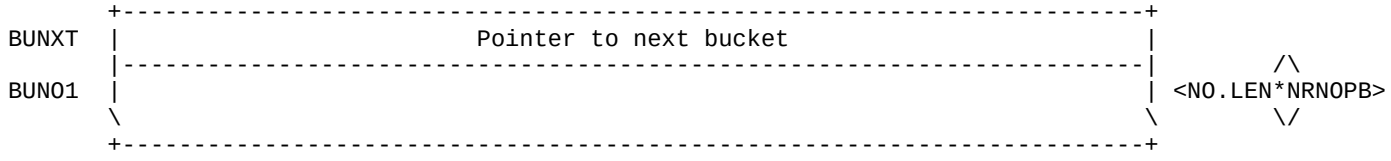
In the bit map each cylinder starts on a word boundary and contains as many full words as are needed for all of its pages.
For Systems which have sectioning, the BTB table does not hold the maps for the disk bit table file. Rather, the monitor maps the disk bit table file for a structure into section 4 of the monitor's address space when it needs to allocate or deallocate disk pages. That is, the index block of this file is the page table pointed to by the monitor's section pointer for section 4.

BU

The data structure BU defines a bucket in the DECnet-36 node name/number data base.

Defined in: SCLINK

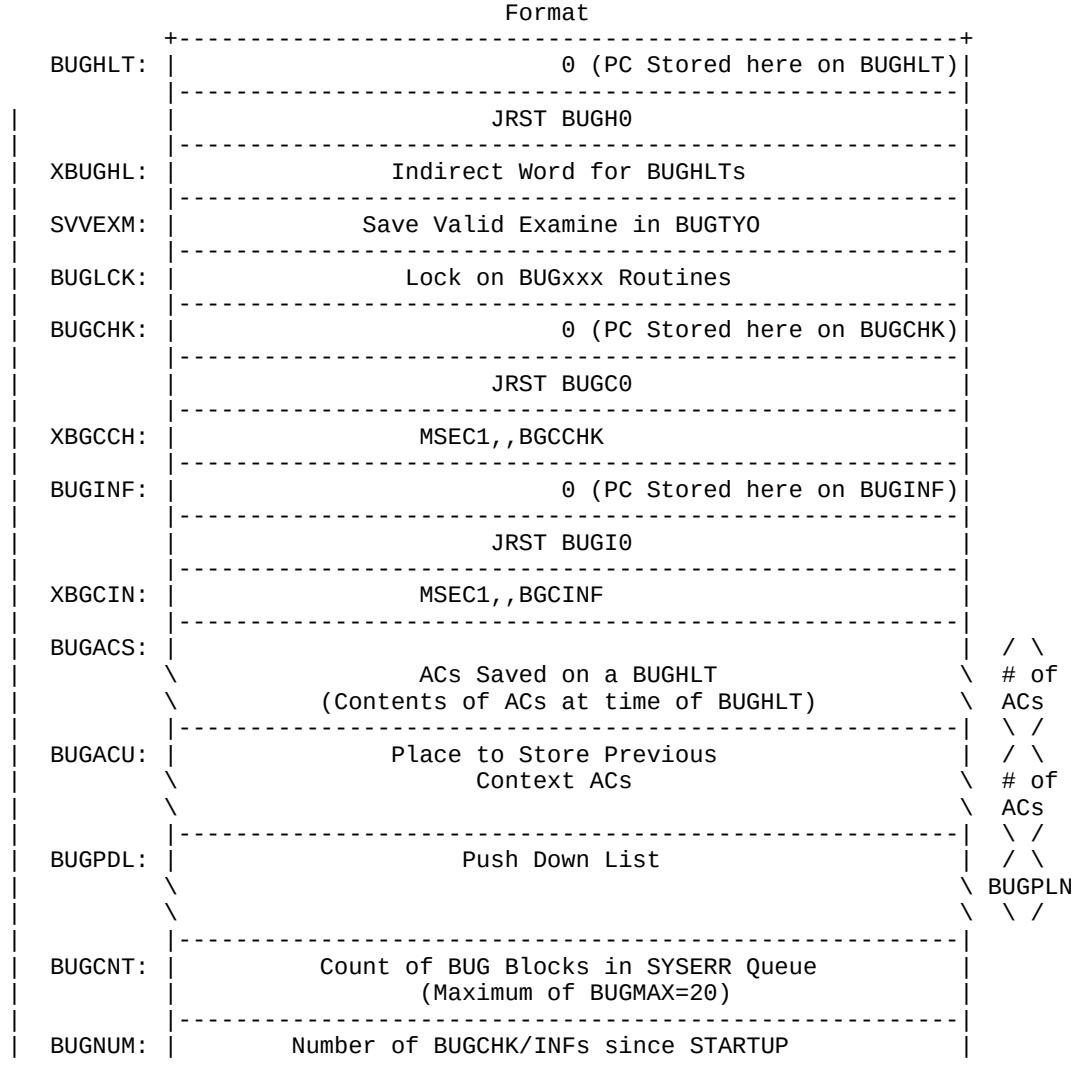
Format



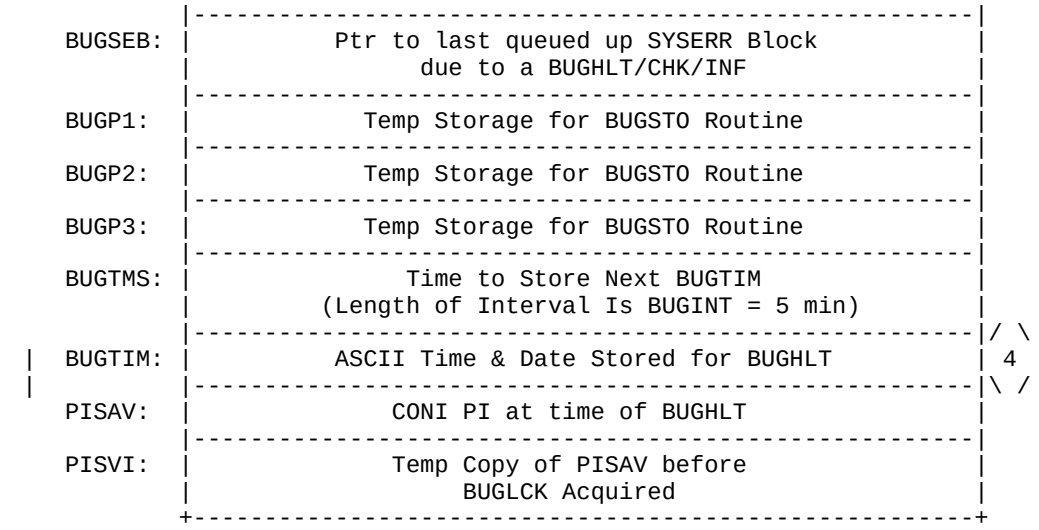
BUG-HLT/CHK/INF-STORAGE-AREA

BUGHLT, BUGCHK, and BUGINF Storage Area. This resident storage is used to hold such information as the push down list, PC, ACs and dispatch address when a BUGHLT/BUGCHK/BUGINF occurs. BUGSEB holds the pointer to the last queued up SYSERR block. (See SYSERR-STORAGE-AREA)

Defined in: STG



MONITOR TABLES
BUG-HLT/CHK/INF-STORAGE-AREA (Cont.)

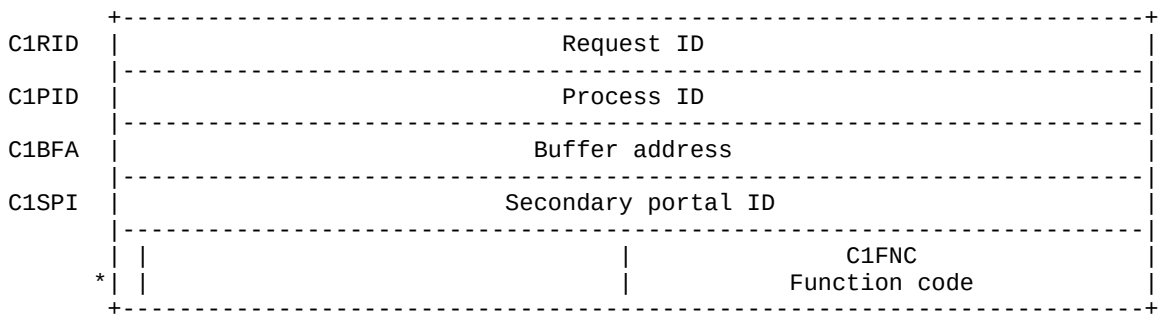


C1

C1 is the format of the NI Read and Read/Clear Counters command.

Defined in: PHYKNI

Format



Field C1ZRO (0-0) Indicates counters should be zeroed

CA

This table contains field definitions for the CTERM character attributes portion of the CTERM Characteristics Message.

Defined in: CTERMD

Format

Character attribute structure - right justified

```
Field CAXXX     (28-28) (Reserved Flag)

Field CASCF     (29-29) Special Char Function (For O,R,U,V,W,X,DEL)

Field CACEC     (30-31) Control Char Echo
     .CACCX=0   No Echo
     .CACCI=1   Image Echo
     .CACCS=2   Standard Echo
     .CACCB=3   Standard, then Image Echo

Field CADIS     (32-32) Discard output if CLEAR OOB

Field CAINC     (33-33) Include immed. HELLO OOB in input stream

Field CAOOB     (34-35) Out of band handling
     .CAOOX=0   Not out of band
     .CAOOI=1   Immediate clear
     .CAOOD=2   Deferred clear
     .CAOOH=3   Immediate hello
```

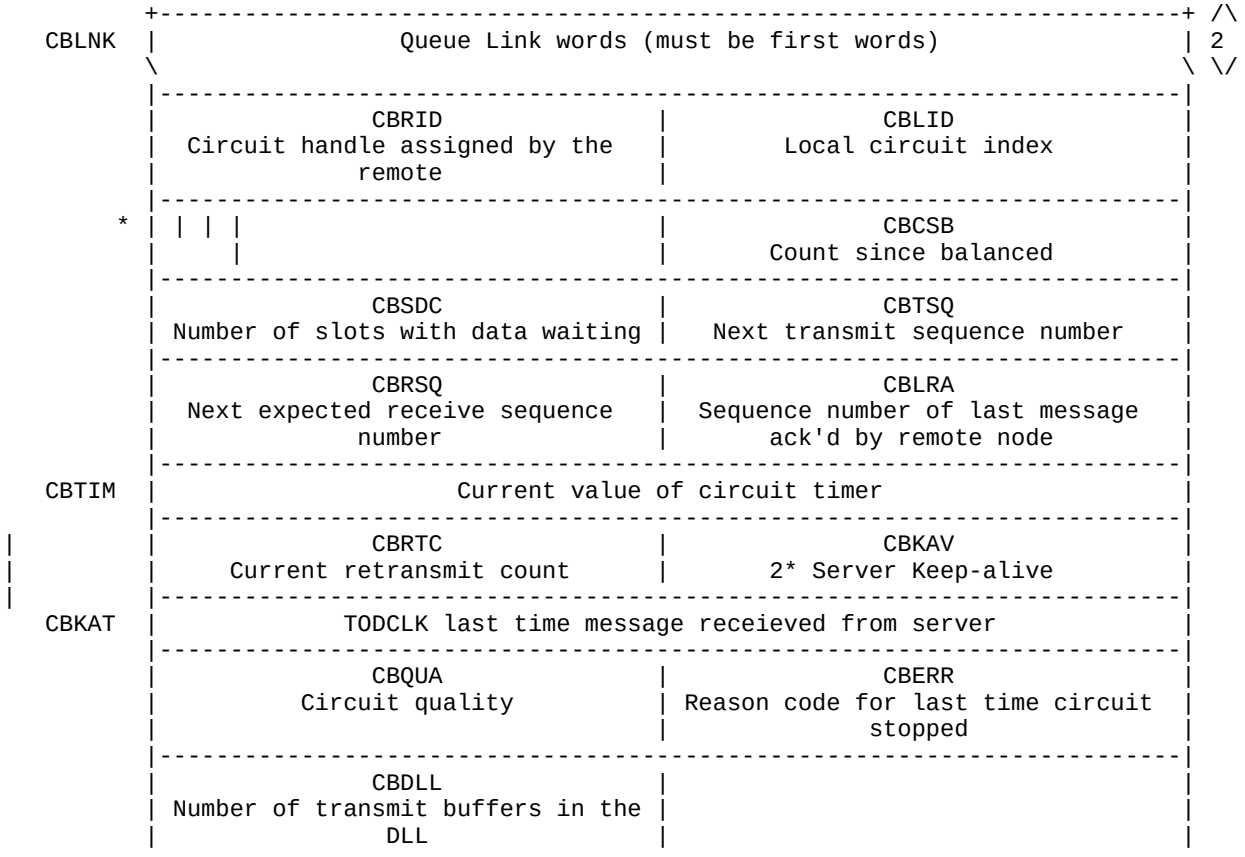
CB-LATSRV

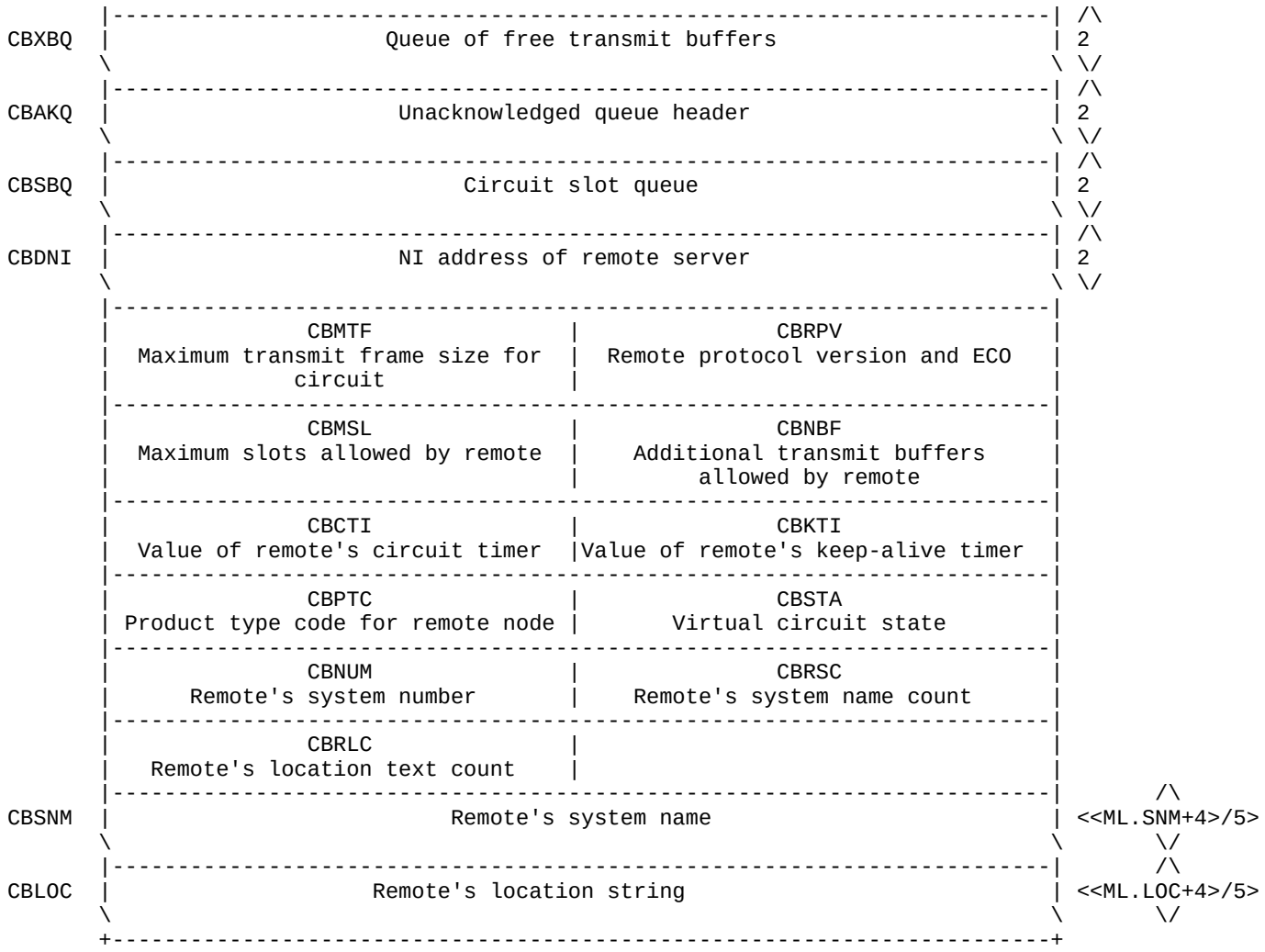
CB is the LAT circuit block data structure. There is one circuit block for each LAT virtual circuit created since the last system startup. There can be up to HNMXC connect blocks allocated at one time. If that threshold has been reached when attempting to open a new virtual circuit, the monitor reuses an inactive connect block if any are available. Connect blocks are chained together; HN locations HNQAC and HNQIC contain pointers to the first and last entries on the active circuit (HNQAC) and inactive circuit (HNQIC) queues.

Defined in: LATSRV

Format

CIRCUIT BLOCK





For field CBFLG(0-2):

CBRRF	0	Reply requested flag
CBMRS	1	Must reply soon flag
CBMRN	2	Must reply now flag

CB-LLMOP

DECnet counters block.

Defined in: LLMOP

Format

CBID	Requester ID for this block
CBBR	Bytes received
CBBX	Bytes transmitted
CBFR	Frames received
CBFX	Frames transmitted
CBMCB	Multicast bytes received
CBMCF	Multicast frames received
CBFXD	Frames xmitted, initially deferred
CBFXS	Frames xmitted, single collision
CBFXM	Frames xmitted, multiple collisions
CBXF	Transmit failures
CBXFM	Transmit failure bit MASK
CBCDF	Carrier detect check failed
CBRF	Receive failures
CBRFM	Receive failure bit mask
CBDUN	Discarded unknown
CBD01	Discarded position 1
CBD02	Discarded position 2
CBD03	Discarded position 3
CBD04	Discarded position 4
CBD05	Discarded position 5

CBD06	Discarded position 6
CBD07	Discarded position 7
CBD08	Discarded position 8
CBD09	Discarded position 9
CBD10	Discarded position 10
CBD11	Discarded position 11
CBD12	Discarded position 12
CBD13	Discarded position 13
CBD14	Discarded position 14
CBD15	Discarded position 15
CBD16	Discarded position 16
CBFBE	Free buffer list empty
CBSBU	System buffer unavailable
CBUBU	User buffer unavailable
CBUFD	Unrecognized frame dest
CBXXX	This word actually reserved for ucode
CBUNI	Portal ID

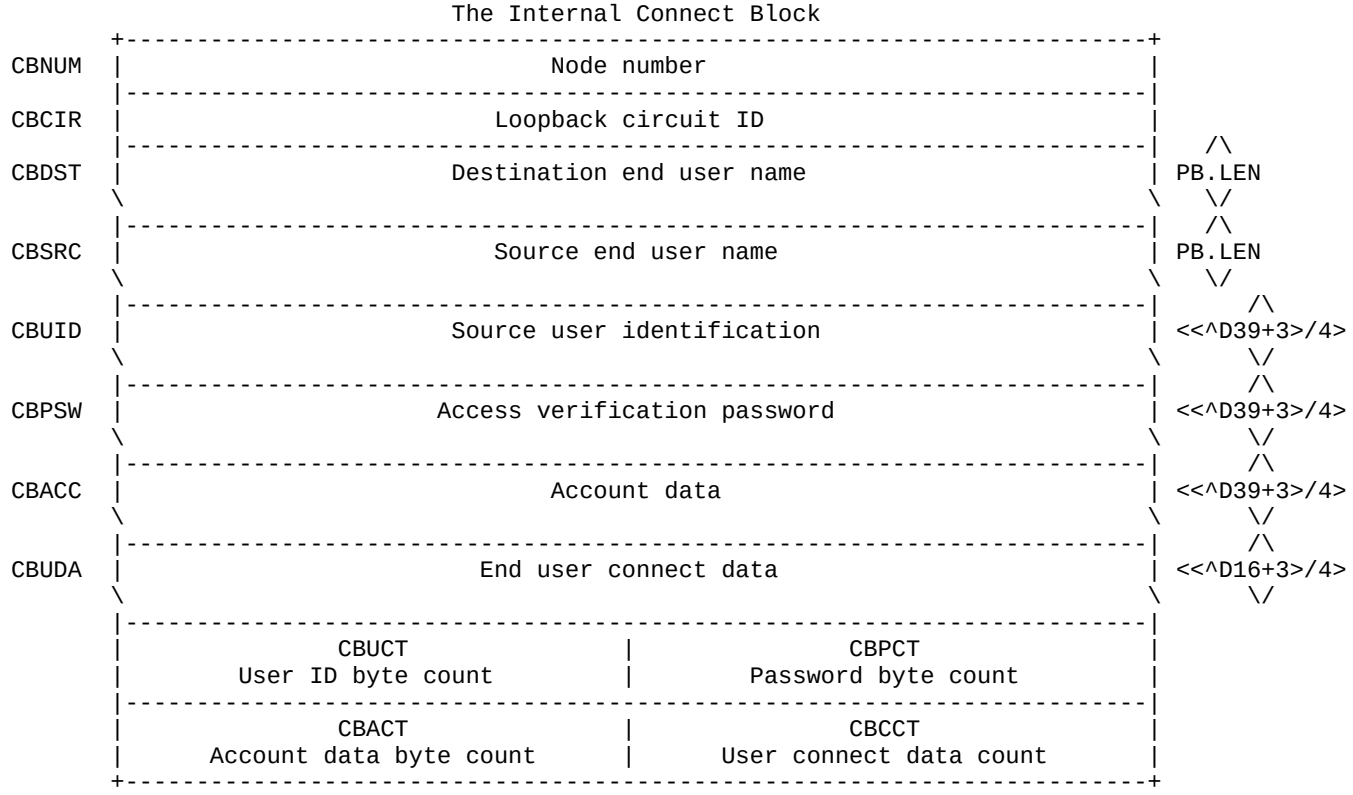
CB-SCPAR

The DECnet-36 Connect Block is used to describe the information present in the NSP connect initiate message.

Defined in: SCPAR

Format

The Internal Connect Block



CC-LATSRV

CC is the LAT circuit counters block. This data structure is part of the Circuit Block (CB) data structure.

Defined in: LATSRV

Format

CIRCUIT COUNTERS

CCRCV	Messages received
CCXMT	Messages transmitted
CCRTR	Messages retransmitted
CCSEQ	Receive message sequence errors
CCIMR	Illegal messages received
CCISR	Illegal slots received
CCRES	Resource errors
CCMSK	Illegal message error mask

CC-NIPAR

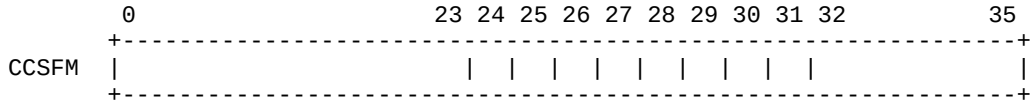
CC is the read channel counters block. There are two words in the table for each entry. CC is used by NTCTRS for the SHOW COUNTERS and SHOW and ZERO COUNTERS network management functions.

Defined in: NIPAR

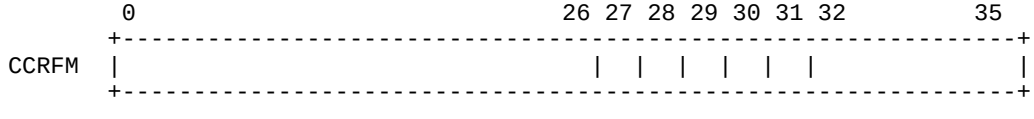
Format

	Network management data
CCSLZ	Seconds since last zeroed
	Network management data
CCBYR	Bytes received
	Network management data
CCBYS	Bytes sent
	Network management data
CCDGR	Datagrams received
	Network management data
CCDGS	Datagrams sent
	Network management data
CCMBR	Multicast bytes received
	Network management data
CCMDR	Multicast datagrams received
	Network management data
CCDSD	Datagrams sent, initially deferred

	Network management data	
CCDS1	Datagrams sent, single collision	
	Network management data	
CCDSM	Datagrams sent multiple collisions	
	Network management data	
CCSF	Send failures	
CCSFM	Send failure bit mask	*
	Network management data	
CCRF	Receive failure	
CCRFM	Receive failure bit mask	*
	Network management data	
CCUFD	Unrecognized frame destination	
	Network management data	
CCDOV	Data overrun	
	Network management data	
CCSBU	System buffer unavailable	
	Network management data	
CCUBU	User buffer unavailable	



Symbol	Bit	Contents
CCLOC	24	Loss of carrier
CCXBP	25	Xmit buffer parity error
CCRFD	26	Remote failure to defer
CCXFL	27	Xmitted frame too long
CCOC	28	Open circuit
CCSC	29	Short circuit
CCCF	30	Collision detect check failed
CCEXC	31	Excessive collisions



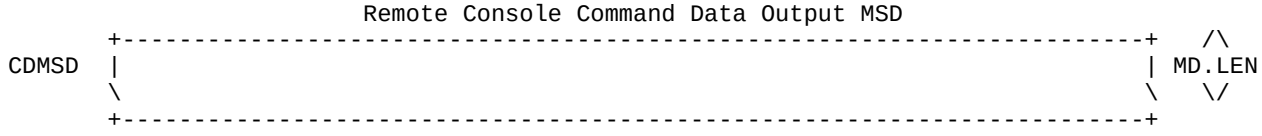
Symbol	Bit	Contents
CCFLE	27	Free list parity error
CCNFB	28	No free buffers
CCFTL	29	Frame too long
CCFER	30	Framing error
CCBCE	31	Block check error

CD

This is the DECnet remote console command data area; the data buffer is supplied by the user.

Defined in: LLMOP

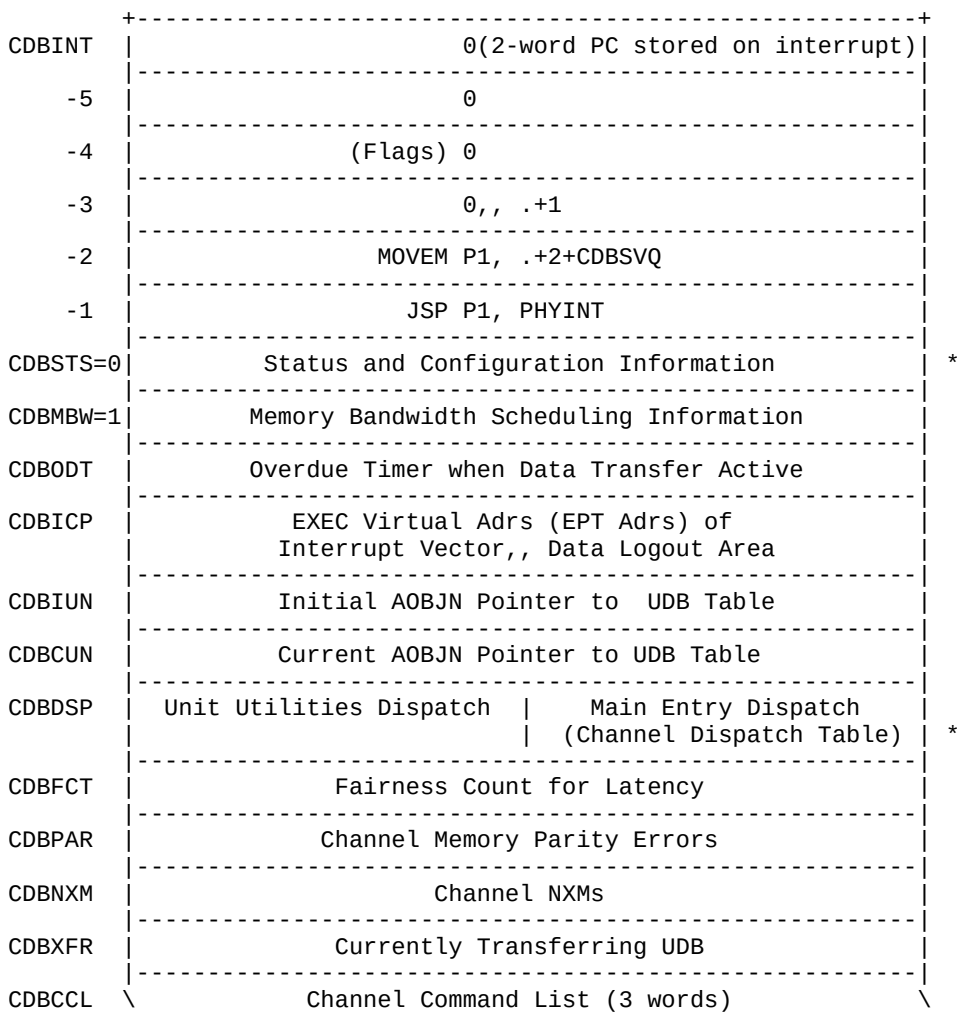
Format



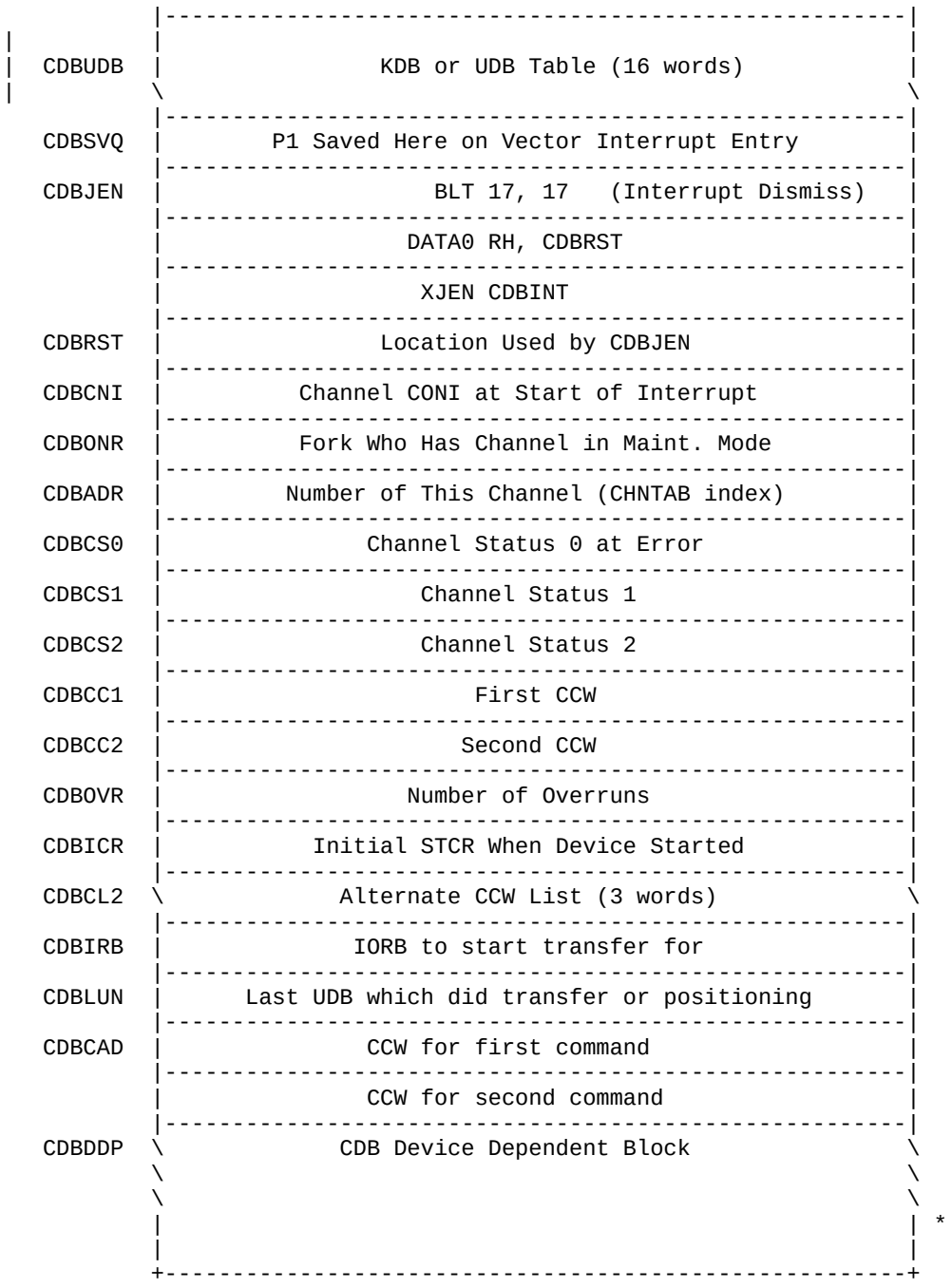
CDB

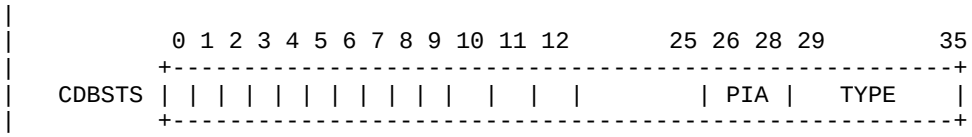
Channel Data Block. This table, one per channel, contains channel dependent instructions and data, pointers to the units (that is, UDBs) belonging to the channel and information about the currently active unit. When the channel interrupts, control passes (by way of a JSP instruction) to CDBINT. The CDB address is stored in AC, P1, and the principal analysis routine, PHYINT, is called.

Defined in: PHYPAR



MONITOR TABLES
CDB (Cont.)



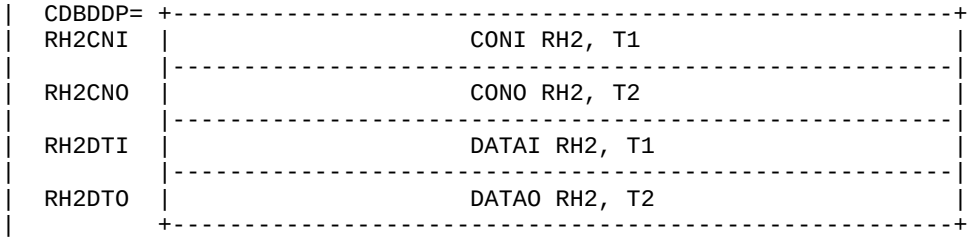


Symbol	Bits	Content
CS.OFL	0	Offline
CS.AC1	1	Primary command active
CS.AC2	2	Secondary command active
CS.MAI	3	Channel is in maint. mode
CS.MRQ	4	Maint. mode requested for a unit
CS.ERC	5	Error recovery in progress
CS.STK	6	Channel Support, Command Stacking
CS.ACL	7	Alternate CCW List is Current
CS.CWP	8	Channel write parity error detected on this channel
CS.CIP	9	This is a CI port channel
CS.DEN	10	(CI port) DIAG TO TAKE CHANNEL is enabled
CS.NIP	12	This is an NI port channel
	26-28	PIA field
	29-35	Channel type field

CDBDSP
See Tables, UDS and CDS

CDBDDP
CDB Device Dependent Block for the RH20 Controller

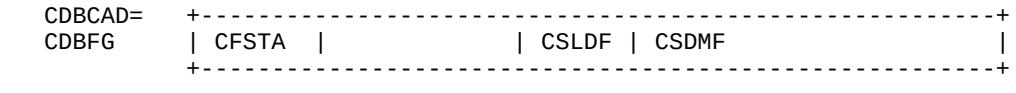
Defined in: PHYH2



CDBCAD

This is the CDB Device Dependent Block for the CI or NI.

| Defined in: PHYPAR



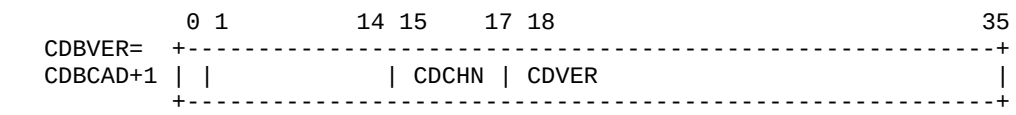
CFSTA

States of the Port:

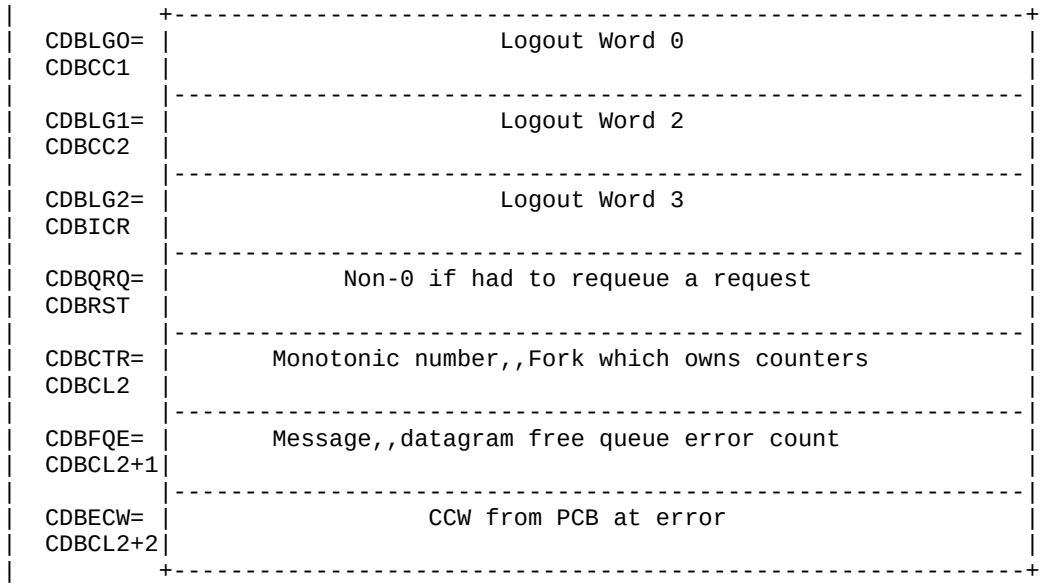
Symbol	Port States	Port-state description
CHNUNK	0	Unknown (system startup)
CHNSTP	1	Stopped (and needs to be restarted)
CHNNRL	2	Needs to have microcode reloaded
CHNRIP	3	Microcode reload in progress
CHNNDM	4	Needs to have dump taken
CHNDIP	5	Dump in progress
CHNMAI	6	Maintenance mode (owned by diagnostic)
CHNDED	7	Dead (we are not trying to restart it)
CHNRUN	10	Running
CHNRLC	11	Microcode reload complete
CHNDMC	12	Microcode dump complete

CSLDF Last fork that loaded the port's microcode

CSDMF Last fork that dumped the port's microcode



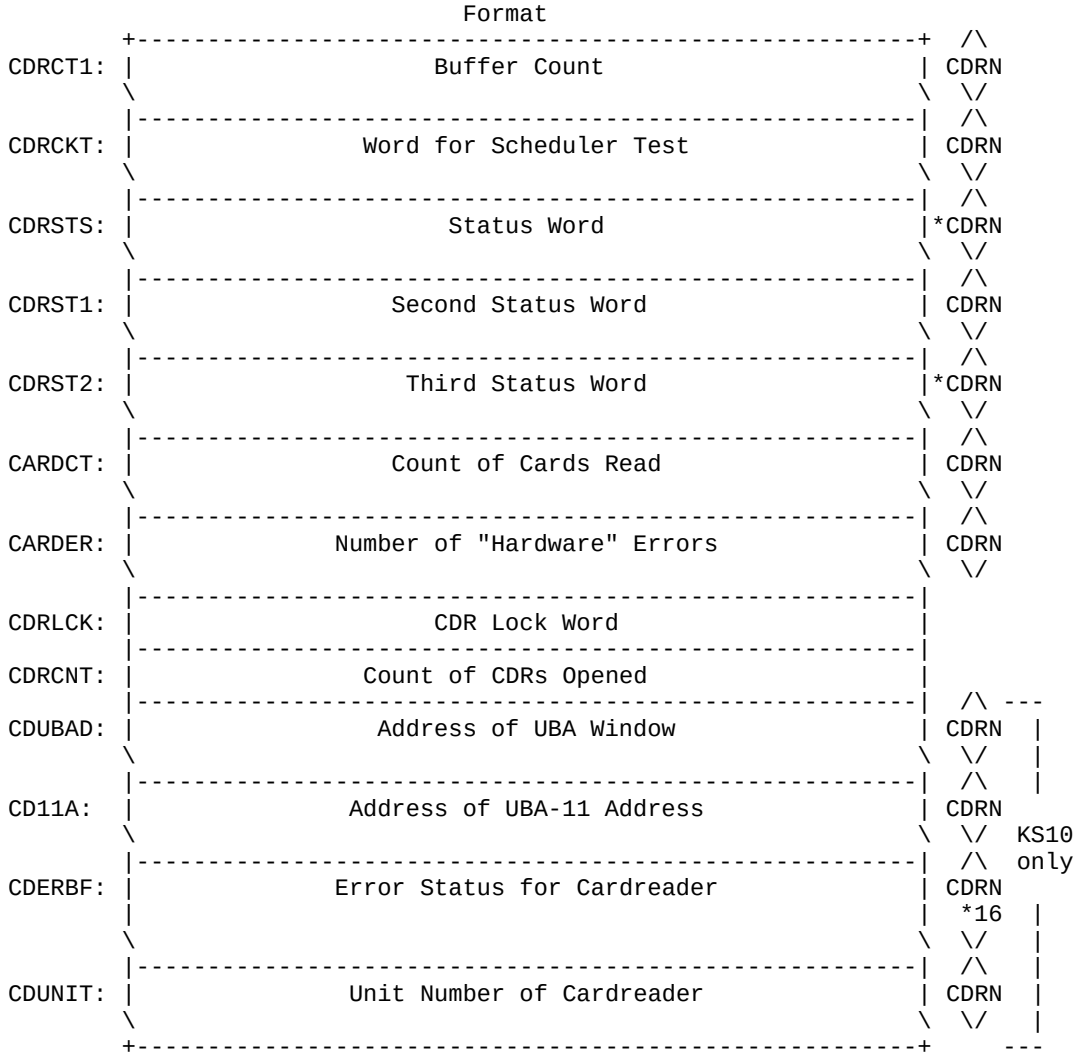
Symbol	Bits	Contents
CDPRT	0	Port; 0 = CI; 1 = NI
CDCHN	15-17	RH20 channel number
CDVER	18-35	Microcode version number


CDBLGO= CDBCC1
Logout Word 0
CDBLG1= CDBCC2
Logout Word 2
CDBLG2= CDBICR
Logout Word 3
CDBQRQ= CDBRST
Non-0 if had to requeue a request
CDBCTR= CDBCL2
Monotonic number,,Fork which owns counters
CDBFQE= CDBCL2+1
Message,,datagram free queue error count
CDBECW= CDBCL2+2
CCW from PCB at error

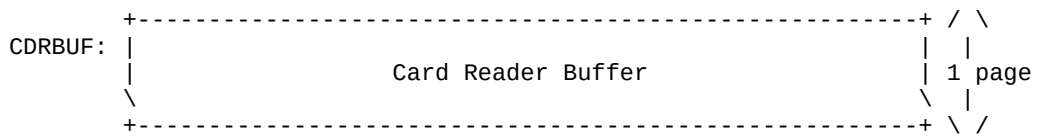
CDR-STORAGE-AREA

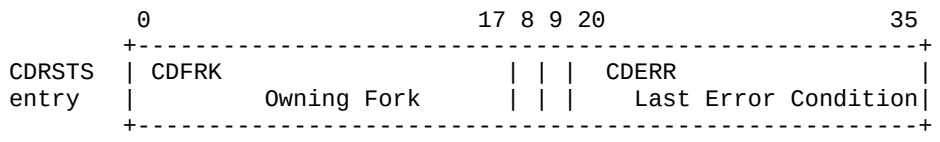
Card Readers (Physical) Storage Area. Most entries are CDRN words long where CDRN equals the number of card readers on the system.

Defined in: STG

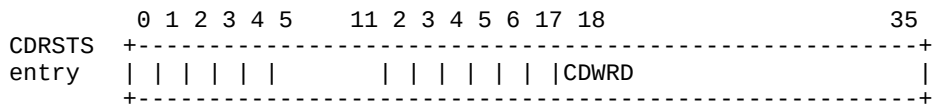


The Non-resident area contains:

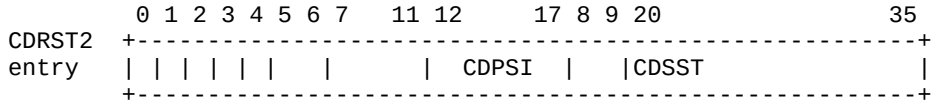




Bits	Pointer	Content
0-17	CDFRK	Owning fork
18	CDOL	If one, cards in reader
19	CDBLK	Waiting for a card
20-35	CDERR	Last error condition



Bits	Pointer	Content
0	CDAII	CDR opened in ASCII
1	CDATN	CDR needs attention
2	CDMSG	Suppress system messages
3	CDOPN	CDR is open
4	CDER	Error in this CDR
12	CDCNT	Count of bytes now in buffer
13	CDEOF	EOF button was pushed
14	CDBUF	Buffer for process level
15	CDPIR	Process needs interrupt
16	CDBFI	Buffer for PI level
17	CDDON	If one, doing a buffer by process
18-35	CDWRD	Current internal storage word



Symbol	Bits	Pointer	Content
CD%SHA	0	CDSHA	"Status has arrived" flag
	1	CDMWS	MTOPR is waiting for status to arrive
CD%RLD	2	CDRLD	Front end has reloaded
	3	CDOFI	Offline interrupt is pending
	4	CDEFI	End of file interrupt already given
	5-6	CDRTYP	Type of card reader
	7	CDEXST	Existance of reader
	12-17	CDPSI	PSI chan. no. for on-line transitions
	20-35	CDSST	Software status word

Symbol	Bits	Content
.DVFFE	28	Device has a fatal, unre-coverable error
.DVFLG	29	Error logging info. follows
.DVFEF	30	EOF
.DVFIP	31	I/O in progress
.DVFSE	32	Software cond.
.DVFHE	33	Hardware error
.DVFOL	34	Offline
.DVFNX	35	Nonexistent device

CDS

Channel Dispatch Service Routine Table. This table contains vectored addresses to channel dependent functions, and is given in its generalized form. The channel dispatch table for the RH20 and RH11 begins at RH2DSP. See PHYPAR for definitions of arguments given and returned on calls to these channel routines.

Defined in: PHYPAR

Format

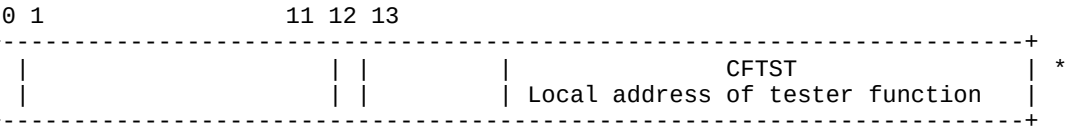
CDSINI=0	Initialize and Build Data Structure
CDSSTK=1	Stack Second Channel Command, Skip if OK(fails if RH11)
CDSSIO=2	Start I/O on IORB (skip if started O.K.)
CDSPOS=3	Do Positioning to Idle Unit (skips if O.K.)
CDSLTM=4	Return Latency and Best Request (that is, best IORB)
CDSINT=5	Interrupt Entry
CDSCCW=6	Generate Single CCW Entry
CDSHNG=7	Hung Reset
CDSRST=10	On Restart, Reset Channel and All Devices
CDSCHK=11	Periodic Check Entry, PIA, ...
CDSEXT=12	Check legality of a unit (skip if existent)
CDSSCA=13	Extract address from CCW entry

CF

This table defines the structure of the wait check tables.

Defined in: SCLINK

Format



Field CFIFI (0-0) The sign bit is reserved for IFIW flg

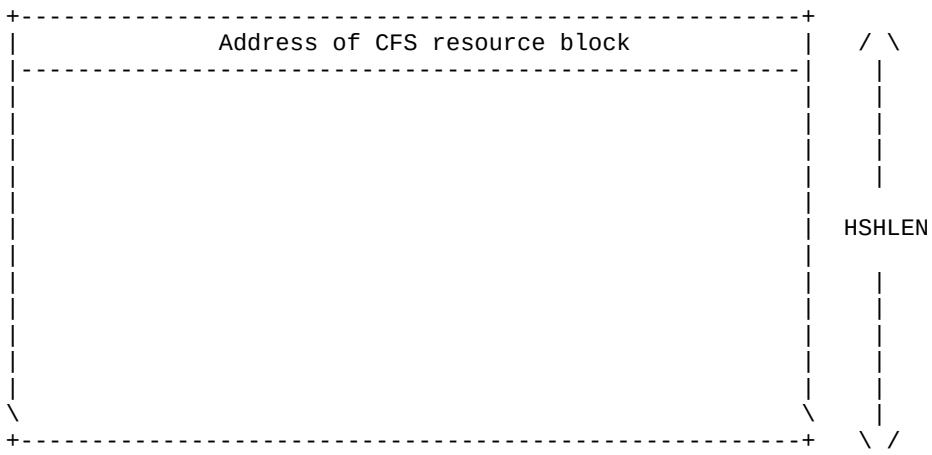
Field CFCHN (12-12) Set if a channel is req'd for this fcn

CFHSHT

This table is the CFS resource hash table and it contains the addresses of CFS resource blocks. The hash number used to index into the table is a combination of the root and qualifier of the resource. Collisions are linked off of the forward pointer of each resource block.

Defined in: STG

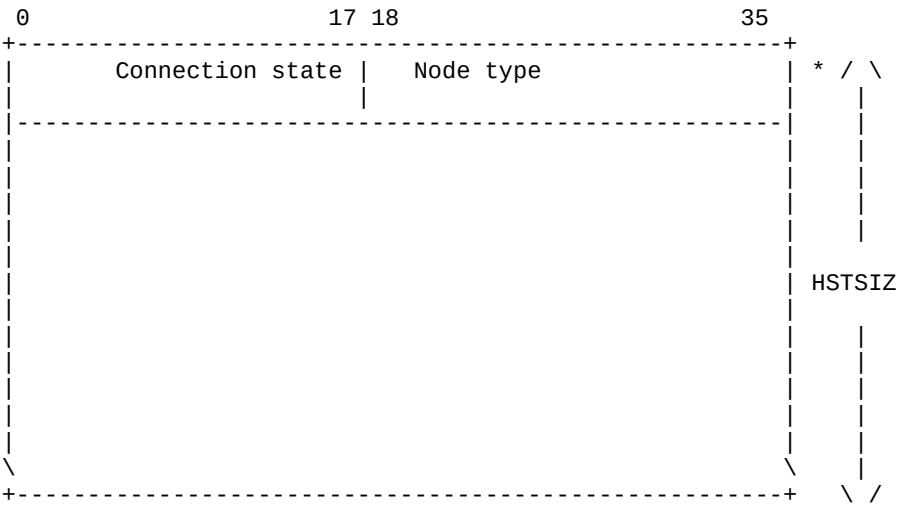
Index: Hash number calculated from root and qualifier of resource



CFHSTS

This table contains the status of each connection that CFS has. This table is parallel to CFSHST.

Defined in: STG



Connection State:

-1 --- When connection is fully open
0 --- When connection is being opened
1B0 -- This bit is turned off when a disconnect happens and the interlock is set.
1B17 - This bit is turned off to indicate a lack of credit.

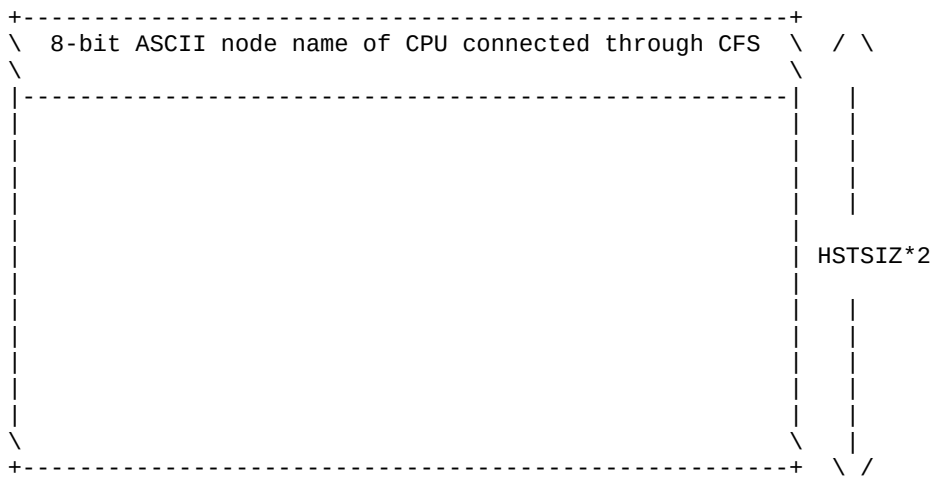
Node Type:

-1 --- Full CFS node
0 --- Not full CFS node

CFNNAM

This table contains the node names of the processors to which CFS on this system is connected.

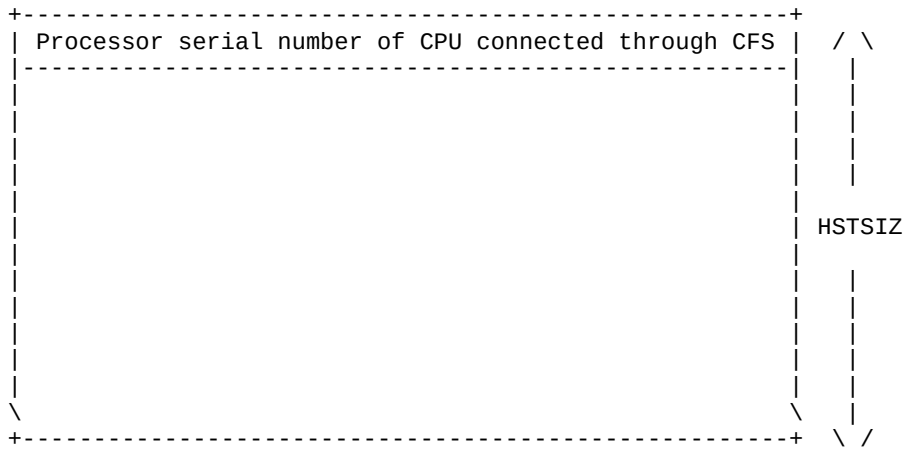
Defined in: STG



CFSHNM

This table contains the serial numbers of the processors to which CFS on this system is connected. This table is parallel to CFSHST (where the connect ID can be found for the connection).

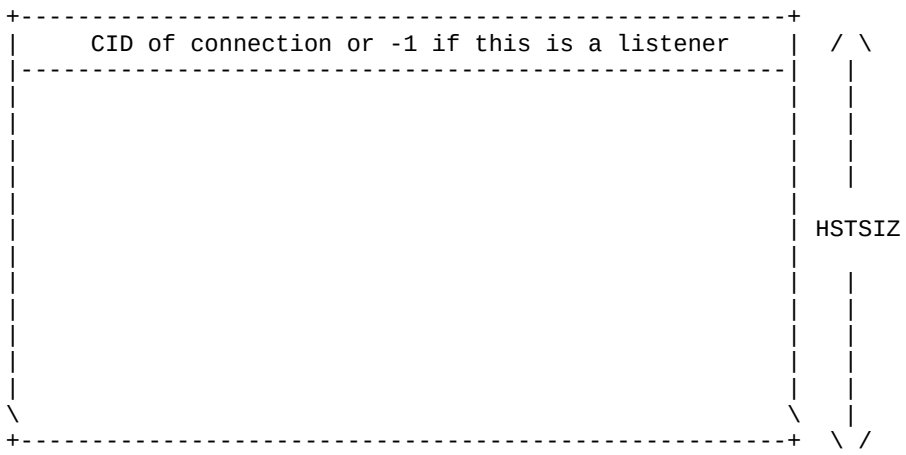
Defined in: STG



CFSHST

This table contains the connection ID for each connection that CFS has. The number of connections that CFS currently has is kept in location CFSHCT. CFSHCM contains the count of full voting hosts.

Defined in: STG

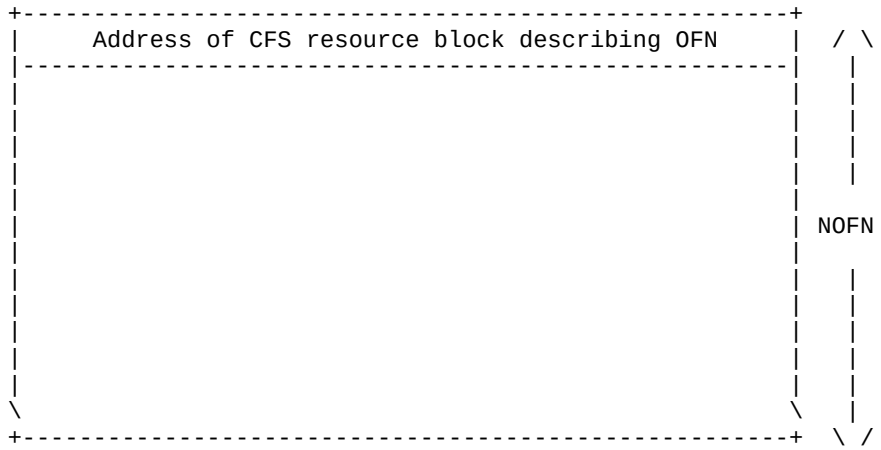


CFSOFN

This table, indexed by OFN, contains the address of the CFS resource block which describes this system's access to that OFN.

Defined in: STG

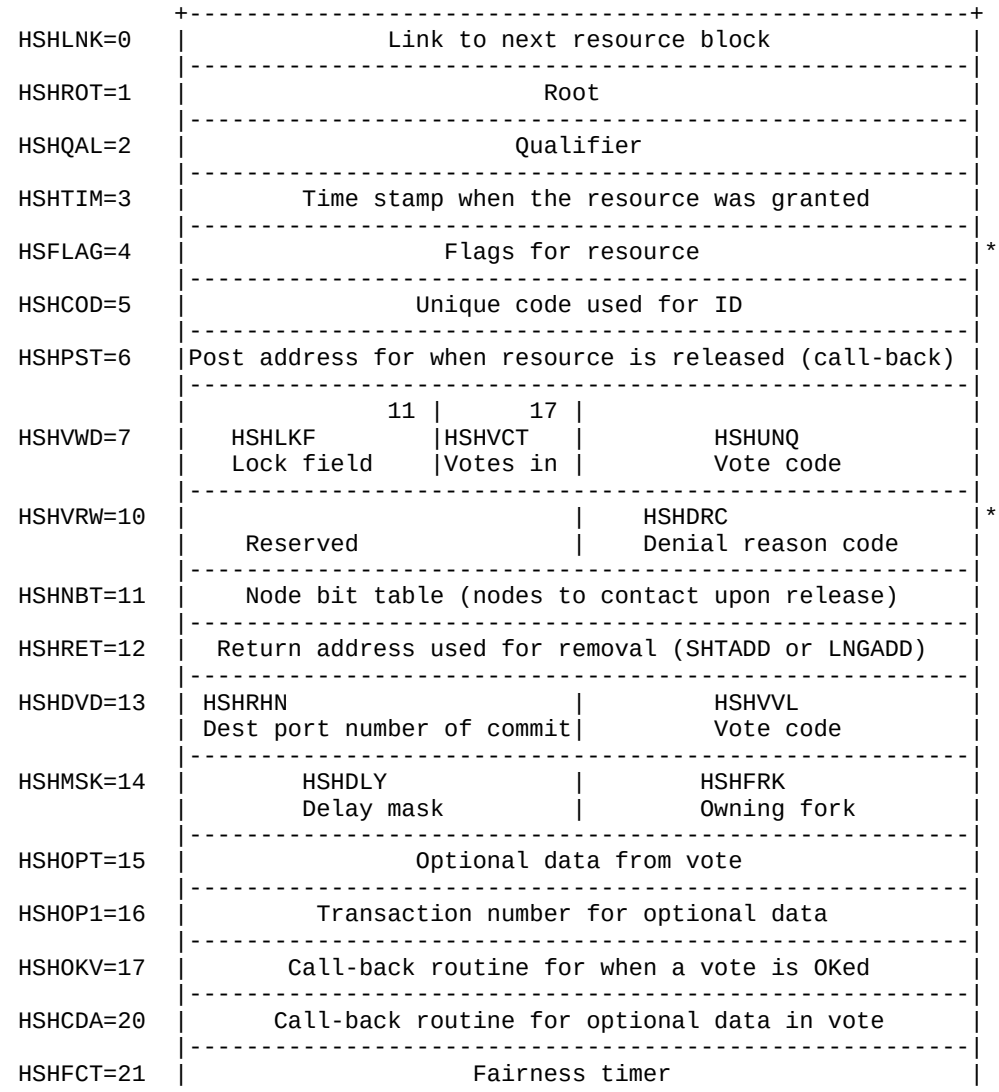
Index: OFN



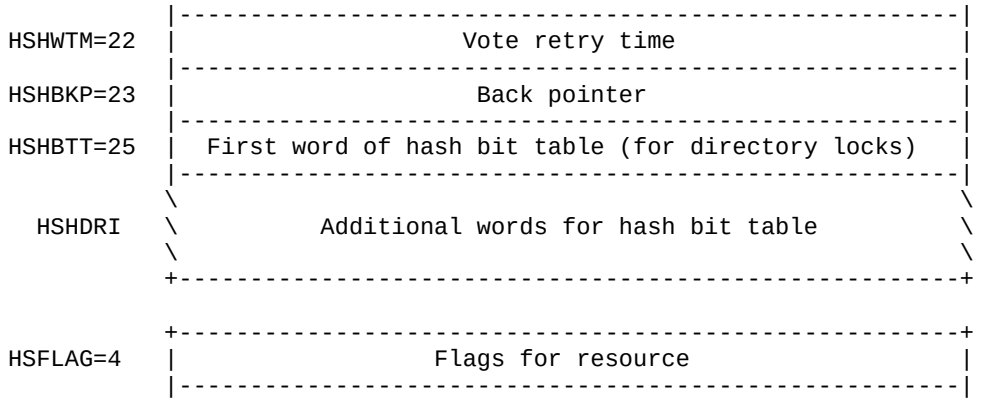
CFS RESOURCE BLOCK

This is the format of the CFS resource block. This block fully describes a resource known to CFS. The root and qualifier uniquely describe the resource. The base address of the hash table (which contains these resource blocks) is contained in CFHSHT.

| Defined in: CFSPAR



MONITOR TABLES
CFS RESOURCE BLOCK (Cont.)



Contents of HSFLAG

Symbol	Bits	Meaning
HSHWVT	0	If on, we are voting
HSHYES	1	Yes/No vote (1 if anyone said no)
HSHTYP	2-5	Type of entry
.HTPLH=0		Place-holder entry
.HTOAD=1		Owned for full sharing
.HTOSH=2		Owned Read-Only shared
.HTOEX=3		Owned exclusively
.HTOPM=4		Owned for Promiscous read
HSHTWF	6	"Token" wait flag
HSHRTY	7	Retry now bit
HSHLSG	8	Entry being released
HSHVRS	9	Vote restart flag
HSHLOS	10	Long/Short flag (1 if block is long)
HSHUGD	11	Voting for an upgrade
HSHODA	12	Optional data valid
HSHKPH	13	Don't purge this entry
HSHVTP	14-17	Type we are voting on
HSHDWT	18	If here, waiting for delay to be up
HSVUC	19	Bit to indicate vote must include HSHCOD
HSHLCL	20	Local exclusive
HSHRFF	21	For tokens only
HSHAVT	22	Vote on all nodes, even reduced CFS nodes
HSHBTF	23	If set, this is a bit-table file
HSHCNT	24-35	Count of sharers

Contents of field HSHDRC

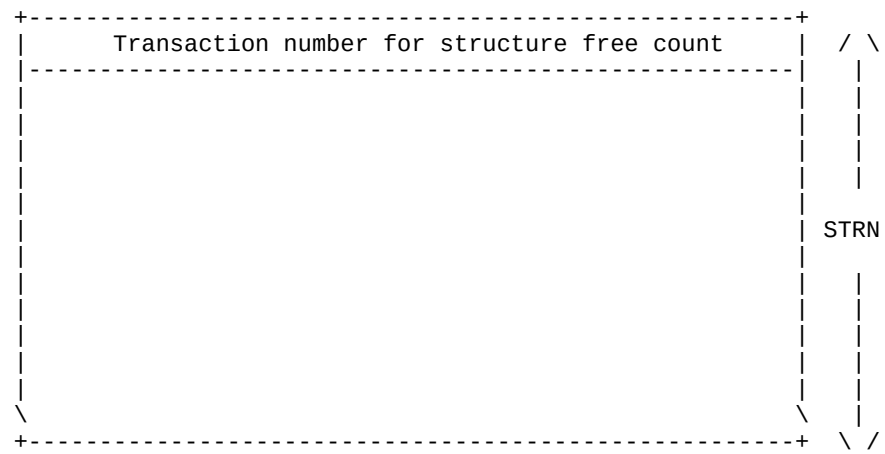
Symbol	Value	Meaning
.CDDWT	1	We are in VOTDWT
.CDVUC	2	HSHCODs are unequal
.CDYUX	3	We are voting, HSHYES set, we have .HTOEX
.CDYUN	4	We are voting, HSHYES set, unequal access
.CDVDL	5	We are voting, HSHDLY set
.CDVLN	6	We are voting, tie, our serial bigger
.CDVUX	7	We are voting, tie, HSHUGD set, he wants .HTOEX
.CDVUN	10	We are voting, tie, HSHUGD set, unequal access
.CDOCT	11	We own resource, conflicting access, HSHCNT set
.CDOFC	12	We own resource, conflicting access, HSHFCT valid

CFSSTR

This table, indexed by structure number, contains the transaction number for the structure free count of each structure.

Defined in: STG

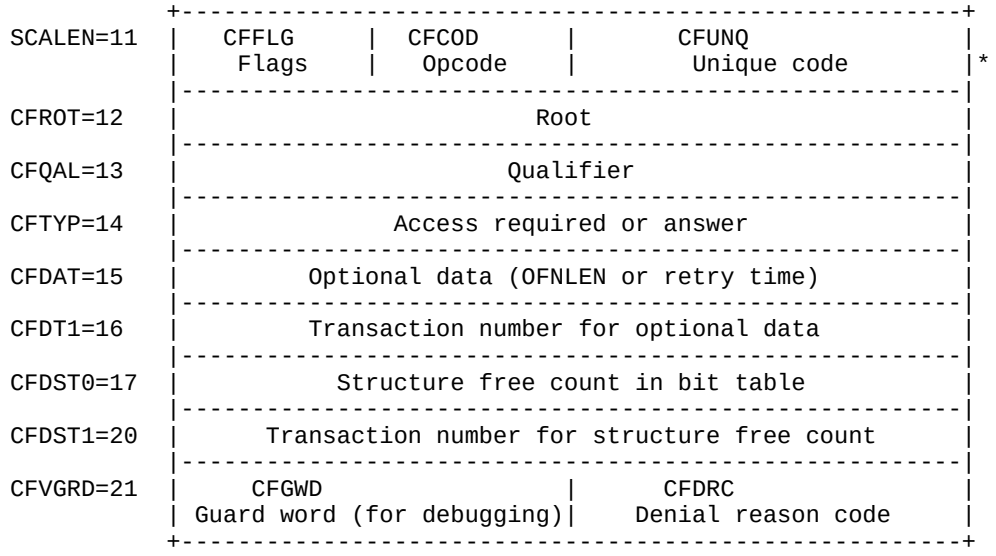
Index: Structure number

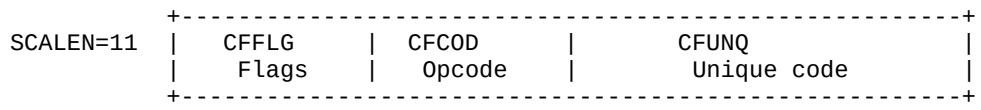


CFS VOTER MESSAGE BUFFER

This is the format of the text area of the message packet sent by CFS upon a vote request or reply. It does not include the SCA header, which appears above the first word of the text area (SCALEN).

Defined in: CFSSRV





Contents of FLAGS field

Symbol	Bits	Meaning
CFODA	0	Optional data present
CFVUC	1	Vote to include HSHCOD

Contents of OPCODE field

Symbol	Value	Meaning
.CFVOT	1	Vote request
.CFREP	2	Reply to vote request
.CFRFR	3	Resource freed
.CFCEZ	4	Seize resource
.CFBOW	5	Broadcast of OFN change
.CFBEF	6	Broadcast end-of-file info
.CFTAD	7	Time and date arrived
.CFSHT	10	Shutdown of system is pending
.CFENQ	11	Cluster ENQ message

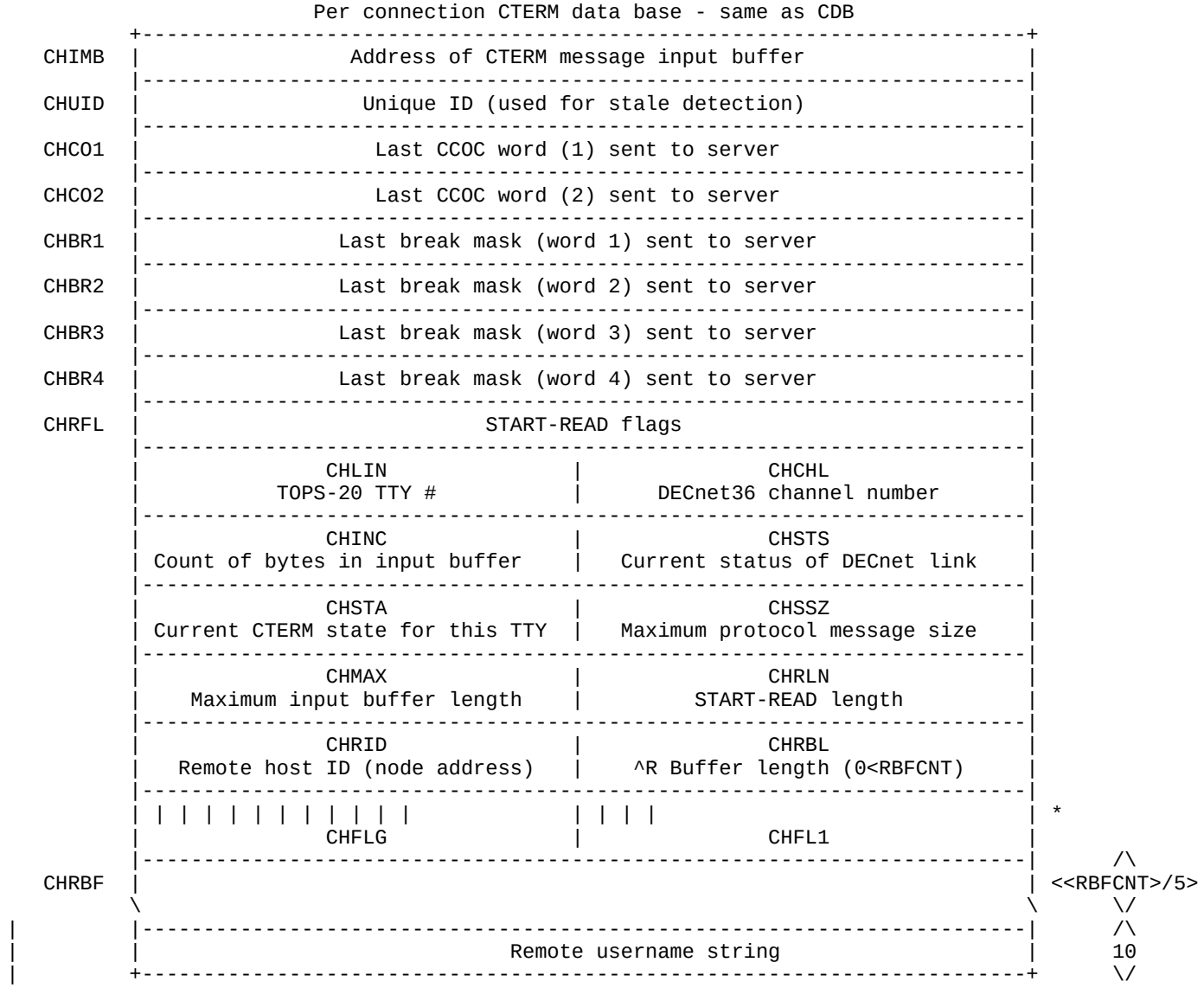
See the description of the HSHDRC field in the CFS Resouce Block table for the possible value of the denial reason code field (CFDRC).

CH-CTERMD

This is the CTERM Connection Data Block. One CTERM Connection Data Block exists for each active CTERM connection.

Defined in: CTERMD

Format



For field CHFLG(0-17):

CHRDA	0	A read request is active in the server.
CHMRD	1	There is input data available in the server
CHSSD	2	Set "do not discard" in the next write message
CHDSO	3	Discard output (control-O is in effect)
CHRCX	4	CR-LF forced on in server's break mask
CHCLI	5	Clear input buffer
CHASR	6	Send another START-READ
CHCOC	7	Send CCOC words
CHTCI	8	Sending input characters to TTYSRV
CHCTM	9	CTERM INITIATE message has been received
CHBIN	10	Last message sent to server was Transparent (binary)

For field CHFL1(18-35):

CHEDT	18	Remote server supports editing
CHLWI	19	Remote server supports line width setting
CHRTI	20	Remote server supports remote TEXTI% prompts

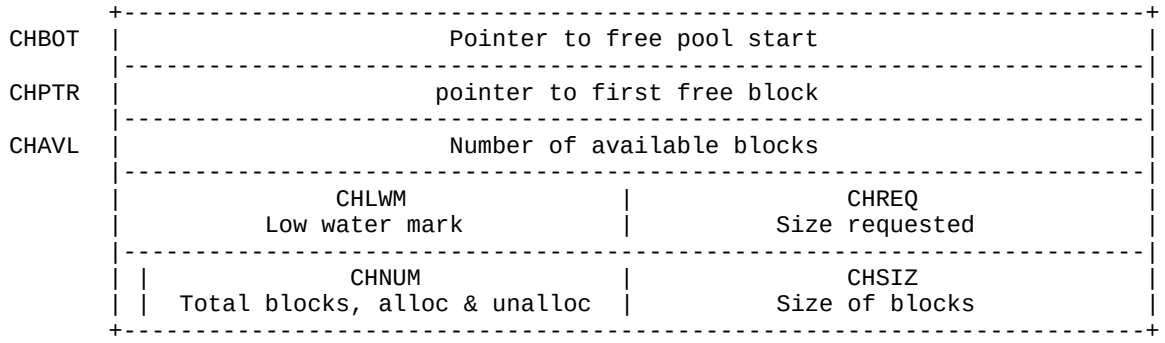
CH-D36COM

This table defines the memory-manager data base for DECnet-36 pre-allocated message blocks and buffers.

Defined in: D36COM

Format

Core handler structure



Field CHCON (0-0) Set if this block type subject to congestion

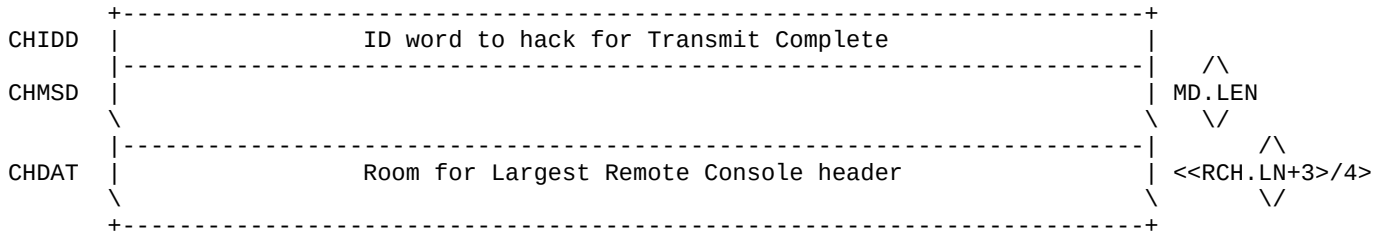
CH-LLMOP

This is the DECnet remote console LLMOP header MSD.

Defined in: LLMOP

Format

MSD for header

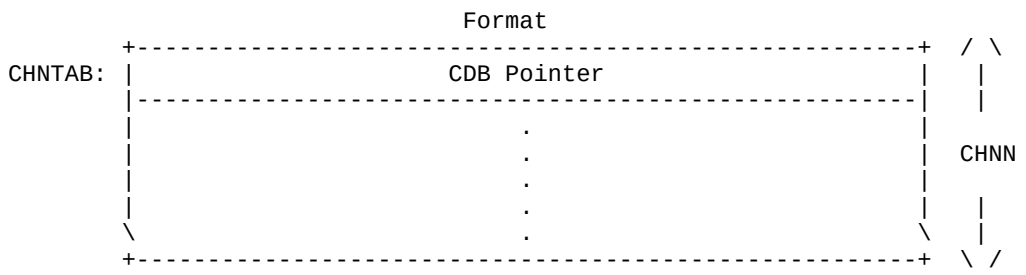


CHNTAB

Channel Table contains channel data block (CDB) pointers.

Defined in: STG

Index: Channel Number

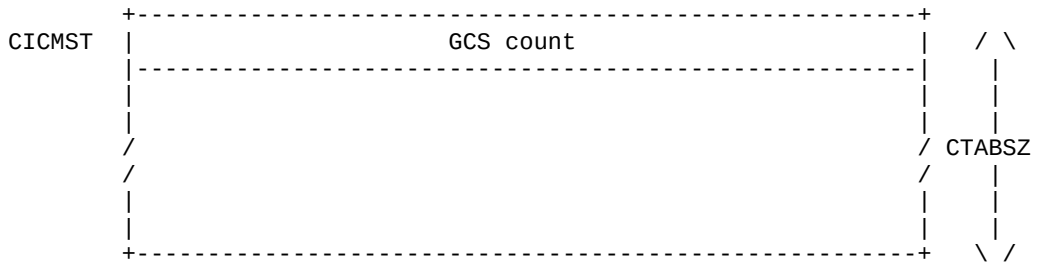


CICMST

This table contains the status of the oldest MSCP driver command for each connection. This is the status returned from the server. If the number does not decrease after each GCS command, we assume the remote is dead.

Defined in: PHYMSC

Index: Server connect id.

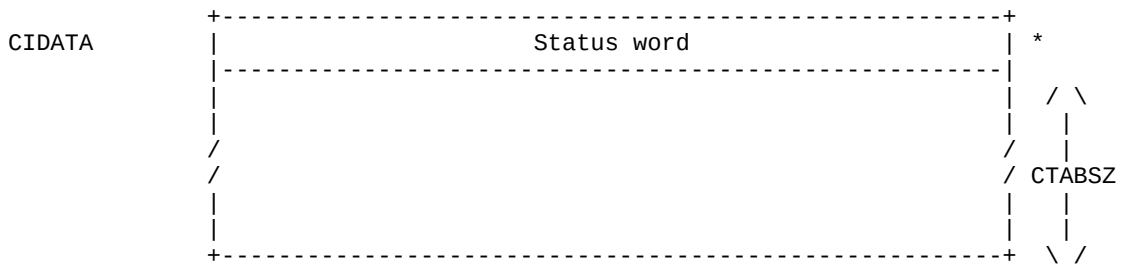


CIDATA

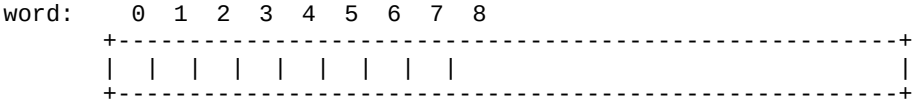
This table contains the state of the MSCP driver connection during initialization and, after initialization, the status of the connection.

Defined in: PHYMSC

Index: Server connect id.



Status word:



Symbol	Bits	Content
DT.TAP	0	Controller is a tape drive (must be sign bit)
DT.GAW	1	Node has gone away (connection broken)
DT.GCS	2	A GCS command is outstanding
DT.IDC	3	We have initiated a disconnect
DT.IRC	4	We have initiated a reconnect
DT.DIS	5	Other side has initiated a disconnect
DT.DI1	6	Already tried disconnect once
DT.NXU	7	First pass next unit test
DT.KL	8	Remote is KL

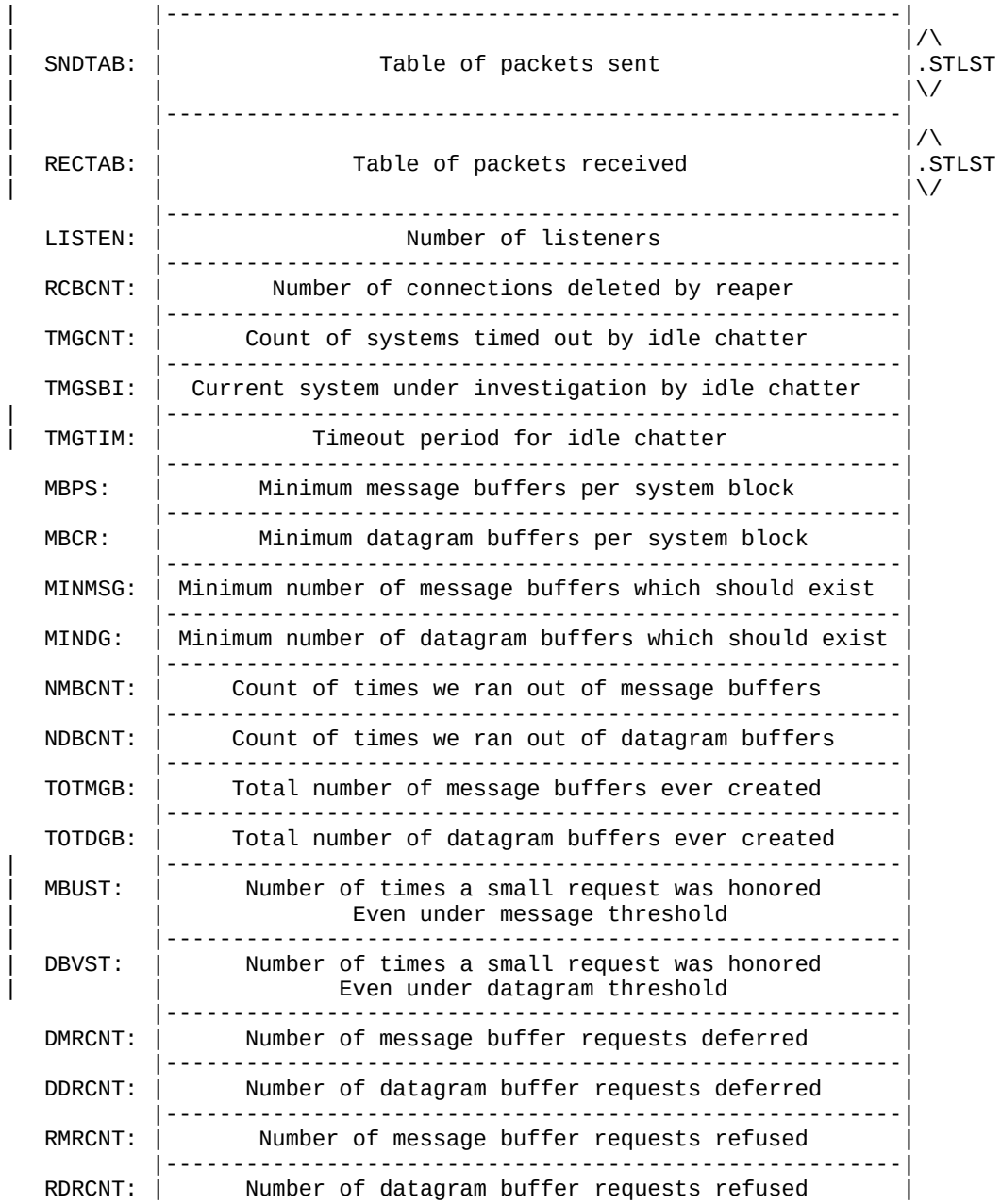
CI RELATED VARIABLES

This is a list of various CI related variables in SCAMPI. They are not stored in this contiguous format.

Defined in: SCAMPI

TOPFQ:	Address of top of message free queue
BOTFQ:	Address of bottom of message free queue
FQCNT:	Count of buffers on message free queue
TOPDC:	Address of top of "don't care" queue
BOTDC:	Address of bottom of "don't care" queue
TOPDFQ:	Address of top of datagram free queue
BOTDFQ:	Address of bottom of datagram free queue
DFQCNT:	Count of buffers on datagram free queue
SBCNT:	Number of system blocks
NOTTAB:	Address of notification table
NOTEND:	Address of end of notification table
UNQBTS:	Uniqueness bits to be assigned to next CID
UNQRFL:	Number of times uniqueness bits have been recycled
NXTIDX:	Next free index into table of CID's
CIDRFL:	Number of times CIDTAB has been recycled
CIDTAB:	Base address of the CID address table
UBTTAB:	Base address of the CID uniqueness bits table
SBSTUK:	Bit mask indicating which systems are stuck on buffers
RAPTIM:	Timer for SCA
RAPINC:	Min. time increment in milliseconds between reap runs
RNGSW:	Indicates which ring buffer events are recorded

MONITOR TABLES
CI RELATED VARIABLES (Cont.)



ASRMR:	Average size of refused message request
ASRDR:	Average size of refused datagram request
LRGREQ:	Buffer requests of less than this size are small req.
MGTRSH:	MSG Threshold SC.ABF does not allocate a large request *
DGTRSH:	DG Threshold SC.ALD does not allocate a large request *

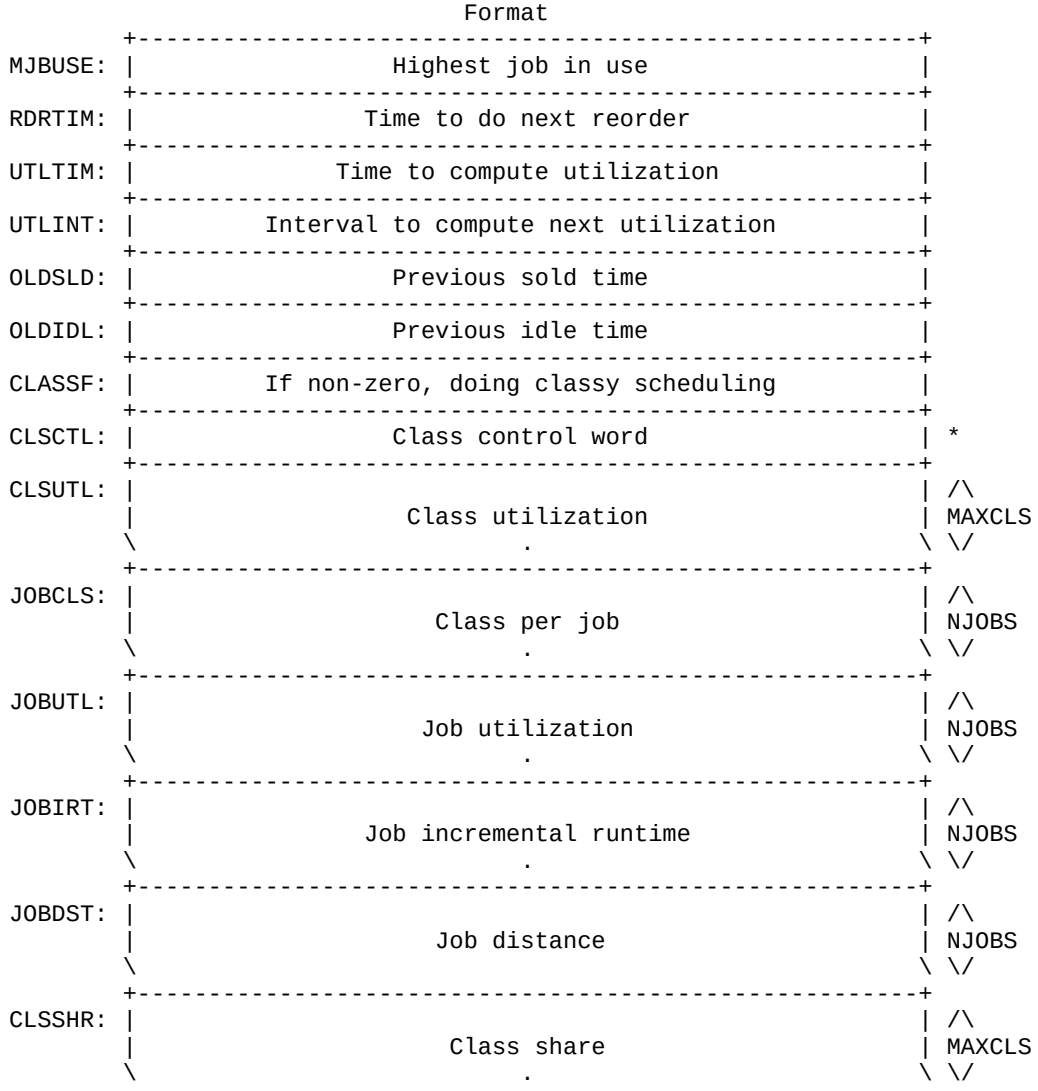
* A large reuest is any request larger than 2.

CLASS-SCHEDULER-STORAGE

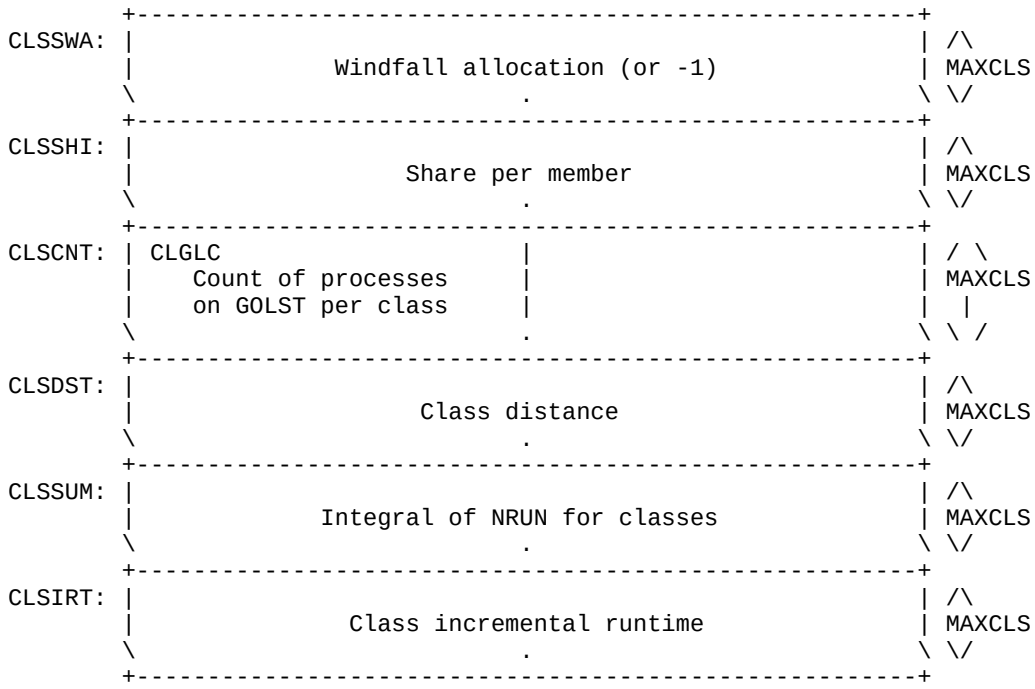
This storage is used by the class scheduling algorithms.

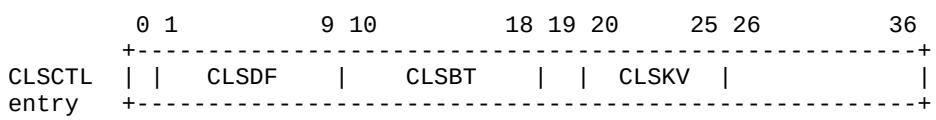
Defined in: STG

Index: A number of the sections are indexed by either class (sections of length MAXCLS) or by job number (sections of length NJOBS).



MONITOR TABLES
CLASS-SCHEDULER-STORAGE (Cont.)



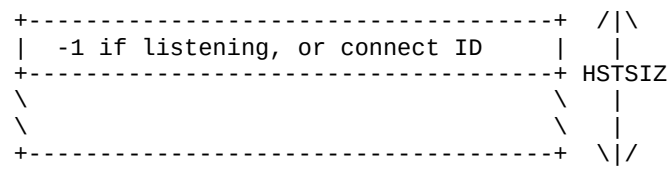


Bits	Pointer	Content
0	CLSBD	BATCH jobs to dregs queue
1-9	CLSDF	Default class
10-18	CLSBT	Batch class
19	CLSAC	If on, class by accounts
20-25	CLSKV	Current knob value

CLUHST

This table contains information CLUDGR uses when it receives a connection to its listener. CLUHST is a maximum of HSTSIZ words long. HSTSIZ is defined in STG.

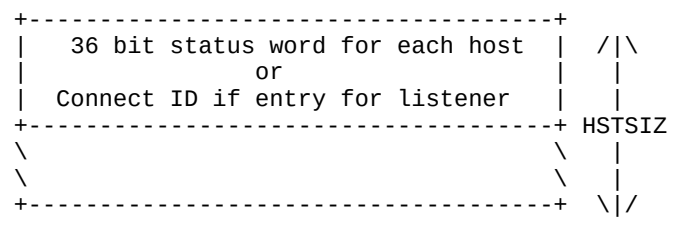
Defined in: CLULSN



CLUSTS

This table is kept in parallel with CLUHST. It contains the status word or it contains a connect ID if this entry is associated with a listener. CLUSTS is a maximum of HSTSIZ words long. HSTSIZ is defined in STG.

Defined in: CLULSN



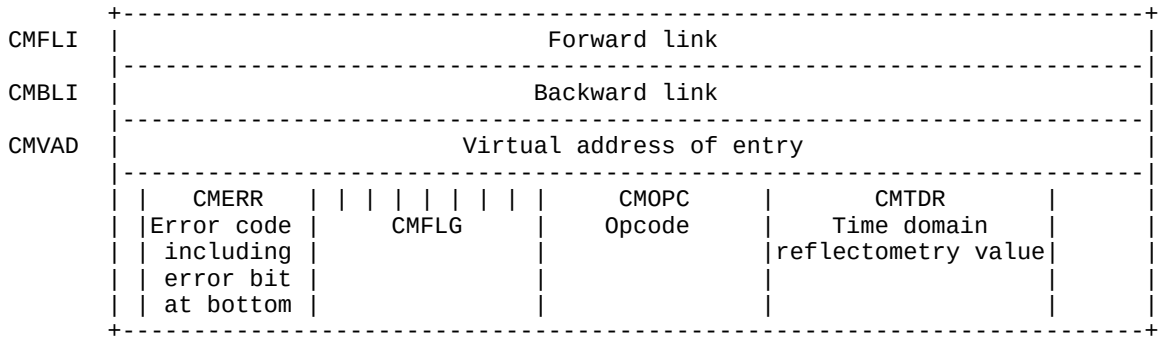
Name	Bit	Meaning
CL%RDY	0	Set when connection is fully opened
CL%OPN	1	Set when connection is being opened
CL%DNY	2	Set when remote system is rejecting CLUDGR requests
CL%LCL	3	Set when remote system has little credit left
CL%NOS	4	Set when remote system is refusing SEND ALLs
	5-17	Reserved for future expansion
CIDBUF	18-35	Contains the count of buffers in use by this connection.

CM

CM is the common header used in all NI command blocks. The remainder of a command block for a particular command is appended to the end of the common header.

Defined in: PHYKNI

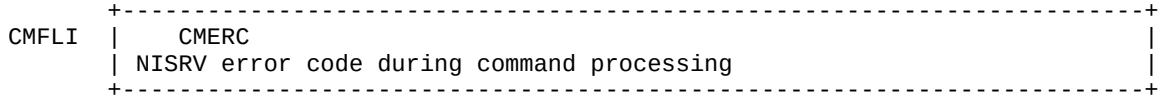
Format



Field CMSRI (0-0) Send/receive indicator

For field CMFLG(7-14):

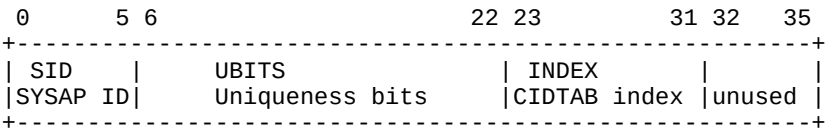
CMPAC	7	Packing mode for non-BSD
CMCRC	8	CRC included
CMPAD	9	Unused
CMB03	10	Unused
CMBSD	11	Buffer segment descriptor format
CMB05	12	Unused
CMCLR	13	Clear counters
CMRSP	14	Response needed



CONNECT ID FORMAT

This is the format of a SCA connect ID. Each SYSAP can specify the SYSAP ID to be of any value.

Defined in: SCAPAR



CSTnX

The CSTnX tables, where n ranges from 0 to 3, are the tables that allow access to the core status tables, now residing in extended sections. Each table holds 16 values, which allow indirect access to each of the CSTs, instead of the indexed access that was used when the CSTs were in section 0/1.

The values in the CSTnX tables are never changed and are determined when the monitor is linked. CST5 is still in section 0/1, so there is no need for a CST5X table.

Defined in: CSTnX

CSTnX:

0	5 6 35
0	Address of CSTn
1	Address of CSTn
2	Address of CSTn
3	Address of CSTn
.	
.	
.	
17	Address of CSTn

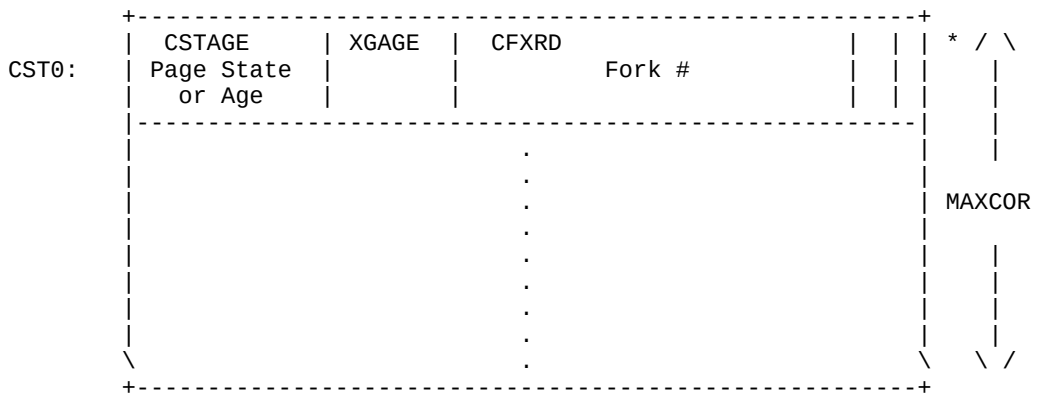
CST0

Core Status Table 0 (sometimes referred to as CST). Each entry in this table is principally defined by the pager. If the page is in use, the entry contains the age stamp for the page; if the page is not in use, the age stamp field is used to show the page's state.

Defined in: STG

Index: Physical page number

Format



Symbol	Bits	Pointer	Content
AGEMSK	0-8	CSTAGE	If page in use, contents of pager age register (>= 100) at last age register reload If page not in use, this field indicates (right-justified) the page state as follows: PSRPQ = 0 On replaceable queue PSDEL = 1 To be put on replaceable queue PSRDN = 2 Read completed PSWIP = 4 Write in progress PSRIP = 6 Read in progress PSSPQ = 7 Page on special memory queue PSASN = 10 Page assign to process if age field >=PSASN. (The age field should always be strictly greater than 10 as it is initialized to 100 and increases in value as process runs.)
	9-14	XGAGE	Age at last XGC (low bits only)
	18	CSWRB	CST write bit
	19-32	CFXRD	Number of fork which initiated read if page not in use (that is, age field < 10).
PSTFLD	33-34	CSTPST	Special page state PSTAVL=.MCPSA=0 Available for RPLQ when freed PSTSPM=.MCPSS=1 Place on SPMQ when freed PSTOFL=.MCPSO=2 Offline-action as PSTSPM PSTERR=.MCPSE=3 Offline due to error action as PSTSPM
CORMB	35		This is the "modified" bit which is set by the pager on any write reference. This bit is 1 if the page has been written since the last operation.

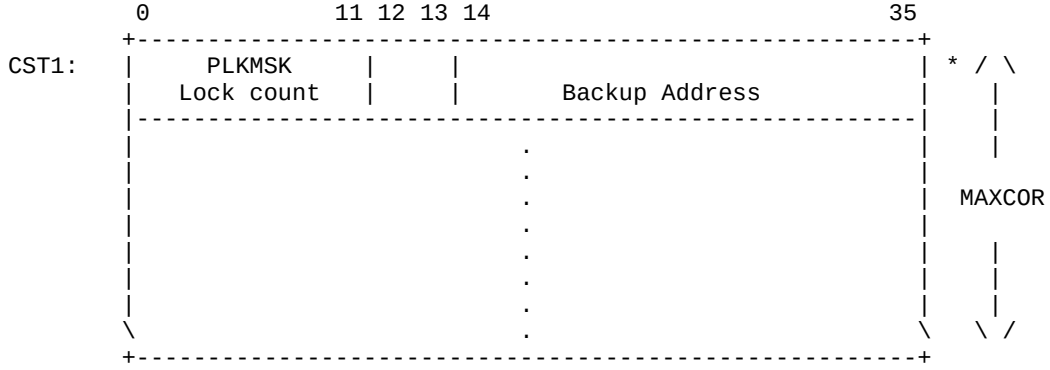
CST1

Core Status Table 1. This table is referenced only by the software and is parallel to CST0. It contains the lock count which indicates the number of system events requiring the page be locked in core (that is, page table contains other core addresses) and the backup address (next level of storage) for each page in core (1000000 if unassigned).

Defined in: STG

Index: Physical page number

Format



Symbol	Bits	Pointer	Content
	0-11	PLKMSK	Lock count field-if non-zero, the page is not considered for swapping
PLKV	11		Page lock value in CST1
	14-35		Backup address

CST2

Core Status Table 2 (Home Map Location). This table is referenced only by the software and is parallel to CST0. It contains the home map location for the page (that is, the page table which contains the core address pointing to the page).

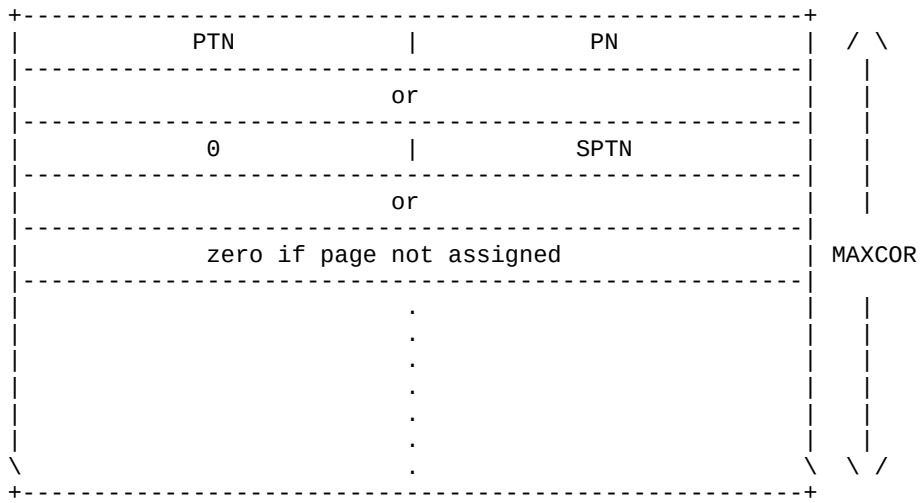
If the left half is 0, the home map is the SPT and the right half contains the SPT index. If the left half is not 0, the home map is a page table or index block, where PTN is the SPT index of that map and PN is the page number within that map.

(See the SPT and SPTH table descriptions.)

Defined in: STG

Index: Physical page number

Format



NOTE

The SPTN/PTN value (both SPT indexes) is used to specify the kind of page represented in the CST2 table. For example, if the SPTN in the second format above is greater than or equal to NOFN (length of the OFN area), the process' page is a file page pointed to by a shared pointer or fork overhead page. Otherwise (that is, SPTN<NOFN), it's an index block page. Likewise, if the PTN value in the first format above is greater than or equal to NOFN, the page is a

private process page (that is, pointed to by a direct pointer from the process' map). Otherwise (that is, PTN<NOFN), it is a process' file page pointed to by an indirect pointer through the file's own page table, the index block. *

* In both of these cases when an index block is involved (that is, SPTN/PTN< NOFN), it is common to find in the monitor listings the symbolic notation, OFN, replacing SPTN/PTN.

CST3

Core Status Table 3. This table is referenced only by the software and is parallel to CST0. An entry in this table is used for a variety of purposes, generally as a list pointer for groups of pages on various queues.

For example, when on the replaceable queue, the left half and right half contain backward and forward list pointers, respectively. When on a swapping device queue, the right half contains a forward list pointer and B0 is 1 if write and 0 if read.

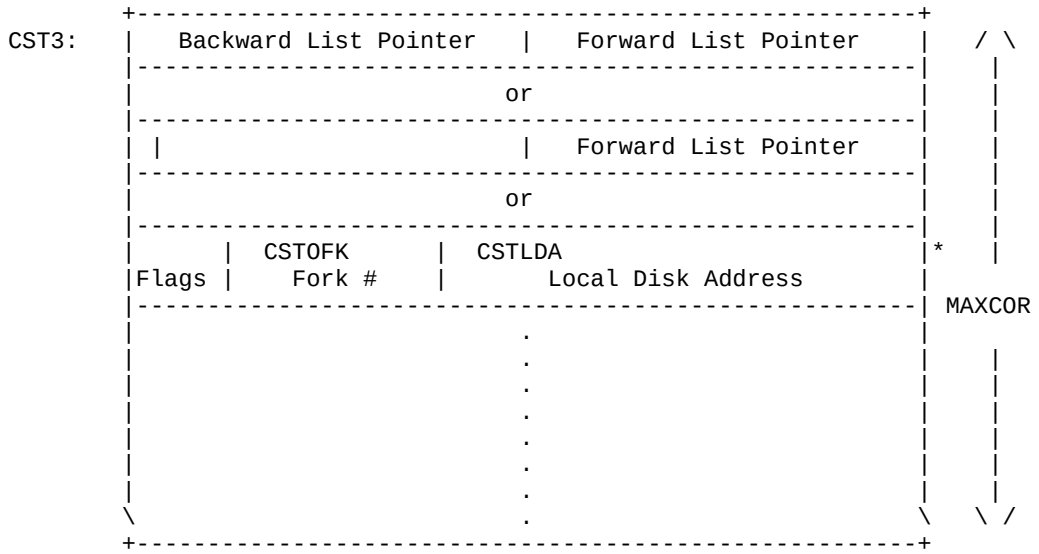
Other queues threaded throughout this table are the deletion and special memory queues.

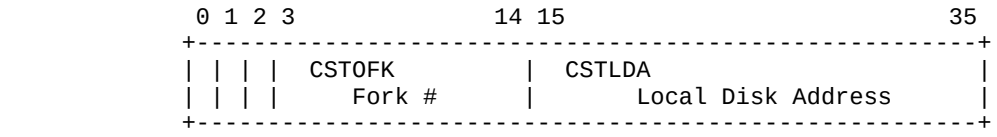
When the page is in use (not linked on one of the queues), it contains the local disk address for PHYSIO and the fork assigned to the page.

Defined in: STG

Index: Physical page number

Format





Symbol	Bits	Pointer	Content
DWRBIT	0		Set if write in progress. The bit is cleared by the swapper when the write completes.
SWPERR	1		Set if an unrecoverable error occurred when this page read in from disk/drum
DSKSWB	2		Swap to disk requested by DDMP (periodic routine that trickles file pages to the disk) or by monitor when certain monitor calls are issued, for example, CLOSF
	3-14	CSTOFK	Process to which this page is assigned (7777 is not assigned).
	15-35	CSTLDA	Local disk address for PHYSIO

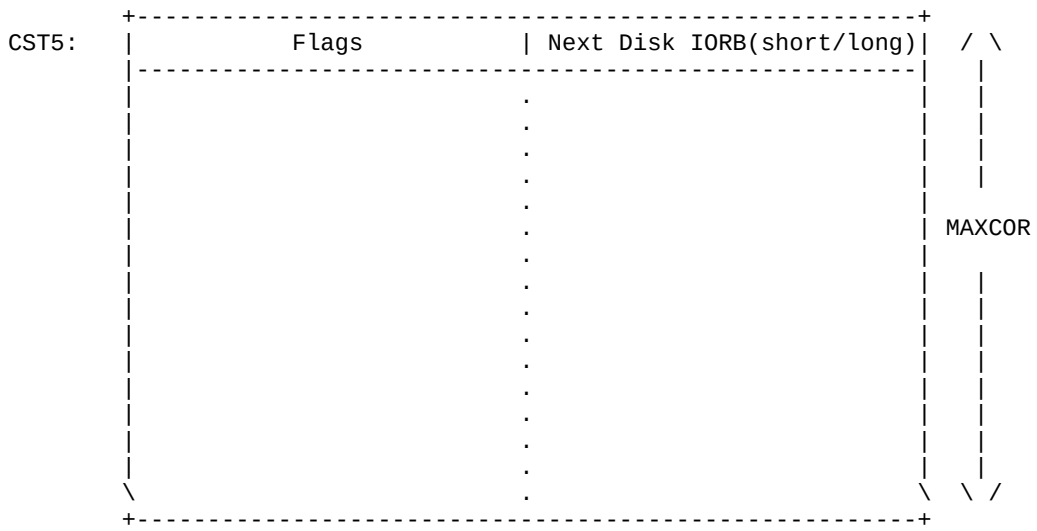
CST5

Core Status Table 5. This table is referenced only by the software and is parallel to CST0. It is a table of short IORBs. See the IORB table for a description of the IRBSTS entry which describes the short (1 word) IORB.

Defined in: STG

Index: Physical page number

Format

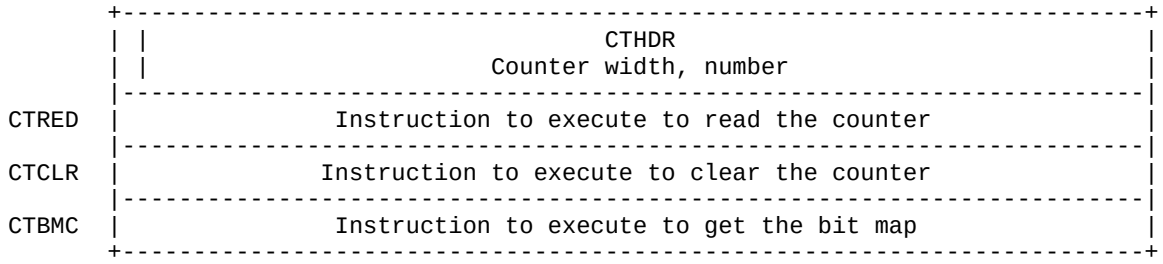


CT

The CT structure is used to keep the information for a DECnet network management counter. It is pointed to by a table, generated with the COUNTER macro. This structure is read by the routine NTCTRS in D36COM.

Defined in: D36PAR

Format



Field CTBMF (0-0) Bit map flag

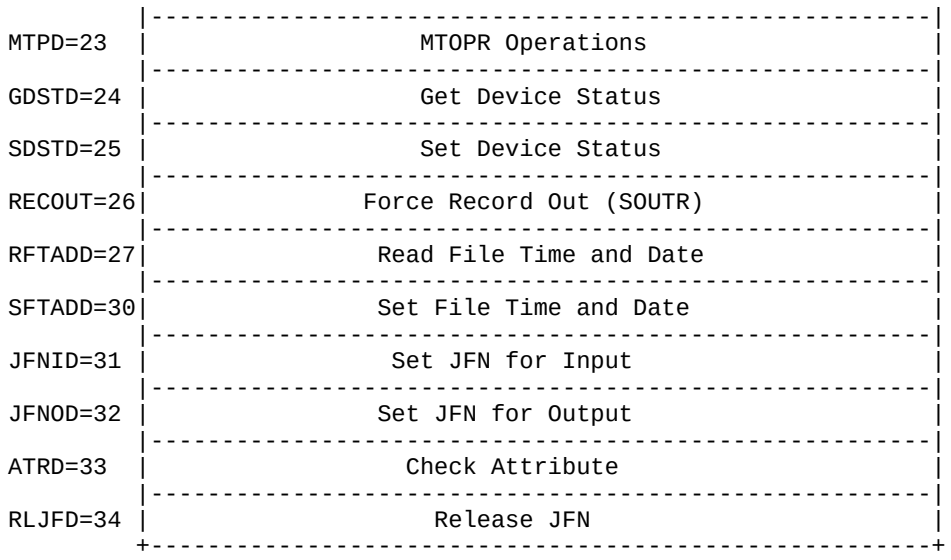
DEV`DTB

Device Dispatch Table. Each device has its own dispatch table that conforms to the format described below. An error return dispatch address is placed in those words which have no corresponding device function. The naming convention for these tables is the device name concatenated with DTB (that is, MTADTB, DSKDTB, and TTYDTB)

Defined in: PROLOG

Format

DTBLH=0	Length of DTB Block
DLUKD=1	Directory Setup
NLUKD=2	Name Lookup
ELUKD=3	Extension Lookup
VLUKD=4	Version Lookup
PLUKD=5	Protection Insertion
ALUKD=6	Account Insertion
SLUKD=7	Status Modification
OPEND=10	Open File
BIND=11	Sequential Byte Input
BOUTD=12	Sequential Byte Output
CLOSD=13	Close File
REND=14	Rename File
DELD=15	Delete File
DMPID=16	Dump Mode Input
DMPOD=17	Dump Mode Output
MNTD=20	Mount
DSMD=21	Dismount
INDD=22	Initialize a Directory

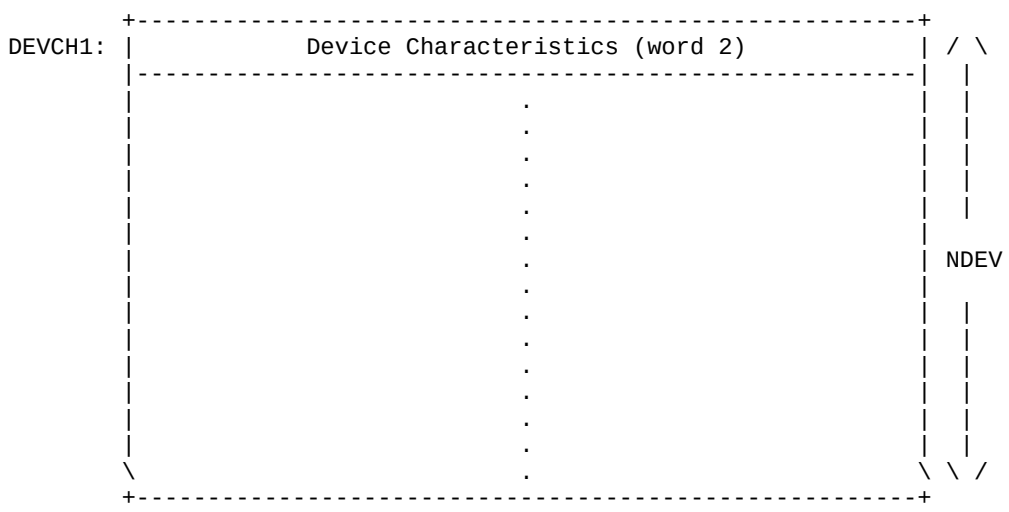

MTPD=23
MTOPR Operations
GDSTD=24
Get Device Status
SDSTD=25
Set Device Status
RECOUT=26
Force Record Out (SOUTR)
RFTADD=27
Read File Time and Date
SFTADD=30
Set File Time and Date
JFNID=31
Set JFN for Input
JFNOD=32
Set JFN for Output
ATRD=33
Check Attribute
RLJFD=34
Release JFN

DEVCH1

Device Characteristics Table 1. This table contains a word of information about each device unit in the system and is initialized from the INIDVT table at system start up time.

Defined in: STG, MONSYM

Format



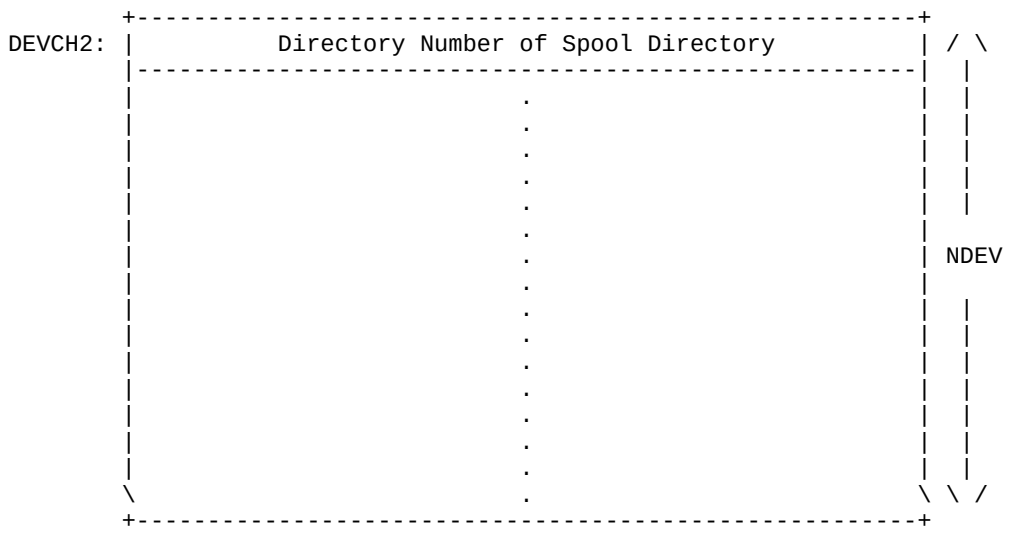
Symbol	Bits	Content
D1%SPL	0	Device is spooled
D1%ALC	1	Device is under control of allocator
D1%VVL	2	Volume valid
D1%NIU	3	Device slot not is use
D1%INI	4	Device is being initialized currently for structures only)
D1%MTO	5	Device can do MTOPR without JFN opened.

DEVCH2

Device Characteristcs Table 2. This table contains spool directory information and is parallel to the DEVCH1 table.

Defined in: STG

Format

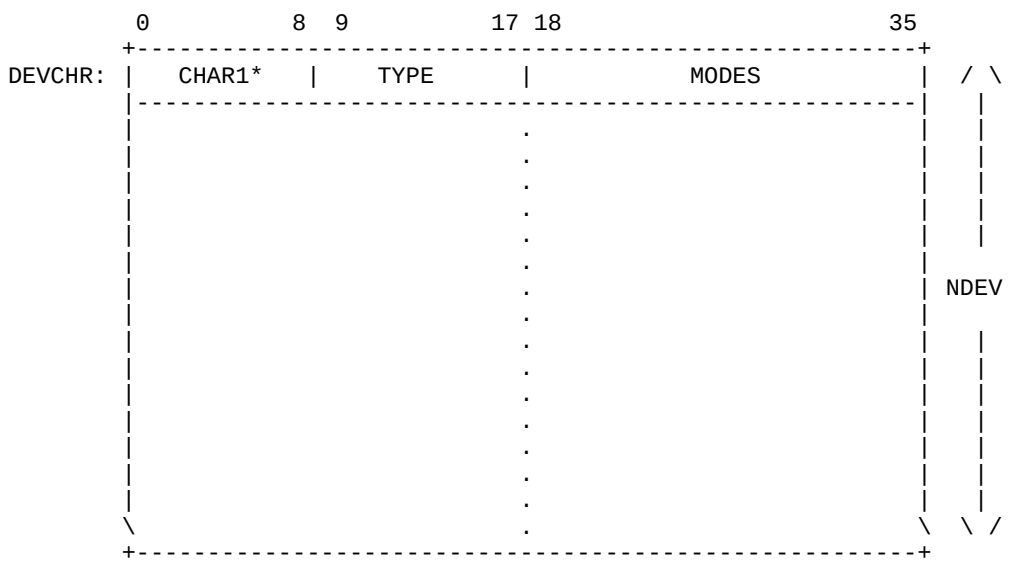


DEVCHR

Device Characteristics Table. This table contains indexed information about each device unit and is initialized from the INIDVT table at system startup time. See INIDVT table for bit definitions.

Defined in: STG

Format



*CHAR1
Bit 5 can take on another meaning (that is, DV%OPN=1B5; File Open on Device) than the one described in INIDVT.

NOTE

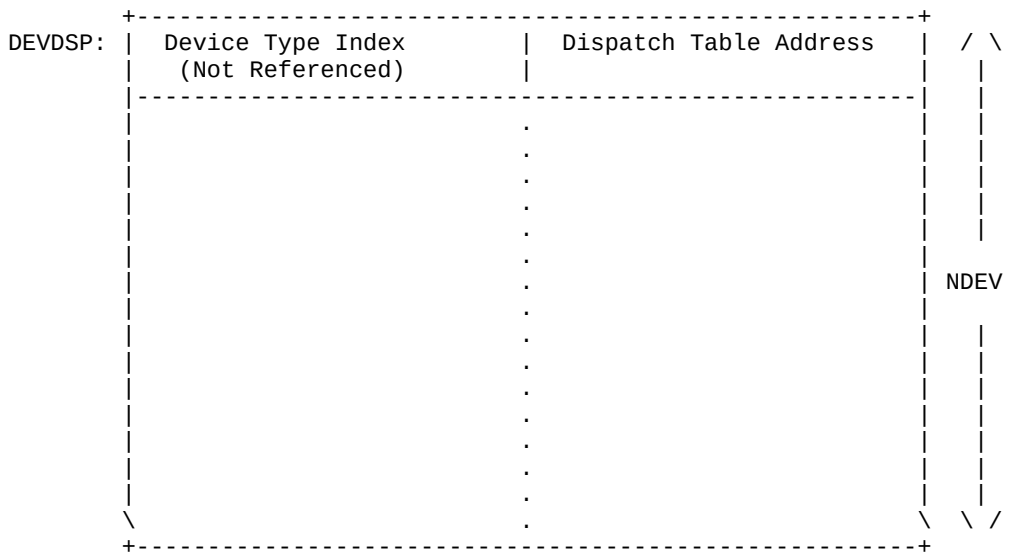
A resident word, DEVLCK (Free is -1), is used to lock the data base in the DEVXXX Tables when they are being manipulated.

DEVDSP

Device Dispatch Table Addresses. This table contains the device dispatch table for each device unit and is initialized from the INIDVT table at system startup time.

Defined in: STG

Format

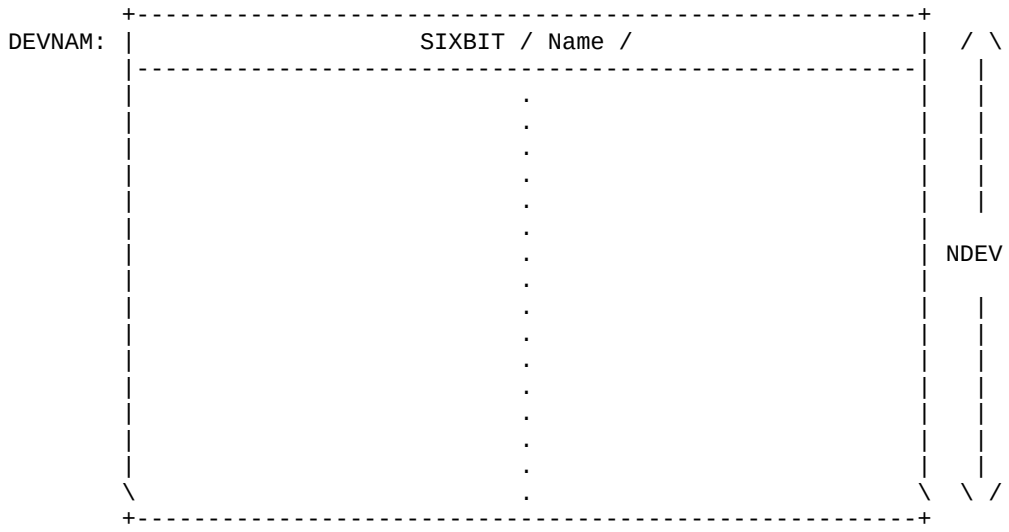


DEVNAM

Device Name Table. This table contains the SIXBIT device name for each device unit. The generic device name is obtained from INIDVT, modified to include unit number (if device has units) and stored in this table at system start up time.

Defined in: STG

Format

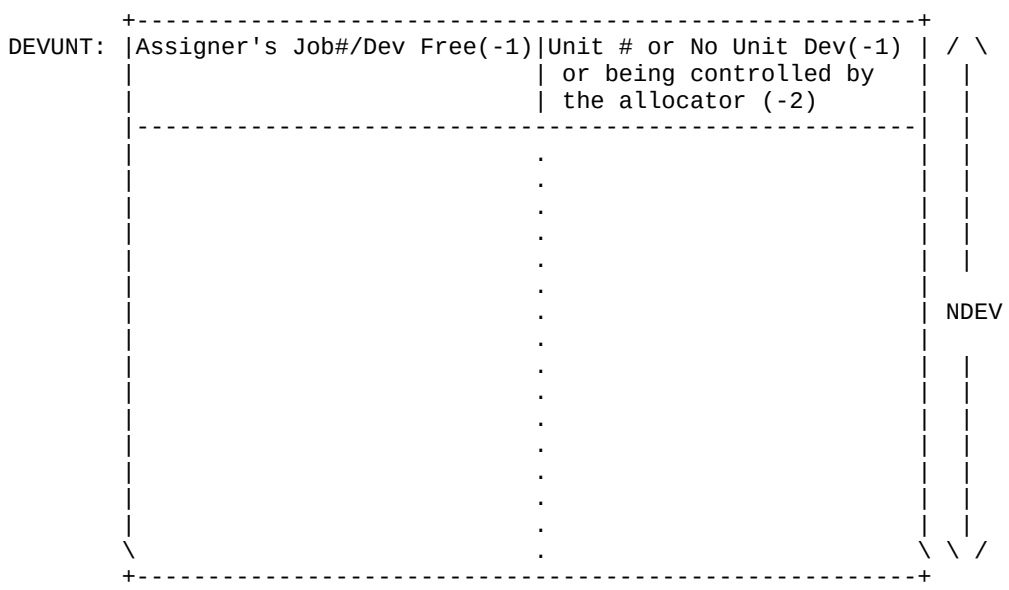


DEVUNT

Device Unit Table. This table contains information about the job associated with a unit, where the unit information in DEVUNT is built at system startup utilizing data from the INIDVT table.

Defined in: STG

Format

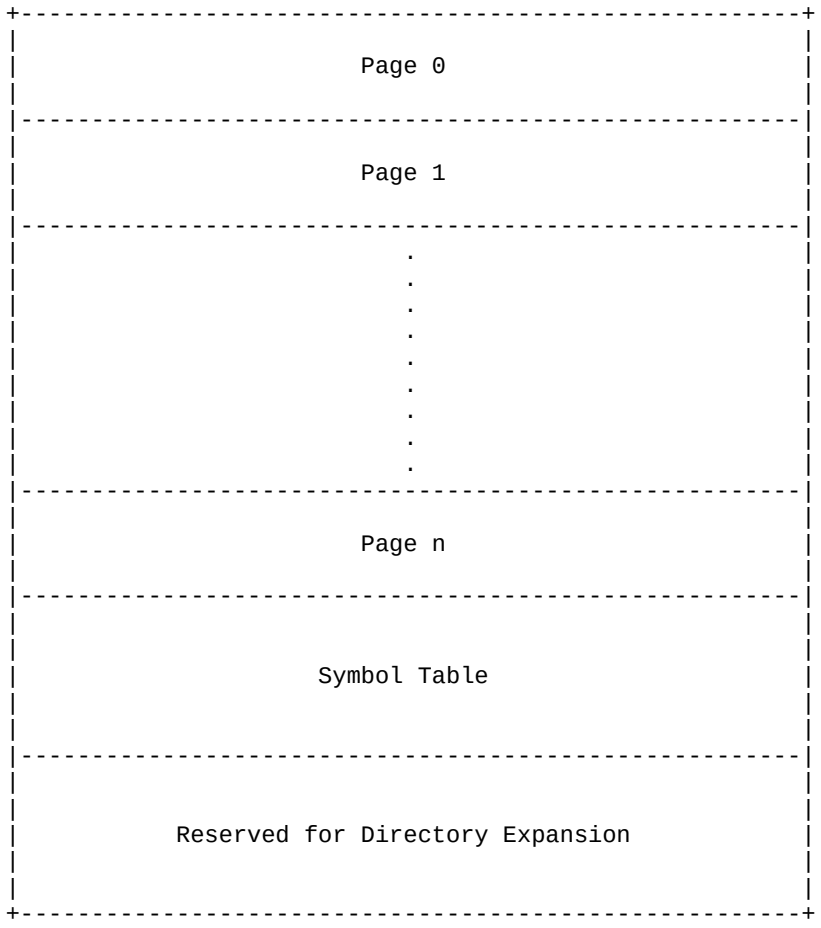


DIRECTORY

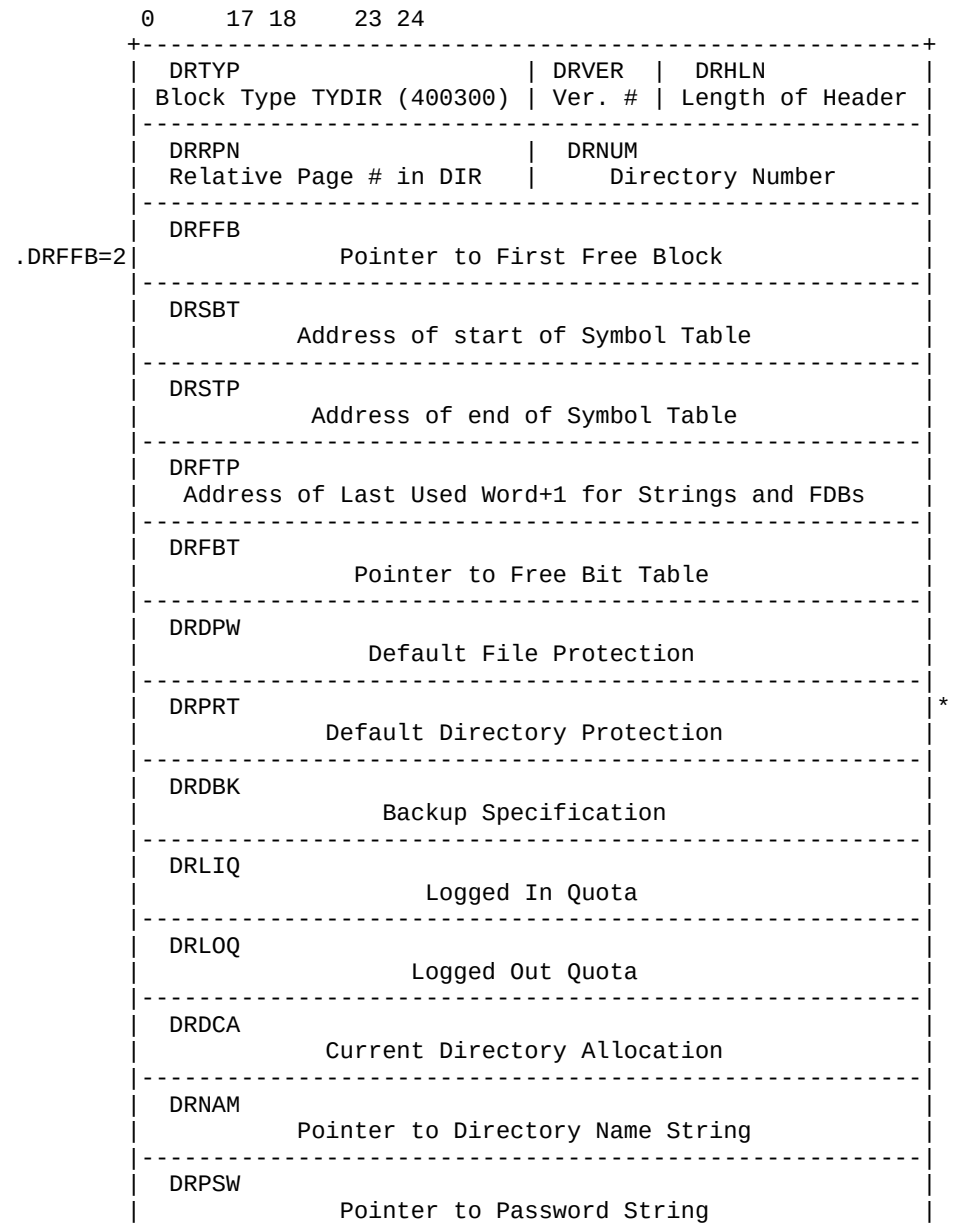
Directory Format. The following illustrations show the format of a TOPS-20 directory.

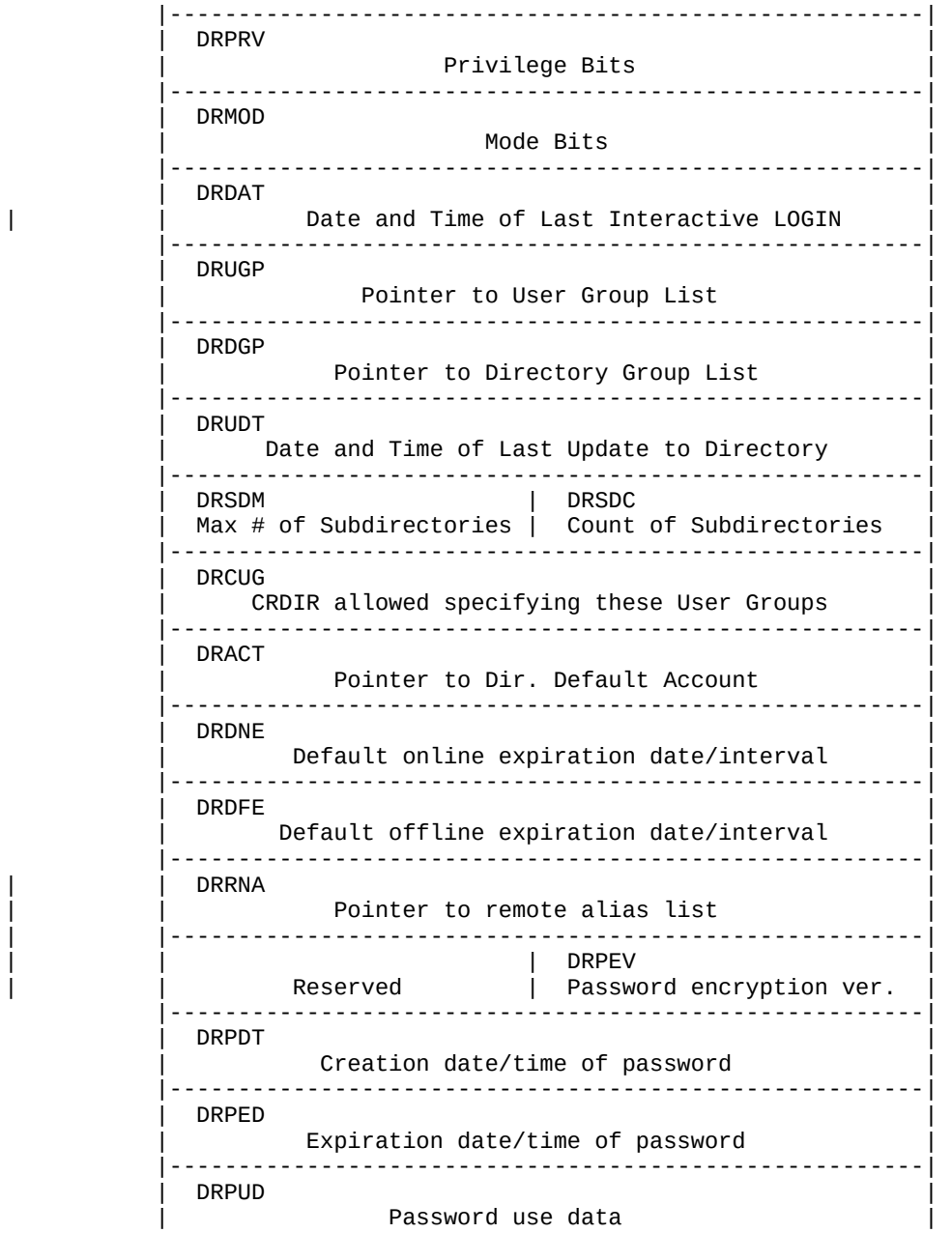
Defined: PROLOG

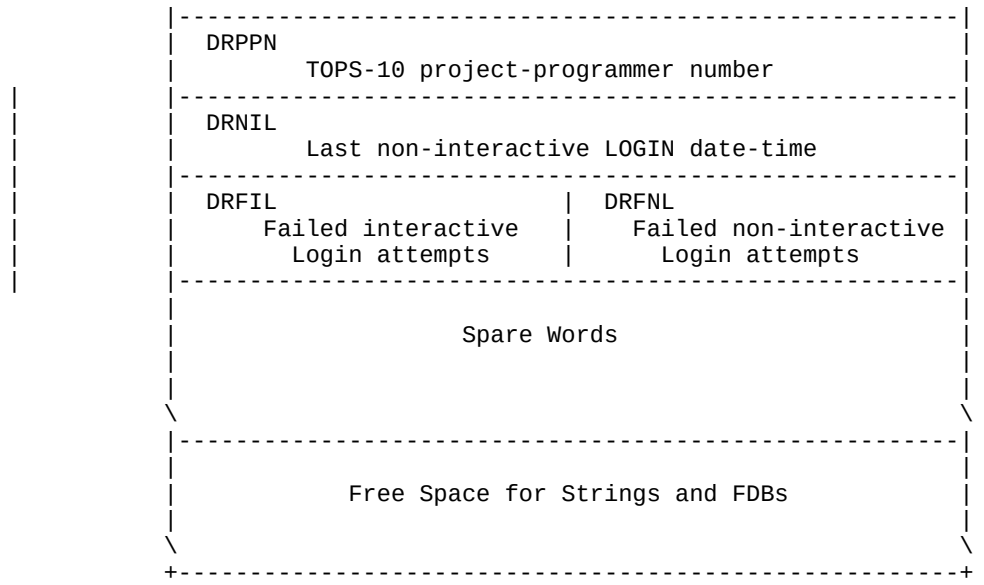
Overview of a Directory

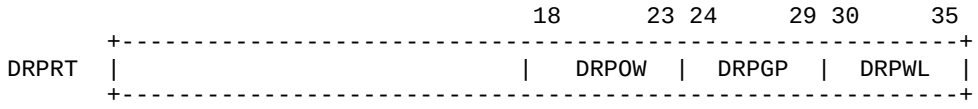


First Page of a Directory

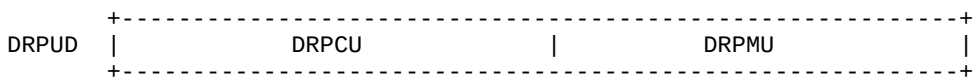



DRPRV
Privilege Bits
DRMOD
Mode Bits
DRDAT
Date and Time of Last Interactive LOGIN
DRUGP
Pointer to User Group List
DRDGP
Pointer to Directory Group List
DRUDT
Date and Time of Last Update to Directory
DRSDM
Max # of Subdirectories
DRSDC
Count of Subdirectories
DRCUG
CRDIR allowed specifying these User Groups
DRACT
Pointer to Dir. Default Account
DRDNE
Default online expiration date/interval
DRDFE
Default offline expiration date/interval
DRRNA
Pointer to remote alias list
Reserved
DRPEV
Password encryption ver.
DRPDT
Creation date/time of password
DRPED
Expiration date/time of password
DRPUD
Password use data
*



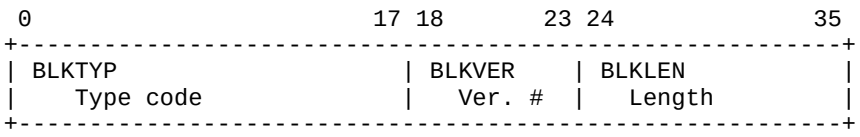


Bits	Pointer	Content
18-23	DRPOW	Owner field
24-29	DRPGP	Group field
30-35	DRPWL	World field



Bits	Pointer	Content
0-17	DRPCU	Current password use count
18-36	DRPMU	Maximum password use count

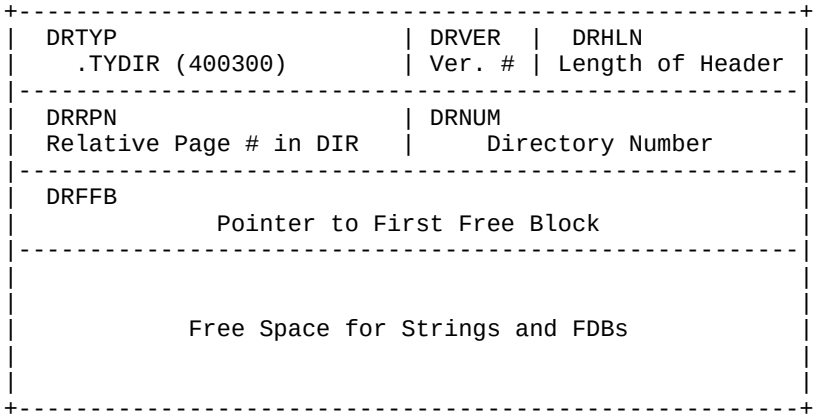
General format for all blocks



Possible type codes are:

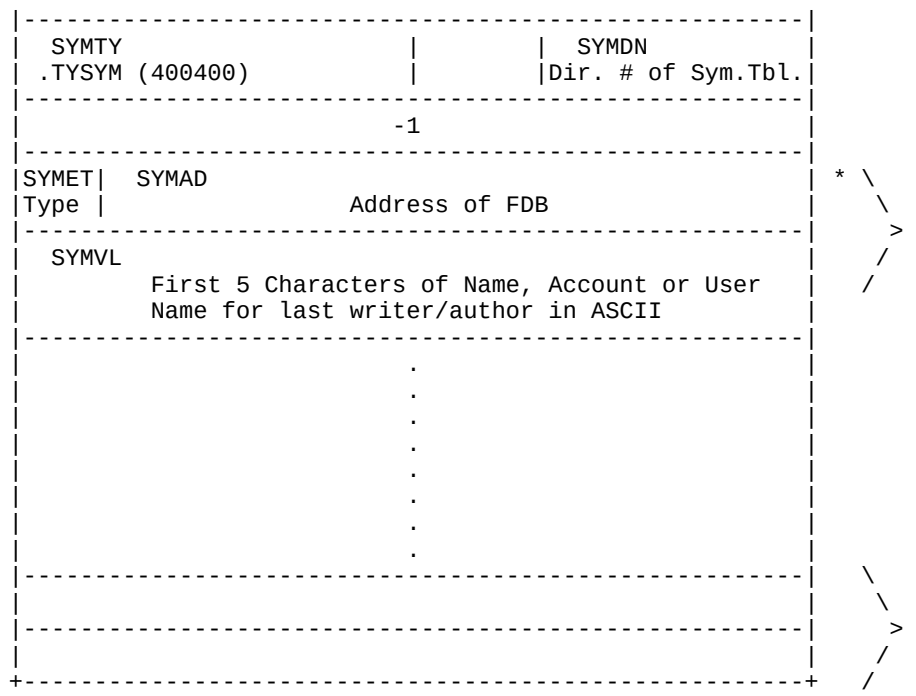
Code	Value	Type
.TYNAM	400001	Name Block
.TYEXT	400002	Extension Block
.TYACT	400003	Account Block
.TYUNS	400004	User Name Block
.TYFDB	400100	File Descriptor Block
.TYLAC	400200	Legal Account List
.TYDIR	400300	Directory
.TYSYM	400400	Symbol Table
.TYFRE	400500	Free Block
.TYFBT	400600	Free Storage Bittable
.TYGDB	400700	Group Descriptor Block

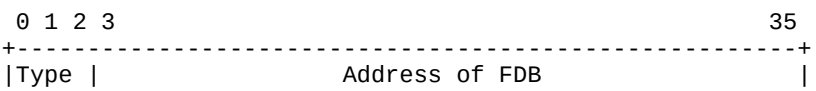
Subsequent Directory Pages



MONITOR TABLES
DIRECTORY (Cont.)

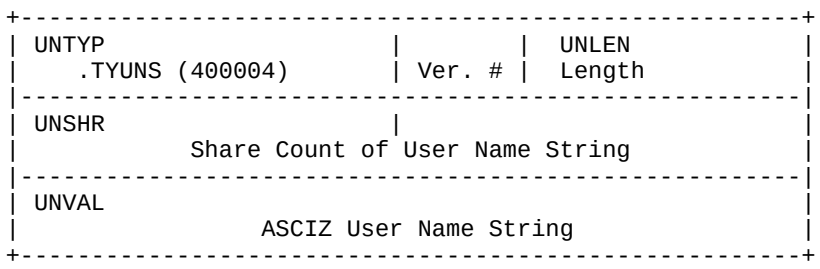
Symbol Table



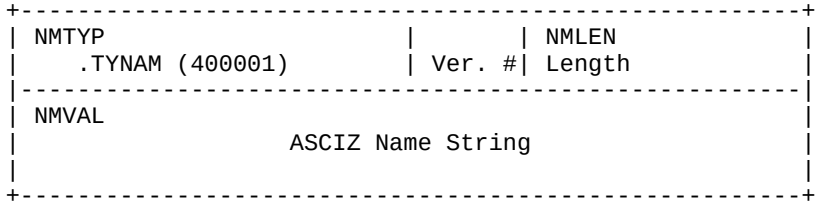


Bits	Pointer	Content	
0-2	SYMET	Entry Type	
		0 = .ETNAM	Name
		2 = .ETUNS	User Name
		4 = .ETACT	Account
3-35	SYMAD	Address of FDB	

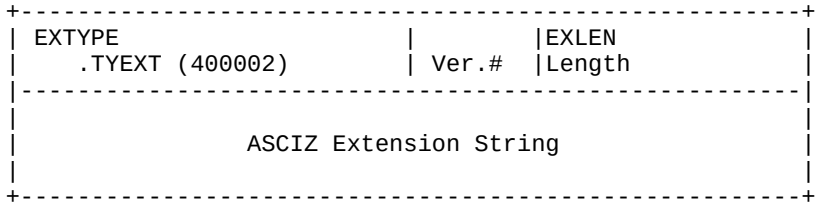
User Name String



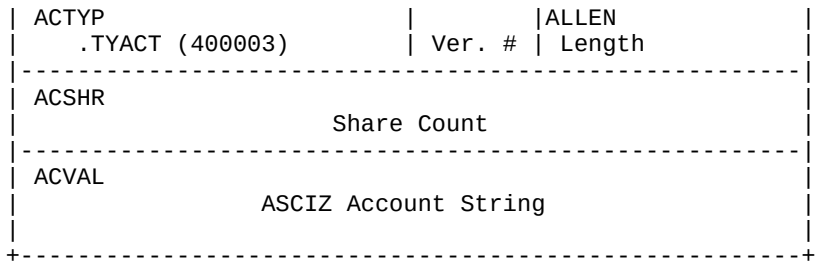
Name String



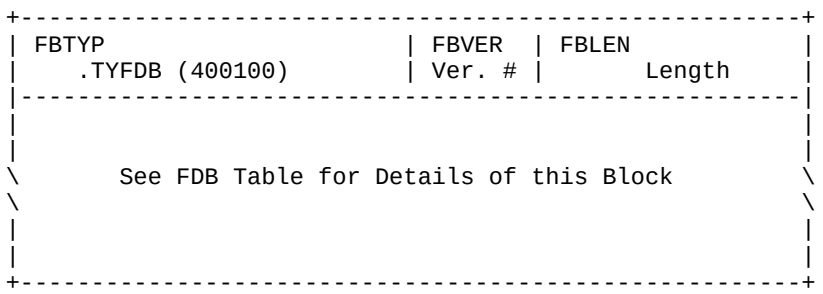
Extension String



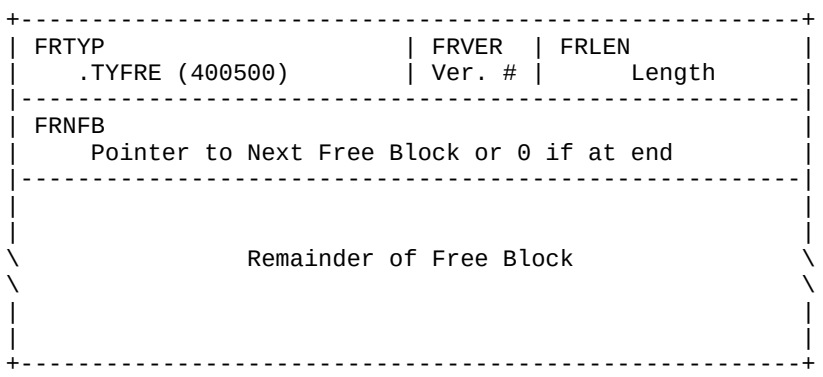
Account String



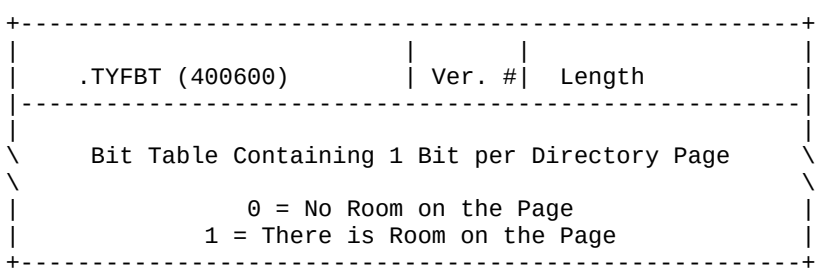
File Descriptor Block (FDB)



Free Space

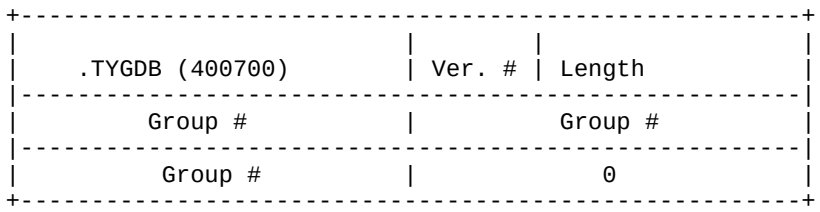


Free Storage Bit Table



MONITOR TABLES
DIRECTORY (Cont.)

Group List



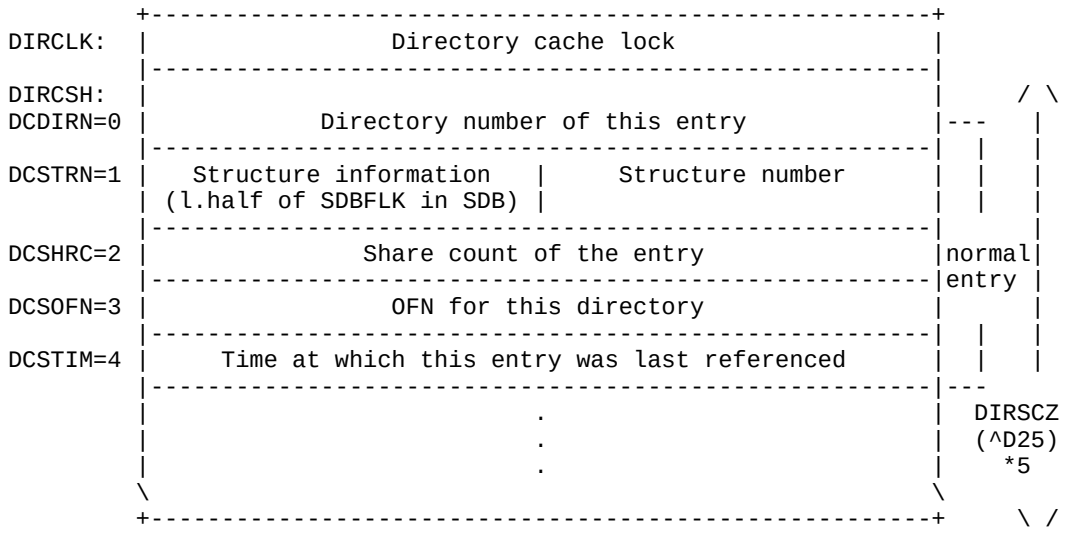
DIRECTORY CACHE

This resident table contains the directory cache and a lock for the cache. Every five words (excluding the lock) describes an entry.

Defined in: STG, PROLOG

Reference by: DIRECT

Format

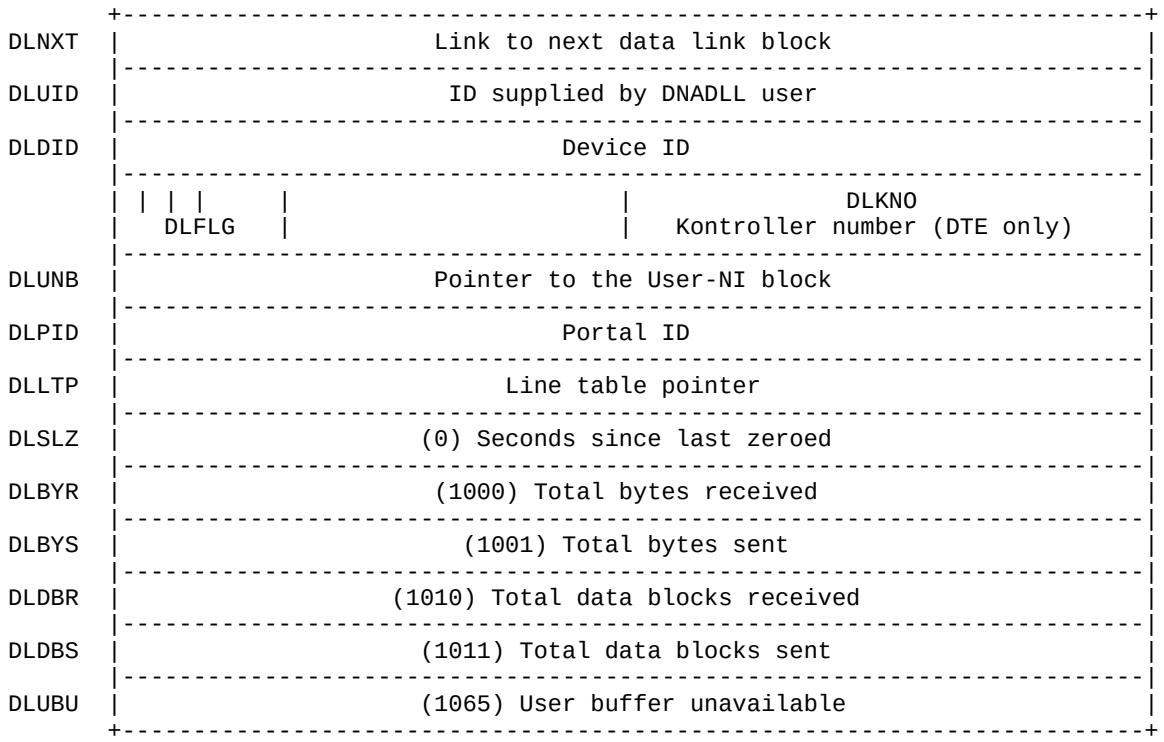


DL

This is the DECnet data link block -- DL.

Defined in: D36PAR

Format



For field DLFLG(0-5):

DLRUN	0	Data link is running
DLEBU	1	Emergency buffer in use
DLLIU	2	Line in use by circuit

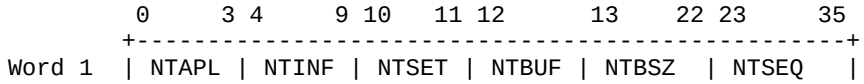
DNA PARAMETER AND COUNTER DATA BASE

This is the DNA parameters and counters data base description. The entity data bases are pointed to by table PRMP.

Defined in: NTMAN

Each entity type (NODE, LINE) has a data base composed of two word blocks associated with it. The two word blocks have the format:

Bits	Pointer	Content
0-3	NTTYP	Data type NT.FC=1 - Coded format NT.FCM=2 - Coded multiple NT.FAI=3 - Ascii image (8-bit) NT.FDU=4 - Decimal, unsigned. Cannot be zero NT.FDS=5 - Decimal, signed NT.FH=6 - Hex integer NT.FHI=7 - Hex, image NT.FOC=10 - Octal NT.FDM=11 - Decimal, milliseconds NT.FVN=12 - Version number NT.FNE=13 - Node entity ID NT.FNN=14 - Ascii node name NT.FCN=15 - Ascii circuit name
4-8	NTLEN	Length
9-14	NTROU	Index to routine to call
15-20	NTDEV	Device applicability NTD.R - DMR-11 NTD.N - Ethernet (NIA20) NTD.C - Computer Interconnect (CI20) NTD.P - DDP (DUP11) NTD.K - KDP (KMC11/DUP11) NTD.D - DTE-20 (UGH)
21-35	NTQUA	Qualifier Parameter Number



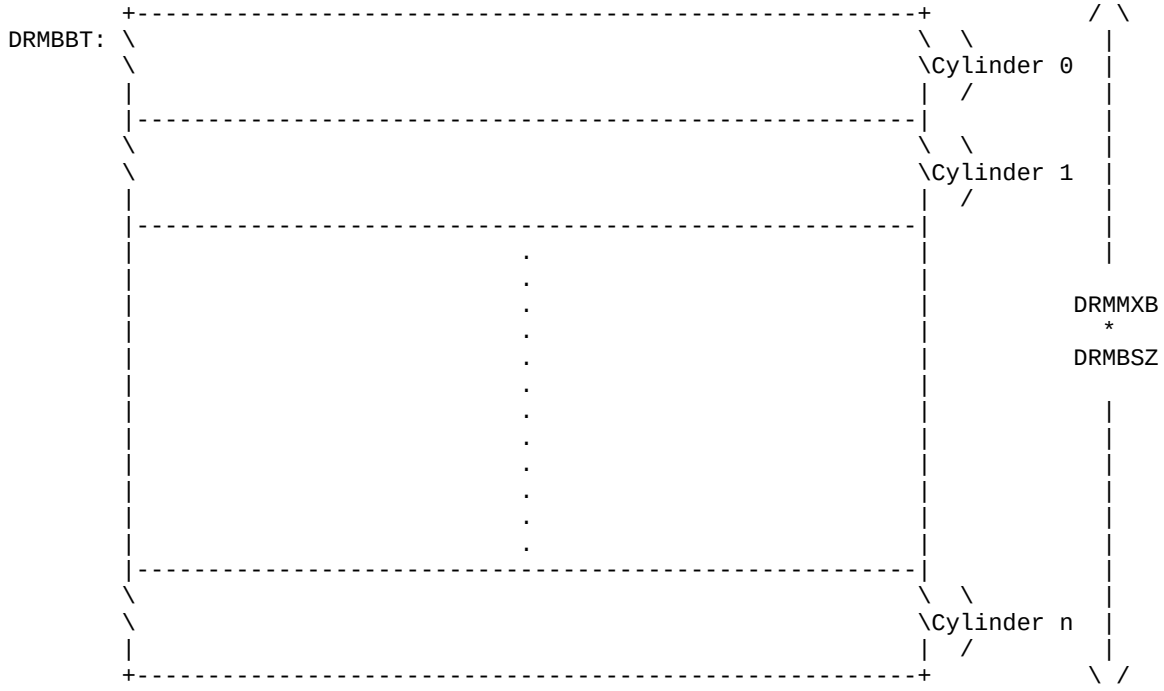
Bits	Pointer	Contents
0-3	NTAPL	Applicability restrictions NTA.E - Executor NTA.L - Loop nodes NTA.R - Remote nodes NTA.H - Home area nodes
4-9	NTINF	Information type NTI.C - Characteristics NTI.S - Status NTI.% - Summary NTI.K - Circuit State NTI.Q - This parameter is qualified NTI.N - None. NOOP bit
10-11	NTSET	Settability restrictions NTS.=0 - Read and write NTS.R=1 - Read only parameter NTS.W=2 - Write only parameter
12	NTBUF	Buffer Field NTB.=0 - Parameter value fits into a word NTB.B=1 - Parameter value too big
13-22	NTBSZ	Buffer size needed (if needed)
23-35	SEQ	Sequence or type of field

DRMBBT

Drum Bit Table. This bit table indicates which pages are in use and which pages are available in the swapping area.

Defined in: STG

Format



NOTE

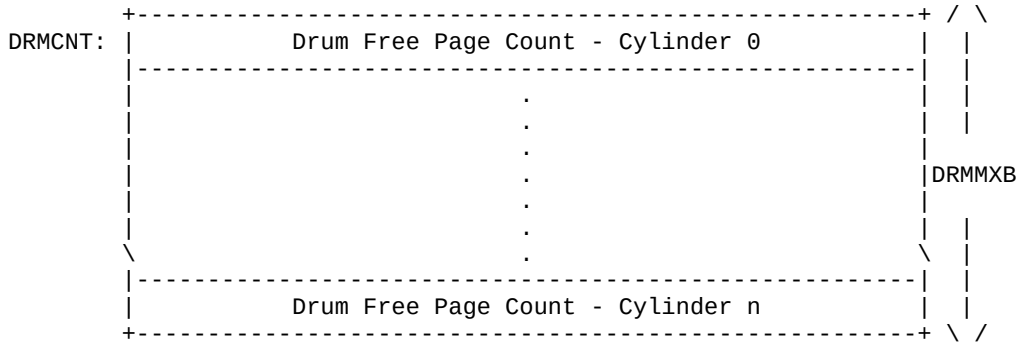
The bit map for each cylinder starts on a word boundary and contains as many full words as are needed for all of its pages.

DRMCNT

Drum Count Table. This resident table, indexed by cylinder, records the free page count for the drum (logical swapping area). The total free page count for all the cylinders is kept in the storage word, DRMFRE.

Defined in: STG

Format

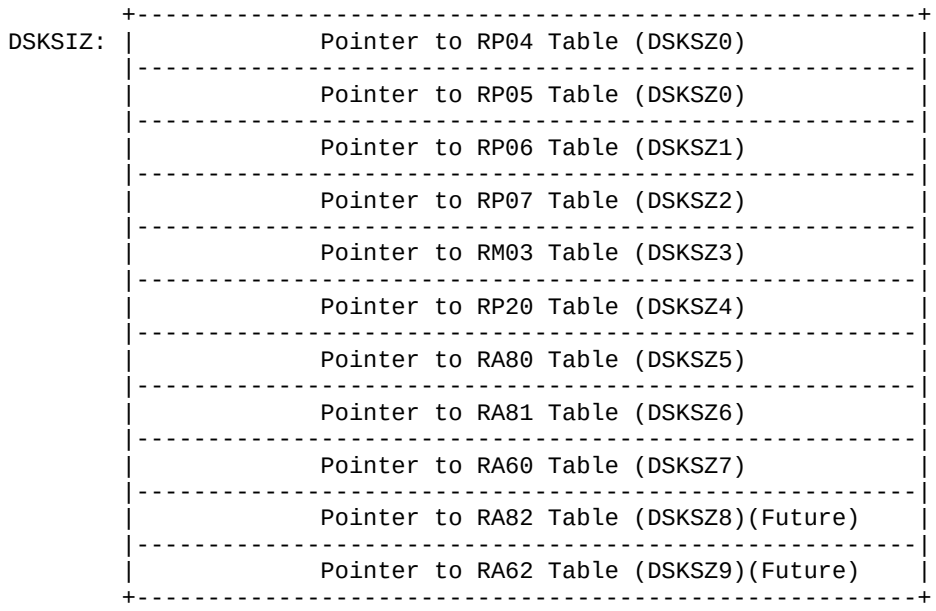


DSKSIZ

Disk Size Pointer Table. This table contains pointers to the disk size data tables. DSKSIZ is parallel to DSKUTP which contains codes for the known disk types. When an entry is added to DSKUPT, a corresponding entry must be added to DSKSIZ to point to the correct size data for that type of disk.

Defined in: PHYSIO

Format



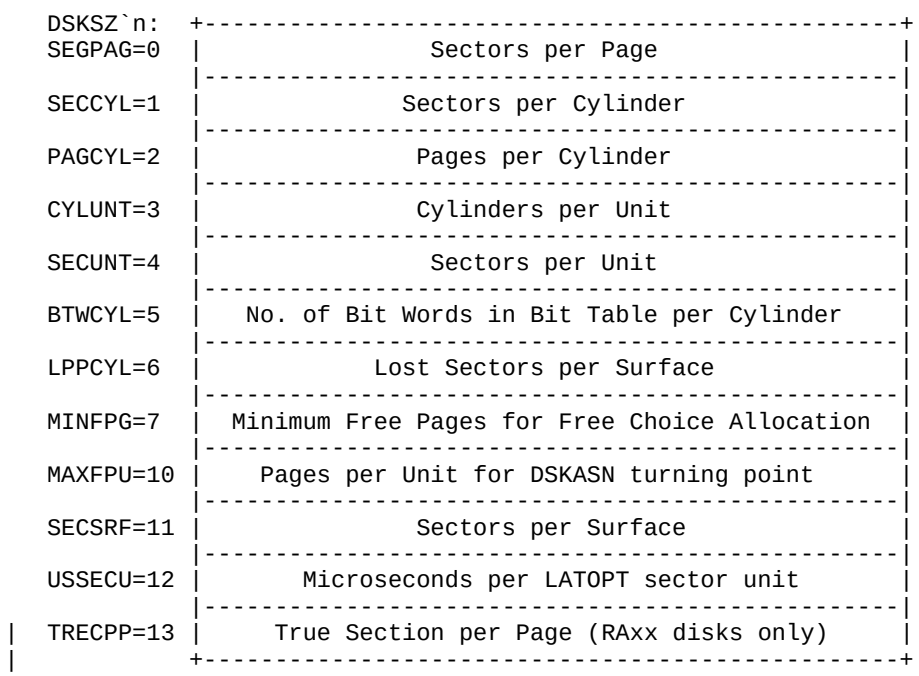
DSKSZ`N

Disk Size Table (for type n). The resident table contains size data (for disks) based on type.

n = 0 for RP04 and RP05
n = 1 for RP06
n = 2 for RP07
n = 3 for RM03
n = 4 for RP20
n = 5 for RA80
n = 6 for RA81
n = 7 for RA60
n = 8 for RA82 (future)
n = 9 for RA62 (future)

Defined in: STG

Format

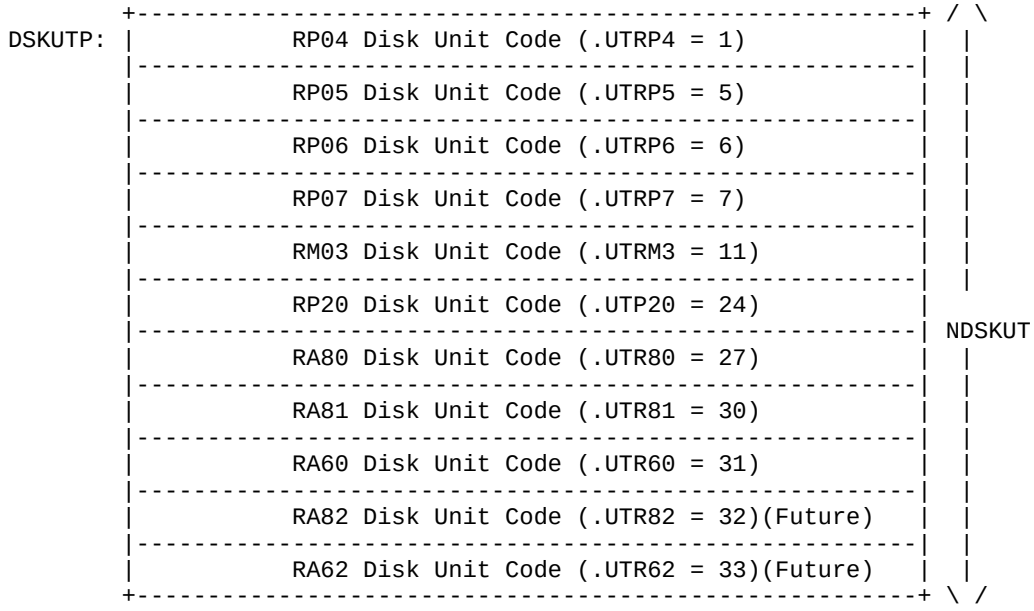


DSKUTP

Disk Unit Type. This table contains the unit types used by the file system.

Defined in: PHYSIO

Format



DST

Drum Status Table. This table is indexed as a function of the drum (swapping space) address. The DST holds the address of the next lower level of storage (usually disk) for the page stored at that address on the drum.

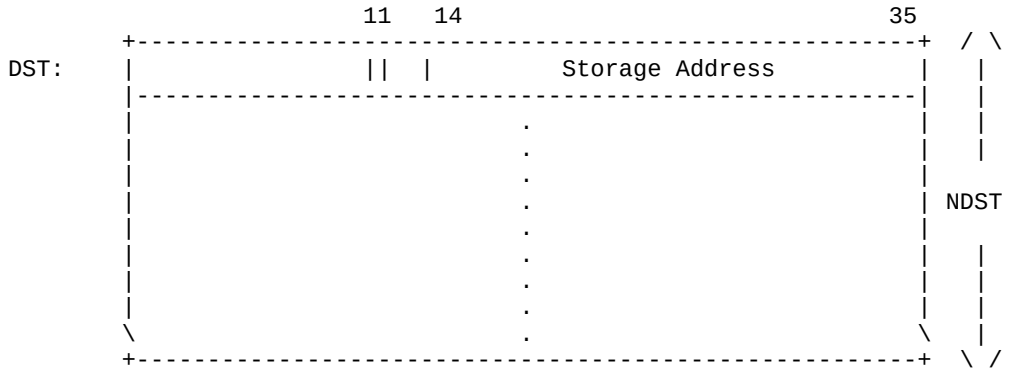
BWRBIT (bit 11) indicates if the page has been changed since being read from the lower level storage. The page is only copied back on to the lower level storage if BWRBIT is set (that is, page modified) when the page is no longer in use. A slot no longer in use contains a -1.

The DST table is in an extended section and is pointed to by DSTLOC.

Defined in: STG, PROLOG

Index: Drum page number

Format



DTE-STORAGE-AREA

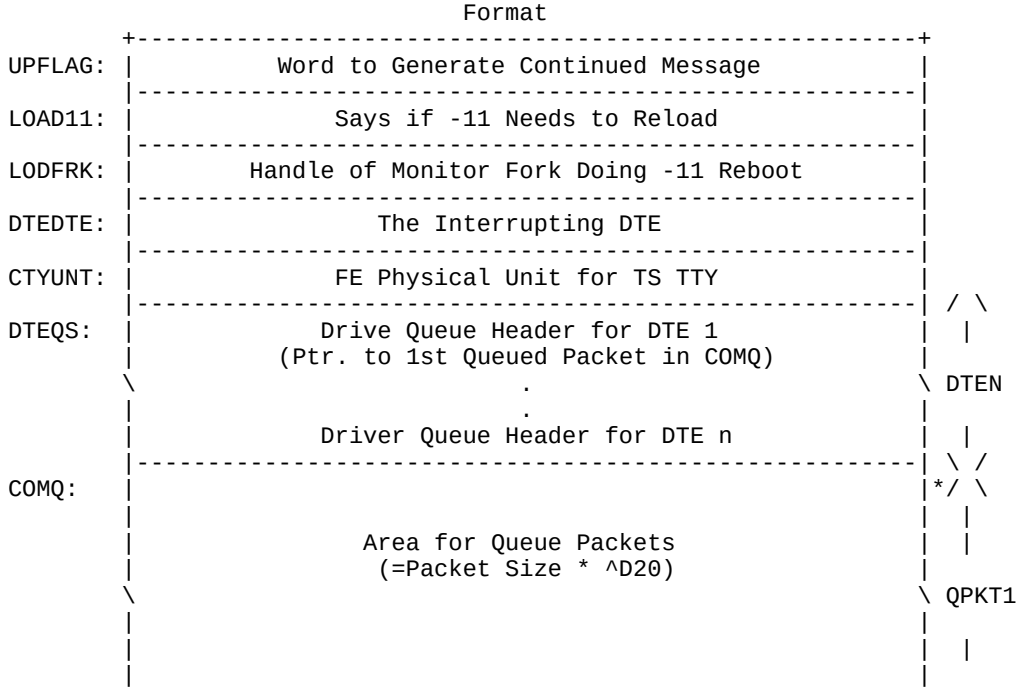
DTE Storage Area. This storage area contains storage for each DTE. It contains the Communication Area for each processor in COMBAS, the linked output packet queues (pointed to by DTEQS), the DTE input buffers, and local storage (that is, ACs, PC, & PDL) for the DTE Protocol Handler, DTESRV.

A packet in the COMQ area must be reformatted to RSX20F protocol and stored in PKTADR before being sent over the DTE. The before and after packet formats are described below.

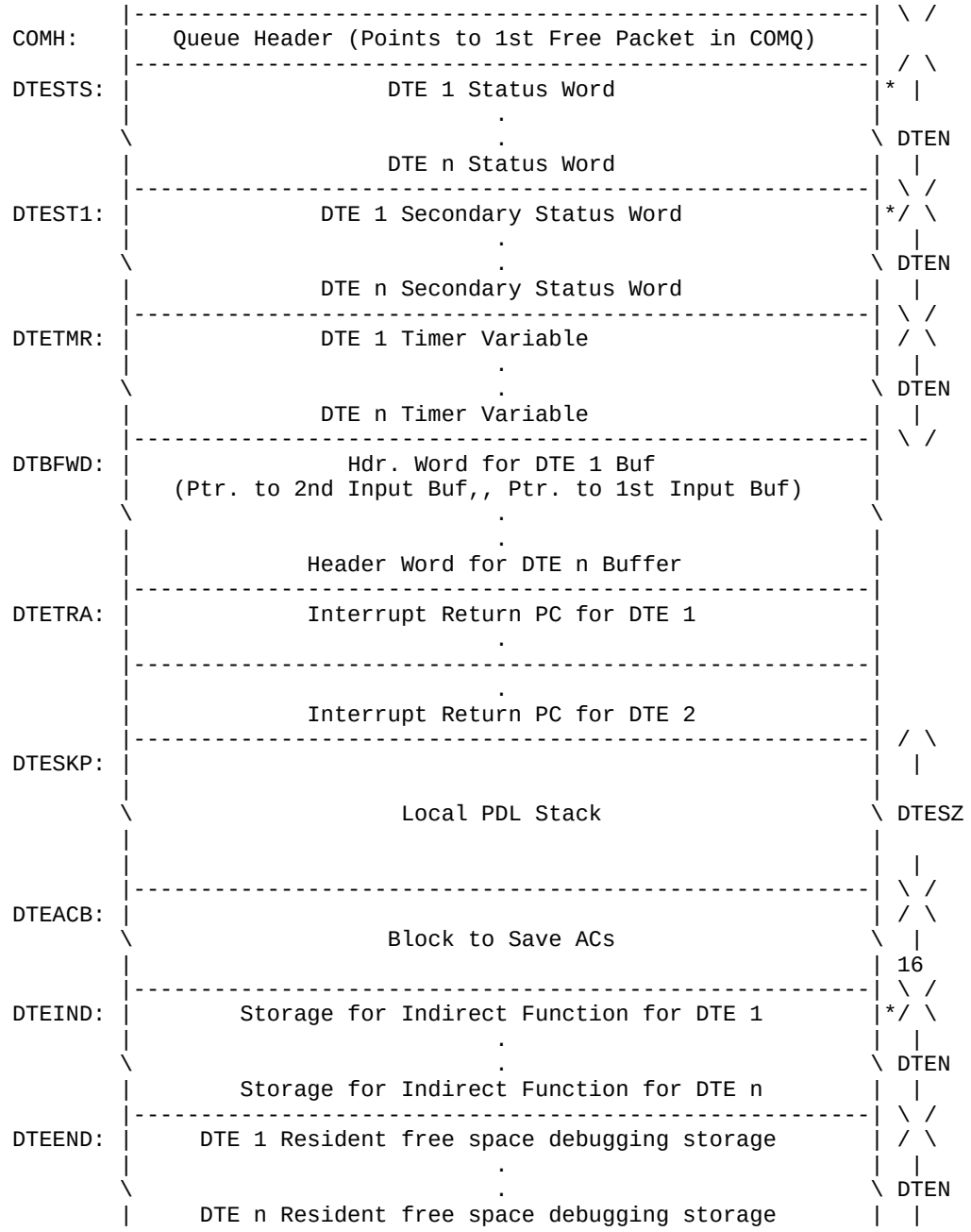
Two single packets, SNGPK1 and SNGPK2 (already formatted as direct packets to RSX20F protocol - See below) are set aside for the DTSNGL routine. This routine is responsible for activating lines and sending single characters over the DTE if the output buffer has only one character.

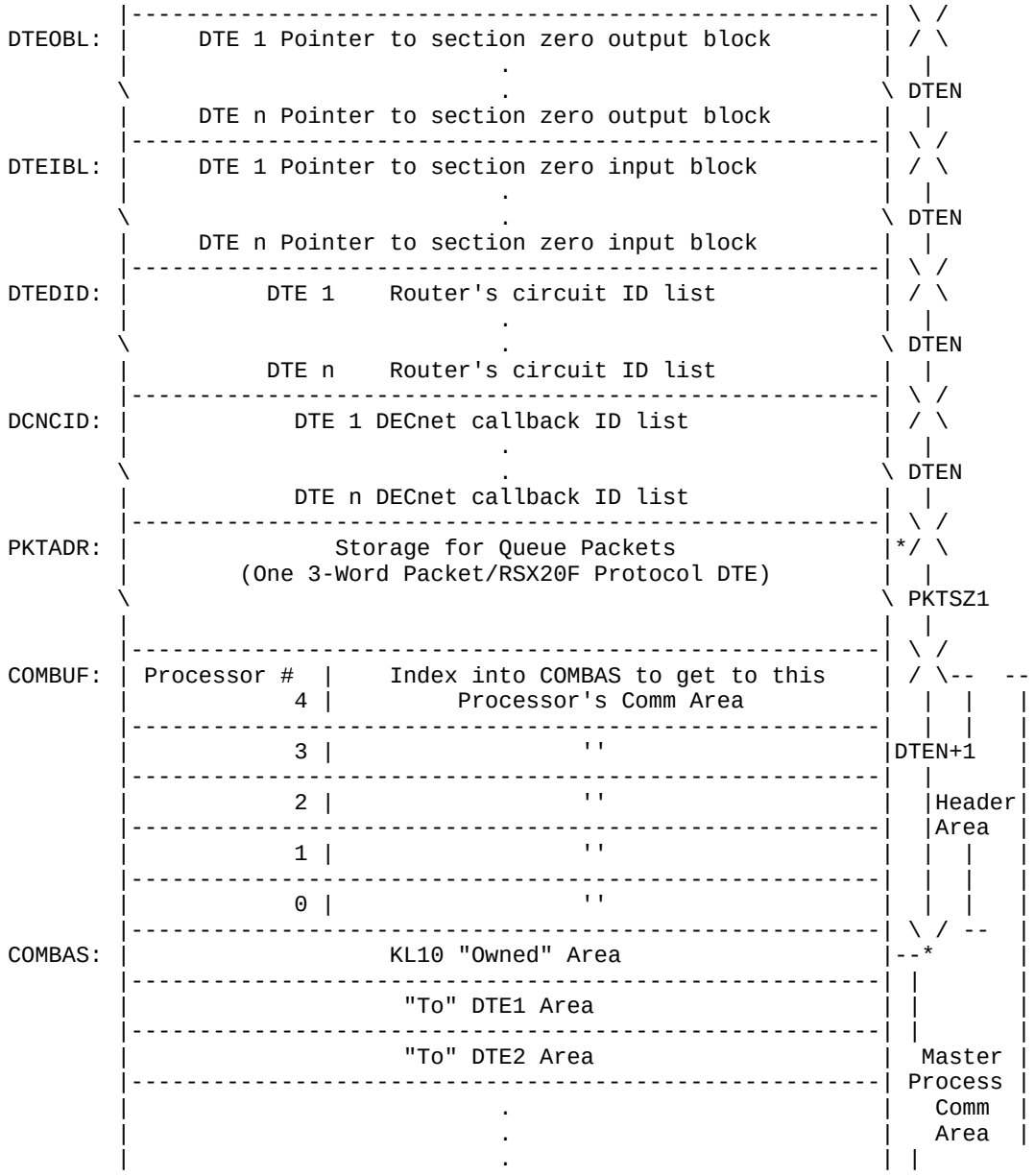
Normally output buffer characters are sent by way of indirect packets over the DTE, where the indirect packet (after being reformatted and stored in PKTADR) is sent first followed by the line's output buffer characters.

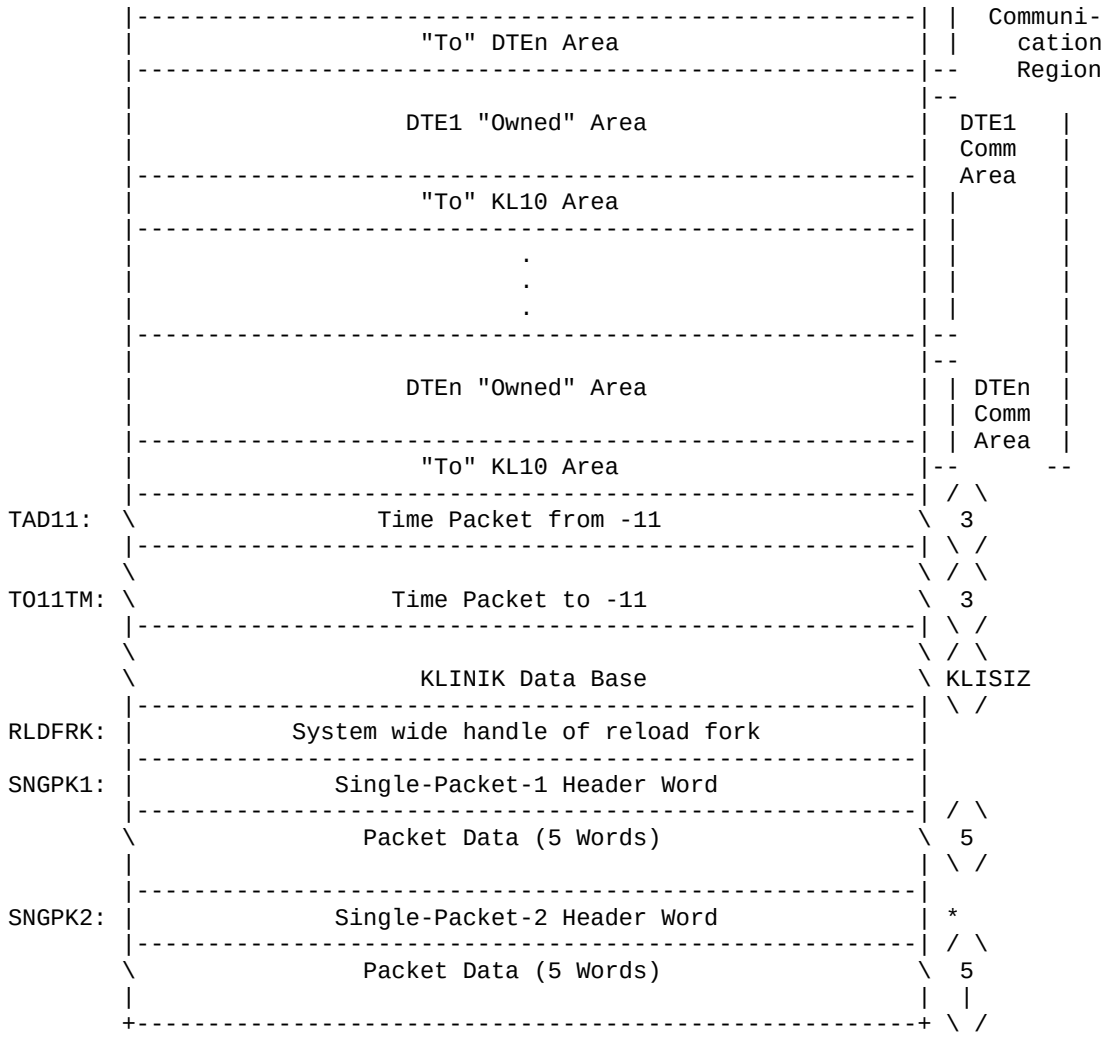
Defined in: STG



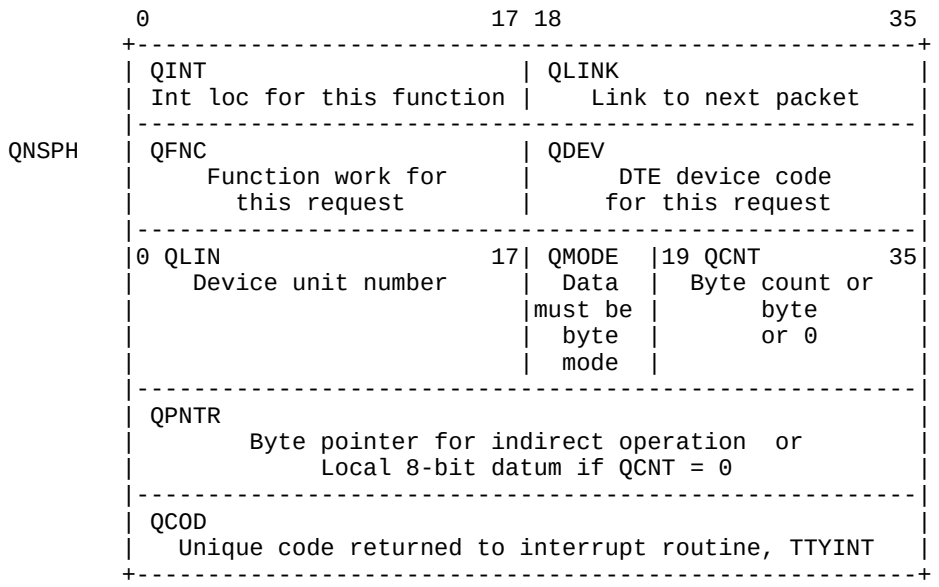
MONITOR TABLES
DTE-STORAGE-AREA (Cont.)



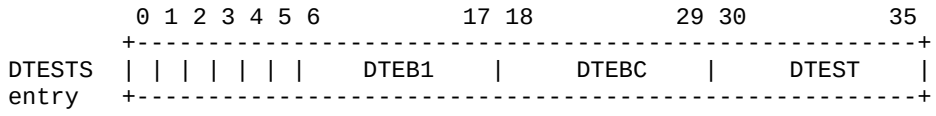

DTEOBL:
DTE 1 Pointer to section zero output block
DTE n Pointer to section zero output block
DTEIBL:
DTE 1 Pointer to section zero input block
DTE n Pointer to section zero input block
DTEDID:
DTE 1 Router's circuit ID list
DTE n Router's circuit ID list
DCNCID:
DTE 1 DECnet callback ID list
DTE n DECnet callback ID list
PKTADR:
Storage for Queue Packets
(One 3-Word Packet/RSX20F Protocol DTE)
DTEN
PKTSZ1
COMBUF:
Processor # | Index into COMBAS to get to this Processor's Comm Area
4
3
2
1
0
''
DTEN+1
Header Area
COMBAS:
KL10 "Owned" Area
"To" DTE1 Area
"To" DTE2 Area
Master Process Comm Area


"To" DTEn Area
Communi-
cation
Region
DTE1 "Owned" Area
DTE1
Comm
Area
"To" KL10 Area
.
.
.
DTEn "Owned" Area
DTEn
Comm
Area
"To" KL10 Area
TAD11:
Time Packet from -11
3
TO11TM:
Time Packet to -11
3
KLINIK Data Base
KLISIZ
RLDFRK:
System wide handle of reload fork
SNGPK1:
Single-Packet-1 Header Word
Packet Data (5 Words)
5
SNGPK2:
Single-Packet-2 Header Word
*
Packet Data (5 Words)
5

COMQ area for queue packets where a packet (5 words in length) has the form:

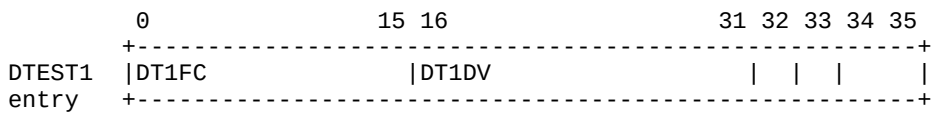


COMQ area is currently assembled for room of ^D20 packets.



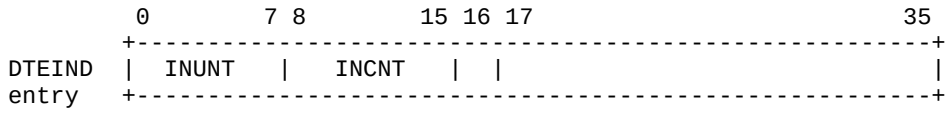
Bits	Pointer	Contents
0	DTERL	If set, DTE exists
1	DTEBF	Says which buffer is in use for RSX20 protocol
2	DTBLK	For MCB, to -10 is blocked on free space
3	DTRLD	If set, -11 is being reloaded
4	DTKAC	If set, -11 is ill
5	DTSTI	Status packet is split
6-17	DTEB1	Byte count of list transfer
18-29	DTEBC	Byte count remaining for subsequent transfer
31	DTIPU	If set, protocol is running
32-35	DTEST	DTE status DTET10=1--KL10 is receiving last fragment of message DTE11=2--11 is receiving bytes DTE11I=4--11 is receiving an indirect queue entry DTE1F=10--KL10 is receiving 1st fragment of a message

DTEST1 is parallel to DTESTS and contains current operation data and special request bits for "To" -11 conditions.



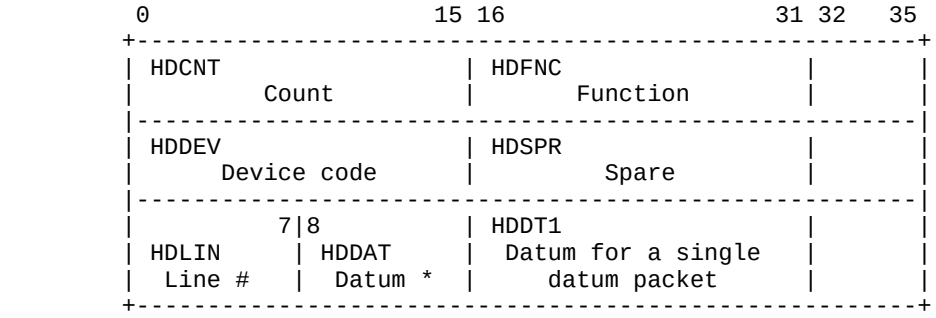
Bits	Pointer	Contents
0-15	DT1FC	Current function code
16-31	DT1DV	Current device code
32	DT1TM	-11 wants time of day
33	DT1ID	Waiting for indirect setup

Storage for indirect packets:



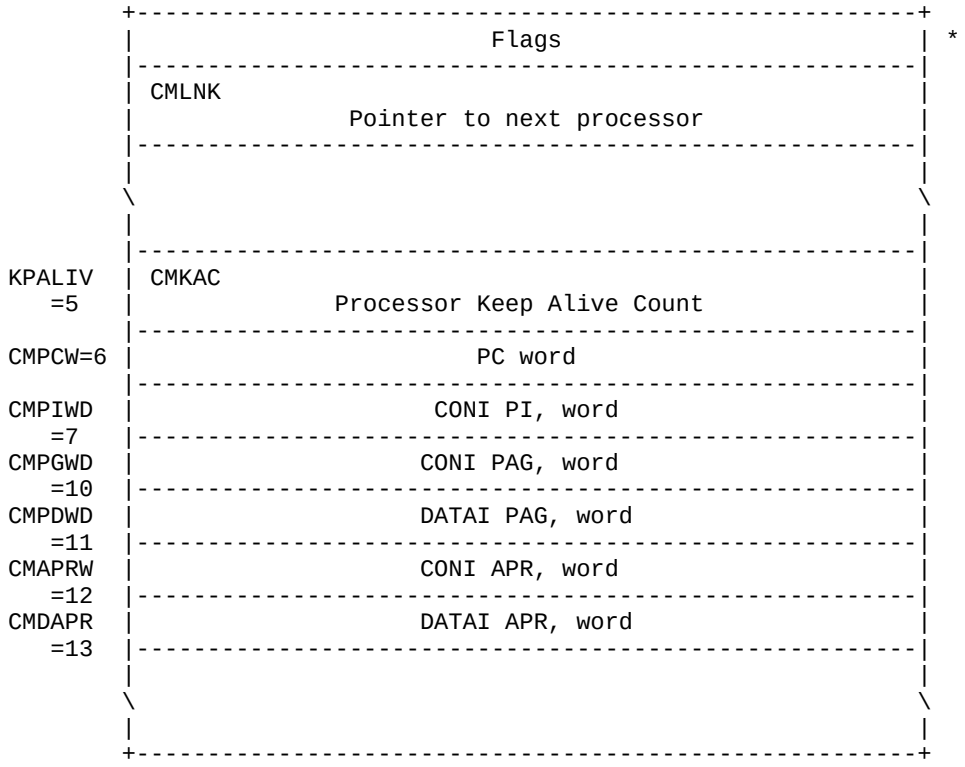
Bits	Pointer	Contents
0-7	INUNT	Unit
8-15	INCNT	Count
16	INVLD	If set, says unit field is invalid

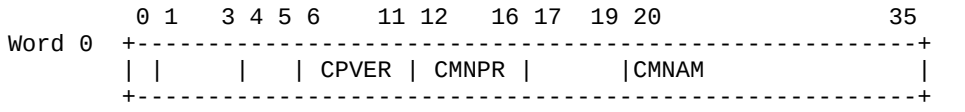
PKTADR is storage for currently activated DTE packets for each DTE (packet taken from the linked list of packets on the queue in COMQ and placed here). The packet has the following form:



Datum could be a character (direct packet case) or
Max number of characters to be sent (indirect packet case)

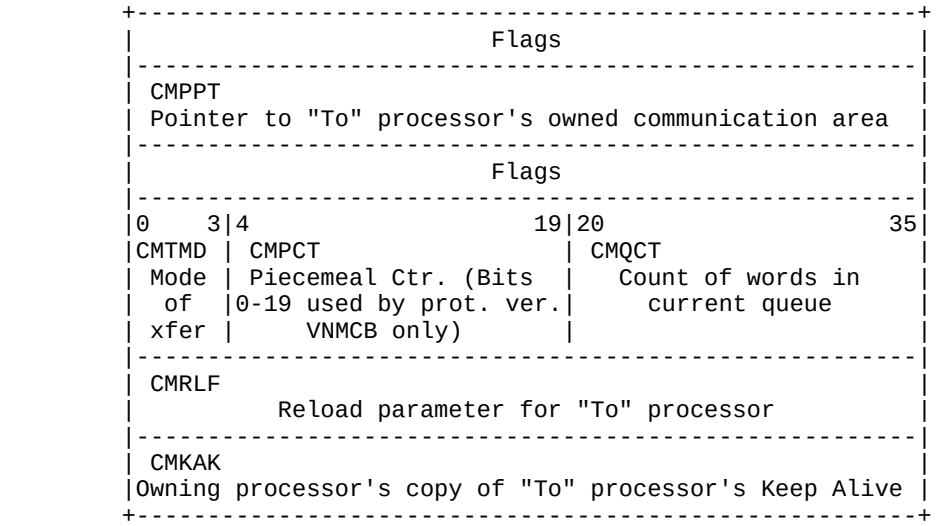
COMBAS "Owned" Area Block Format

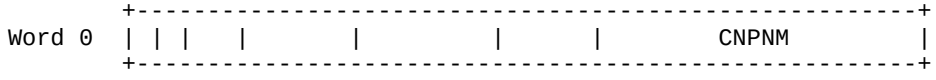




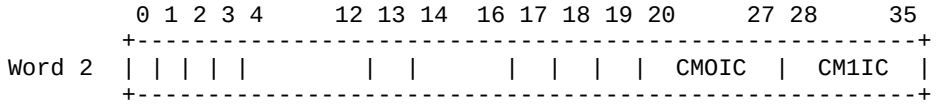
Bits	Pointer	Contents
0	CMTEN	Set if area belongs to KL10
1-3	CMVER	Communication area version number
6-11	CPVER	Protocol version number
12-16	CMNPR	Number of processors represented in this area (including owner)
17-19	CMSIZ	Size of area in 8-word blocks
20-35	CMNAM	Processor name (= serial number)

"To" Area Block Format

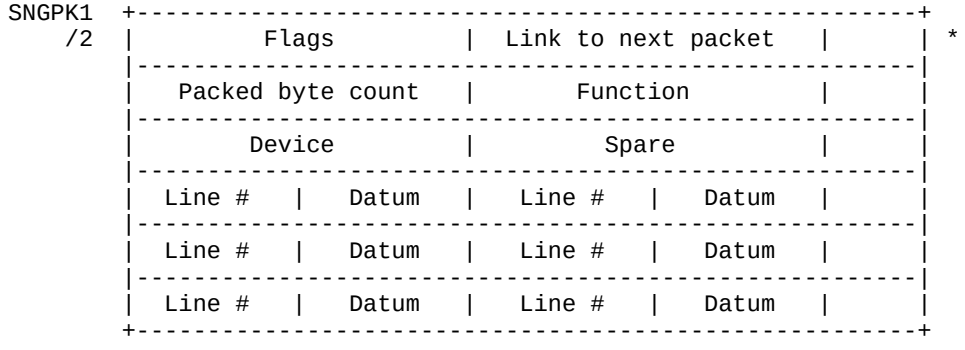


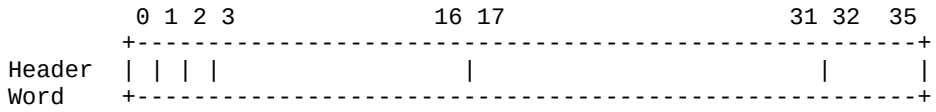


Bits	Pointer	Contents
0	CMPRO	If set, it implies connected to a KL10
1	CMDTE	If set, there is a DTE connecting this processor and owning processor
2-3	CMDTN	If CMDTE is set, this is the number of that connecting DTE
11-16	CMVRR	Protocol in use by the 2 processors
17-19	CMSIZ	Size of "to" area in 8-word blocks
20-35	CMPNM	"To" processor number



Symbol	Bits	Pointer	Contents
	0	CMPWF	Power fail indicator -11
	1	CML11	Wants reload (set by -11)
	2	CMINI	Initialization bit for MCB protocol only
	3	CMTST	Valid examine if set (should always be set)
	13	CMQP	Set if using queued protocol
	17	CMFWD	-11 doing full word transfer (set by -11)
CMIP	18		-11 doing indirect transfer
CMTOT	19		"Toit" bit. Set to 1 by KL10 in -11's section of -10's Comm area after -11 sets QMode bit or increments Q-count, and after -10 processes the doorbell. Cleared by KL10 after receiving T010DN. Assures -11 that the KL10 has not lost a T010DN interrupt
	20-27	CMOIC	-11s wrap around count of direct Q transfer
	28-35	CM1IC	KL10's wrap around count of direct Q transfers.





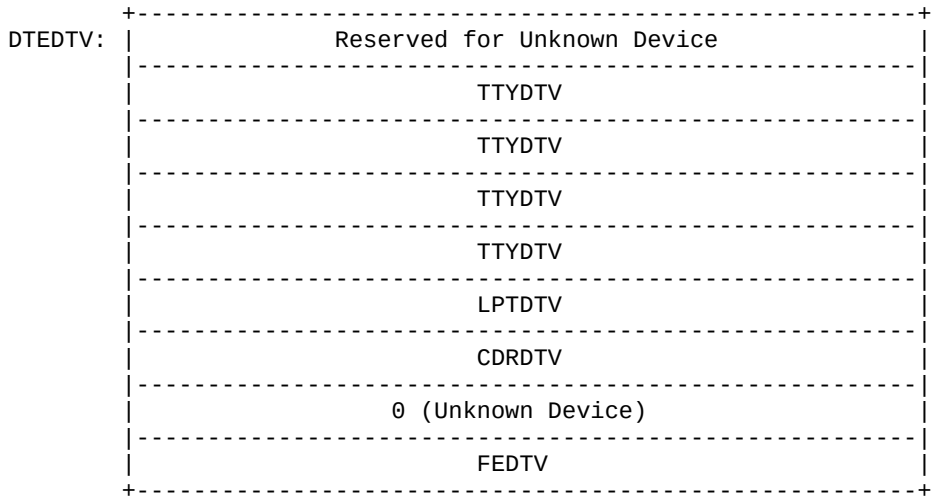
Symbol	Bits	Contents
SNGONQ	0	On the DTE packet queue pointed to by DTEQS
SNGAVL	1	Packet has space available
SNGACT	2	Packet active (that is, DTE processing it)
	16-31	Link to next packet

DTEDTV

DTE Protocol Device Dispatch Table. The entries with the dispatch address TTYDTV are for the CTY, DL11, DH11 and DLS devices.

Defined in: STG

Format

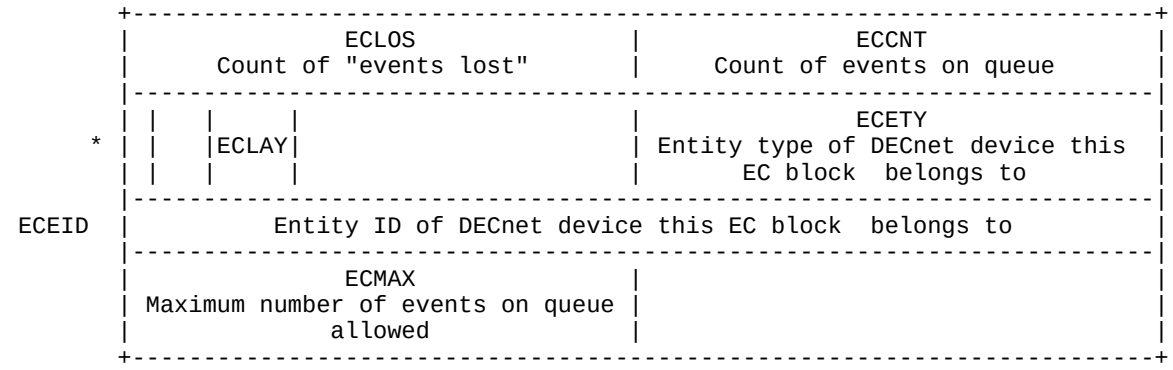


EC

This is the DECnet event communication block, a communications area between a layer and NTMAN.

Defined in: D36PAR

Format



Field ECDEL (0-0) This EC block marked for deallocation

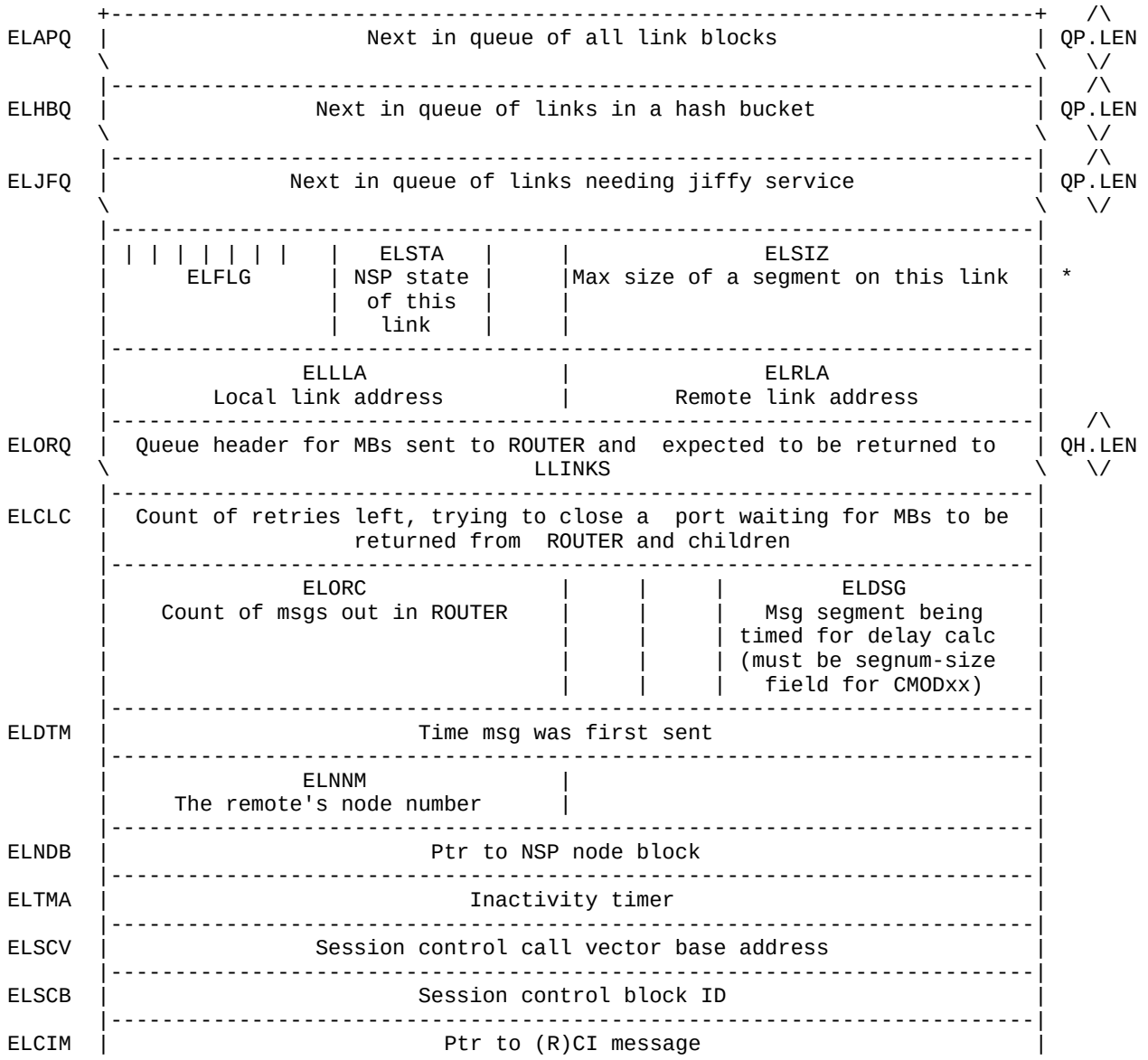
Field ECLAY (3-5) DECnet layer this EC block belongs to

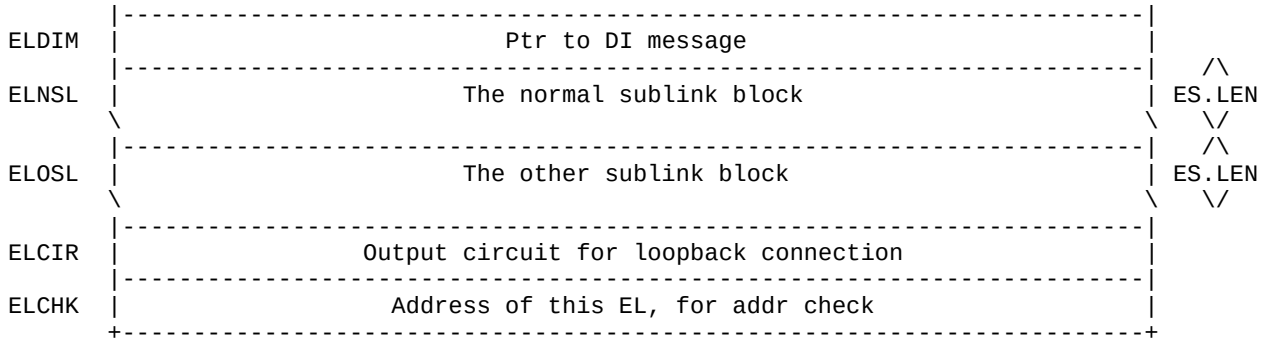
EL

The DECnet EL structure (Link Block) holds all the NSP information about this logical link.

Defined in: D36PAR

Format





For field ELFLG(0-8):

ELOJQ	0	Link is on the jiffy-request queue
ELSNC	1	Set if not yet told SC about no conf
ELCNF	2	Set if we have confidence in link
ELSCM	3	Send connect ACK message next jiffy
ELSDM	4	Send disconnect confirm message next jiffy
ELABO	5	Aborting this logical link
ELDTO	6	Delay timer is for "other" sublink

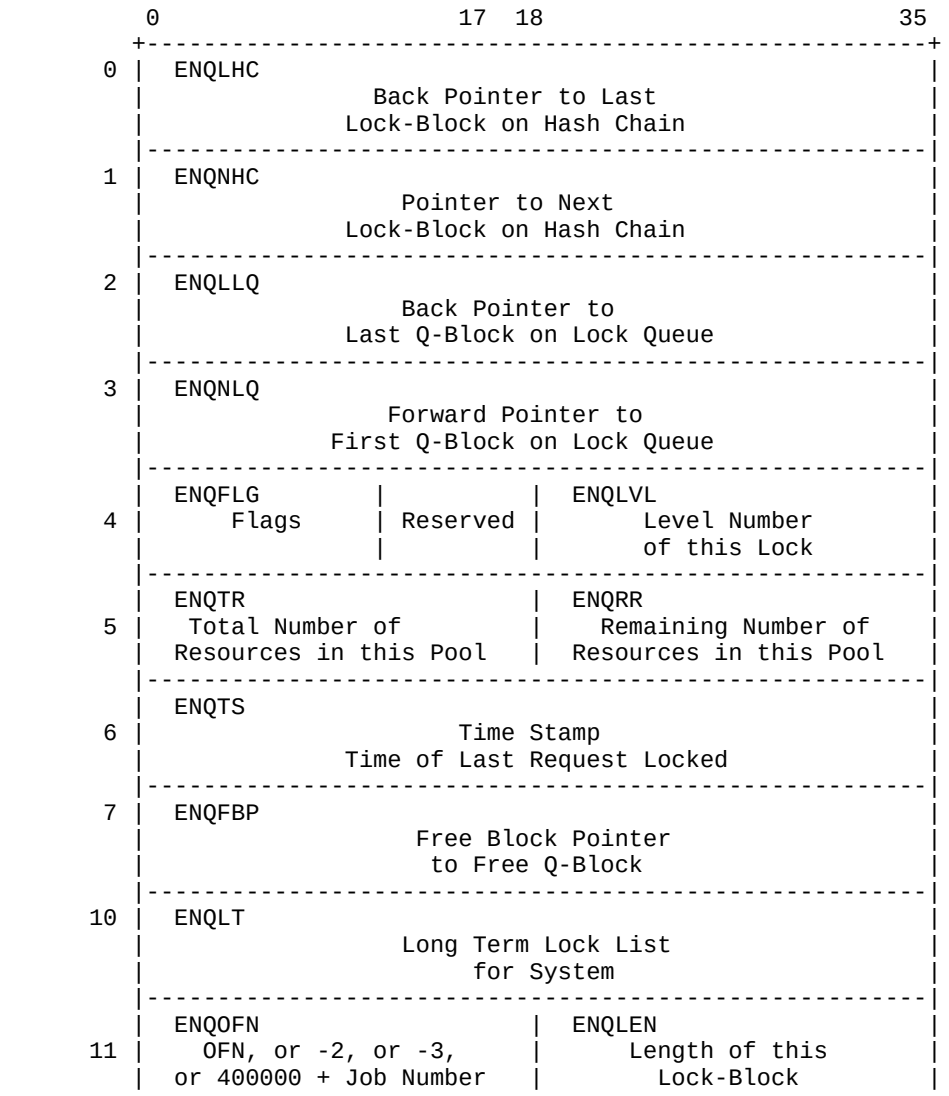
Field ELVER (18-20) Version of remote NSP, see VER3.1,VER3.2

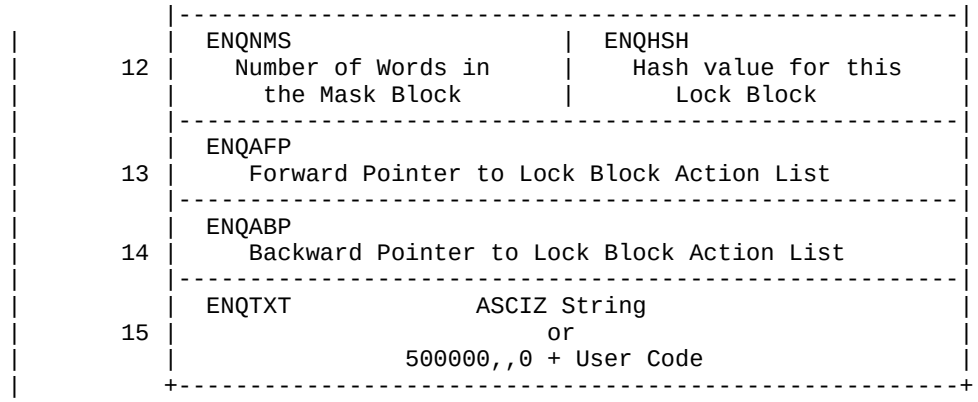
ENQ/DEQ-LOCK-BLOCK

Enqueue Lock-Block. Each resource is described in a lock-block. The lock-block is created at the time of the first request.

Defined in: ENQ

Format





The flags word must occur in the same position in both the Lock-Block and the Q-Block. The flags word is used to distinguish a Lock-Block from a Q-block.

Defined in: ENQPAR

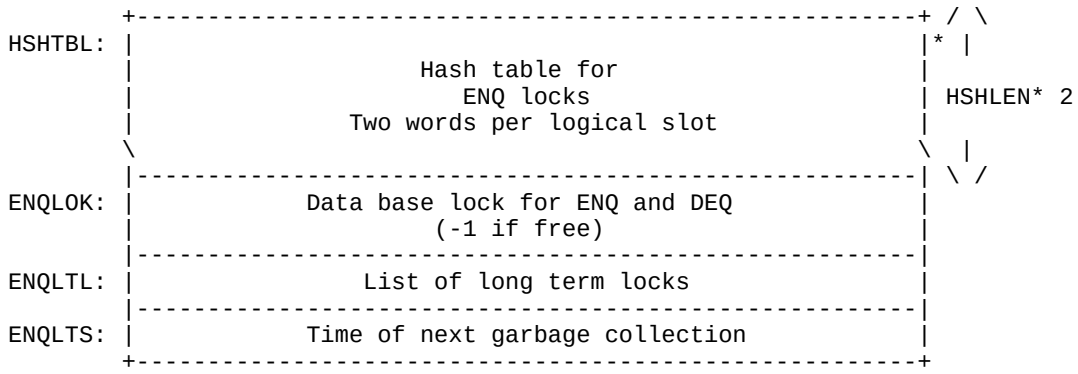
Symbol	Bits	Pointer	Meaning
	0-2		Unused
EN.SDO=400	3		Scheduling pass needed on Lock-Block
EN.CLL=200	4		Cluster-wide queue block or Cluster-wide lock-block
EN.NOV=100	5		No vote for this lock-block Set during caching and for -1 type locks
EN.LTL=40	6		Long Term Lock
EN.INV=20	7		This Q-Block is invisible
EN.LOK=10	8		The Q-Block has the Lock Locked.
EN.TXT=4	9		This Block has a Text String Identifier.
EN.EXC=2	10		Request is Exclusive
EN.LB=1	11		This is the Lock-Block
	12-17		Reserved
	18-35	ENQLVL	Level # of this lock.

ENQ/DEQ - STORAGE AREA

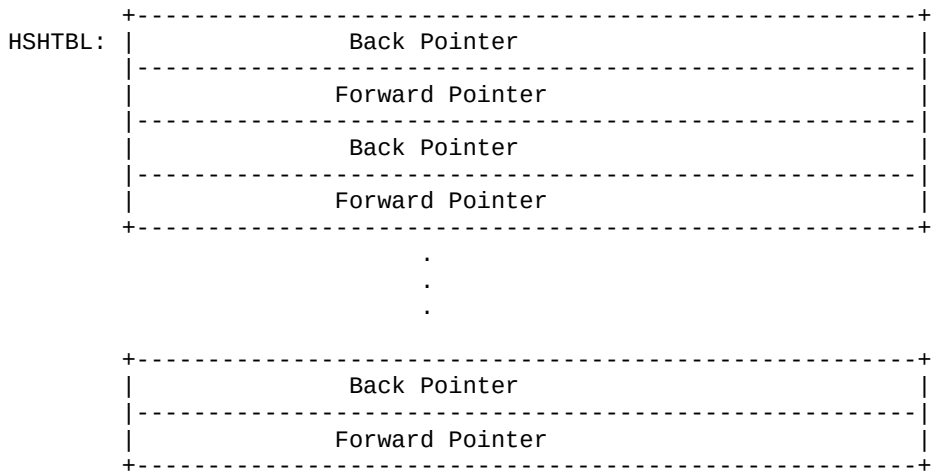
Enqueue/Dequeue Storage Area. The non-resident local area for the ENQ/DEQ Facilty is illustrated first followed by the resident bit table, ENFKTB. A bit is set in the ENFKTB bit table if the fork should be woken up or interrupted because it owns a lock. (The Scheduler's wake-up test routine address is ENQTST.)

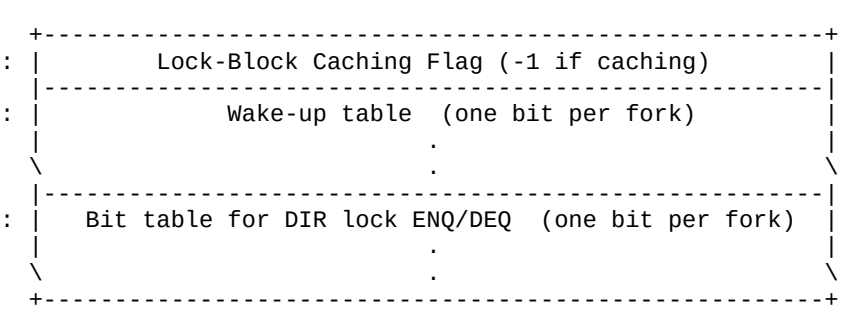
Defined in: STG

Format



Each logical slot in HSHTBL is two words long:





* The name (or identifying number) of a lock block is hashed to provide a number. This number, module HSHLEN, then doubled, is used as an index into HSHTBL. If the hashing algorithm yields the same index for more than one lock block name, the lock blocks are linked together; the HSHTBL entry is the linked list header.

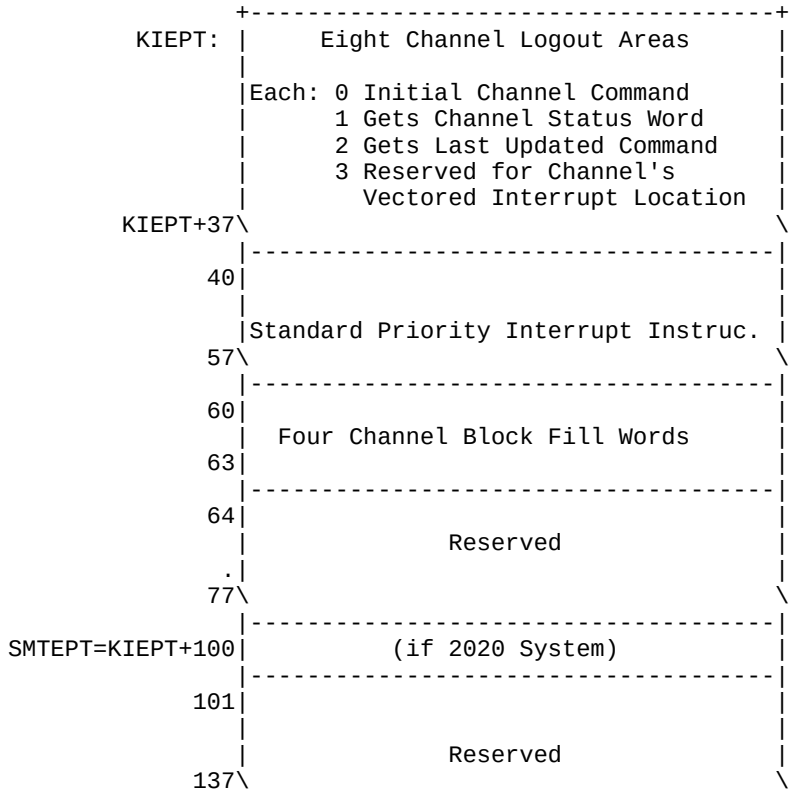
EPT

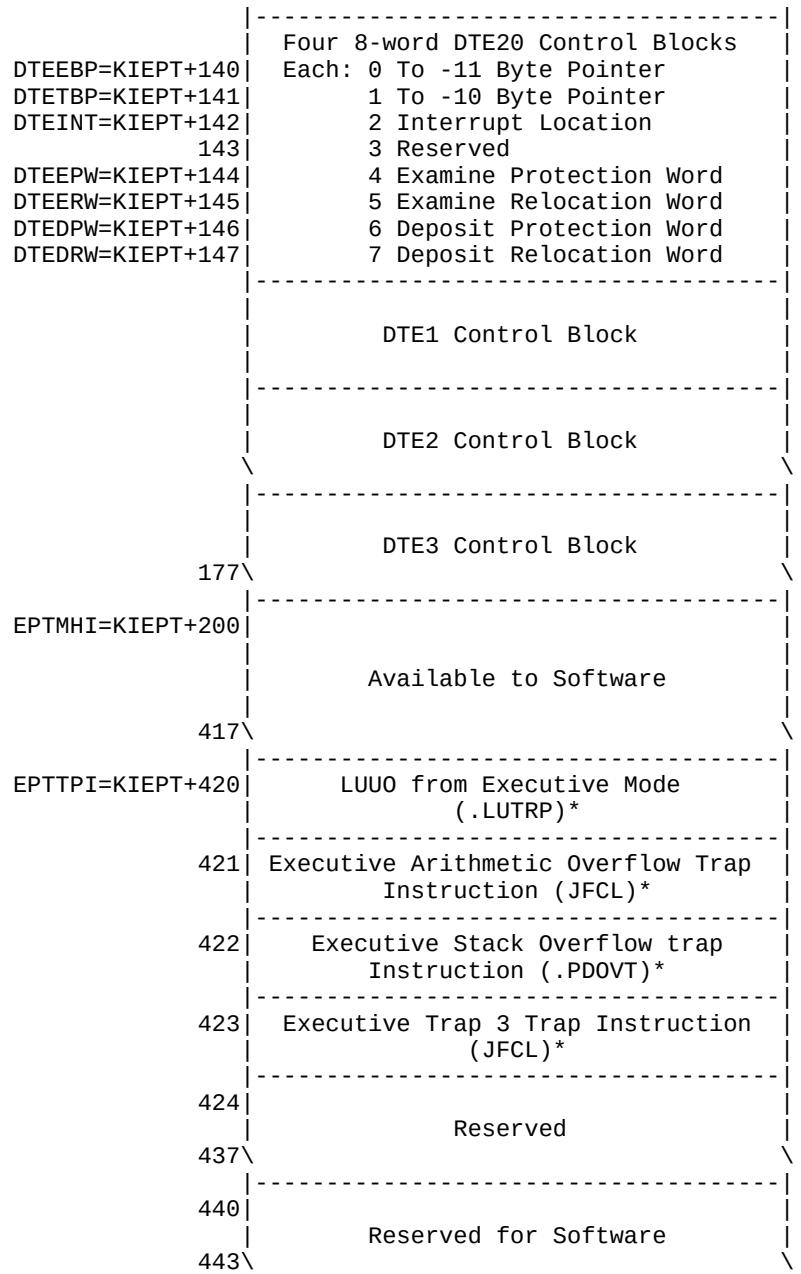
Executive Process Table. This memory resident table pointed to by the Executive Base Register (EBR), contains the vectored dispatch addresses for system events. All device interrupts pass control to a specific offset position in this table.

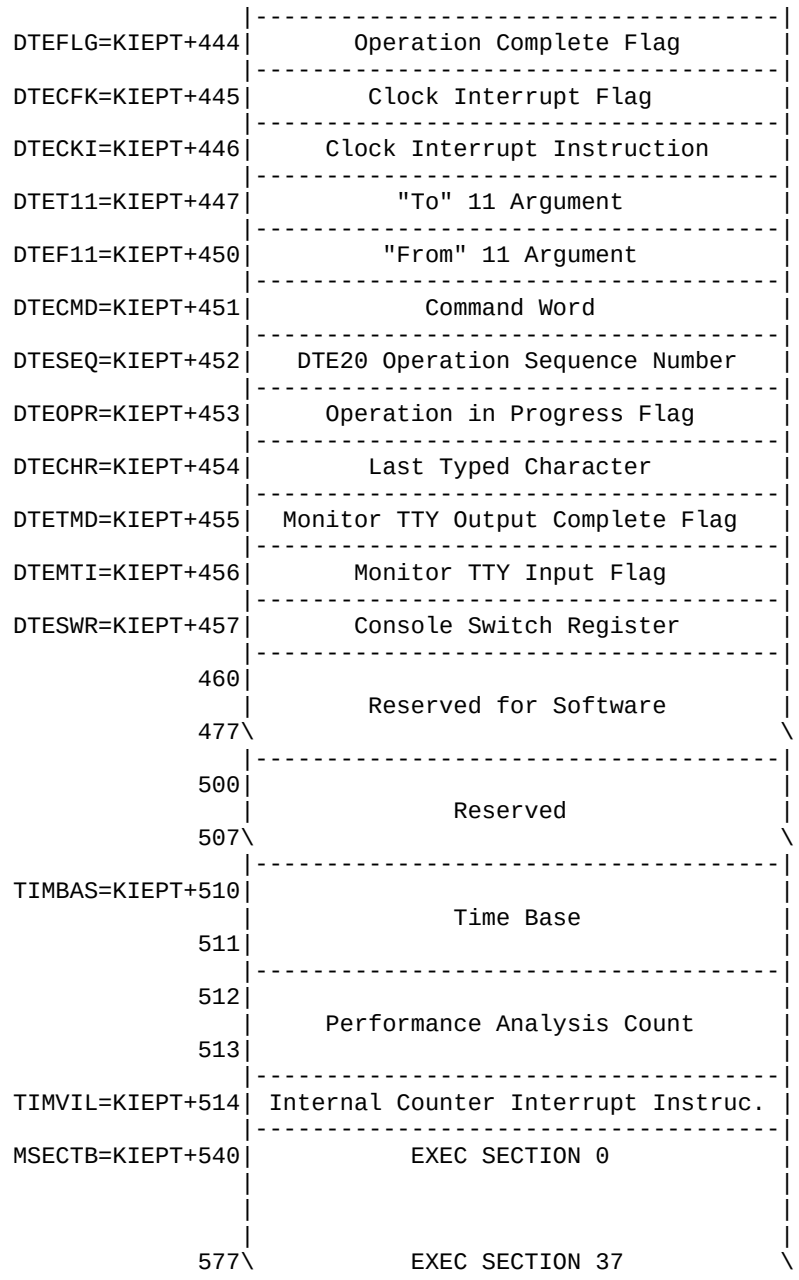
This table also includes the executive section map table, the time of day clock and arithmetic trap instructions which are executed when arithmetic conditions occur in executive mode.

Defined in: STG

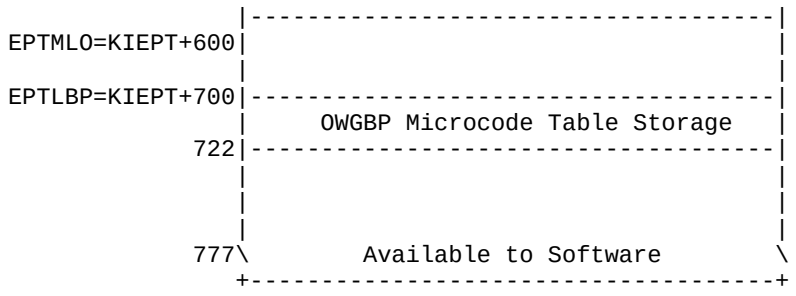
Format




Four 8-word DTE20 Control Blocks
DTEEBP=KIEPT+140
Each: 0 To -11 Byte Pointer
DTETBP=KIEPT+141
1 To -10 Byte Pointer
DTEINT=KIEPT+142
2 Interrupt Location
143
3 Reserved
DTEEPW=KIEPT+144
4 Examine Protection Word
DTEERW=KIEPT+145
5 Examine Relocation Word
DTEDPW=KIEPT+146
6 Deposit Protection Word
DTEDRW=KIEPT+147
7 Deposit Relocation Word
DTE1 Control Block
DTE2 Control Block
DTE3 Control Block
177
EPTMHI=KIEPT+200
Available to Software
417
EPTTPI=KIEPT+420
LUUO from Executive Mode
(.LUTRP)*
421
Executive Arithmetic Overflow Trap
Instruction (JFCL)*
422
Executive Stack Overflow trap
Instruction (.PDOVT)*
423
Executive Trap 3 Trap Instruction
(JFCL)*
424
Reserved
437
440
Reserved for Software
443


DTEFLG=KIEPT+444
Operation Complete Flag
DTECFK=KIEPT+445
Clock Interrupt Flag
DTECKI=KIEPT+446
Clock Interrupt Instruction
DTET11=KIEPT+447
"To" 11 Argument
DTEF11=KIEPT+450
"From" 11 Argument
DTECMD=KIEPT+451
Command Word
DTESEQ=KIEPT+452
DTE20 Operation Sequence Number
DTEOPR=KIEPT+453
Operation in Progress Flag
DTECHR=KIEPT+454
Last Typed Character
DTETMD=KIEPT+455
Monitor TTY Output Complete Flag
DTEMTI=KIEPT+456
Monitor TTY Input Flag
DTESWR=KIEPT+457
Console Switch Register
460
Reserved for Software
477
500
Reserved
507
TIMBAS=KIEPT+510
Time Base
511
512
Performance Analysis Count
513
TIMVIL=KIEPT+514
Internal Counter Interrupt Instruc.
MSECTB=KIEPT+540
EXEC SECTION 0
577
EXEC SECTION 37

MONITOR TABLES
EPT (Cont.)



* These values are placed into the table when the EPT is initialized at system startup.

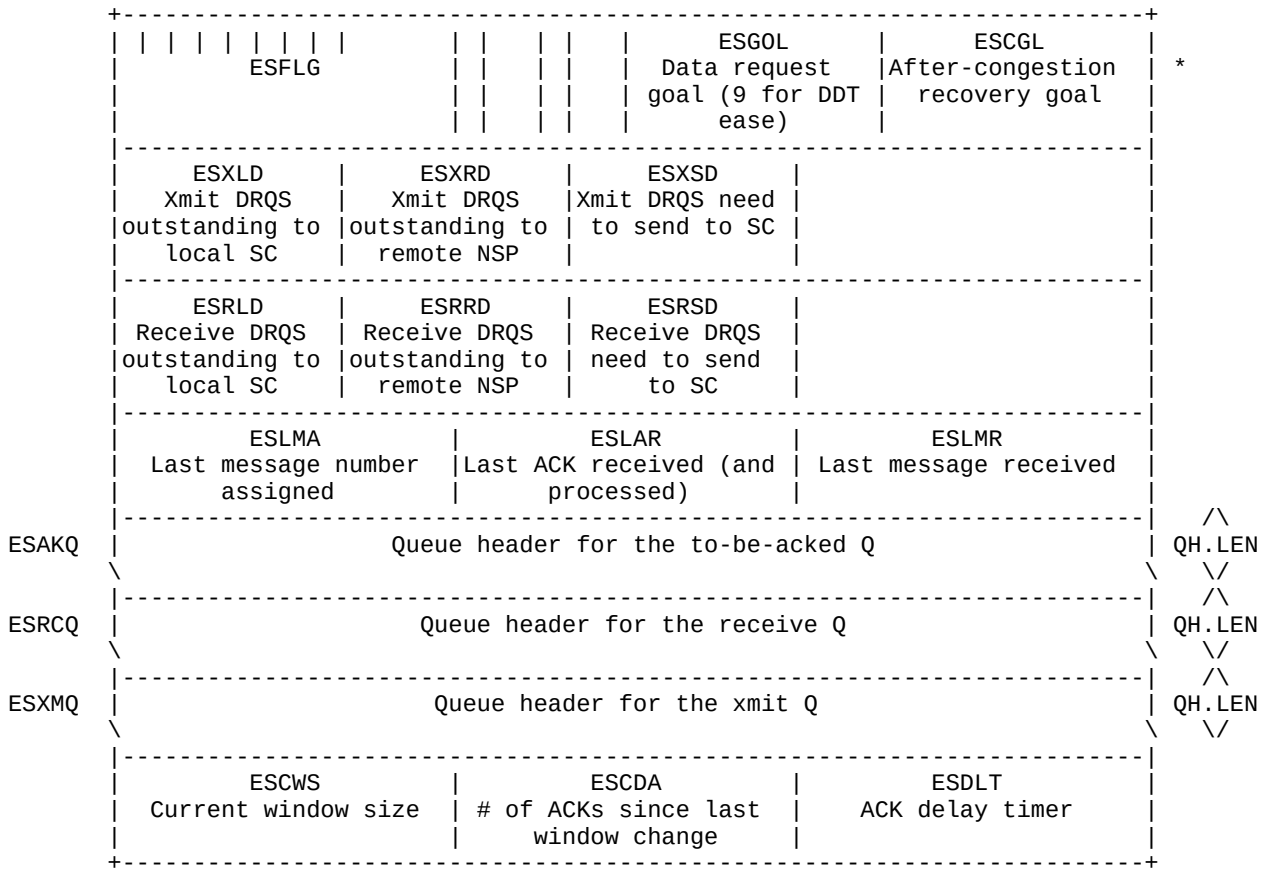
ES

The DECnet Sublink Block is part of the link block. It holds the information about the "normal" and the "other" sublinks.

The structure name ES is used instead of the more obvious NS (NSP Sublink) to avoid a conflict with the other NS structure defined in this universal file. The "E" stands for the new name for the NSP layer: "End-to-end" layer.

Defined in: D36PAR

Format



For field ESFLG(0-11):

ESOTH	0	Set if this is other sublink
ESACK	1	Send ACK for this sublink next jiffy
ESNAK	2	Send NAK to PH2 NSP (turn ACK on too)
ESROF	3	Receive is off
ESROC	4	Receive off has changed
ESXOF	5	Xmit is off
ESBFR	6	Remote is "buffer-rich" on this link
ESDLY	7	ACK delaying allowed

Field ESRFL (13-14) Receive flow control type

Field ESXFL (16-17) Xmit flow control type

ET

For test and debug purposes, there is an extra function of the NTMAN JSYS. This function logs an event or signal.

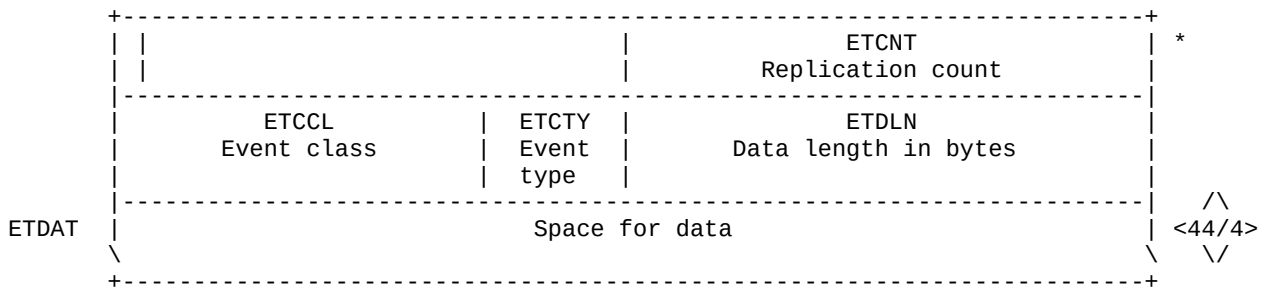
The function code is -5 (.NTTEV)

The entity ID and type for the event are taken from the standard words in the NTMAN argument block.

Word .NTSEL points to a secondary argument block of the following layout.

Defined in: D36PAR

Format



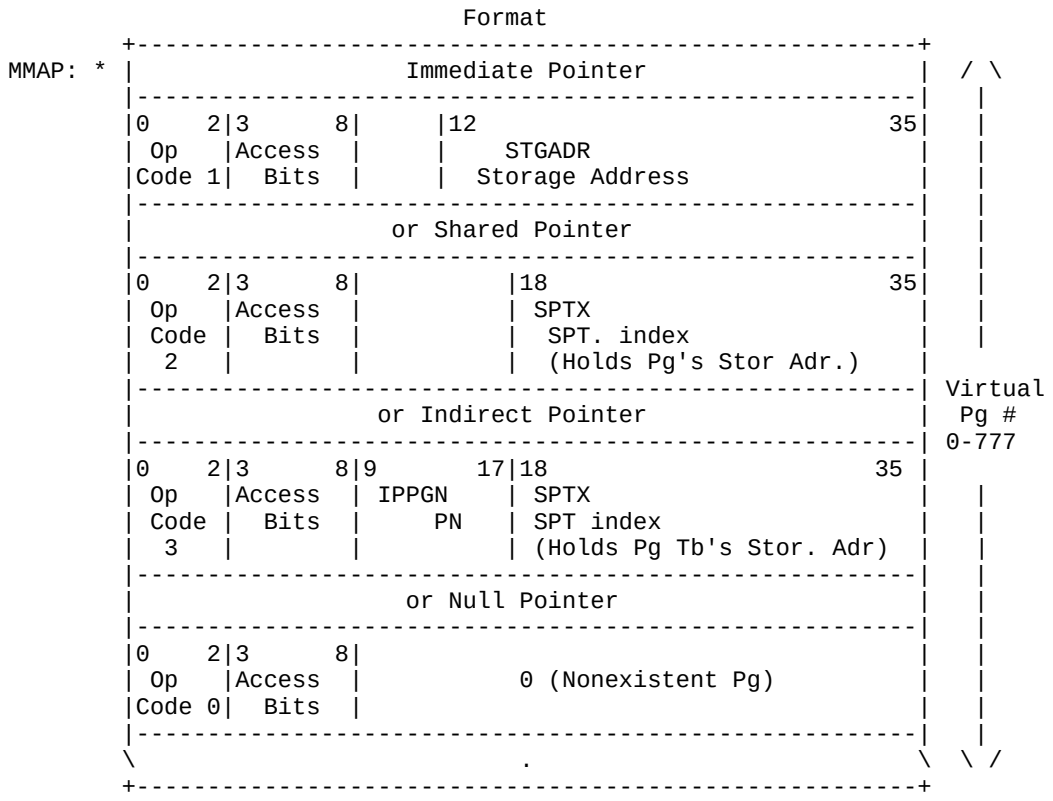
Field ETSIG (0-0) Set if this is a signal

EXEC-PG-MAP-TBL

Executive Page Map Table. This 512-word memory resident table holds or points to other tables that hold all of the mapping information needed by the firmware to translate executive (monitor) virtual addresses in a given section into physical memory addresses. It is pointed to by an entry in the monitor's section table in the Executive Process Table (EPT).

The four possible formats for an entry in this table (that is, Immediate, shared, indirect or null pointers) are illustrated below. The details of these four possible pointer words as well as the mechanics of the virtual to physical translation process for a monitor page is identical to that described for the User-Page Map Table (See User-Pg-Map-Tbl)

Defined in: STG



* Currently MMAP is the monitor's page map table for section 0 and section 1. The layout of the monitor's virtual address space for section 0 is described in Appendix B of the Monitor Structures Book.

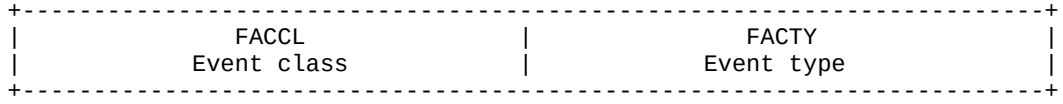
FA

This is the DECnet Filter argument block which is used to pass arguments to the EV.FIL function of NMXEVT.

Defined in: D36PAR

Format

Filter argument block



FB

This is the Free Block pointer used by DECnet for maintaining a list of free storage.

Defined in: D36COM

Format

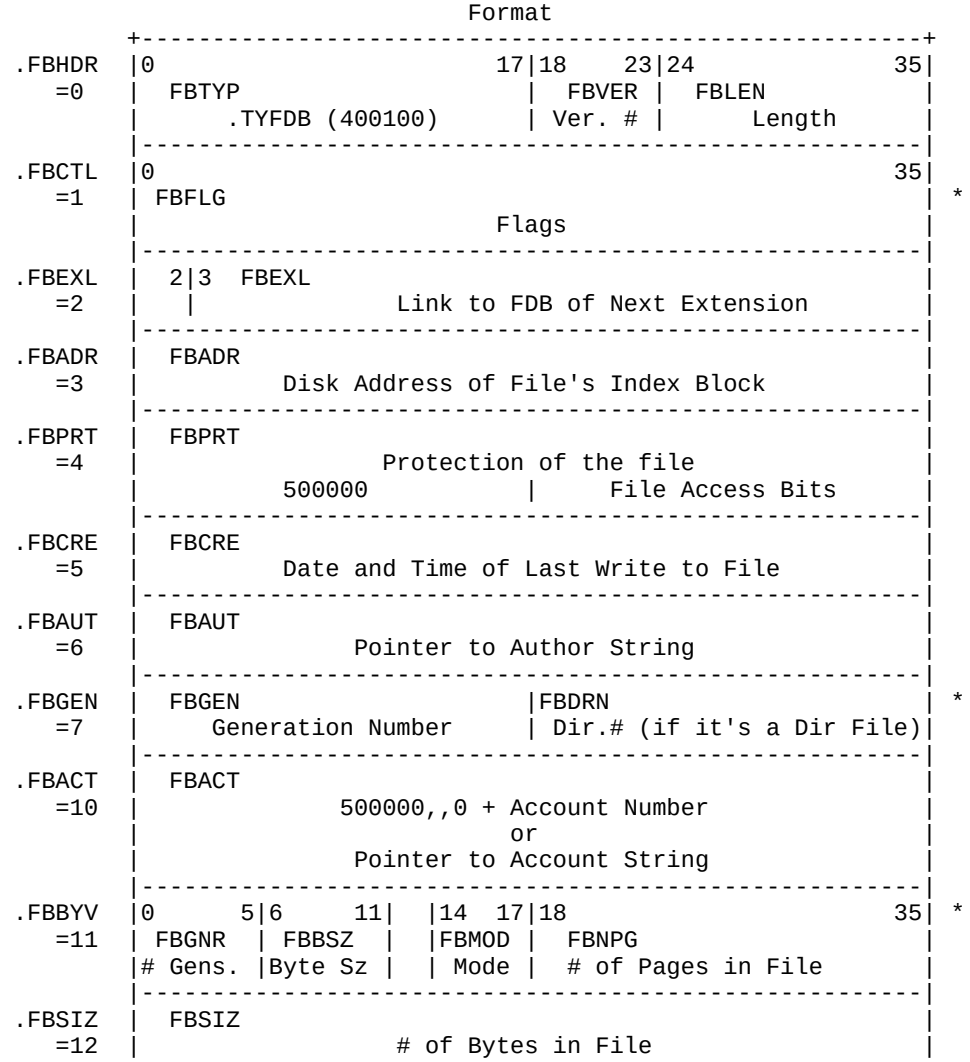
FBNXT	Forward pointer in a free block	

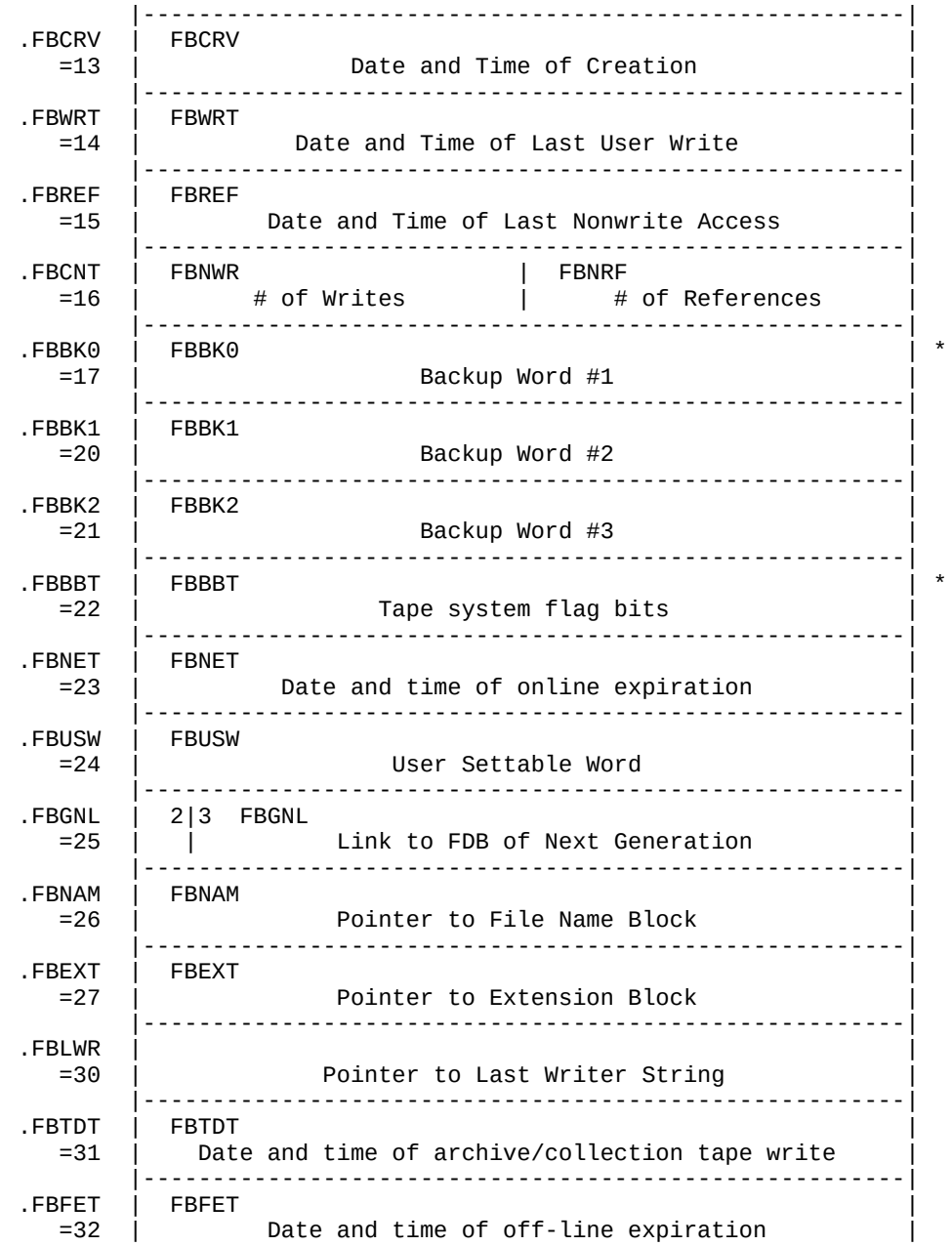
FDB

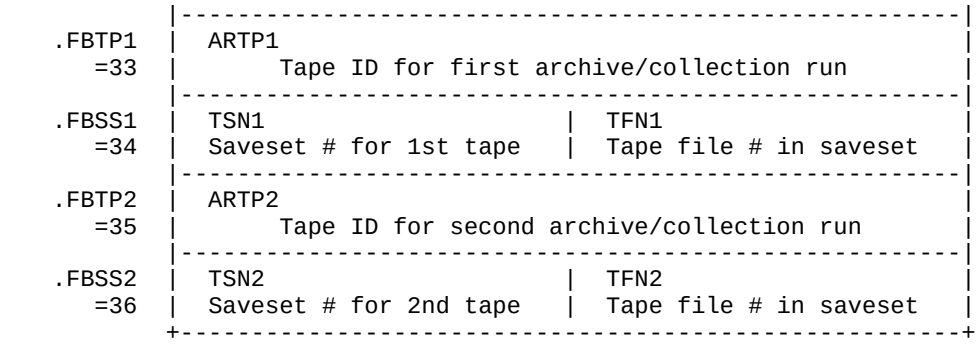
File Description Block. All attributes of a file are stored in its description block (FDB) maintained in the file's directory. An FDB is built in the directory's free space area when a file is created. This table is referenced by the DIR table.

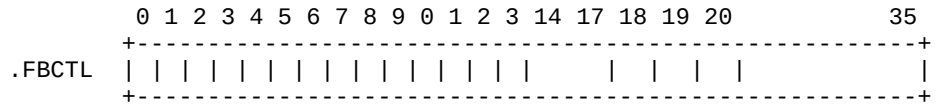
Defined in: PROLOG, MONSYM

Format

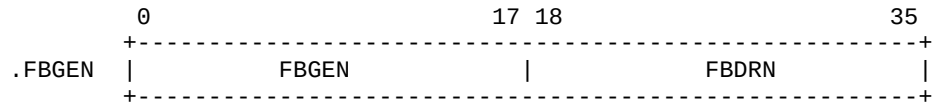



.FBCRV =13
FBCRV
Date and Time of Creation
.FBWRT =14
FBWRT
Date and Time of Last User Write
.FBREF =15
FBREF
Date and Time of Last Nonwrite Access
.FBCNT =16
FBNWR
# of Writes
FBNRF
# of References
.FBBK0 =17
FBBK0
Backup Word #1
*
.FBBK1 =20
FBBK1
Backup Word #2
.FBBK2 =21
FBBK2
Backup Word #3
.FBBBT =22
FBBBT
Tape system flag bits
*
.FBNET =23
FBNET
Date and time of online expiration
.FBUSW =24
FBUSW
User Settable Word
.FBGNL =25
2|3 FBGNL
Link to FDB of Next Generation
.FBNAM =26
FBNAM
Pointer to File Name Block
.FBEXT =27
FBEXT
Pointer to Extension Block
.FBLWR =30
Pointer to Last Writer String
.FBTDT =31
FBTDT
Date and time of archive/collection tape write
.FBFET =32
FBFET
Date and time of off-line expiration

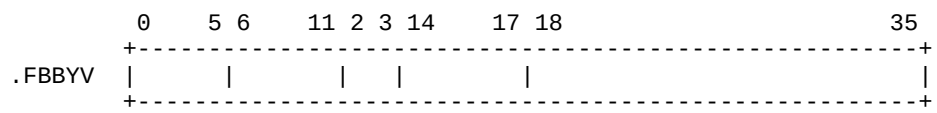




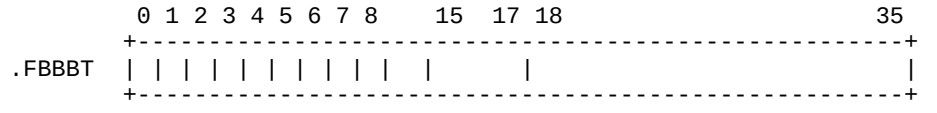
Symbol	Bits	DEFSTR	Content
FB%TMP	0	FBTMP	File is temporary
FB%PRM	1	FBPRM	File is permanent
FB%NEX	2	FBNEX	No extension for this file yet; file doesn't really exist.
FB%DEL	3	FBDEL	File is deleted
FB%NXF	4	FBNXF	File doesn't exist (first write not complete)
FB%LNG	5	FBLNG	Long file
FB%SHT	6	FBSHT	Reserved for DEC
FB%DIR	7	FBDIR	File is a directory
FB%NOD	8	FBNOD	File is not saved by backup system
FB%BAT	9		File may have bad pages
FB%SDR	10	FBSDR	This directory has subdirectories
FB%ARC	11	FBARC	File has archive status
FB%INV	12	FBINV	File is invisible
FB%OFF	13	FBOFF	File is off-line
FB%FCF	14-17		File class field 0 = .FBNRM Not an RMS file 1 = .FBRMS RMS file
FB%NDL	18		File is not delete table
FB%WNC	19		Last write not closed
FB%FOR	20		FORTRAN data file
FB%SEC	21		File is secure (ACJ consulted on each access)



Symbol	Bits	DEFSTR	Content
FB%GEN	0-17	FBGEN	Generation number
FB%DRN	18-35	FBDRN	Directory number

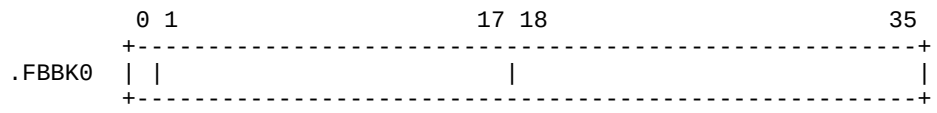


Symbol	Bits	DEFSTR	Content
FB%RET	0-5	FBGNR	Generation retention count
FB%BSZ	6-11	FBBSZ	Byte size
FB%MOD	14-17	FBMOD	Last OPENF mode
FB%PGC	18-38	FBNPG	Page count



Symbol	Bits	DEFSTR	Content
AR%RAR	1	K0RAR	Request for file to be archived
AR%RIV	2	K0RIV	System request for migration
AR%NDL	3	K0NDL	Do not delete disk contents after archiving
AR%NAR	4	K0NAR	Resist migration
AR%EXM	5	K0EXM	File is exempt from migration
AR%1ST	6	K01ST	First pass is in progress
AR%RFL	7	K0RFL	Restore failed
AR%WRN	8		User warned of file expiration
AR%RSN	15-17	K0RSN	Reason file pushed off-line: 1 = .AREXP File expired 2 = .ARARR Archive requested 3 = .ARRIR Migration requested
AR%PSZ	18-35	ARPSZ	Number of pages in file when removed from disk

FBBK0 is used by DUMPER as follows:



Bits	Contents
0	Indicator for interrupted incremental save
1-17	Count of incremental saves since last time write count changed
18-35	Write count at last incremental save

NOTE

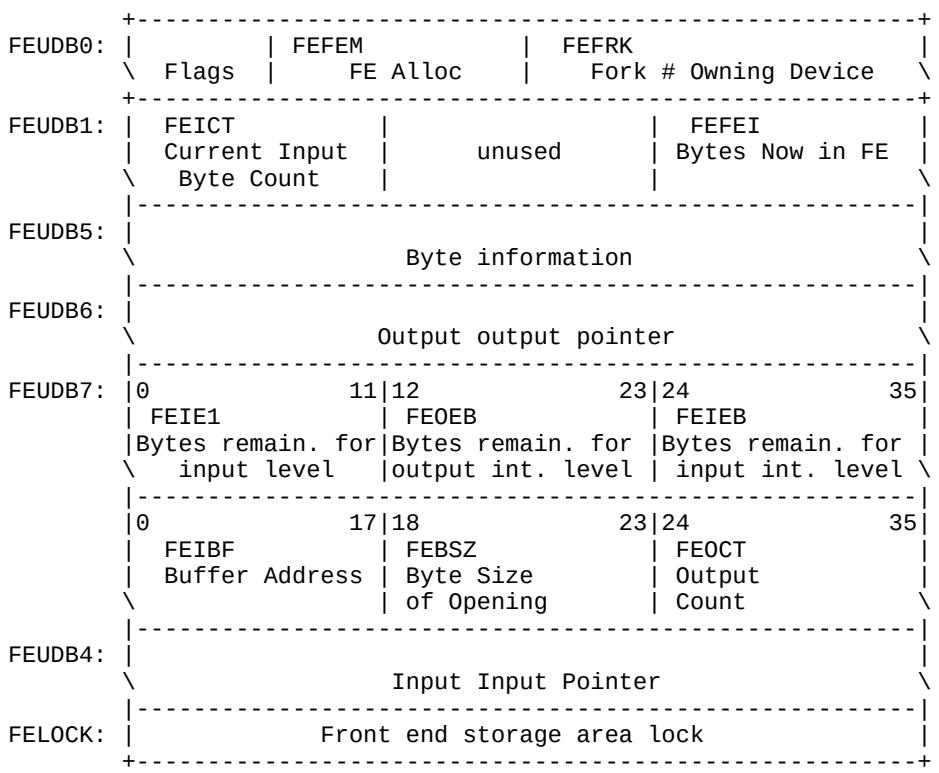
For additional information on the FDB see the Monitor Call's Reference Manual.

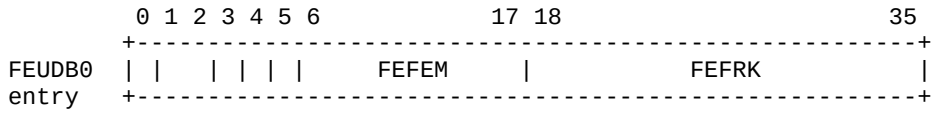
FE-STORAGE-AREA

Front End Storage Area. Each entry is FEN words long (except the lock--FELOCK), where FEN equals the number of front end devices.

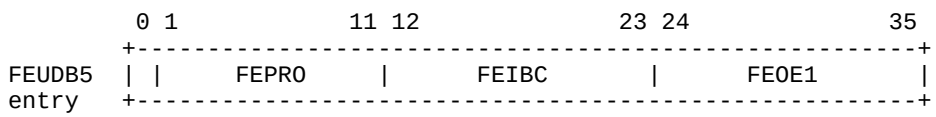
Defined in: STG

Format





Bit(s)	Pointer	Content
0	FEACT	Output active bit
1-2	FEDTE	DTE owning this device
3	FEBLK	Unit is blocked
4	FEEOF	Input EOF declared by FE
5	FEVDT	FE assignment is valid
6-17	FEFEM	FE Allocation
18-35	FEFRK	Fork owning device



Bit(s)	Pointer	Content
0	FEHNG	Hung bit
1-11	FEPRO	Count of input since last ack
12-23	FEIBC	Count of bytes in interrupt buffer
24-35	FEOE1	Bytes remaining for output level

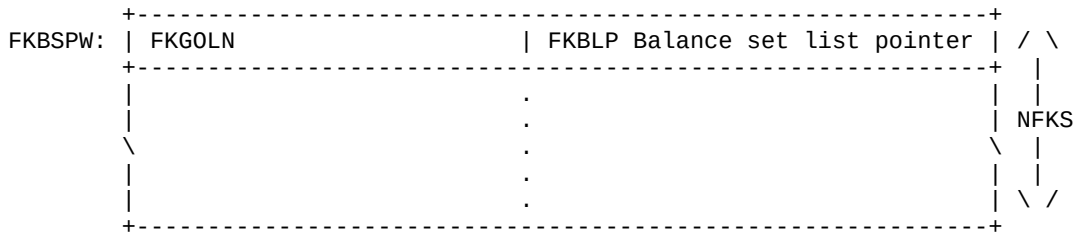
FKBSPW

This resident table contains pointers that comprise a linked list of the current balance set members. The initial pointer to this list is BSLST. The list is used by AJBALS to determine the status of the current members of the balance set. Note that an entry may contain a non-zero value without being a balance set member. Only entries found by following the BSLST link are considered. If a fork is placed on the balance set without hold time, it does not appear on this list.

Defined in: STG

Index: Fork number

Format



When the fork is blocked, FKGOLN contains the block priority, which may be one of the following:

FHV1 = 1
.
.
.
FHV7 = 7

When the fork is runnable, FKGOLN contains the GOLST position.

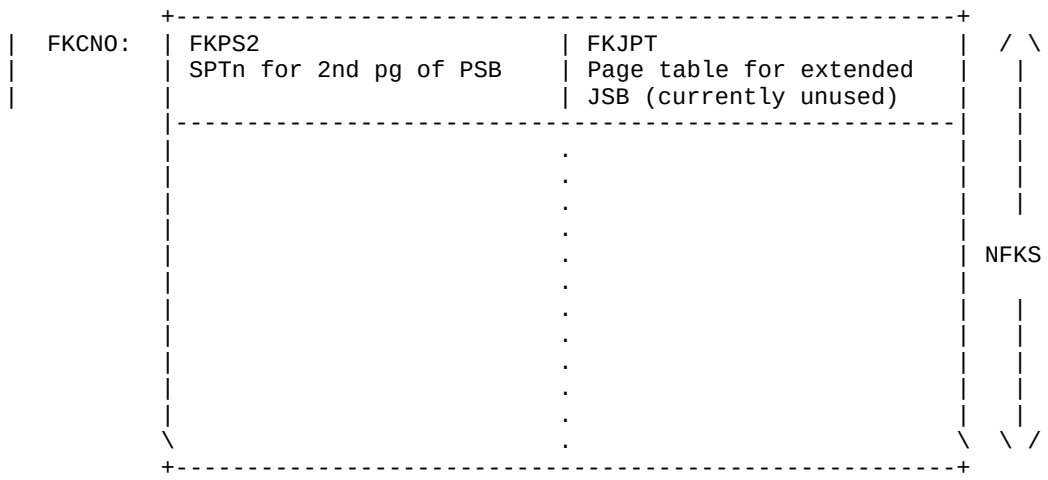
FKCNO

Fork Core Number Table. The left half of this table is used to hold the SPT index for the second page of each fork's PSB table. (see FKPGS table for SPT index for first page of each fork's PSB).

Defined in: STG, PROLOG

Index: Fork number

Format



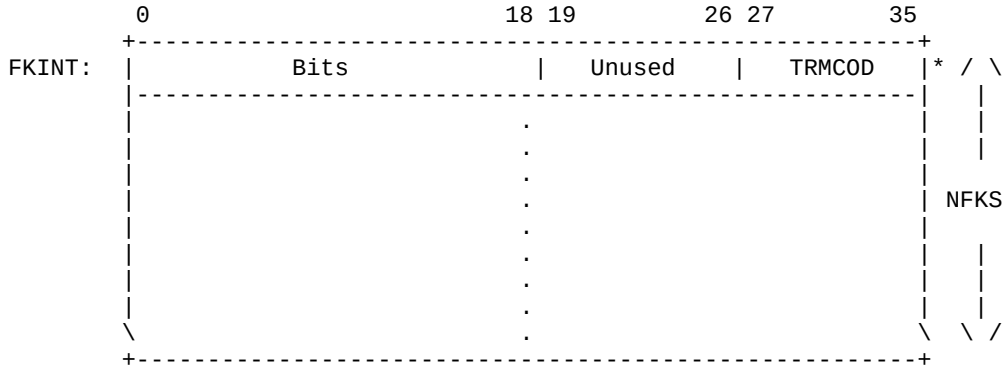
FKINT

Fork Interrupt Table. This table contains the pseudo-interrupt communication register for each fork. The left half of each entry contains bits recording the type of request. The symbols for these requests have right half bit assignments (that is, bits 20-35) but are tested against the left half of the table.

Defined in: STG

Index: Fork number

Format



Symbol	Bits	Pointer	Content
FKPSI0	0		Interrupt Request(s) pending
FKPSI1	1		Fork not interruptable
NEWFK%	2		Initiate new fork
NEWJB%	3		Initiate new job
PSIIF%	4		Channel interrupt requested in FKINTB
PSIT1%	5		Terminal code Interrupt, Phase 1
PSIT2%	6		Terminal code Interrupt, Phase 2
SUSFK%	7		Suspend fork request
PSIWT%	8		Job was in wait state
PSILO%	9		Logout job request
FRZB1%	10		Direct freeze has been done
FRZB2%	11		Indirect freeze has been done
FRZBB%==FRZB1%+FRZB2%			Both bits for external references
JTFRZ%	12		JSYS trap freeze
ABFRZ%	13		Address break freeze
FRZBA%==ABFRZ%+JTFRZ%+FRZBB%			All types of freezes
PSICO%	14		Carrier off action request

PSITL%	15		Time limit exceeded interrupt
PSIJT%	16		JSYS trap request
ADRBK%	17		Address break request
PSIPRI	18		Priority word set
PSIDP%	19		DAP% JSYS Attention
PSISC%	20		SCS% JSYS work queue entries for this fork
UNUSED	21-26		Unused
	27-35	TRMCOD	Field for terminal

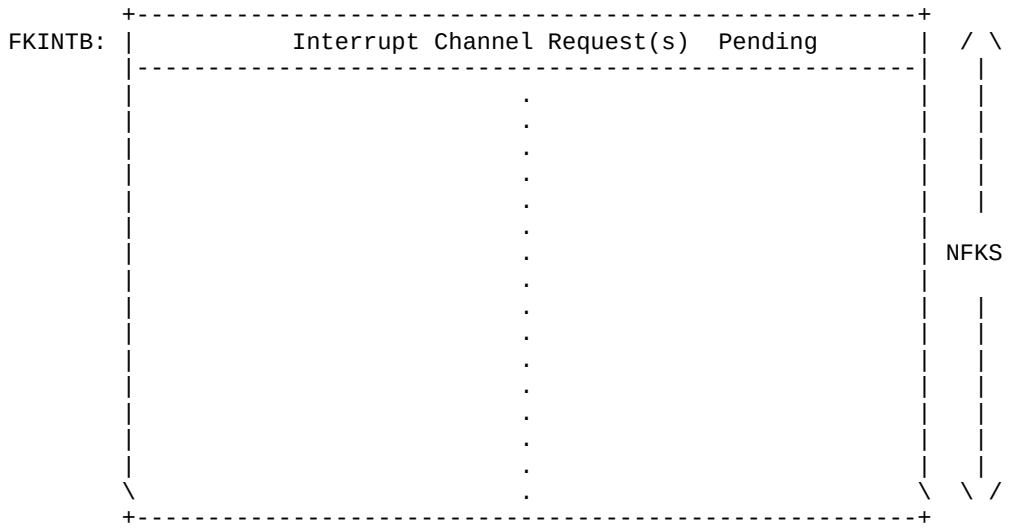
FKINTB

Fork Interrupt Table. This table contains the pseudo-interrupt channel requests pending for each fork since the fork's last PSI interrupt.

Defined in: STG

Index: Fork number

Format



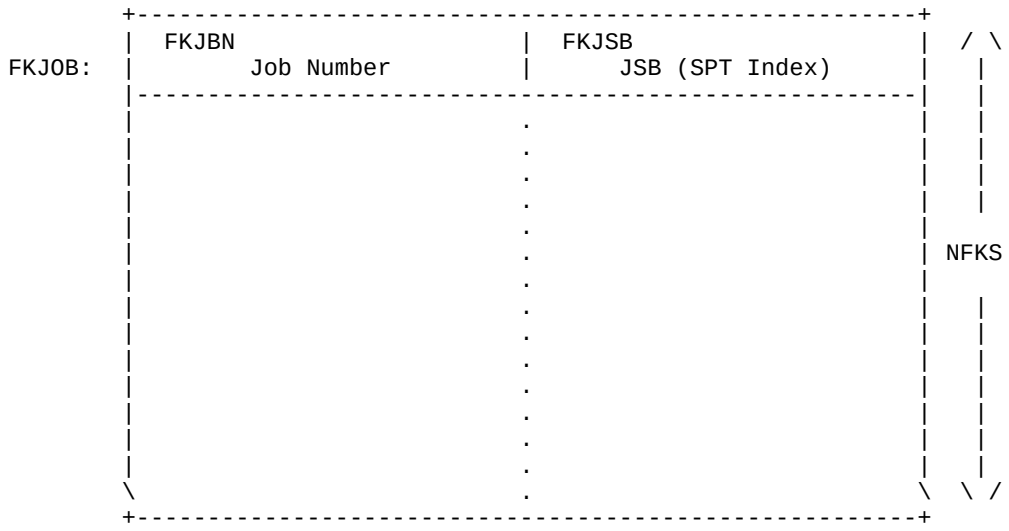
FKJOB

Fork Job Table. This table holds each fork's job number and JSB address (SPT index).

Defined in: STG

Index: Fork number

Format



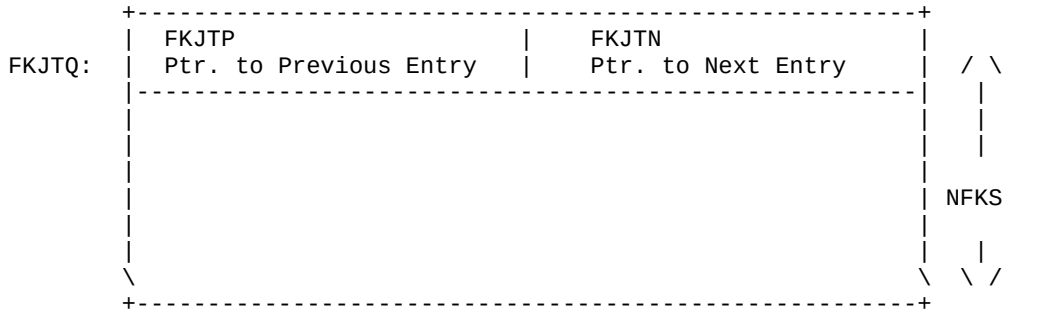
FKJTQ

Fork JSYS Trap Queue. This doubly linked list is a JSYS Traps Queue of forks waiting to program software interrupt (PSI) the monitor. JTLST points to the top fork on the linked JSYS traps queue in FKJTQ.

When a fork tries JTLOCK (in the JSB) and some other fork has the lock, the fork is added to FKJTQ and blocked. When the lock is cleared, the queue is scanned for the first fork (if any) waiting on the lock. That fork is removed from the queue and allowed to run.

Defined in: STG

Format



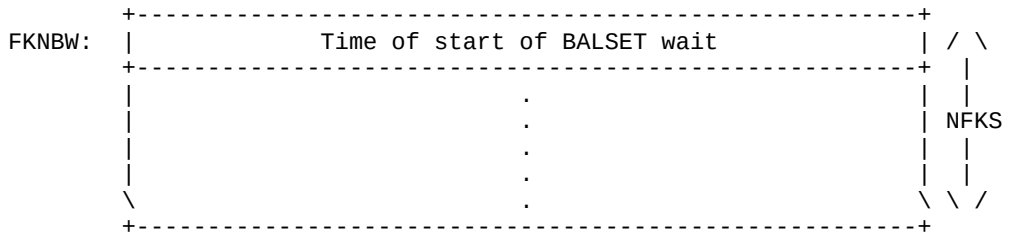
FKNBW

This resident table saves the time of start of a balance set wait of a fork.

Defined in: STG

Index: Fork number

Format



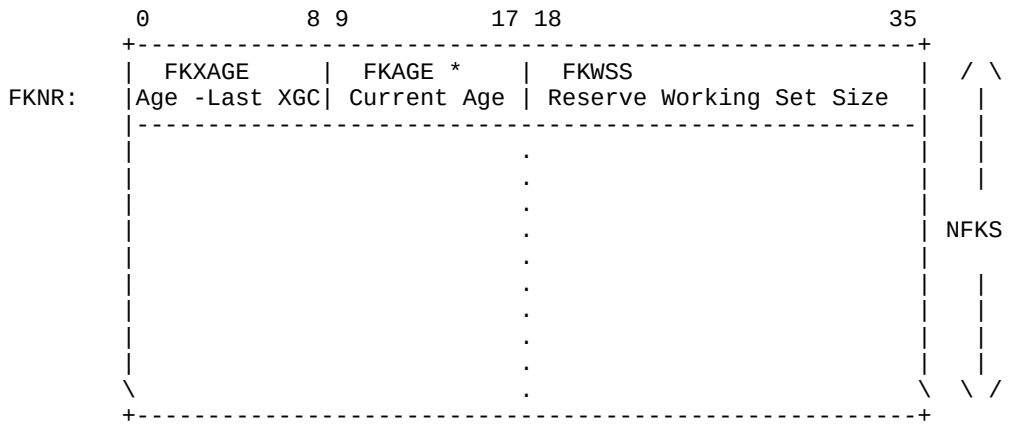
FKNR

Fork Number of Reserve Pages Table. This table contains in the right half the current reserve working set size for each fork. Also, it contains the age stamp value at the last time local garbage collection (removal of less frequently used pages) took place for the fork.

Defined in: STG

Index: Fork number

Format



* FKAGE was used prior to Release 4. It is currently set to 100 (octal) and not changed.

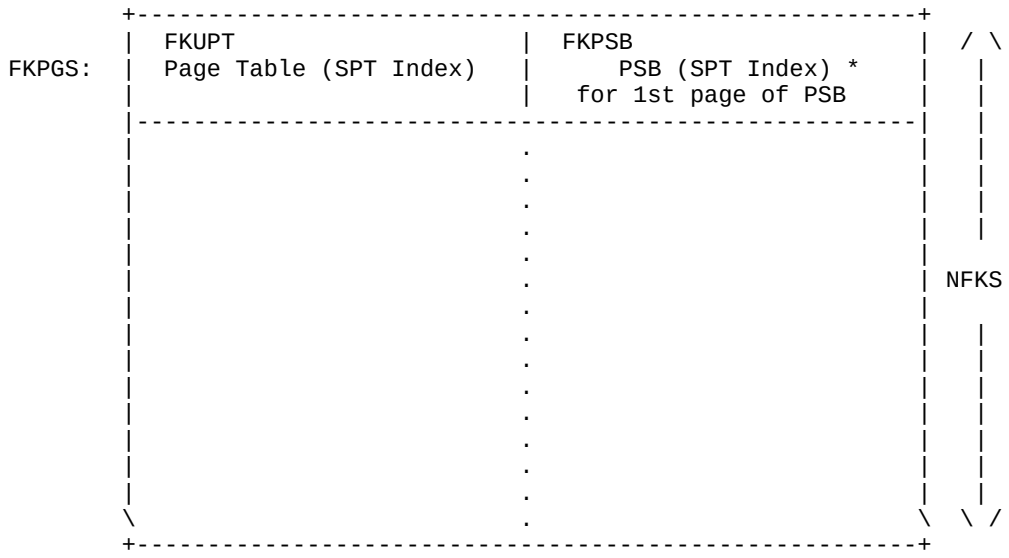
FKPGS

Fork Page and Process Storage Table. This table contains the page table and PSB locations (SPT indexes) for each fork.

Defined in: STG

Index: Fork number

Format



* See FKCNO table description for SPT index for second page of PSB.

FKPGST

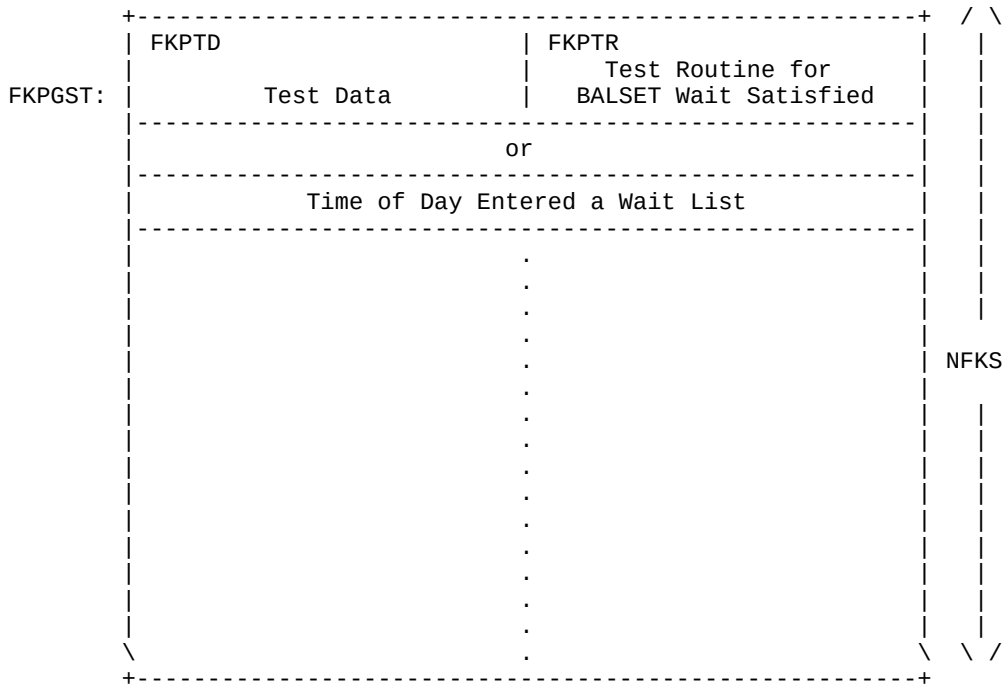
Fork BALSET Wait Satisfied Test Table. This table holds test routine information for forks in a balance set wait state. The test routine checks if wait satisfied has occurred.

For forks on a wait list (and therefore not in the balance set), this table contains the time of day the fork entered the list.

Defined in: STG

Index: Fork number

Format



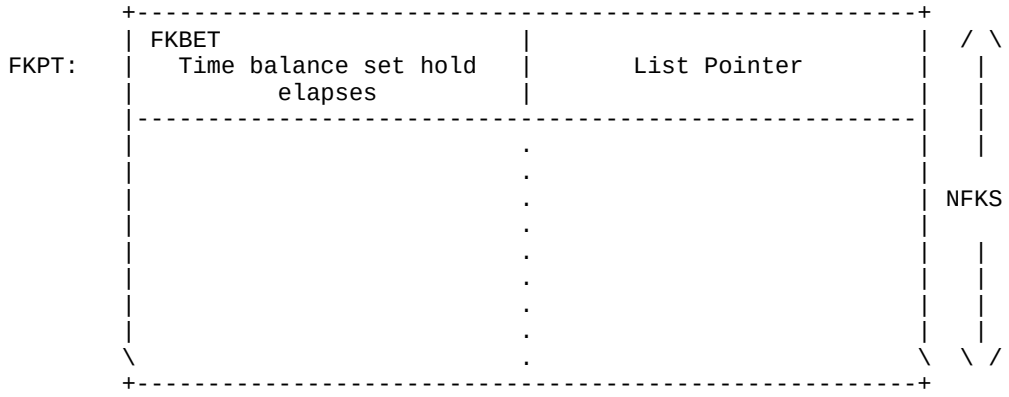
FKPT

Fork List Pointer Table. This table gives the chain of forks for each list of forks in the system. That is, it holds the linked list of forks on TTILST, CLKLST, GOLST. A fork is either on one of the wait-lists or the go-list. The right half contains the list pointer to the next fork on the same list. The left half contains the runtime at which the process associated with the particular fork runs out of balance set hold time.

Defined in: STG

Index: Fork number

Format



Unused slots in this table are linked in a free list. Location FREFK contains a pointer to the first slot in the free list.

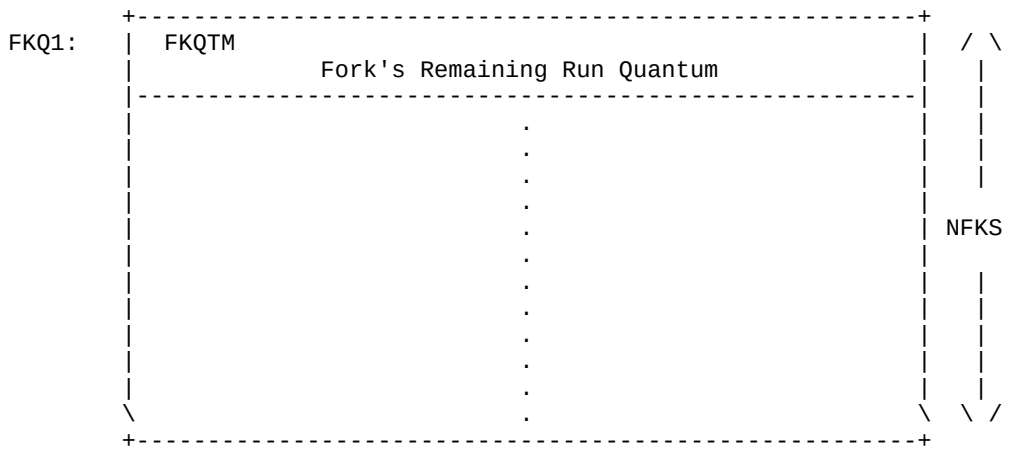
FKQ1

Fork Run Queue Table 1. This table contains each fork's remaining run quantum. When this quantum expires, the process is requeued to a lower run position and given the the quantum associated with that run queue.

Defined in: STG

Index: Fork number

Format



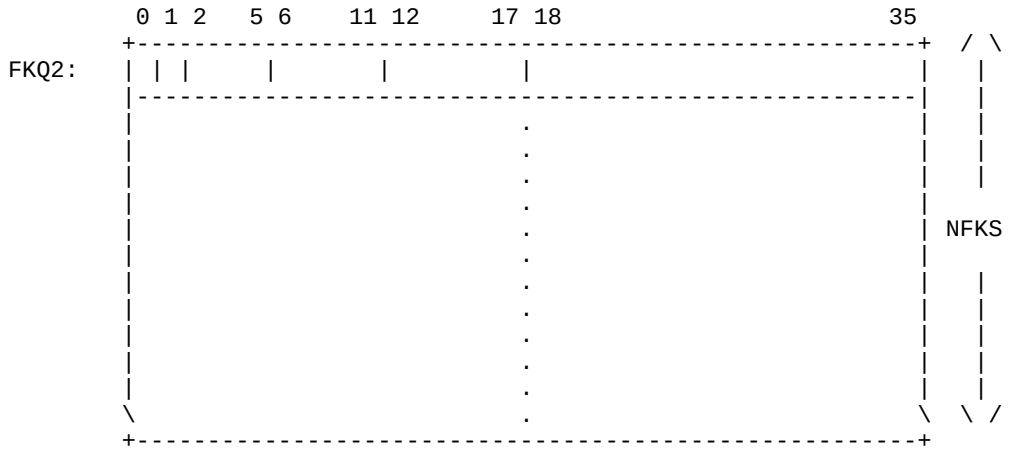
FKQ2

Fork Run Queue Table 2. This table contains the queue level number and fork location (that is, the list address such as TTILST or GOLST) for each fork.

Defined in: STG

Index: Fork number

Format



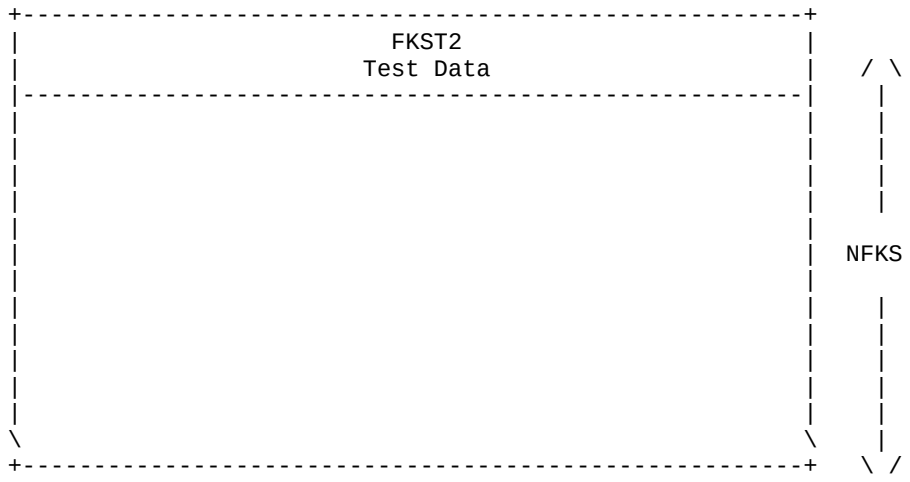
Bits	Pointer	Content
0	FKNTC	Network topology change interrupt enabled
1	PIBMP	PI boost flag
2-5	FKFLG	Fork flags
6-11	FKMNQ	Max Q for fork
12-17	FKQN	Queue level number
18-35	FKWTL	Wait list address for blocked fork

FKSTA2

This table, indexed by fork number, contains the test data for a given fork. It is similar to FKSTAT except that this table can contain a full 36-bit test data word.

Defined in: STG

Index: Fork number



FKSTAT

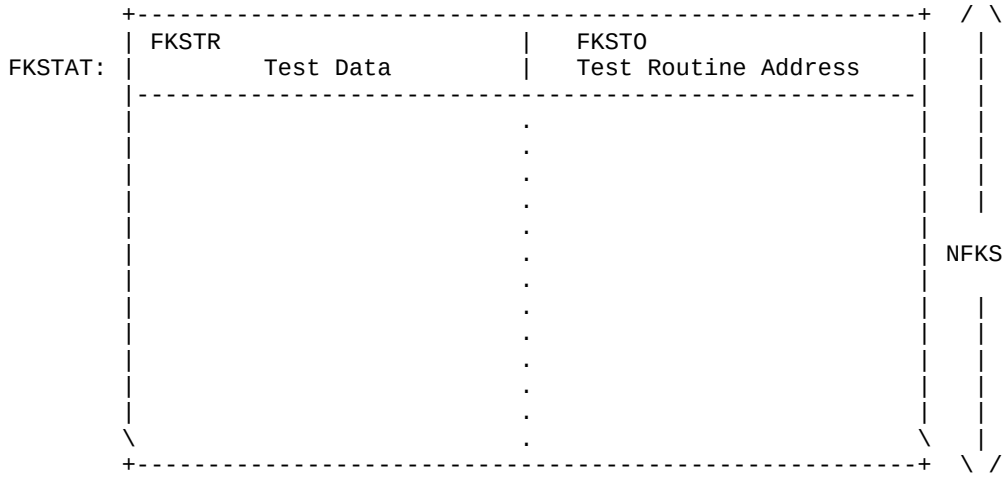
Fork Status Table. This table has useful information when a fork blocks and leaves the GOLST (that is, LH (FKPT) contains the list address, WTLST).

The blocked fork's entry in this table contains the address of the test routine which, when called, determines if wait satisfied has occurred for the fork.

Defined in: STG

Index: Fork number

Format



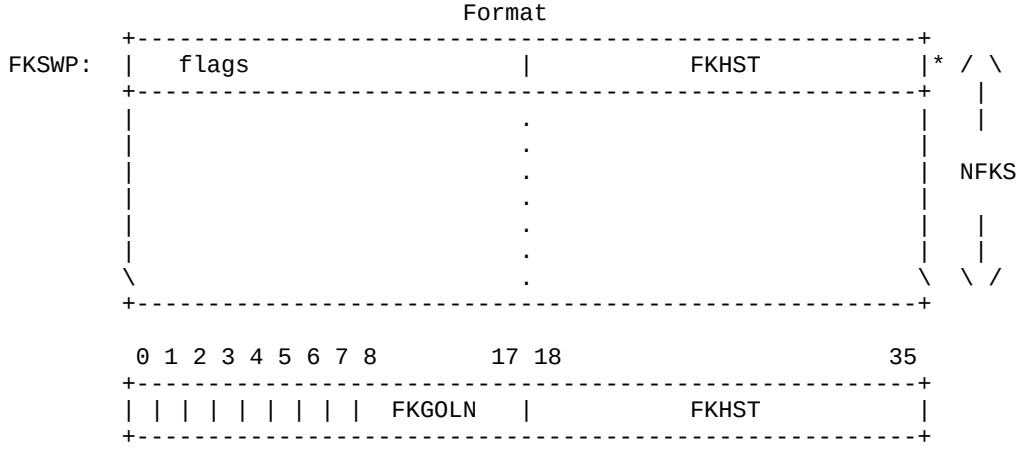
FKSWP

This resident table contains fork information that is used primarily by the working set manager in its decisions.

Defined in: STG, PROLOG

Index: Fork number

Format



Bits	Pointer	Content
0	FKWSL	Working set loaded
1	FKBLK	Fork blocked off if on GOLST
2	FKIBS	Fork in balance set
3	BSWTB	Fork in balance set wait
4	BSNSK	NOSKED--on if fork is NOSKED and not running
5	BSCRSK	CRSKED--on if fork is CRSKED and not running
6	FKIBH	In balance set hold--on if fork entered balance set since last update to history
7	FKBSHF	In balance set hold in AJBALS algorithm
8	BSSPQ	Special queue (system fork)
9	BSOVRD	Override high priority
10	BSNST	Last block was long
11	SCWAK%	SCJSYS is waking
12	SCBLK%	SCJSYS is blocked
13	FKSPL	Inferior fork has been spliced
14	FKKIL	Fork is being killed
15	FKOGL	Fork is on GOLST
16-17		Unused
18-35	FKHST	Fork history

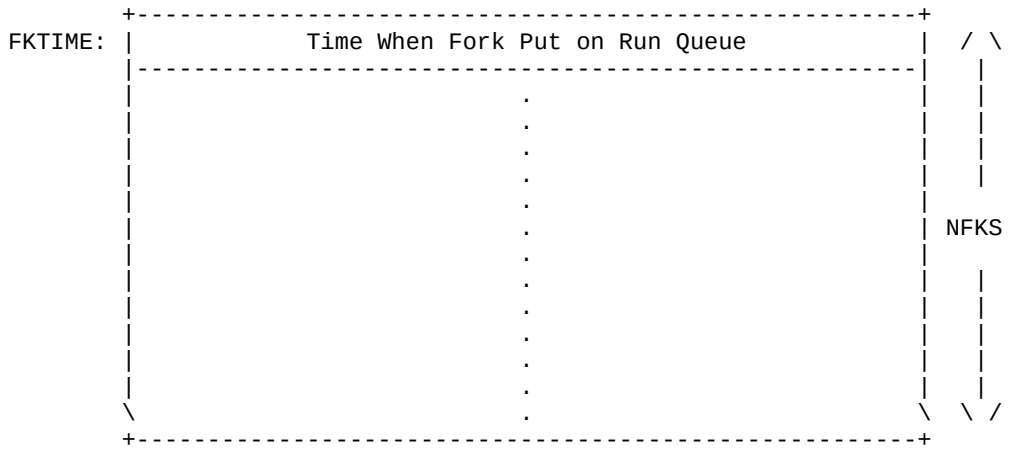
FKTIME

Fork Time Table. This table gives the time of day (TODCLK) at which each fork was put on its current run queue.

Defined in: STG

Index: Fork number

Format



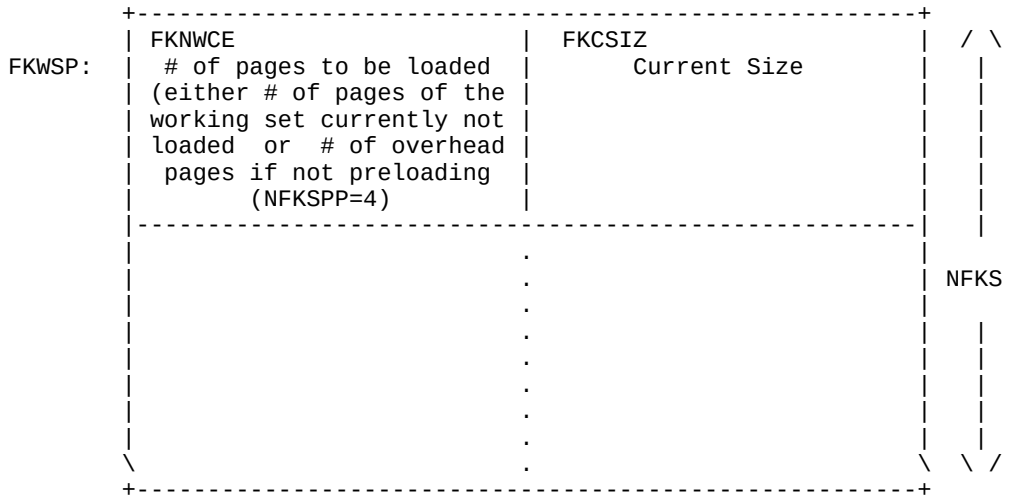
FKWSP

Fork Working Set (In-Memory Size) Table. This table contains in the right half the number of physical pages currently assigned to each fork. The left half is used to hold the preload size as determined by LDJOB when a fork enters the balance set.

Defined in: STG

Index: Fork number

Format

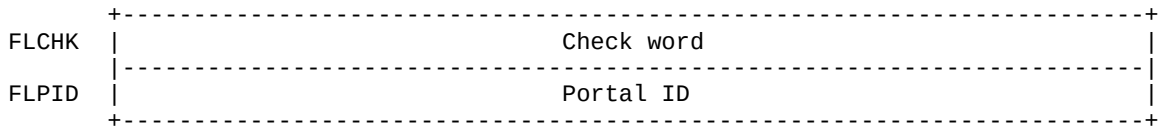


FL

FL is the format of the NI Flush Command Queue command.

Defined in: PHYKNI

Format



FREESPACE BLOCK HEADER/TRAILER

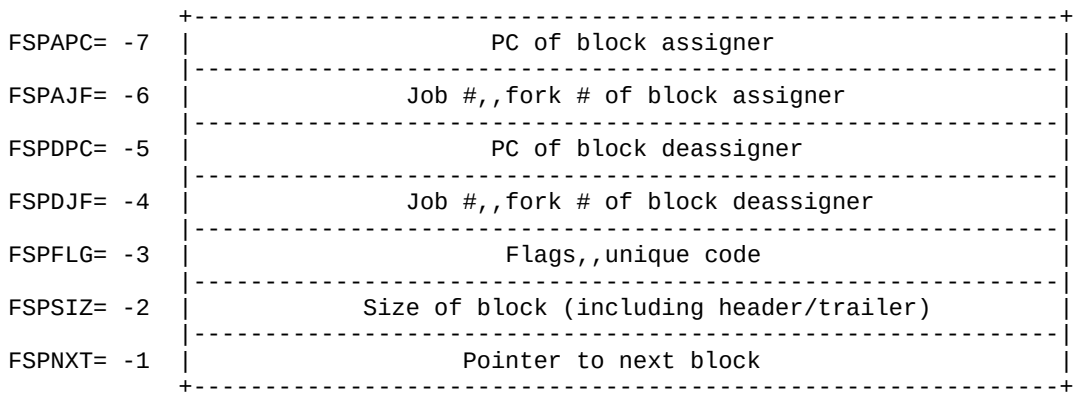
At a minimum, a header of length 3 is required (no trailer is ever required). The header is infinitely expandable, as is any trailer.

While in the pool, blocks are manipulated by pointers that address the first word past the header (thus the negative offsets for the header definitions). Before a block is assigned to the user, the pointer is SOS'd and the user area of the block overlays the header by one word. (Specifically, the user area of the block begins with header word FSPNXT.)

Unless the monitor has been assembled with the debug conditional, the block header is three words long and no trailer is used.

Defined in: FREE

Format

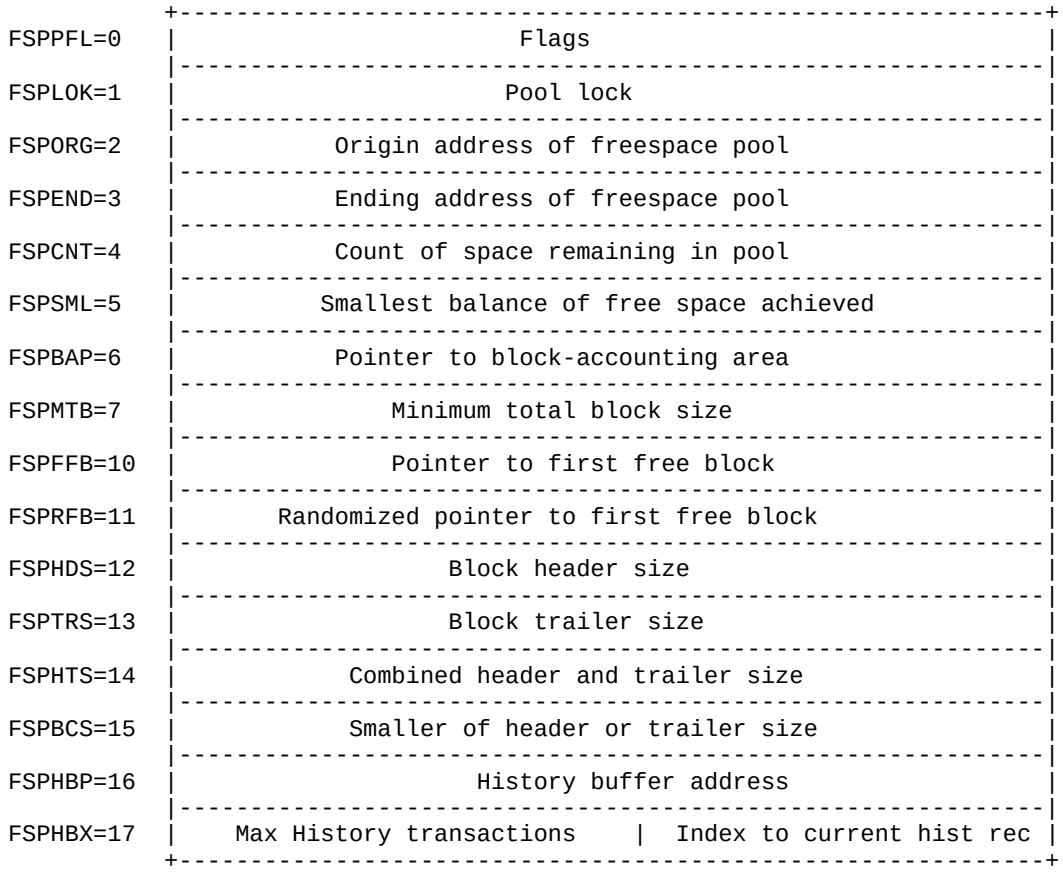


FREESPACE DESCRIPTOR

The free space descriptor is a block that contains information about the individual free space pools and pointers to them. The address of each descriptor is contained in the FSPTAB table.

Defined in: FREE

Format



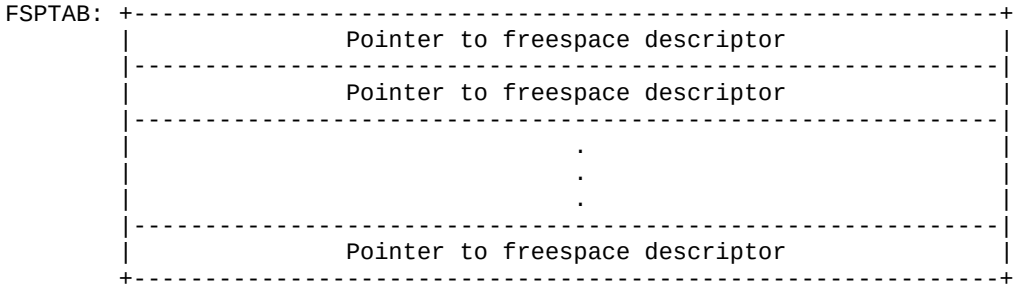
FSPDSS = descriptor size in words

FREESPACE-DESCRIPTOR INDEX TABLE

This is the table that points to the swappable and JSB freespace structures.

Defined in: FREE

Format



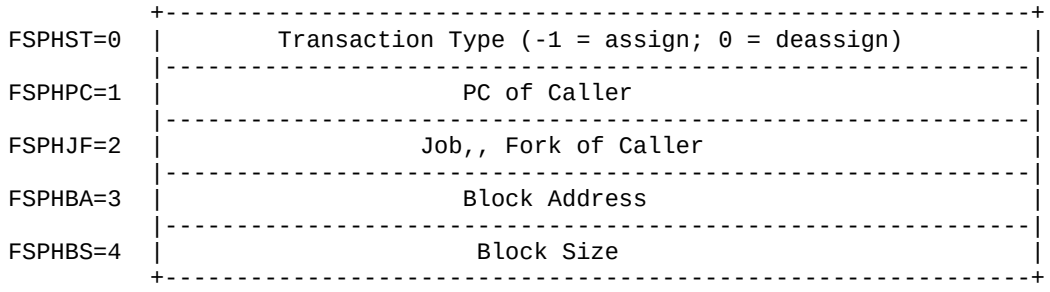
FSPTBL = Freespace-descriptor index-table size in words

FREESPACE HISTORY RECORD

The free space history record is a ring buffer that is used to record free space transactions. There is one ring buffer for each free space pool. Word FSPHBO in the free space descriptor contains the base address of this buffer. The right half of word FSPHBX in the free space descriptor contains the index to the current history record.

Defined in: FREE

Format



FSPHRC (200 decimal) is the number of history records in the history buffer.

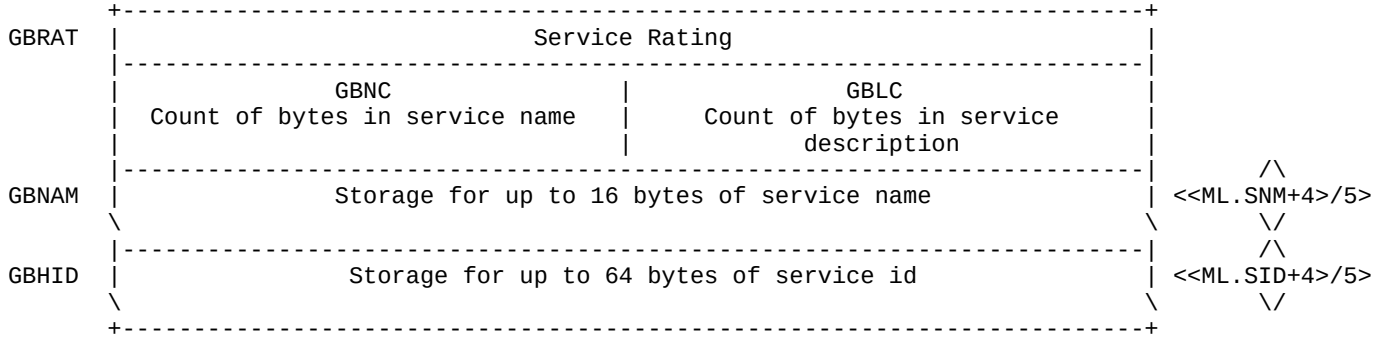
GB

The format of the LAT Service Block is shown below. There is one service block for each service provided by the host. A host must provide at least one service if it is to function as a LAT host. If no services have been defined by the LCP interface at the time LAT operations are started, a default service is defined with the same name as the host node name.

Defined in: LATSRV

Format

SERVICE BLOCK

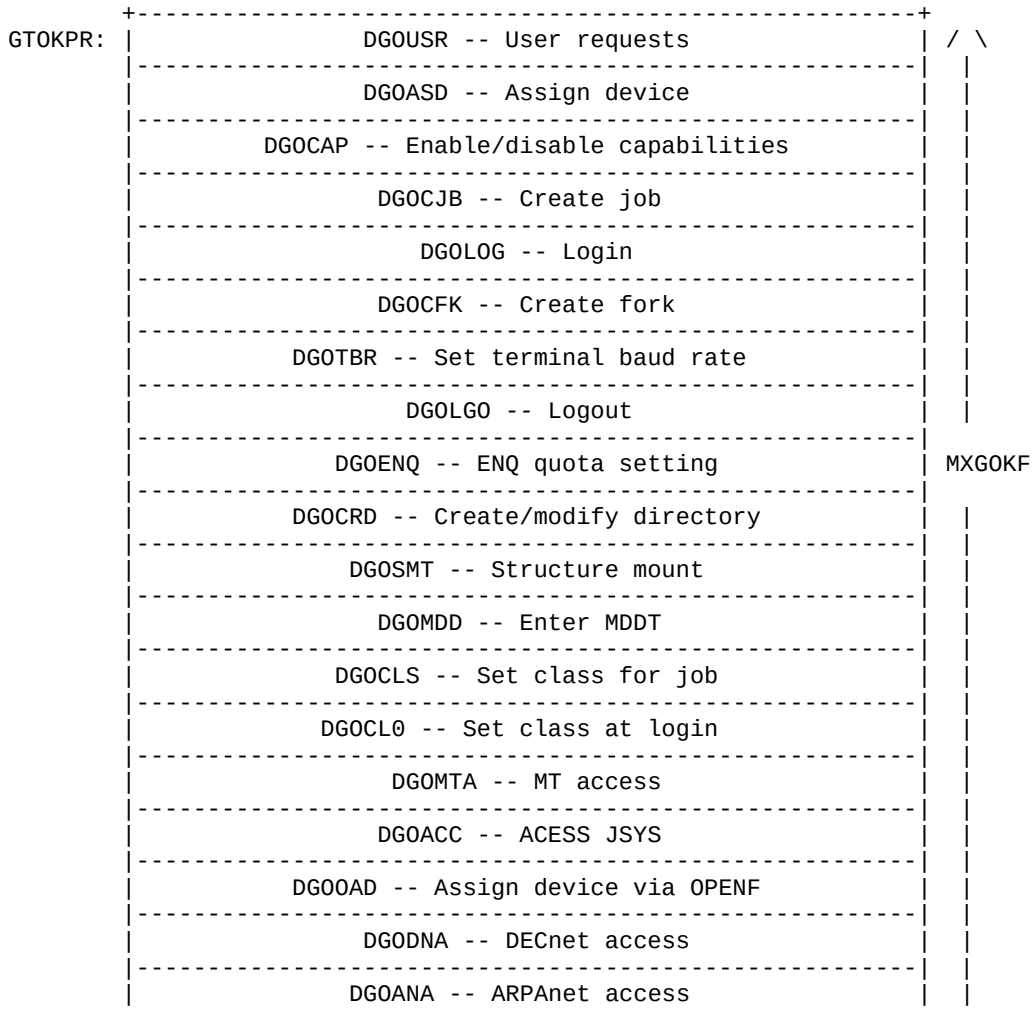


GTOKPR

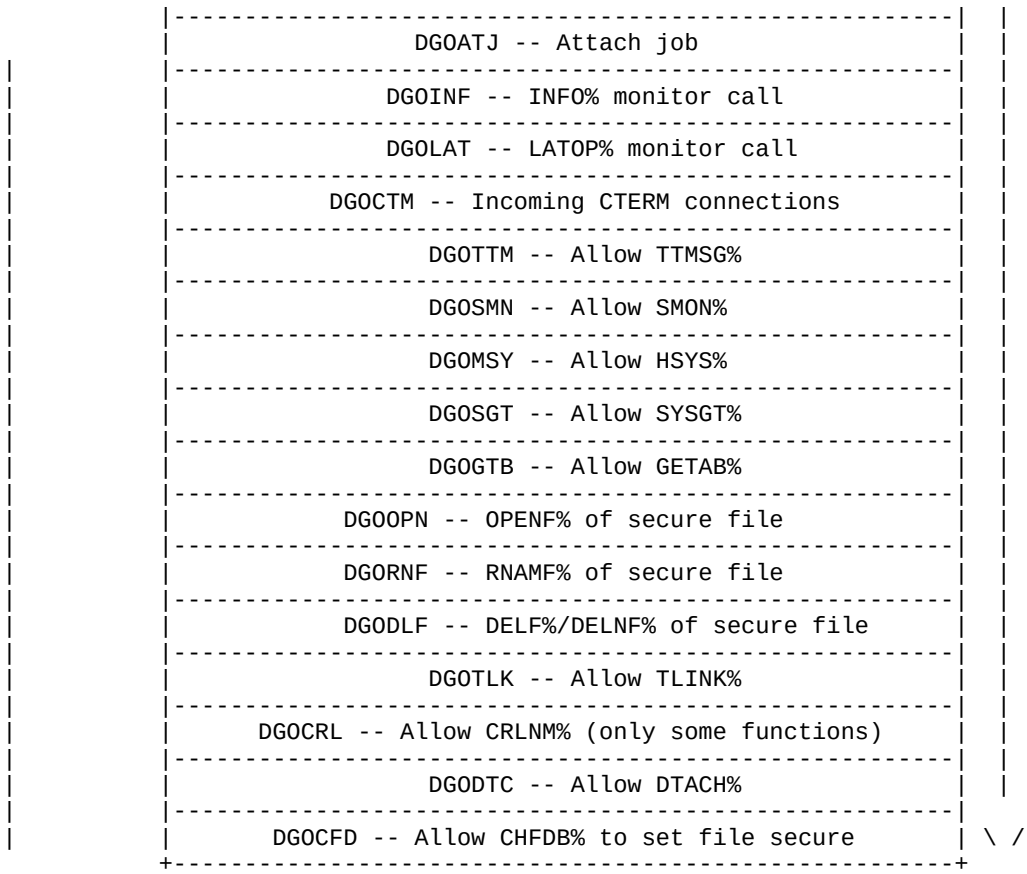
This table is used by the access control code. It contains one entry for each legal GETOK/GIVOK function.

Defined in: STG

Format



MONITOR TABLES
GTOKPR (Cont.)



HC

Data structure HC is the LAT circuit counters portion of the Host Node (HN) data structure.

Defined in: LATSRV

Format

HCRCV	Messages received
HCXMT	Messages transmitted
HCRTR	Messages retransmitted
HCSEQ	Receive message sequence errors
HCIMR	Illegal messages received
HCISR	Illegal slots received
HCRES	Resource errors
HCMSK	Illegal message error mask

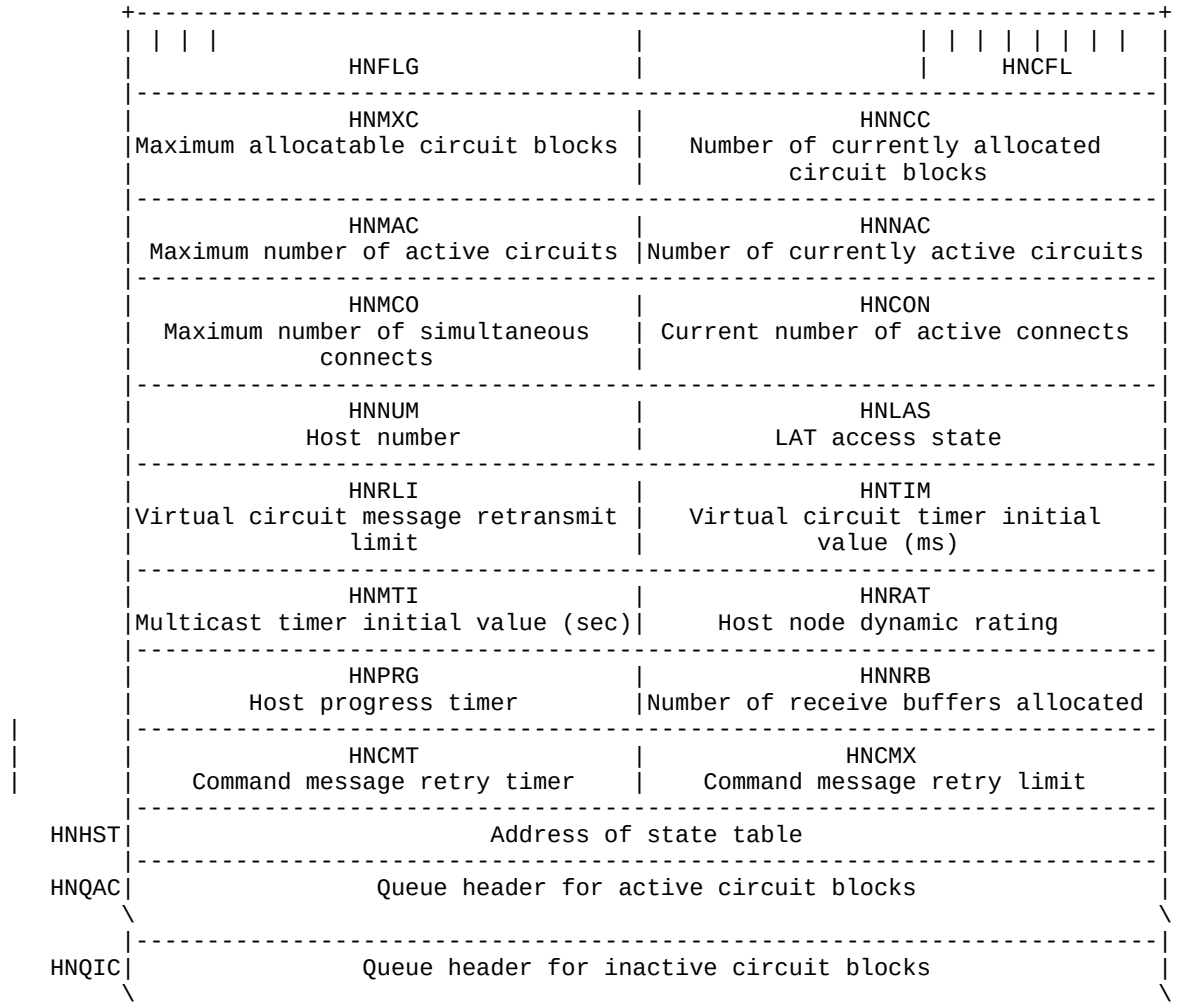
HN

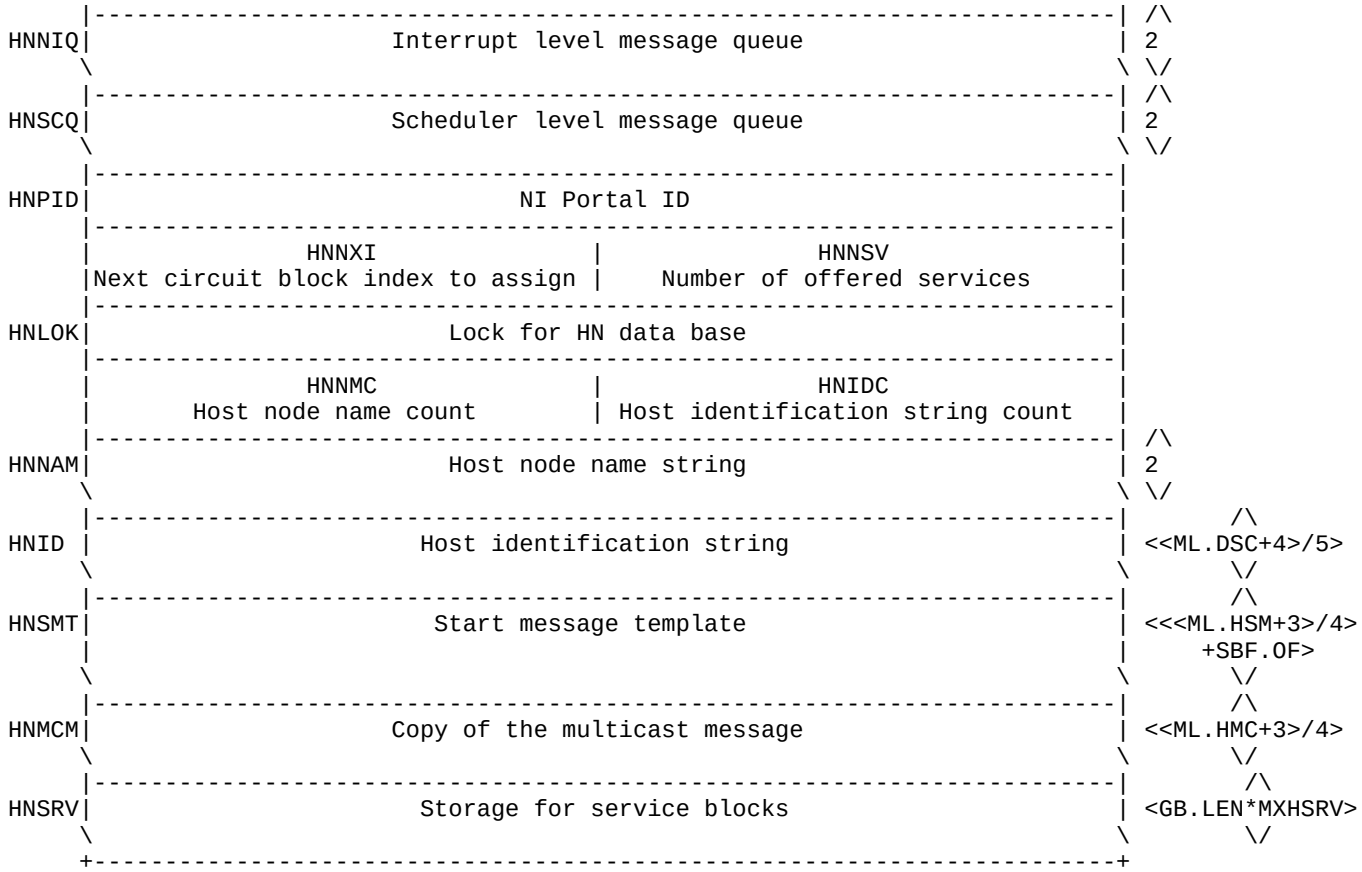
The HN (Host Node) data structure is used by LAT service to store status and configuration information describing the local host. TOPS-20 stores the address of this block in location LAHNDB.

Defined in: LATSRV

Format

HOST NODE Data Base





For field HNFLG(0-17):

HNRUN	0	NI run state
HNANY	1	Reconstruct of START message necessary
HNCIP	2	Virtual circuit connect in progress

For field HNCFL(28-35):

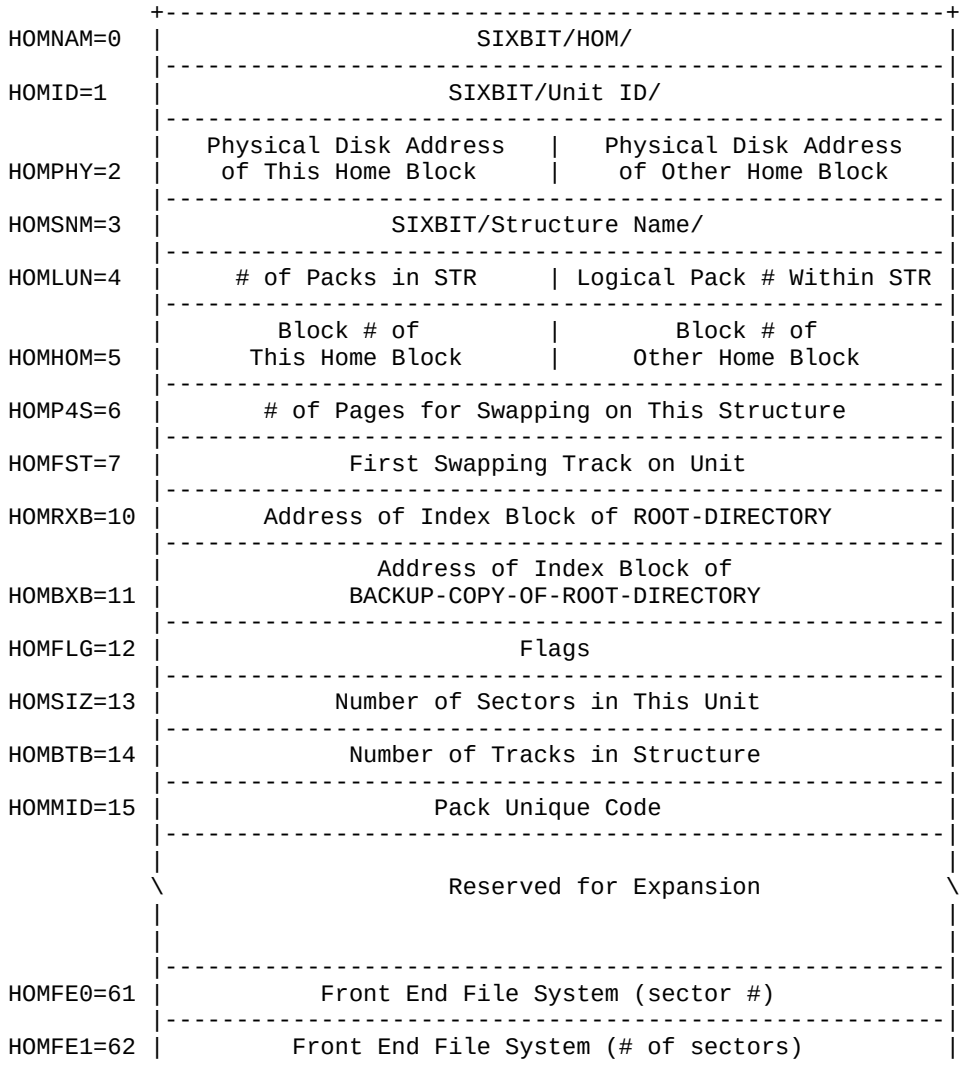
HNOTH	28	Something other than above changed
HNFIL	29	
HNCLS	30	A host service class changed
HNSVD	31	A host service description changed
HNSVR	32	A host service rating changed
HNSVN	33	A host service name changed
HNNDD	34	Host Node Description changed
HNACS	35	Access Codes changed

HOM

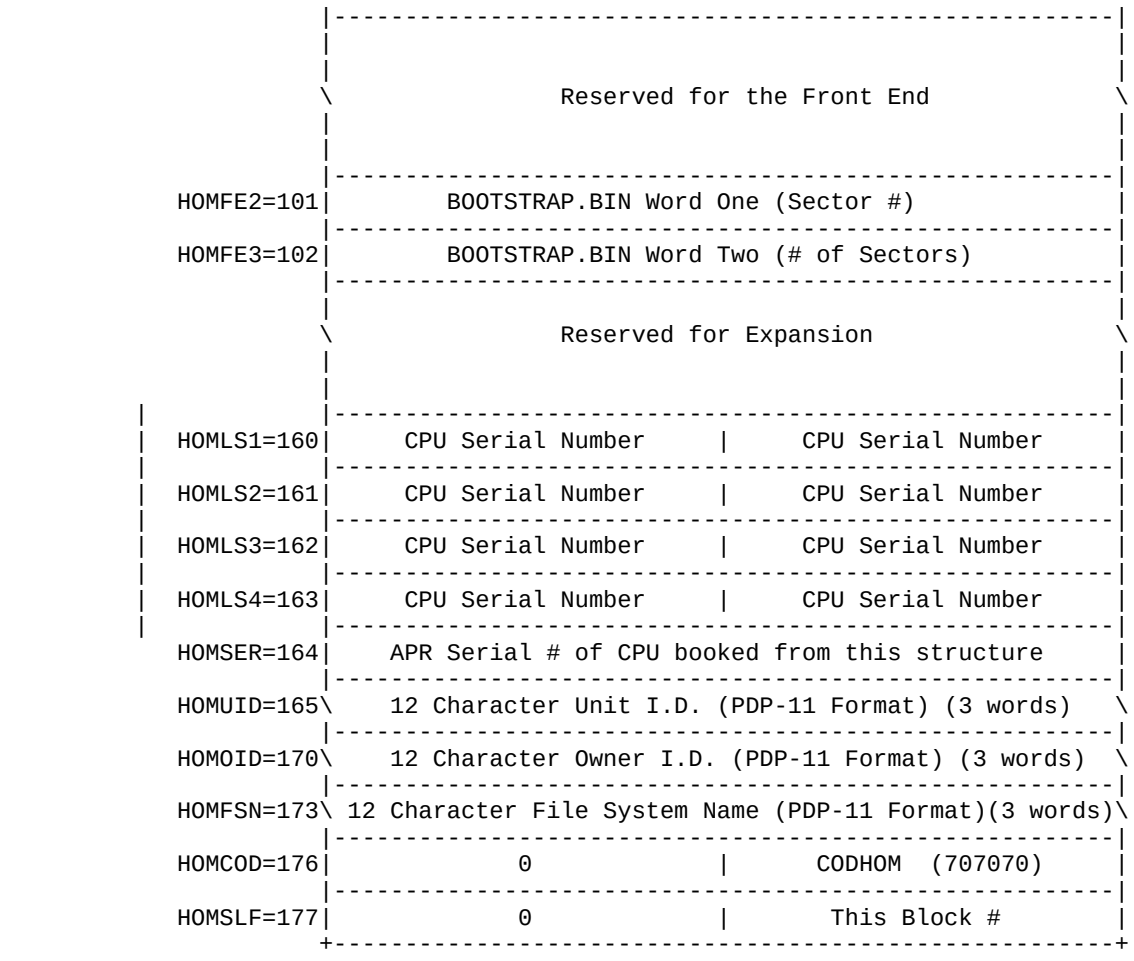
Home Block. Block on each disk unit which contains vital statistics that cannot be built in when a monitor is generated. These are primarily parameters of the unit and the STR to which it belongs.

Defined in: DSKALC

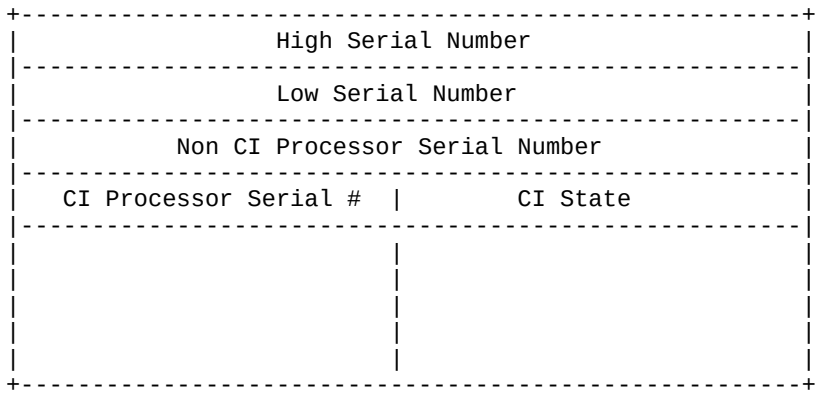
Format



MONITOR TABLES
HOM (Cont.)



PDB Format

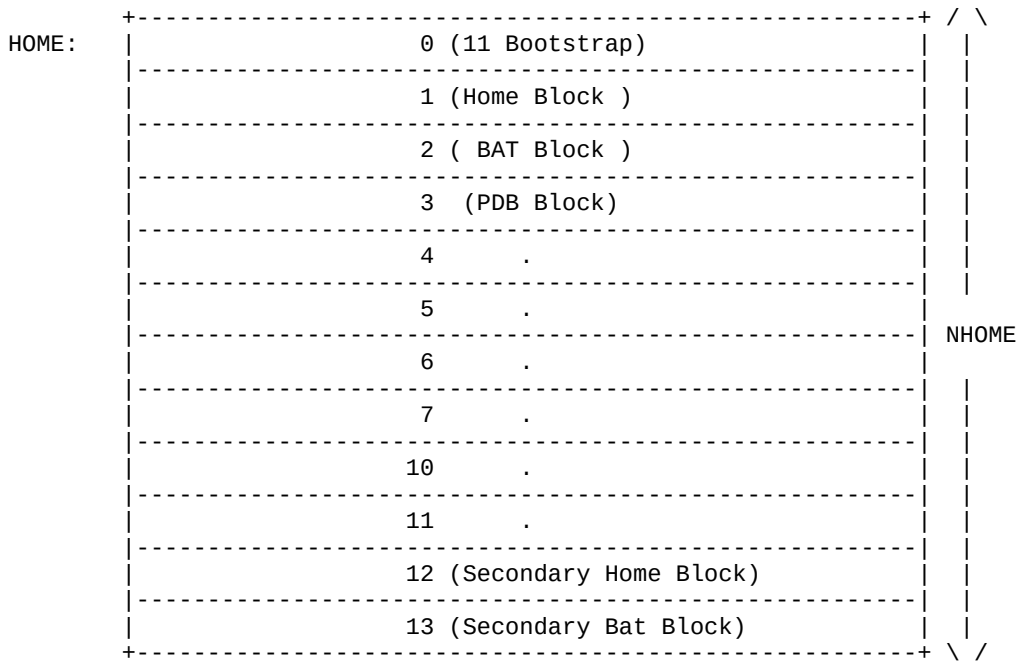

High Serial Number
Low Serial Number
Non CI Processor Serial Number
0
CI Processor Serial #
CI State
17

HOME

Home Table. This table contains the disk pages for the HOME and BAT blocks and the 11 Bootstrap program.

Defined in: STG

Format

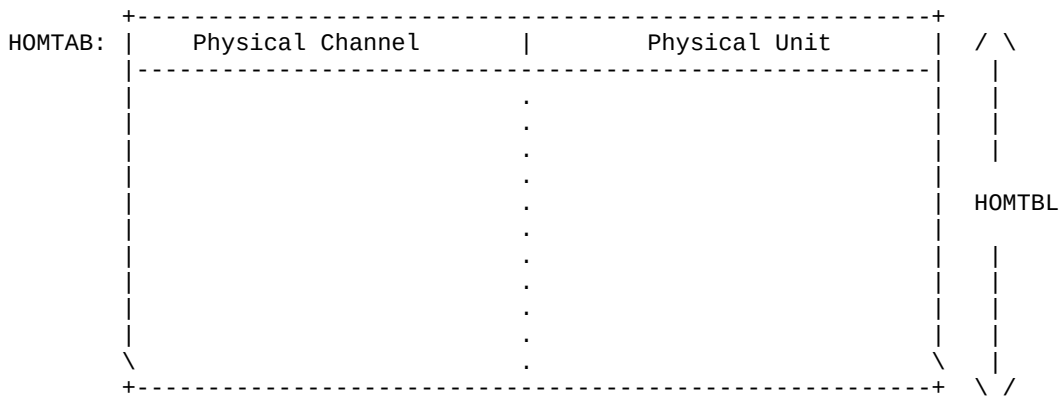


HOMTAB

This table contains the logical to physical mapping (channel and unit) per logical unit, and its length equals the maximum number of packs in a structure.

Defined in: STG

Format

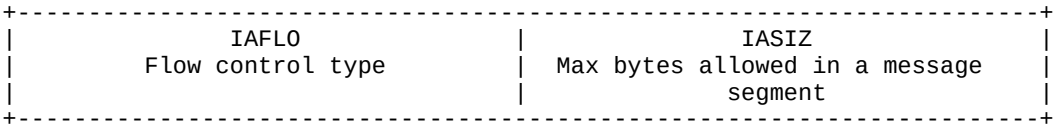


IA

This structure is used by DECnet. The Connect Initiate and Connect Confirm calls' argument format for T2. T1 holds the NSPpid for the new logical link.

Defined in: D36PAR

Format



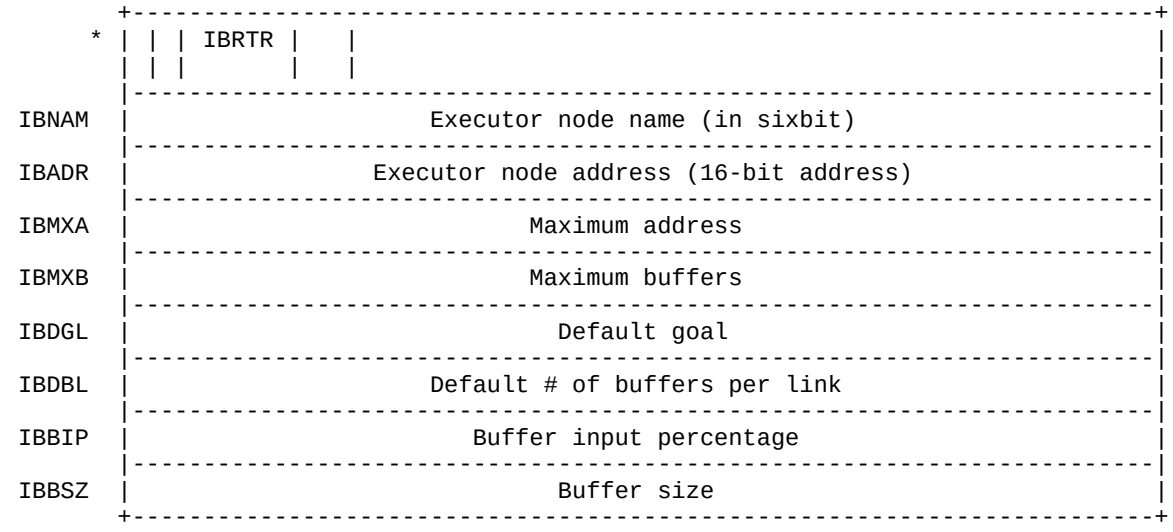
IB

The initialization block is the argument to all DECnet-36 initialization routines. It is set with NODE% jsys functions, and read by the various DECnet layers during and after initialization.

Defined in: D36PAR

Format

Initialization Block



Field IBPH2	(0-0)	Set if Phase II desired
Field IBRTR	(2-5)	Routing type
.RNT.L1		Level-1 router
.RNT.NR		End node
Field IBFCM	(6-7)	Default flow control

IDXFIL

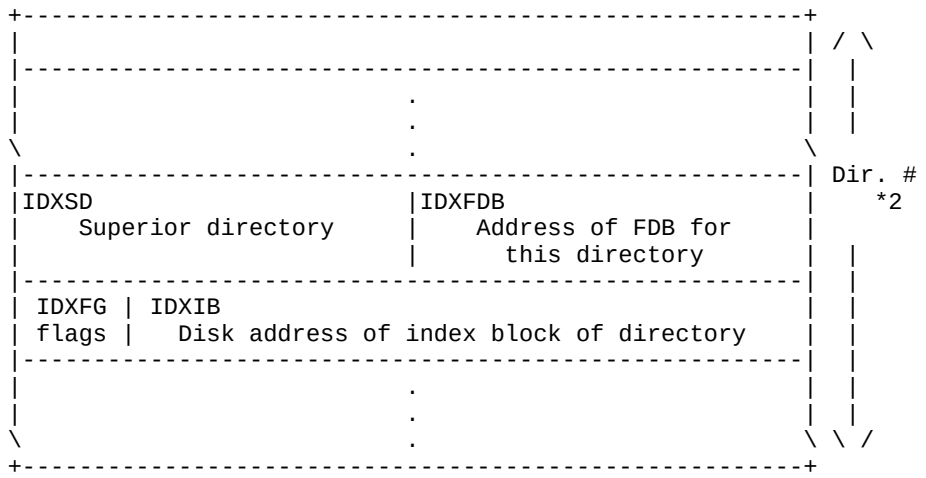
The Index Table File of the structure currently mapped for a process. Each structure has an index table file. The file is indexed by 2* directory number as each entry is two words long. For each directory on the structure, an entry contains the address of the FDB for the directory and the disk address of the index block for the directory.

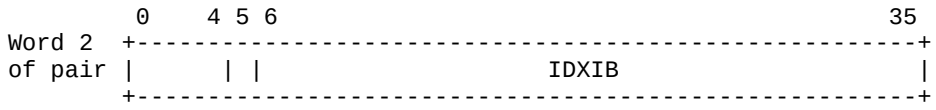
The table, IDXFIL, in the PSB, is mapped from the index block of the file, STRNAM:<ROOT-DIRECTORY>INDEX-TABLE.BIN. The file pointed to by the IDXFIL map has the format shown below.

When a structure is mounted (physically) the system gets an OFN for this file and stores it in entry, STRIDX, in the SDB table for that structure. The table entries are created at this time (mount-time).

Defined in: PROLOG

Format





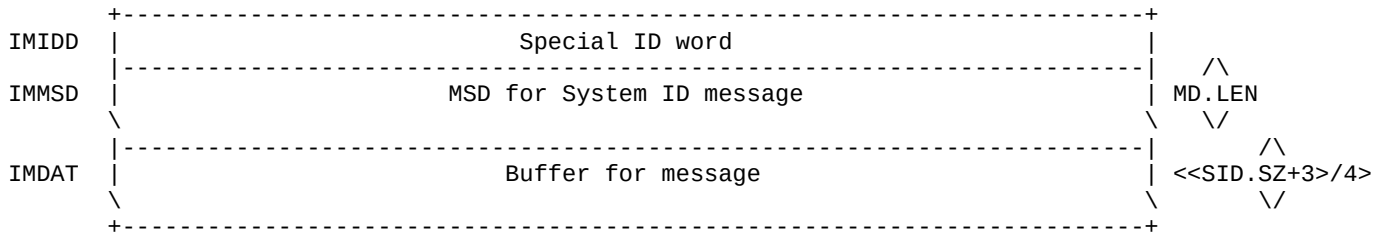
Symbol	Bits	Pointer	Meaning
IDX%IV	5		If set, indicates that this IDX entry is invalid. (IDX%IV is set equal to 1, but is positioned at bit 5)
	6-35	IDXIB	Disk address of index block of directory.

IM

This is the DECnet LLMOP identify-self message block.

Defined in: LLMOP

Format

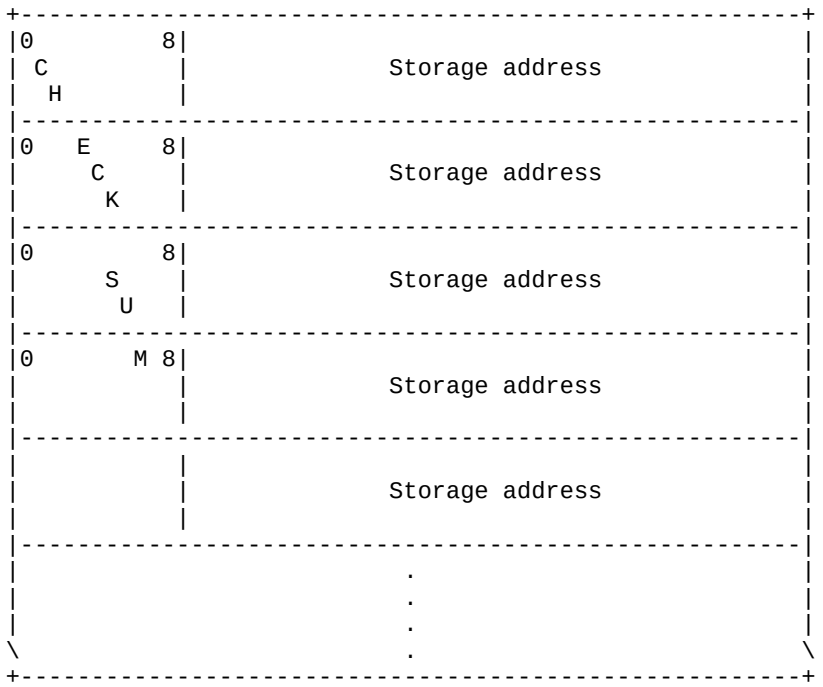


INDEX

The Index Block (1 page) exists for each disk file and contains pointers to where each of the file's pages resides on disk. If more than one index block is needed for non-directory files, a super index block (1 page) is created which points to the home disk address of each index block. (Note that the maximum file size is 512*512 pages.)

When the file is referenced, an in-core copy of the index block is maintained which keeps track of the file's active pages in the system. (That is, whether the pages are in-core, on the swapping area, or on disk.)

Format

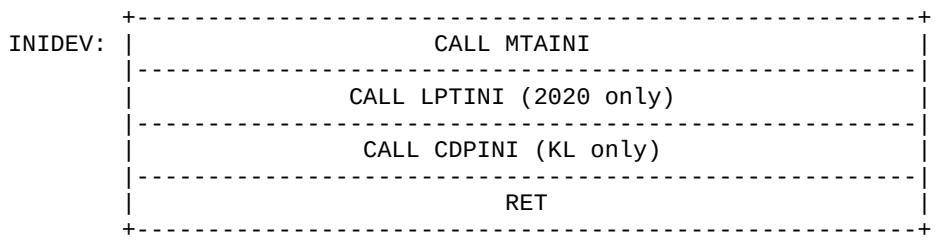


INIDEV

Initialization Device Routines. This table contains calls to initialize devices after loading the swappable monitor.

Defined in: STG

Format

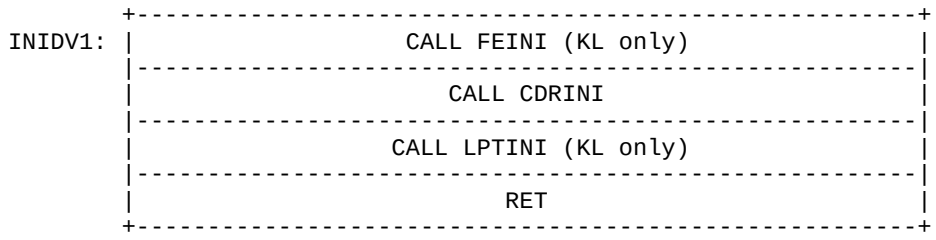


INIDV1

Front End Initialization Device Routines.

Defined in: STG

Format

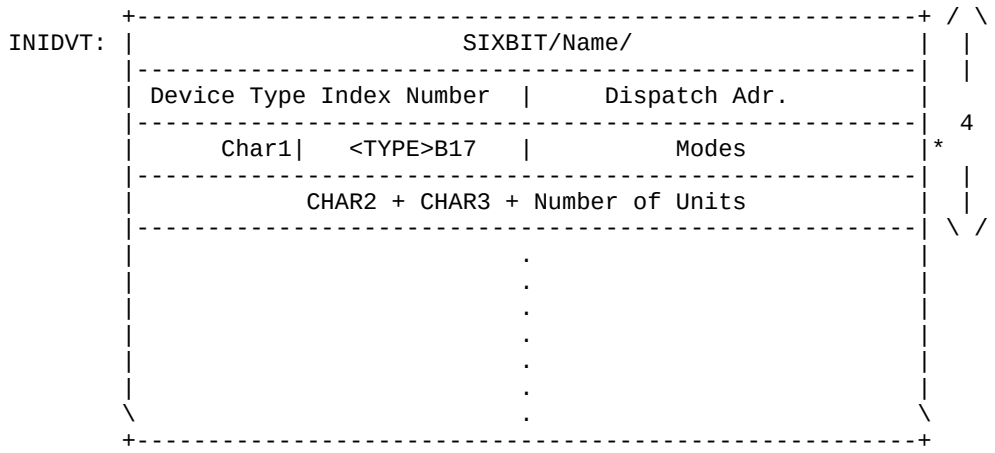


INIDVT

Device Initialization Table. This static table generated at assembly time, contains a four word block for each type of device on the system. It is used at system startup time to generate unit number of entries per device type in the device tables, DEVCHR, DEVCH1, DEVNAM, and DEVUNT. Thus, each unit of each device type has an entry in the device tables.

Defined in: STG, MONSYM

Format



CHAR1 can be a combination of the following:

Symbol	Bit	Meaning
DV%OUT	0	Can do output
DV%IN	1	Can do input
DV%DIR	2	Has a directory
DV%AS	3	Is assignable
DV%MDD	4	Is a multiple directory device
DV%AV *	5	Is available to this job
DV%ASN *	6	Is assigned by ASND
DV%MDV	7	Is a mountable device
DV%MNT *	8	Is mounted

TYPE is one of the following:

Symbol	Value	Meaning
.DVDSK	0	Disk
.DVMTA	2	Magtape
.DVPTP	5	Spooled PTP
.DVLPT	7	Spooled & physical line printer
.DVCDR	10	Spooled & physical card reader
.DVFE	11	Front End Device
.DVTTY	12	Terminal
.DVPTY	13	Pseudo TTY
.DVNUL	15	Null Device
.DVNET	16	ARPA network
.DVPLT	17	Spooled Plotter
.DVCDP	21	Spooled Card Punch
.DVTCP	25	TCP Device

MODES can be a combination of the following:

Symbol	Bit	Meaning
DV%M0	35	Can be opened in mode 0
DV%M1	34	" 1
DV%M2	33	" 2
DV%M3	32	" 3
DV%M4	31	" 4
DV%M5	30	" 5
DV%M6	29	" 6
DV%M7	28	" 7
DV%M10	27	" 10
DV%M11	26	" 11
DV%M12	25	" 12
DV%M13	24	" 13
DV%M14	23	" 14
DV%M15	22	" 15
DV%M16	21	" 16
DV%M17	20	" 17

CHAR2 can be a combination of the following:

Symbol	Bit	Meaning
D1%SPL	0	Is spooled
D1%ALC *	1	Is under control of allocator
D1%VVL *	2	Volume valid
D1%NIU *	3	Device slot not in use
D1%INI *	4	Device is being initialized (currently for structures only)
D1%MTU	5	Device can do MTOPR without JFN opened

* These bits are zero at assembly time and are set by the monitor when appropriate in their corresponding device tables. (DEVCHR or DEVCH1)

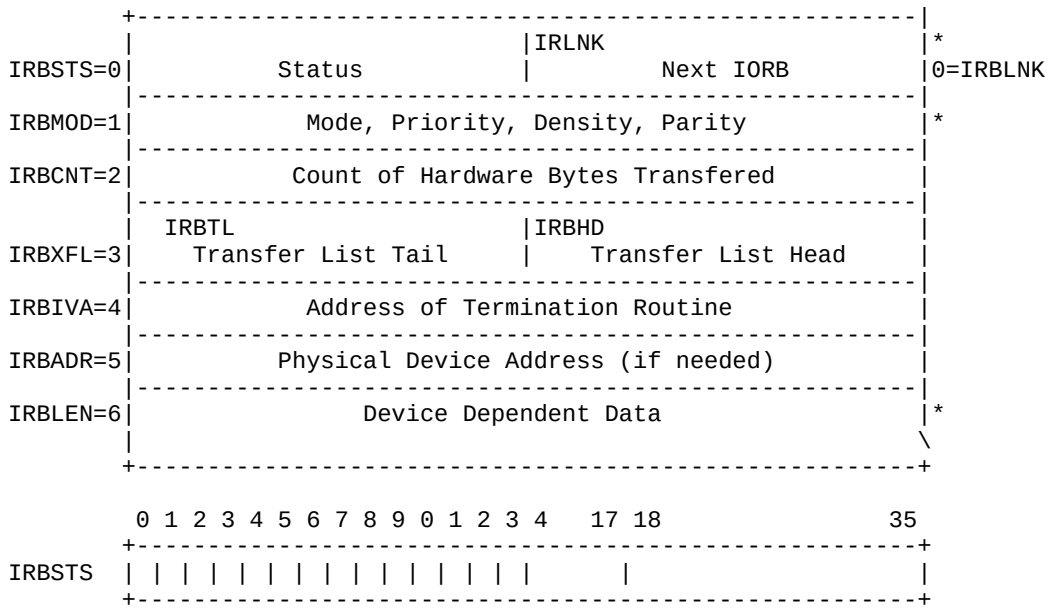
CHAR3 is either zero or DV%PSD (bit 18) which indicates pseudo-device.

IORB

I/O Request Block. Whenever a request for massbus I/O (that is, DSK or MTA) occurs, an IORB is built for that request. It is of the long form described below for magtape requests and special disk I/O. However, the most common IORB format for disk I/O is a one word IORB, consisting of just the status word, IRBSTS, and stored in the CST5 table.

Defined in: PHYPAR

Format

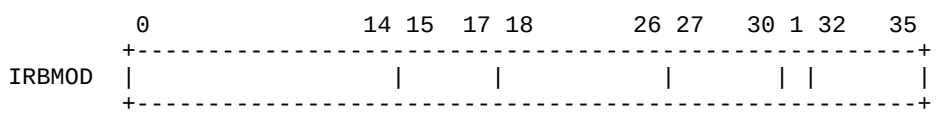


Symbol	Bits	Pointer	Content
IS.SHT	0		Short form (PAGEM)) request
IS.DON	1		Done with this job
IS.ERR	2	ISERR	Error on this operation
IS.NRT	3		No more retries
IS.WGU	4		Wrong unit interrupted
IS.TPM	5	ISTPM	Hit tape mark
IS.EOT	6		On write only, hit physical EOT
IS.WLK	7		Write locked
IS.IER	8		Inhibit error recovery
IS.DTE	9		Data error
IS.DVE	10		Hardware error on device
IS.BOT	11		Hit BOT

IS.RTL	12		Record too long (buffer too small)
IS.IEL	13		Inhibit error logging
	14-17	ISFCN	Function code
	18-35	IRLNK	When referring to link

Function Codes for ISFCN

Symbol	Code	Function
IRFRED	1	Read data
IRFRDF	2	Read data and format (count, key, header)
IRFWRT	3	Write data
IRFWTF	4	Write format
IRFSEK	5	Seek
IRFFSB	6	Forward space block
IRFBSB	7	Backspace block
IRFWTM	10	Write tape mark
IRFERG	11	Erase gap
IRFREW	12	Rewind
IRFRUN	13	Rewind and unload
IRFRDR	14	Read reverse
IRFRCR	15	Recovery read
IRFWVC	16	Write with validity check
IRFRVC	17	Read with validity check

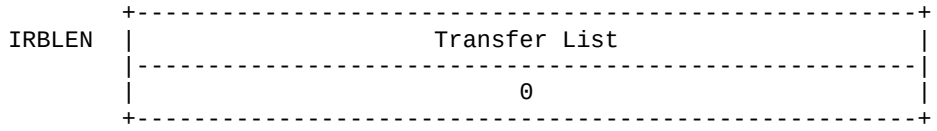


Bits	Pointer	Content
15-17	IRBDM	Data Mode
27-30	IRBPRI	Priority
31	IRBPAR	Parity
32-35	IRBDN	Density

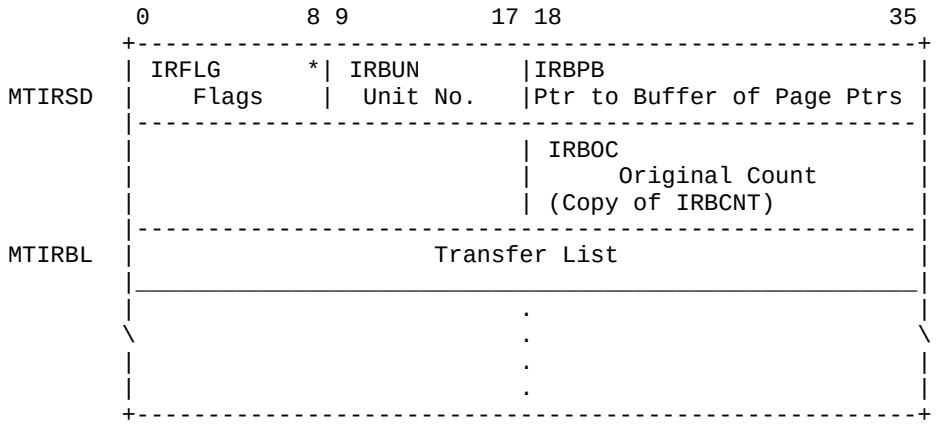
Data Modes for IRBDM

Symbol	Code	Meaning
IRMWRD	1	Word mode
IRM6BT	2	Six bit
IRM7BT	3	Seven bit
IRM8BT	4	Eight bit
IRMHID	5	High density mode

If device is DSK, IRBLEN becomes:



If device is MTA, IRBLEN=MTIRSD becomes:



Value of flags in IRFLG:

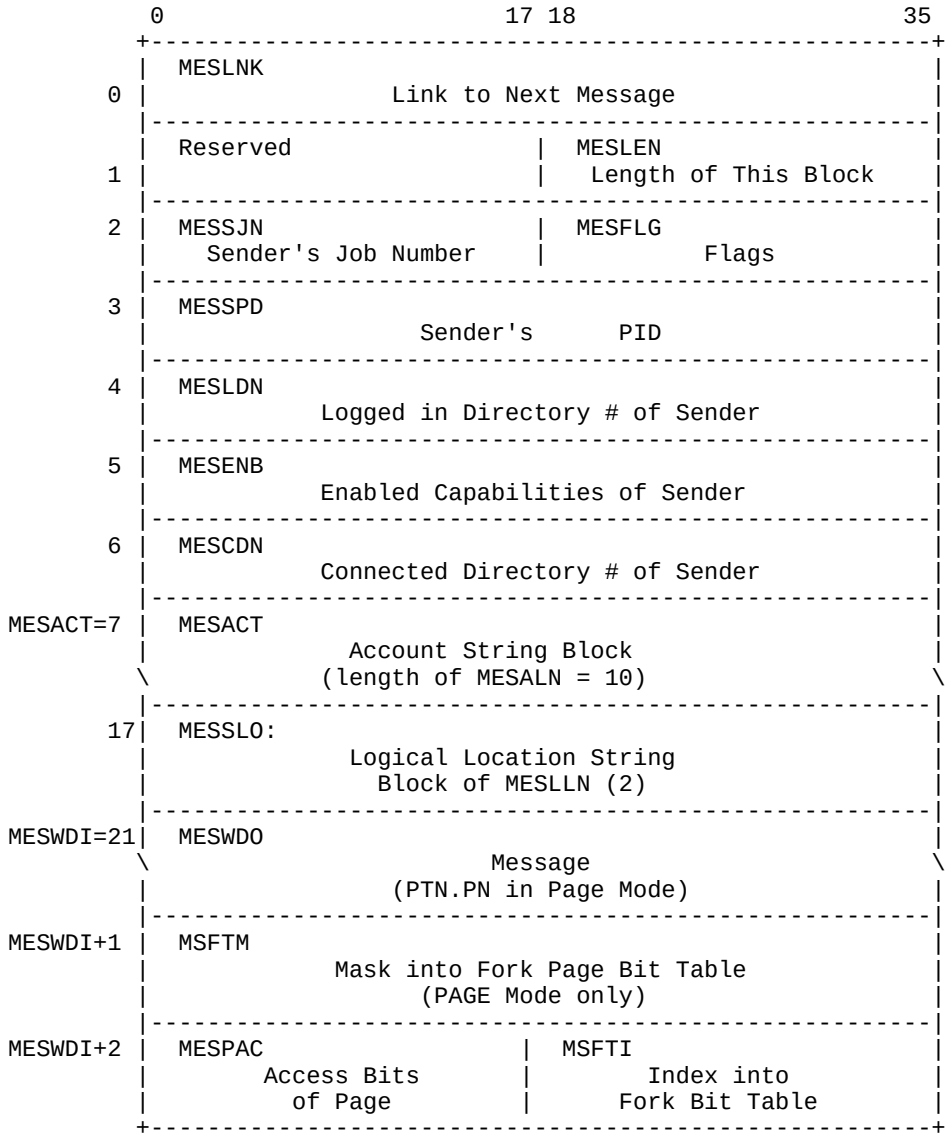
Bits	Pointer	Content
0	IRBFR	Buffer ready for use
1	IRBFQ	Current buffer flag
2	IRBFA	Active flag, IORB being filled or emptied by service routine
3	IRBAB	IORB aborted due to an error
4	IRBFF	IORB free

IPCF-MESSAGE-HEADER

IPCF Message header. This table describes the format of the message header for message sent by the Inter-Process Communications Facility.

Defined in: IPCF

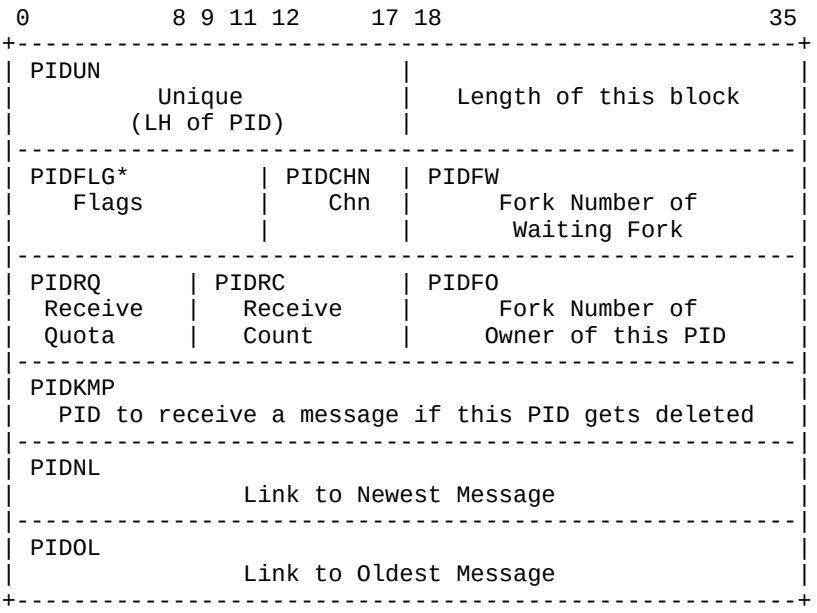
Format

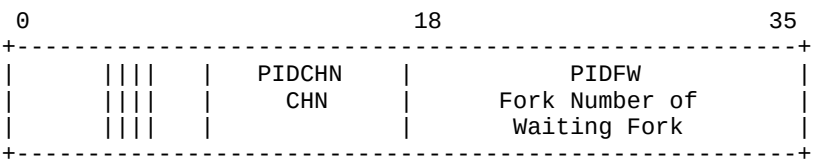


IPCF-PID-HEADER

IPCF Process ID Header. This contains overhead information for each PID in use.

Defined in: IPCF





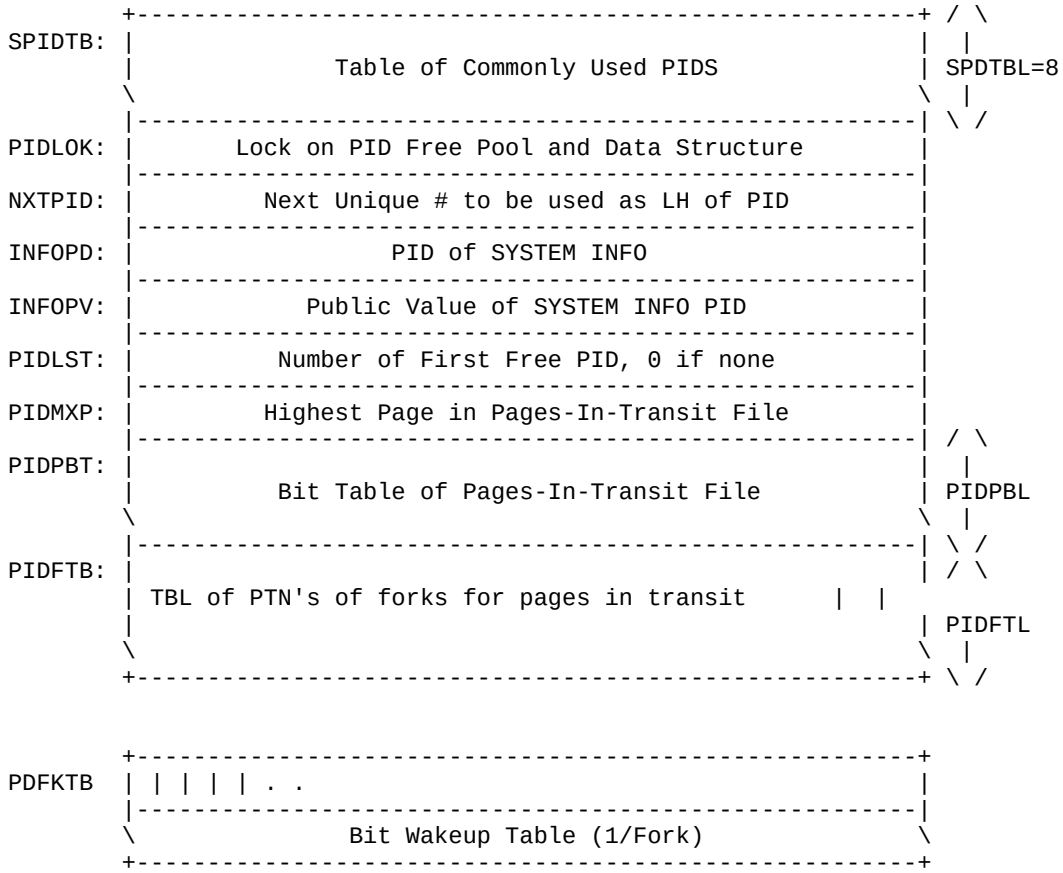
Symbol	Value	Content
PD%JWP	10	PID is a Job-wide PID
PD%DIS	4	PID is disabled
PD%CHN	2	Channel is set up to get interrupts
PD%NOA	1	No access by other forks

IPCF-STORAGE-AREA

Inter-Process Communication Facility Storage Area. This non-resident storage is described followed by the resident wake-up bit table (PDFKTB). THe PID headers and messages are contained in the Swap-free-space pool which immediately follows this table in non-resident storage. See also the tables, PIDCNT and PIDTBL.

Defined in: STG

Format



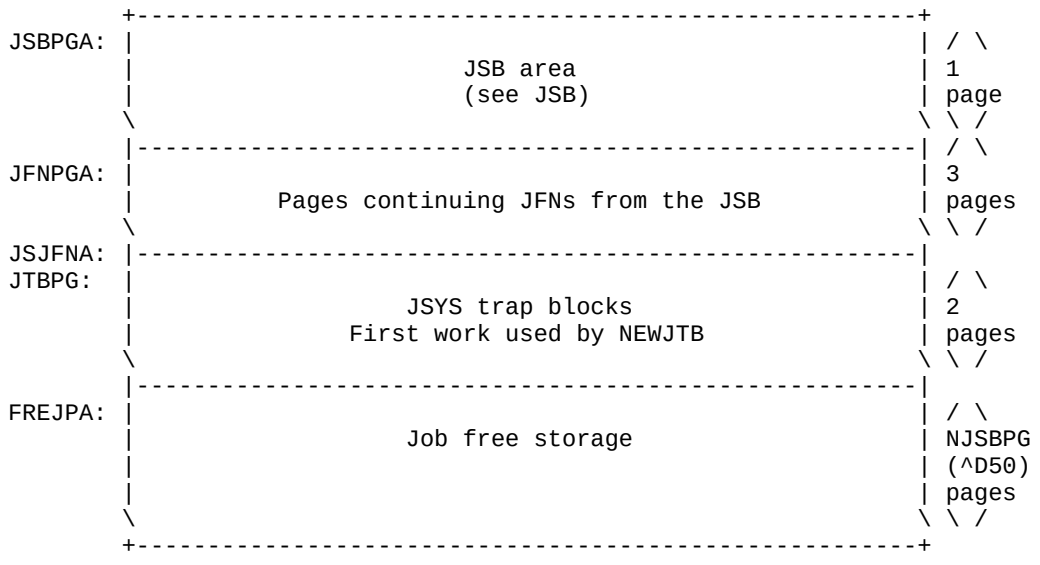
JOB AREA

This area contains the job specific information. It is the entire JSVAR psect. The JOBMAP in the JSB points to all of the job area storage. For this area, the monitor has indirect pointers in its page table (MMAP) for its pages beginning at JSBPGA: (which is on a page boundary) for the length of the job area. All of these pointers are to a single location in the SPT (specifically SPT+NOFN). With this arrangement, the job area for the current process can be changed to the job area for another process by only changing the one location in the SPT.

JBCOR contains a bit table which keeps track of which pages in the Job Storage Area are in use (bit(s) = 0) and which are free (bit(s) = 1). The first several pages of this Job Common Area is always allocated for the JSB page plus expansion pages for the JFN blocks and for the JSYS trap header word and trap blocks (See FKJTQ table). The first non-reserved page begins at FREJPA (=626000). Pages are assigned from the bit table, JBCOR, by the routine, ASGPAG, and are used for temporary job pages such as file window pages, magtape buffer pages, mapping a super index block, getting more space for the free block storage linked in JSBFRE, and mapping EXE file directory pages.

Defined in: STG

Format

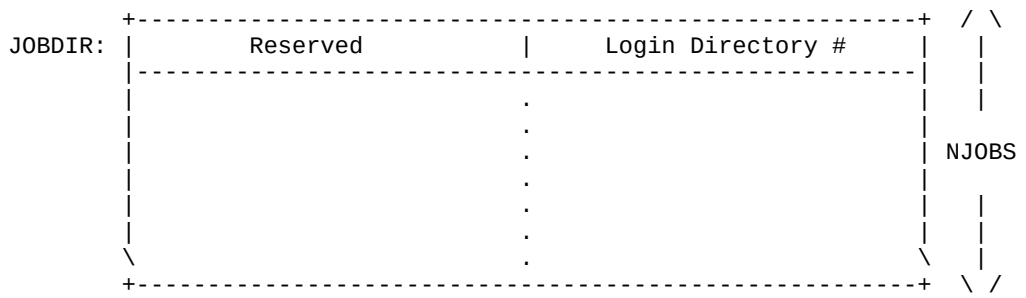


JOBDIR

Job Directory Table. This table contains the number of the login directory for each job.

Defined in: STG

Format



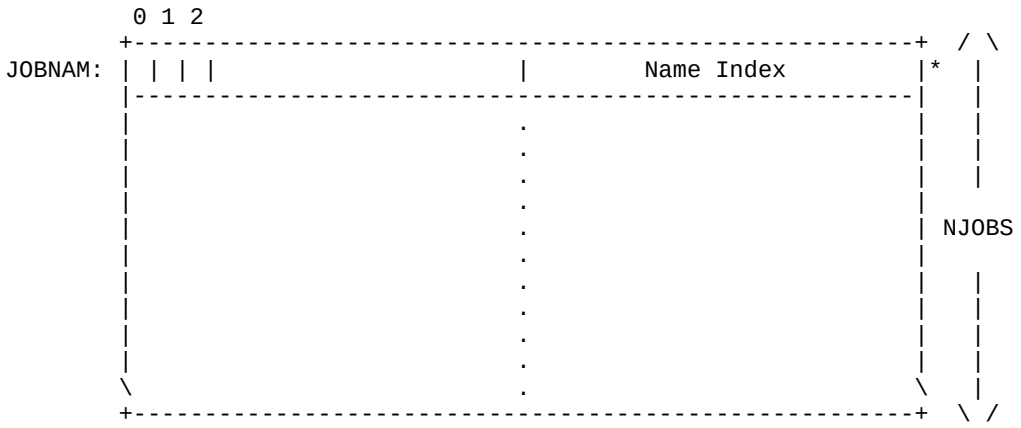
JOBNAM

Job Name Table. This table contains an index into the subsystem name tables (SNAMES, STIMES) indicating what subsystem, if any, each job is running. The name index is for statistics only and is not used by the monitor.

Defined in: STG

Index: Job number

Format



Symbol	Bit	Pointer	Content
JWAKEF	0	HIBFL	Flag used by HIBER JSYS. If set, implies a wakeup signal to THIBR
	1	DIAFL	Job has DIAG resources
	1-2	SKPCT	Skip count for NEWUTL
	18-35		Name index

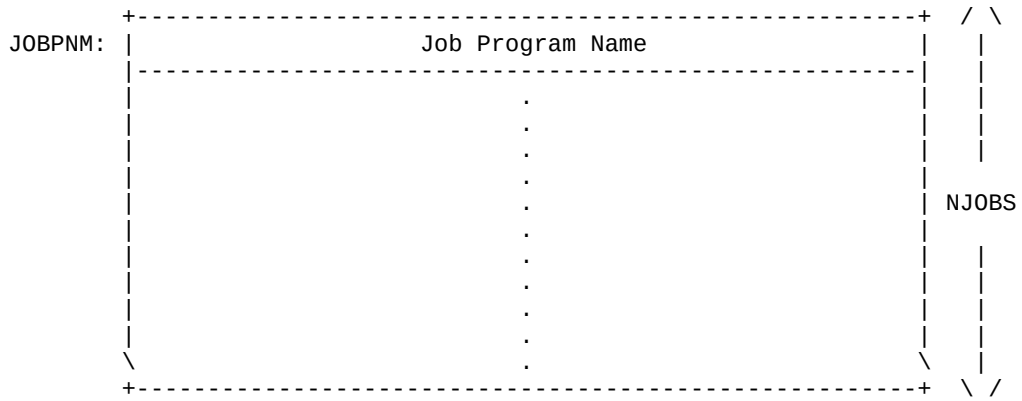
JOBPNM

Job Program Name. This non-resident table contains each job's program name.

Defined in: STG

Index: Job number

Format

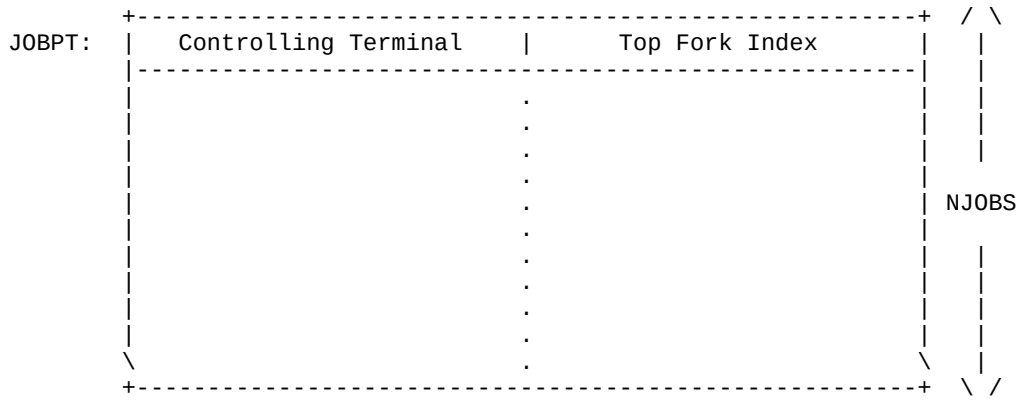


JOBPT

Job Process Table. This table contains the number of the controlling terminal, or -1 for a detached job, and the index of the top fork of the job.

Defined in: STG

Format



Unused slots in this table are linked in a free list. Location FREJOB contains a pointer to the first slot in the free list.

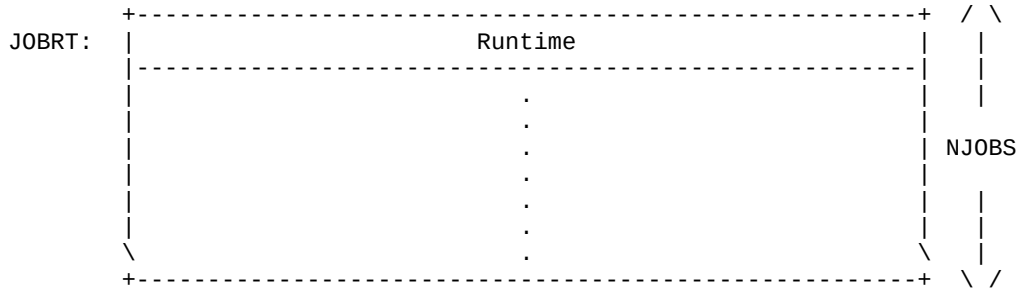
JOBRT

Job Runtime Table. This table contains the total runtime of each job (sum of all forks) in milliseconds. If a word contains a -1, the job does not exist.

Defined in: STG

Index: Job number

Format



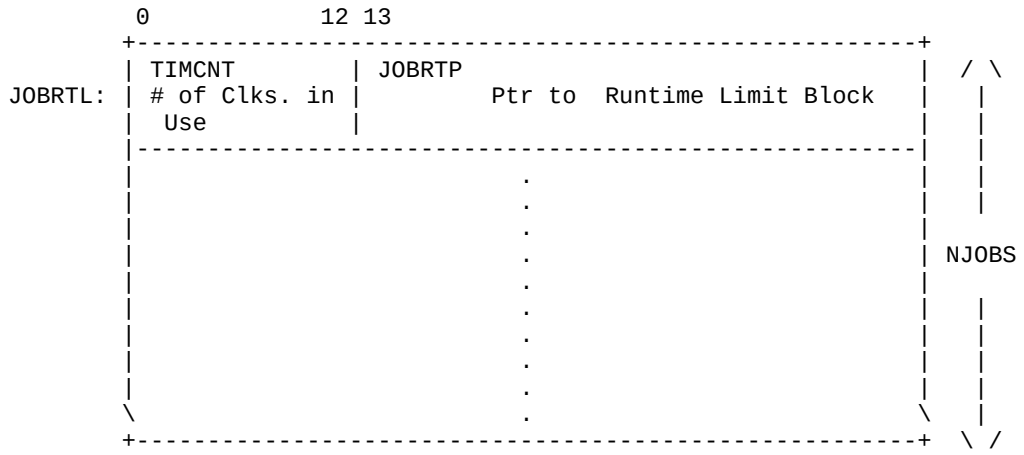
JOBRTL

Job Runtime Limit. This table contains the number of clocks (by way of TIMER JSYS) in use by each job and a pointer to the runtime limit TIMER block. A description of the TIMER block is described below. (See RES-FREE-SPACE).

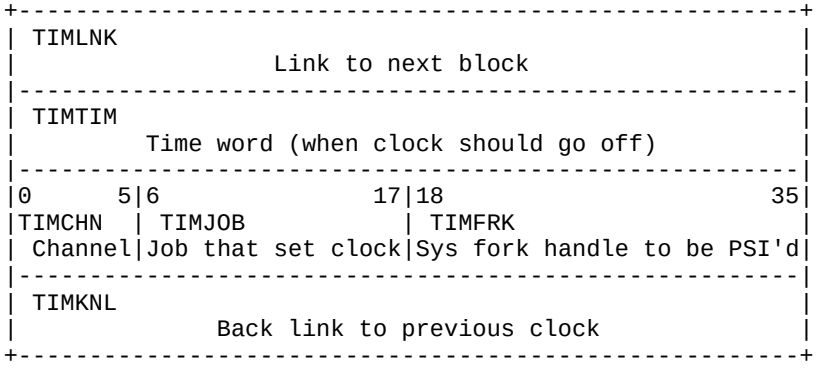
Defined in: STG, PROLOG

Index: Job number

Format



TIMER Run Timer Limit Block



JSB

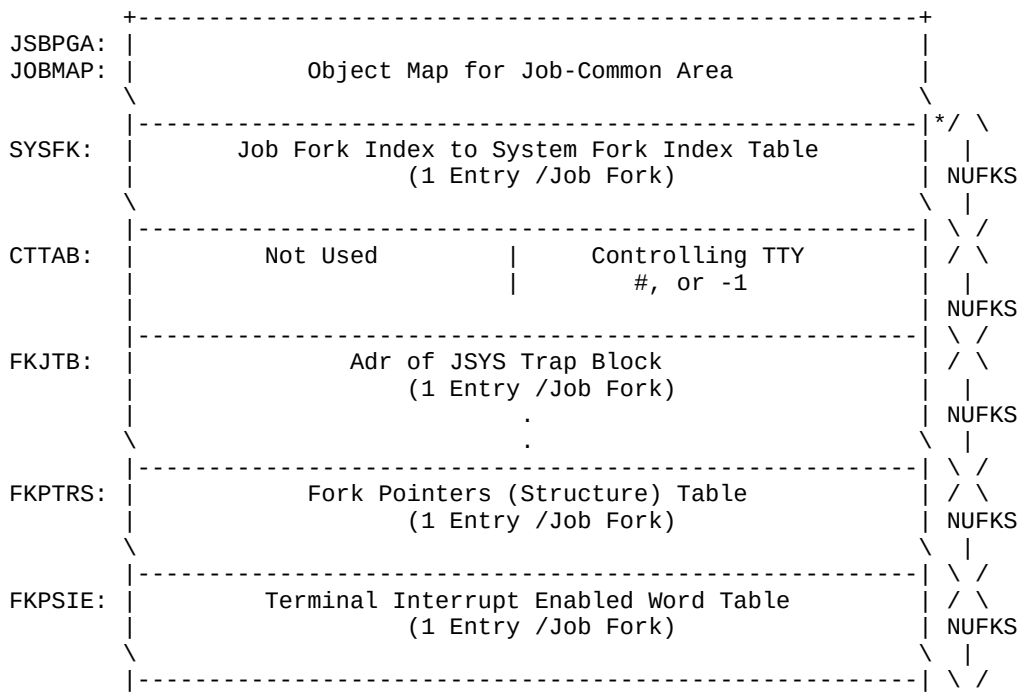
Job Storage Block. Each job has a Job Storage Block which holds per-job information such as the job's fork structure, line number of controlling TTY, terminal interrupts enabled and accounting and logical name information.

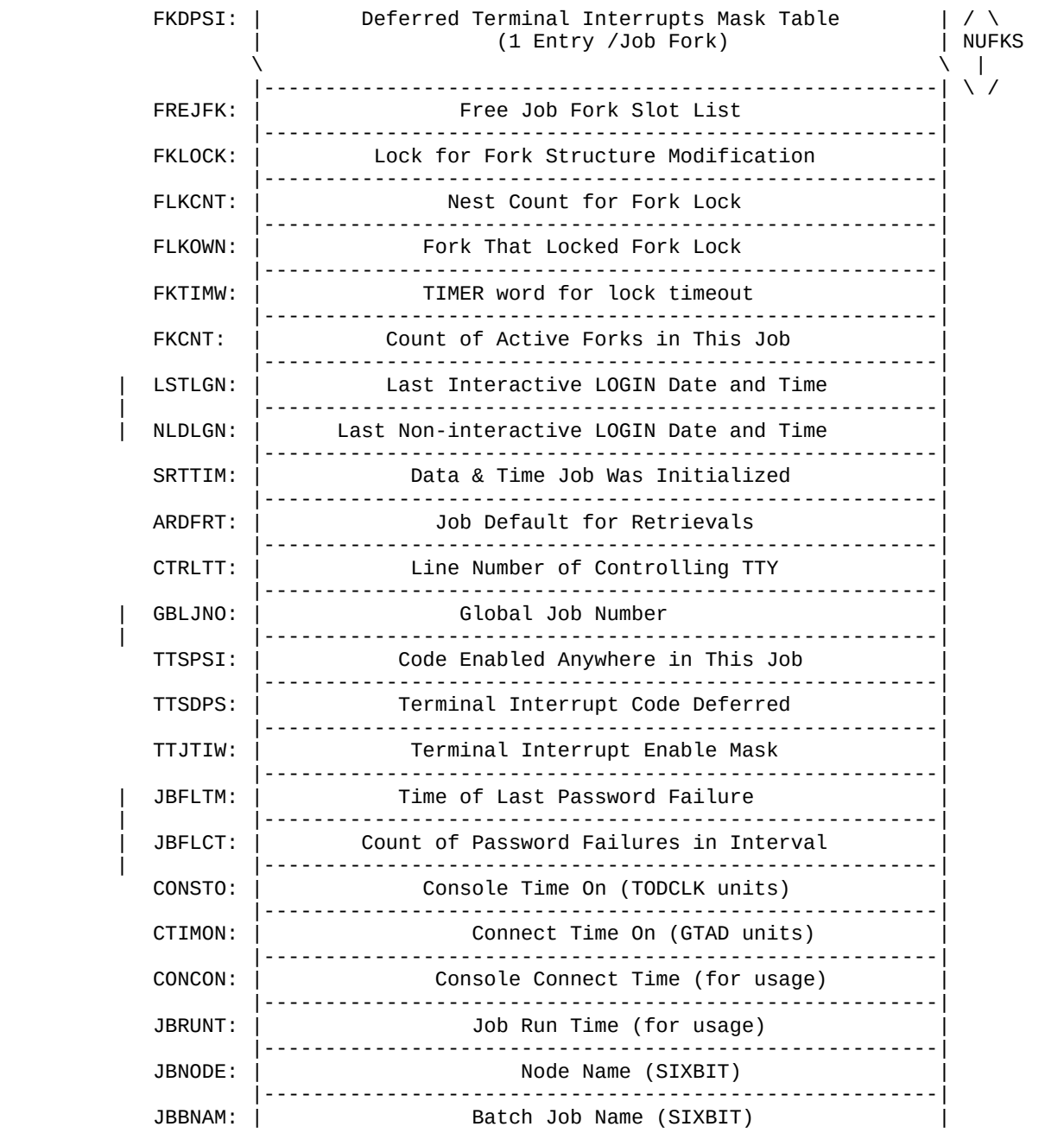
JSBFRE is the free block header. If a block of words (that is, <512 words) is required, it is allocated from the JSFREE area in the JSB. Blocks in the JSFREE area are linked and when a block of words is required, the free list is searched looking for a large enough block. If the free list area in JSFREE is depleted, a new page (space outside the JSB in the Job Storage Area) is allocated and its space added to the free list for block usage. Blocks of words are assigned from the free list, headed by JSBFRE by the routine, ASGFRE, and are used to hold temporary storage such as name strings for JFN blocks, the job-wide Logical Names List, and the Logical Name Definition Blocks.

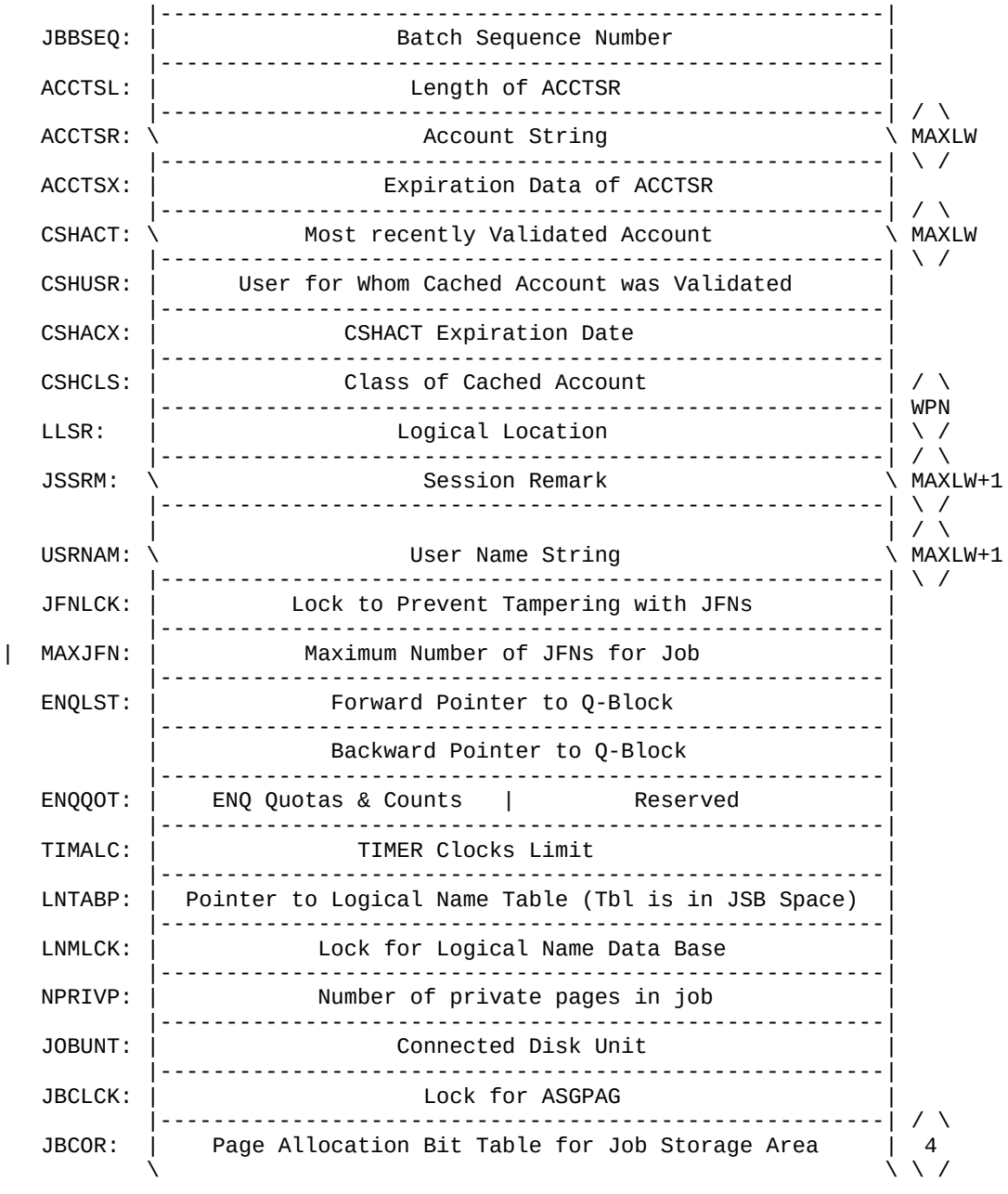
JBCOR contains a bit table which keeps track of which pages in the job area are in use. For further information see JOB AREA.

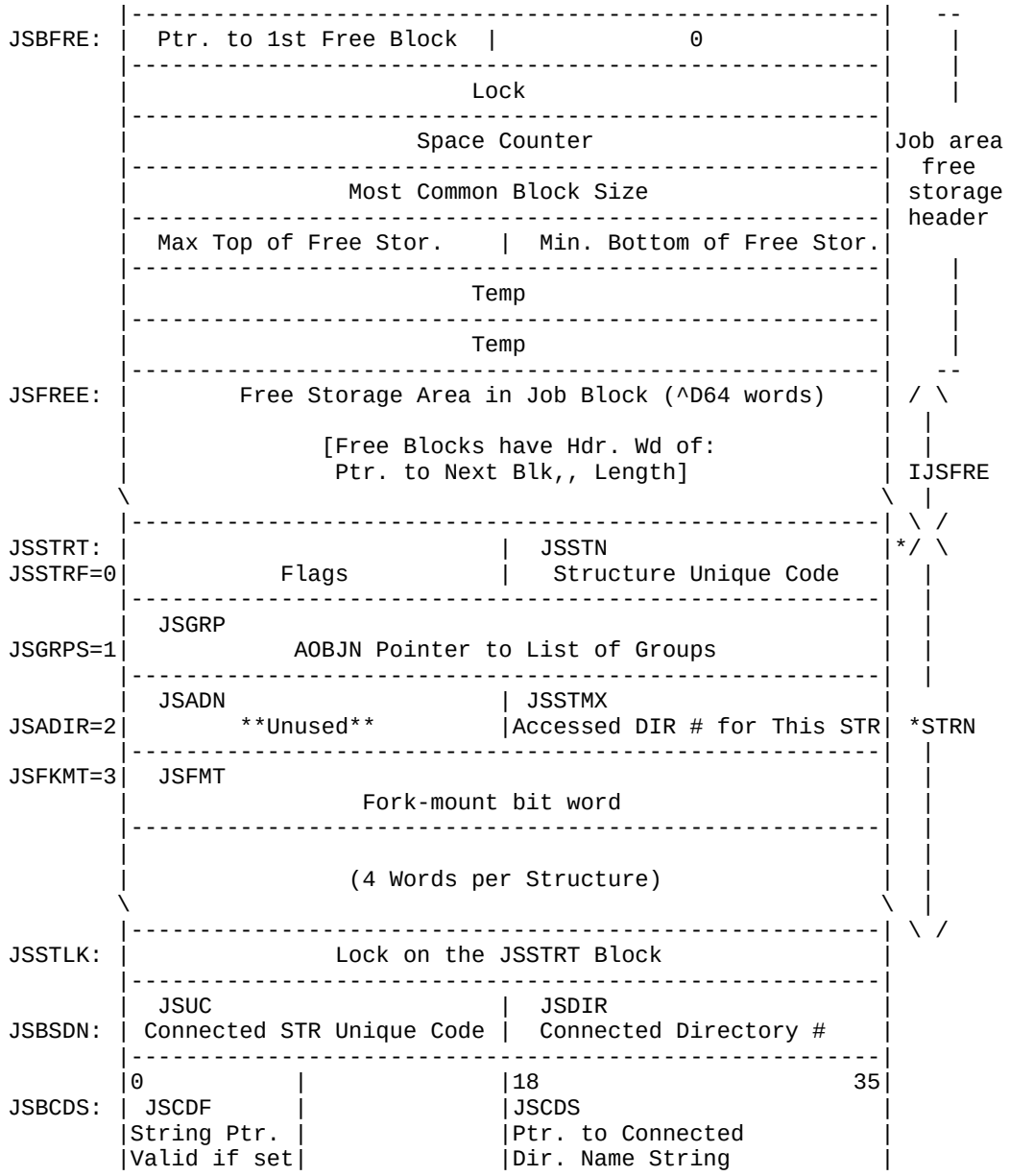
Defined in: STG

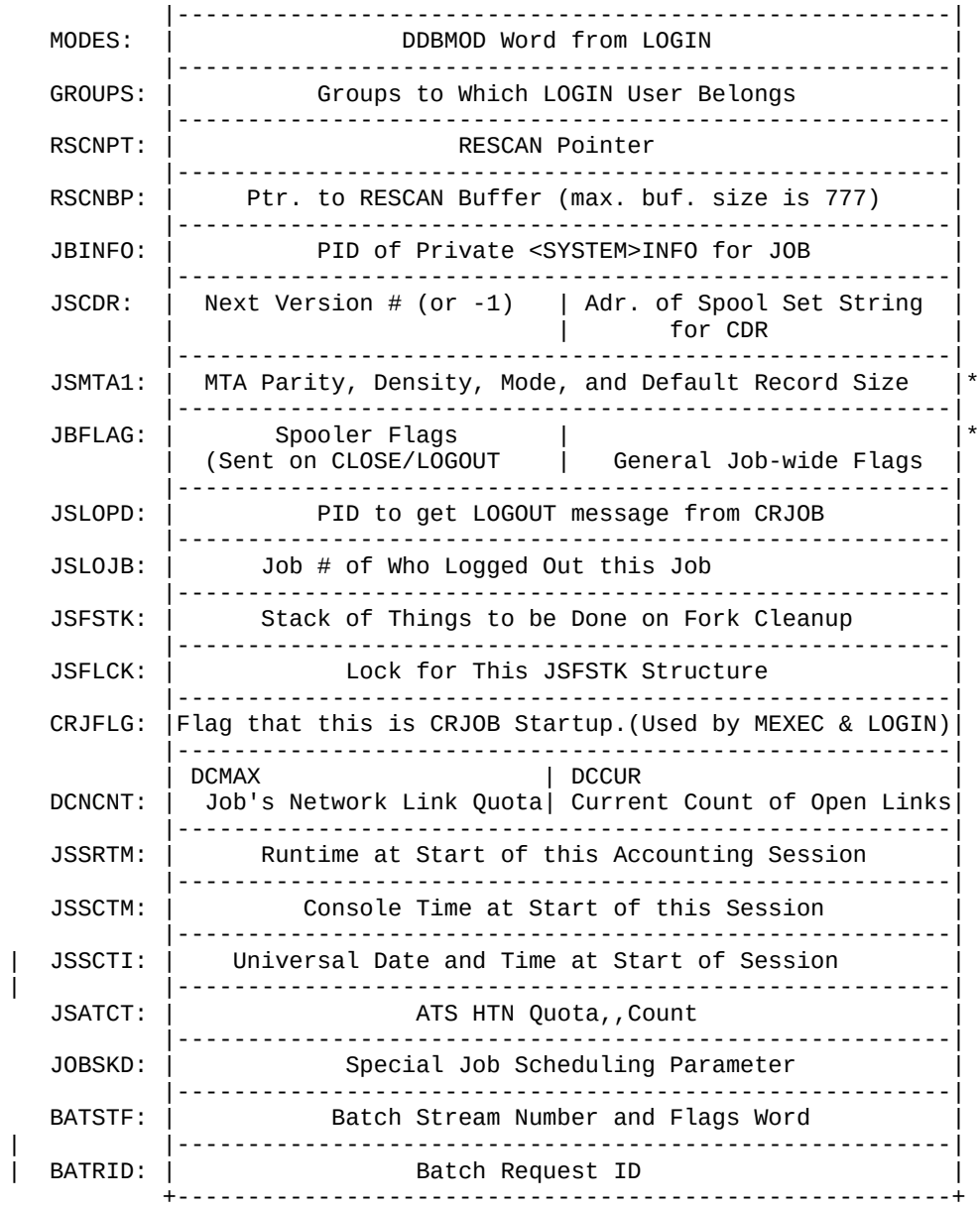
Format

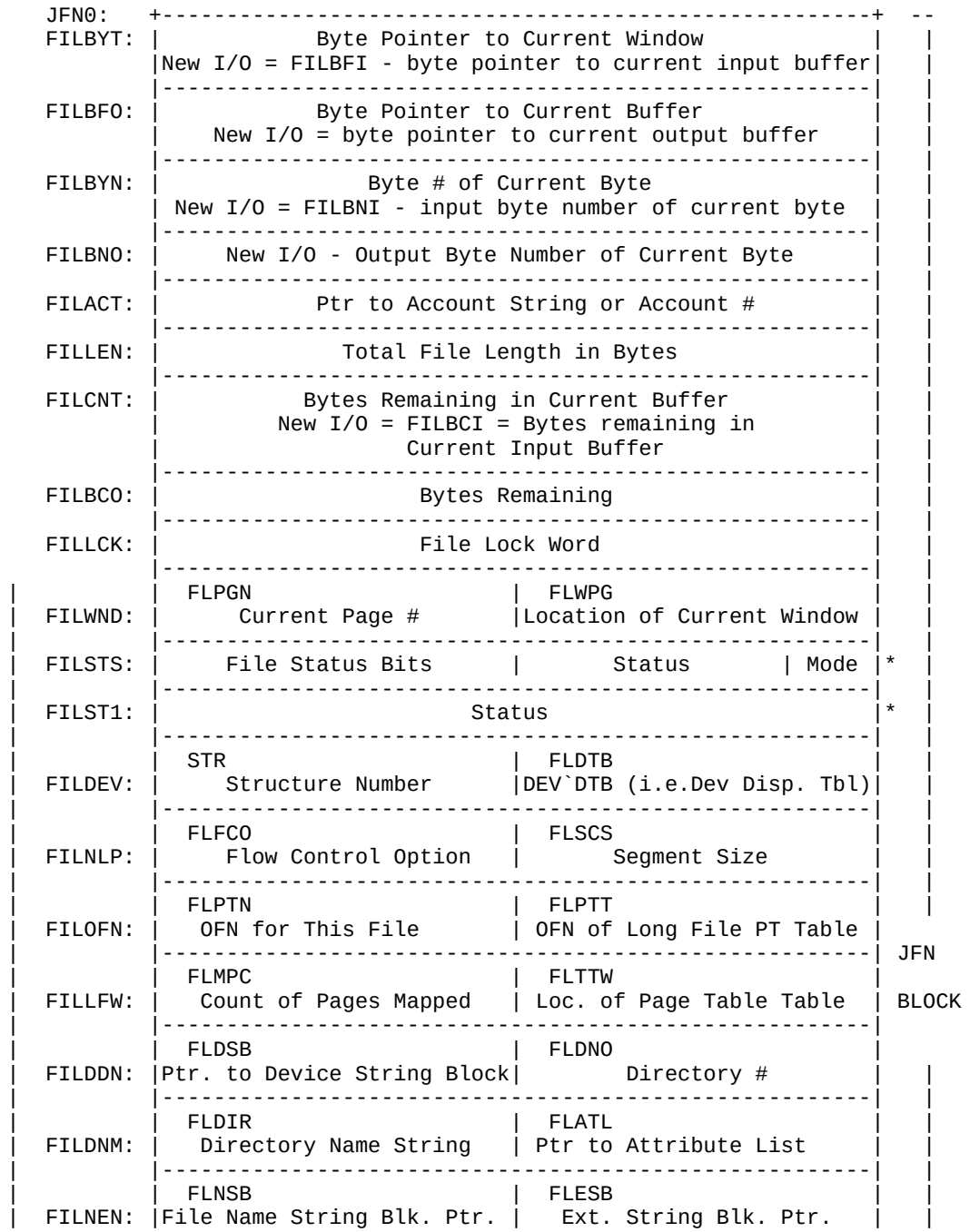


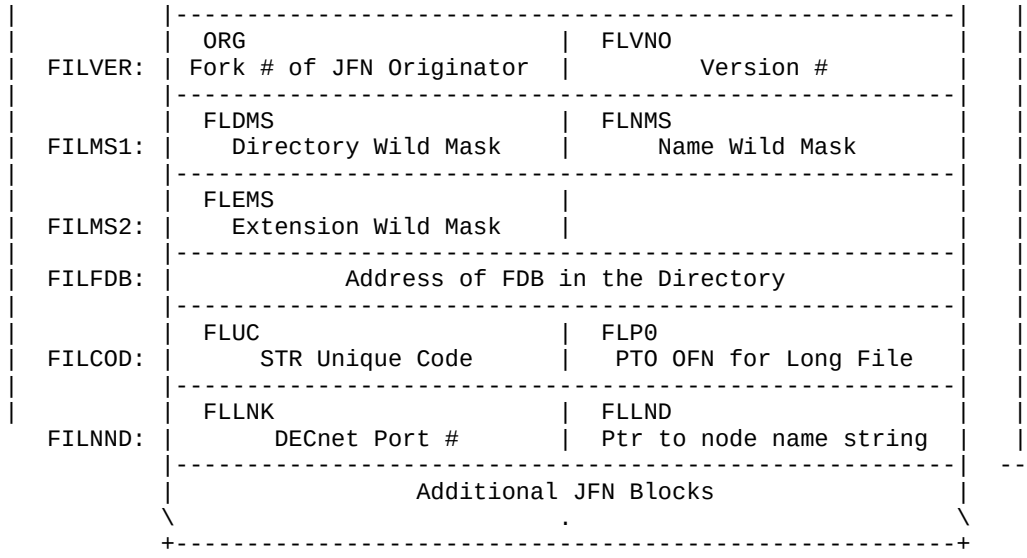

FKDPSI:
Deferred Terminal Interrupts Mask Table
(1 Entry /Job Fork)
NUFKS
FREJFK:
Free Job Fork Slot List
FKLOCK:
Lock for Fork Structure Modification
FLKCNT:
Nest Count for Fork Lock
FLKOWN:
Fork That Locked Fork Lock
FKTIMW:
TIMER word for lock timeout
FKCNT:
Count of Active Forks in This Job
LSTLGN:
Last Interactive LOGIN Date and Time
NLDLGN:
Last Non-interactive LOGIN Date and Time
SRTTIM:
Data & Time Job Was Initialized
ARDFRT:
Job Default for Retrievals
CTRLTT:
Line Number of Controlling TTY
GBLJNO:
Global Job Number
TTSPSI:
Code Enabled Anywhere in This Job
TTSDPS:
Terminal Interrupt Code Deferred
TTJTIW:
Terminal Interrupt Enable Mask
JBFLTM:
Time of Last Password Failure
JBFLCT:
Count of Password Failures in Interval
CONSTO:
Console Time On (TODCLK units)
CTIMON:
Connect Time On (GTAD units)
CONCON:
Console Connect Time (for usage)
JBRUNT:
Job Run Time (for usage)
JBNODE:
Node Name (SIXBIT)
JBBNAM:
Batch Job Name (SIXBIT)


JBBSEQ:
Batch Sequence Number
ACCTSL:
Length of ACCTSR
ACCTSR:
Account String
MAXLW
ACCTSX:
Expiration Data of ACCTSR
CSHACT:
Most recently Validated Account
MAXLW
CSHUSR:
User for Whom Cached Account was Validated
CSHACX:
CSHACT Expiration Date
CSHCLS:
Class of Cached Account
WPN
LLSR:
Logical Location
JSSRM:
Session Remark
MAXLW+1
USRNAM:
User Name String
MAXLW+1
JFNLCK:
Lock to Prevent Tampering with JFNs
MAXJFN:
Maximum Number of JFNs for Job
ENQLST:
Forward Pointer to Q-Block
Backward Pointer to Q-Block
ENQQOT:
ENQ Quotas & Counts
Reserved
TIMALC:
TIMER Clocks Limit
LNTABP:
Pointer to Logical Name Table (Tbl is in JSB Space)
LNMLCK:
Lock for Logical Name Data Base
NPRIVP:
Number of private pages in job
JOBUNT:
Connected Disk Unit
JBCLCK:
Lock for ASGPAG
JBCOR:
Page Allocation Bit Table for Job Storage Area
4


JSBFRE:
Ptr. to 1st Free Block
0
Lock
Space Counter
Job area free storage header
Most Common Block Size
Max Top of Free Stor.
Min. Bottom of Free Stor.
Temp
Temp
JSFREE:
Free Storage Area in Job Block (^D64 words)
[Free Blocks have Hdr. Wd of:
Ptr. to Next Blk,, Length]
IJSFRE
JSSTRT:
JSSTRF=0
JSSTN
Flags
Structure Unique Code
JSGRP
JSGRPS=1
AOBJN Pointer to List of Groups
JSADN
JSSTMX
JSADIR=2
Unused
Accessed DIR # for This STR
*STRN
JSFKMT=3
JSFMT
Fork-mount bit word
(4 Words per Structure)
JSSTLK:
Lock on the JSSTRT Block
JSUC
JSDIR
JSBSDN:
Connected STR Unique Code
Connected Directory #
0
18
35
JSBCDS:
JSCDF
JSCDS
String Ptr.
Valid if set
Ptr. to Connected
Dir. Name String


MODES:
DDBMOD Word from LOGIN
GROUPS:
Groups to Which LOGIN User Belongs
RSCNPT:
RESCAN Pointer
RSCNBP:
Ptr. to RESCAN Buffer (max. buf. size is 777)
JBINFO:
PID of Private <SYSTEM>INFO for JOB
JSCDR:
Next Version # (or -1)
Adr. of Spool Set String for CDR
JSMTA1:
MTA Parity, Density, Mode, and Default Record Size
JBFLAG:
Spooler Flags (Sent on CLOSE/LOGOUT
General Job-wide Flags
JSLOPD:
PID to get LOGOUT message from CRJOB
JSLOJB:
Job # of Who Logged Out this Job
JSFSTK:
Stack of Things to be Done on Fork Cleanup
JSFLCK:
Lock for This JSFSTK Structure
CRJFLG:
Flag that this is CRJOB Startup.(Used by MEXEC & LOGIN)
DCMAX
DCCUR
DCNCNT:
Job's Network Link Quota
Current Count of Open Links
JSSRTM:
Runtime at Start of this Accounting Session
JSSCTM:
Console Time at Start of this Session
JSSCTI:
Universal Date and Time at Start of Session
JSATCT:
ATS HTN Quota,,Count
JOBSKD:
Special Job Scheduling Parameter
BATSTF:
Batch Stream Number and Flags Word
BATRID:
Batch Request ID


JFN0:
FILBYT:
Byte Pointer to Current Window
New I/O = FILBFI - byte pointer to current input buffer
FILBFO:
Byte Pointer to Current Buffer
New I/O = byte pointer to current output buffer
FILBYN:
Byte # of Current Byte
New I/O = FILBNI - input byte number of current byte
FILBNO:
New I/O - Output Byte Number of Current Byte
FILACT:
Ptr to Account String or Account #
FILLEN:
Total File Length in Bytes
FILCNT:
Bytes Remaining in Current Buffer
New I/O = FILBCI = Bytes remaining in
Current Input Buffer
FILBCO:
Bytes Remaining
FILLCK:
File Lock Word
FLPGN
Current Page #
FLWPG
Location of Current Window
FILWND:
FILSTS:
File Status Bits
Status
Mode
FILST1:
Status
STR
Structure Number
FLDTB
DEV`DTB (i.e.Dev Disp. Tbl)
FILDEV:
FLFCO
Flow Control Option
FLSCS
Segment Size
FILNLP:
FLPTN
OFN for This File
FLPTT
OFN of Long File PT Table
FILOFN:
JFN
FLMPC
Count of Pages Mapped
FLTTW
Loc. of Page Table Table
FILLFW:
BLOCK
FLDSB
Ptr. to Device String Block
FLDNO
Directory #
FILDDN:
FLDIR
Directory Name String
FLATL
Ptr to Attribute List
FILDNM:
FLNSB
File Name String Blk. Ptr.
FLESB
Ext. String Blk. Ptr.
FILNEN:

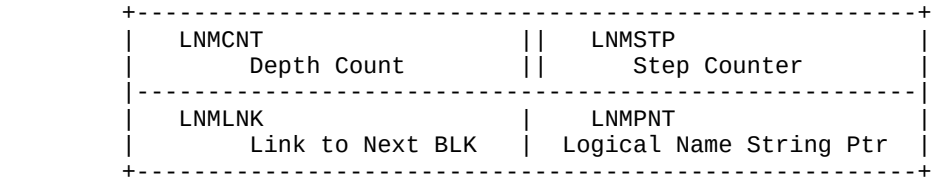


Each JFN uses a block of 19 (MLJFN) words. (Since JFNs can grow beyond the end of the JSB into successive pages, the JFN blocks must be the last storage defined in the JSB.) MJFN is the maximum number of JFNs.

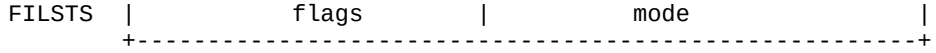
These definitions are used in the above positions only during the GTJFN procedure:

(1) FILTMP / Ptr. to temp string block for default ,, Ptr. to
temp string block
(2) FILPRT / Ptr. to protection string or protection number
(3) FILSKT / Arpanet connection no.,, Unused
FILOPT / Byte Ptr. to Store String in GTJFN
(4) FILLIB / For DECNET, Ptr to LL Block
(5) FILLNM / Ptr. to RDTEXT buffer ,, Ptr. to logical name
chain **
(6) FILBFO / For DECNET, Output Buffer Ptr.
(7) FILIDX / 0 ,, Index into device tables for original
devices GTJFNed
{(doesn't change during spooling)}
FILBFI / For DECNET, Ptr. to Input Buffer
(8) FILBCT / For DECNET, Ptr. to Counts

Logical Name Header Format



Bits	Pointer	Content
0-17	LNMCNT	Depth count for logical names
18	LMMIDX	Index into logical name tables
19-35	LNMSTP	Step counter at time of chaining
0-17	LNMLNK	Link to next chain block
18-35	LNMPNT	Pointer to logical name string

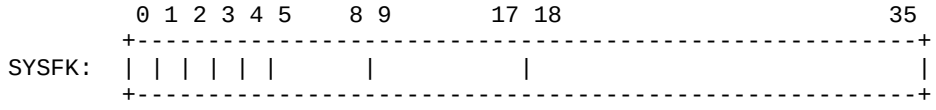


Symbol	Bits	Pointer	Contents
OPNF	0		File is open
READF	1		File is OK to read
WRTF	2		File is OK to write
XCTF	3		File is OK to execute
RNDF	4		File is OK to reset ptr. (that is, not append)
NONXF	5		Non-existent File, delete FDB on RLJFN
NWTF	6		No wait on DUMP I/O
LONGF	7		File is a long file
EOFF	8		End of file if read attempted
ERRF	9		Bytes read may be wrong
NAMEF	10		Name is associated with this JFN
ASTF	11		An * was typed in
ASGF/BLKF	12		JFN is being assigned or service routine wants to block; shares a bit position with ASGF
HLTF	13		Halt if I/O error
WNDF	14		Window page has been set up

ENDF/TRNSL	15		File is past end of maximum length. Bit timeshared with ENDF to say the JFN is in a transitional state and may not be accessed.
SIZE	16		Illegal to change size of byte
FRKF	17		File is restricted to fork in LH(FILVER)
PASLSN	18		Set to skip line number checking on ASCII files
SKIPBY	19		Set by BYTINA to remember that it has to discard.
XQTAF	20		Quota exceeded Flag
FILDUD	21		Suppress DDMP action if set
FILINP	22		Direction of I/O is input
FILOUP	23		Direction of I/O is output
HLDF	24		Hold in balance set
RECF	25		End of record seen
ACRLFF	26		Add CRLF's after records on input
CRNXT	27		Return CR next
LFNXT	28		Return LF next
FROSTF	29		Record has been frosted
	18-35	IOMODE	Mode File is opened in

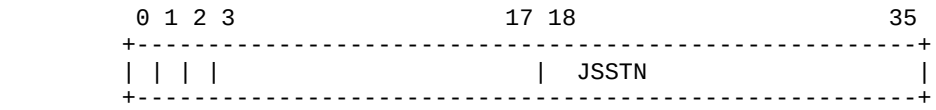
FILST1

Symbol	Bits	Pointer	Contents
FILNO	0		New output
ASGF2	1		Shadow bit for ASGF

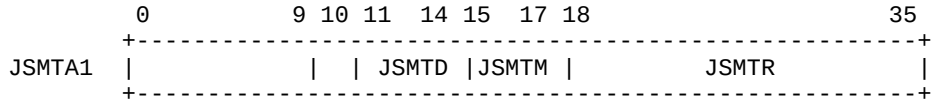


Bits	Pointer	Content
0		JRFN not in use
1	SFEXO	Fork is Execute-Only if set
2	SFNVG	Fork is not "virgin" if set
3	SFGXO	Fork can PMAP into execute-only forks
4	SFSRT	Fork has been started
9-17	FKHCNT	Count of handles on a given fork
18-35		System fork number

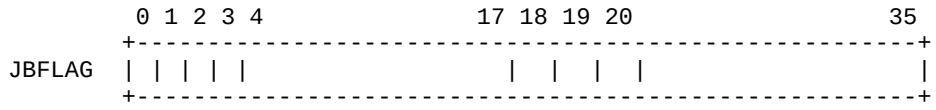
Work 0 of 4-word structure block (starts at JSSTRT)



Symbol	Bits	Pointer	Content
	0	JSSDM	Structure is dismounted
	1	JSMCI	Mount count has been incremented by structure
	2	JSXCL	Structure is mounted exclusively by the structure
JSFRST	18-35	JSSTN	Structure unique code



Bits	Pointer	Content
10	JSMTP	Default Parity
11-14	JSMTD	Default Density
15-17	JSMTM	Default Mode for transfers
18-35	JSMTR	Default record size (hardware bytes)



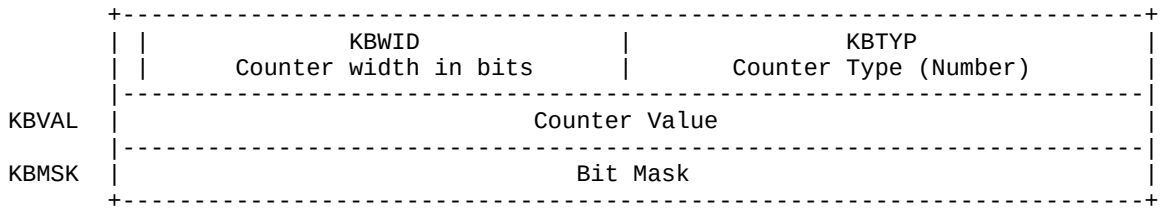
Symbol	Bits	Pointer	Content
SP%BAT	0	JSBAT	Job is being controlled by BATCH
SP%DFS	1	JSDFS	Spooling is deferred
SP%ELO	2	JSELO	Job executed LOGOUT JSYS
SP%FLO	3	JSFLO	Job forced to LOGOUT by top Fork error
SP%OLO	4	JSOLO	Job logged out by other job
	18	JBMX	Job has been in the mini-exec
	19	JBT20	Job is at TOPS-20 command level

KB

KB contains the DECnet Counter Block Sub-fields.

Defined in: D36PAR

Format



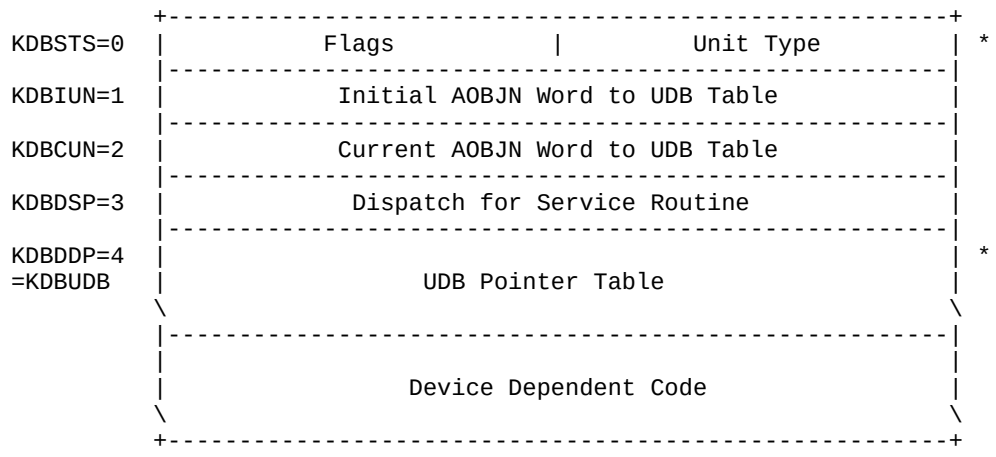
Field KBBMF (0-0) Bit Map Flag

KDB

Kontroller Data Block (TM02/3, DX20, and CI nodes)

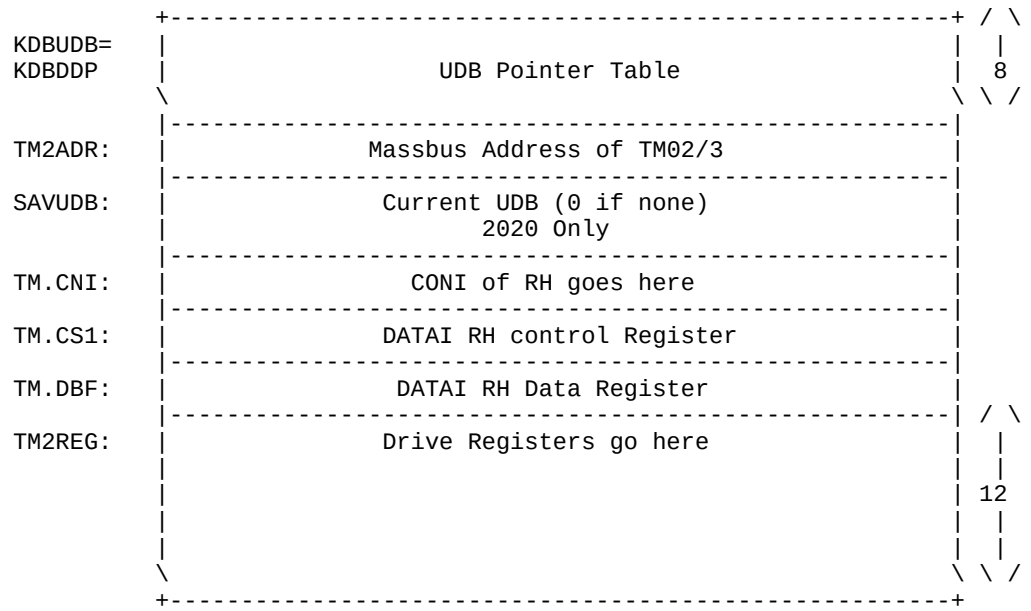
Defined in: PHYPAR, PHYM2, PHYP2, SCAPAR

Format



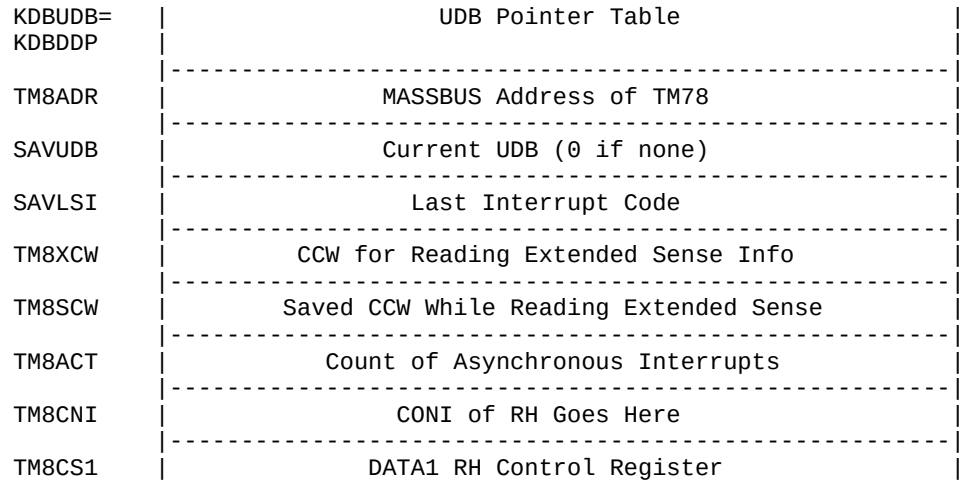
Symbol	Bits	Pointer	Content
KS.ACT	1		Controller Active if set
KS.HLT	2		Microcode is halted
KS.DSK	3		Controller for disks
	18-35		Unit type (see unit types in UDBSTS in UDB)

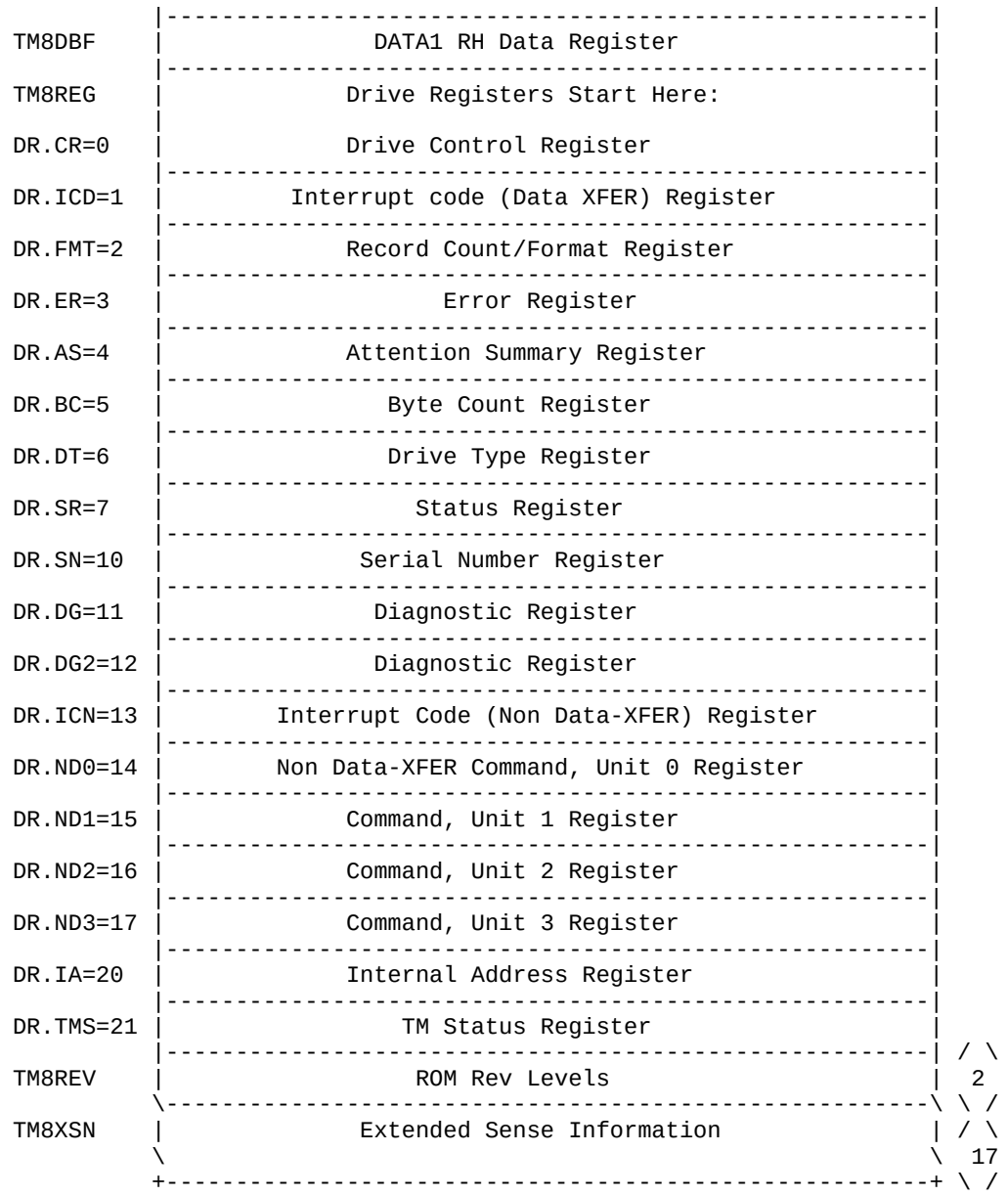
Device dependent sector for TM02/3



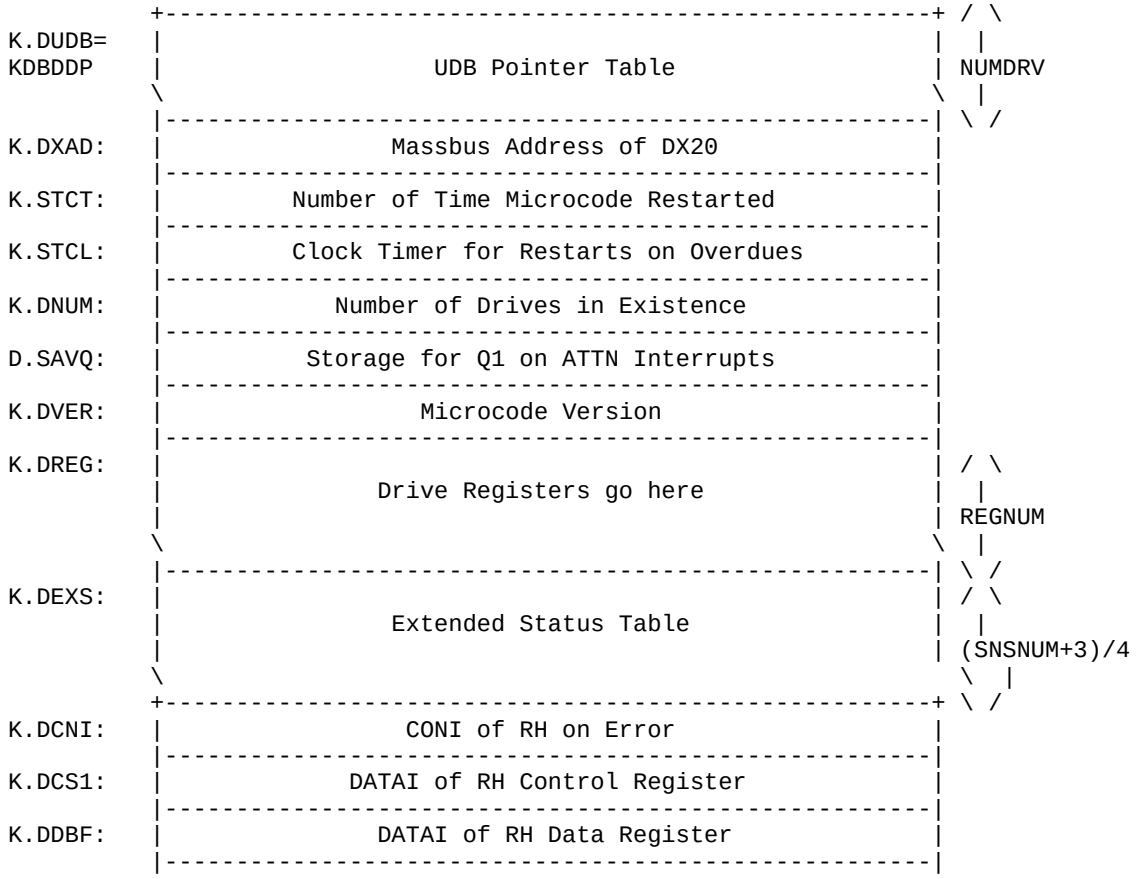
LK.TM2 = Length of TM02 KDB

Device Dependent Sector for TM78



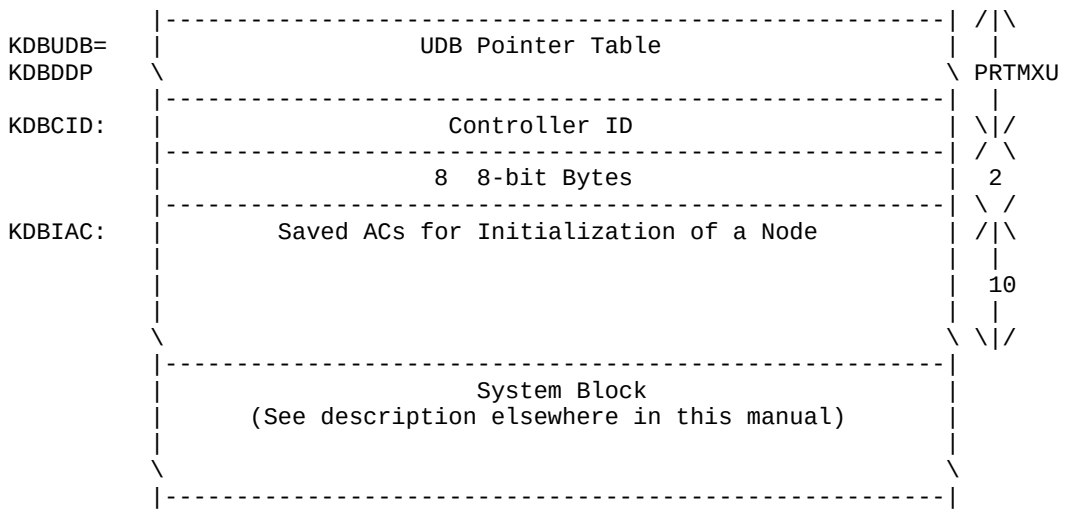

TM8DBF
DATA1 RH Data Register
TM8REG
Drive Registers Start Here:
DR.CR=0
Drive Control Register
DR.ICD=1
Interrupt code (Data XFER) Register
DR.FMT=2
Record Count/Format Register
DR.ER=3
Error Register
DR.AS=4
Attention Summary Register
DR.BC=5
Byte Count Register
DR.DT=6
Drive Type Register
DR.SR=7
Status Register
DR.SN=10
Serial Number Register
DR.DG=11
Diagnostic Register
DR.DG2=12
Diagnostic Register
DR.ICN=13
Interrupt Code (Non Data-XFER) Register
DR.ND0=14
Non Data-XFER Command, Unit 0 Register
DR.ND1=15
Command, Unit 1 Register
DR.ND2=16
Command, Unit 2 Register
DR.ND3=17
Command, Unit 3 Register
DR.IA=20
Internal Address Register
DR.TMS=21
TM Status Register
TM8REV
ROM Rev Levels
2
TM8XSN
Extended Sense Information
17

Device dependent sector for DX20



LK.DX2 = Length of DX20 KDB

Device dependent sector for CI node



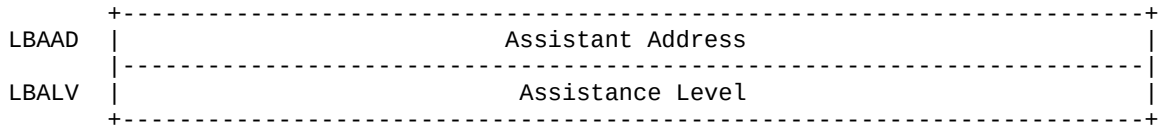
LB

This is the loopback portion of a DECnet Request Block.

Defined in: LLMOP

Format

Message Block for Loopback

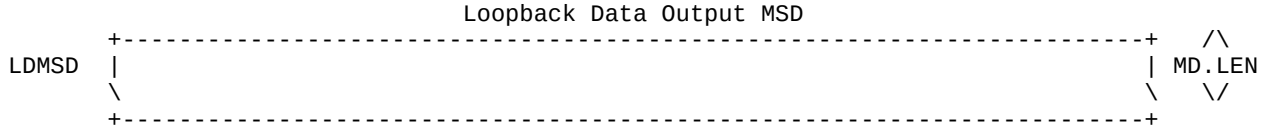


LD

This is the DECnet loopback data area; the data buffer is supplied by the user.

Defined in: LLMOP

Format



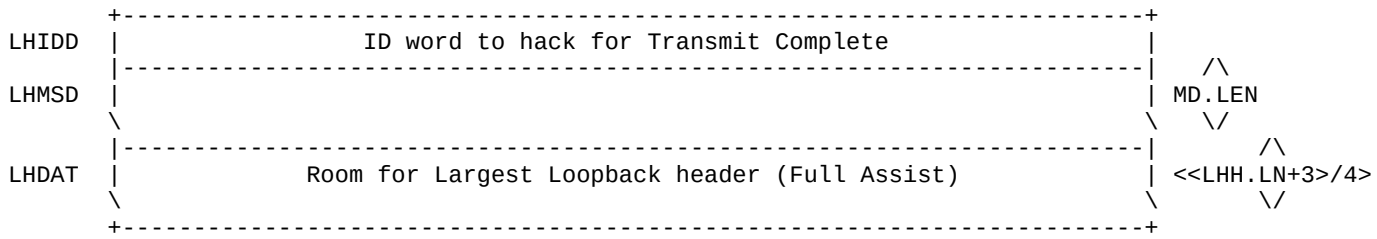
LH

This is the DECnet Loopback LLMOP Header MSD.

Defined in: LLMOP

Format

MSD for header



LI

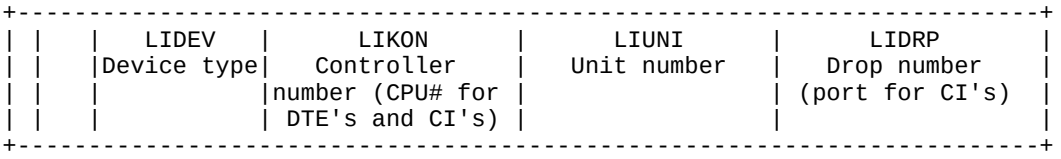
The following is the definition of the Line-ID (LI) that the DECnet router maps into a line block address. This is used:

- On an initial open from the DLL to ROUTER;
- By router to determine any Kontroller specific peculiarities;
- By network management to communicate with ROUTER.

Defined in: D36PAR

Format

Line-ID



Field LILXC (0-0) Bit indicating line ID (1) or circuit ID (0).

LK

LK represents the format of DECnet storage location NSPLKF, which is a bit map of pending NSPLCF requests.

Defined in: LLINKS

Format

BITS IN NSPLKF

For field LKFLG(0-5):

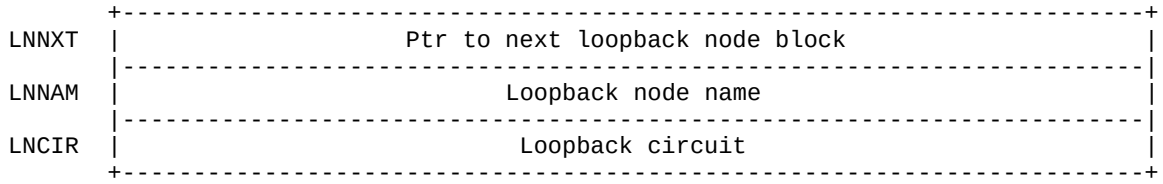
LKJIF	0	Jiffy service, must be sign bit for NSPJIF
LKCGT	1	Congestion-detected service
LKRLV	2	Congestion-relieved service

LN

LN is the definition of the DECnet-36 Loopback Node block. A block is created every time a loopback node is defined for a circuit. The blocks are chained together, and the first block on the chain is pointed to by monitor location SCTLNL.

Defined in: SCLINK

Format



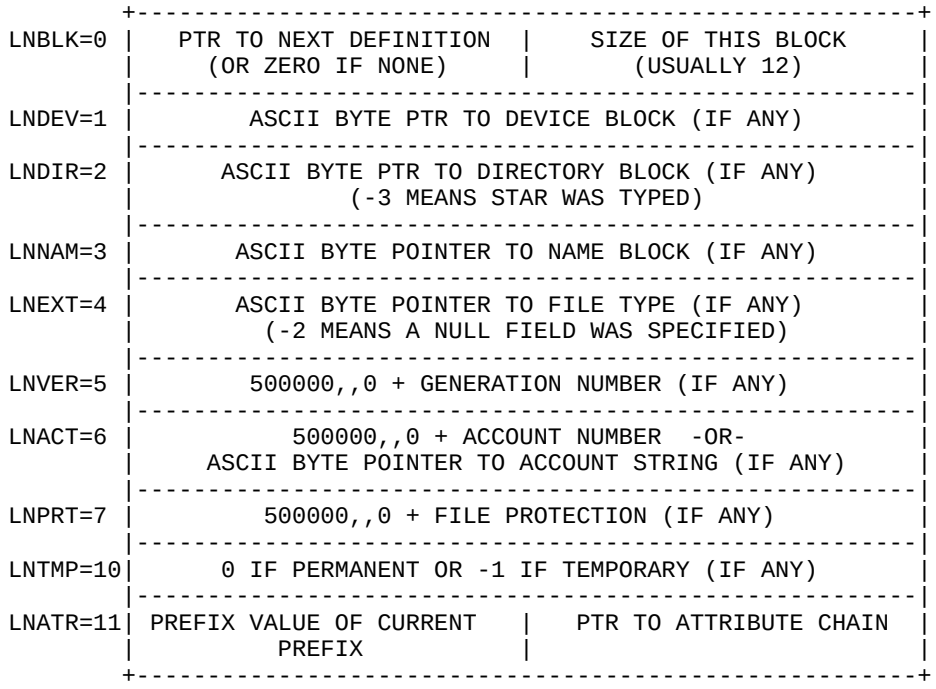
LOGICAL-NAME-DEFINITION

Logical Name Definition Block. The block format given below is used for system and job-wide logical name definitions. The first definition block for a logical name is pointed to by its Logical Name List and is stored in the swappable free space if a system logical name or in the JSB space if a job-wide logical name.

Defined in: LOGNAM

Reference by: LOGNAM

Format



LOGICAL-NAMES-LIST

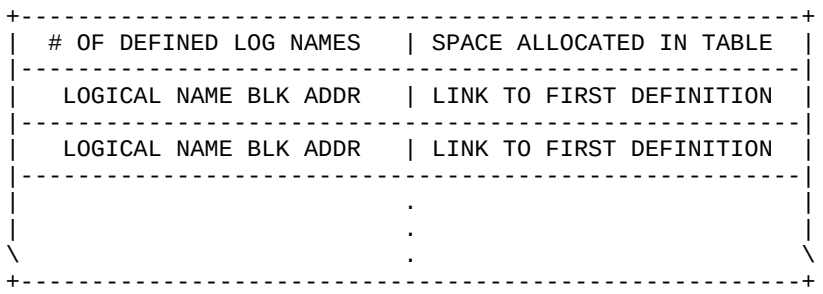
Logical Names List. The list described below is the format used for the system logical names list (pointed to by SYLNTB) and the job wide logical names list (pointed to by the JSB entry, LNTABP.)

The system logical names list is built in the swappable free space from the entries in SYNMTB at system initialization time. (See SWAP-FREE-SPACE and SYNMTB tables). A job's logical names list is built in the JSB space the first time a logical name is created.

An entry in a logical names list has a pointer to the logical name string (in ASCIZ) in the left half and a link to the first definition block in the right half (See LOGICAL-NAME-DEFINITION description).

Defined in: STG

Format

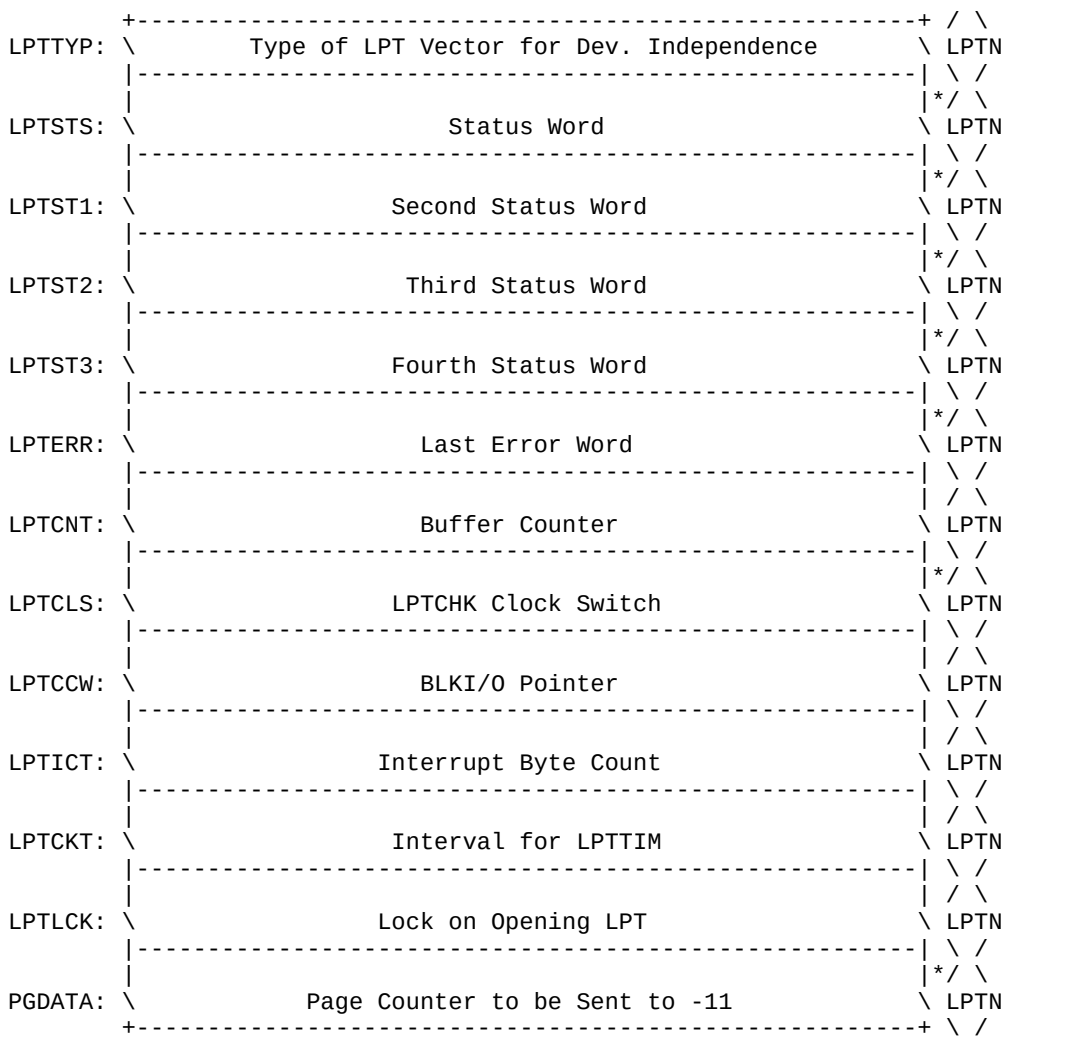


LPT-STORAGE-AREA

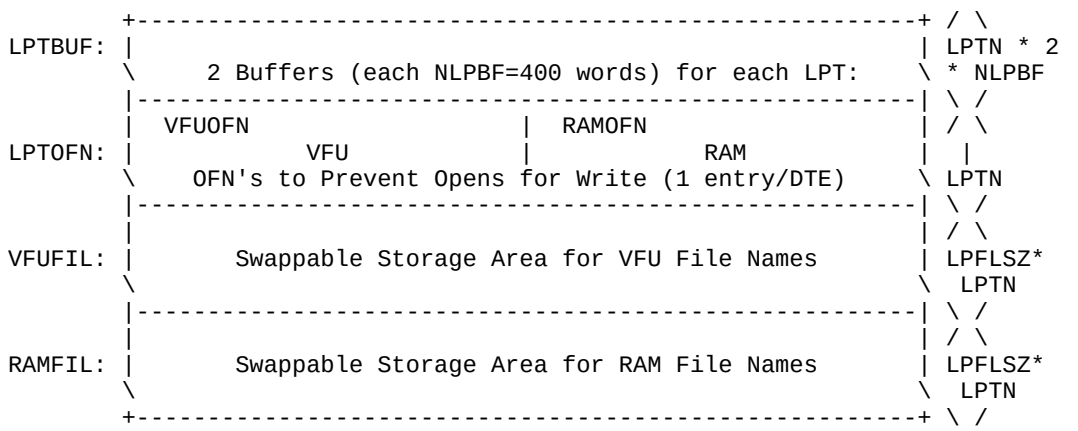
Line Printer Storage Area. Each entry in the resident area is LPTN words long, where LPTN equals the number of line printers on the system.

Defined in: STG

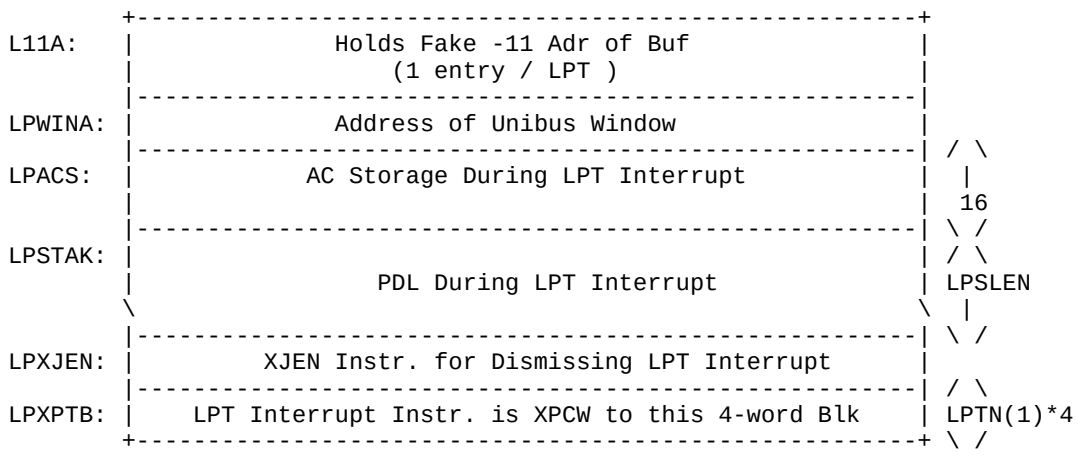
Format



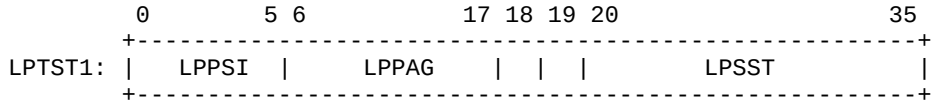
The following LPT: storage items are in the nonresident area of the monitor.



If the assembly flag, SMFLG, is set, indicating a 2020 monitor, then the following additional storage is assembled in the resident area of the monitor:

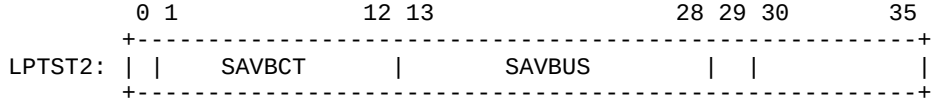


Symbol	Bits	Pointer	Content
LP%FE	0-11	LPTFE	Bytes now in front end
LP%MX	12-23	LPTMX	Max. bytes allowed in front end
LP%LHC	24	LPLHC	Loading has completed flag for RAM/VFU load
LP%HE	25	LPTHE	Hard error on this LPT:
LP%OBF	26	LPOBF	Output is being flushed
LP%MWS	27	LPMWS	MTOPR is waiting for a status to arrive
LP%ER	28	LPTER	LPT had an error
LP%OL	29	LPTOL	LPT on-line
LP%TBL	30	LPTBL	LPT is over allocation
LP%TWT	31	LPTWT	Request on Q.
LP%THN	32	LPTHN	Line printer control failed
LP%OPN	33	LPOPN	LPT is opened
LP%ALI	34	ALTI	Interrupt buffer pointer
LP%ALP	35	ALTP	Buffer Pointer



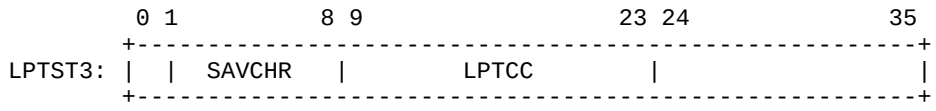
Symbol	Bits	Pointer	Content
LP%PSI	0-5	LPPSI	Channel number on which PSI's are desired
LP%PAG	6-17	LPPAG	Page Counter
LP%LCP	18	LPLCP	Lower case printer
LP%SHA	19	LPSHA	Status has arrived
LP%SST	20-35	LPSST	Software status word Entry as follows:

Symbol	Bits	Content
.DVFFE	28	Device has a fatal, unrecoverable error
.DVFLG	29	Error logging information follows
.DVFEF	30	EOF
.DVFIP	31	I/O in progress
.DVFSE	32	Software condition
.DVFHE	33	Hardware error
.DVFOL	34	Offline
.DVFNX	35	Nonexistent device

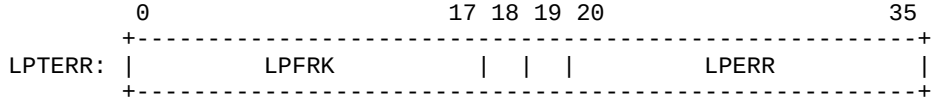


Bits	Pointer	Content
0	ARROWF	Convert control to arrow character
1-12	SAVBCT	Saved byte counter during arrow
13-28	SAVBUS	Saved bus address register
29	LPTLOR	On when loading ram

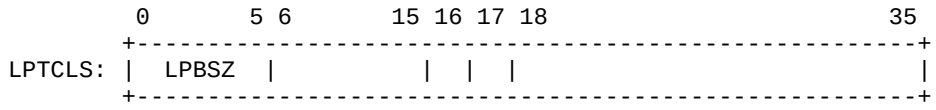
2020 only:



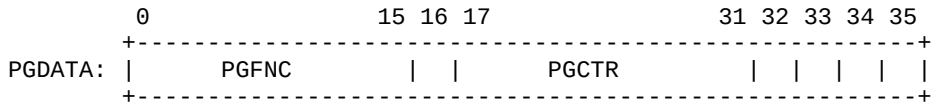
Bits	Pointer	Content
0	LPXBIT	On if printer exists
1-8	SAVCHR	Saved LP buffer character
24-35	LPTCC	Count of characters sent to printer



Symbol	Bits	Pointer	Content
LP%FRK	0-17	LPFRK	Fork ID of owning PSI process
LP%MSG	18	LPMSG	If on, suppress standard messages
LP%PCI	19	LPPCI	Page counter has interrupted
LP%ERR	20-35	LPERR	Last error indication



Symbol	Bits	Pointer	Content
LP%BSZ	0-5	LPBSZ	Byte size of OPENF
LP%RLD	16	LPRLD	Front end was reloaded
LP%NOE	17	LPNOE	Note occurrence of EOF



Symbol	Bits	Pointer	Content
	0-15	PGFNC	Function code: load page counter
	16	PGENB	Enable interrupts
	17-31	PGCTR	Page counter value
LP%IRP	32	LPIRP	Interrupt request pending
LP%RBR	33	LPRBR	RAM or VFU being reloaded
LP%LTR	34	LPLTR	Translation RAM requires reloading
LP%LVF	35	LPLVF	VFU requires reloading

LS

LS is used to extract DECnet link service flags from a register.

Defined in: LLINKS

Format

The LSFLAGS field of a link service message

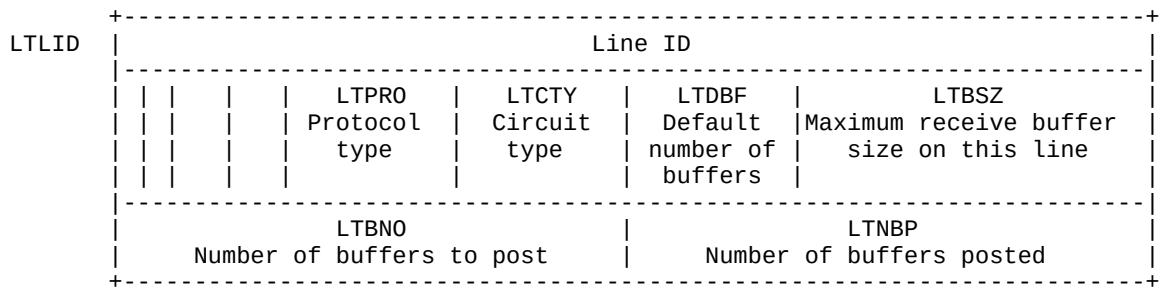
Field	Bits	Interpretation
LSINT	(32-33)	
	LS.INR=0	Normal data request
	LS.IOT=1	Other data request (2 & 3 reserved)
LSMOD	(34-35)	The on/off indicator
	LS.MNC=0	No change, code uses JUMPE
	LS.MOF=1	Turn sublink off (ignored on "other")
	LS.MON=2	Turn sublink on (ignored on "other")
	LS.MRS=3	Reserved

LT

This is the DECnet Line table structure.

Defined in: DNADLL

Format



For field LTFLG(0-1):

LTDVE	0	Driver believes device is present
LTCAD	1	Channel address is DECnet (Ethernet only)

Field LTSTA (2-3) State of line

Field LTCON (4-5) Controller (normal/loopback)

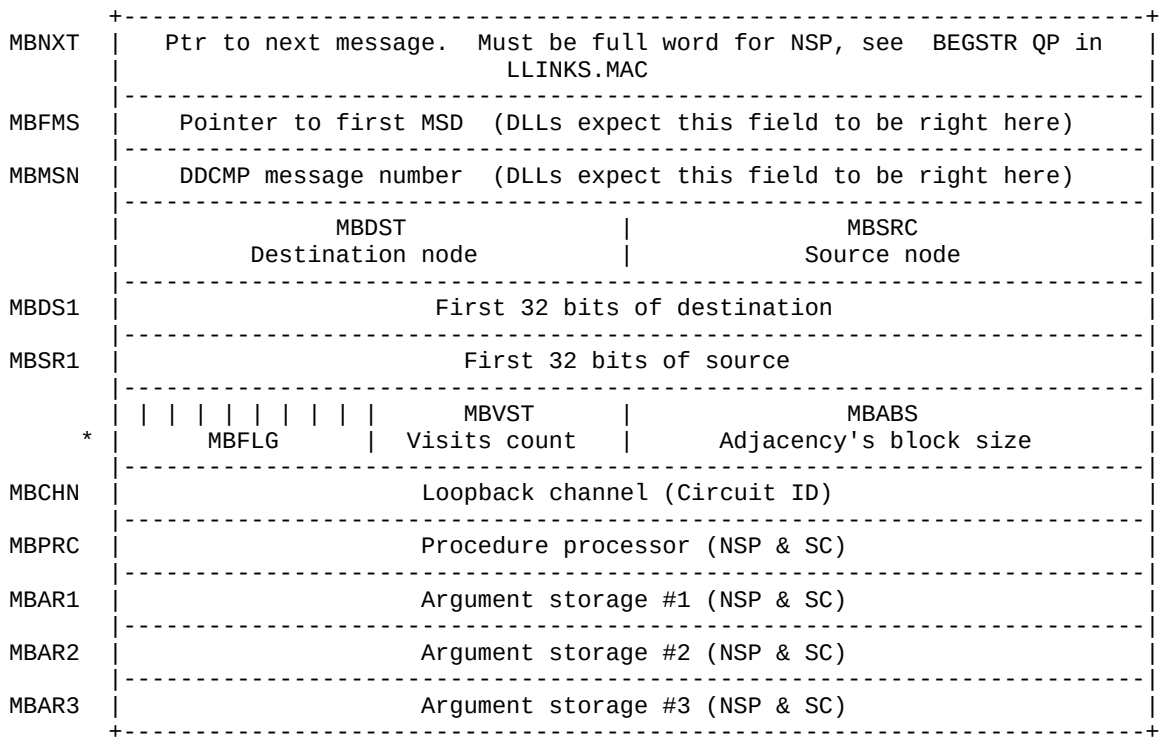
MB

The following is the definition of the DECnet-36 Message Block. This is the fundamental data structure used to represent an individual message. The Message Block is divided up into a public section and several private sections which belong to each of the layers of the DECnet architecture.

Defined in: D36PAR

Format

The Public Section



For field MBFLG(0-8):

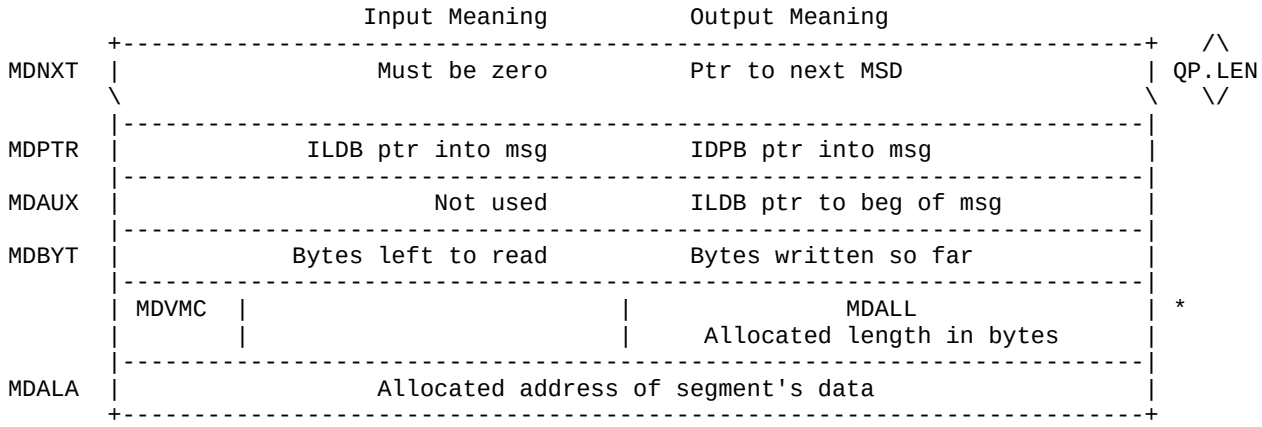
MBOTH	0	On the "other" sublink
MBBOM	1	Beginning of message
MBEOM	2	End of message
MBEBF	3	Message block has been allocated from emergency buffer free list
MBPH2	4	Phase II message
MBDON	5	"Synchronous" interlock done bit (NSP & SC)
MBLCL	6	Bound for the local NSP
MBUNR	7	Unreachable

MD-D36PAR

This is the DECnet-36 Message Segment Descriptor. Every Segment of the message is described by this small block. In the typical case, this descriptor resides in the owner's (the owner being a level of DECnet) portion of the Message Block.

Defined in: D36PAR

Format



Field MDVMC (0-2) Virtual map context

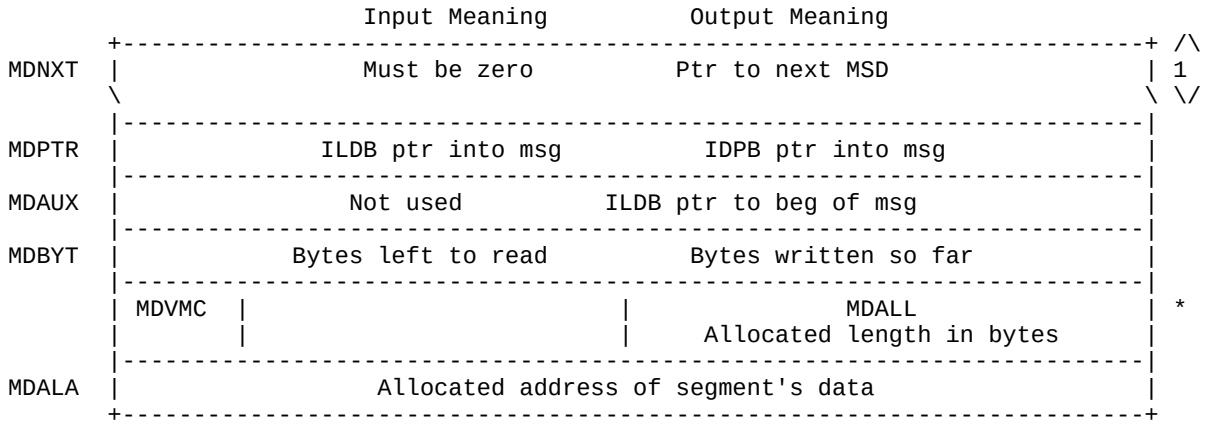
VMC.XC=0 EXEC Context (Map through EPT)
VMC.US=1 USER Context (Map through UPT)
VMC.NO=2 DO NOT Map (Physical Address)

MD-NIPAR

MD is the Network Interconnect (NI) Message Segment Descriptor block.

Defined in: NIPAR

Format



Field MDVMC (0-2) Virtual map context

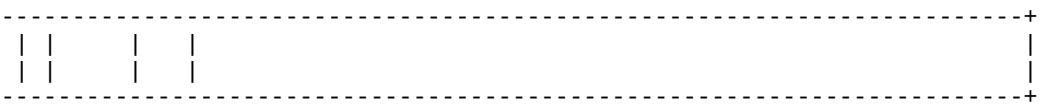
VMC.XC=0 EXEC Context (Map through EPT)
VMC.US=1 USER Context (Map through UPT)
VMC.NO=2 DO NOT Map (Physical Address)

MN

MN represents the format of the DECnet-36 MENUVER field of the connect data. This field specifies what other connect data follows and what version of Session Control is running on the other node.

Defined in: SCPAR

Format



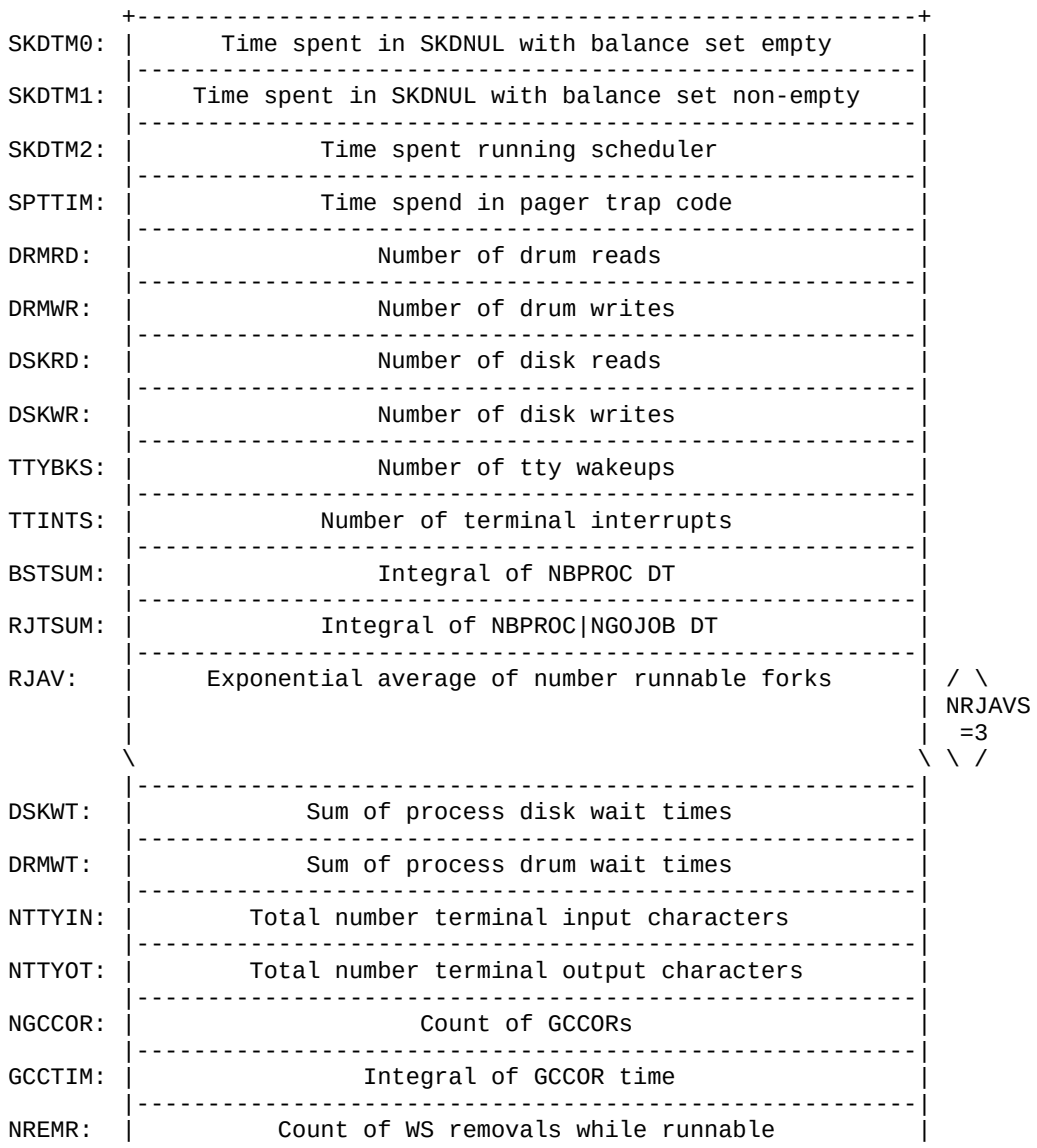
Field	MNRPA	(0-0)	RQSTRID, PASSWRD, account fields are included
Field	MNUSR	(1-1)	USRDATA included
Field	MNRSV	(2-4)	Reserved field
Field	MNVER	(5-6)	Version of session control

MONITOR-STATISTICS

This table is available through GTTAB and is used by WATCH and EXEC.

Defined in: STG

Format



BSWT:	Sum of process wait times
SKDOVH:	Accumulated SCHED overhead time in HP units
SKDIDL:	Accumulated idle time in HP units
SKDSWP:	Accumulated swap-wait time in HP units
USRTIM:	Accumulated user time in milliseconds
HQFSUM:	Integral of NGQFK DT
LQFSUM:	Integral of NLQFK DT
DWRWT:	Sum of process disk write wait
NAJBAL:	Number of forced AJBALS calls
SNRSUM:	Integral of SUMNRN
RPQSUM:	Integral of NRPLQ
HSPTIM:	HP pager trap time
NCSWCH:	Number of context switches
BGNDTM:	Time doing background stuff (TTCH7, ...)
STRPCT:	System total page traps
SRPQSC:	System total "saves" from RPLQ
SGCCWR:	Number writes from GCCOR
NWSSUM:	Integral of number WS in memory
SKDFIL:	Integral of wait time with out swap waits
NWSLOD:	Count of WS loads
NREMJ:	Count of balance set removals while runnable
SXGCWR:	Number writes from XGC
TTWAKN:	Terminal input wakeup count
DSKRVC:	Skip reads count
CIPKSN	CI Packets Sent

CIPKRC	CI Packets Received
SCAOSN	SCA Overhead messages sent
SCAORC	SCA Overhead messages received
MSCSNT	MSCP Driver messages sent
MSCRCV	MSCP Driver messages received
SVSEND	MSCP Server messages sent
SVRECV	MSCP Server messages received
CFSSND	CFS messages sent
CFSRCV	CFS messages received
SCSJSN	SCS% messages sent
SCSJRC	SCS% messages received
CMDQS	CI Command Q usage Q0
	CI Command Q usage Q1
	CI Command Q usage Q2
	CI Command Q usage Q3
IPSND	IP Datagrams sent
IPRCV	IP Datagrams received
DNASND	DECnet Datagrams sent
DNARCV	DECnet Datagrams received
SCSJDS	SCS% Datagrams sent
SCSJDR	SCS% Datagrams received
MSCDRC	MSCP Driver datagrams received
HSCELP	HSCP Error-log datagrams received (PPD byte 5)

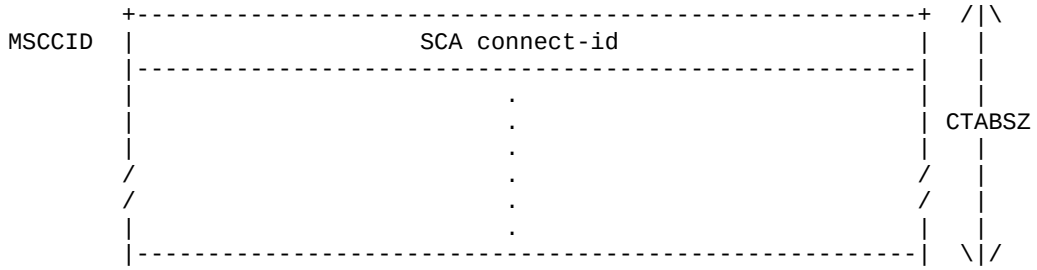
MSCCID

This table keeps track of the current SCA connect id of each MSCP driver connection.

Defined in: PHYMSC

Index: MSCP driver connect id

Format



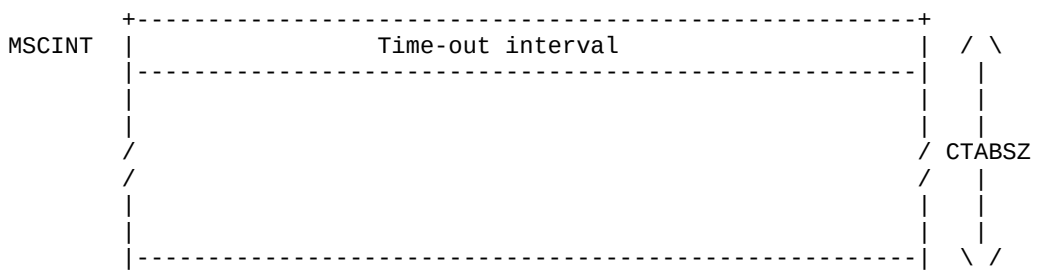
Notes: Zero indicates unused.
-1,,-1 indicates an entry that is no longer connected.
Anything else is a valid connect id.

MSCINT

This table describes the time-out interval to wait for an MSCP driver connect id.

Defined in: PHYMSC

Index: MSCP driver connect id

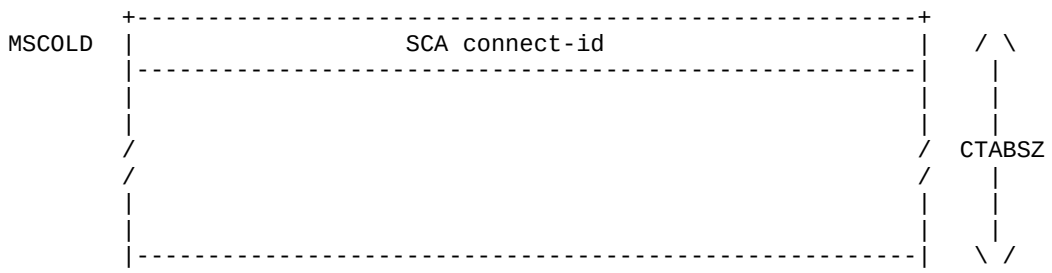


MSCOLD

This table contains old connect id values for driver MSCP and is mainly for recovery purposes.

Defined in: PHYMSC

Index: MSCP driver connect-id

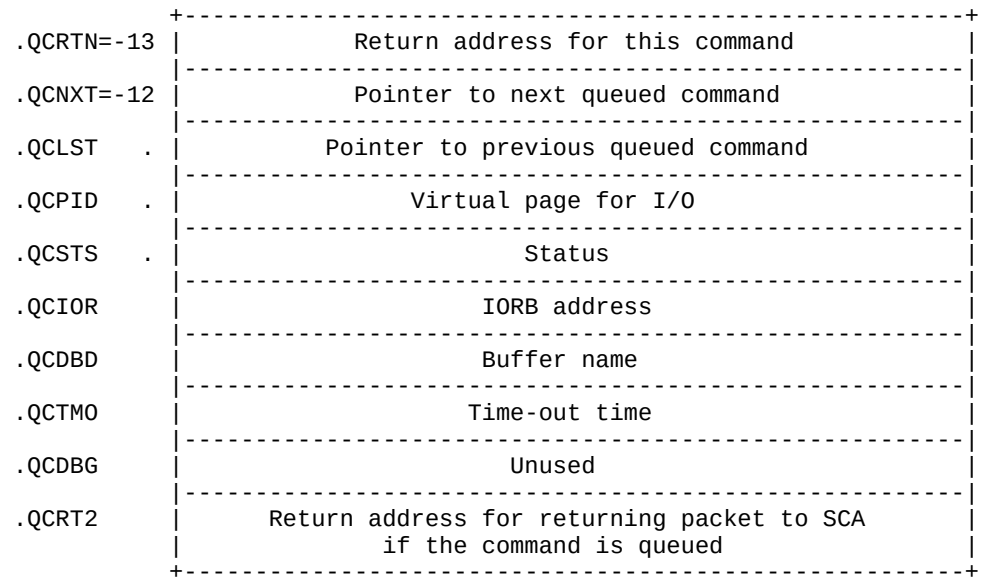


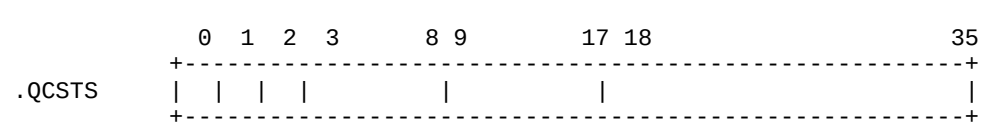
Notes: See MSCCID.

MSCP SERVER COMMAND HEADER

This header resides within the invisible SYSAP area of an SCA message and contains command-specific information for the MSCP server.

Defined in: PHYMVR





Symbol	Bits	Meaning
MS.COQ	0	Command is queued
MS.ABT	1	Command is aborted
MS.CTO	2	Command is timed out

QCSTS	3-8	Command state, which can be:

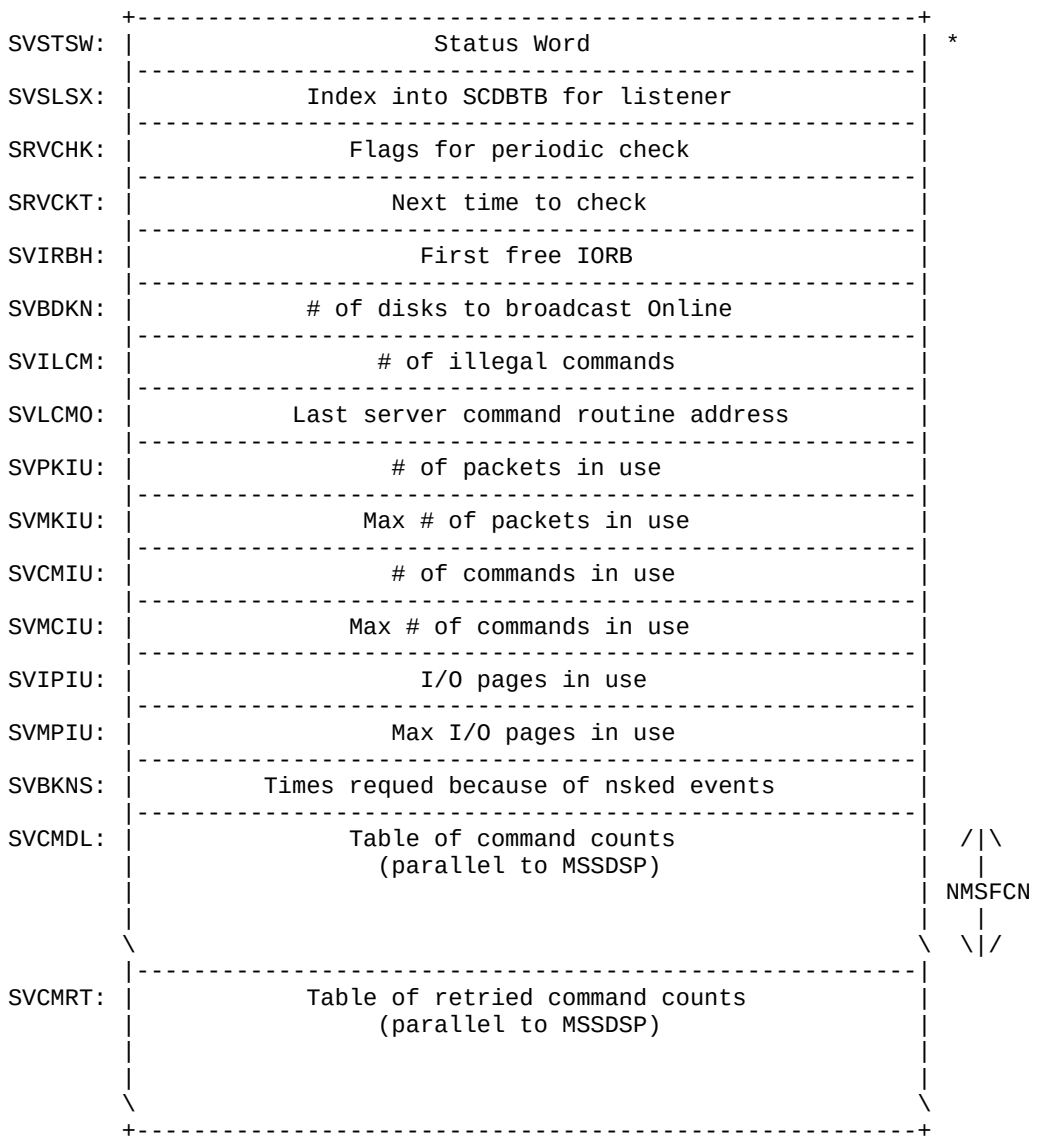
STCMD==0	Treat as incoming command
STWAE==1	Waiting to allocate end
STWSR==2	Waiting to send data (retryable)
STWRR==3	Waiting to request data (retryable)
STWSE==4	Waiting to send end packet (IO only) state
STWSD==5	Wait for send data state
STWRD==6	Wait for receive data state
STIAC==7	IORB active (IO only) state
STWSB==10	Waiting to send buffer (IO only) state
STWRB==11	Waiting to request buffer (IO only) state

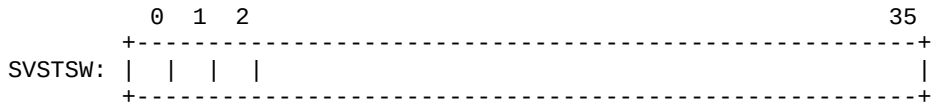
QCCNT	18-35	Timed retry counter

MSCP SERVER STORAGE

This storage contains variables used by the MSCP server module (PHYMVR).

Defined in: STG, PHYMVR





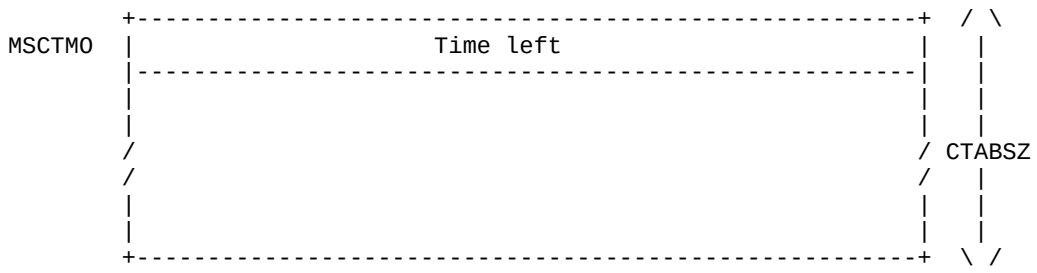
Symbol	Bits	Meaning
SVSINF	0	Server has been initialized
SVSILB	1	Do not issue more MSSCGL BUGINFs
SVSLIS	2	OK to open a listener

MSCTMO

This is the time left to wait for a remote MSCP driver connection.

Defined in: PHYMSC

Index: MSCP driver connect-id

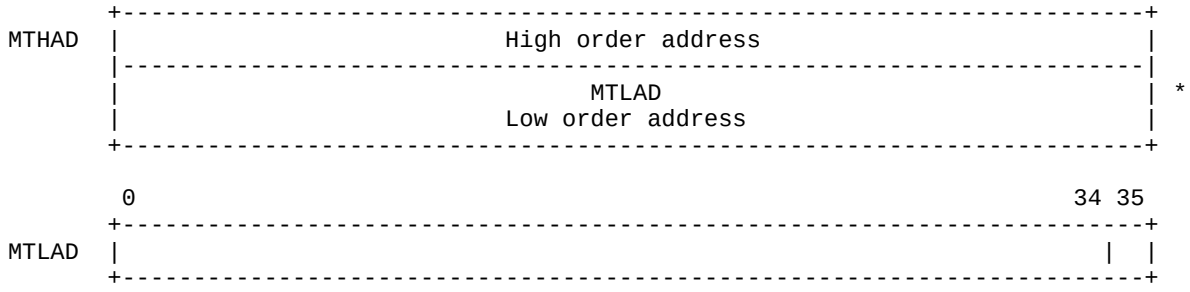


MT

NI Multi-cast address block. There is a block for each Multi-cast address that has been enabled for the NI port. Multi-cast address blocks are allocated at location MCTADR. There are NMTT (16) blocks in the table. The word MTUSE contains the number of NI multi-cast address blocks currently in use. The beginning of the table is pointed to by channel block word PSMTT, that is, PSMTT points to MCTADR.

Defined in: PHYKNI

Format

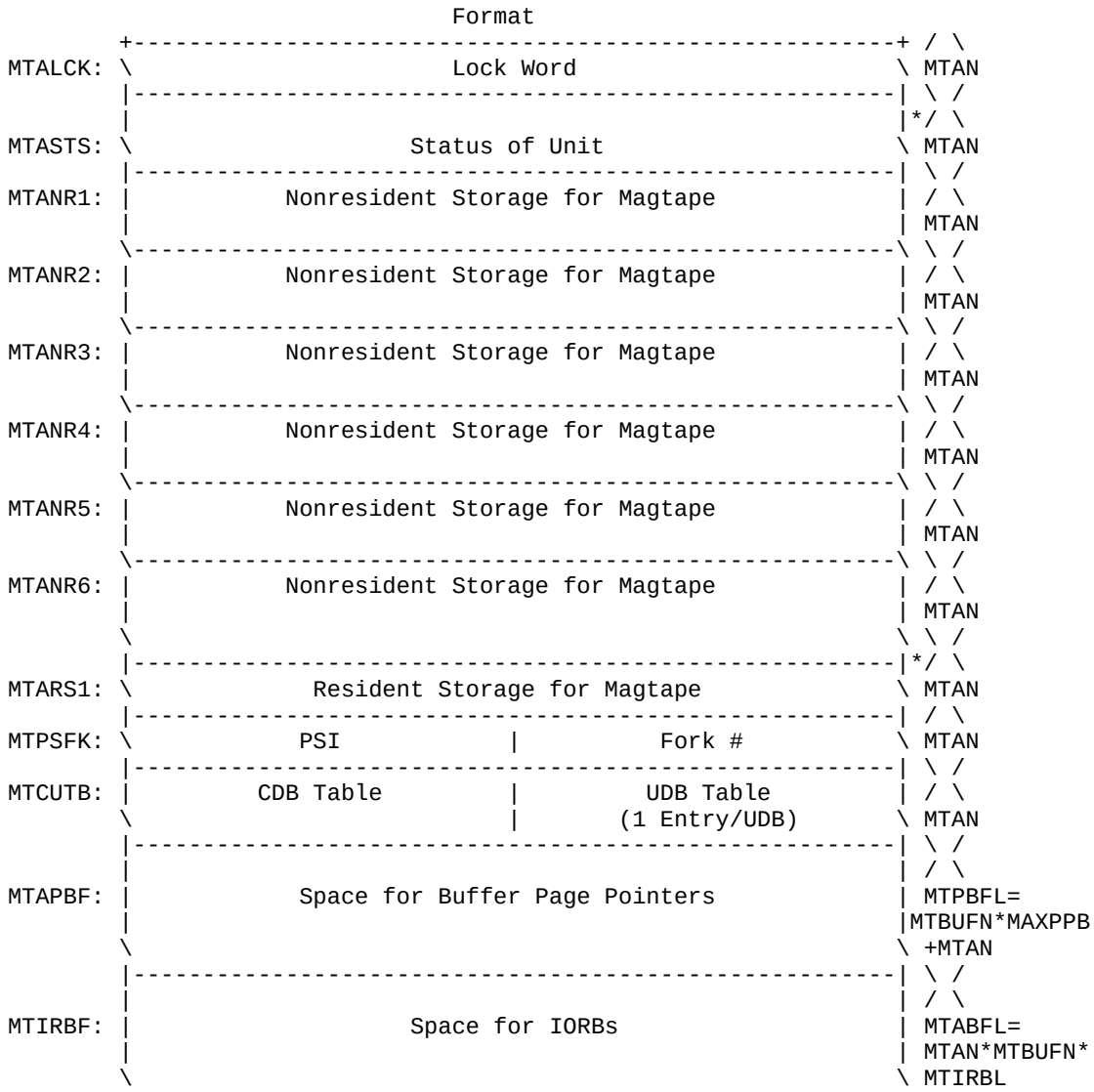


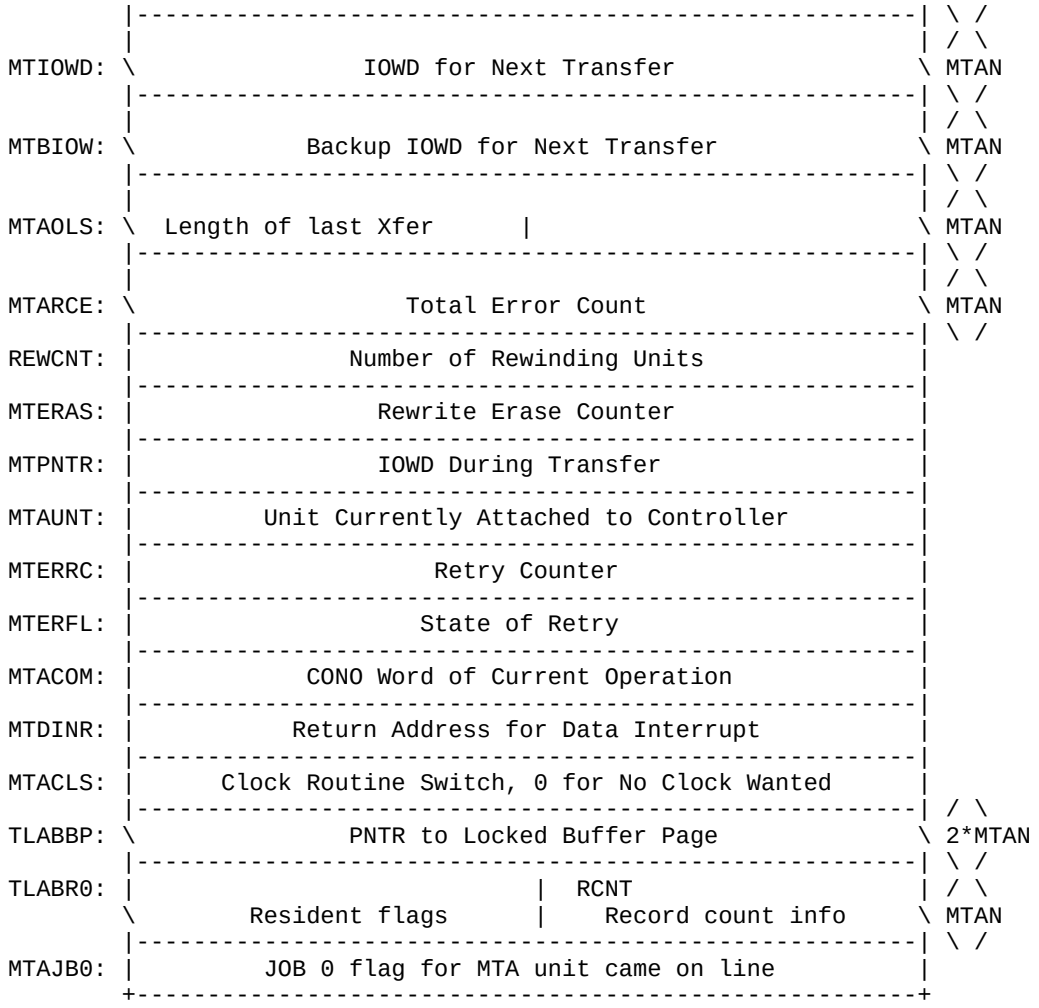
Bit	Symbol	Contents
35	MTENA	Enable bit

MTA-STORAGE-AREA

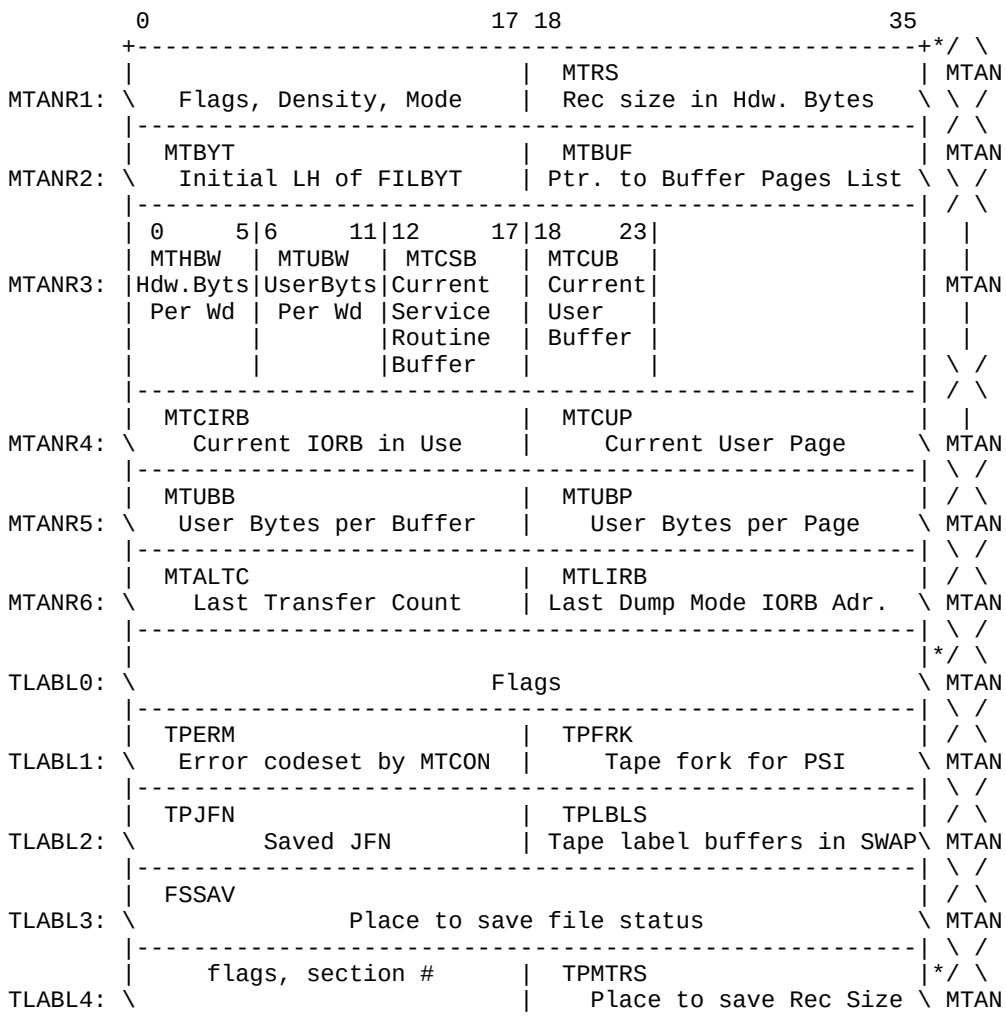
Magtape storage area; each entry (unless otherwise noted) is MTAN words long where MTAN equals the number of magtape units on the system.

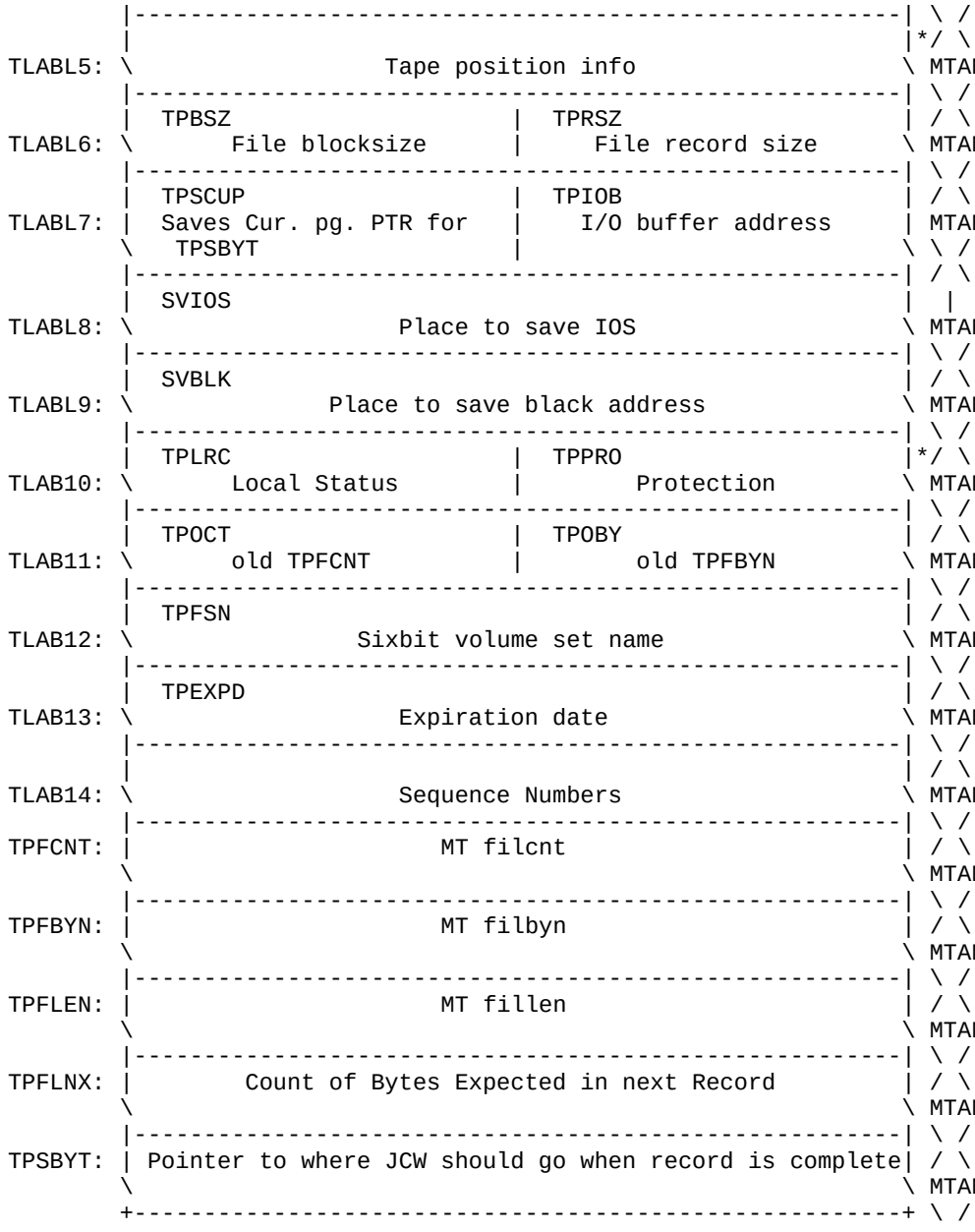
Defined in: STG

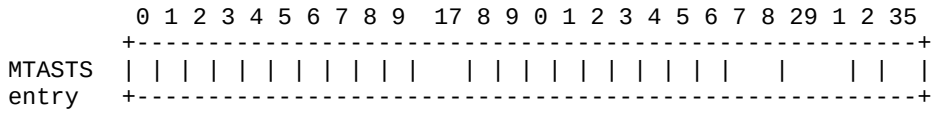



MTIOWD:
IOWD for Next Transfer
MTAN
MTBIOW:
Backup IOWD for Next Transfer
MTAN
MTAOLS:
Length of last Xfer
MTAN
MTARCE:
Total Error Count
MTAN
REWCNT:
Number of Rewinding Units
MTERAS:
Rewrite Erase Counter
MTPNTR:
IOWD During Transfer
MTAUNT:
Unit Currently Attached to Controller
MTERRC:
Retry Counter
MTERFL:
State of Retry
MTACOM:
CONO Word of Current Operation
MTDINR:
Return Address for Data Interrupt
MTACLS:
Clock Routine Switch, 0 for No Clock Wanted
TLABBP:
PNTR to Locked Buffer Page
2*MTAN
TLABR0:
RCNT
Resident flags
Record count info
MTAN
MTAJB0:
JOB 0 flag for MTA unit came on line

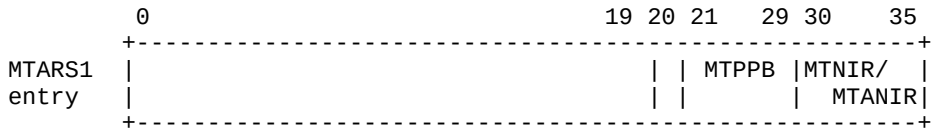
The following MTA storage items are in the nonresident area of the monitor and each item is MTAN words long.



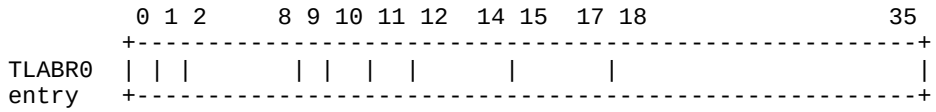

TLABL5:
Tape position info
MTAN
TPBSZ
TPRSZ
TLABL6:
File blocksize
File record size
MTAN
TPSCUP
TPIOB
TLABL7:
Saves Cur. pg. PTR for
I/O buffer address
MTAN
TPSBYT
SVIOS
TLABL8:
Place to save IOS
MTAN
SVBLK
TLABL9:
Place to save black address
MTAN
TPLRC
TPPRO
TLAB10:
Local Status
Protection
MTAN
TPOCT
TPOBY
TLAB11:
old TPFCNT
old TPFBYN
MTAN
TPFSN
TLAB12:
Sixbit volume set name
MTAN
TPEXPD
TLAB13:
Expiration date
MTAN
TLAB14:
Sequence Numbers
MTAN
TPFCNT:
MT filcnt
MTAN
TPFBYN:
MT filbyn
MTAN
TPFLEN:
MT fillen
MTAN
TPFLNX:
Count of Bytes Expected in next Record
MTAN
TPSBYT:
Pointer to where JCW should go when record is complete
MTAN



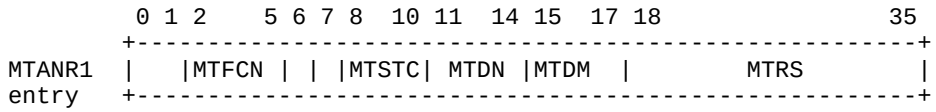
Symbol	Bits	Content
OPN	0	Unit has been opened
OPND	2	Unit has been opened for dum mode
DMPWT	3	Waiting for a dump mode operation to finish
LTERR	4	Error Occurred on last dump mode operation
BUFA	5	Buffers have been assigned
CLOF	6	CLOSF in progress
MTOWT	7	MTOPR in progress
MTIELW	8	Inhibit error logging
MTNOWT	9	Do not set MTOWT
MT%ILW	18	Write lock
MT%DVE	19	Hardware device error
MT%DAE	20	Data error
MT%SER	21	No error retry
MT%EOF	22	EOF
MT%IRL	23	Illegal record length
MT%BOT	24	Beginning of tape
MT%EOT	25	Physical end of tape
MT%EVP	26	Even Parity
MT%DEN	27-28	Density (0 is normal) .MTLOD=1 Low Density (200 BPI) .MTMED=2 Medium Density (556 BPI) .MTHID=3 High Density (800 BPI)
MT%CCT	29-31	Character Counter
MT%NSH	32	Mode or density not supported by hardware



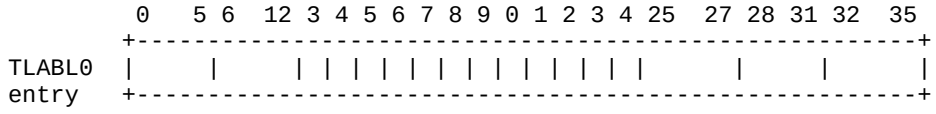
Bits	Pointer	Content
20	ABORTF	An error occurred and IORBs aborted
21-29	MTPPB	Number of pages per buffer
30-35	MTNIR	Number of IORBs queued
30-35	MTANIR	Absolute version of MTNIR



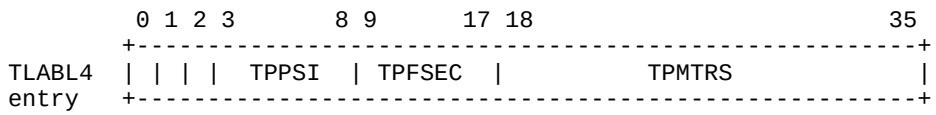
Bits	Pointer	Content
0	TPVV	Volume valid flag
1	TPNVV	Tape not valid
2-8	TPUNIT	Actual mta unit
9	SNEOT	EOT seen while writing labels
11	TPEDB	EBCDIC Volume
12-14	TPMTDM	Place to save data mode
15-17	TPMHBW	Place to save bytes/wd
18-35	RCNT	Record count info



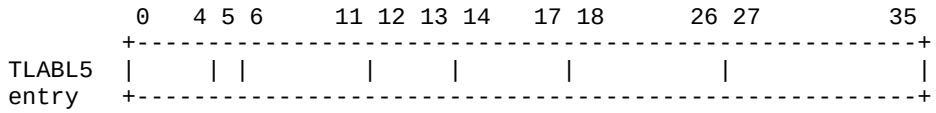
Bits	Pointer	Content
0-1	MTNTM	Count of EOFs written
2-5	MTFCN	Last function performed
6	MTPAR	Parity
7	MTRBF	Reading backwards flag
8-10	MTSTC	CLOSF function counter
11-14	MTDN	Density
15-17	MTDM	Data mode
18-35	MTRS	Record size in hardware bytes



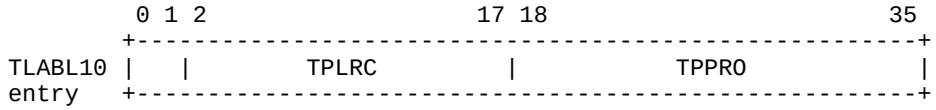
Bits	Pointer	Content
0-5	TPSTAT	State code
6-12	TPLPCS	Label processing code
13	TPBEGF	Set if beginning of spanned record
14	TPNBL	New block read
15	TPUED	Use EBCDIC data if set
16	TPFVM	If set, first volume is mounted
17	TPLCT	User label count
18	HDR1	HDR1 data valid
19	HDR2	HDR2 data valid
20	RCCHK	Record count check error (TLRCHK)
21	TPEOF	EOF 1/2 seen in TLRCHK (also EOV)
22	TPT20	TOPS-20 volume
23	UVLD	UVLD data valid
24	TPLBD	Unlabeled/labeled operation
25-27	TPDNS	MTA density - declared by MTCON
28-31	TPNUL	# of user labels written



Bits	Pointer	Content
0	TPEUT	End of user labels encountered
1	TPAPP	Open for append
2	TPDPN	MT opened
3-8	TPPSI	Tape PSI for EOV
9-17	TPFSEC	File section number
18-35	TPMTRS	Place to save record size



Bits	Pointer	Content
5	TPDVS	Defer volume switch if set
6-11	TPFRMT	Record format type code
12-13	TPMOD	Tape mode
14-17	TPRVN	Relative volume number
18-26	FSEQ	Tape file position (seq. #)
27-35	USRSEQ	User requested seq. #



Bits	Pointer	Content
0-1	TPXLB	Extra label count
2-17	TPLRC	Count of last read record
0-17	TPGDS	Local status
18-35	TPPRO	Save protection here

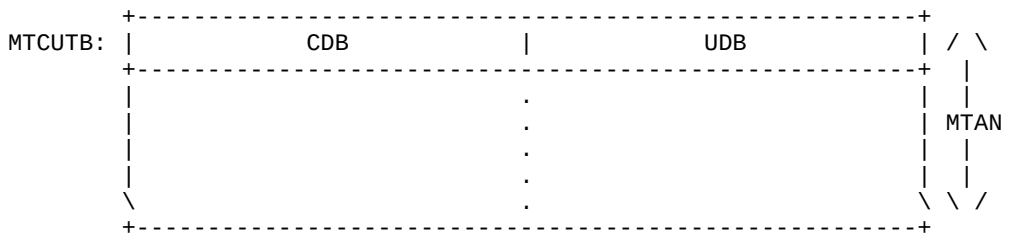
MTCUTB

This table contains the address of the CDB and the UDB for each tape drive on the system or the entry contains a zero if the drive does not exist.

Defined in: STG

Index: Tape drive number

Format

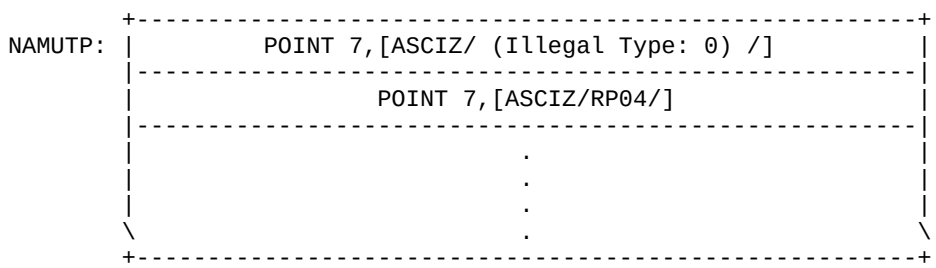


NAMUTP

Name Unit Type Pointers. This table contains pointers to unit type names for disks (RP06, RM03, ...) and magtapes (TU45, TU77, ...).

Defined in: PHYSIO

Format

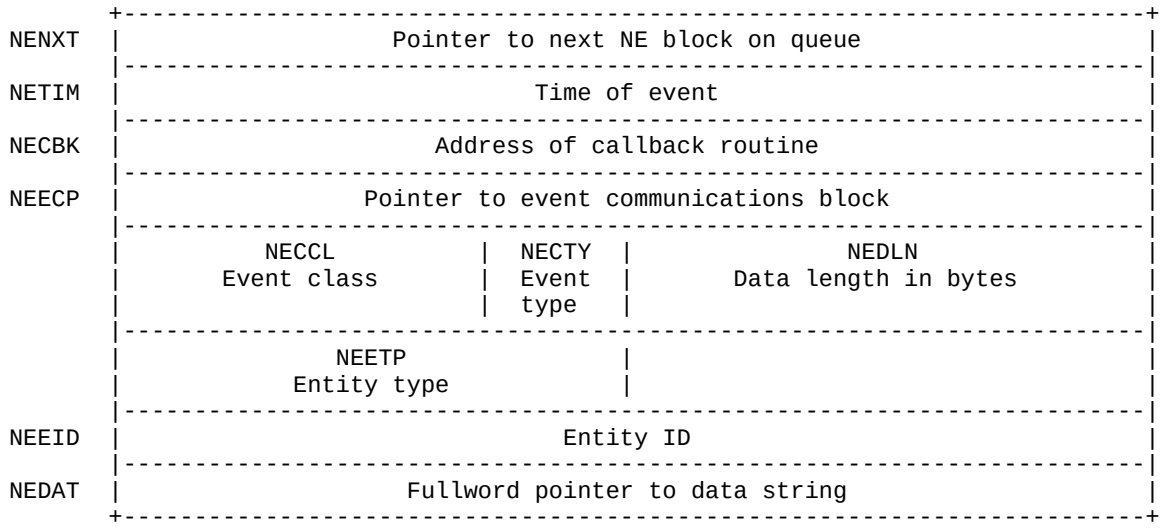


NE

This is the DECnet network event block. An NE block contains all information about an event.

Defined in: D36PAR

Format

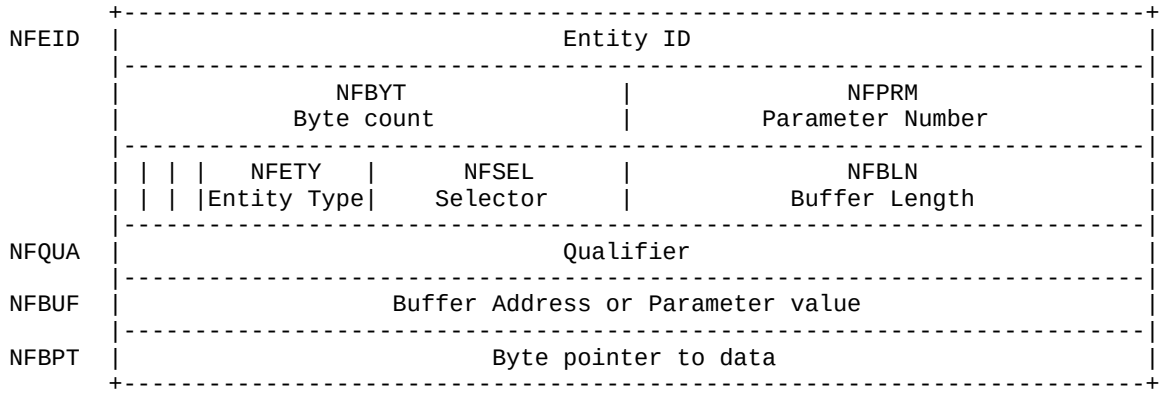


NF

This is the DECnet NMX Interface Function Argument Block, whose purpose is to implement a standard calling interface between Network Management (NTMAN) and the DECnet Layers.

Defined in: D36PAR

Format



Field NFBFF (0-0) Buffer Flag

Field NFUBF (1-1) User Buffer passed (for return KNOWN NODES)

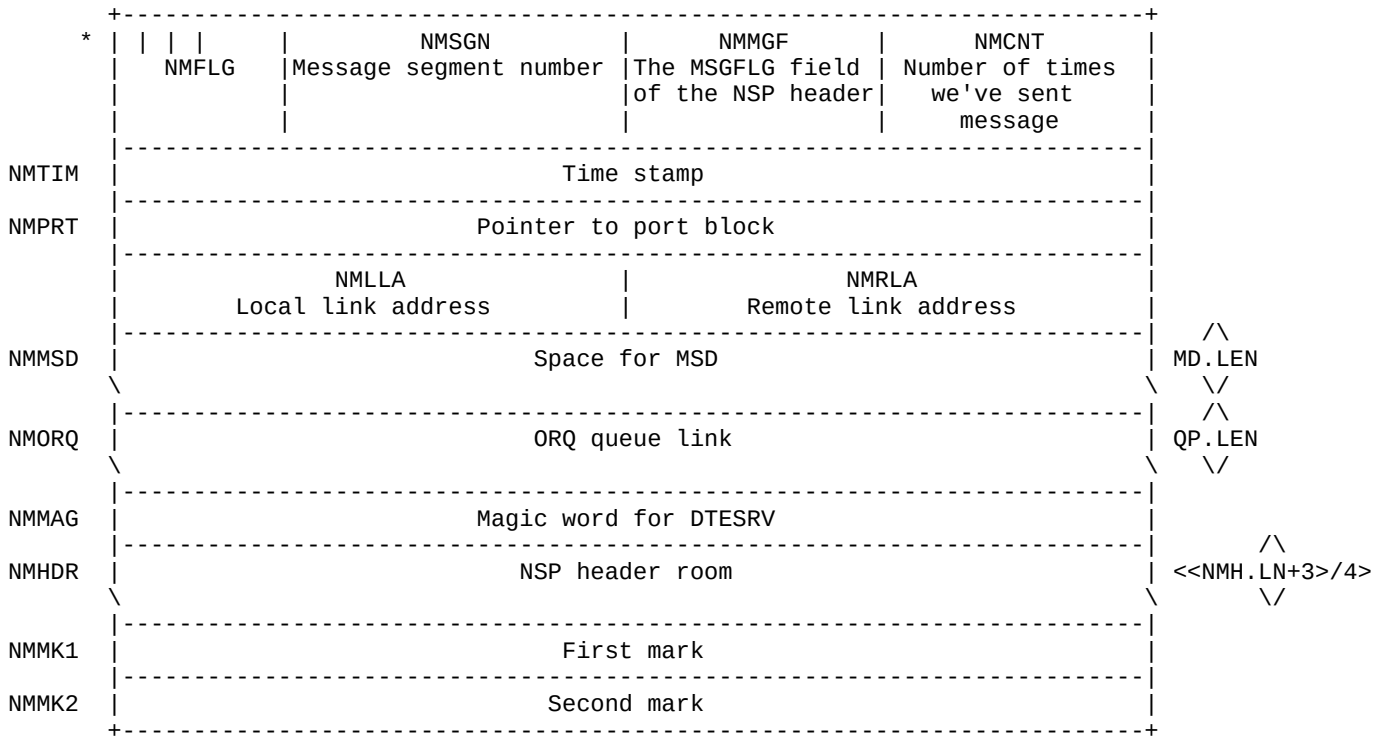
Field NFQUF (2-2) Qualifier Flag

NM

This is the Network Services Section of a DECnet message.

Defined in: D36PAR

Format



For field NMFLG(0-5):

NMACK	0	Needs to be ACKed
NMRET	1	Return msg to SC
NMDLY	2	ACK delay allowed

NN

The DECnet node block contains all the information LLINKS has to know about a node. There is a node block for all nodes that we have active links to. The node block is created when someone tries to connect to a node that does not yet have a node block associated with it.

When the number of active links goes to zero, the node block is subject to possible deletion. If the number of node blocks is larger than NNDMAX, then the now unused node block is deleted after its counters are logged with a 3.2 (database reused) event.

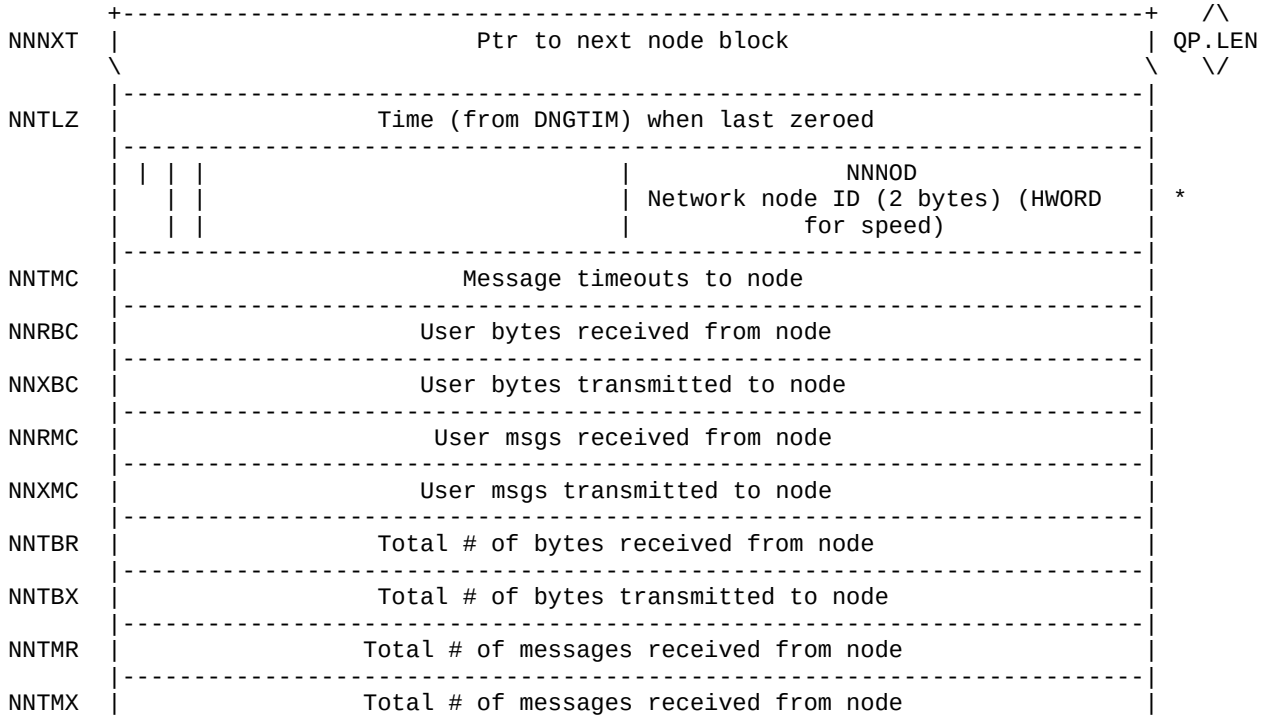
The list of node blocks is pointed to by the queue header NMXNDQ.

Note that many counters are full words, even though they only have to be 16 bits wide. This is so the OPSTR logic generates a single read-modify-write instruction when updating them and spares us the worry of interlocking this data base.

Defined in: LLINKS

Format

NETWORK NODE BLOCK



NNRCC	Connect inits received from node
NNXCC	Connect inits transmitted to node
NNRRC	Rejects received from node
NNXRC	Rejects transmitted to node
NNLKC	Current active links to node
NNLKM	Max active links to node
NNCRC	Connect resource errors received
NNDLY	Estimated round-trip delay (msecs)
NNSLZ	Seconds since last zeroed (time stamp)
NNPSZ	Pipe size (= 3 * last message's visit count)

For field NNFLG(0-1):

NNGDL	0	Set if we've "got delay", see UPDELAY

Field NNMSG	(2-2)	Set if we've sent a 'link broken' message for this node

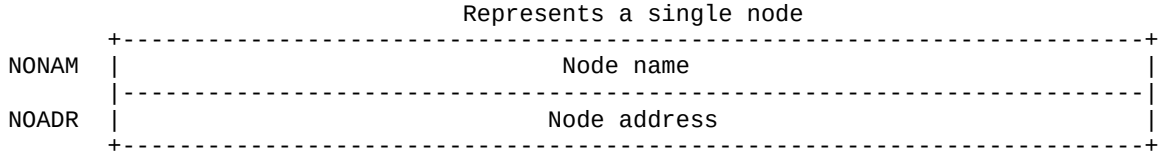
NO-SCLINK

The NO defines a single node in a bucket in the DECnet-36 node name/number data base.

Defined in: SCLINK

Format

Represents a single node

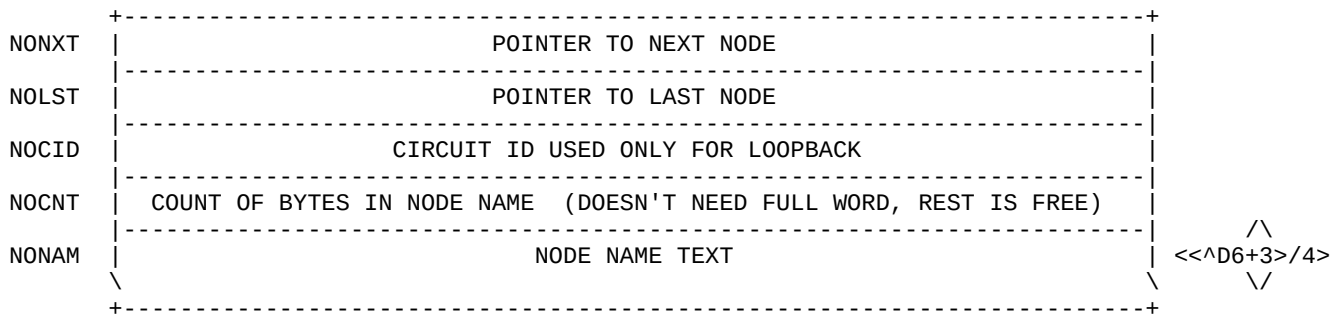


NO-SCPAR

There is one node name block for each node. Node name blocks are kept on doubly linked lists, with the head of each list in a vector MAX-NODES long.

Defined in: SCPAR

Format

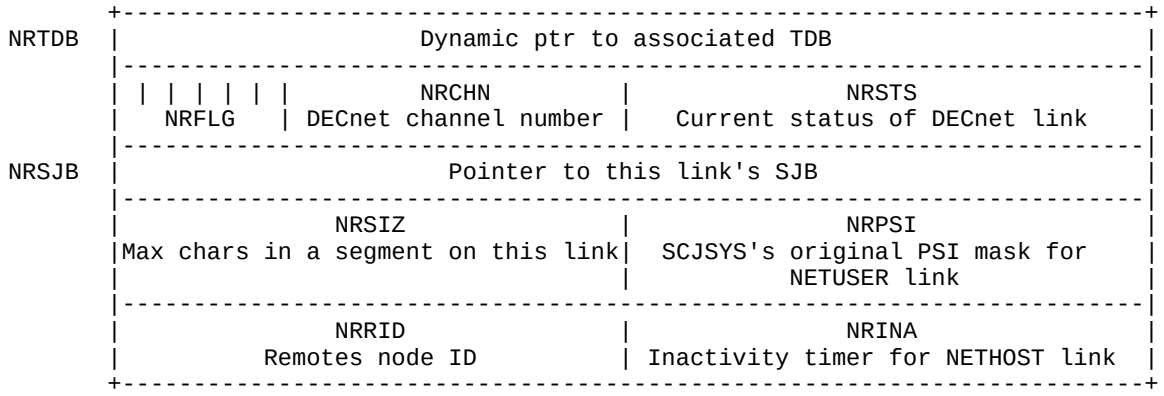


NR

The NR is the NRT (Network Remote Terminal) Data Block (also referred to as the NRB). One block is allocated for each active link to hold data associating the DECnet link with a terminal data block (TDB).

Defined in: NRTSRV

Format



For field NRFLG(0-5):

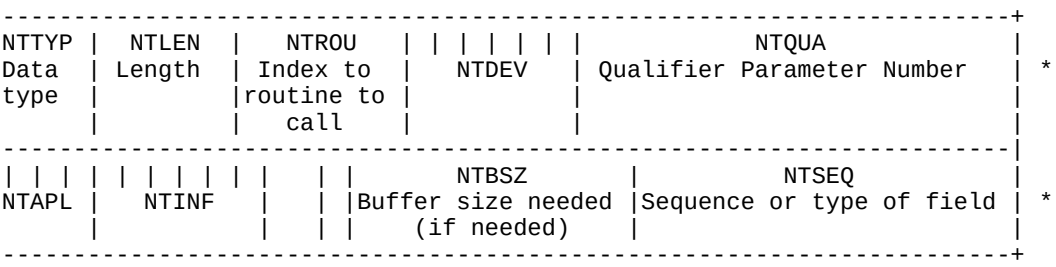
NRCFG	0	Set if config msg has been sent
NRREL	1	This NRB is being released
NRUSR	2	0=Nethost link, 1=User netlink
NRTRN	3	This NRB is in transition
NRDEA	4	Deallocate TDB

NT

The NT structure defines the format of the data blocks that are used to store the characteristics, counters, and states associated with the network management entities; these entities are nodes, circuits, lines, and modules. The blocks are also passed between the various layers of DECnet for the purpose of setting and reading parameters, and reading counters.

Defined in: NTMAN

Format



For field NTTYP(0-4):

NT.FC	1	Coded format
NT.FCM	2	Coded multiple (this means special casing)
NT.FAI	3	ASCII image (8-bit)
NT.FDU	4	Decimal, unsigned. Cannot be zero.
NT.FDS	5	Decimal, signed
NT.FH	6	Hex integer
NT.FHI	7	Hex image
NT.FOC	8	Octal
NT.FDM	9	Internal data type only. Decimal, milliseconds.
NT.FVN	10	Internal data type only. Version number.
NT.FNE	11	Internal data type only. Node entity ID.
NT.FNN	12	Internal data type only. ASCII node name
NT.FCN	13	Internal data type only. ASCII circuit name

For field NTDEV(15-20):

NTD.R	15	DMR-11
NTD.N	16	Ethernet (KLNI)
NTD.C	17	Computer Interconnect (KLPI)
NTD.P	18	DDP
NTD.K	19	KDP
NTD.D	20	DTE-20 (UGH)

For field NTAPL(0-3):

NTA.E	0	Executor
NTA.L	1	Loop nodes
NTA.R	2	Remote nodes
NTA.H	3	Home area nodes only

For field NTINF(4-9):

NTI.C	4	Characteristics (listed in spec as 'C')
NTI.S	5	Status (listed in spec as 'S')
NTI.%	6	Summary (listed in spec as '*')
NTI.K	7	Circuit State
NTI.Q	8	This parameter is qualified
NTI.N	9	None. noop bit, not necessary

Field NTSET (10-11) Settability restrictions

NTS.	0	0 means read and write
NTS.R	1	Read only parameter
NTS.W	2	Write only parameter

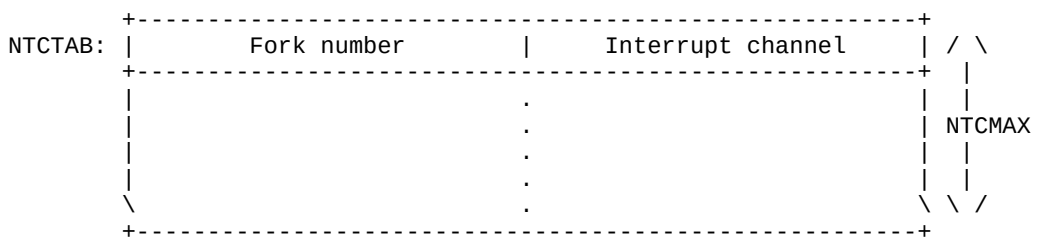
Field NTBUF (12-12) Buffer Field

NTCTAB

Network topology change fork table. This is the table used to notify user processes of topology changes on the network.

Defined in: STG

Format

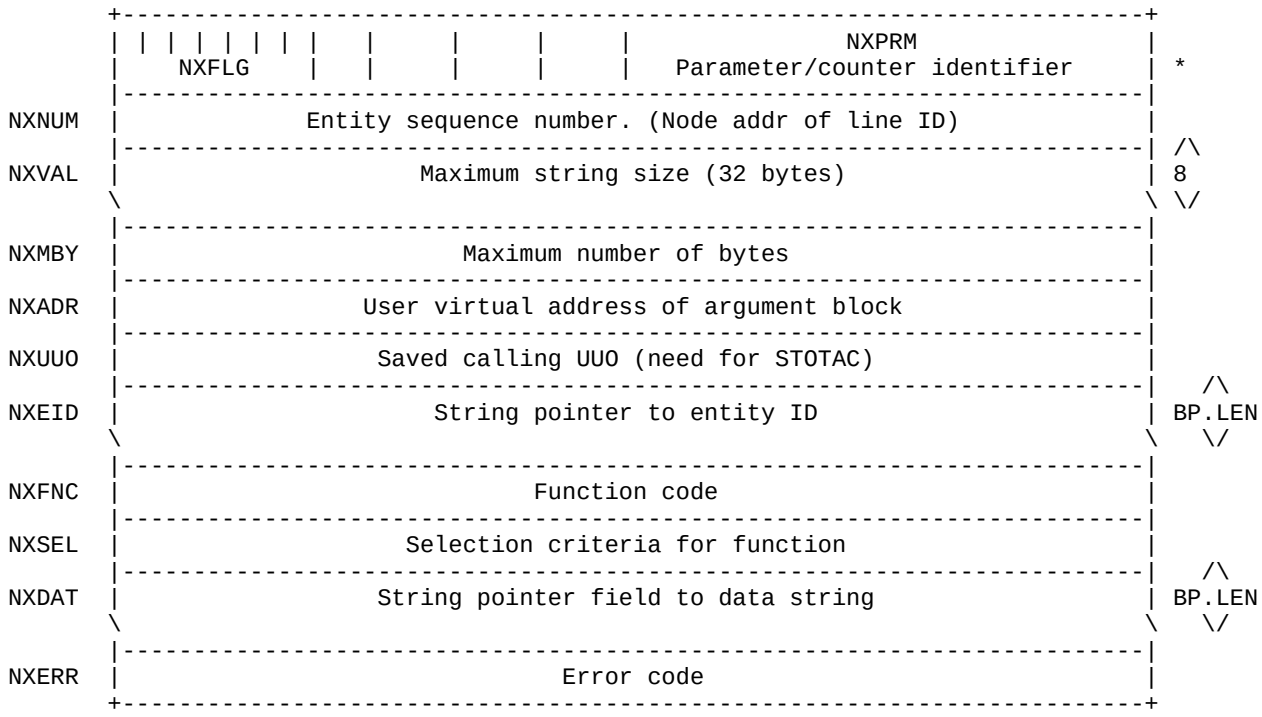


NX

NX is block of "globals" used by DECnet NMX.

Defined in: D36PAR

Format



For field NXFLG(0-6):

NXWRM	0	Writing monitor's data base. 1=writing
NXWUS	1	Writing user's data string. 1=writing
NXZMC	2	Zeroing or clearing monitor core
NXCXP	3	Counter=1 or parameter=0
NXNIL	4	Not in layer. (I didn't bit)
NXECV	5	Do entity conversion
NXMCX	6	Buffer is in monitor context

Field NXNTY (9-11) Node type, if node

XP NX.EXN	1	Executor node
XP NX.REN	2	Remote node
XP NX.LPN	3	Loopback node

Field NXLTY (12-14) Line type

XP	NX.TST	0	Test bed driver (obsolete)
XP	NX.DTE	1	DTE
XP	NX.KDP	2	KDP
XP	NX.DDP	3	DDP
XP	NX.CIP	4	CI PORT
XP	NX.NI	5	ETHERNET
XP	NX.DMR	6	DMR

Field NXENT (15-17) Entity type

OA

Argument block used by DECnet Session Control and NSP. The OPEN call's argument block.

Defined in: D36PAR

Format

OPEN Argument Block

OASCB	SCB ID for new port
OANOD	Destination node
OAFLO	Flow control type
OAGOL	Data request goal
OASIZ	Max bytes allowed in a message segment
OASCV	Session control's entry address
OACIR	Loopback circuit

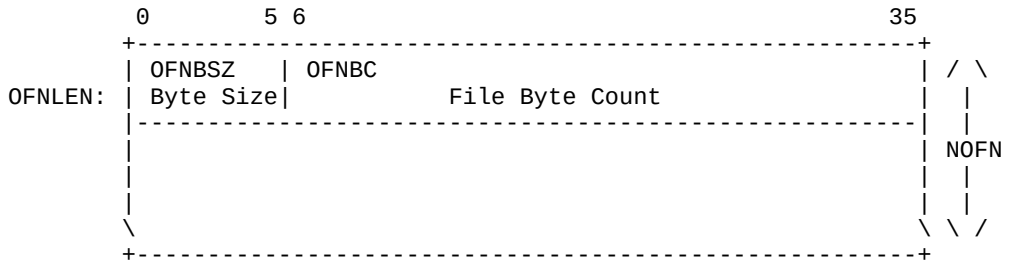
OFNLEN

Open File Length Table. This resident table contains the current file byte size and file byte count for each open file. It is parallel to the OFN areas of the SPT and SPTH tables.

Defined in: STG

Index: OFN number

Format

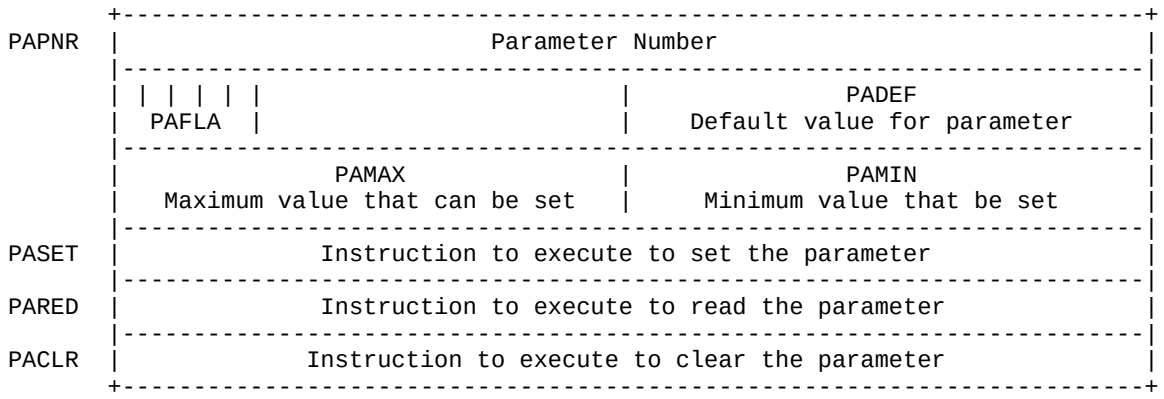


PA

The PA structure is used to keep the information for a DECnet network management parameter. It is pointed to by a table, generated with the PARAMETER macro. This structure is read by the routine NTPARM in D36COM.

Defined in: D36PAR

Format



For field PAFLA(0-4):

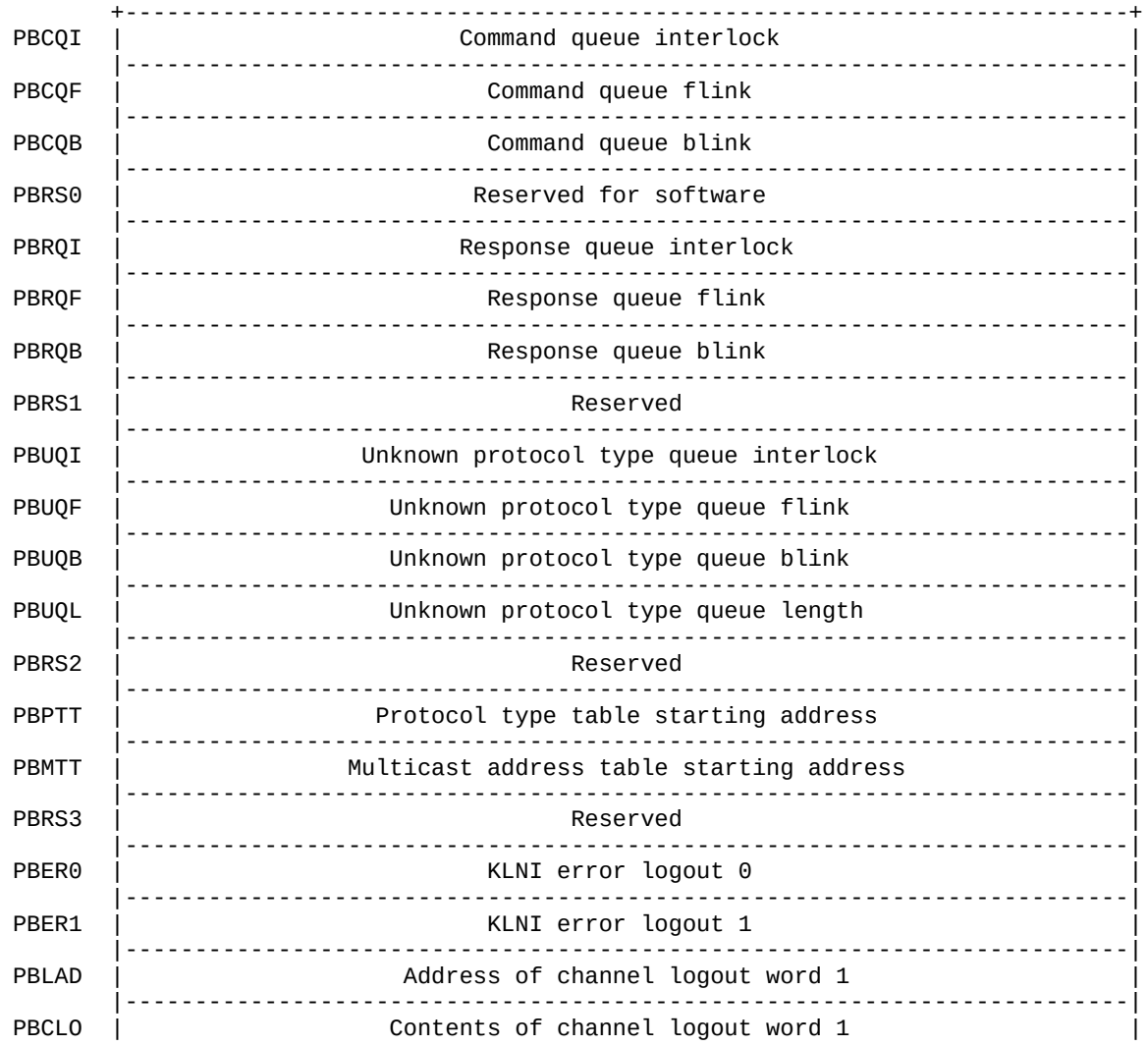
PANST	0	Cannot set this parameter
PANCL	1	Cannot clear this parameter
PANRD	2	Cannot read this parameter (Write only memory)
PABEX	3	Buffer from NTMAN expected
PADRC	4	Don't range check "set" value

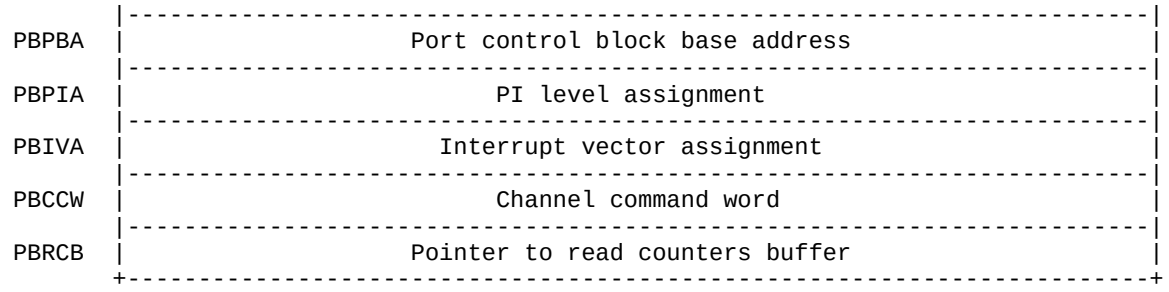
PB-PHYKNI

This is the NI Port Block data structure. The port block is used by both the monitor and the NI microcode to transfer and store control and status information.

Defined in: PHYKNI

Format




PBPBA
Port control block base address
PBPIA
PI level assignment
PBIVA
Interrupt vector assignment
PBCCW
Channel command word
PBRCB
Pointer to read counters buffer

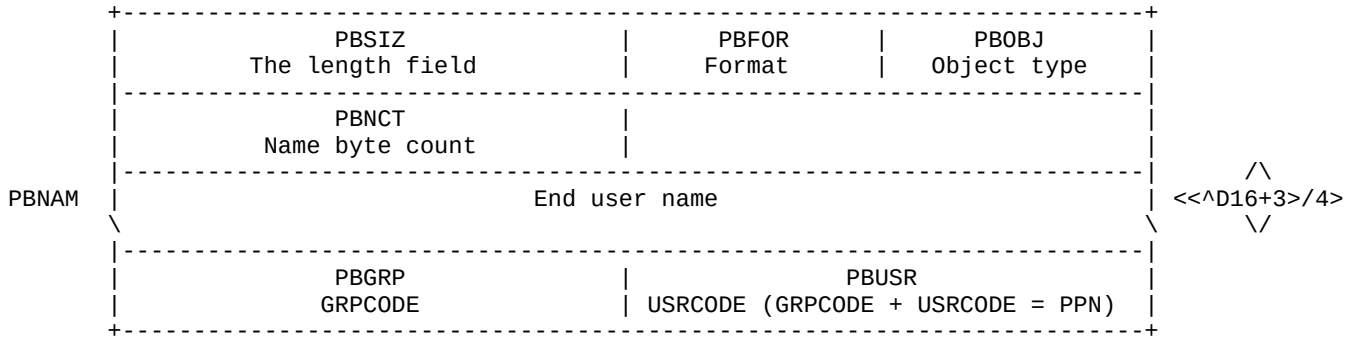
PB-SCPAR

DECnet-36 Process Descriptor Block. A "process block" is used to name local and remote processes. There are two of these contained in the Connect Block, one for the destination name and one for the source name.

Defined in: SCPAR

Format

Process Descriptor Block

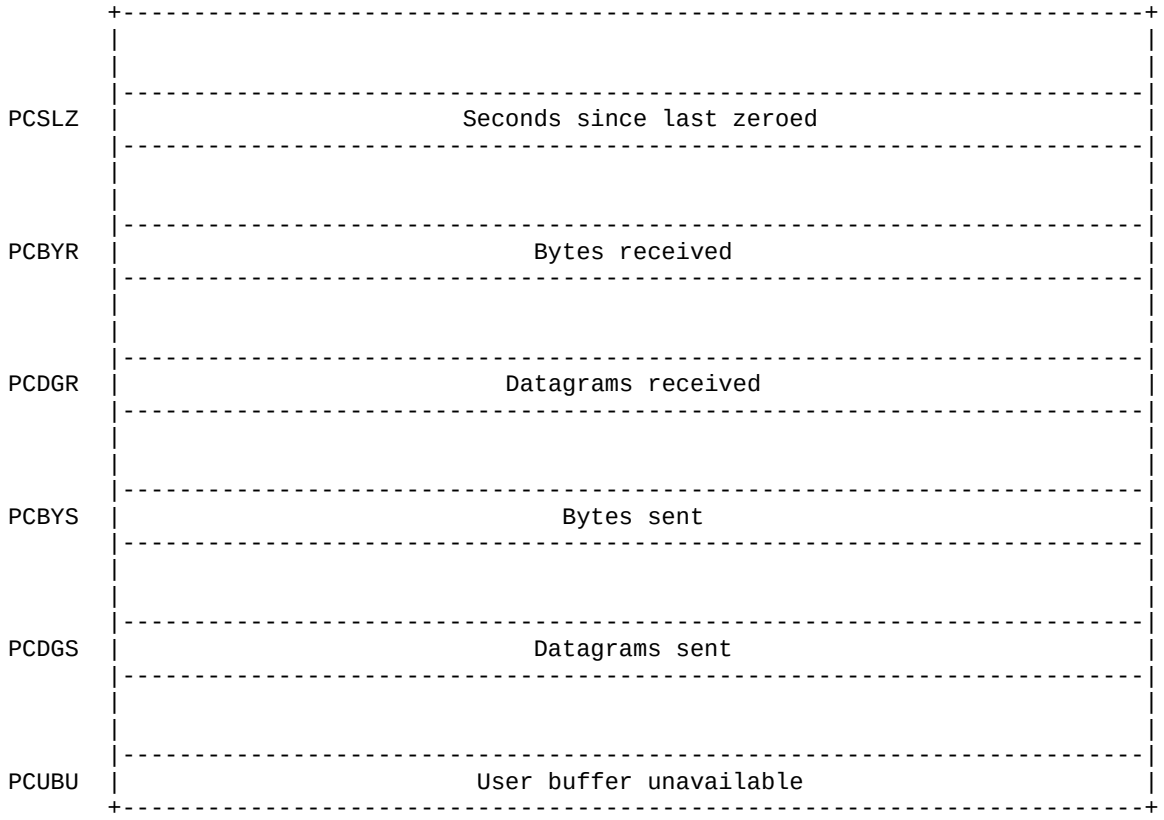


PC

PC is the read port counters block. There are two words in the table for each entry. PC is used by NTCTRS for the SHOW COUNTERS and SHOW and ZERO COUNTERS network management functions.

Defined in: NIPAR

Format

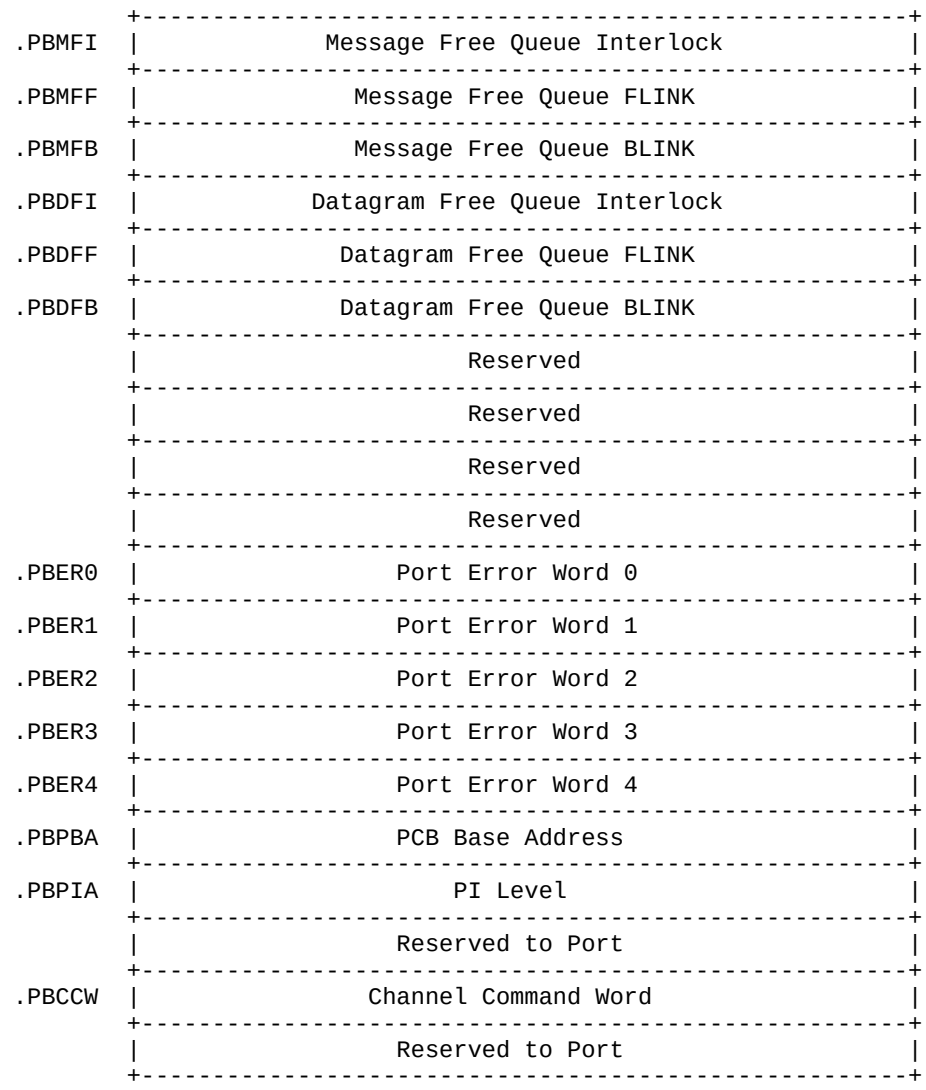


PCB (PORT CONTROL BLOCK)

The mechanism where the KL10 and the CI20 share the queue structures is controlled by the Port Control Block. The Port Control Block is a data structure that exists in the physical memory space of the KL10. Both the KL10 and the CI20 read and write the data in the PCB. The PCB contains the link words for the queues and other control information.

Defined in: SCAPAR

.PBBDT	Buffer Descriptor Table Starting Address
.PBMQE	Message Free Queue Entry Length
.PBDQE	Datagram Free Queue Entry Length
	Reserved
.PBQ3I	Command Queue 3 Interlock
.PBQ3F	Command Queue 3 FLINK
.PBQ3B	Command Queue 3 BLINK
.PBQ2I	Command Queue 2 Interlock
.PBQ2F	Command Queue 2 FLINK
.PBQ2B	Command Queue 2 BLINK
.PBQ1I	Command Queue 1 Interlock
.PBQ1F	Command Queue 1 FLINK
.PBQ1B	Command Queue 1 BLINK
.PBQ0I	Command Queue 0 Interlock
.PBQ0F	Command Queue 0 FLINK
.PBQ0B	Command Queue 0 BLINK
.PBRQI	Response Queue Interlock
.PBRQF	Response Queue FLINK
.PBRQB	Response Queue BLINK

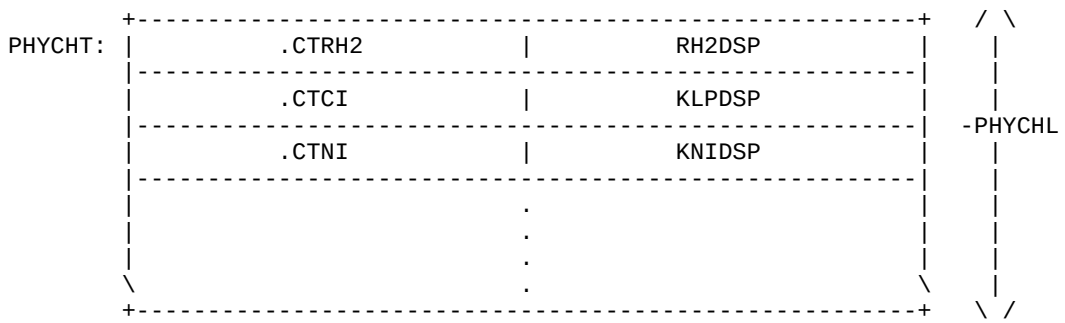

.PBMFI
Message Free Queue Interlock
.PBMFF
Message Free Queue FLINK
.PBMFB
Message Free Queue BLINK
.PBDFI
Datagram Free Queue Interlock
.PBDFF
Datagram Free Queue FLINK
.PBDFB
Datagram Free Queue BLINK
Reserved
Reserved
Reserved
Reserved
.PBER0
Port Error Word 0
.PBER1
Port Error Word 1
.PBER2
Port Error Word 2
.PBER3
Port Error Word 3
.PBER4
Port Error Word 4
.PBPBA
PCB Base Address
.PBPIA
PI Level
Reserved to Port
.PBCCW
Channel Command Word
Reserved to Port

PHYCHT

PHYSIO Channel Dispatch Tables. This table contains the names of function dispatch tables for all supported channel types.

Defined in: STG

Format

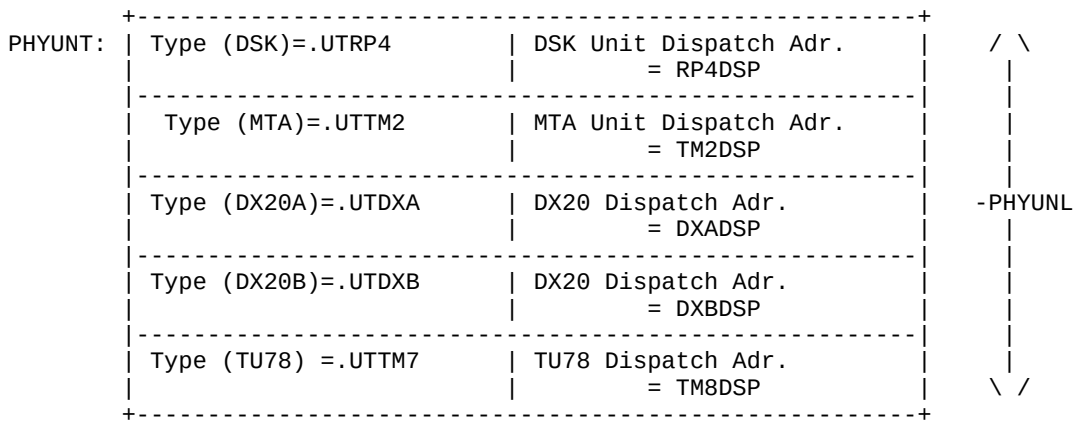


PHYUNT

PHYSIO Unit Dispatch Tables. Table of known unit dispatch routines.

Defined in: STG

Format



PI

This is the format of the NI% JSYS global portal ID.

Defined in: NIUSR

Format

Structure for global portal IDs

	PIFRK	PIPID
	Job wide fork number	Job wide portal ID

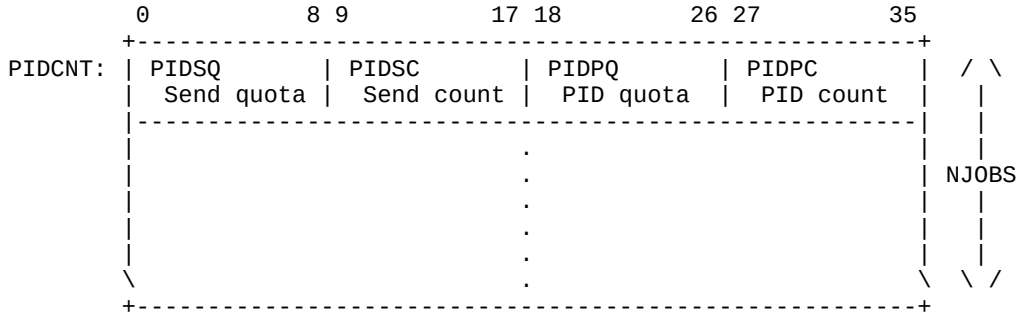
PIDCNT

Process ID Count Table. This non-resident table holds the send quota and count and the PID quota and count for each job.

Defined in: STG

Index: Job number

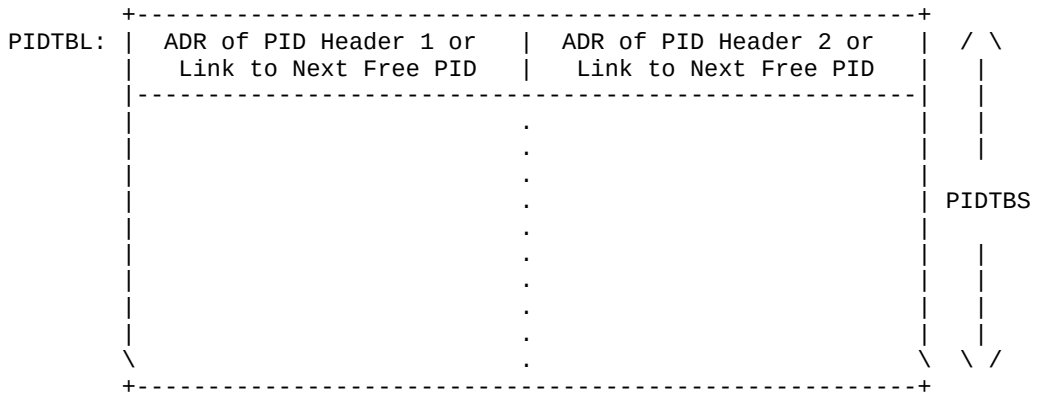
Format



PIDTBL

Process ID Table. This non-resident table is a table of halfword entries, one entry per PID; the number of entries in the table is two times the number of jobs. (The monitor is assuming an average of 2 PIDs per job.) If a PID is in use, the table entry contains the address of the PID header. PID's not in use are linked together; PIDLST is the free PID header.

Defined in: STG

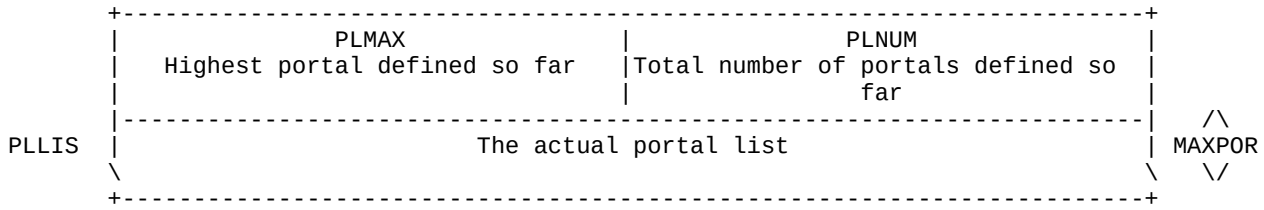


PL

This is the NI portal list structure. This structure contains a table of pointers to all Ethernet portal blocks defined by NI% jsys users.

Defined in: NIUSR

Format

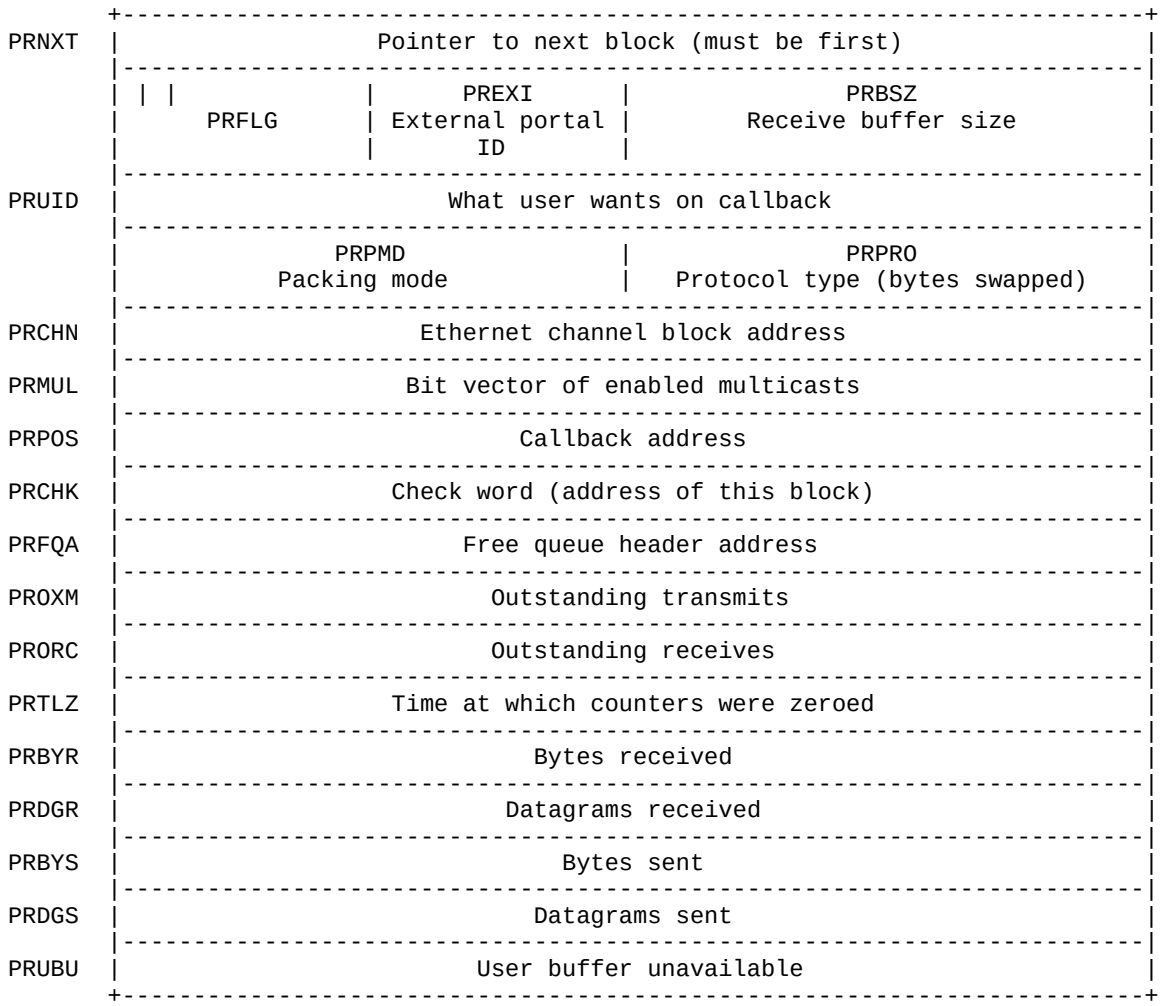


PR-NISRV

This is the NI Portal Table block.

Defined in: NISRV

Format



For field PRFLG(0-8):

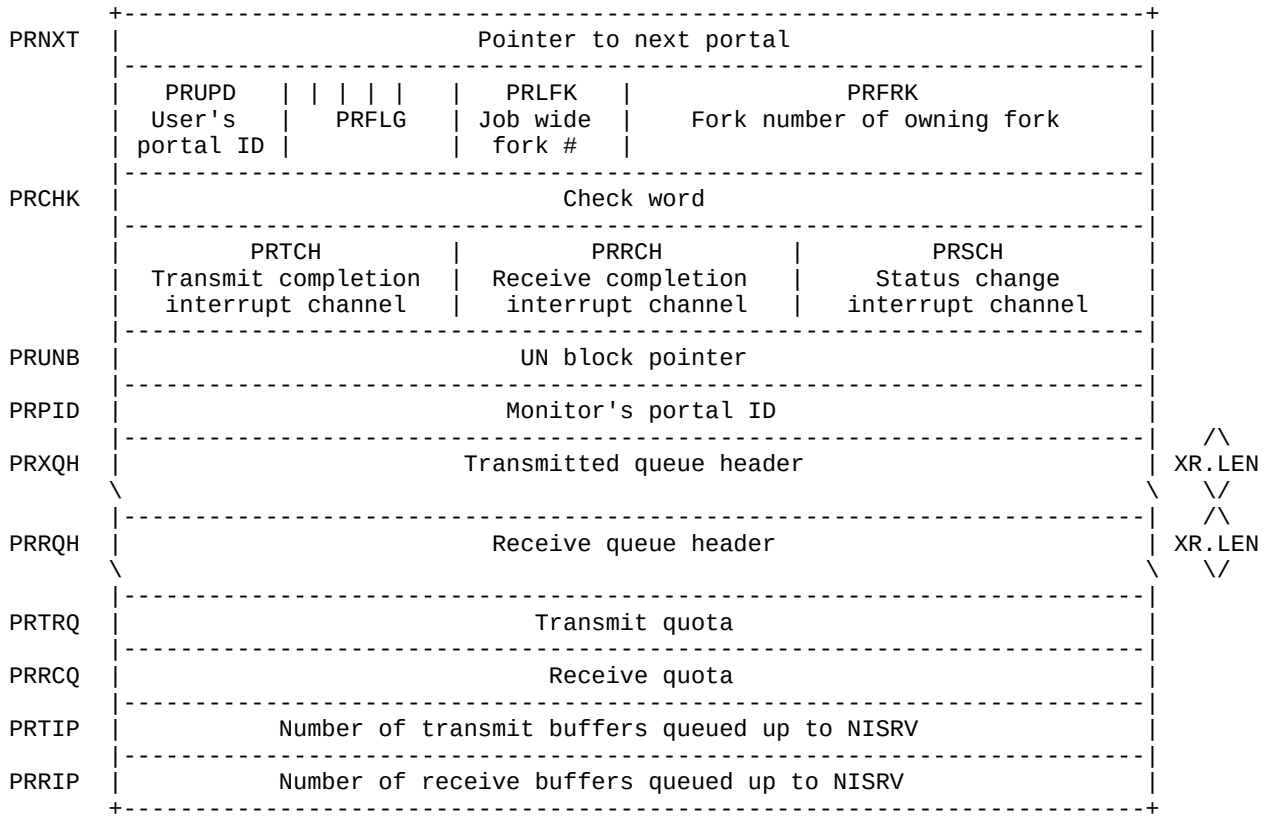
PRCLO	0	Portal is closing
PRPAD	1	Pad flag

PR-NIUSR

This is the NI Portal block. One exists for each Ethernet portal defined by the NI% JSYS.

Defined in: NIUSR

Format



For field PRFLG(6-11):

PRCCP	6	Close complete
PRRPS	7	Receive PSI requested
PRTPS	8	Transmit PSI requested
PRSPS	9	Status change PSI requested

PRMP

This table contains pointers to the DNA parameter and counter data bases. The format for the data bases is described in the DNA Parameter and Counter Data Base table.

Defined in: NTMAN

Format

PRMP:

NODE pointer
LINE pointer
LOGGING pointer
CIRCUIT pointer
MODULE pointer
EVENT pointer

Each pointer has the format:

COUNT	ADDRESS

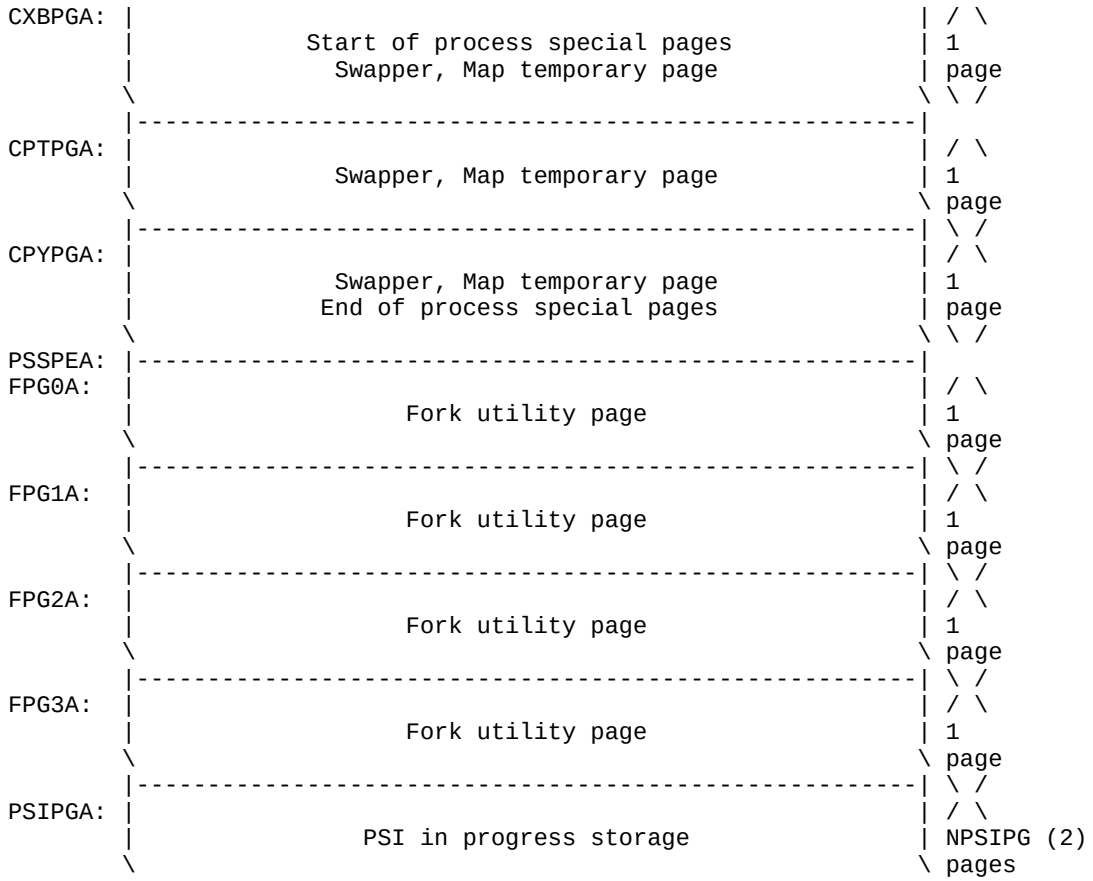
The COUNT is the negative of the number of parameters in the data base, and ADDRESS is the address of the first block in the data base.

PROCESS STORAGE AREA

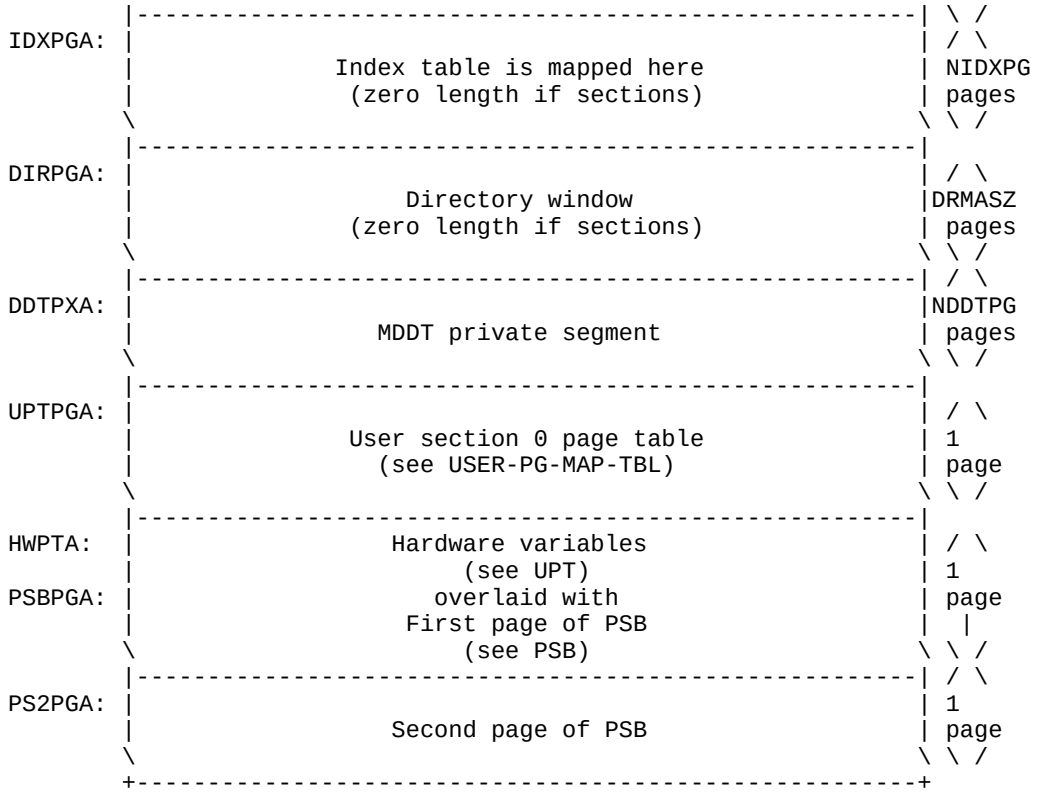
This area contains process specific information. It is the entire PSVAR psect. The PSBMAP in the PSB points to all of this area. For this area, the monitor has indirect pointers in its page table (MMAP) for its pages beginning at PSSPSA: (which is on a page boundary) for the length of the process storage area. All of these pointers are to a single location in the SPT (specifically SPT+NOFN+1). With this arrangement, the process storage area for the current process can be changed to the process storage area for another process by only changing the one location in the SPT.

Defined in: STG

Format



MONITOR TABLES
PROCESS STORAGE AREA (Cont.)

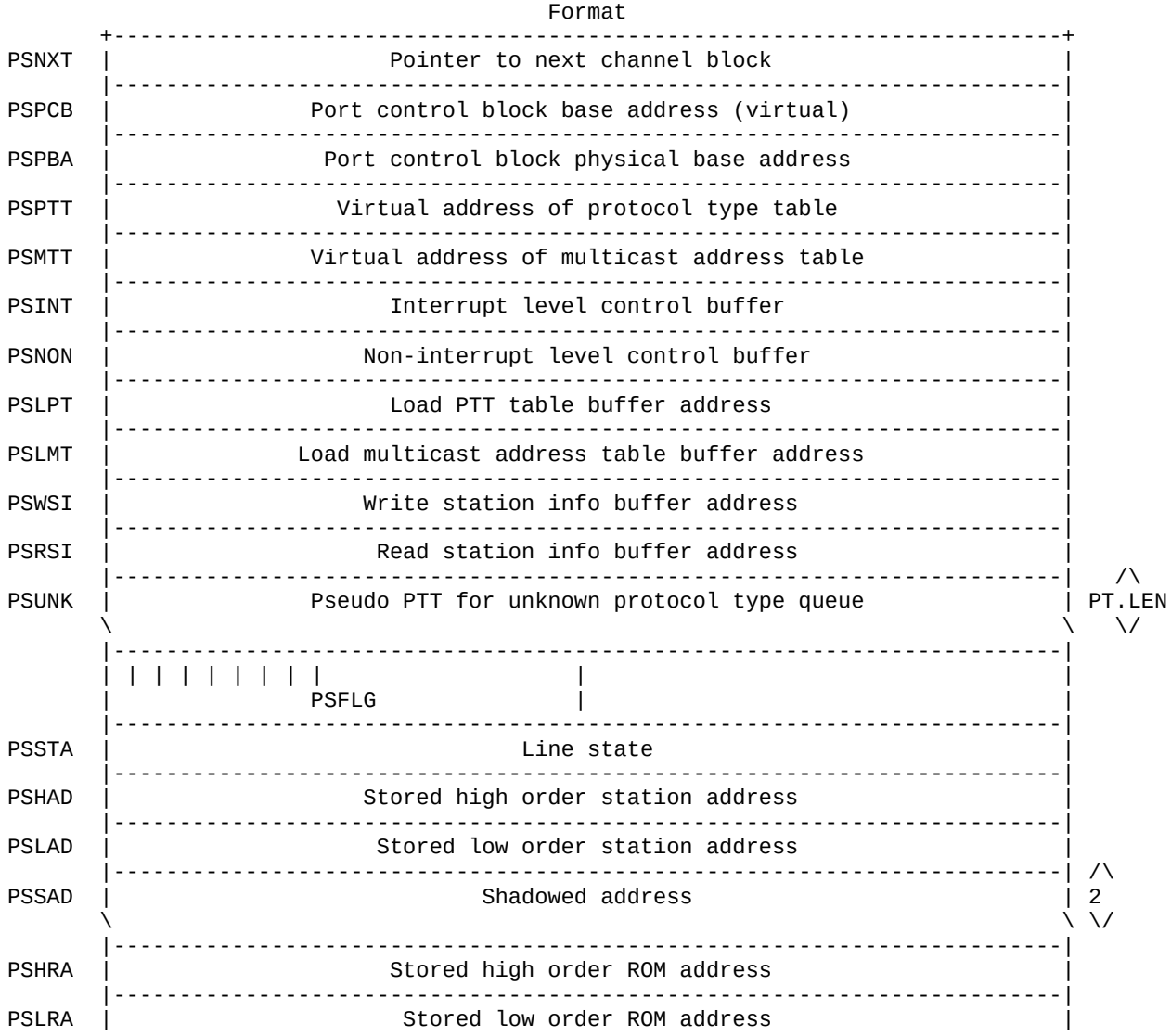


PS-PHYKNI

PS is the NI Port Storage block (channel block). There is one channel block for each NI on the system. The first block is pointed to by CHNBAS. At this time, only one channel block is allocated, and it is allocated at location PRTSTG (CHNBAS points to PRTSTG).

Defined in: PHYKNI

Format



			PSSVA				PSRSP	PSCHN		
			PSVAR			PSVBT	Maximum number of entries on the response que			
PSCHK	Check word, contains magic value									
PSTLR	Time of last response									
PSCNO	CONO KNI,(T1)									
PSCNI	CONI KNI,T1									
PSDTO	DATAO KNI,T1									
PSDTI	DATAI KNI,T1									
PSCQA	CONO KNI,CO.BTS+CO.CQA or NOP									
PSMXT	Number of multicasts transmitted									
	PSUMA Major version number						PSUMI Minor version number			
PSUED	Edit number									
PSTPC	UDT of port crash									
PSLAR	LAR at time of uCode crash									
PSCRL	Left hand CRAM bits at time of crash									
PSCRR	Right hand CRAM bits at time of crash									
PSTLZ	Time at which port counters were zeroed									
PSSHC	Address of shadow counters block									

For field PSFLG(0-17):

PSSLS	0	1=Line state needs reported
PSWUL	1	1=Waiting for uCode to be loaded
PSSTP	2	1=Waiting for port restart
PSBIG	3	1=KNISTP BUGINF reported
PSLSI	4	1=Need to write station information
PSLMC	5	1=Need to do load multicast table command
PSLPP	6	1=Need to do load protocol table command
PSVAD	7	1=PSHAD/LAD is valid

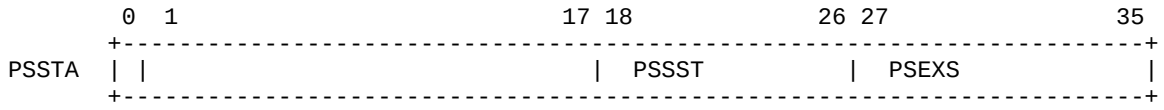
For field PSVAR(0-3):

PSCRC	0	Allow receipt of frames with CRC errors
PSPMC	1	Station is in Promiscuous multicast mode
PSH40	2	H4000 mode if 1
PSPRM	3	Promiscious mode if 1

For field PSVBT(8-11):

PSVCR	8	PSCRC is valid
PSVPM	9	PSPMC is valid
PSVH4	10	PSH40 is valid
PSVPR	11	PSPRM is valid

Field PSCBA (24-26) CBUS address



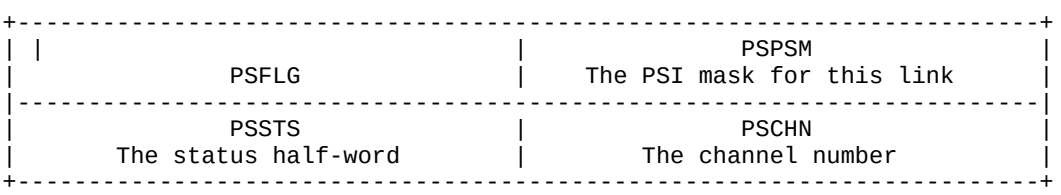
Symbol	Bits	Meaning
PSRUN	1	Channel is running; should be 1b0
PSSST	18-26	Channel substate
PSEXS	27-35	Channel external state

PS-SCPAR

This is DECnet-36 PSI data passed back from SCLINK on a call to SCTPSQ, the "Read PSI Queue" routine. The data is passed in T1 and T2.

Defined in: SCPAR

Format



For field PSFLG(0-17):

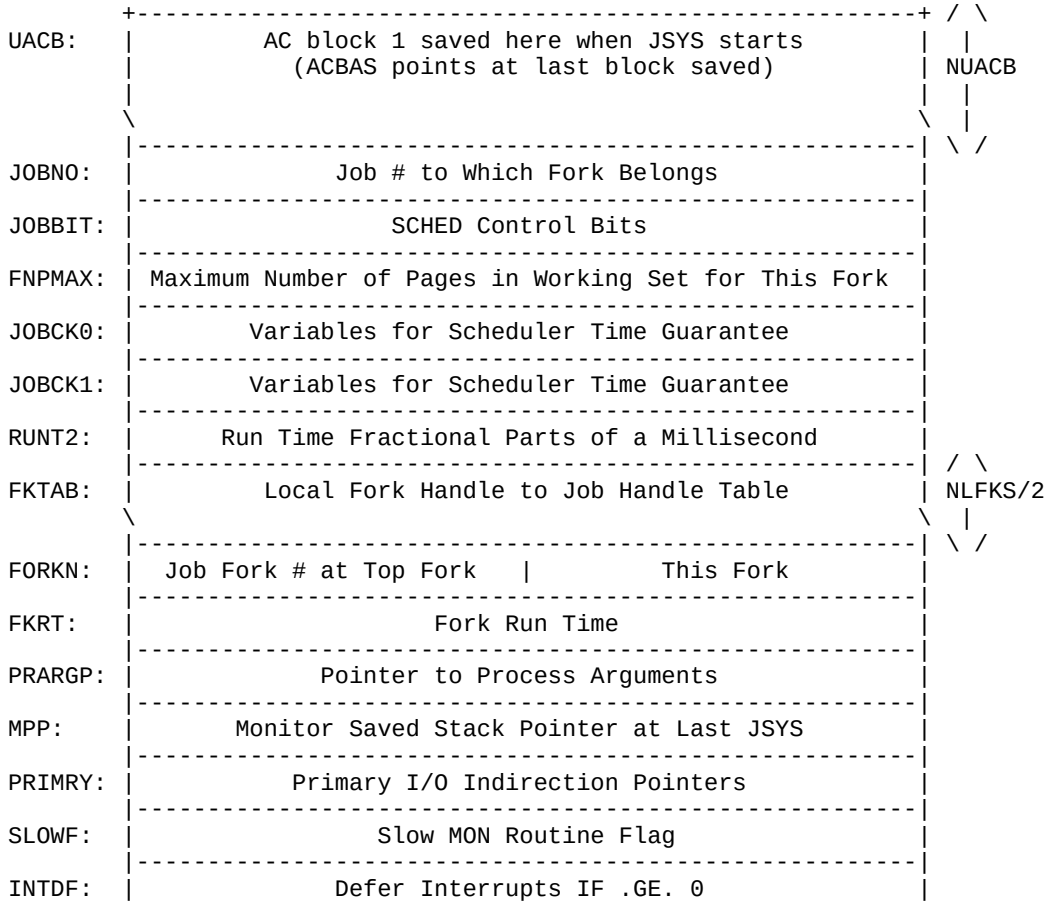
PSMOR	0	Set if more PSIs queued

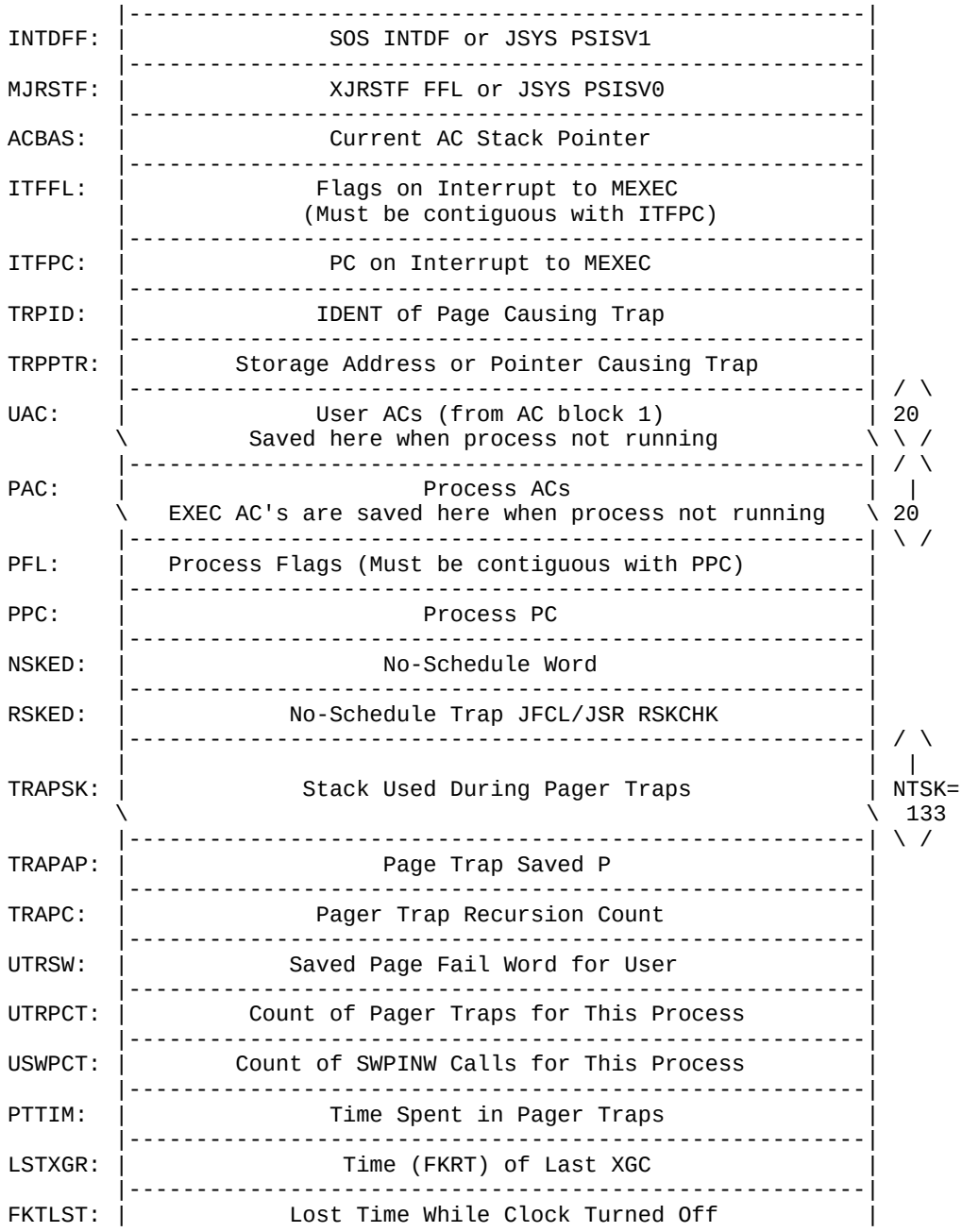
PSB

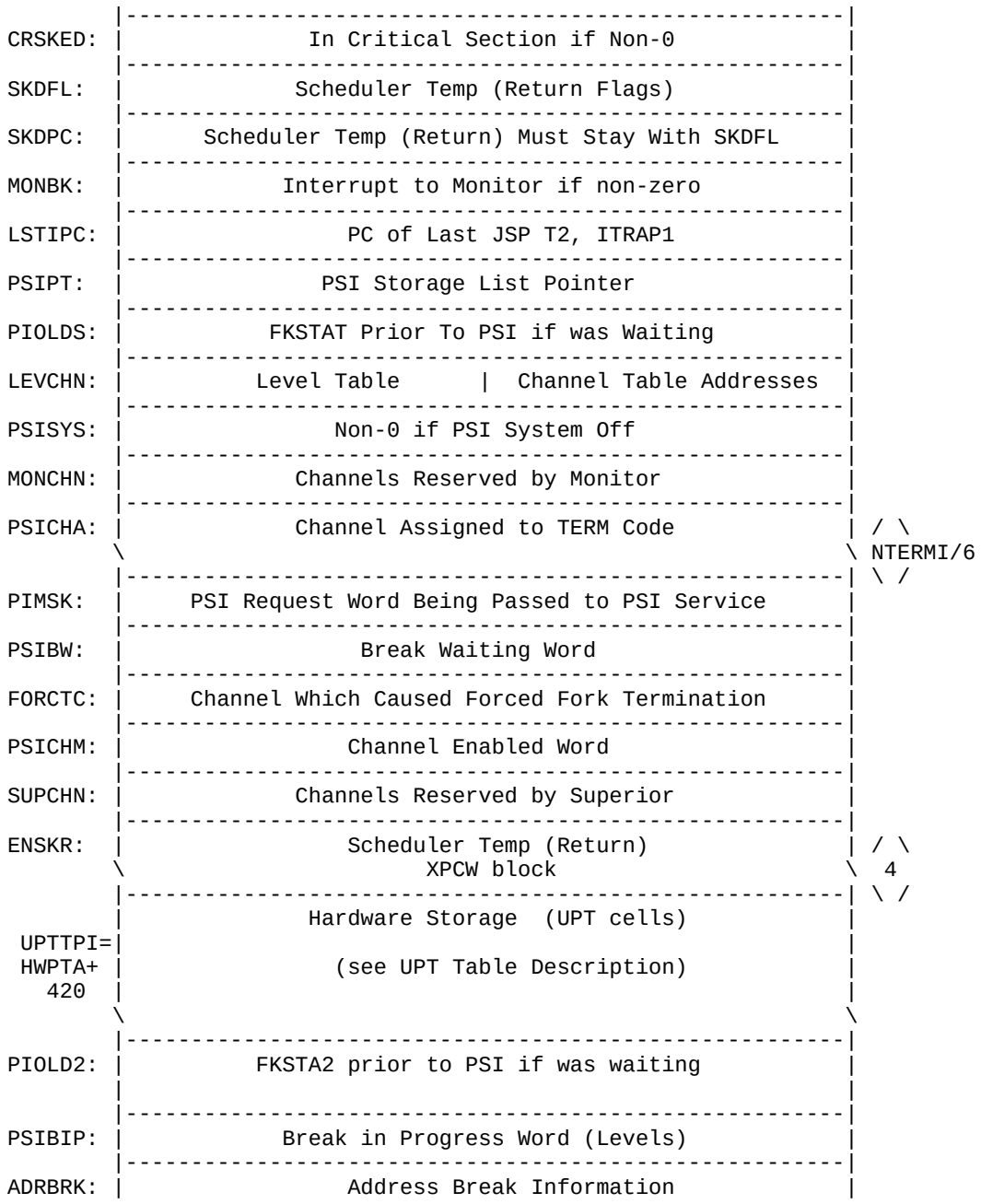
Process Storage Block. Each process has a PSB which holds information such as: the PC and ACs when not running; forks known to this process, and accounting, PSI, paging and directory information. It also holds trapping information and the hardware cells for the User Process Table (See UPT Table). Page 2 of the PSB houses the push down list used by the monitor when executing JSYSs (that is, in process context). The PSBMAP map in the PSB points to all of the per-process storage area (including the PSB itself). For further information, see also the Process Storage Area.

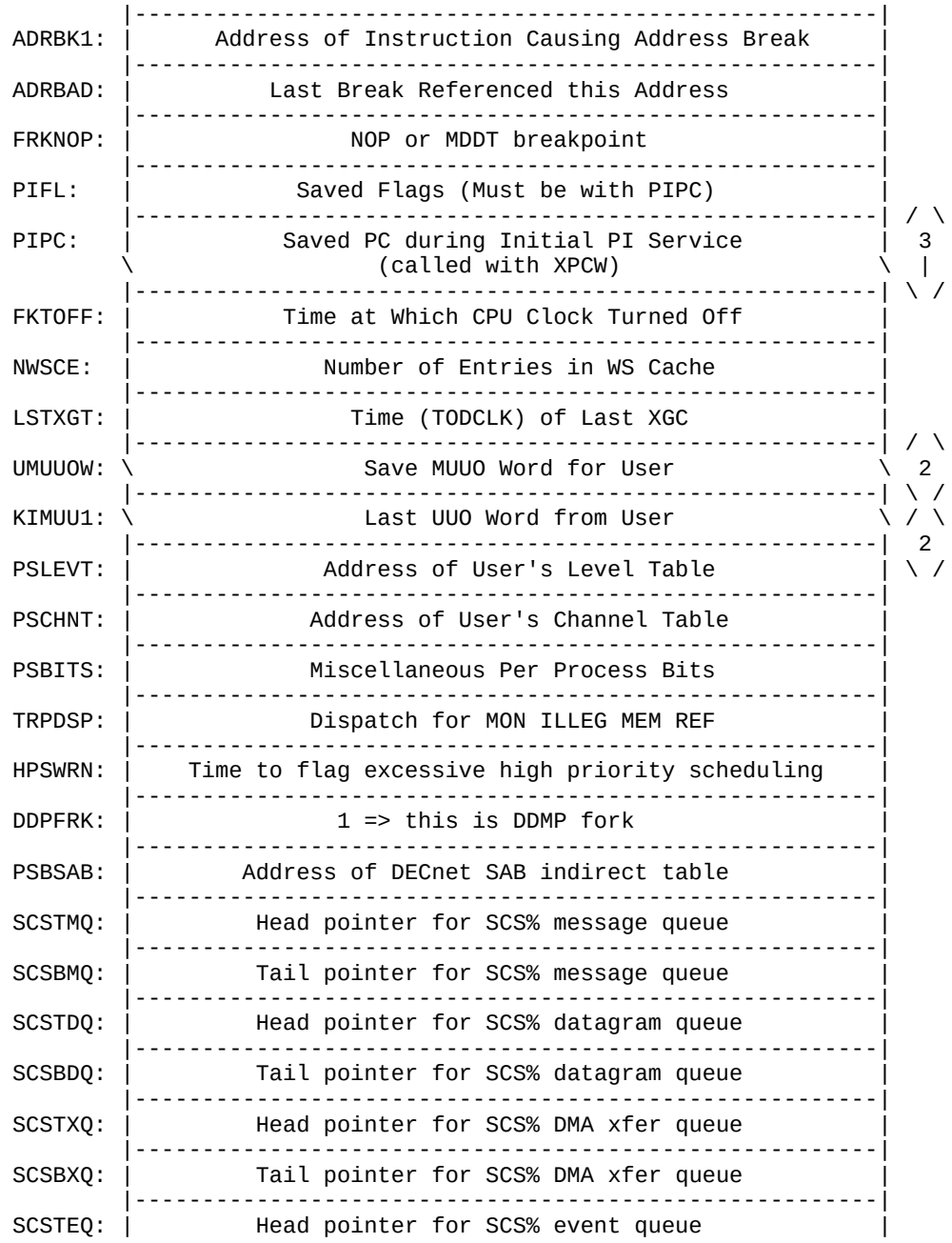
Defined in: STG

Format



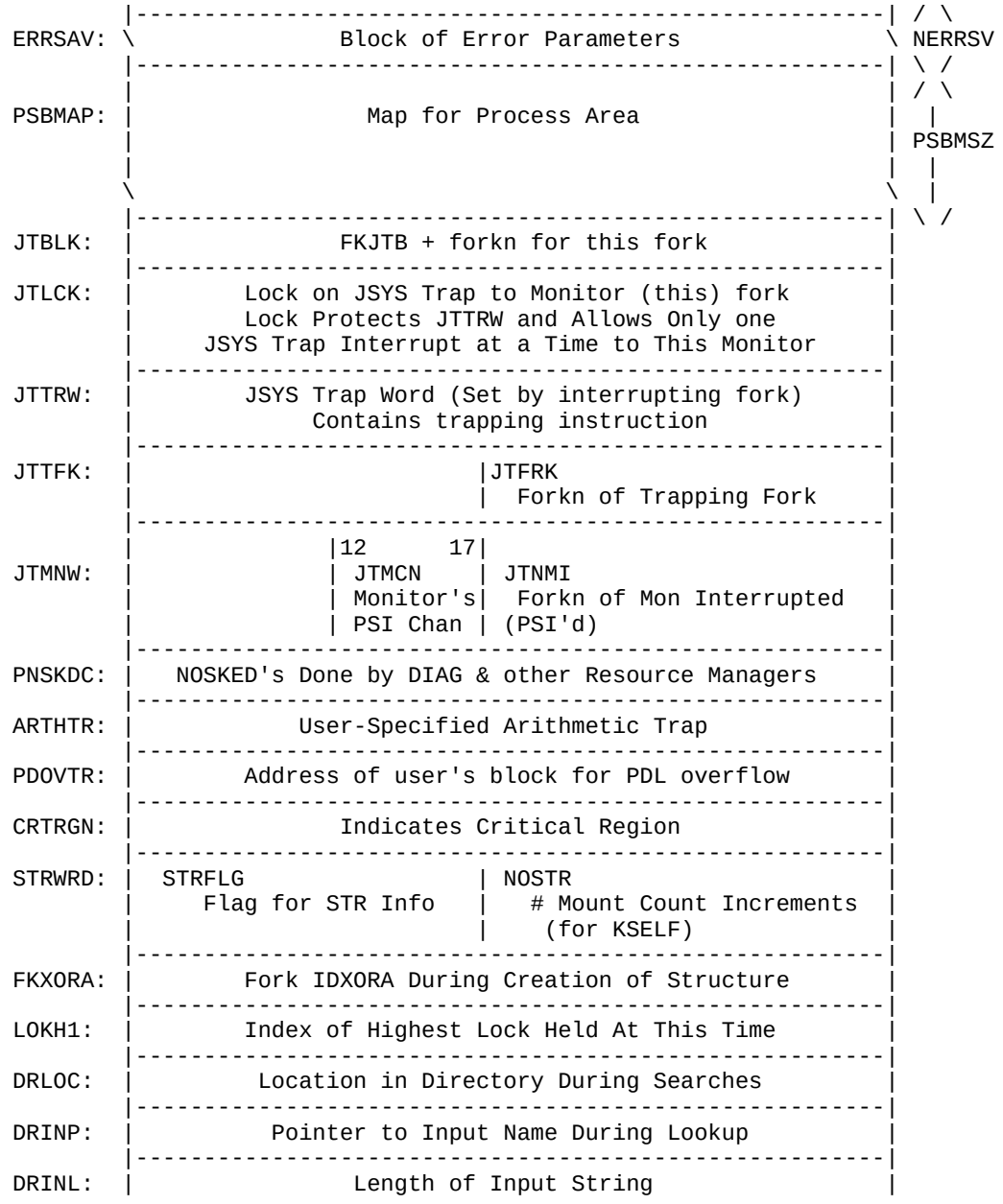

INTDFF:
SOS INTDF or JSYS PSISV1
MJRSTF:
XJRSTF FFL or JSYS PSISV0
ACBAS:
Current AC Stack Pointer
ITFFL:
Flags on Interrupt to MEXEC
(Must be contiguous with ITFPC)
ITFPC:
PC on Interrupt to MEXEC
TRPID:
IDENT of Page Causing Trap
TRPPTR:
Storage Address or Pointer Causing Trap
UAC:
User ACs (from AC block 1)
Saved here when process not running
20
PAC:
Process ACs
EXEC AC's are saved here when process not running
20
PFL:
Process Flags (Must be contiguous with PPC)
PPC:
Process PC
NSKED:
No-Schedule Word
RSKED:
No-Schedule Trap JFCL/JSR RSKCHK
TRAPSK:
Stack Used During Pager Traps
NTSK=
133
TRAPAP:
Page Trap Saved P
TRAPC:
Pager Trap Recursion Count
UTRSW:
Saved Page Fail Word for User
UTRPCT:
Count of Pager Traps for This Process
USWPCT:
Count of SWPINW Calls for This Process
PTTIM:
Time Spent in Pager Traps
LSTXGR:
Time (FKRT) of Last XGC
FKTLST:
Lost Time While Clock Turned Off

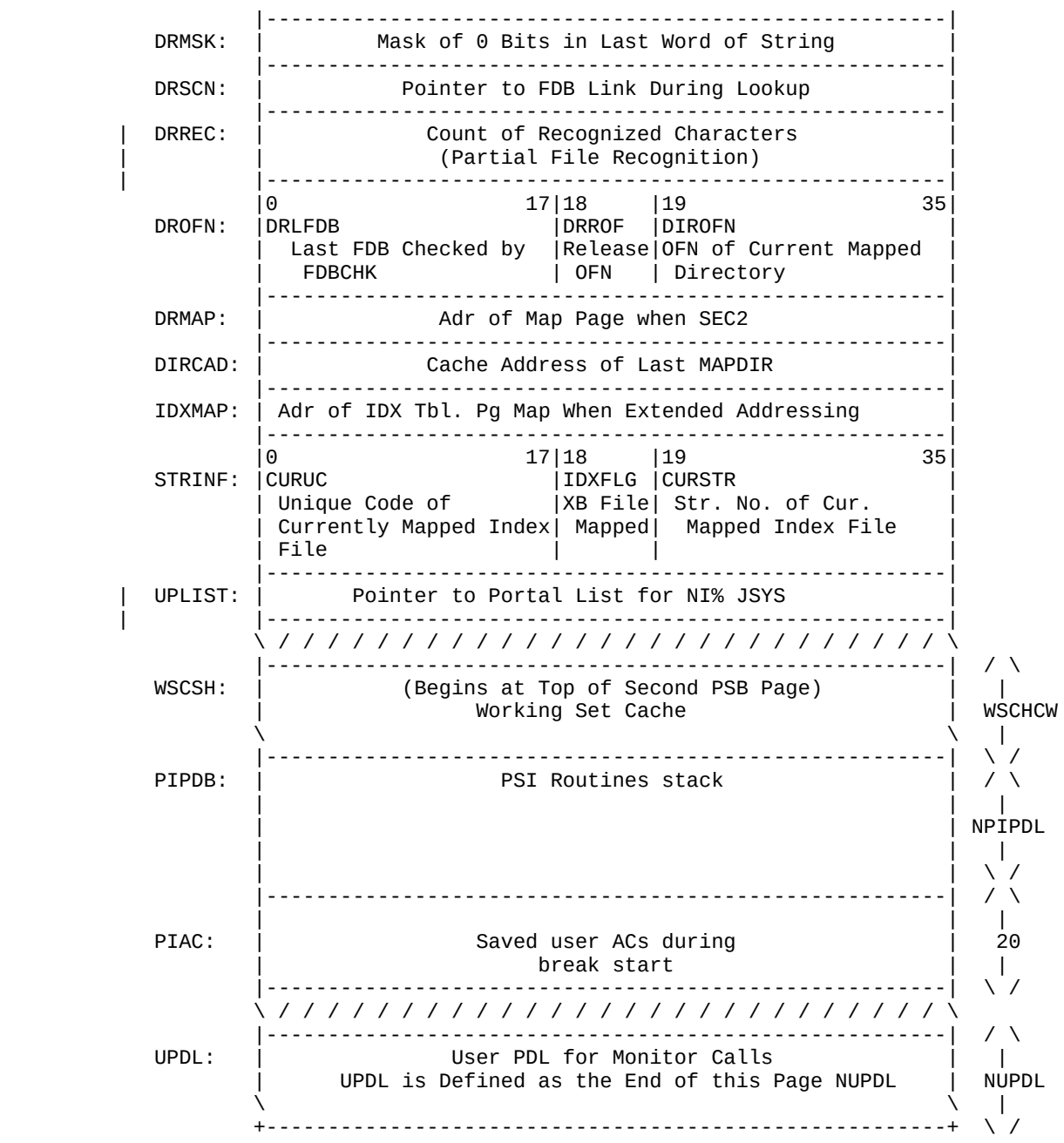

CRSKED:
In Critical Section if Non-0
SKDFL:
Scheduler Temp (Return Flags)
SKDPC:
Scheduler Temp (Return) Must Stay With SKDFL
MONBK:
Interrupt to Monitor if non-zero
LSTIPC:
PC of Last JSP T2, ITRAP1
PSIPT:
PSI Storage List Pointer
PIOLDS:
FKSTAT Prior To PSI if was Waiting
LEVCHN:
Level Table
Channel Table Addresses
PSISYS:
Non-0 if PSI System Off
MONCHN:
Channels Reserved by Monitor
PSICHA:
Channel Assigned to TERM Code
NTERMI/6
PIMSK:
PSI Request Word Being Passed to PSI Service
PSIBW:
Break Waiting Word
FORCTC:
Channel Which Caused Forced Fork Termination
PSICHM:
Channel Enabled Word
SUPCHN:
Channels Reserved by Superior
ENSKR:
Scheduler Temp (Return)
XPCW block
4
Hardware Storage (UPT cells)
UPTTPI=
HWPTA+
420
(see UPT Table Description)
PIOLD2:
FKSTA2 prior to PSI if was waiting
PSIBIP:
Break in Progress Word (Levels)
ADRBRK:
Address Break Information


ADRBK1: Address of Instruction Causing Address Break
ADRBAD: Last Break Referenced this Address
FRKNOP: NOP or MDDT breakpoint
PIFL: Saved Flags (Must be with PIPC)
PIPC: Saved PC during Initial PI Service (called with XPCW)
FKTOFF: Time at Which CPU Clock Turned Off
NWSCE: Number of Entries in WS Cache
LSTXGT: Time (TODCLK) of Last XGC
UMUUOW: Save MUUO Word for User
KIMUU1: Last UUO Word from User
PSLEVT: Address of User's Level Table
PSCHNT: Address of User's Channel Table
PSBITS: Miscellaneous Per Process Bits
TRPDSP: Dispatch for MON ILLEG MEM REF
HPSWRN: Time to flag excessive high priority scheduling
DDPFRK: 1 => this is DDMP fork
PSBSAB: Address of DECnet SAB indirect table
SCSTMQ: Head pointer for SCS% message queue
SCSBMQ: Tail pointer for SCS% message queue
SCSTDQ: Head pointer for SCS% datagram queue
SCSBDQ: Tail pointer for SCS% datagram queue
SCSTXQ: Head pointer for SCS% DMA xfer queue
SCSBXQ: Tail pointer for SCS% DMA xfer queue
SCSTEQ: Head pointer for SCS% event queue
3
2
2

SCSBEQ:	Tail pointer for SCS% event queue
SCSPS0:	PSI channels for msg avail,,dg available
SCSPS1:	PSI channels for DMA avail,,events
SCSTCQ:	Head pointer for CB queue
SCSBCQ:	Tail pointer for CB queue
SCSTXN:	Head pointer for list of DMA buffer names
SCSBXN:	Tail pointer for list of DMA buffer names
EVLNTH:	Entry Vector Length
EVADDR:	Entry Vector Address
PATLEV:	PA1050 Entry Vector Length
PATADR:	PA1050 Compatability Entry Vector Address
PATU40:	Where to Store C(40), Setup as UMOVEM 1,XX
PATUPC:	Where to Store PC, Setup as UMOVEM 1, XX
DMSLEV:	RMS Entry Vector Length
DMSADR:	RMS Entry Vector Address
DMSU40:	Where to Store C(40) on DMS Call
DMSUPC:	Where to Store PC of DMS Call
ENQWRD:	Used for Cluster ENQ/DEQ (0=Not doing Cluster ENQ)
CABMSK:	Capability Mask
CAPENB:	Capabilities Enabled
SNPPGS:	Count | Page # of First Page Locked
SNPLST:	Flags | Link to 1st BP for Fork
LSTERR:	Last Error Number
PDVS:	Pointer to PDV block

MONITOR TABLES
PSB (Cont.)




DRMSK:
Mask of 0 Bits in Last Word of String
DRSCN:
Pointer to FDB Link During Lookup
DRREC:
Count of Recognized Characters
(Partial File Recognition)
DROFN:
0
17
18
19
35
DRLFDB
Last FDB Checked by FDBCHK
DRROF
Release OFN
DIROFN
OFN of Current Mapped Directory
DRMAP:
Adr of Map Page when SEC2
DIRCAD:
Cache Address of Last MAPDIR
IDXMAP:
Adr of IDX Tbl. Pg Map When Extended Addressing
STRINF:
CURUC
Unique Code of Currently Mapped Index File
IDXFLG
XB File Mapped
CURSTR
Str. No. of Cur. Mapped Index File
UPLIST:
Pointer to Portal List for NI% JSYS
WSCSH:
(Begins at Top of Second PSB Page)
Working Set Cache
WSCHCW
PIPDB:
PSI Routines stack
NPIPDL
PIAC:
Saved user ACs during break start
20
UPDL:
User PDL for Monitor Calls
UPDL is Defined as the End of this Page NUPDL
NUPDL

PT-IPCIDV

The PT structure contains information about each TCP port.

Defined in: IPCIDV

Format

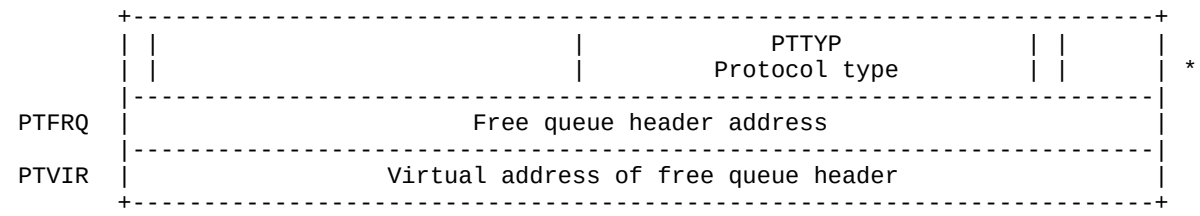
Field PTOWN	(0-0)	Set if this is local port
Field PTHOS	(1-1)	Set if this port is hostile, that is, not TOPS-20

PT-PHYKNI

This is the NI Protocol type table. There is a PT block for each protocol enabled for the NI port -- up to NPTT (16) blocks. A table of PT blocks is allocated by the monitor at location PTTADR. Channel block word PSPTT points to the first PT block; that is, it points to PTTADR.

Defined in: PHYKNI

Format



Field PTENA (0-0) Protocol is enabled

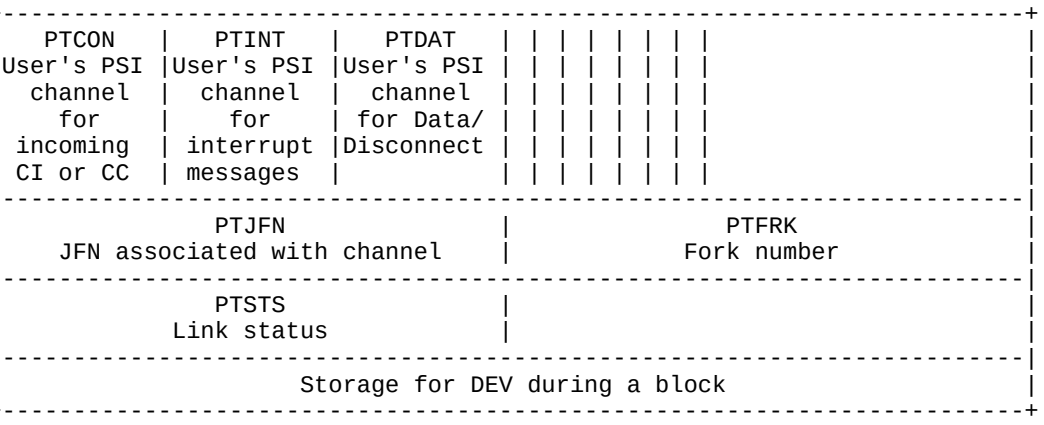
Field PTFRE (32-32) 1 means entry is free

PT-SCPAR

This is the DECnet-36 Port Table. The port table contains information describing the state of a user's DECnet connection.

Defined in: SCPAR

Format



Field PTTYP (18-18) Open type: 0=Passive 1=Active

Field PTEMI (19-19) EOM has arrived

Field PTPSI (20-20) User has been "PSI"ed for data available

Field PTLWC (21-21) Link was connected indicator

Field PTBLK (22-22) This link is blocked (blocking I/O)

Field PTWAK (23-23) Wake the next process that tries to block

Field PTNRR (24-24) Null record received

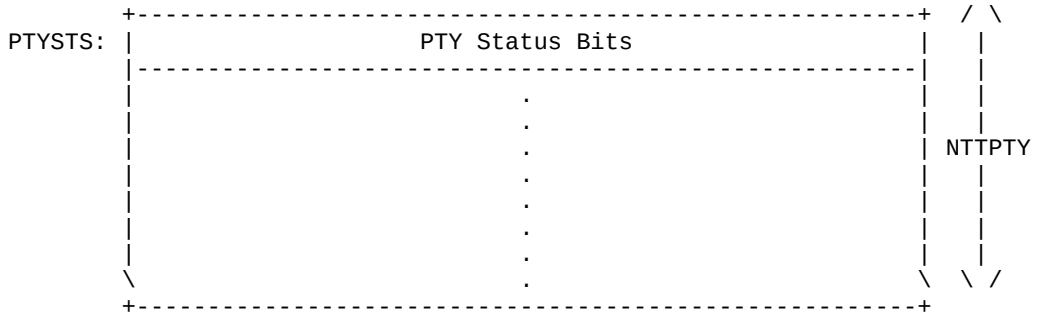
PTYSTS

Pseudo Terminal Status Table. This table contains the PTY's status word.

Defined in: STG

Index: PTY Number

Format

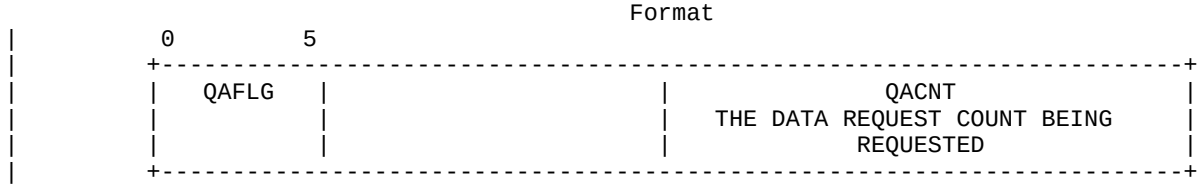


QA

This structure contains the data request count (in T2), an inter-layer parameter passed by Session Control to NSP.

Defined in: D36PAR

Format



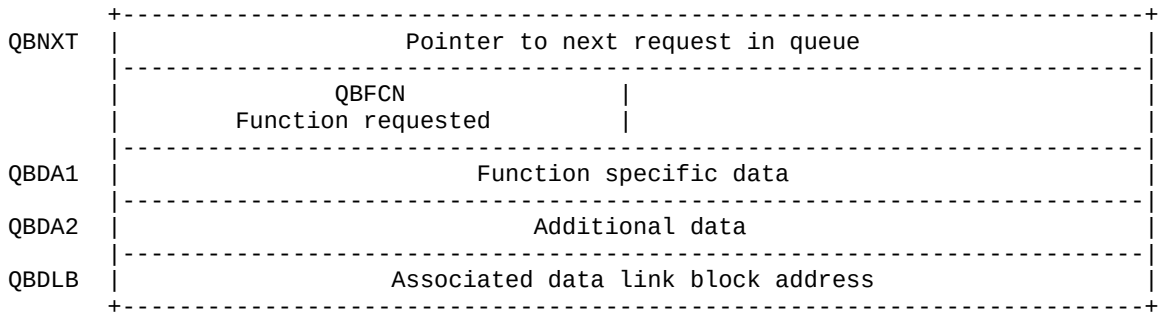
QAOFF -- Set if the sublink is to be turned off

QB

This is the DECnet queue block.

Defined in: DNADLL

Format

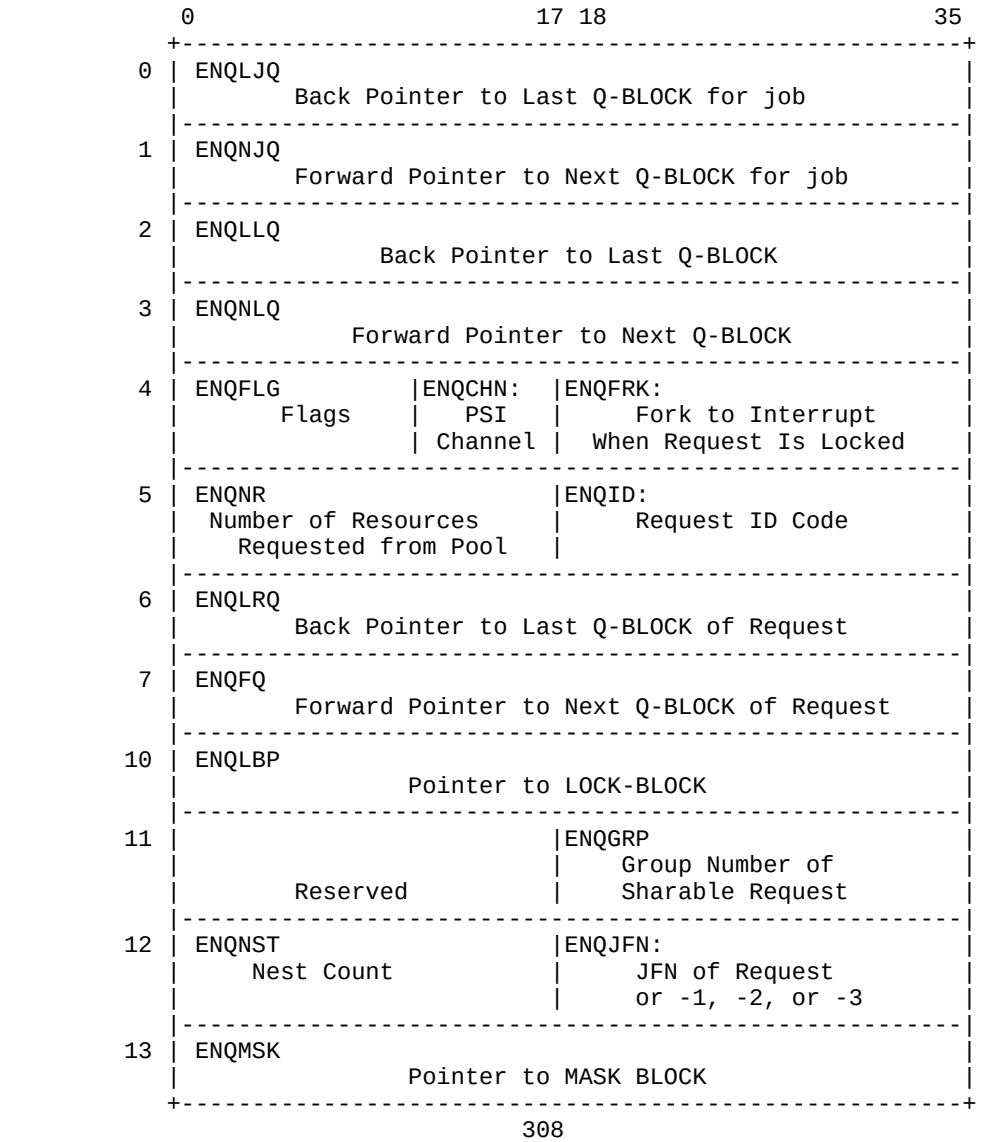


Q-BLOCK

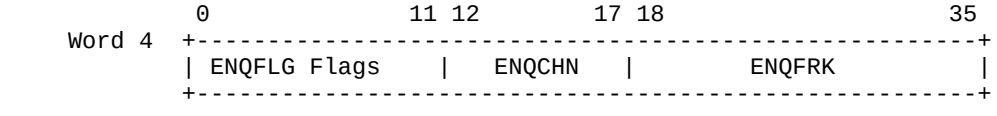
The information for each ENQ request is stored in a Q-BLOCK. Q-BLOCKs are doubly linked for each job; the list header is in ENQLST in the JSB. Also, Q-BLOCKs are doubly linked on a system wide list for each lock block; the list header is in the lock block.

Defined in: ENQPAR

Format



The flags word must occur in the same position in both the Lock-Block and the Q-Block. The flags word is used to distinguish a Lock-block from a Q-block.



Symbol	Bits	Pointer	Contents
EN.SDO=400	3		Scheduling pass needed on Lock-Block
EN.CLL=200	4		Cluster-wide queue block or Cluster-wide lock-block
EN.NOV=100	5		No vote for this lock-block Set during caching and for -1 type locks
EN.LTL=40	6		Long Term Lock
EN.INV=20	7		This Q-Block is invisible
EN.LOK=10	8		The Q-Block has the Lock Locked.
EN.TXT=4	9		This Block has a Text String Identifier.
EN.EXC=2	10		Request is Exclusive
EN.LB=1	11		This is the Lock-Block
	12-17		Reserved
	18-35	ENQLVL	Level number of this lock.

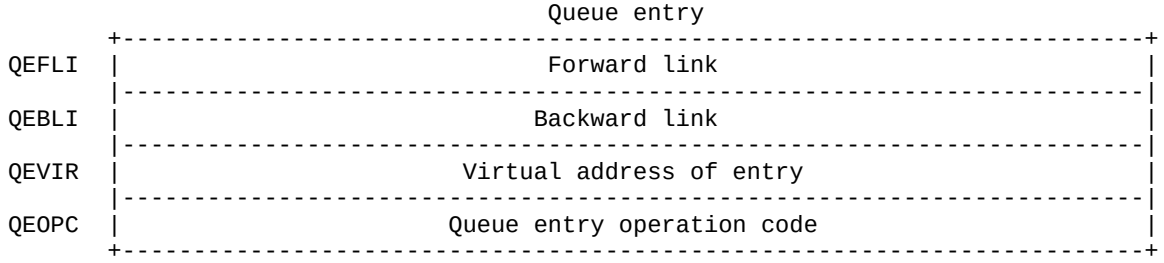
QE

QE describes the format of the header for all command, response, and unknown protocal queue entries. The NI uCode expects this format.

Defined in: PHYKNI

Format

Queue entry



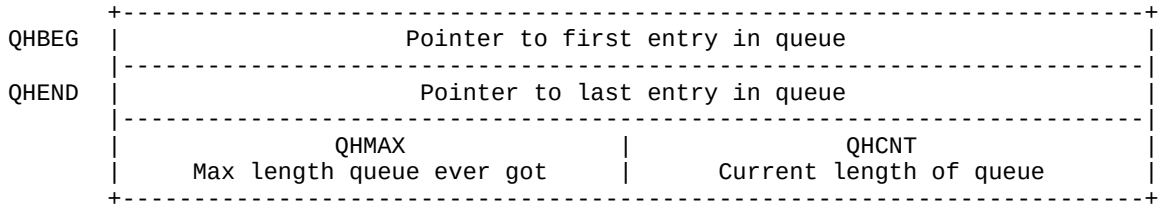
QH-D36PAR

Structure QH, queue header, is used by the ENDQUE, DEQUE and RMVQUE macros for manipulation of DECnet queues.

Defined in: D36PAR

Format

Queue Header



QH-PHYKNI

QH defines the queue header format for the command, response, and unknown protocol queues. The NI uCode expects the queue header to have this format.

Defined in: PHYKNI

Format

Queue header definition

QHIWD	Interlock word
QHFLI	Forward link
QHBLI	Backward link
QHLEN	Length of queue entries

QL

QL is the Queue Link definition used by LAT. All LAT queue entries are linked together using this structure.

Defined in: LATSRV

Format

Halfword Queue Link Word

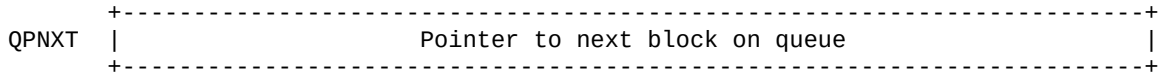
QLFWD	Next forward queue element
QLBWD	Previous backward queue element

QP

Structure QP, queue pointer, is included to emphasize the fact that the ENDQUE and DEQUE macros used by DECnet expect the forward pointer in a block to be a full word - and to simplify the addition of backward pointers should that become desirable.

Defined in: D36PAR

Format



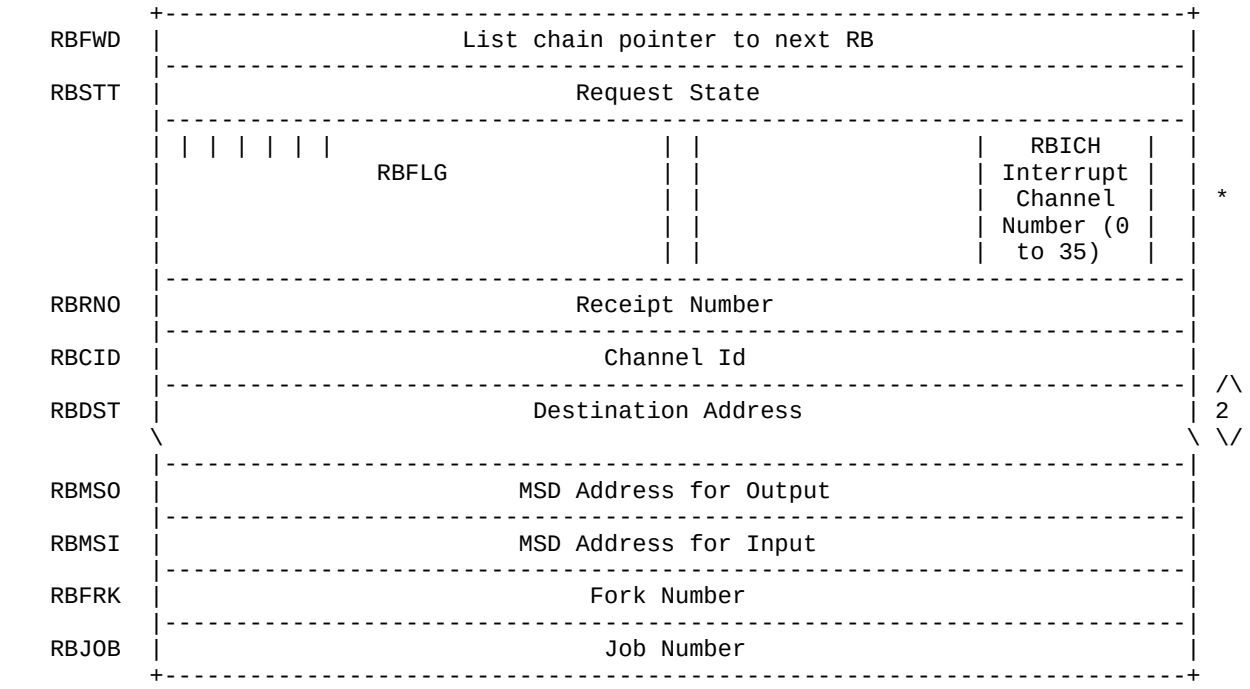
RB

This is the DECnet low level MOP request block.

Defined in: LLMOP

Format

Common header portion of RB



For field RBFLG(0-17):

RBFTI	0	Transmit Request Initiated
RBFTC	1	Transmit Request Complete
RBFTF	2	Transmit Request Failed
RBFRC	3	Receive Response Complete
RBFRF	4	Receive Response Failed
RBABT	5	Abort this request

| Field RBAIC (18-18) Assign Interrupt Channel

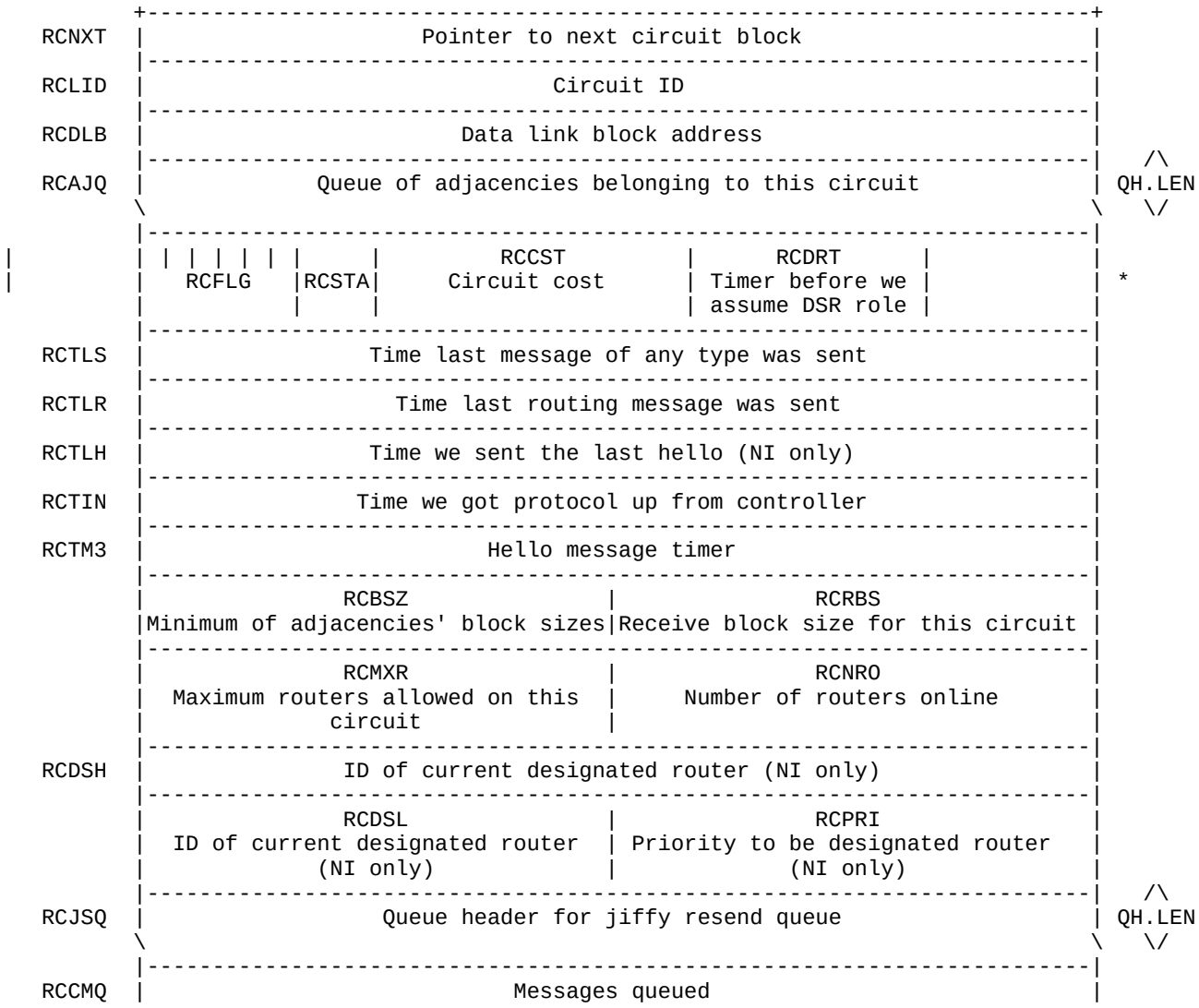
| Field RBICH (29-34) Interrupt Channel

RC-D36PAR

This is the DECnet router circuit block, which contains all the "per-circuit" data for Router-36.

Defined in: D36PAR

Format



RCCLC	Local messages
RCSLZ	(0) Time stamp of when last zeroed.
RCCAP	(800) Arriving packets received (to NSP)
RCCDP	(801) Departing packets sent (from NSP)
RCCAL	(802) Arriving congestion loss (to NSP)
RCCTR	(810) Transit packets received
RCCTS	(811) Transit packets sent
RCCTL	(812) Transit congestion loss
RCCCD	(820) Circuit down events
RCAJD	Adjacency down
RCCIF	(821) Initialization failures
RCBSX	(xxxx) Adjacency block size exceeded /output

For field RCFLG(0-5):

RCBCT	0	Broadcast circuit (should be bit 0)
RCSRM	1	Send routing message flag
RCEBU	2	Emergency buffer is in use
RCSHM	3	Send hello message
RCDSR	4	We are the designated router

Field RCSTA (6-8) Circuit state

Field RCCST (9-20) Circuit Cost

Field RCDRT (21-29) Time before we assume DSR role

RC-PHYKNI

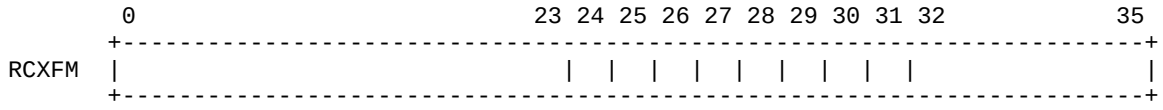
RC is the structure for the NI read counters block.

Defined in: PHYKNI

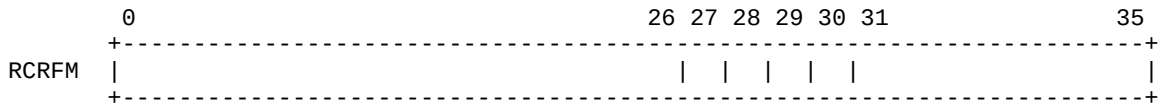
Format

RCBR	Bytes received	
RCBX	Bytes transmitted	
RCFR	Frames received	
RCFX	Frames transmitted	
RCMCB	Multicast bytes received	
RCMCF	Multicast frames received	
RCFXD	Frames xmitted, initially deferred	
RCFXS	Frames xmitted, single collision	
RCFXM	Frames xmitted, multiple collisions	
RCXF	Transmit failures	
RCXFM	Transmit failure bit mask	*
RCCDF	Carrier detect check failed	
RCRF	Receive failures	
RCRFM	Receive failure bit mask	*
RCDUN	Discarded unknown	
RCD01	Discarded position 1	
RCD02	Discarded position 2	
RCD03	Discarded position 3	
RCD04	Discarded position 4	
RCD05	Discarded position 5	
RCD06	Discarded position 6	

RCD07	Discarded position 7
RCD08	Discarded position 8
RCD09	Discarded position 9
RCD10	Discarded position 10
RCD11	Discarded position 11
RCD12	Discarded position 12
RCD13	Discarded position 13
RCD14	Discarded position 14
RCD15	Discarded position 15
RCD16	Discarded position 16
RCUFD	Unrecognized frame destination
RCDOV	Data overrun
RCSBU	System buffer unavailable
RCUBU	User buffer unavailable
RCRS0	PLI reg rd par error,,PLI parity error
RCRS1	MOVER parity error,,CBUS parity error
RCRS2	EBUS parity error,,EBUS queue parity error
RCRS3	Channel error,,Spur channel error
RCRS4	Spur xmit attn error,,CBUS req timout error
RCRS5	EBUS req timeout error,,CSR grnt timeout error
RCRS6	Used buff parity error,,xmit buff parity error
RCRS7	Reserved for uCode
RCRS8	Reserved for uCode



Symbol	Bits	Contents
RCLOC	24	Loss of carrier
RCXBP	25	Xmit buffer parity error
RCRFD	26	Remote failure to defer
RCXFL	27	Xmitted frame too long
RCOC	28	Open circuit
RCSC	29	Short circuit
RCCCF	30	Collision detect check failed
RCEXC	31	Excessive collisions



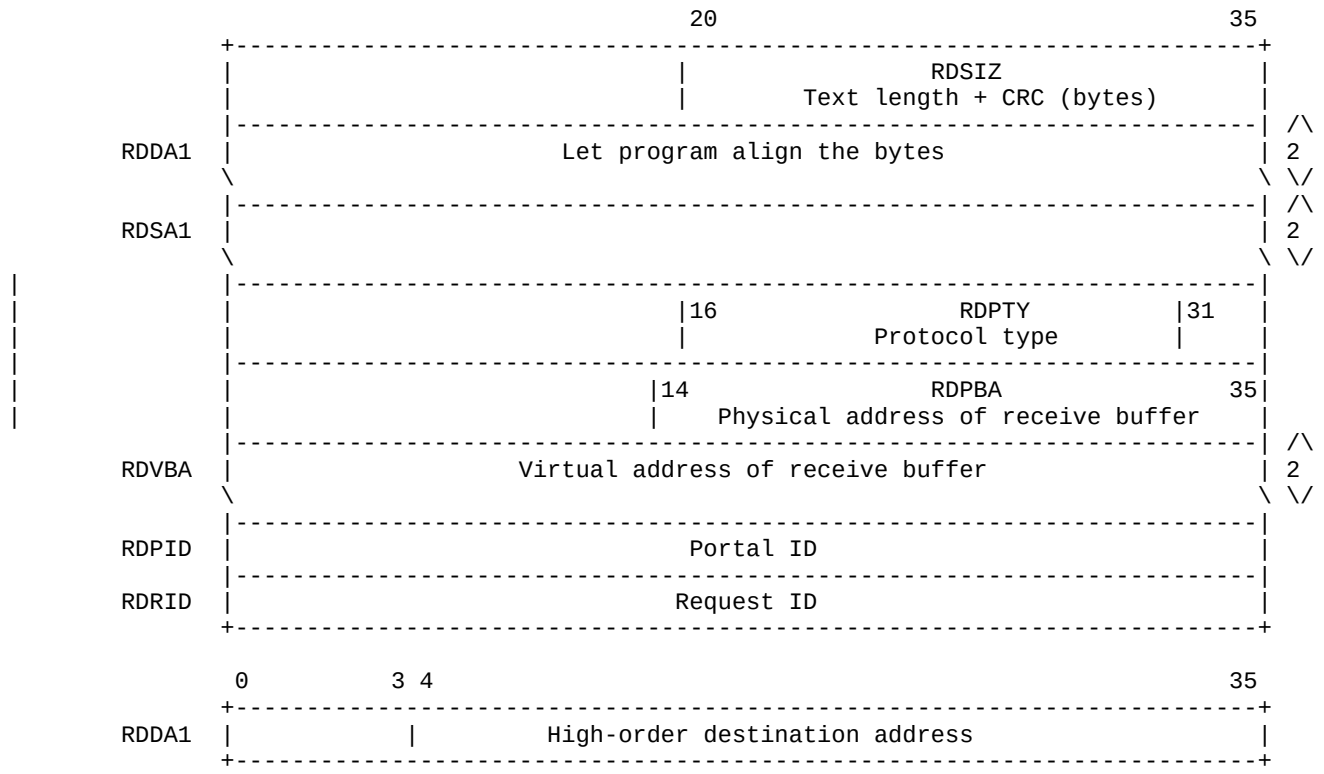
Symbol	Bits	Contents
RCFLE	27	Free list parity error
RCNFB	28	No free buffers
RCFTL	29	Frame too long
RCFER	30	Framing error
RCBCE	31	Block check error

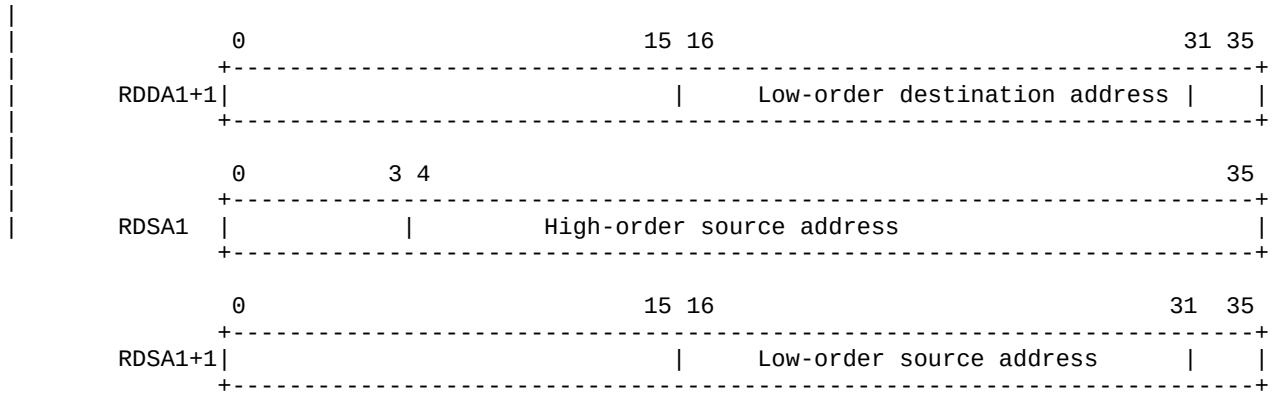
RD

RD represents the format of the NI Receive Datagram command.

Defined in: PHYKNI

Format




0 15 16 31 35
RDDA1+1
Low-order destination address
0 3 4 35
RDSA1
High-order source address
0 15 16 31 35
RDSA1+1
Low-order source address

RES-FREE-SPACE

Resident Free Space Storage.

The resident free space pool is used by TOPS-20 for allocating free space for data structures such as UDBs, CDBs, KDBs, and SDBs; for terminal messages and line dynamic data blocks; and for the TIMER JSYS when it builds a job's run-time limit block. (See JOBRTL table).

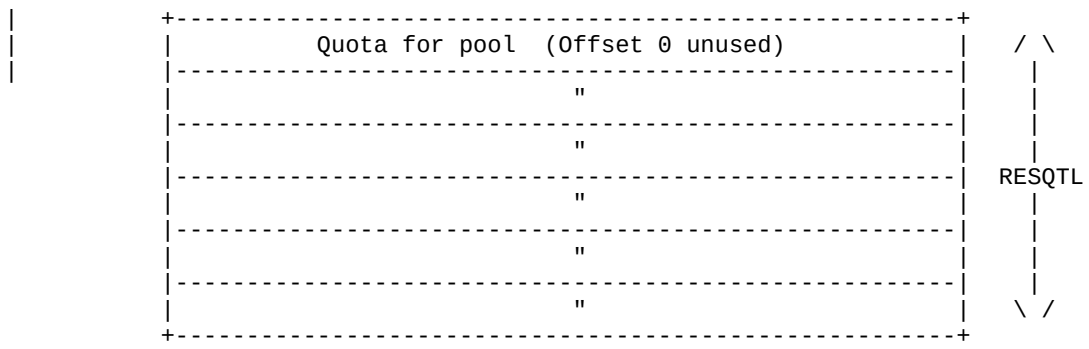
Defined in: STG

There are 2 resident free spaces - one in section 0/1 and one in an extended section. The following data structure describes each of the free spaces. The locations RES0TB and RESNTB contain the addresses of the data structures for section 0/1 space and extended space, respectively.

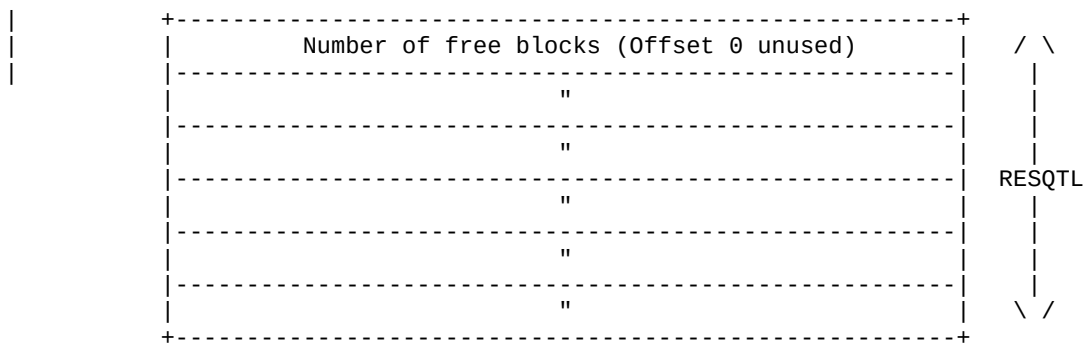
.REBAS	Starting address of free space
.REEND	Address of last word of free space
.RETOT	Total size of free space in blocks
.REPR1	If space left is less than this, allocate P1 only
.REGRO	If space left is less than this, grow free space
.REBTB	Address of start of bit table
.REBTL	Length of bit table (words)
.RETFR	Total remaining unallocated blocks
.REFFB	Number of block just past end of free space
.REPMX	Number pools
.REQTA	Address of block containing quota for each pool
.REPFR	Address of block containing count of unallocated blocks

Offset .REBTB points to a bit table, each bit representing a 4-word block of free space - bit on means block in use.

Data structure pointed to by offset .REQTA, indexed by pool number.



Data structure pointed to by offset .REPFR, indexed by pool number.



Requests for Resident Free Space are given priority levels where:

.RESP1=0 Highest priority and monitor always tries to assign space. Page faults are not allowed.

.RESP2=1 Second level priority where monitor does not assign space if free storage would go below minimum (RESMIN). Page faults are not allowed.

.RESP3=2 Lowest priority and requests for this level are made in process context. Page faults are allowed.

Pool types and numbers as indicated by RESUTP are:

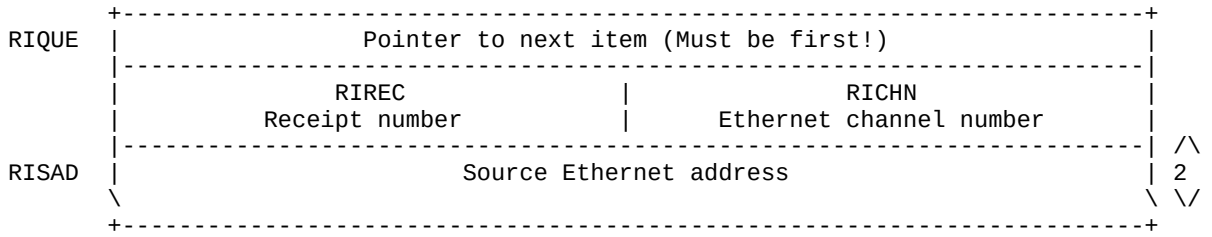
.RESGP=1 General resident free space pool
.RESTP=2 Terminal pool
.RESNP=3 Network pool
.RSTMP=4 TIMER pool
.RESUP=5 UNITS pool - used by PHYSIO and DSKALC

RI

This is the DECnet LLMOP request block, which is used to make the Job 0 (CHKR) fork generate a System ID message on the NI.

Defined in: LLMOP

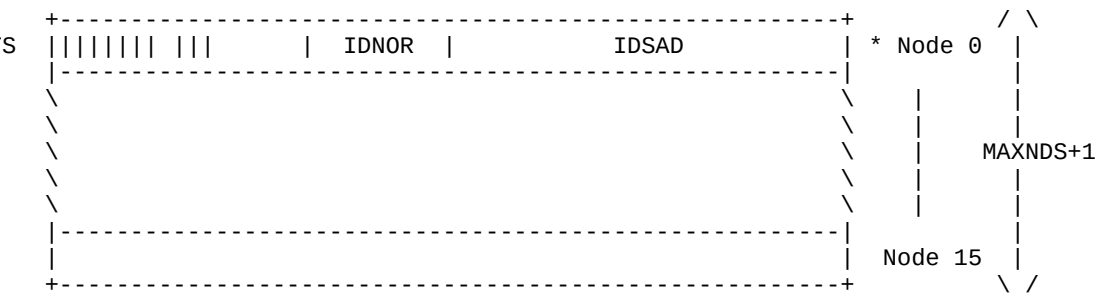
Format



RIDSTS (REQUEST-ID STATUS)

RIDSTS, indexed by CI node number, contains information regarding the status of CI request-id polling. Also, if the remote node is an HSC, RIDSTS contains information about our attempts to reset/start it.

Defined in: PHYKLP



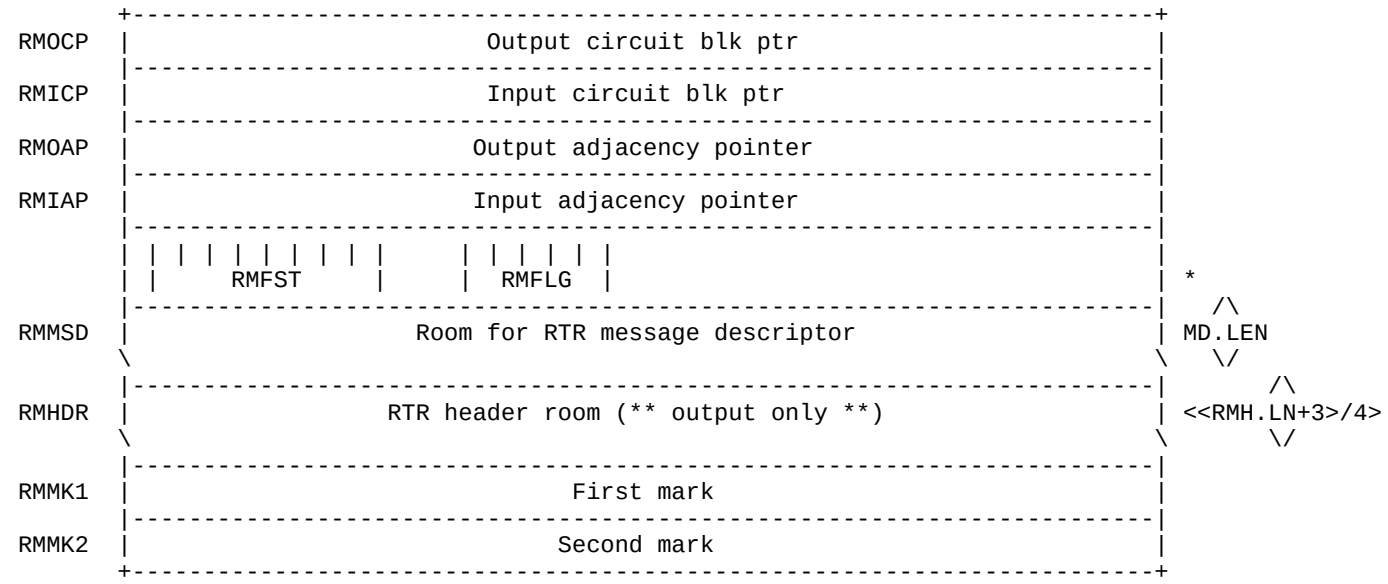
Bit	Name	Description
0	IDSNT	Last Request-ID sent - 0 = path A, 1 = path B
1	IDPAO	Path A Open - 0 = closed, 1 = open
2	IDPBO	Path B Open - 0 = closed, 1 = open
3	IDNRA	No-Response on Path A - 0 = response, 1 = no-response
4	IDNRB	No-Response on Path B - 0 = response, 1 = no-response
5	IDTRY	Last Try Status - 0 = first, 1 = second
6	IDWFR	Waiting for a response (from our port) to sent request-id
8	IDRST	Reset-remote command has been sent
9	IDSTA	Start-remote command to be sent
10	IDMAI	Remote port is in maintenance mode
12-17	IDNOR	Count of consecutive no-responses when we know the other port is receiving our request-ids
20-35	IDSAD	Starting address for remote node

RM

This is structure RM, the DECnet router message.

Defined in: D36PAR

Format



For field RMFST(1-8):

RMMZ1	1	Reserved (must be zero)
RMEVL	2	Evolution bit (reserved)
RMMZ2	3	Reserved (must be zero)
RMRTS	4	Being returned to sender
RMRQR	5	Return requested
RMMZ3	6	Reserved (must be zero)
RMMB1	7	Reserved (must be one)
RMCTL	8	Control message (not data)

Field RMCTY (9-11) Control message type

For field RMFLG(12-16):

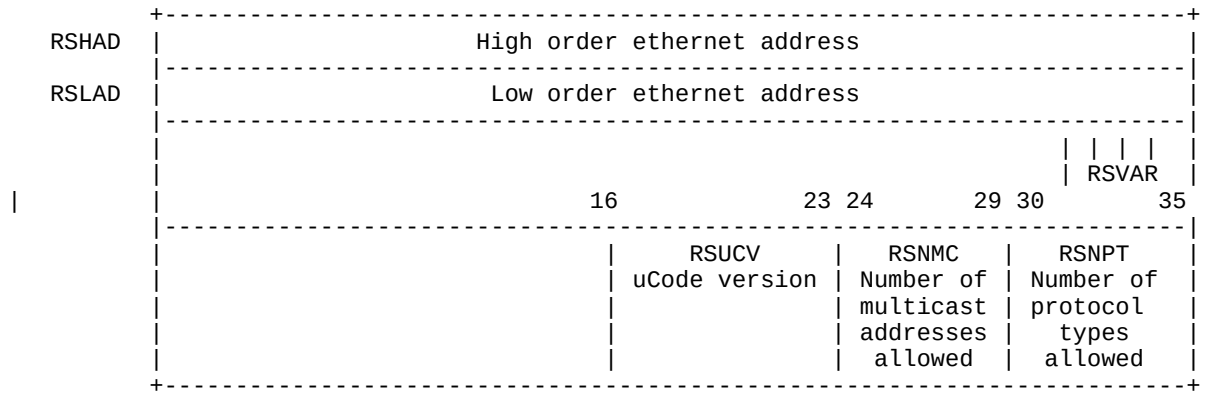
RMODN	12	Local NSP doesn't want this local message "ODN"ed
RMPH2	13	Message seems to be PHASE II
RMTRY	14	NSP wants Router to "TRYHARD" on the NI
RMTST	15	This is a test message
RMDRM	16	This message should be resent to multicast "All-Endnodes"

RS

RS defines the format of the NI Read Station command.

Defined in: PHYKNI

Format



For field RSVAR(32-35):

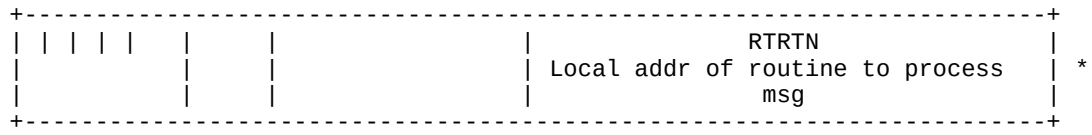
RSNOP	32	Receive MOP mode (unused)
RSPMC	33	Unrelated multicast mode
RSH40	34	H4000 mode
RSPRM	35	Unrelated mode

RT

RT is the DECnet Receive Table Definition, which is used by the receive message routines for determining how to process incoming messages. There is an RT entry in MSGTBL for every type of message that DECnet-36 expects to receive.

Defined in: LLINKS

Format



For field RTFLG(0-5):

RTFLO	0	Msg type flow controlled, for CHKRSN
RTOTH	1	Set if this is "other" sublink
RTACK	2	Set if msg must include ACKNUM field
RTRSP	3	Set if sender expects a response

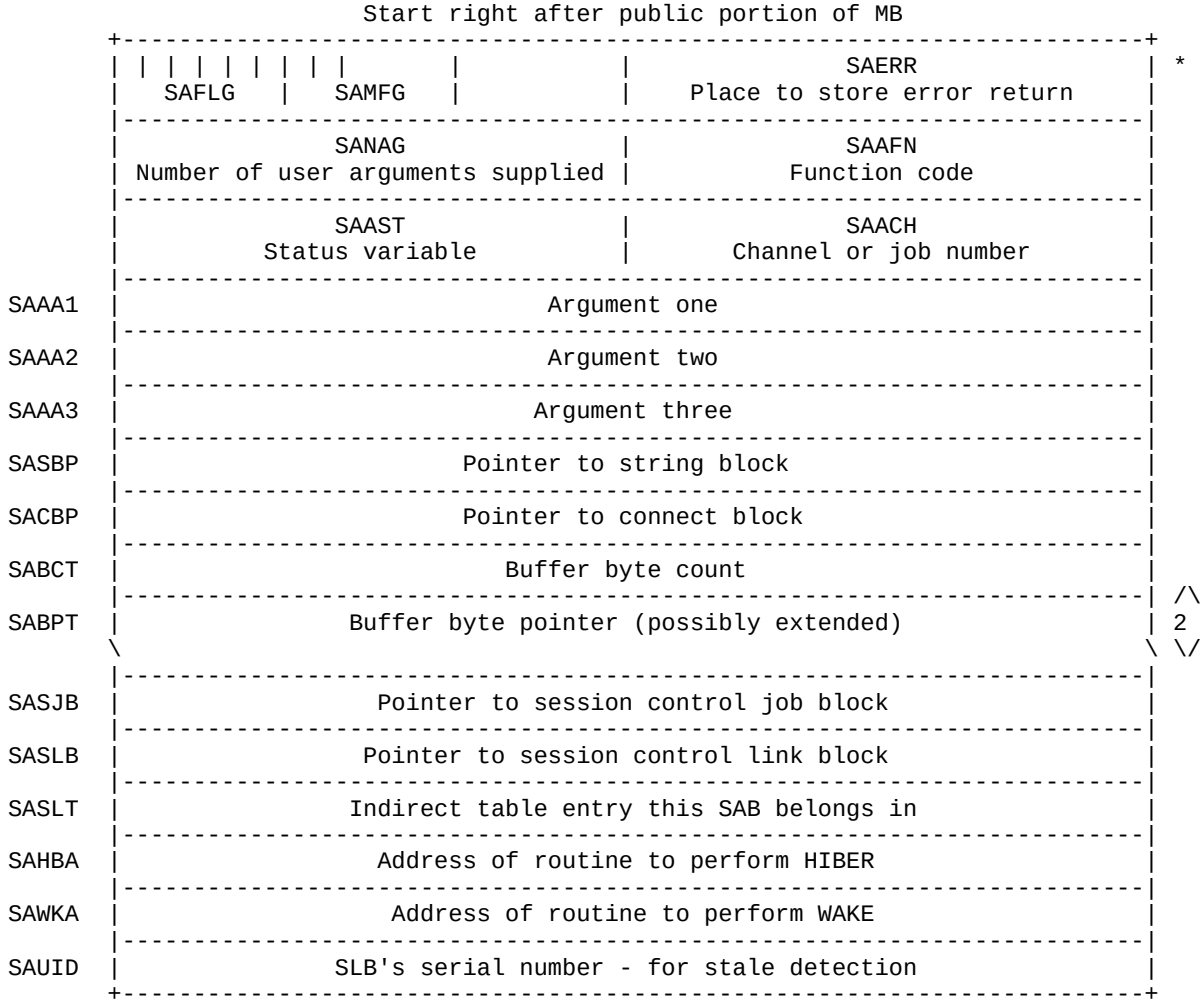
Field RTUPT	(6-8)	The "upto" field, mod 3 bits for DDT

SA

SA is the Session Control Argument Block (SAB) portion of a DECnet message.

Defined in: D36PAR

Format



For field SAFLG(0-5):

Symbol	Bit	Contents
SAWAI	0	Wait if user wants (check NS.WAI)
SAEOM	1	End of message flag
SABOM	2	Beginning of message flag
SAKCB	3	Keep connect block for life of link
SABLK	4	HIBER routine has blocked. Room for future MONUSR flags

For field SAMFG(6-11):

Symbol	Bit	Contents
SAEVA	6	User buffer in exec virtual addr space
SASAT	7	Data read satisfied Room for future monitor flags

SB-LATSRV

This is the LAT slot block data structure. There is one slot block for each active slot (terminal) session. Slot blocks are created when a slot session is started and released when the slot session is terminated. Slot blocks are pointed to by the Connect Block queue pointer CBSBQ.

Defined in: LATSRV

Format

SLOT BLOCK

SBLNK	Queue link word (must be first)	2
	| | | | | | | | SBFLG	SBATS Maximum attention slot size	*
	SBMDS Maximum slot data size	SBSTA Slot state	
	SBRID Remote slot id	SBLID Local slot id	
	SBXCR Transmit credits available to us	SBRCR Receive credits still outstanding	
	SBREA Reason code for stop or reject	SBSRC Source slot name count	
	SBPRC Port name count	SBSVC Service name count	
SBSRN	Server Name		<<ML.SLN+4>/5>
SBPRN	Port Name		<<ML.SLN+4>/5>
SBSVN	Service Name		<<ML.SLN+4>/5>
SBTDB	Terminal data block		
SBCBA	Circuit block address for this slot		
SBPRA	Pending request block address		

For field SBFLG(0-17):

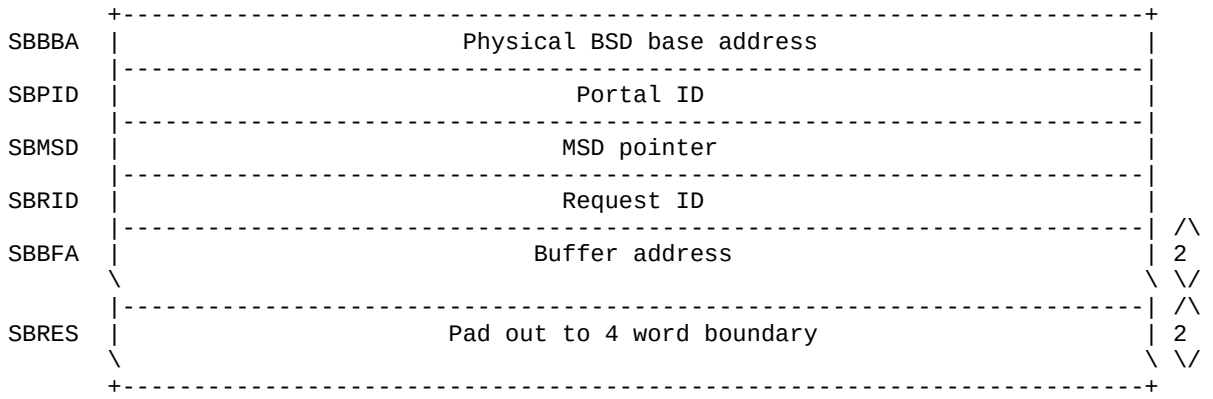
Symbol	Bit	Contents
SBSDP	0	Slot data present (must be sign bit)
SBREJ	1	Send REJECT Slot
SBSTR	2	Send START Slot
SBFOU	3	Flush output
SBOUT	4	Output data available
SBFCC	5	Flow control change
SBSTO	6	Send STOP Slot(Must be last)
SBDLP	7	This slot is a dialup line

SB-PHYKNI

This block exists in all NI Send Datagram commands; it starts after the SN block. If the datagram is BSD style, SBBBA contains the physical address of the first BSD. The other fields in this block may be used by both BSD and non-BSD style sends.

Defined in: PHYKNI

Format



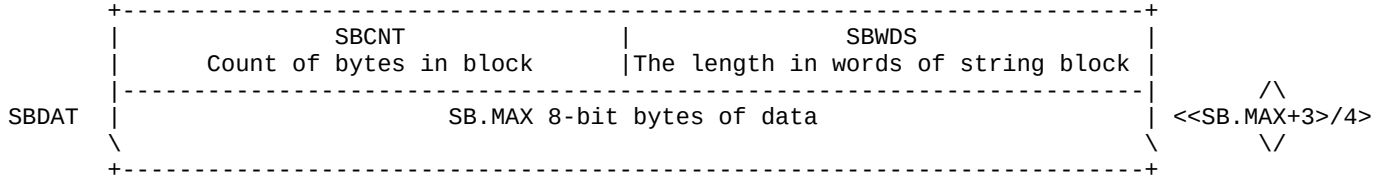
SB-SCPAR

The String Block is used by DECnet-36 to store the user's string-block argument.

Defined in: SCPAR

Format

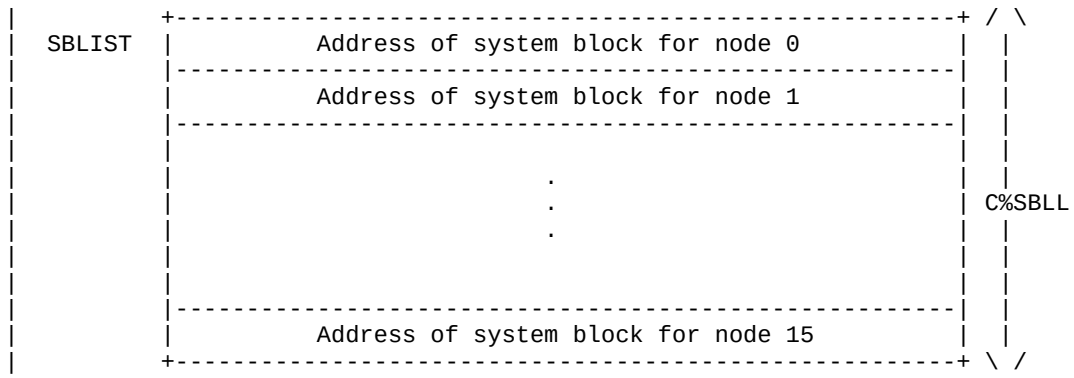
The Internal String Block



SBLIST (SYSTEM BLOCK LIST)

The system block list, indexed by CI node number, contains the addresses of the system blocks for nodes on the CI. These addresses point to the device-dependent portion of the KDB for that CI node.

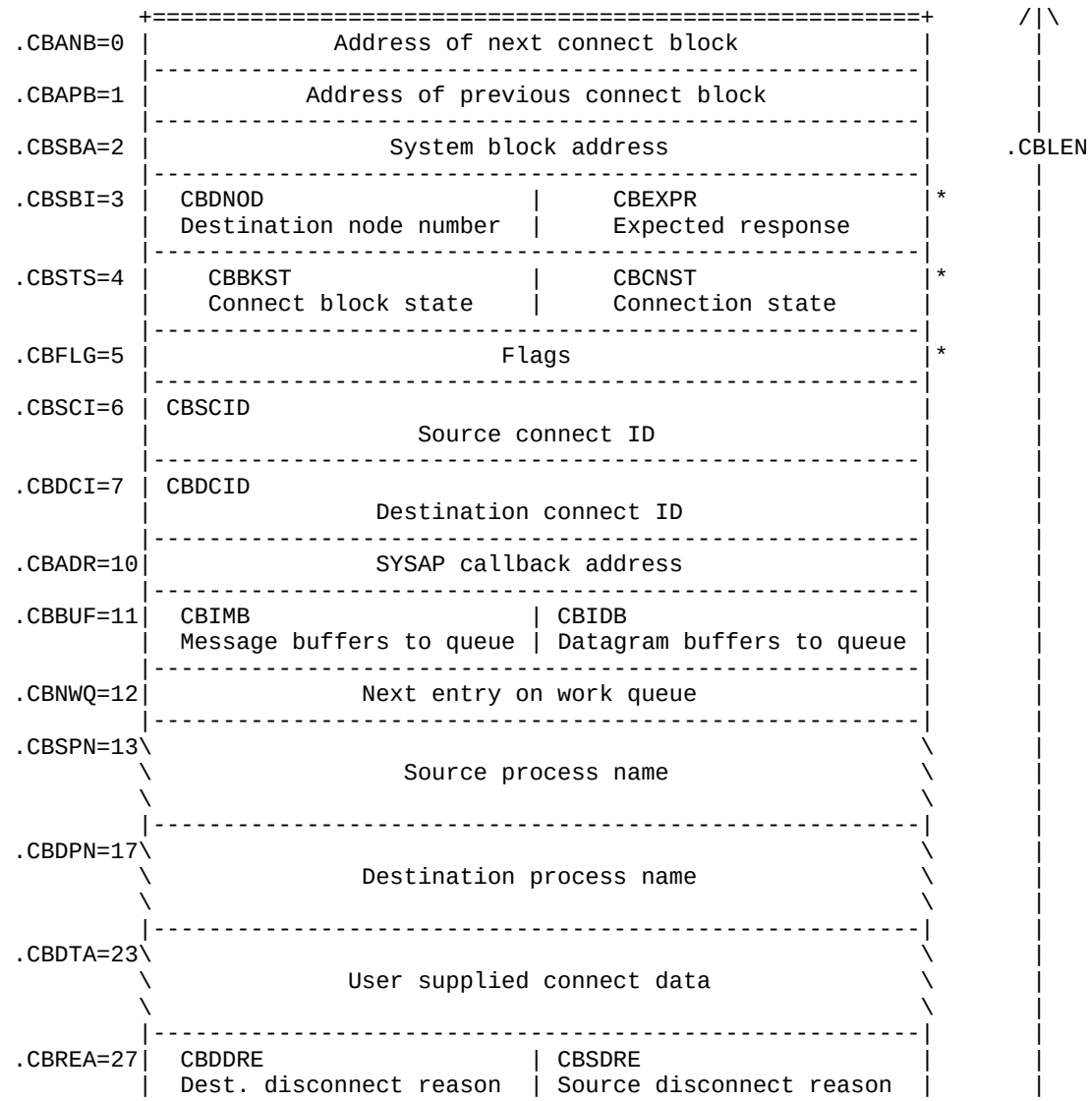
Defined in: SCAMPI



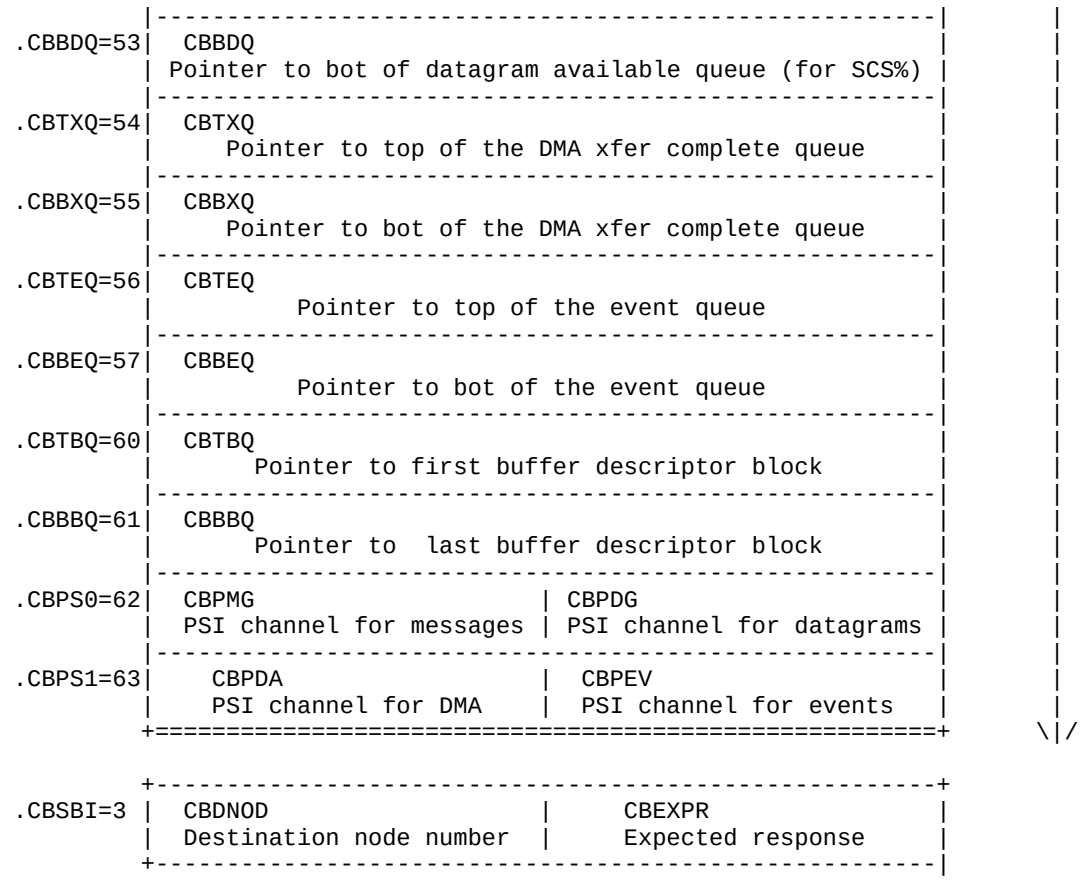
SCA CONNECTION BLOCK

This is the format of the connection block used by SCA to keep the state of each connection which it is maintaining.

Defined in: SCAPAR



.CBMCD=30	CBMNSC Minimum send credit	CBMNRC Minimum receive credit
.CBSCD=31	Send credit	
.CBRCD=32	Receive credit	
.CBPRC=33	Pending receive credit	
.CBRQC=34	Requeue credit	
.CBRTC=35	Return credit	
.CBNPO=36	CBNPO Packets on port command Q	CBRCNT Reaping postponed count
.CBDGR=37	Number of datagram buffers on hardware queue	
.CBCDD=40	CBCDD Number of dropped datagrams	
.CBLCK=41	Interlock word for connect state	
.CBPND=42	Interlock word for credit_request in progress	
.CBJNB=43	CPJNB Address of next connection block for this fork	
.CBJPB=44	CPJPB Address of previous connection block for this fork	
.CBMGJ=45	CBMGJ Number of SCS% message receive buffers queued	
.CBDGJ=46	CBDGJ Number of SCS% DG buffers queued	
.CBFRK=47	CBFORK Job number of owner job	CBJOB Fork number of owner fork
.CBTMQ=50	Pointer to top of message available queue (for SCS%)	
.CBBMQ=51	CBBMQ Pointer to bot of message available queue (for SCS%)	
.CBTDQ=52	CBTDQ Pointer to top of datagram available queue (for SCS%)	



Contents of field CBEXPR

Symbol	Value	Meaning
.STORS	1	Connect response
.STARS	3	Accept response
.STRRS	5	Reject response
.STDRS	7	Disconnect response
.STCRS	11	Credit response

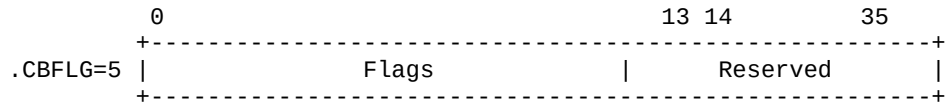
.CBSTS=4	CBBKST Connect block state	CBCNST Connection state

Contents of field CBBKST

Symbol	Value	Meaning
.BSFRE	1	Free
.BSALL	2	Allocate
.BSCNP	3	Connect pending
.BSACP	4	Accept pending
.BSRPN	5	Reject pending
.BSCRP	6	Credit pending
.BSDPN	7	Disconnect pending

Contents of field CBCNST

Symbol	Value	Meaning
.CSCLO	1	Closed (CLOSED)
.CSLIS	2	Listening (LISTENING)
.CSCSE	3	Connect request was sent (CONNECTSENT)
.CSCRE	4	Connect request was received (CONNECTREC)
.CSCAK	5	Connect response was received (CONNECTACK)
.CSACS	6	Accept request was sent (ACCEPTSENT)
.CSRJS	7	Reject request was sent (REJECTSENT)
.CSOPN	10	Connection is open (OPEN)
.CSDSE	11	Disconnect request was sent (DISCONNECTSENT)
.CSDRE	12	Disconnect request received (DISCONNECTREC)
.CSDAK	13	Disconnect response received (DISCONNECTACK)
.CSDMC	14	Waiting for disconnect response (DISCONNECTMATCH)



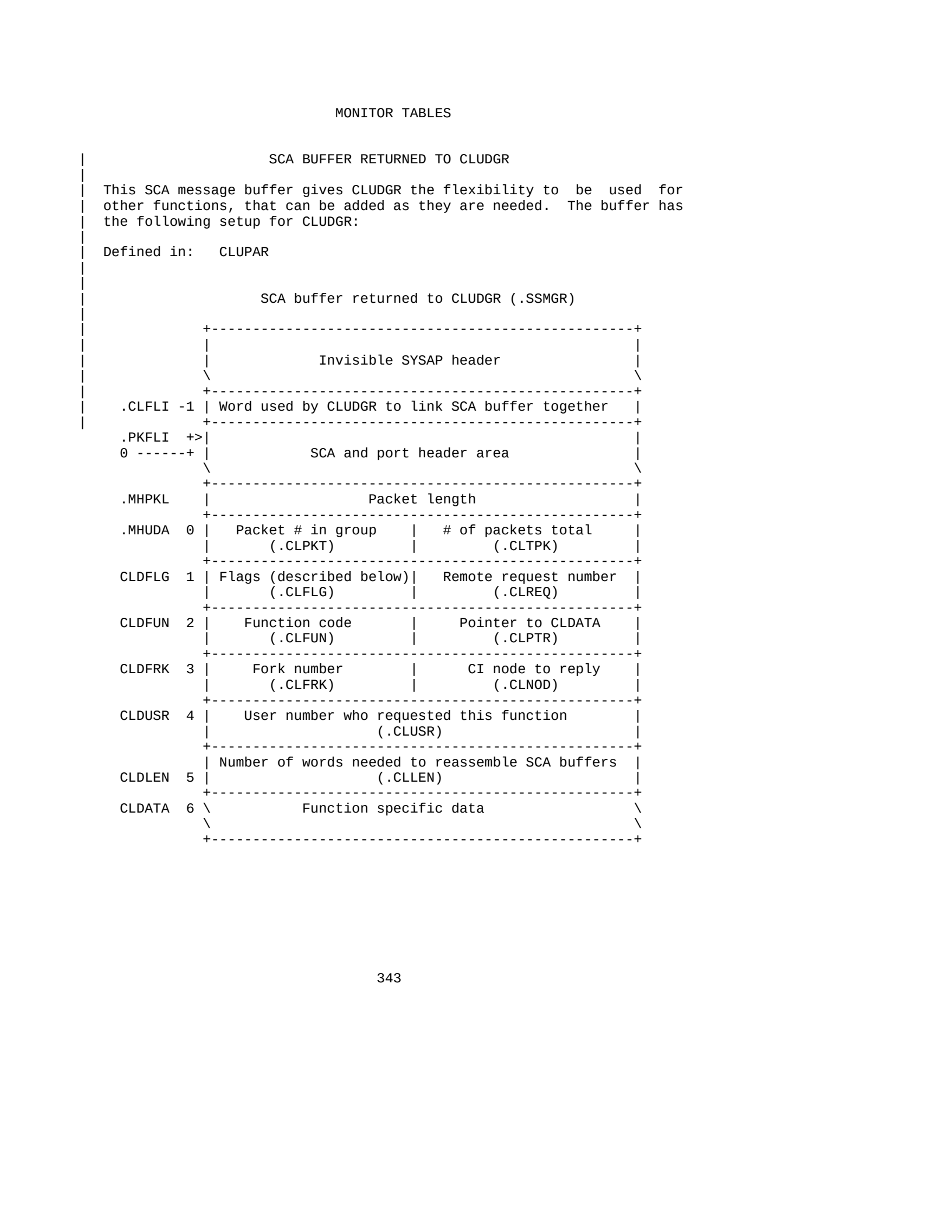
Symbol	Bits	Contents
CBFNNC	0	Needs credit notify
CBFJSY	1	CB is for SCS% conn
CBFABT	2	CB has been aborted
CBFRAP	3	CB is to be reaped
CBFDCL	4	This was DC listener
CBFKIL	5	Fork has been killed
CBFMDC	6	Maint data CB
CBFCVC	7	Virtual circuit was closed
CBFSOB	8	Stuck on buffers
CBFPTC	9	Protocol completed
CBFERR	10	SC.ERR deferred
CBFDIS	11	SC.DIS deferred
CBFDRQ	12	SC.DRQ deferred
CBFSNM	13	SC.SNM deferred

SCA BUFFER RETURNED TO CLUDGR

This SCA message buffer gives CLUDGR the flexibility to be used for other functions, that can be added as they are needed. The buffer has the following setup for CLUDGR:

Defined in: CLUPAR

SCA buffer returned to CLUDGR (.SSMGR)



CLDFLG Flags (Word 1)

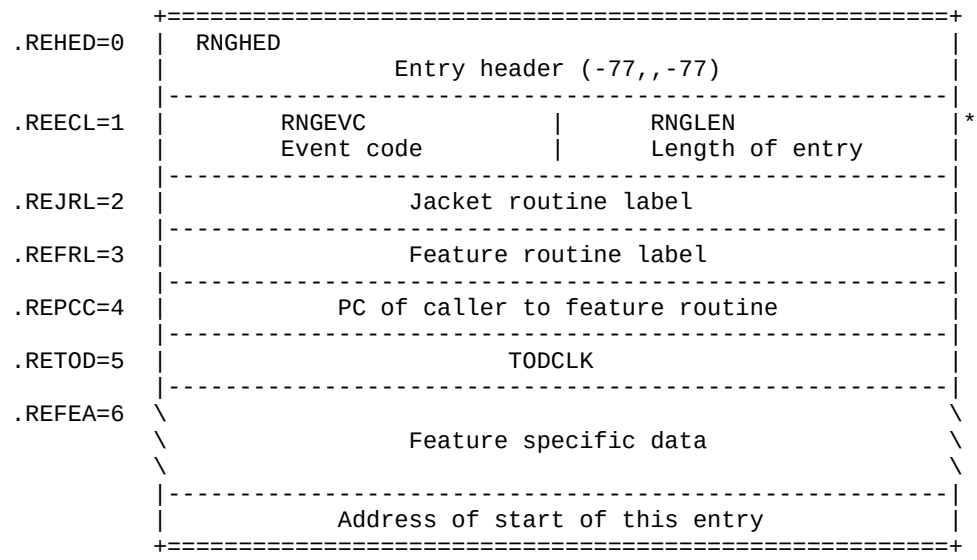
Symbol	Bits	Description
CL%REQ	0	1=local CLUDGR to perform requested function 0=remote request
CL%PRV	1	1=remote user has WHEEL or OPERATOR privileges enabled
CL%GAL	2	1=remote process is a GALAXY component
CL%ERR	3	1=remote system error for the given function
	4-17	Unused

SCA RING BUFFER ENTRY

The SCA ring buffer is present in the monitor only if the monitor has been built with the flags DEBUG and SCARNG non-zero. These flags are found in PROLOG.MAC. Also, the bits that are set in the location RNGSW ultimately controls which events get recorded in the ring buffer.

The following is the format of an SCA ring buffer entry. The symbols given are not offsets into the entire ring buffer. They are offsets into a particular ring buffer entry. The pointer to the current ring buffer position is stored in RNGADR and the address of the most recent ring buffer entry is stored in RNGCUR. The top of the ring buffer is stored in RNGTOP and the bottom address is in RNGBOT. The total number of entries written is in RNGNUM and the total size of the ring buffer is in RNGSIZ.

Defined in: SCAPAR



```
          +-------------------------------------------------------+
.REECL=1  |        RNGEVC             |      RNGLEN               |
          |        Event code         |      Length of entry      |
          +-------------------------------------------------------+
```

Contents of field RNGEVC

Symbol	Value	Meaning
SYSSCA	1	SYSAP to SCA events
SCASYS	2	SCA to SYSAP
BUFMAN	3	Buffer manipulation
PKTEVT	4	Packet transaction
PITRAN	5	PI transition
PORTQU	6	Port queue manipulation
INTLOK	7	Interlocks

Contents of RNGSW - the flag word which controls event recording

Symbol	Bit	Meaning
RSYSCA	0	Record SYSAP to SCA events
RSCASY	1	Record SCA to SYSAP events (callbacks)
RBUFMG	2	Record buffer management events
RPACKT	3	Record packet events (outgoing and incoming)
RPITRN	4	Record PI transitions
RPRTQU	5	Record port queue events
RINTLK	6	Record interlocks

SCA ring buffer entry--Feature data (SYSSCA)

Below is the format of the feature specific data for the SYSAP to SCA ring buffer entry.

```
          +=======================================================+
.RESNN=6  |                      Node number                      |
          |-------------------------------------------------------|
.RESCB=7  |                  Connect block address                |
          |-------------------------------------------------------|
.RESST=10 |          .CBSTS (Block state,,Connect state)          |
          |-------------------------------------------------------|
.RESFL=11 |                        .CBFLG                         |
          |-------------------------------------------------------|
.RESSI=12 |              .CBSCI (Source connect ID)               |
          |-------------------------------------------------------|
.RESDI=13 |             .CBDCI (Destination connect ID)           |
          +=======================================================+
```

SCA ring buffer entry--Feature data (SCASYS)

Below is the format of the feature specific data for the SCA to SYSAP (callback) ring buffer entry.

.RECNN=6	Node number
.RECCB=7	Connect block address
.RECCR=10	Callback reason code

SCA ring buffer entry--Feature data (BUFMAN)

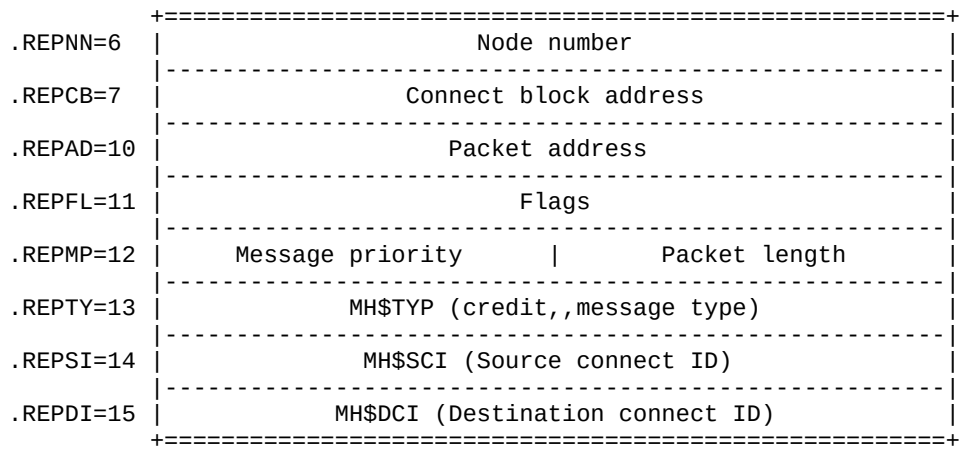
Below is the format of the feature specific data for the buffer manipulation ring buffer entry. The .REBCT word can contain one of three values. If the buffer is being returned, .REBCT contains a -1. If the buffer is being created or allocated and it has been obtained successfully, .REBCT contains the number of buffers. If the allocation was not successful, .REBCT contains the number of refused requests (RMRCNT for messages, RDRCNT for datagrams). Also, on an unsuccessfull allocation attempt, the .REBAD word contains -1 since no buffer was allocated. Otherwise, this word always contains a buffer address, which is either the address of a newly created/allocated buffer chain or the address of a buffer just returned.

.REBCT=6	# of Buffers, or refused count, or -1 if returned
.REBAD=7	Address of 1st buffer or -1 if can't allocate
.REBMC=10	FQCNT (number of buffers on message free queue)
.REBMT=11	TOPFQ (pointer to top of message free queue)
.REBMB=12	BOTFQ (pointer to bottom of message free queue)
.REBDC=13	DFQCNT (number of buffers on datagram free queue)
.REBDT=14	TOPDFQ (pointer to top of datagram free queue)
.REBDB=15	BOTDFQ (pointer to bottom of datagram free queue)

SCA ring buffer entry--Feature data (PKTEVT)

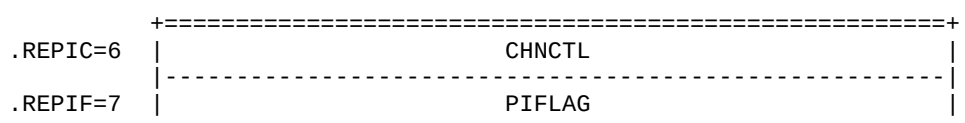
Below is the format of the feature-specific data for the packet transaction ring buffer entry. The flags word contains the PPD flag bits (F.RTB, F.SPM, F.RSP). F.RSP tells you whether the packet was locally or remotely generated (F.RSP) and indicates which connect ID is the one from the local system. The mode of the packet is indicated by F.SPM.

The message priority is the priority of the packet and ranges from a high priority of 0 to a low of 3.



SCA ring buffer entry--Feature data (PITRAN)

Below is the format of the feature specific data for the PI transition ring buffer entry.



SCA ring buffer entry--Feature data (PORTQU)

| Below is the format of the feature specific data for the port queue
| manipulation ring buffer entry.

```
          +=========================================================+
.REPQN=6  |                      Node number                        |
          |---------------------------------------------------------|
.REPQF=7  |           Flags           |       Buffer count          |*
          |---------------------------------------------------------|
.REPQB=10 |                    Buffer address                       |
          +=========================================================+


          +---------------------------------------------------------+
.REPQF=7  |           Flags           |       Buffer count          |
          +---------------------------------------------------------+
```

Contents of flags field

Symbol	Bit	Meaning
RPQFLK	0	Link to port queue
RPQFMG	1	Message free queue used

SCA ring buffer entry--Feature data (INTLOK)

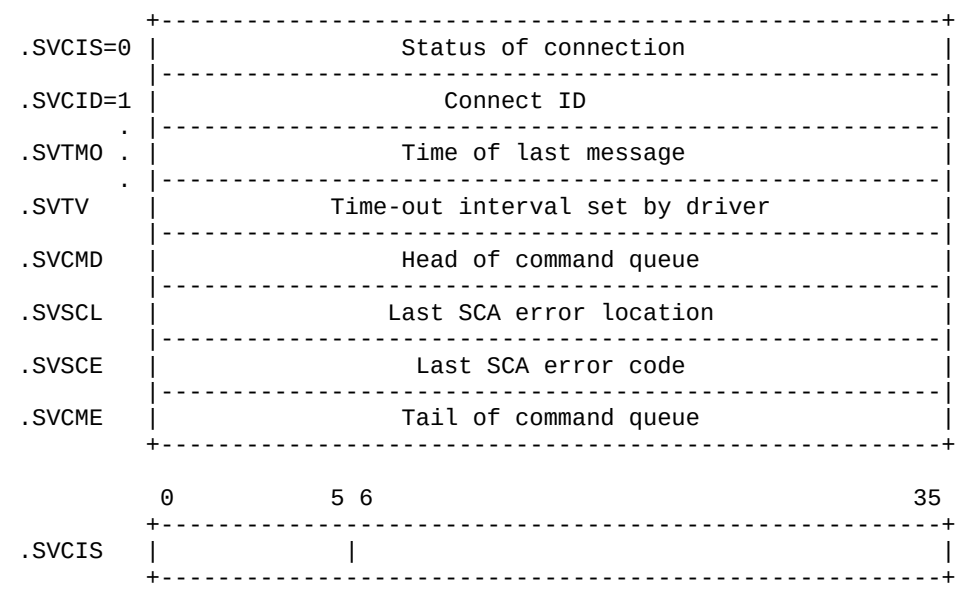
Below is the format of the feature specific data for the interlock ring buffer entry.

```
          +=========================================================+
.REICB=6  |                 Connect block address                   |
          |---------------------------------------------------------|
.REICL=7  |           Connect block lock value (.CBLCK)             |
          |---------------------------------------------------------|
.REIFL=10 |             Connect block flags (.CBFLG)                |
          |---------------------------------------------------------|
.REISL=11 |    Count of locked connect blocks on system block       |
          +=========================================================+
```

SCDB

The MSCP Server Connection Data Block, which SCDBTB points to.

Defined in: PHYMVR

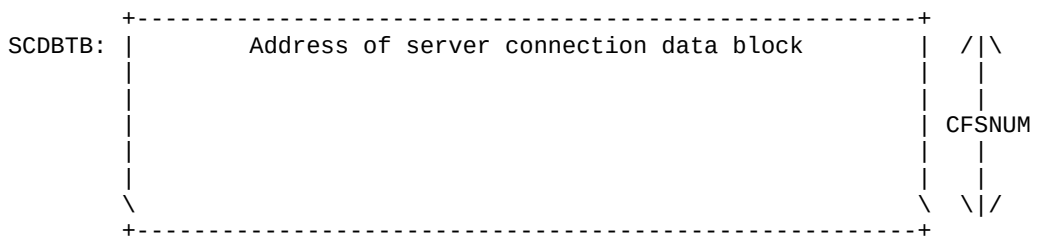


Symbol	Bits	Meaning
SVSTA	0-5	State of the connection, which can be:
	SCLIS==0	Null or listening. NOTE: Must be state 0
	SCWOK==1	Waiting for OK to send
	SCOKS==2	OK to send
	SCDIS==3	Shutdown - Disconnect (SCA function .SSRID)
	SCNOF==4	Shutdown - Node offline (SCA function .SSNWO)
	SCPBC==5	Shutdown - Port error (SCA function .SSPBC)
	SCFSD==6	Shutdown - Due to internal error or protocol
MCATN	6	Attention messages enabled

SCDBTB

Table of pointers to MSCP server connection data blocks.

Defined in: STG

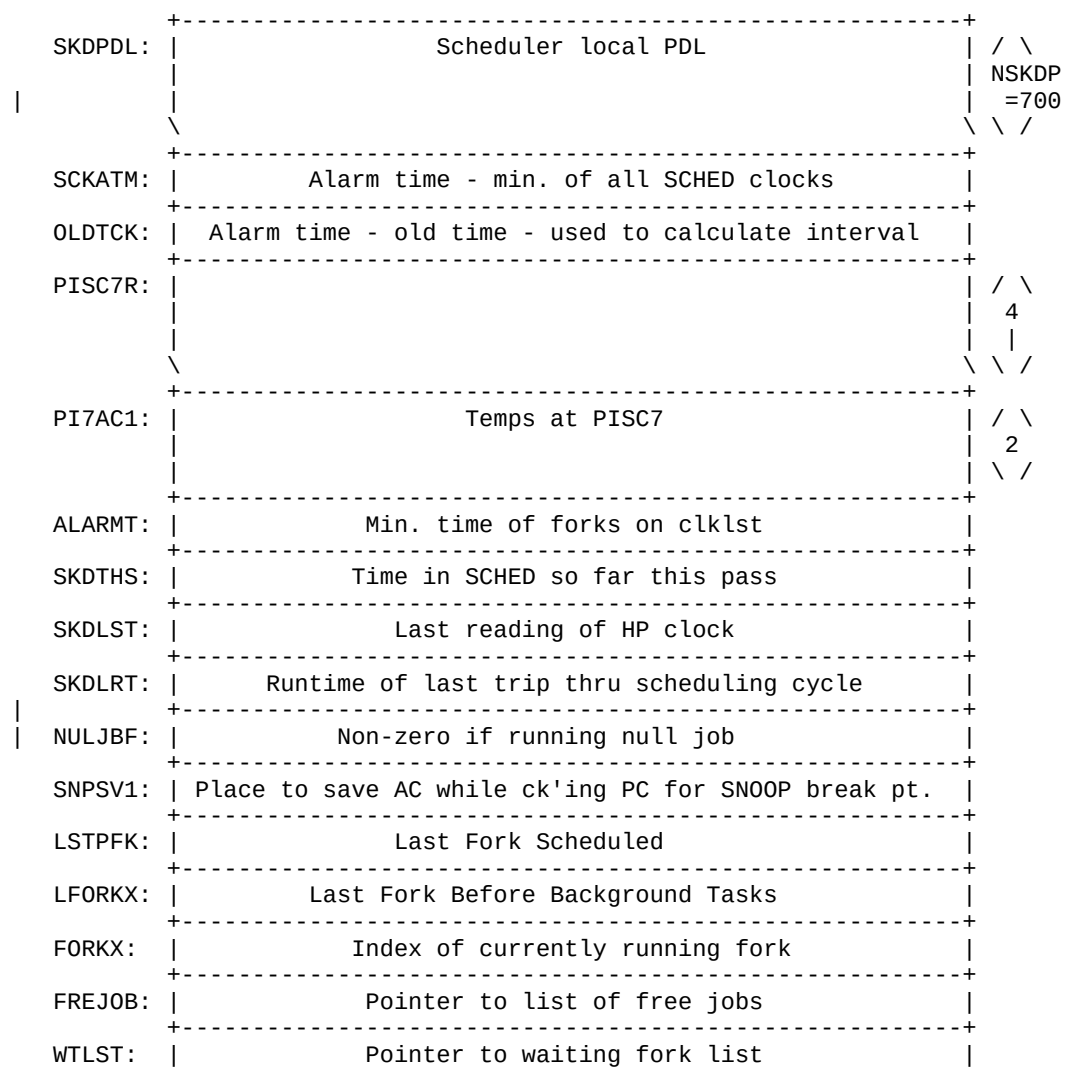


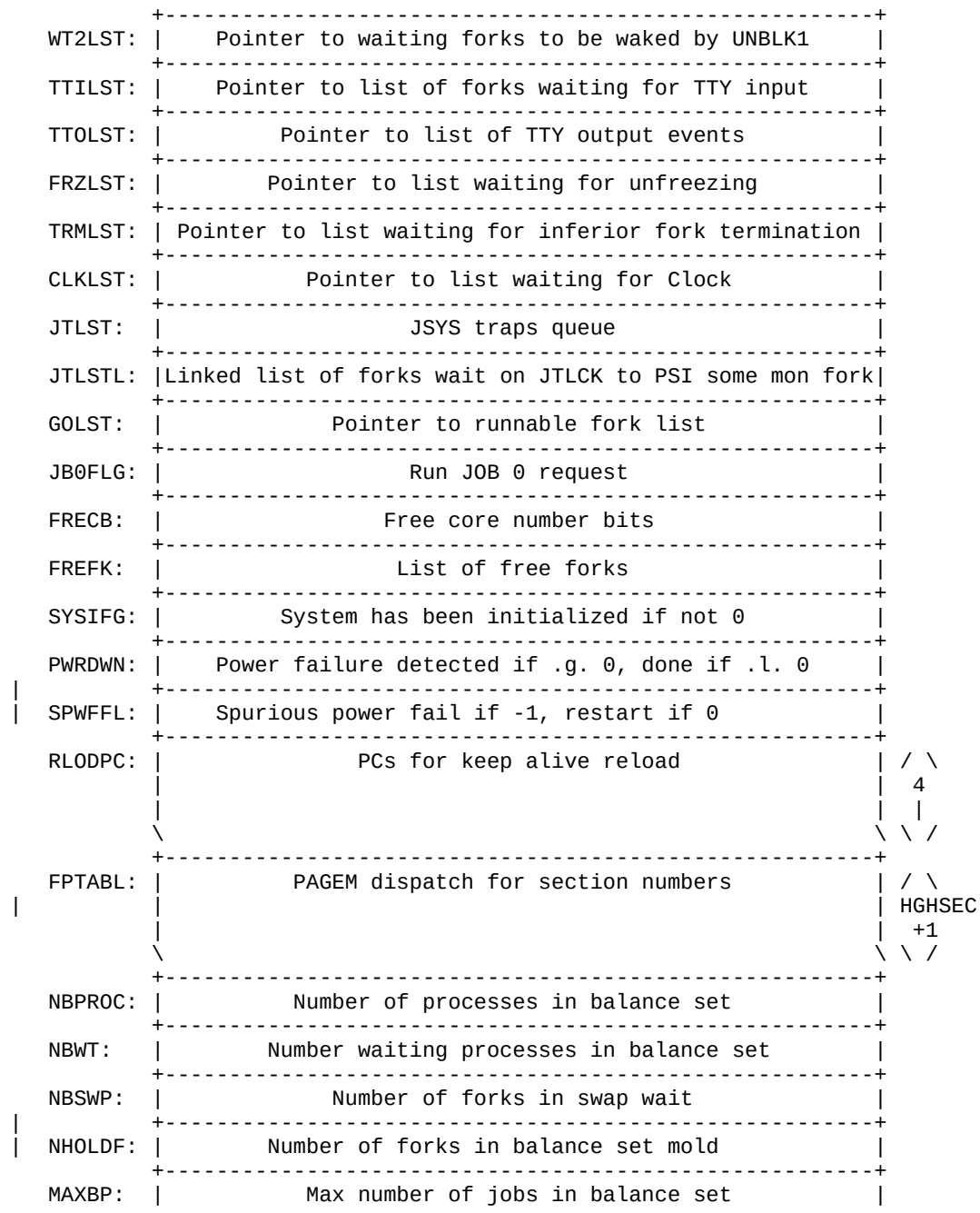
SCHED-VARIABLES

This storage contains the variables used in the SCHED module. It contains pointers to the GOLST and to the wait lists. Clock and other parameters needed are also contained.

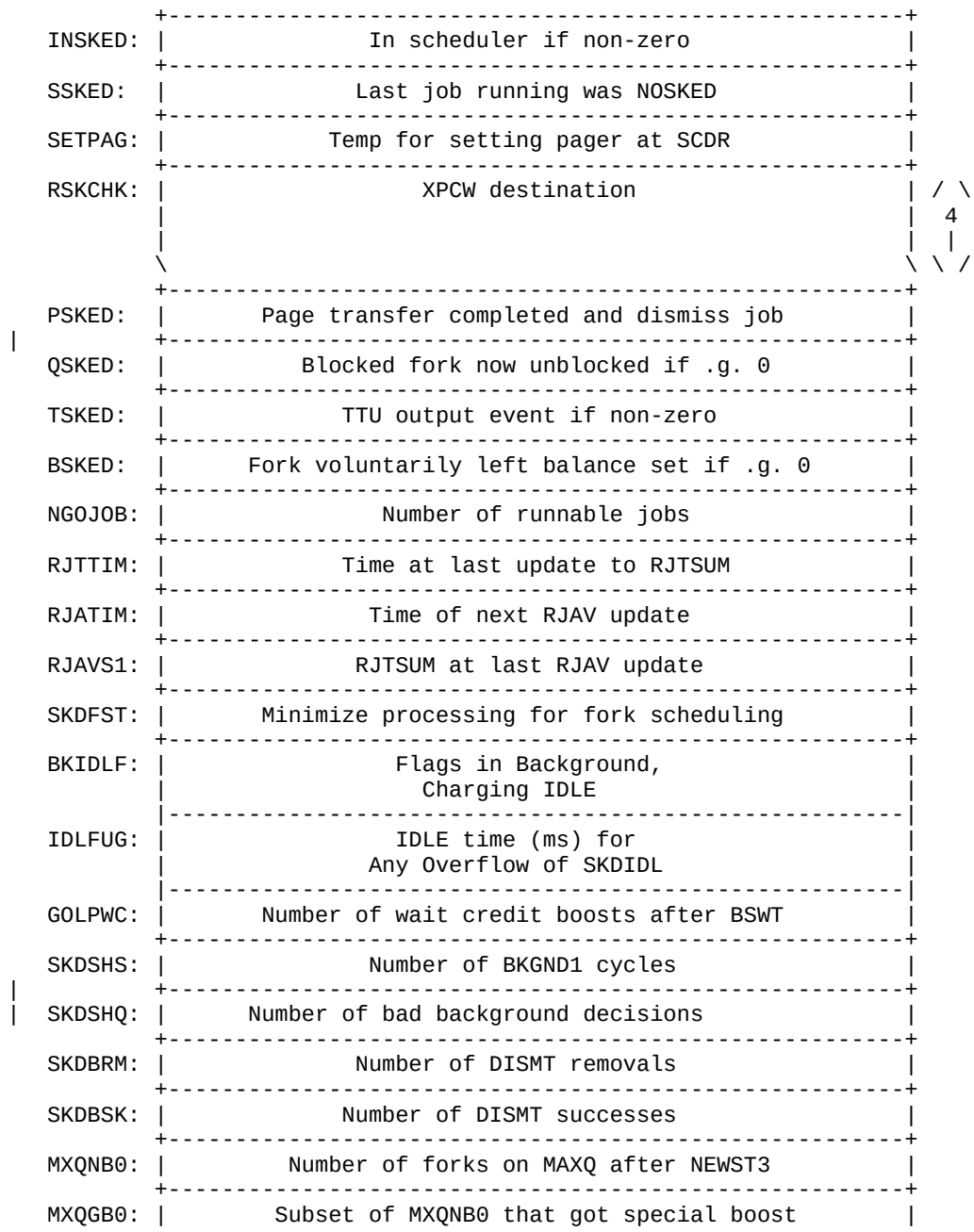
Defined in: STG, SCHED, APRSRV

Format




WT2LST: Pointer to waiting forks to be waked by UNBLK1
TTILST: Pointer to list of forks waiting for TTY input
TTOLST: Pointer to list of TTY output events
FRZLST: Pointer to list waiting for unfreezing
TRMLST: Pointer to list waiting for inferior fork termination
CLKLST: Pointer to list waiting for Clock
JTLST: JSYS traps queue
JTLSTL: Linked list of forks wait on JTLCK to PSI some mon fork
GOLST: Pointer to runnable fork list
JB0FLG: Run JOB 0 request
FRECB: Free core number bits
FREFK: List of free forks
SYSIFG: System has been initialized if not 0
PWRDWN: Power failure detected if .g. 0, done if .l. 0
SPWFFL: Spurious power fail if -1, restart if 0
RLODPC: PCs for keep alive reload
4
FPTABL: PAGEM dispatch for section numbers
HGHSEC
+1
NBPROC: Number of processes in balance set
NBWT: Number waiting processes in balance set
NBSWP: Number of forks in swap wait
NHOLDF: Number of forks in balance set mold
MAXBP: Max number of jobs in balance set

BSQNT0:	Value of BSQNT at start of last running
SUMNR:	Sum of reserve pages, all processes in memory
SUMBNR:	Sum of working sets in balance set
NWSEPG:	Number pages WSETs entering memory
BALSHC:	Count of pages in balance set because of sharing
NXTCNF:	Next fork to check - GCNO
RELCB:	Mask of core numbers released but not cleared
MAXNR:	Max value of SUMNR
MAXHNR:	Max NR of balance set holding forks
BSLST:	Pointer to list of balance set holding forks
NBSL:	Number of balance set holding forks
NEBAL:	Number of processes now entering balance set
REMFGS:	Flags set on REMBSJ/REMBSF
NPMAX:	Max number of pages in core for one proces
SNPMAX:	Small NPMAX for loaded conditions
IRJAV:	Nearest integer to RJAV
WSMTIM:	Time for next WSMGT
RWSOKF:	Flag - OK to do REMWS
NWSMEM:	Number WS in mem
NHQFK:	Number forks on non-maxq
NLQFK:	Number forks on maxq
SCHFLG:	Permanent scheduling flags
SKEDF1:	Start process by way of CH7 break in 1
SKEDF3:	Process clock counted to 0
SKEDFC:	Force clear of balance set and memory


INSKED: In scheduler if non-zero
SSKED: Last job running was NOSKED
SETPAG: Temp for setting pager at SCDR
RSKCHK: XPCW destination
4
PSKED: Page transfer completed and dismiss job
QSKED: Blocked fork now unblocked if .g. 0
TSKED: TTU output event if non-zero
BSKED: Fork voluntarily left balance set if .g. 0
NGOJOB: Number of runnable jobs
RJTTIM: Time at last update to RJTSUM
RJATIM: Time of next RJAV update
RJAVS1: RJTSUM at last RJAV update
SKDFST: Minimize processing for fork scheduling
BKIDLF: Flags in Background, Charging IDLE
IDLFUG: IDLE time (ms) for Any Overflow of SKDIDL
GOLPWC: Number of wait credit boosts after BSWT
SKDSHS: Number of BKGND1 cycles
SKDSHQ: Number of bad background decisions
SKDBRM: Number of DISMT removals
SKDBSK: Number of DISMT successes
MXQNB0: Number of forks on MAXQ after NEWST3
MXQGB0: Subset of MXQNB0 that got special boost

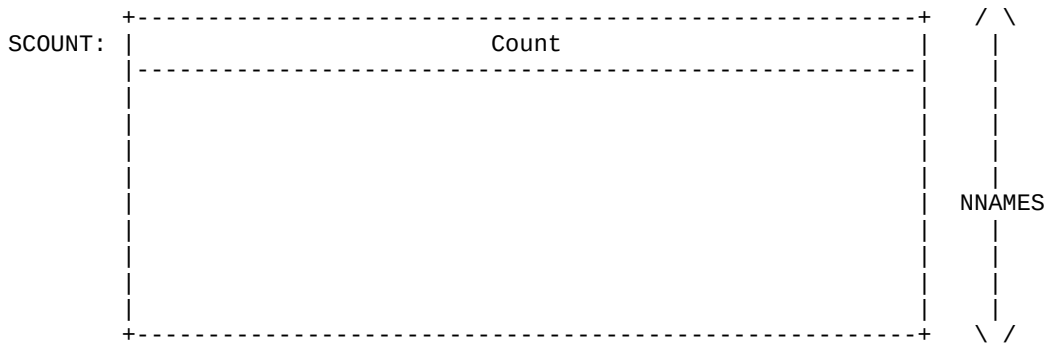
SKDSHN:	Count of times routine in SKDSHK changes NGOJOB	NSHAKL
RJAVS2:	HQFSUM at last RJAV update	
RJAVS3:	LQFSUM at last RJAV update	
BSQNT:	Running job remaining quantum	
TIM1:	SCHED fast clock	
TIM2:	Second clock	
FKT0:	Clock at start of running	
FKT1:	Time used since SETRT	
TIM0:	TODCLK atlast C1STAT	
TODCLK:	Millisecond clock, monotonically increasing	
TODPWL:	Time of day (in seconds) by power line clock	
CHKTIM:	Time at which JOB 0 considered overdue	
CHKDUE:	Count of consecutive overdues for JOB 0	
DDPTIM:	Time at which DDMP considered overdue	
DDPDUE:	Count of consecutive overdues for DDMP	
SCDRN1:	Run only job N if n .g. -1	

SCOUNT

Subsystem Counts. Each entry contains a count of times each subsystem is invoked. This table is parallel to SNAMES.

Defined in: STG

Format

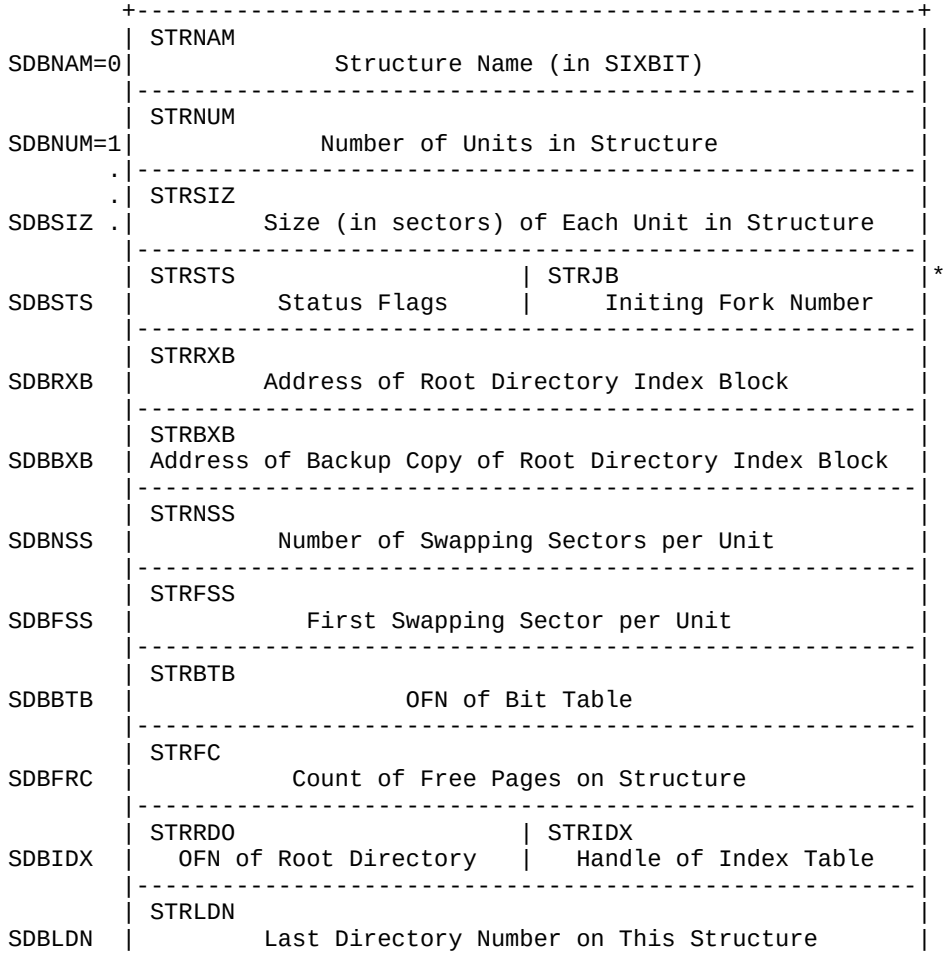


SDB

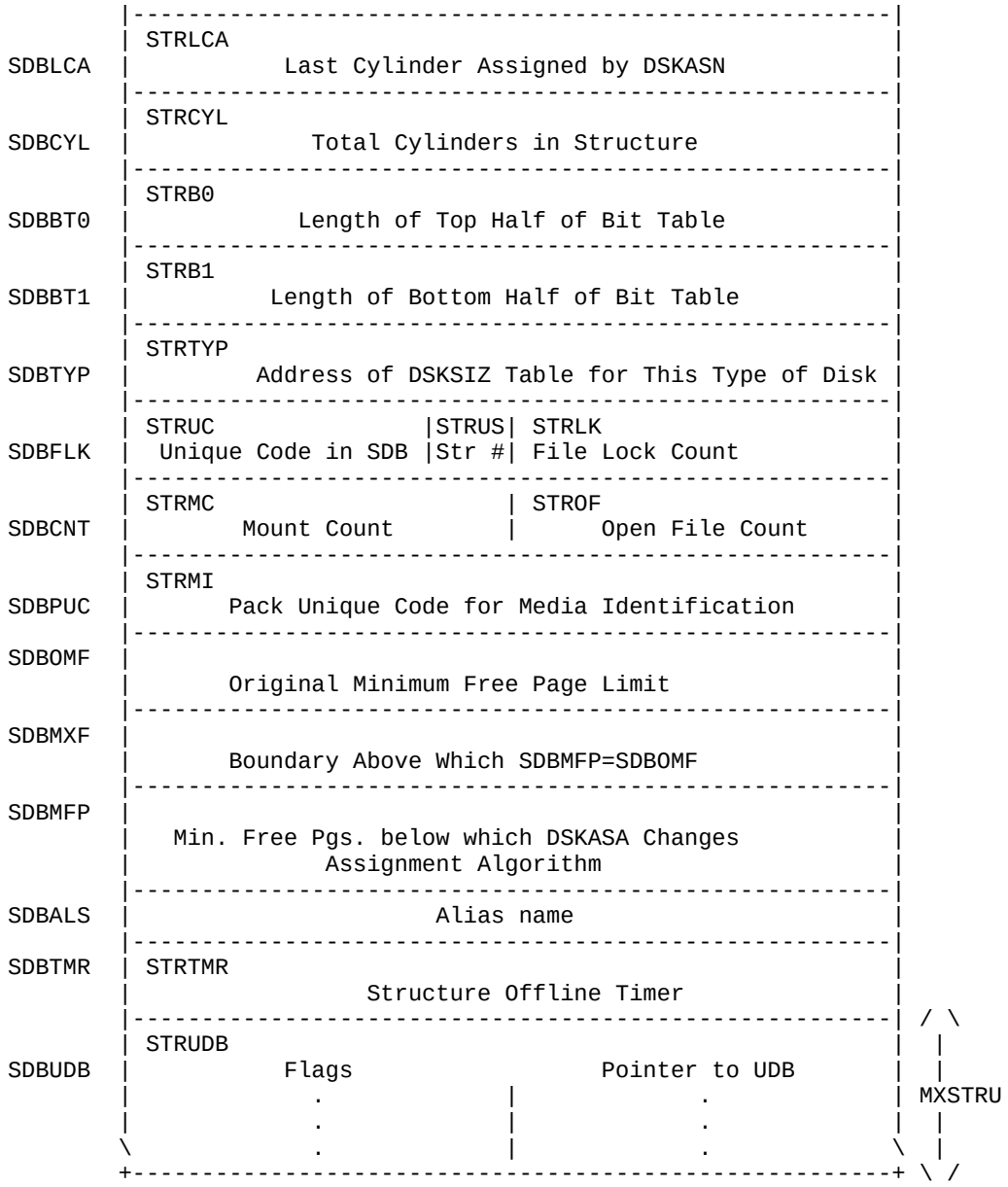
Structure Data Block. This block, one per structure, contains information about the structure's units, master directory (that is, Root-Directory), bit map for disk page allocation/deallocation, and assigned swapping area. It also contains mount and open-file information. SDBBLO is the name of the storage area reserved for handling the SDB for the Public Structure (PS). Individual Structure Data Blocks are pointed to by slots in STRTAB.

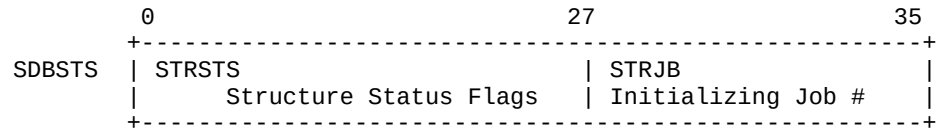
Defined in: STG

Format



MONITOR TABLES
SDB (Cont.)





Symbol	Bits	Pointer	Content
MS%PS	0	STPS	Structure is login structure
MS%DIS	1	STDIS	Structure is being dismounted
MS%DOM	2	STDOM	Structure is domestic
MS%PPS	3		Protected Permanent Structure
MS%INI	4		Structure is being initialized
MS%LIM	5		Structure is limited
MS%NRS	6	STNRS	Structure is not regulated
MS%RWS	7		Read after write for swapping
MS%RWD	8		Read after write for data
MS%ASG	9		Disk assignments are prohibited (Bit table is bad)
MS%MXB	10		Bit table too large for monitor address space
MS%CRY	11		Enable password encryption
MS%IDT	12		Enable password invalidation by date
MS%IUS	13		Enable password invalidation by use
MS%DMP	14		Structure is dumpable
MS%EXC	15	STEXL	Exclude structure from multi-system access
MS%IDX	16	STIDX	Index table file OFN has been set up
MS%CRD	17	STCRD	Creating Root Directory on this Structure
MS%OFS	18	STOFS	Structure is offline
MS%BS	19	STBS	Structure is boot structure
	20-26		Reserved for future expansion
	27-35	STRJB	Initializing job (only legal user while structure is being initialized)

SG-LLINKS

The SG structure is used by DECnet for extracting the SEGNUM field from an NSP header.

Defined in: LLINKS

Format

The SEGNUM field in an NSP header

Field SGDLY (21-21) ACK DELAY allowed

Field SGMBZ (22-23) Must be zero

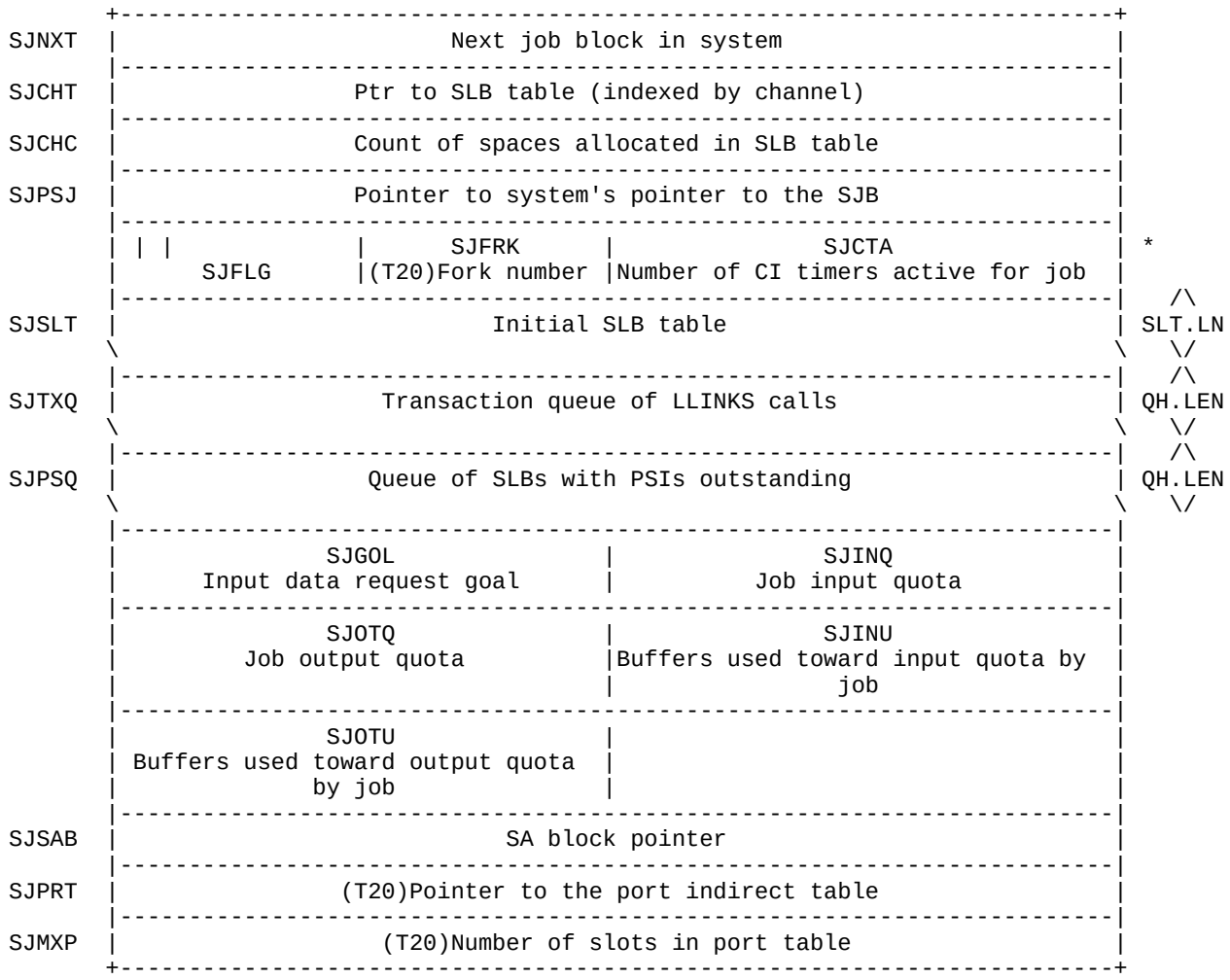
SJ

SJ is the DECnet Session Control Job Block -- SJ. There is one Session Control Job Block for every job with an open logical link on the system.

Defined in: D36PAR

Format

Session Control Job Block



For field SJFLG(0-8):

SJBLK	0	(T20)This fork is blocked
SJRST	1	Reset in progress

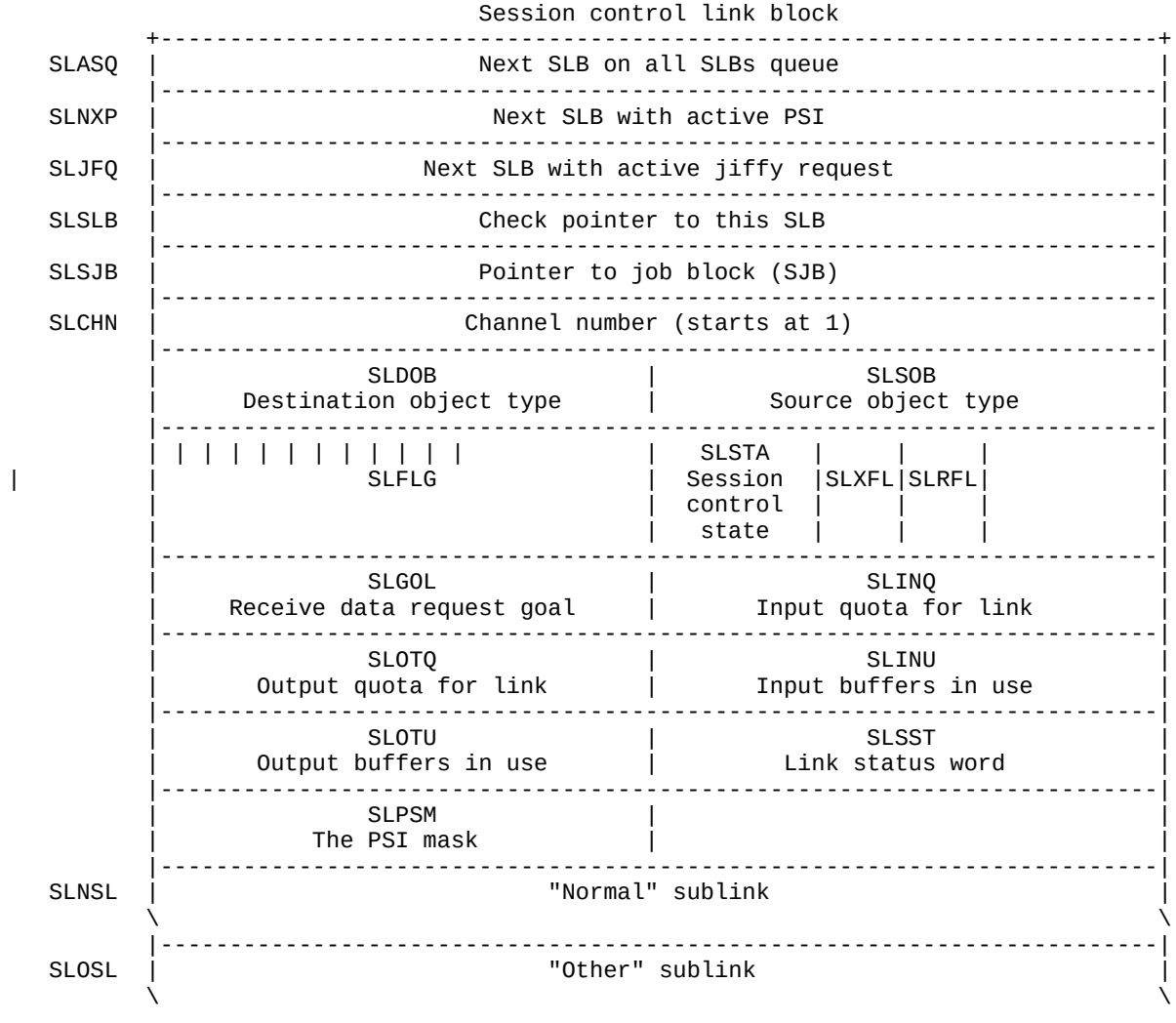
SL

This is the DECnet Session Control Link Block. It contains all the per-logical link data.

Defined in: D36PAR

Format

Session control link block



	SLDRR Normal data requests to resend at clock level	SLRSN Reason code of disconnect or reject (16 bits)	
SLPID	NSPpid of port		
	SLDNA Destination node address	SLSIZ Segment size in bytes	
SLCTM	Connect initiate timer		
SLWKA	Address of wakeup routine		
SLCDM	Ptr to connect/disconnect message		
SLCBP	Pointer to connect block for passive task		
SLOTM	Ptr to partially filled output message		
SLUID	Serial number - for stale detection		
	SLBYS User bytes sent	SLBYR User bytes received	
	SLPKS Packets sent out	SLPKR Packets recieved	

For field SLFLG(0-17):

SLCCB	0	Check connect block
SLKCB	1	Keep connect block for life of link
SLPSI	2	PSI pending flag
SLPH2	3	Phase II has no resend capability
SLABO	4	Trying to close after abort & release
SLFSL	5	Free the SLB when done with all processing
SLBSY	6	SLB is busy (cannot be freed)
SLLBC	7	Link is being closed by NSP
SLJFR	8	Jiffy request outstanding
SLEOM	9	Last segment output was end of message
SLPAS	10	Set if this SLB belongs to a passive task

Field SLXFL (24-26) Transmit flow control option

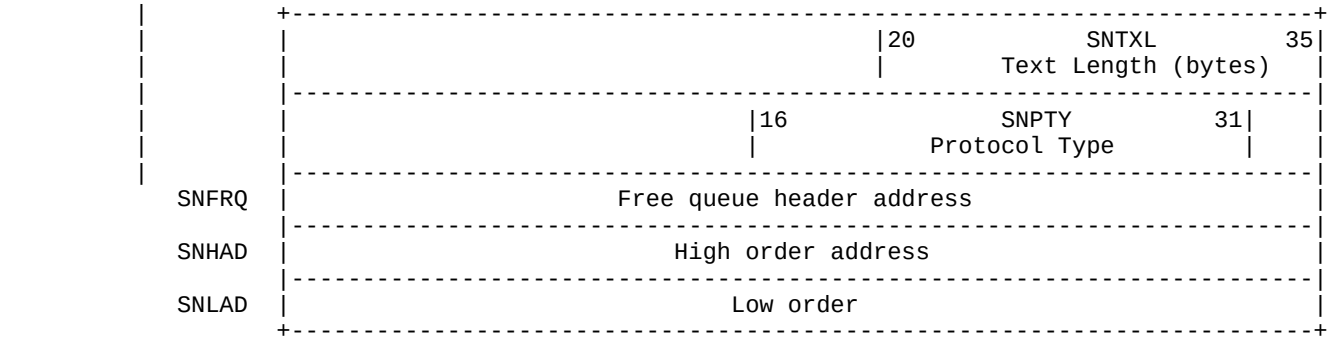
Field SLRFL (27-29) Receive flow control option

SN

SN is the common portion of the NI Send Datagram command block for both BSD and non-BSD style sends.

Defined in: PHYKNI

Format

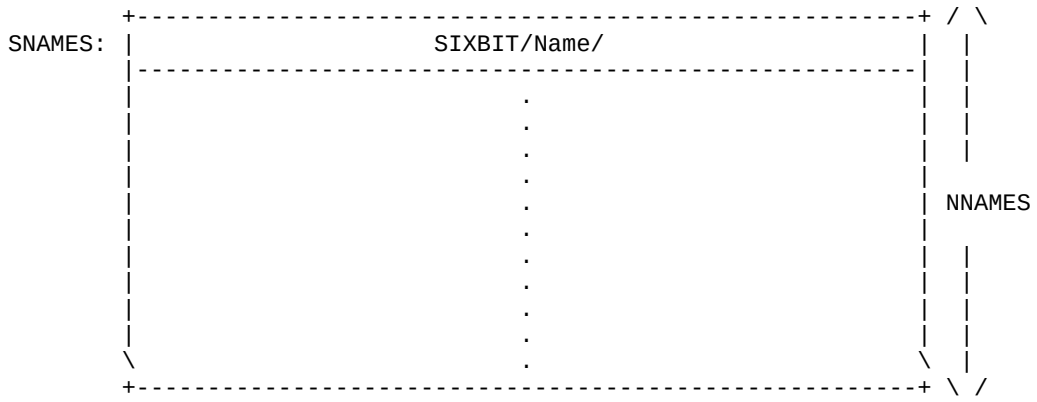


SNAMES

Subsystem Names. Each entry contains a subsystem program name.

Defined in: STG

Format

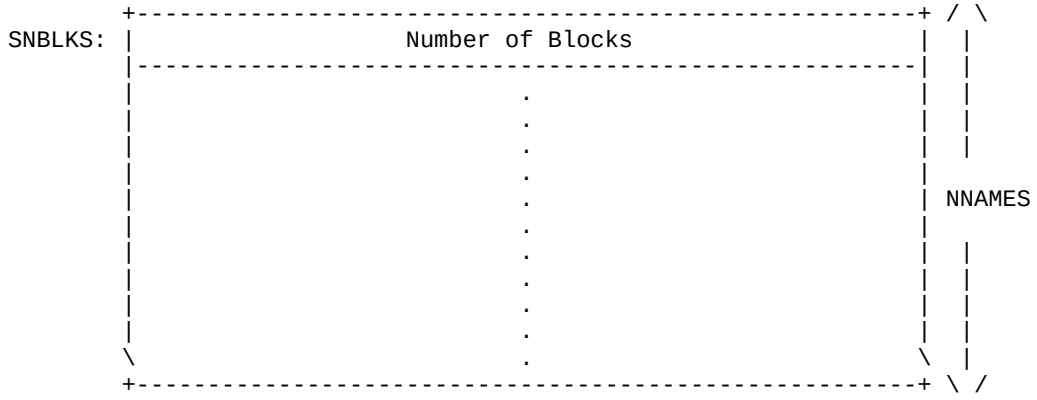


SNBLKS

Subsystem Blocks. Each entry contains the number of blocks for a subsystem program. This table is parallel to SNAMES.

Defined in: STG

Format

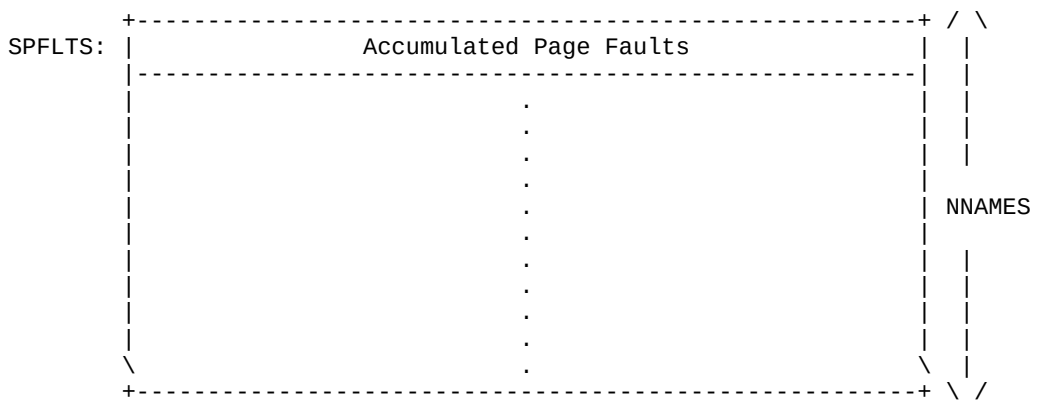


SPFLTS

Subsystem Page Faults. Each entry contains the accumulated number of page faults of a subsystem program. This is a parallel table to SNAMES.

Defined in: STG

Format



SPT

Special Pages Table. This table is pointed to by the firmware's SPT Base Register (an AC in an AC Block reserved for hardware/firmware registers) which is setup by the monitor at system initialization time.

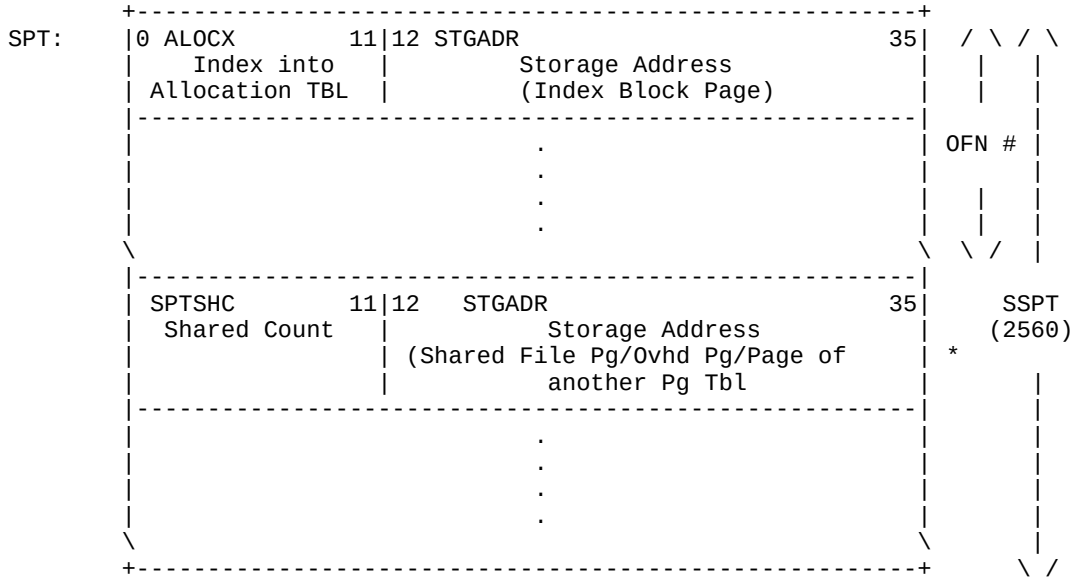
It is referenced directly by the paging firmware (bits 12-35 only) when virtual to physical address translation takes place and shared and indirect pointers are involved.

The first part of the table (of length NOFN) is used to point to index blocks in memory (or swapping area) for open files and an index into this part is often referred to as an OFN (Open File Number). The remainder of the table is used to point to PSBs, JSBs, UPTs, UPTAs, (User Page Map Tables), and shared file pages.

The ALOCX value in the OFN area is used as an index into the allocation tables (ALOC1 & ALOC2) to obtain information about the directory of the open file, (that is, pages left in quota). The share count in the non - OFN area is indexed for each sharing of the page. Unused SPT slots are kept in a free list. Location FRESPT contains a pointer to the head of the free list.

Defined in: STG, PROLOG

Format



Storage Address

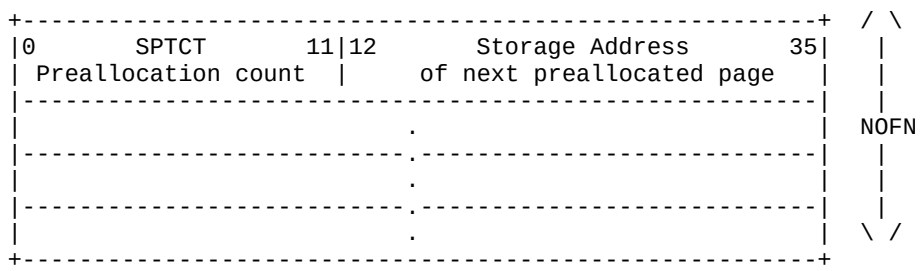
Symbol	Bits	Pointer	Contents
	12-35	STGADR	Storage address (Interpretation follows)
NCORTM	12-17		Non-Core Test Mask yielding type of storage. Bits <12-17>=0 => Bits <18-35>=Memory Pg Adr. Bits <12-17> 0 => Bits <18-35>=Drum/DSK Adr.
DSKAB	14		Storage address is a disk address
DSKNB	15		Temporary bit used with DSKAB to say that disk address is newly assigned.
DRMAB	16-17		Storage address is a drum address
DRMOB	17		Used with DRMAB to indicate that the swapping area has overflowed to the disk file system. (Since TOPS-20 currently uses only the disk file system for swapping, a drum storage address always has bits 16 _17 set.)
UAABC	17&35		Temporary bit used by the monitor's page trap handler when a copy-on-write page trap has occurred. If the page to be copied is a drum address, it is faulted in before these bits are used, avoiding conflict over bit 17. These bits signify to a lower level routine, SWPIN, that the page just gotten from the free list has no backup address and that it is to get a copy of another page.

SPTD

This table is parallel to the OFN area of the SPT table and contains the count and address of preallocated pages for an OFN. The system may preallocate pages for an OFN to reduce assignment overhead.

| Defined in: STG, PROLOG

Index: OFN Number



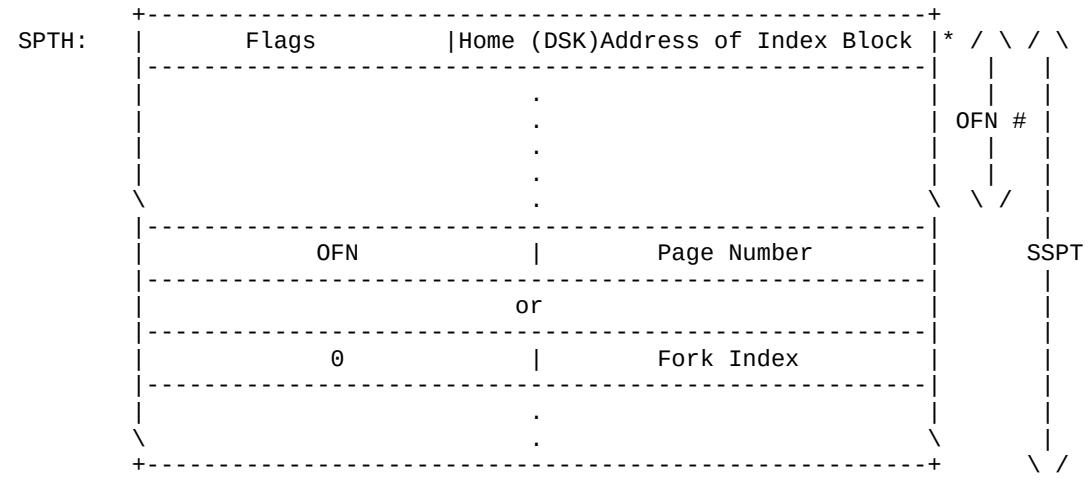
SPTH

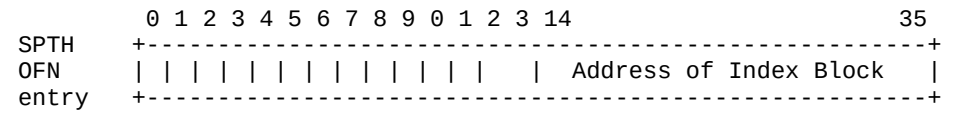
Special Pages Table Home Information. This table, parallel to the SPT table is referenced only by the software and is divided into two parts. The first part, indexed by OFN, is used to point to the home address of each open file (that is, to its index block) and to hold status information about each OFN.

The second part is used mainly to show the page's origin. For a shared file, this is indicated by OFN ,, Page Number , where page number is within open file, OFN. For PSBs, JSBs, and UPTs, the SPTH word contains 0 ,, Fork Index. The free slots in this part are on a list chained through the SPT where the free list pointer resides in FRESPT.

| Defined in: STG, PROLOG

Format





Symbol	Bits	Content
FILUB	0	Unrestricted bit
FILWB	1	File write bit in SPTH and ASOFN argument
THAWB	2	Thawed bit
FILNB	3	"File new" bit
SPTLKB	4	OFN is locked against modification
OFNWRB	5	OFN has been modified
OFNBAT	6	Index block contains a bad block
OFNERR	7	Error in file (that is, MPE)
OFNDMO	8	OFN is on a dismounted structure
OFNDUD	9	Suppress DDMP
OFN2XB	10	Second level XB
OFNLAC	11	Lost access to this cached OFN

If a file is OPENed with thawed access (OF%THW), then both FILWB and THAWB is set to 1. If OPENed with restricted access, then the THAWB bit is on and the FILWB is off.

NOTE

A file is opened by searching the OFN part of SPTH for the index block address. If the address is found and the write and thawed bits are legal, it is a shared opening and the same index is used. If the address is not found, a new entry is made from one of the free (-1) slots in SPTH.

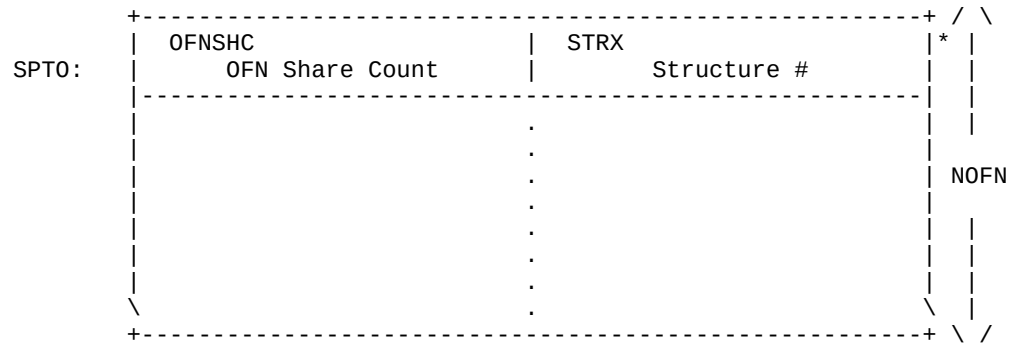
SPTO

Special Pages Table O. This table is parallel to the OFN area of the SPT table and contains the structure number and open file share count for each open file. The OFN share count is indexed for each opening of the file and for each shared page within the open file.

| Defined in: STG, PROLOG

Index: OFN Number

Format



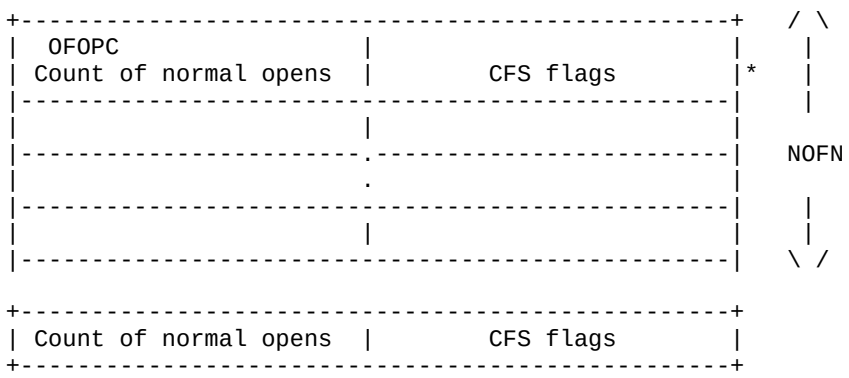
Symbol	Bits	Pointer	Content
OFNSCH	0-17		Share count for an OFN
	17	OFSHR	One unit of OFN share entry
STRX	18-35	STX	Structure index (number)

SPTO2

Special Pages Table O2. This table is parallel to the OFN area of the SPT table and contains various state information about the OFN. It is used by CFS to maintain the page state.

Defined in: STG, PROLOG

Index: OFN number



Contents of CFS flags

Symbol	Bits	Meaning
SPTFO	18	Force out in progress
SPTCDO	19	XB checksum already verifed
SPTSFD	20	XB needs checksum done on next swap in
SPTDSF	21	Need DDMP to verify the XB
SPTFR	22-23	Signal from CFS to do force-out
SPTSR	22	Sub-field of above (set = memory flush)
SPTNA	24	If set, don't preallocate pages for OFN
SPTMR	25	Preallocation meter bit
OFNCSH	26	OFN is cached
OFNMGB	27	Garbage collection pass 1 done
SPTST	34-35	OFN state (for CFS)

```
.SPSRD==:1              ;Read-only
.SPSWR==:2              ;Read/write
```

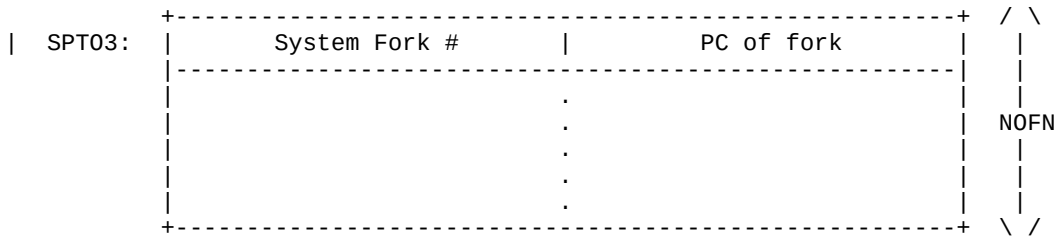
SPTO3

Special Pages Table 3. This table is parallel to the OFN area of the SPT table and is available only under the DEBUG conditional. It contains the number and the PC the system fork who last locked the OFN.

Defined in: STG

Index: OFN number

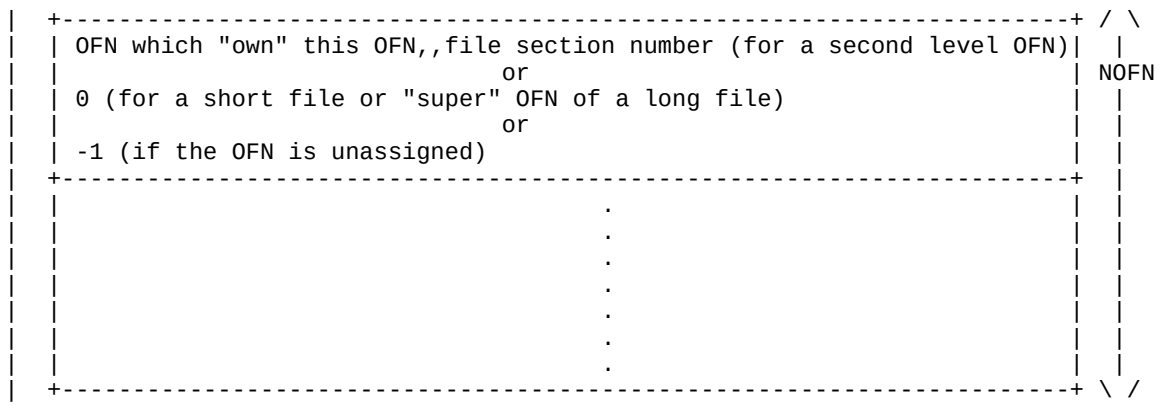
Format



SPTO4

This table contains information about OFNs. It is primarily used to speed access to long files.

Defined in: STG

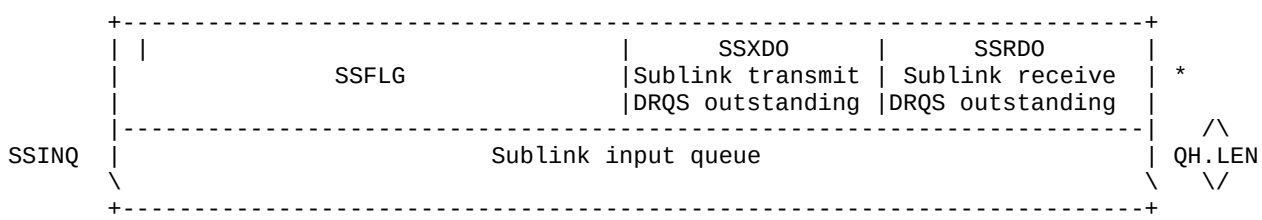


SS

This is the DECnet Session Control sublink block. There are two of these in the SL block, one for the normal sublink and one for the other sublink.

Defined in: D36PAR

Format



For field SSFLG(0-17):

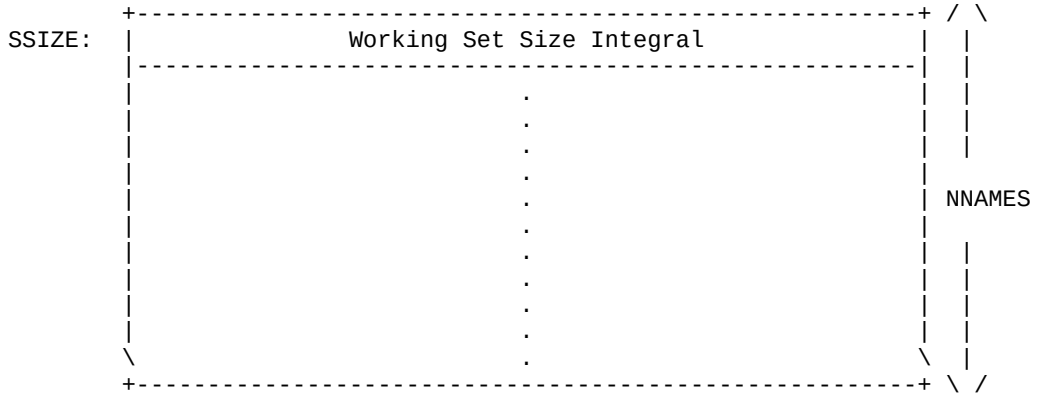
SSOTH	0	Indicates this is the "other" sub-link

SSIZE

Subsystem Working Set Size. Each entry contains the working set size integral for a subsystem program. This is a parallel table to SNAMES.

Defined in: STG

Format

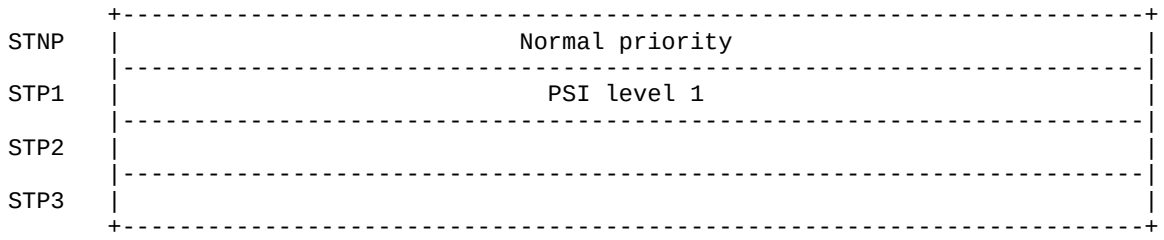


ST

This is the SAB indirect table pointed to by PSBSAB.

Defined in: SCPAR

Format

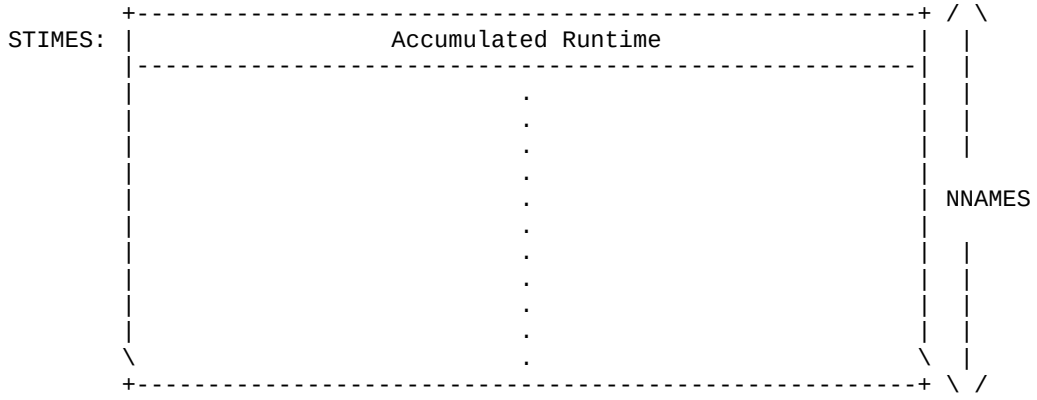


STIMES

Subsystem Runtimes. Each entry contains the accumulated runtime of a subsystem program. This is a parallel table to SNAMES.

Defined in: STG

Format



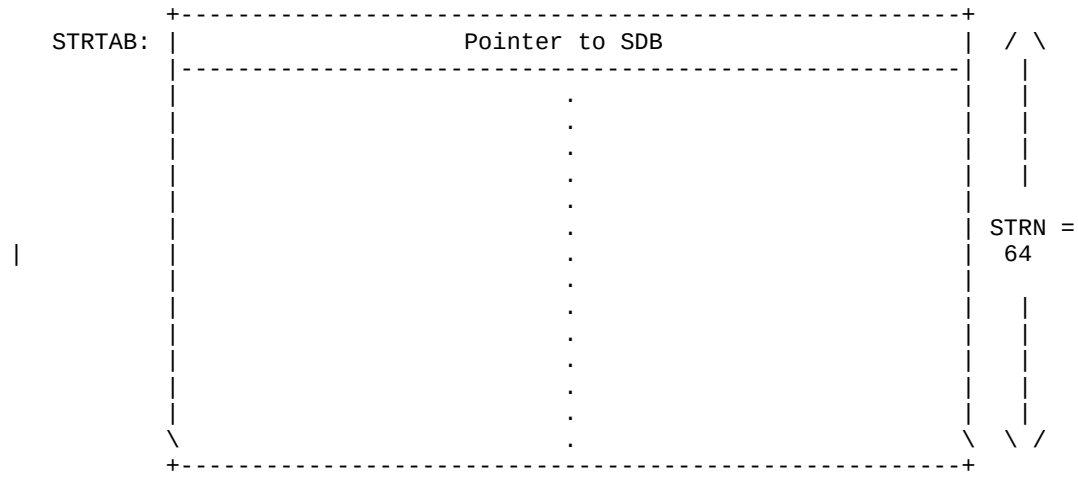
STRTAB

Structure Data Block Table. This table contains pointers to each structure data block in the system.

Defined in: STG

Index: Structure Number

Format



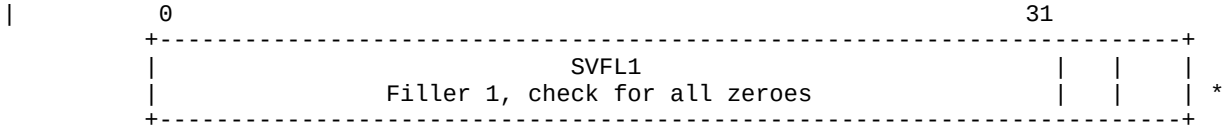
SV-LLINKS

The SV structure is expected to be used by DECnet code to pull apart the services field from a CI or CC message held in a register.

Defined in: LLINKS

Format

The Services Field of a CI or CC msg



Field SVOPT (32-33) The flow control option, see FCM.xx

Field SVFL2 (34-35) Filler 2, check for being "01"

SV$FL2=1 Number that SVFL2 must be

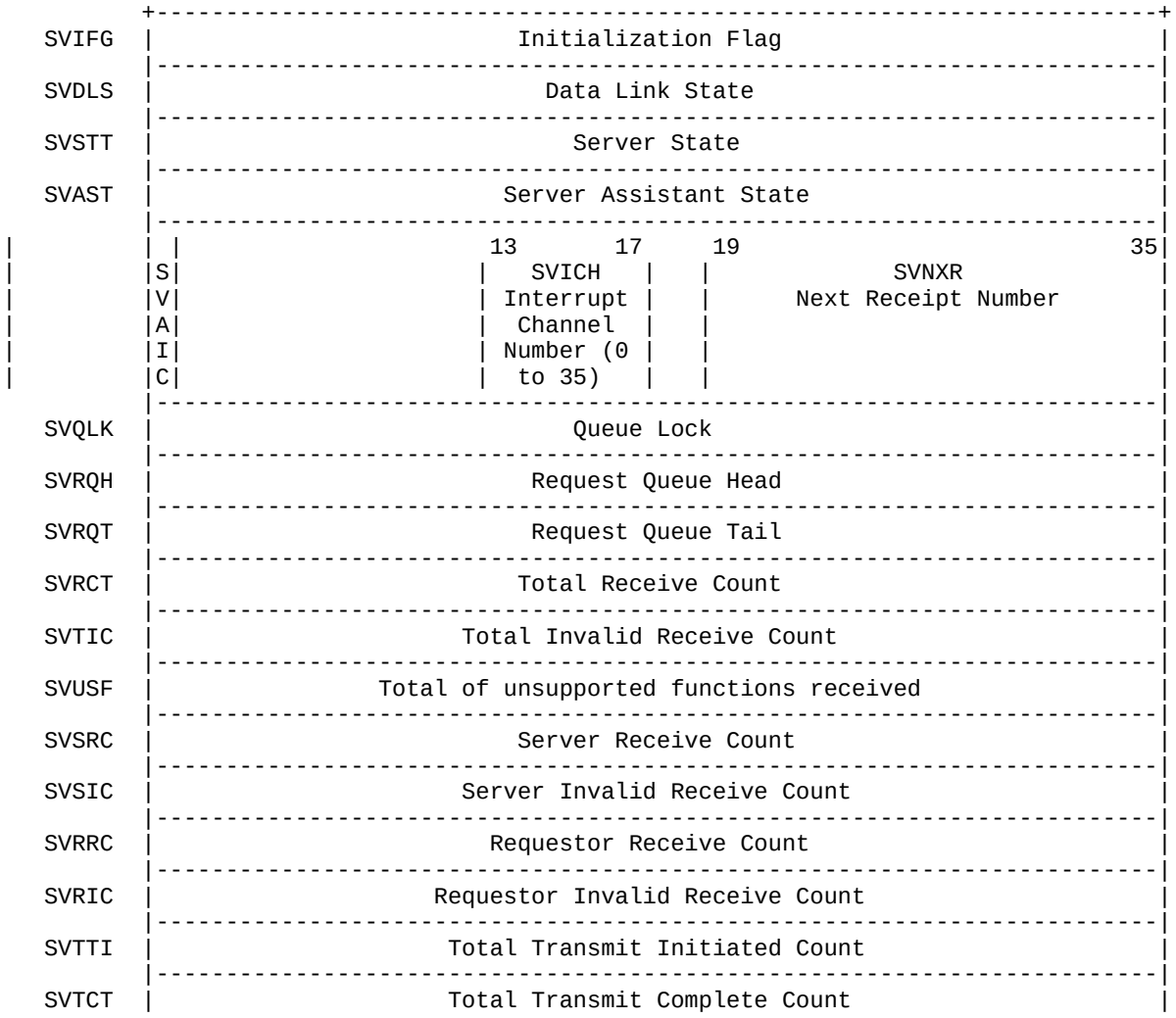
SV-LLMOP

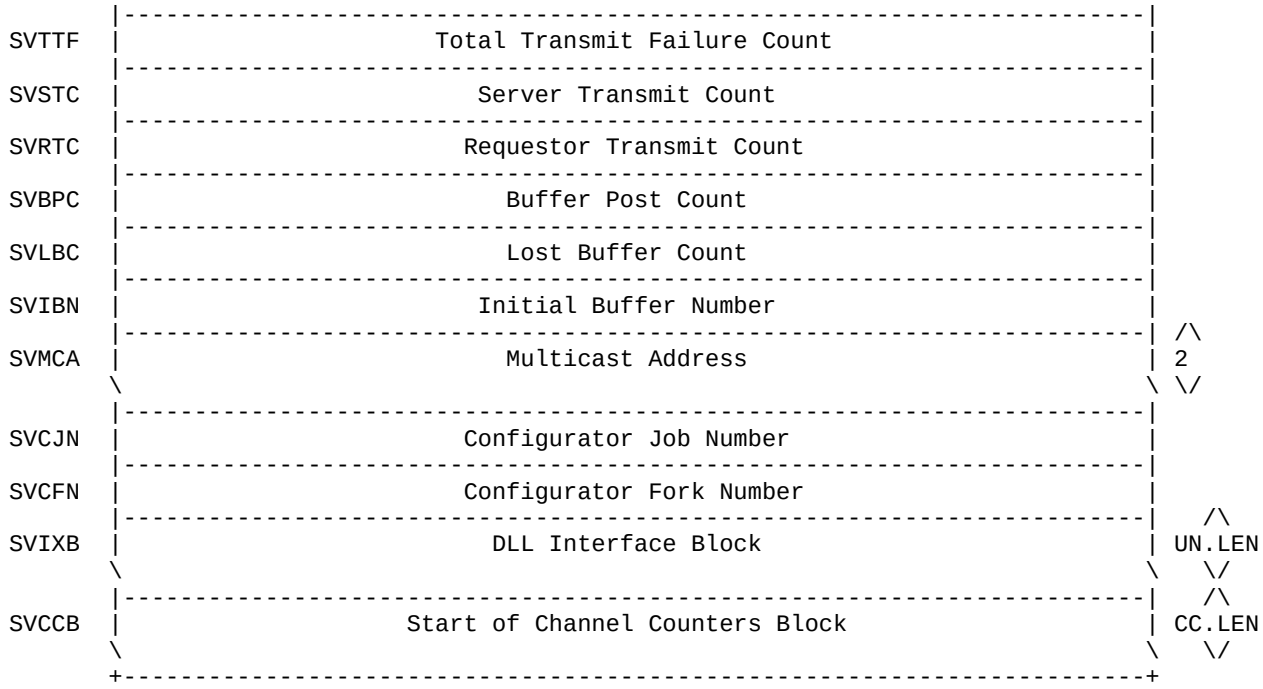
This is the DECnet LLMOP generic server variable block. The definition, structure and use of this block are shared between the Loopback Protocol Server and the Remote Console Server.

Defined in: LLMOP

Format

Server Variable Block





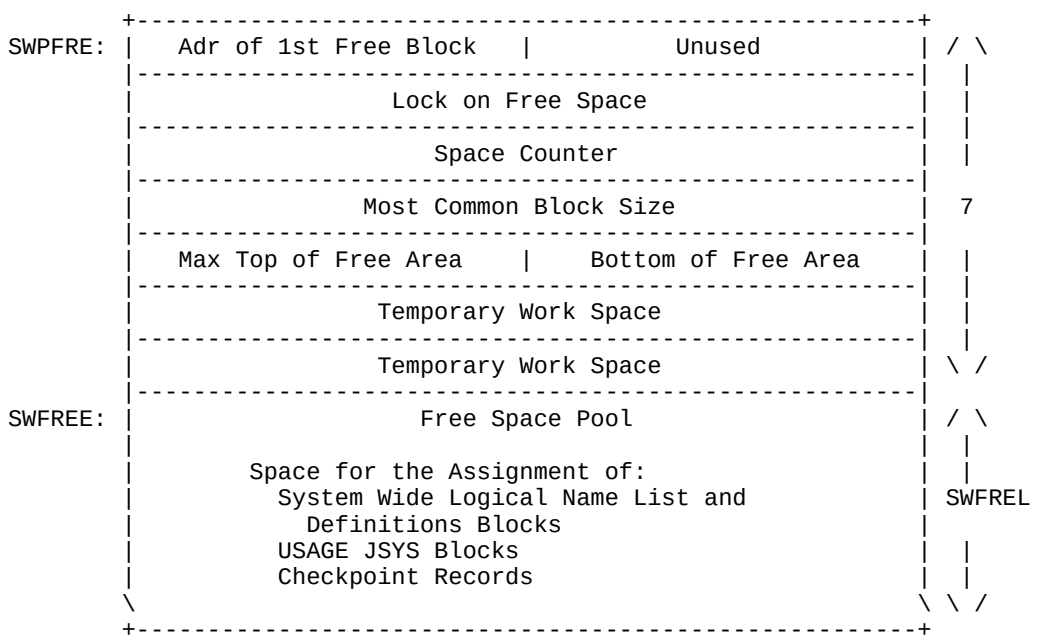
Field SVAIC (0-0) Assign Interrupt Channel
Field SVICH (13-17) Interrupt Channel Number
Field SVNXR (19-35) Next Receipt Number

SWAP-FREE-SPACE (NON-EXTENDED)

Swappable Free Space Pool Format. This table describes the header area that is used in the assignment and deassignment of swappable free space (by ASGFRE) and the usage of this space when assigned.

Defined in: STG

Format

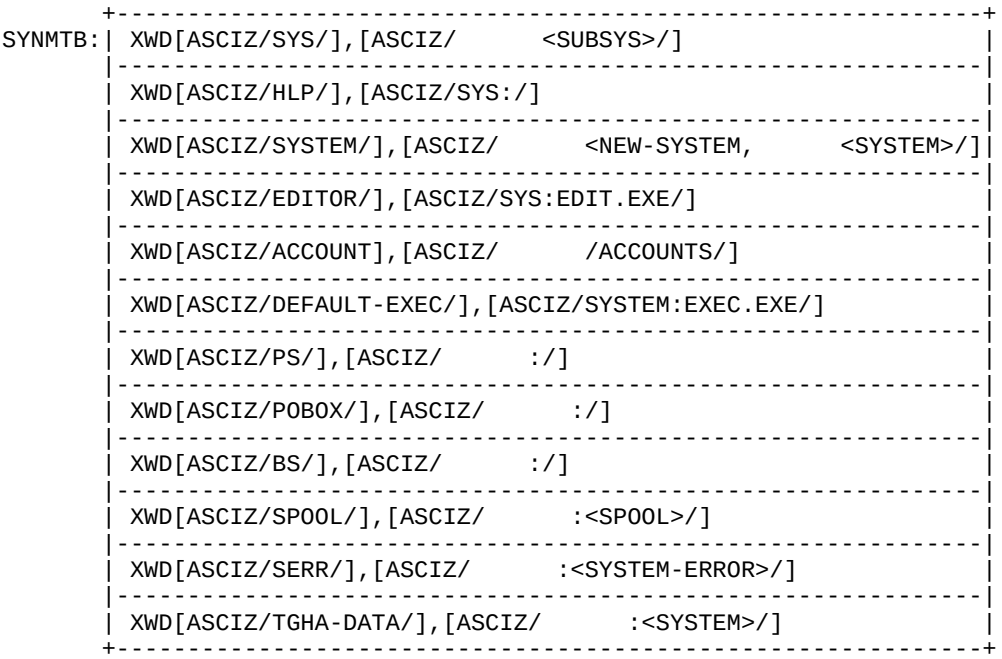


SYNMTB

System Logical Name Table: This table contains pointers to the initial ASCIZ strings for the system logical names.

Defined in: STG

Format



When six spaces precede the colon, SLNINI inserts the name of the primary structure into that location.

SYS-STARTUP-VECTORS

System Startup Transfer Vectors. This table, in resident locations 140-147, contains the startup vectors for the monitor as well as vectors to enter EDDT.

Defined in: STG

Format

SVECT=140

EVDDT:	JRST DDTZ	(EDDT)	
	JRST SYSDDT	(Reset and go to EDDT)	
EVDDT2:	JRST DDTZ	(Copy of EDDT in case other clobbered)	
EVSLOD:	JRST SYSLOD	(Initialize disk file system)	
EVVSM:	JRST SYSVSM	(Verify swappable monitor on startup)	
EVRST:	JRST SYSRST	(Restart)	
EVLDGO:	JRST SYSGO	(Reload and start)	
EVGO:	JRST SYSGO1	(Start)	

SYSERR-STORAGE-AREA

SYSERR STORAGE AREA. In and out pointers into the buffer area are maintained for JOB0 as well as pointers to the free and released SYSERR blocks.

Defined in: STG, SERCOD

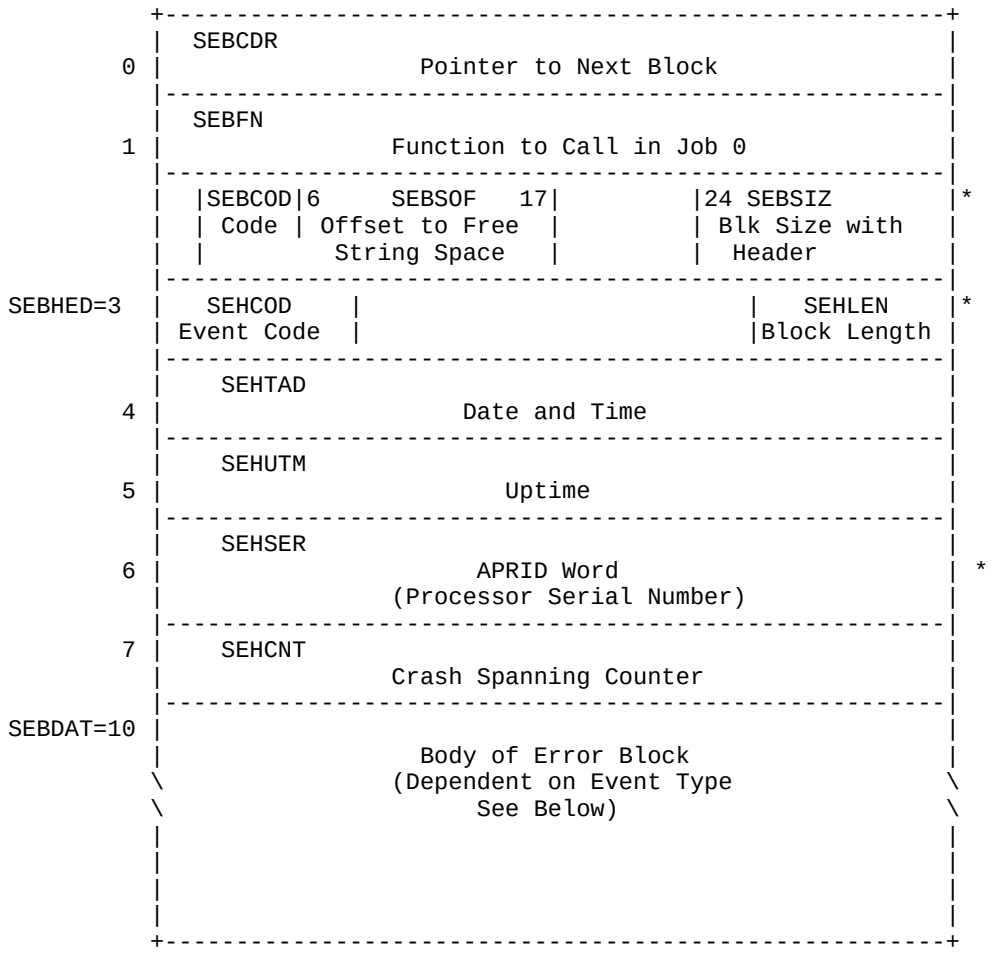
SEBQIN:	Job 0 queue In-pointer
SEBJFN:	JFN for SYSERR.LOG File
SECHKF:	Flag to wake Job 0 SYSERR FORK
SEIETM:	Time after which failing to OPEN SYSERR LOG File can try again
SERCNT:	Count of queued SYSERR blocks
SPRFLG:	-1 if SERCNT needs initializing

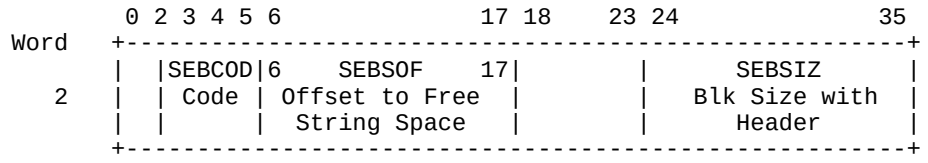
Although the In-pointer is in this storage area the corresponding Out-pointer in SEBQUO is in a fixed place in lower core (that is, location 24), so JOB 0 can queue up a BUGHLT block after a crash. One can examine the last SYSERR block by adding to the right half of the contents of SEBQUO, SEBDAT plus offset into SYSERR block.

ALCLST:	Count of lost section 0 all locations
BUGLST:	Count of lost bug entries
SYELST	Count of lost syserr entries

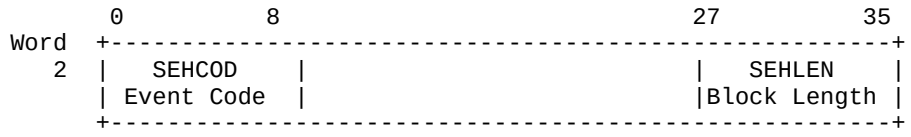
SYSERR BUFFER BLOCKS

SYSERR BLOCK FORMAT



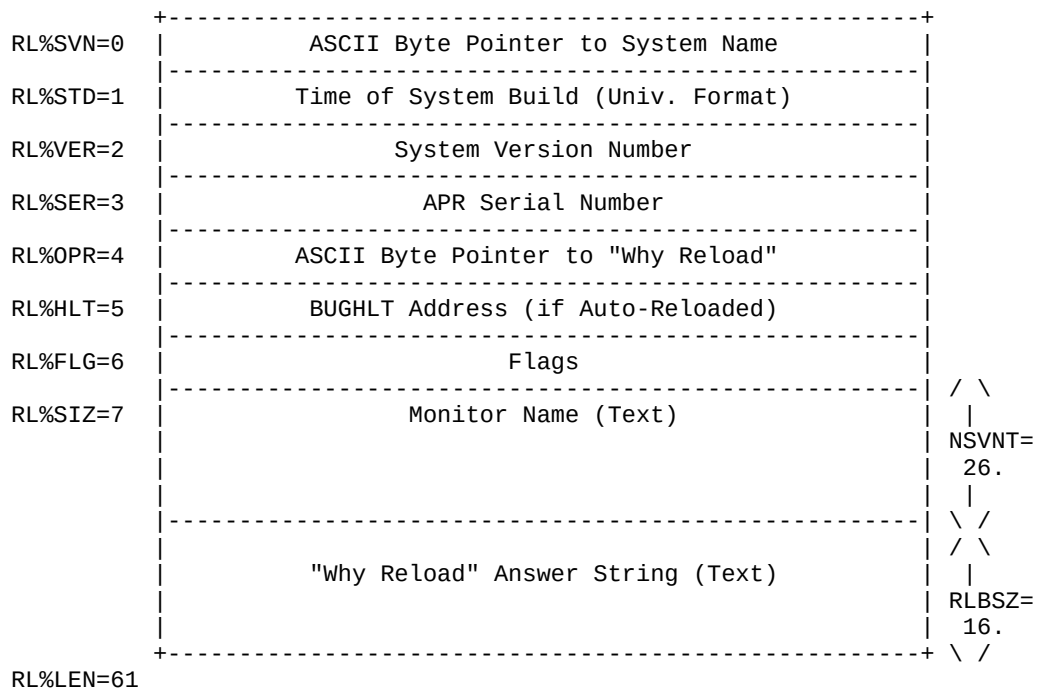


Bits	Pointer	Meaning
3-5	SEBCOD	State Code SBCFRE=0 on Free List SBCREL=1 Released SBCACT=2 Active
6-17	SEBSOF	Offset to Free String Space
24-35	SEBSIZ	Block Size Including Header

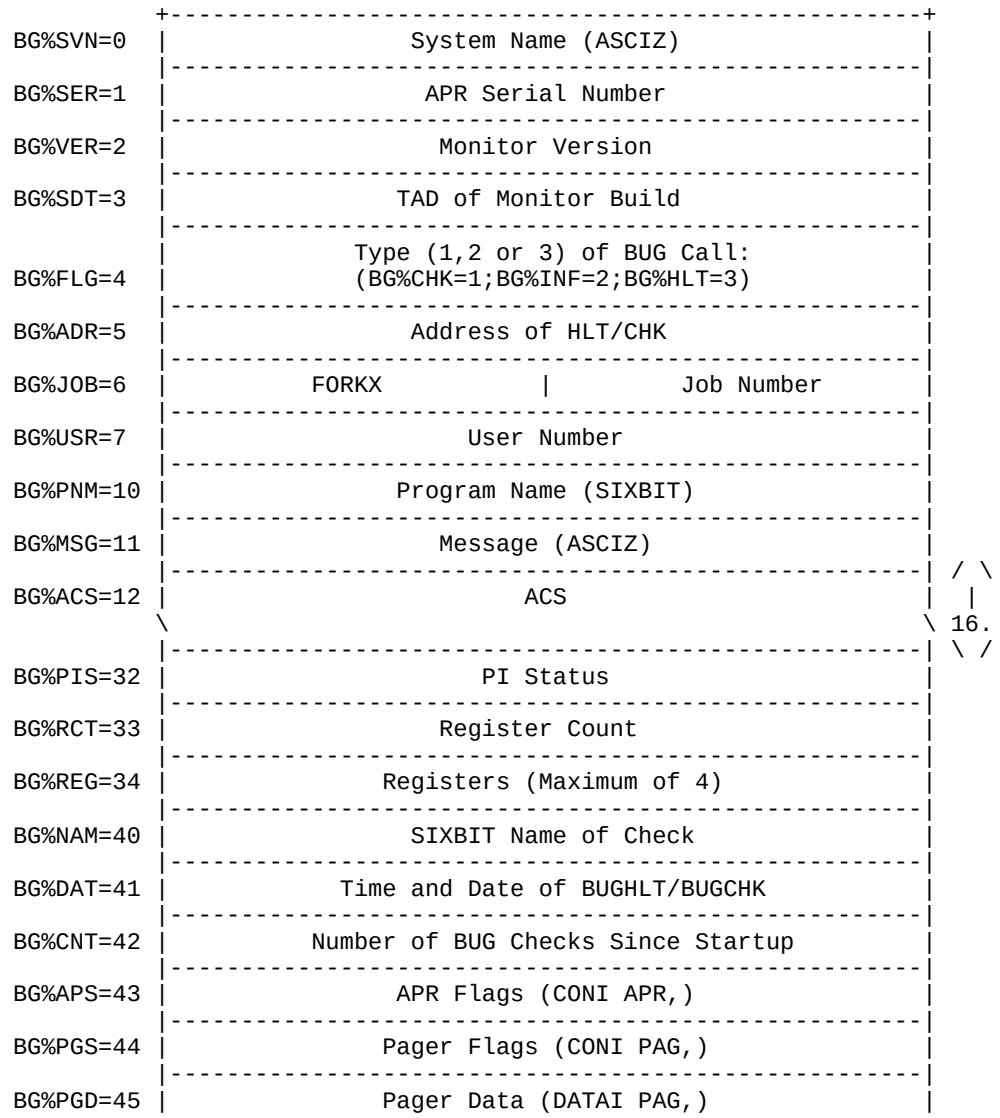


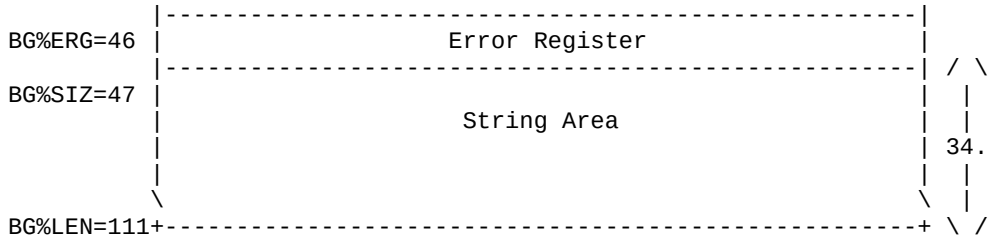
Bits	Pointer	Meaning
0-8	SEHCOD	Event Code (that is, Block Type) SEC%RL=101 System Reload SEC%BG=102 BUGHLT/BUGCHK/BUGINF SEC%MB=111 Massbus Device Error SEC%CS=115 Configuration Status Change (MTCON) SEC%FE=130 Front End Error SEC%11=131 F.E. Reload Entry (Gives -11 Reboot Info.) SEC%HS=133 Halt for KS10 SEC%PT=160 Processor Parity Trap SEC%PI=161 Processor Parity Intrp. SEC%P1=162 Parity for Extensible Controllers SB%BLK=163 Status Block SEC%6S=232 DN64 event SEC%KS=241 KLIPA Statistics Event SEC%CI=242 CI Disk/Tape Endpacket SEC%EL=243 MSCP Error Log Event SEC%KP=244 KLIPA Error Event SEC%KE=246 KLIPA Error-Log Packet
27-35	SEHLEN	Block Length (Including Header) RL%LEN - System Reload Block Length BG%LEN - BUGHLT/CHK/INF Block Length MB%LEN - Massbus Dev. Err Blk Length CS%SIZ - Change Blk Length FE%LEN - F.E. Errors Blk Length R1%LEN - F.E. Reload Entry Blk Length HS%LEN - KS10 Block Length PT%LEN - Proc. Parity Trap Blk Length PI%LEN - Proc. Parity Interrupt Blk Lgh PI%LN2 - Extensible Controllers Blk Lgh SB%MAX - Maximum Status Block Length CI%LEN - CI Endpacket Blk Length EL%LEN - MSCP Error Log Block Length KP%LEN - KLIPA Error Block Length KS%LEN - KLIPA Statistics Block Length KE%LEN - KLIPA Error Log Block Length
Word 6 to End (Body of Error Block - Dependent on Event Type)		

Event Type 101
System Reloaded Error Block Data

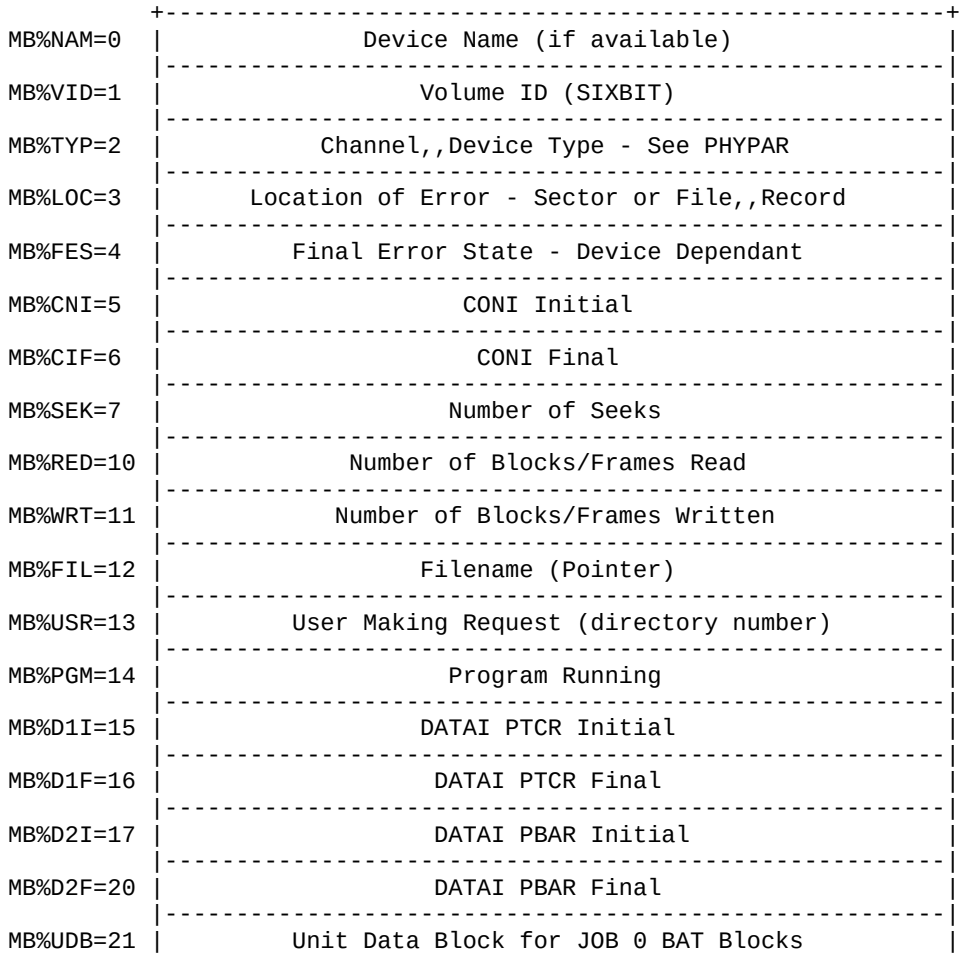


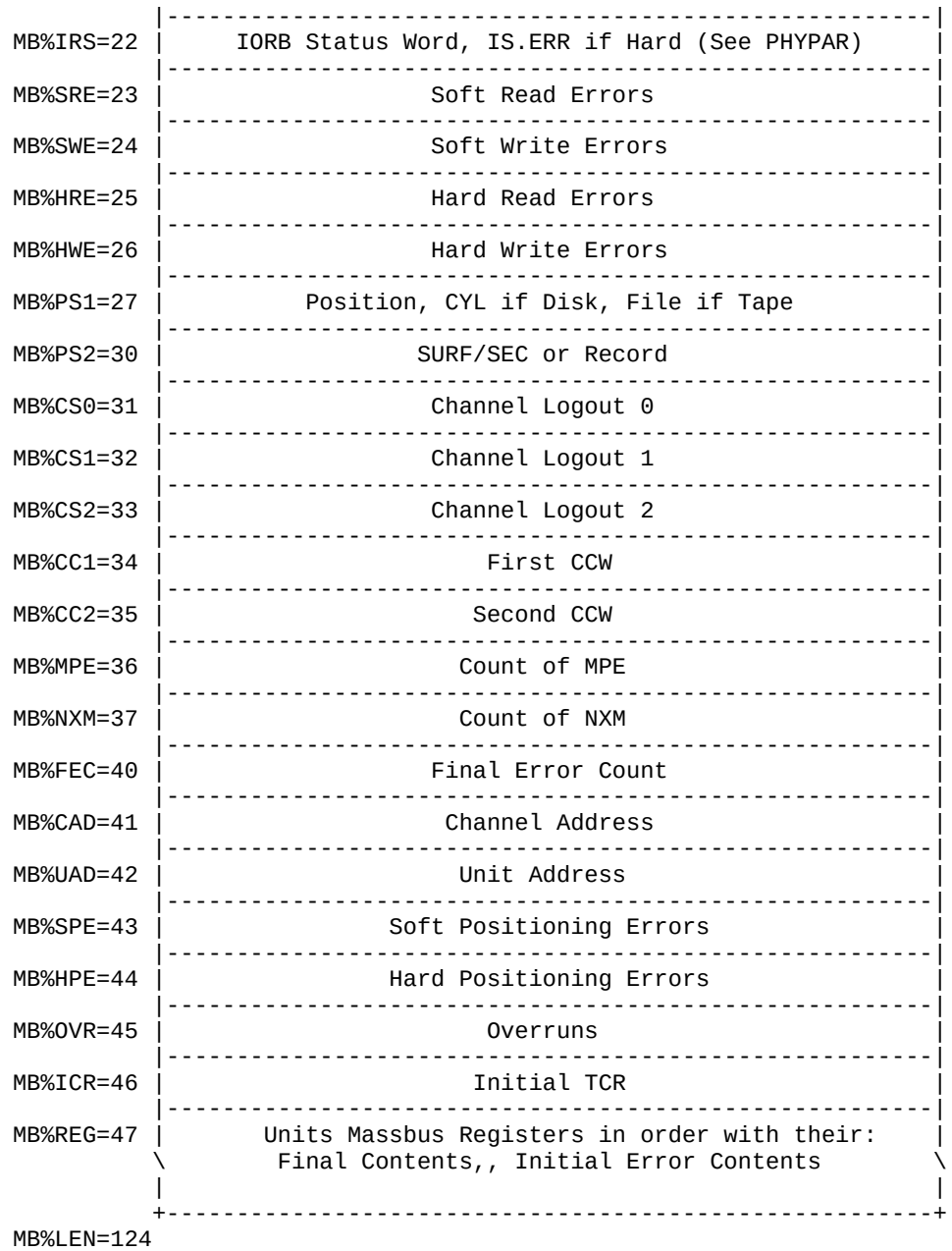
Event type 102
BUGHLT/CHK/INF Error Block Data



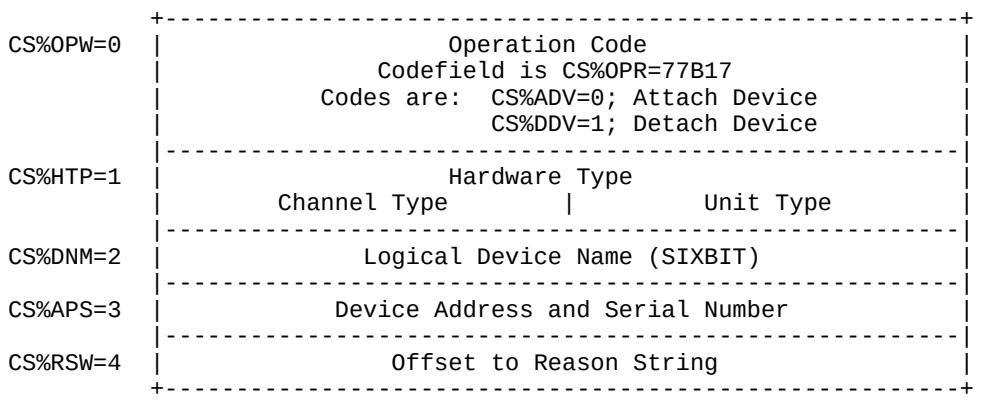


Event Type 111
MASS BUS DEV Error Data Block

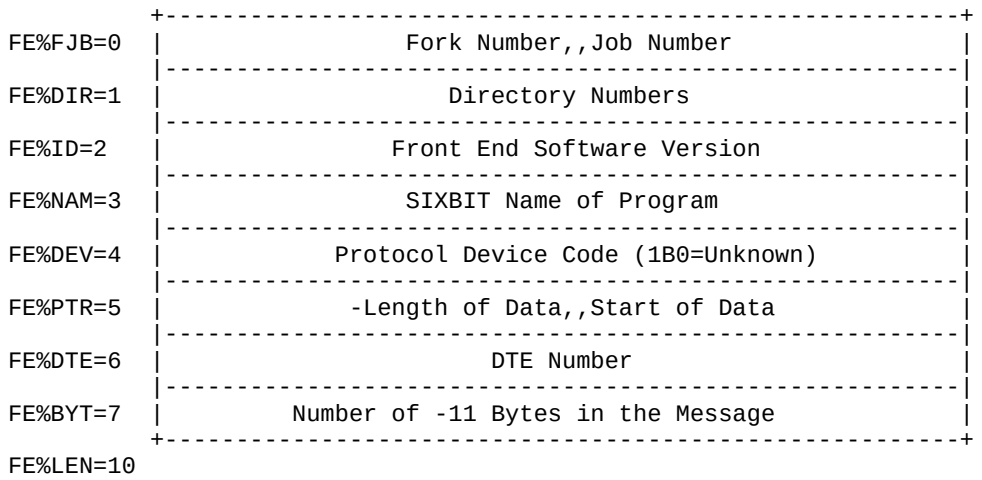



MB%IRS=22
IORB Status Word, IS.ERR if Hard (See PHYPAR)
MB%SRE=23
Soft Read Errors
MB%SWE=24
Soft Write Errors
MB%HRE=25
Hard Read Errors
MB%HWE=26
Hard Write Errors
MB%PS1=27
Position, CYL if Disk, File if Tape
MB%PS2=30
SURF/SEC or Record
MB%CS0=31
Channel Logout 0
MB%CS1=32
Channel Logout 1
MB%CS2=33
Channel Logout 2
MB%CC1=34
First CCW
MB%CC2=35
Second CCW
MB%MPE=36
Count of MPE
MB%NXM=37
Count of NXM
MB%FEC=40
Final Error Count
MB%CAD=41
Channel Address
MB%UAD=42
Unit Address
MB%SPE=43
Soft Positioning Errors
MB%HPE=44
Hard Positioning Errors
MB%OVR=45
Overruns
MB%ICR=46
Initial TCR
MB%REG=47
Units Massbus Registers in order with their:
Final Contents,, Initial Error Contents
MB%LEN=124

Event Type 115
Configuration Status Change (logged by MTCON)

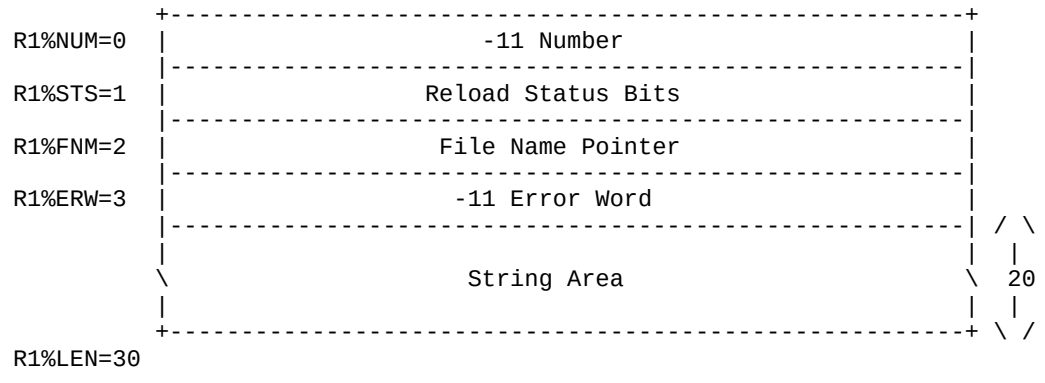


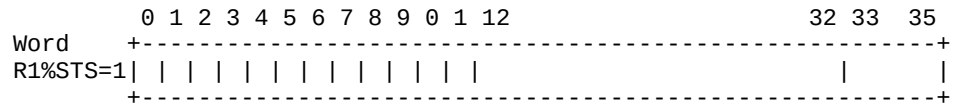
Event Type 130
Front End Errors Data Block



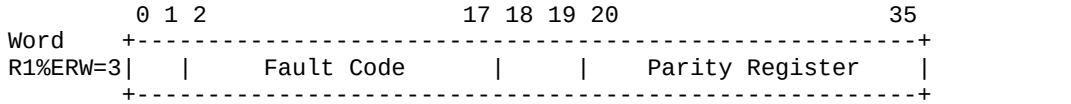
FE%LEN=10

Event Type 131
Front End Reload ERROR BLOCK DATA



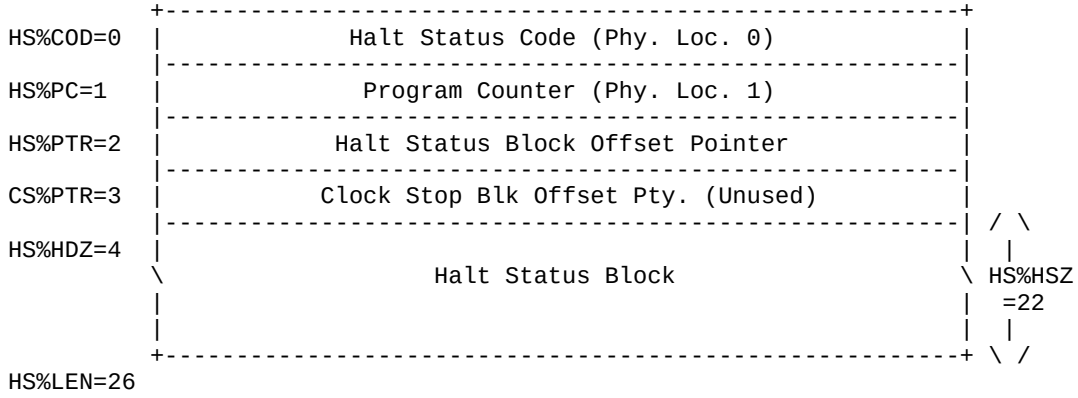


Symbol	Bits	Contents
.R1GTF	0	GTJFN failed for Dump File
.R1OPF	1	OPENF failed for Dump File
.R1DPF	2	Dump failed
.R110E	3	To -10 Error on Dump
.R111E	4	To -11 Error on Dump
.R1ASF	5	ASGPAG failed on Dump
.R1RLF	6	Reload failed
.R1PDF	7	-11 didn't Power Down
.R1PUF	8	-11 didn't Power Up
.R1RMF	9	ROM did not ACKnowledge the -10
.R1BSF	10	-11 Boot Program didn't make it to the -11
.R1NRL	11	-11 took more than 1 Min. to Reload.
.R1RTC	33-35	Retry Count

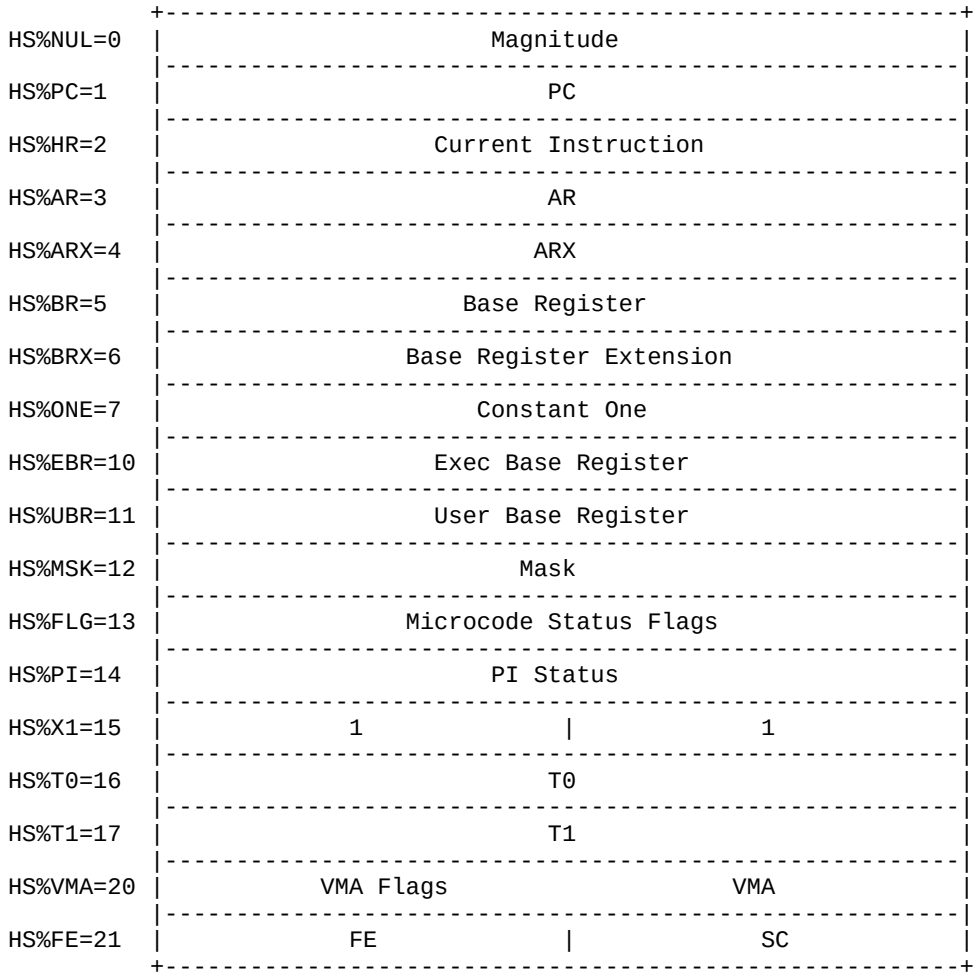


Bits	Contents
2-17	Fault code as 3 RAD50 characters
20-35	Parity Register Valid Only if it is Nonzero

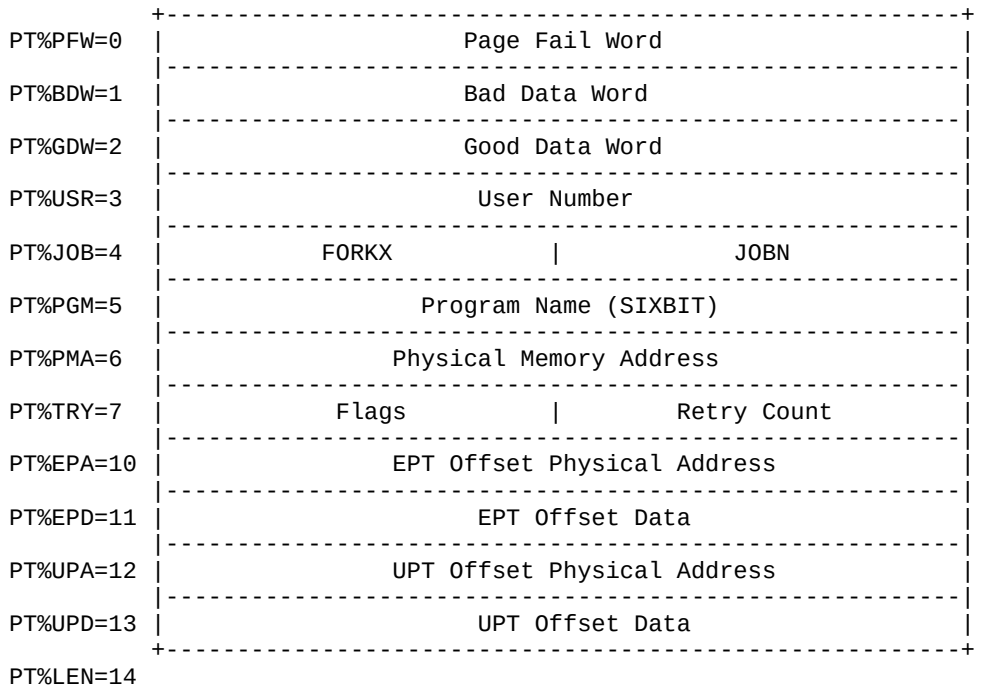
Event Type 133
Halt for KS10

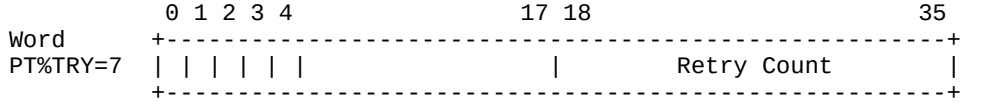


Halt Status Block



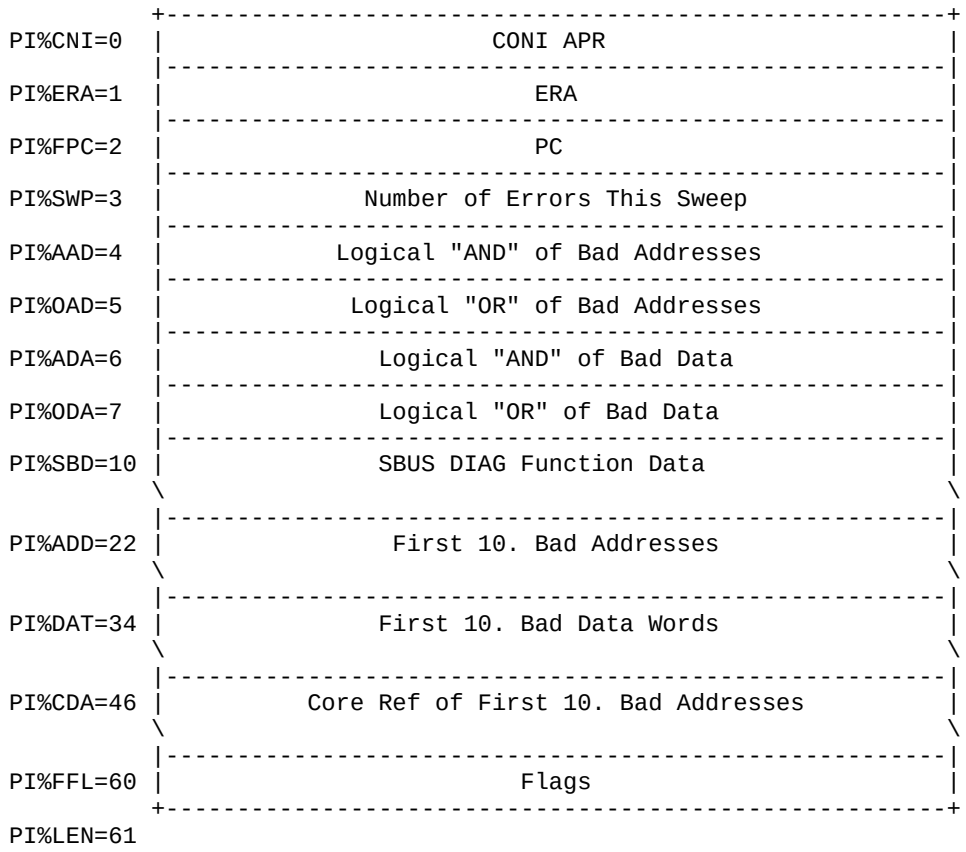
Event Type 160
Processor Parity Trap Error Block Data



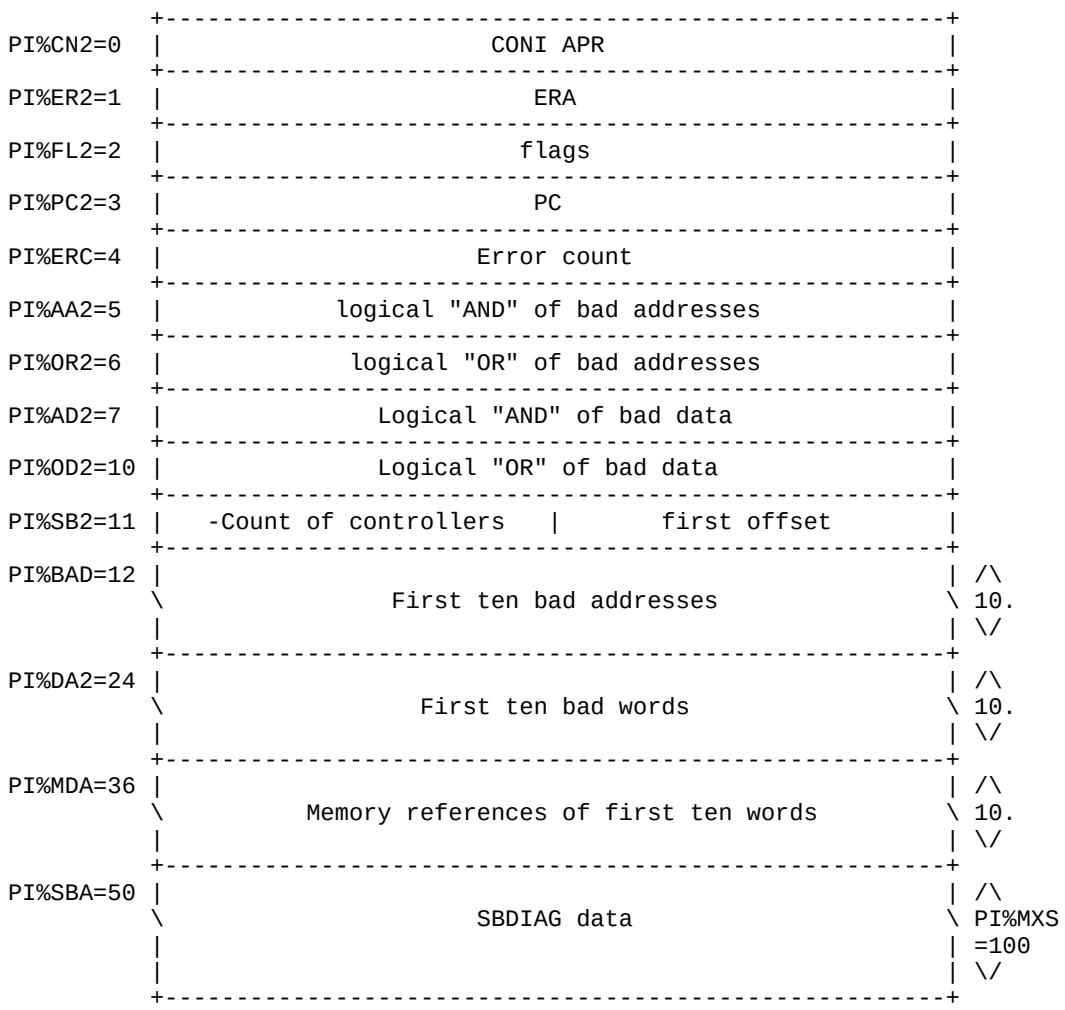


Symbol	Bits	Contents
PT%HRO	1	Hard Error
PT%CCP	2	Cache Failure
PT%CCH	3	Cache in Use
PT%ESW	4	Error on Sweep to Core
	18-35	Retry Count

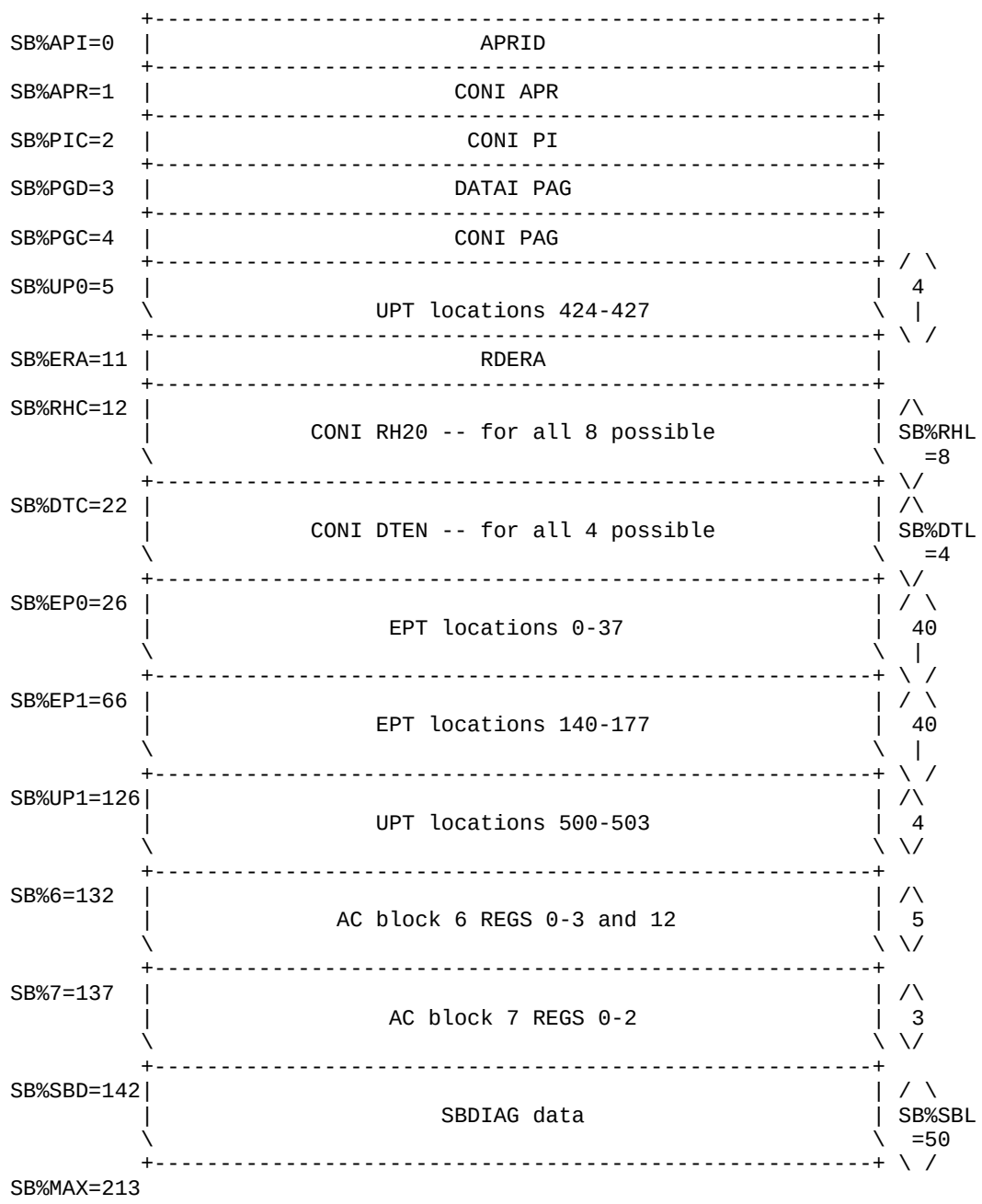
Event Type 161
Processor Parity Interrupt Error Data Block



Event Type 162
Parity Format for Extensible Controllers

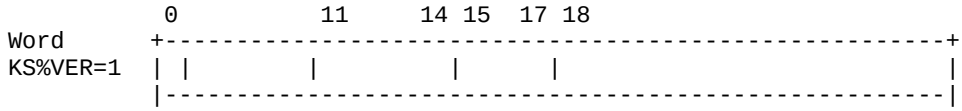


Event Type 163
Status Block Entry



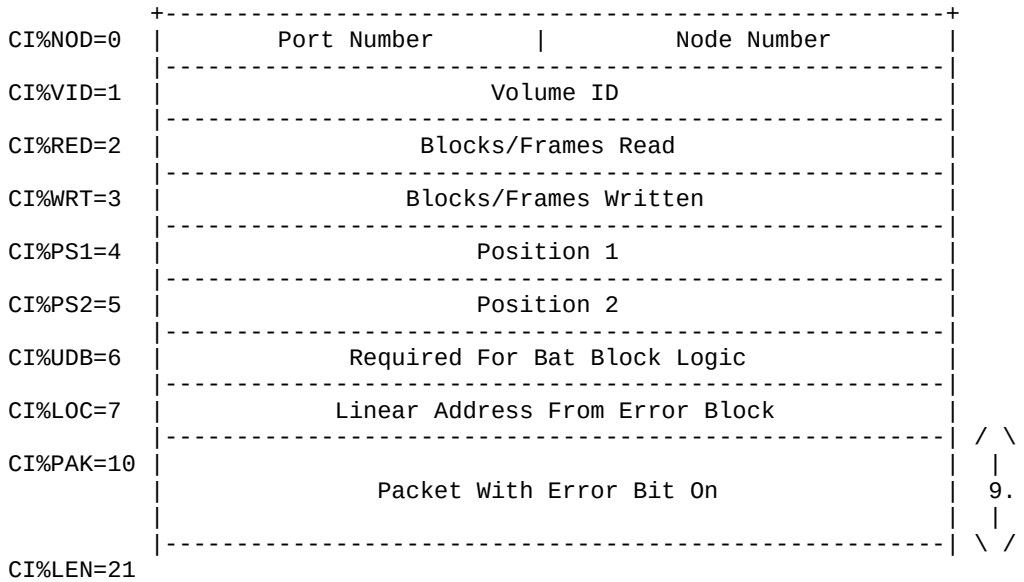
Event Type 241
KLIPA Statistics Entry

KS%OFF=0	Offset to Counters	
KS%VER=1	Microcode Version Word	*
KS%AAK=2	Path A Acks	
KS%ANK=3	Path A Nacks	
KS%ANR=4	Path A No-Responses	
KS%BAK=5	Path B Acks	
KS%BNK=6	Path B Nacks	
KS%BNR=7	Path B No-Responses	
KS%DGD=10	Datagrams Discarded	
KS%PXM=11	Packets Transmitted	
KS%PRC=12	Packets Received	
KS%DPT=13	Designated Port Word	
		28 KS%PRT Designated Port
KS%CRC=14	Packets Received With Crc Errors	
KS%EW1=15	KS%MPE Mover PAR Pre Errors	KS%CPE CBUS Parity Errors
KS%EW2=16	KS%RPE Register PLIPE Errors	KS%DPE Data PLIPE Errors
KS%EW3=17	KS%CHE Channels Errors	KS%EPE EBUS Parity Errors
KS%EW4=20	KS%SCE Spurious Channel Errors	KS%CAT CBUS Available Timeouts
KS%EW5=21	KS%SRA Spurious Receive Atten.	KS%STA Spurious Transmit Atten.
KS%EW6=22	KS%TBP Xmit Buffer Parity Errors	KS%TTM Transmitter Timeouts
KS%LEN=23		

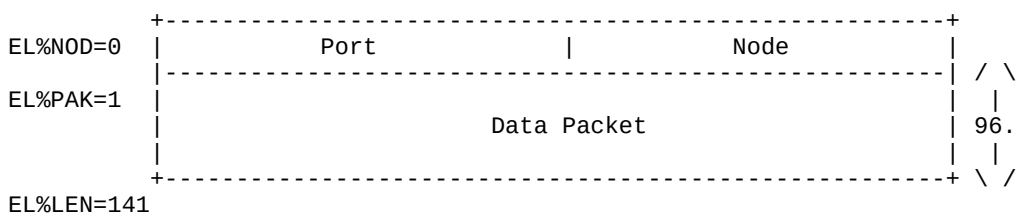


Symbol	Bits	Contents
KS%NI	0	O=CI, 1=NI
KS%RSN	11-14	Reason for Doing Read-Counters 0, Illegal KS%CPE=1, CRAM Parity Error KS%AGB=2, Wire A Went From Good to Bad KS%ABG=3, Wire A Went From Bad to Good KS%BGB=4, Wire B Went From Good to Bad KS%BBG=5, Wire B Went From Bad to Good KS%PER=6, Periodic Reading of Counters KS%GUC=7, Get Microcode Version KS%DIA=10, DIAG% Did It
KS%CHN	15-17	KLIPA Channel Number
KS%VSN	18-35	Microcode Version

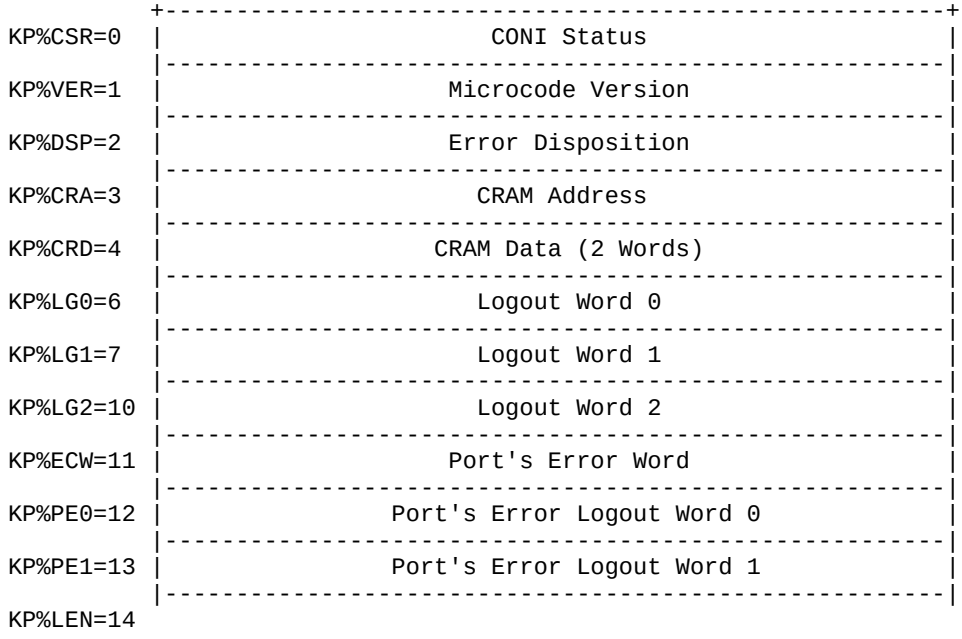
Event Type 242
CI Disk/Tape Endpacket

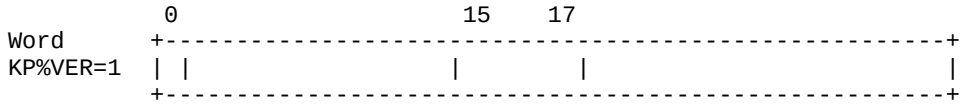


Event Type 243
MSCP Error Log



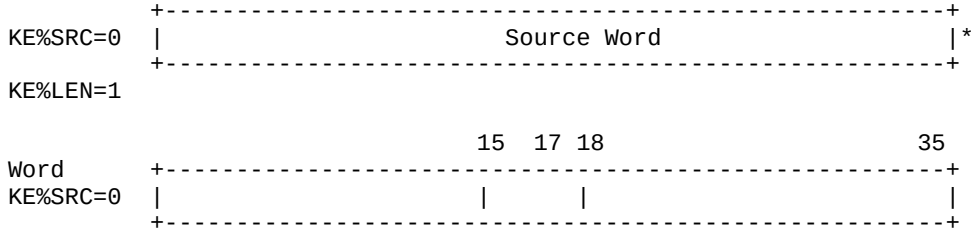
Event Type 244
KLIPA Error Event





Symbol	Bits	Contents
KP%NI	0	Set if this is a KLNI
KP%CHN	15-17	Port's RH20 Channel
		202

Event Type 246
KLIPA Error-Log Packet

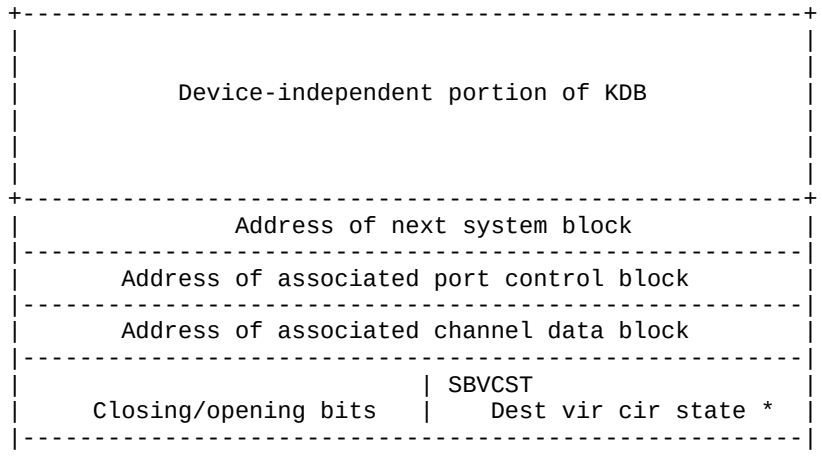


Symbol	Bits	Contents
KE%CHN	15-17	KLIPA Channel Number
KE%NOD	18-35	HSC50 Node Number

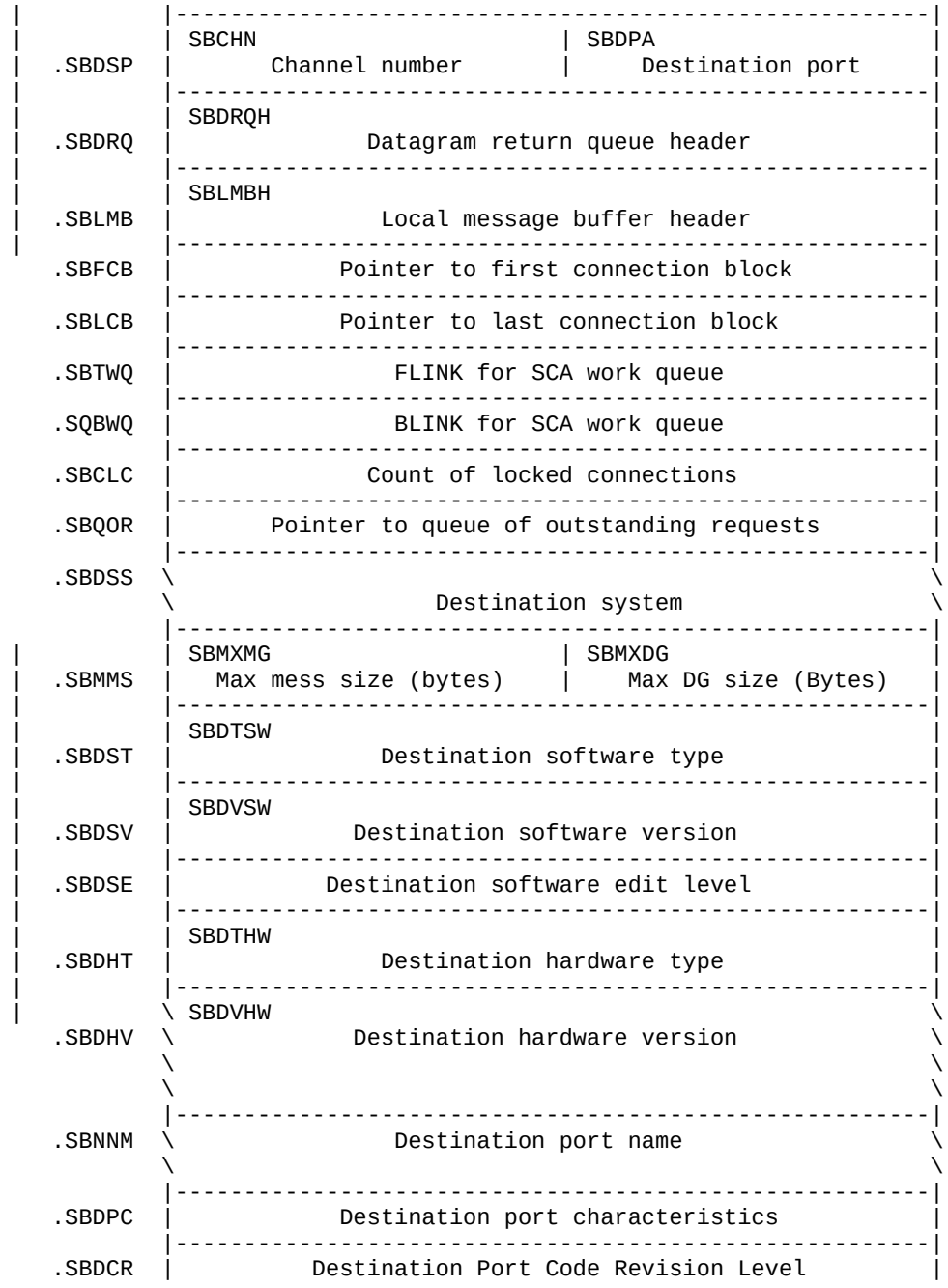
SYSTEM BLOCK

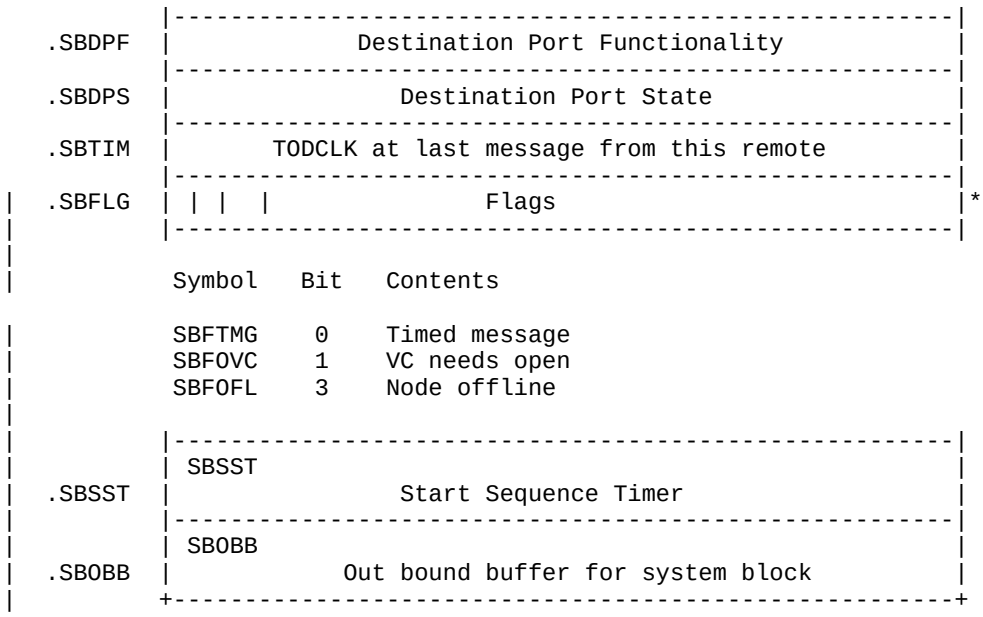
There is a system block for each node on the CI that TOPS-20 has detected. System block addresses are found in the table SBLIST. The system block is the device-dependent portion of the KDB representing the CI node.

Defined in: SCAPAR



Symbol	Bit	Contents	Symbol	Value	Meaning
SBNTC	0	Need to close VC	VC.CLO	0	Closed
SBOKO	1	OK to open VC	VC.STS	1	Start sent
SBWFI	2	Waiting for new IDREC	VC.STR	2	Start received
			VC.OPN	3	Open


SBCHN
Channel number
SBDPA
Destination port
.SBDSP
SBDRQH
Datagram return queue header
.SBDRQ
SBLMBH
Local message buffer header
.SBLMB
Pointer to first connection block
.SBFCB
Pointer to last connection block
.SBLCB
FLINK for SCA work queue
.SBTWQ
BLINK for SCA work queue
.SQBWQ
Count of locked connections
.SBCLC
Pointer to queue of outstanding requests
.SBQOR
Destination system
.SBDSS
SBMXMG
Max mess size (bytes)
SBMXDG
Max DG size (Bytes)
.SBMMS
SBDTSW
Destination software type
.SBDST
SBDVSW
Destination software version
.SBDSV
Destination software edit level
.SBDSE
SBDTHW
Destination hardware type
.SBDHT
SBDVHW
Destination hardware version
.SBDHV
Destination port name
.SBNNM
Destination port characteristics
.SBDPC
Destination Port Code Revision Level
.SBDCR



Symbol	Bit	Contents
SBFTMG	0	Timed message
SBFOVC	1	VC needs open
SBFOFL	3	Node offline

TR

DECnet Router test message data block.

Defined in: D36PAR

Format

TRTND	Node to test with
TRTSN	Serial number of message
TRTAF	Time when message reaches RTRFWD
TRTIC	Time at input complete
TRTOC	Time when output complete is received
TRTTD	Time given to DLL
TRTTA	Total time to turn around (TIC-TAF)
TRTED	Time to get from FWD to DLL (TTD-TAF)
TRTFD	Time from forward to output done (TTF-TOC)

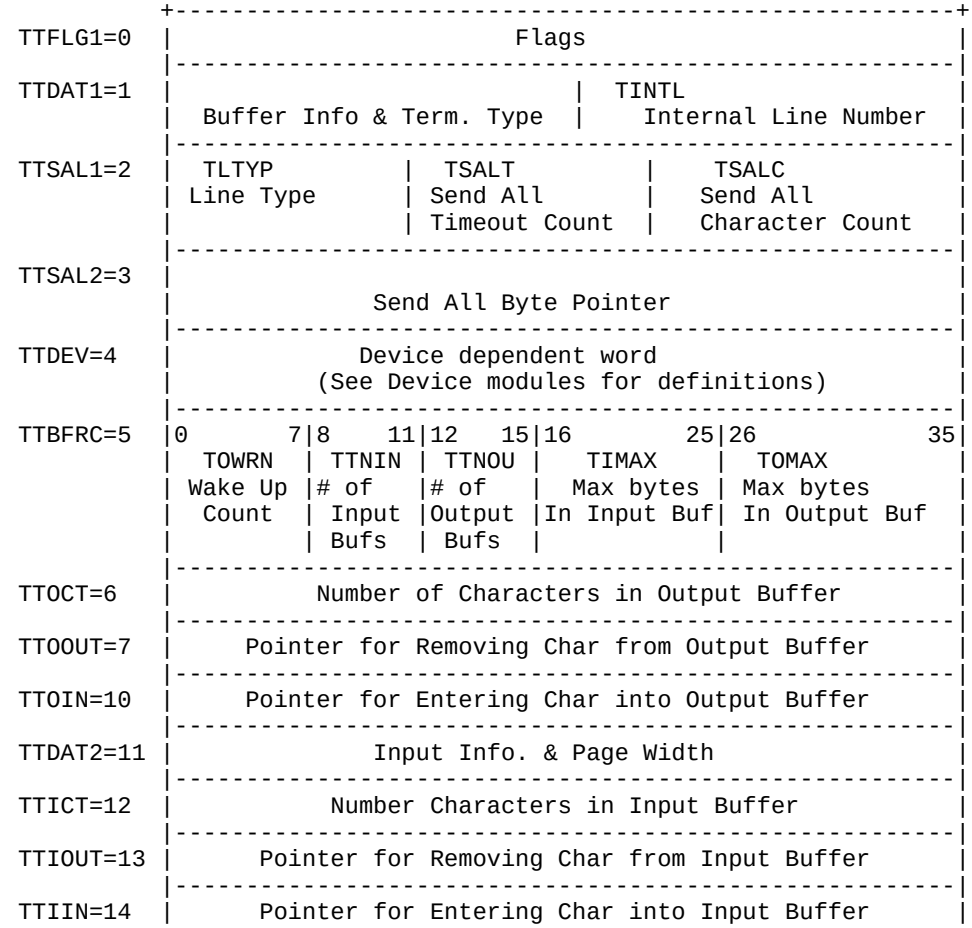
TT-LINE-DYN-DATA-BLK

Teletype Line Dynamic Data Block. This block pointed to by the line's entry in TTACTL, holds line specific data and is built when the line becomes active. It is deallocated when the line becomes inactive.

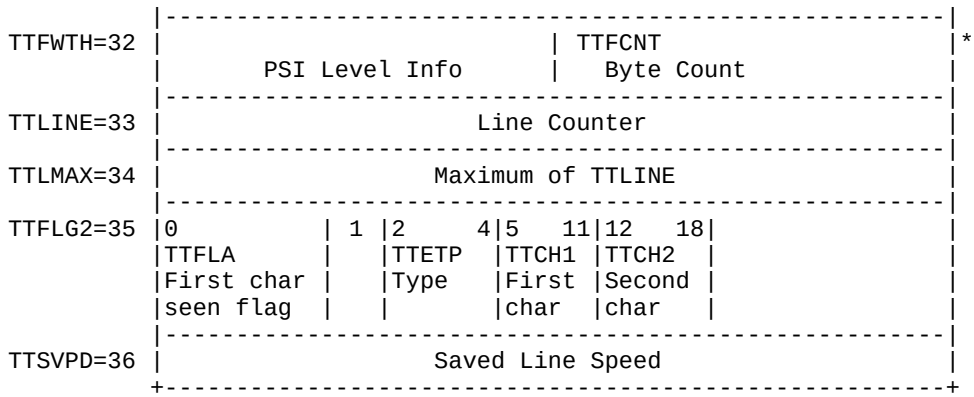
There are two shortened forms of the dynamic data block, one used for a SENDALL type of message and the other for sending a "ding" when any character but CTRL/C is typed on an inactive line.

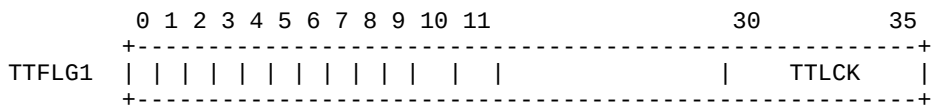
| Defined in: TTYDEF

Format



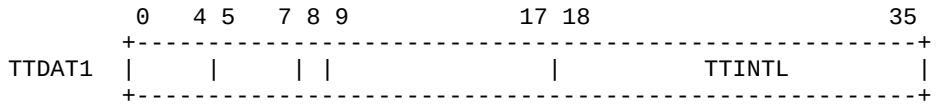
FCMOD1=15	Control Character Output Control Words		
FCMOD2=16	Possible Values for each Char. (2 Bits/Char) CCNONE = 0 Send nothing CCIND = 1 Indicate via ^ CCSEND = 2 Send Actual Code CCSIM = 3 Simulate Format Action		
TTDPSI=17	Bit for Terminal Code Set if Deferred Interrupt		
TTPSI=20	Bit for Terminal Code Set if Interrupt		
TTLINK=21	Lines linked to (9 bits per line)		
TTLPOS=22	TPGPS Cur Line Position in Page	TLNPS Current Charcter Position within Line	
TTFLGS=23	0 TOFLG ^O was typed	10 TPLEN page length 17	32 TTDUM duplex mode 35
TTFORK=24	TCJOB Controlling Job Number	TWFRK Fork Number in Input Wait on this Line	
TTFRK1=25	TTPSFK PSI Fork # for Non-controlling TTY	TTPFK Fork which is Top Fork of a SCTTY Tree (-1 if None)	
TTCHR1=26	Wake Up Character Mask (ASCII Codes 0-31.)		
TTCHR2=27	Wake Up Character Mask (ASCII Codes 32.-63.)		
TTCHR3=30	Wake Up Character Mask (ASCII Codes 64.-95.)		
TTCHR4=31	Wake Up Character Mask (ASCII Codes 96.-127.)		



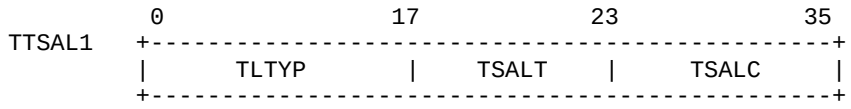


Symbol	Bits	Pointer	Contents
TT%SAL	0	TTSAL	Sendall being done to this line
TT%SHT	1	TTSHT	This is a short block
TT%MES	2	TTMES	This is a system message block
TT%OTP	3	TTOTP	Output is enroute to the line
TT%FWK	4	TTFWK	Forced wakeup
TT%SFG	5	TTSFG	CTRL/S was typed
TT%RFG	6	TTRFG	Repeat last character (BKJFN)
TT%WFG	7	TTWFG	Blocked on input
TT%PRM	8	TTPRM	Don't deallocate dynamic data
TT%BAC	9	TTBAC	Permanent and becoming active
TT%NXO	10	TTNXO	Is 0, no page output stop
TT%BKO	11	TTBKO	Fork blocked for output event
TT%NUS	12	TTNUS	Net user state
TT%DD1	13	TTDD1	Device dependent bit
TT%NPM	14	TTNPM	MCB NVT old page mode
TT%RXF	15	TTRXF	Received XDN on line
TT%FLO	16	TTFLO	Flushing output at TTSND

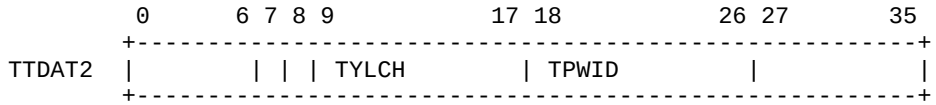
TT%HPO	17	TTHPO	High priority output queued
TT%DAL	18	TTDAL	Deallocate of block requested
TT%XFF	19	TTXFF	Force XOFF/XON status to front-end
TT%SEC	20	TTSEC	Server should echo
TT%WKC	21	TTWKC	Wake-up set has changed
TT%SPG	22	TTSPG	Page stop is turned on in the server
TT%BIN	23	TTBIN	Current data mode is binary (0=ASCII)
TT%NUL	24	TTNUL	ASCII mode nul pass through
TT%LCK	30-35	TTLCK	Count of locks on this block



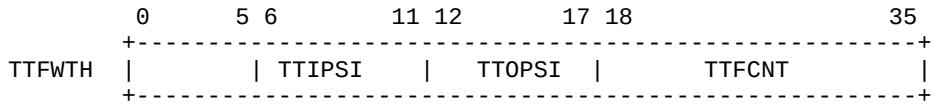
Bit	Pointer	Contents
4-5	TYLMD	Terminal data mode for last input character
5-7	TTOCN	Count of extra buffers
8	TTOMX	Extra buffers in use
9-17	TTTYP	Terminal type
18-35	TINTL	Internal line number (index into static data)



Bit	Pointer	Contents
0-17	TLTYP	Line type
18-23	TSALT	Sendall timeout count
24-35	TSALC	Sendall character count



Bit	Pointer	Contents
0-8	TTUPC	Unpause on page character
9-17	TYLCH	Last char removed from input buffer
18-26	TPWID	Page width
27-35	TTPPC	Pause/unpause on page character



Bit	Pointer	Contents
6-11	TTIPSI	Input PSI level
12-17	TTOPSI	Output PSI level
18-35	TTFCNT	Byte count for wakeup (0=> disabled for wakeup)

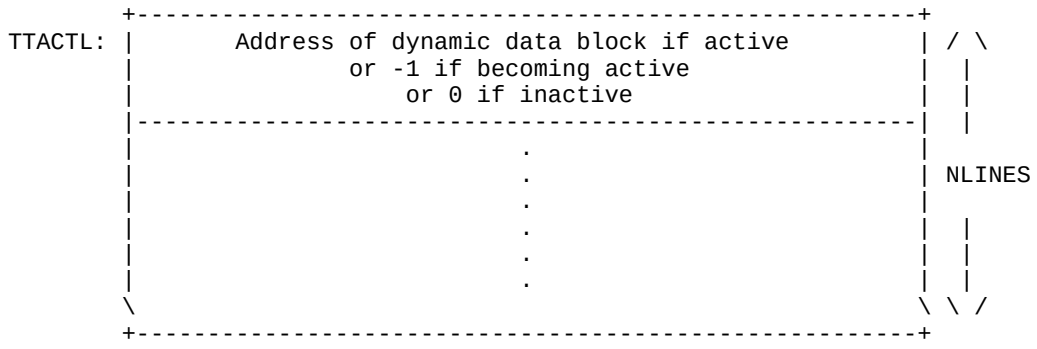
TTACTL

Teletype Active Line Table. This resident table contains a pointer to each active line's dynamic data block.

Defined in: STG

Index: Line Number

Format



NOTE

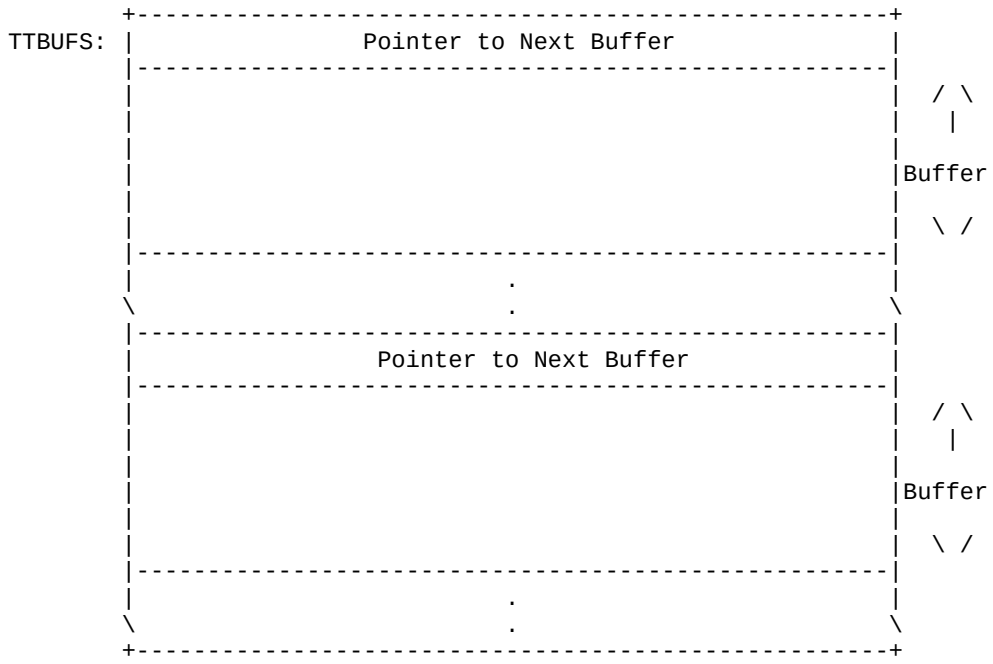
Bit 0 can be on if the entry is an address. This indicates the address is to a short message block.

TTBUFS

Teletype Buffers. This storage area contains the input and output buffers for each line (TTY and PTY) on the system. Input and output pointers to each buffer are kept in the line's dynamic data block. These buffers are fixed length and are assigned on demand. When there is no character activity, the buffers are deassigned.

Defined in: STG

Format



NOTE

The free buffers are linked and are pointed to by TTFREB.

TTCSAD

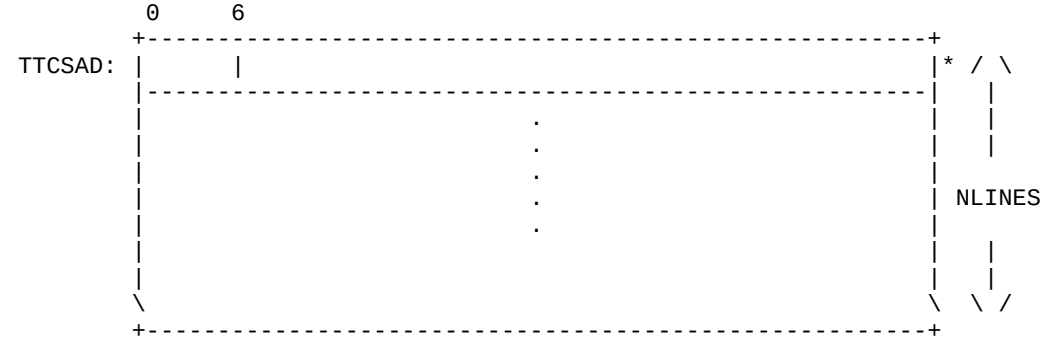
Terminal Call Special Request Address Table. This resident table is used to dispatch to a scheduler routine for a special line request.

Special line requests are made when the DTEQ routine is unable to obtain space for a packet and cannot block to wait for the space. (i.e. process is NOSKED, or request made at interrupt or scheduler level). A special line request is made so that a packet will be queued later by SCHED. (See Table, TTCSTM).

Defined in: STG

Index: Line Number

Format



Bit	Routine	Meaning
0	TTTOBL	Turn on line
1	TTSMIO	TTMSG action
2	TTCOF	Carrier off check
3	TTCON1	Carrier on action
4	DZHV2	Hang up DZ line
5	NTYCOF	Carrier off action
6	CKSALL	Unhang stuck TTMSG line
7	CKNOIS	Noisy line check
8-35		Reserved for future use

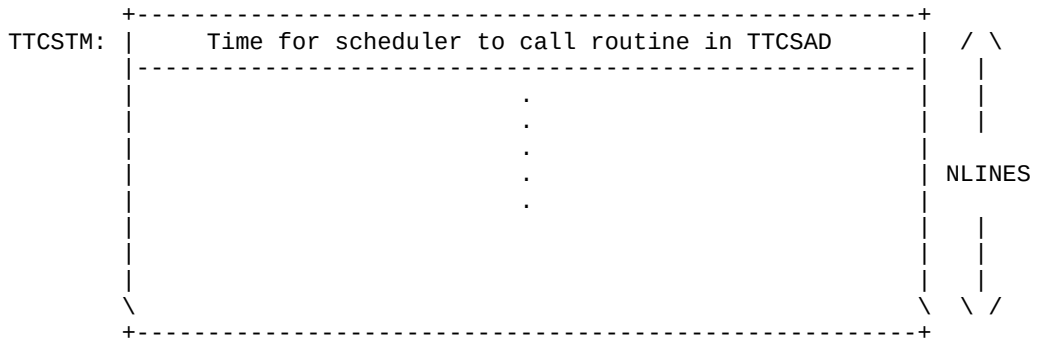
TTCSTM

Terminal Call Special Request Time Table. This resident table parallels the TTCSAD table and holds the time the Scheduler is to call the special request routine in TTCSAD.

Defined in: STG

Index: Line Number

Format



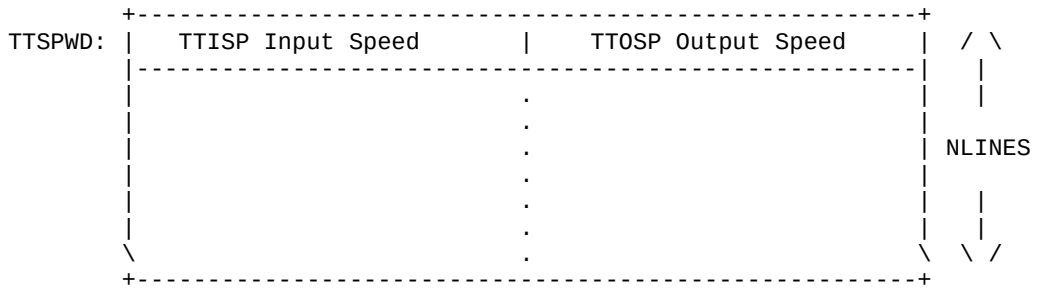
TTSPWD

Terminal Speed Word Table. This resident table contains the terminal speeds for each terminal.

Defined in: STG

Index: Line number

Format



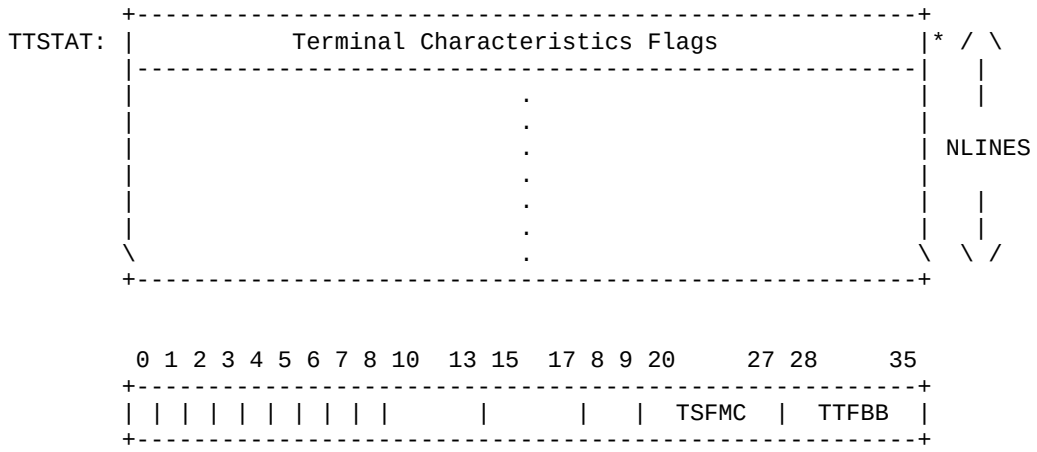
TTSTAT

Teletype Status Table. This resident table contains the terminal characteristic flags.

Defined in: STG

Index: Line Number

Format



Symbol	Bits	Pointer	Contents
TT%FEM	0	TTFEM	Line is remote
TT%NTS	1	TTNTS	Don't send system mesg.
TT%FXO	2	TTFXO	Line needs XON
TT%CON	3	TTCON	Carrier is on
TT%FSP	4	TTFSP	Line needs speed set
TT%FXF	5	TTFXF	Line needs XOF
TT%IGI	6	TTIGI	Ignore input when line is inactive
TT%AUT	7	TTAUT	Line is auto-speed
TT%XOC	8	TTXOC	Line needs XON/XOFF character (KS)
TT%FPK	8	TTFPK	Waiting for FE post (KL)
TT%SHU	9	TTSHU	Line is shut off
TT%WSO	10	TTWSO	Line was shut off
TT%NTM	11	TTNTM	Line does not want miscellaneous terminal messages

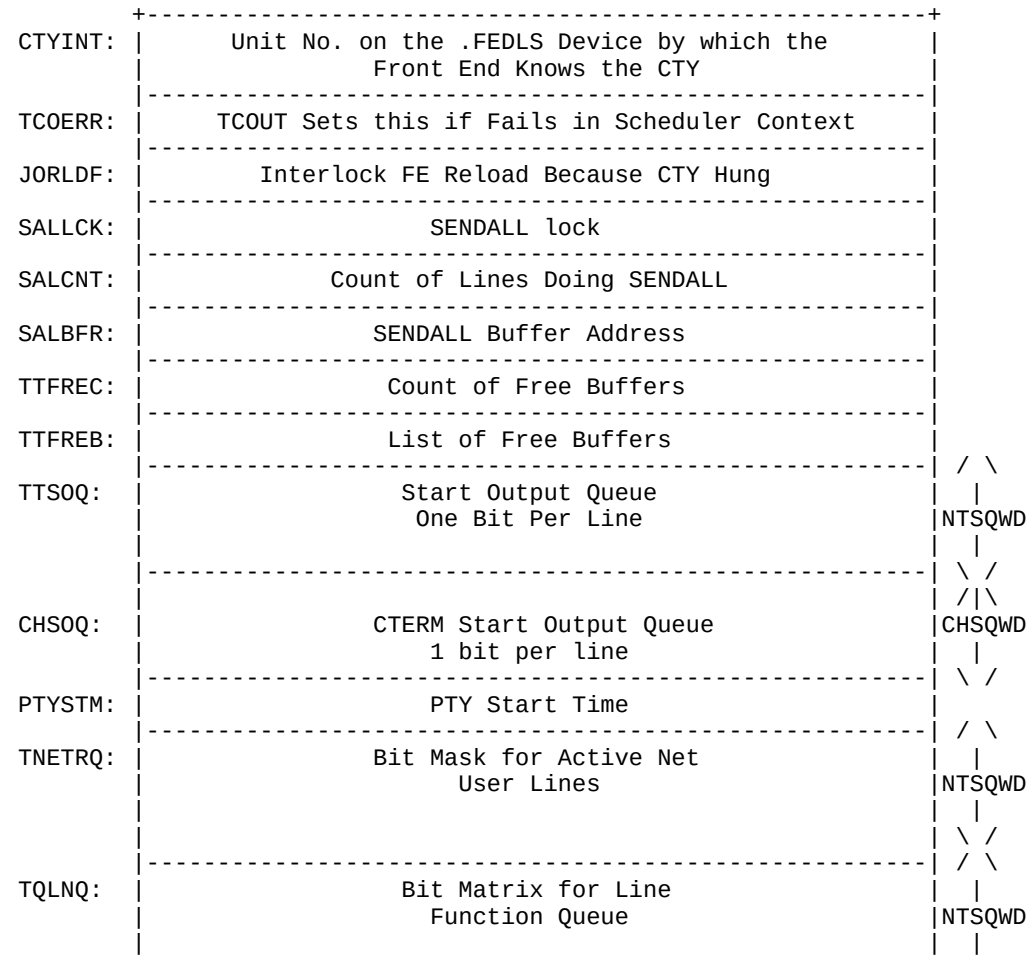
TT%NUM	12	TTNUM	Line does not want nonprivileged TTMSG's
	14-17	TTYSTY	Line type which yields the offset into the TTLINV table
	18-19	TTNOI	Count of noise characters on inactive line
	20-27	TSFMC	Max count for front-end buffer
	28-35	TTFBB	Entry count in Big Buf

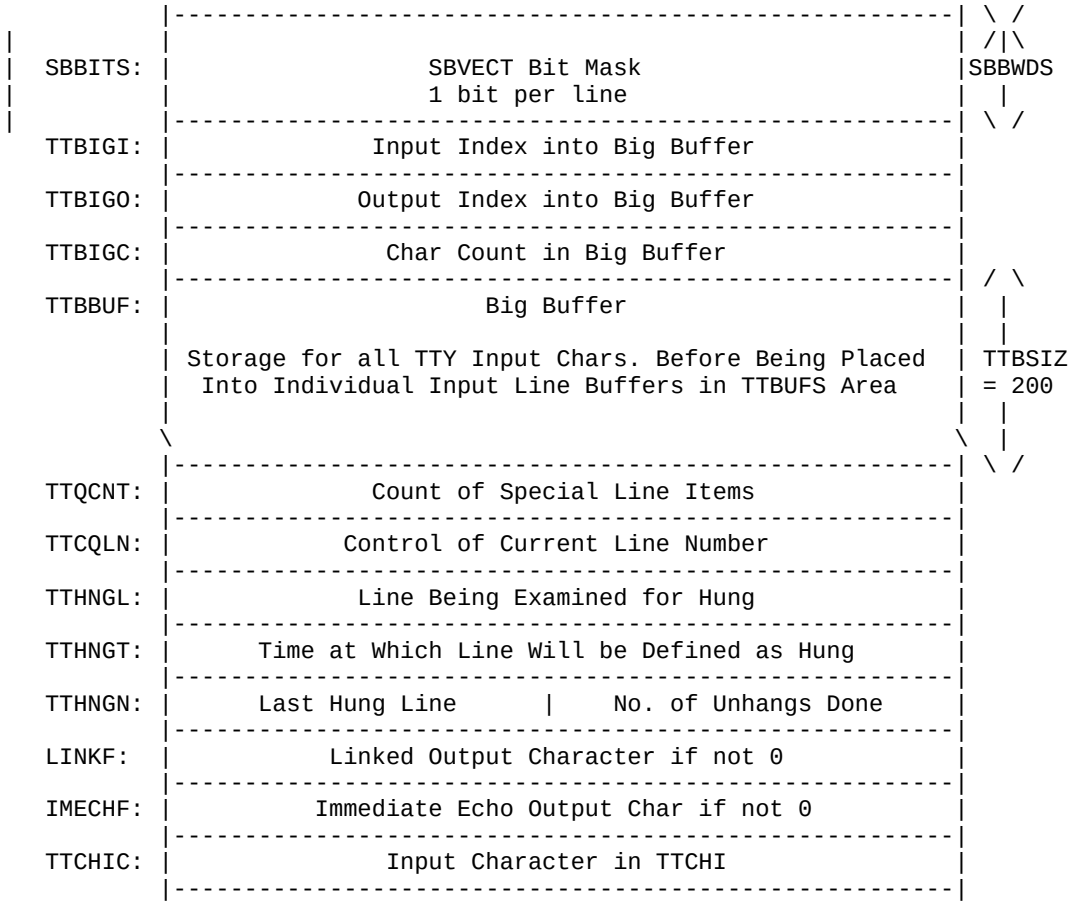
TTY-STORAGE-AREA

Teletype Storage Area. This resident area contains hung and special line information, the Big Buffer, and information about the Big Buffer. (See TT-LINE-DYN-DATA-BLK, TTACTL, TTBUFS, TTCSAD, TTCSTM, TTLINV, TTSPWD, TTSTAT, and TTXXVT Tables).

Defined in: STG

Format



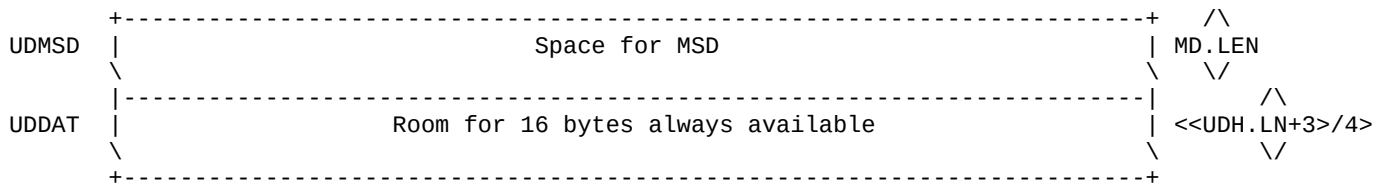

SBBITS:
SBVECT Bit Mask
1 bit per line
SBBWDS
TTBIGI:
Input Index into Big Buffer
TTBIGO:
Output Index into Big Buffer
TTBIGC:
Char Count in Big Buffer
TTBBUF:
Big Buffer
Storage for all TTY Input Chars. Before Being Placed Into Individual Input Line Buffers in TTBUFS Area
TTBSIZ = 200
TTQCNT:
Count of Special Line Items
TTCQLN:
Control of Current Line Number
TTHNGL:
Line Being Examined for Hung
TTHNGT:
Time at Which Line Will be Defined as Hung
TTHNGN:
Last Hung Line
No. of Unhangs Done
LINKF:
Linked Output Character if not 0
IMECHF:
Immediate Echo Output Char if not 0
TTCHIC:
Input Character in TTCHI

UD

This is structure UD, the user data area of a DECnet message.

Defined in: D36PAR

Format

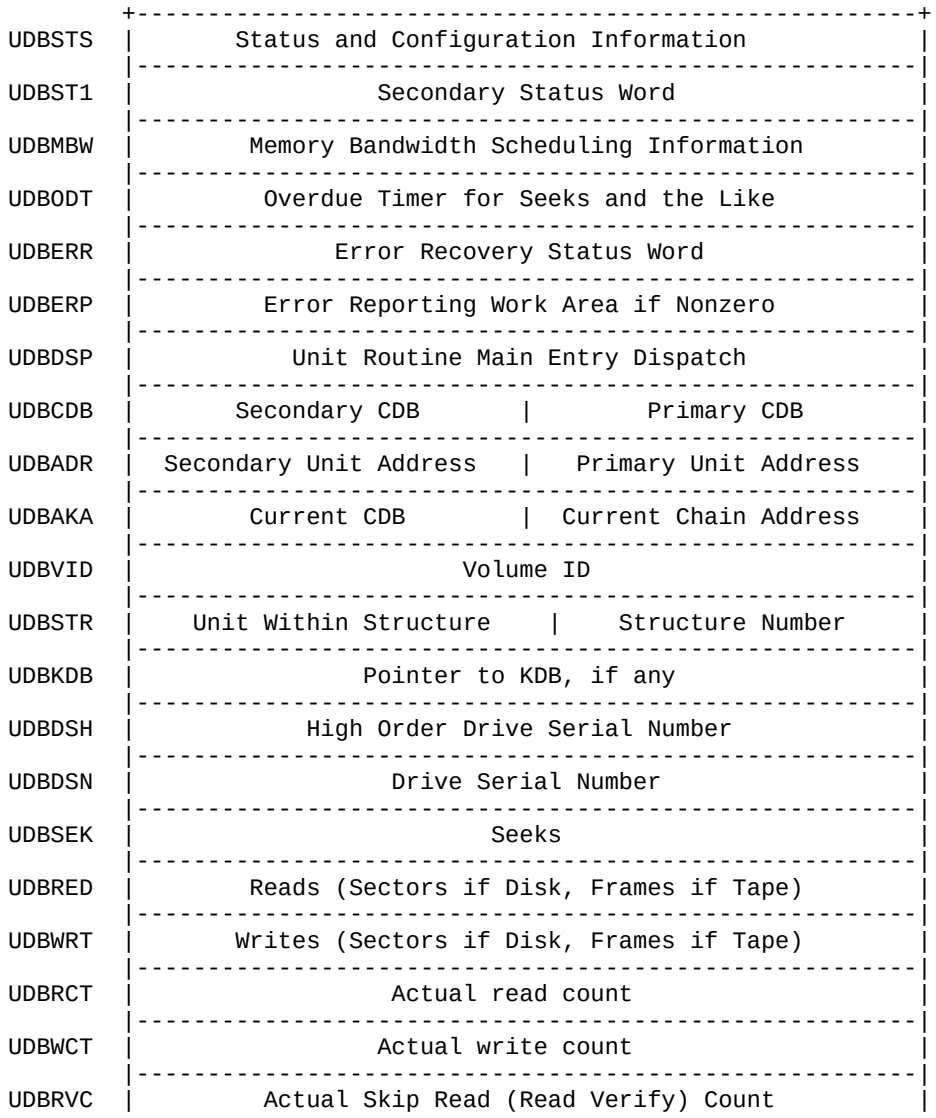


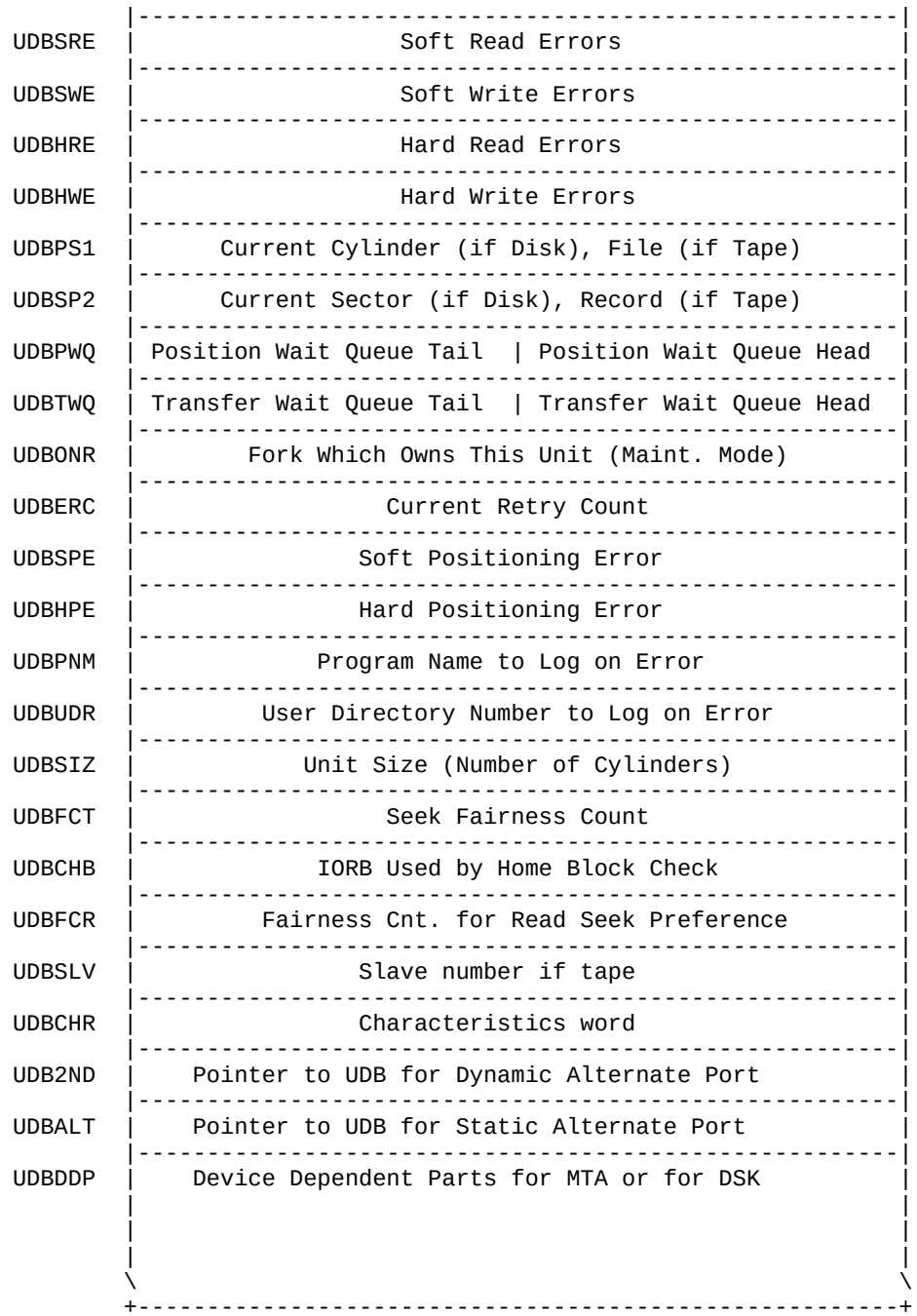
UDB

Unit Data Block. This block, one per unit, contains information about the current activity on the unit.

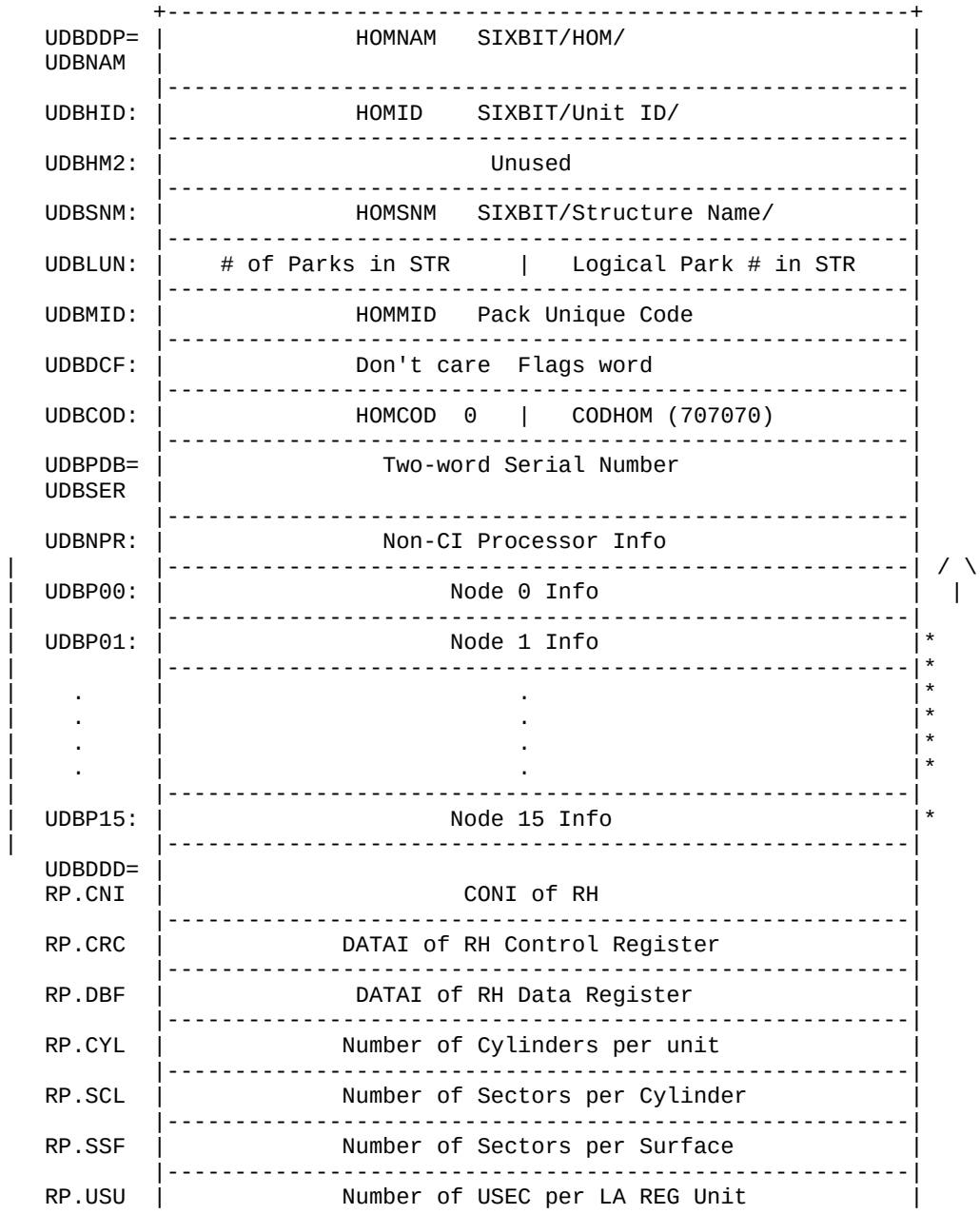
Defined in: PHYPAR

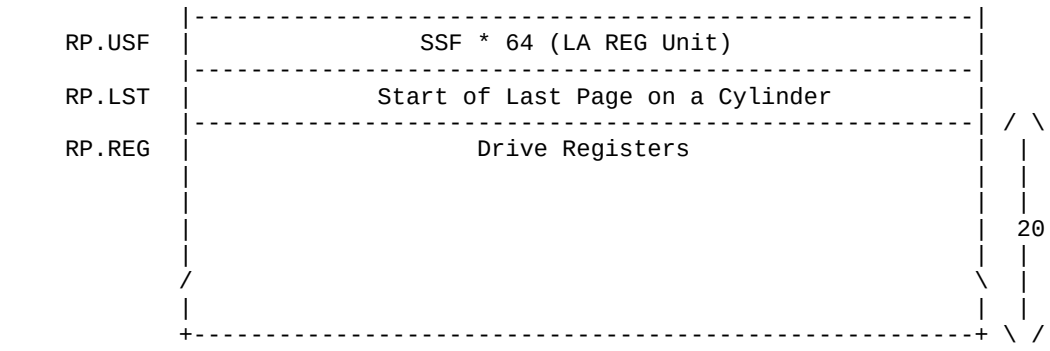
Format




UDBSRE
Soft Read Errors
UDBSWE
Soft Write Errors
UDBHRE
Hard Read Errors
UDBHWE
Hard Write Errors
UDBPS1
Current Cylinder (if Disk), File (if Tape)
UDBSP2
Current Sector (if Disk), Record (if Tape)
UDBPWQ
Position Wait Queue Tail
Position Wait Queue Head
UDBTWQ
Transfer Wait Queue Tail
Transfer Wait Queue Head
UDBONR
Fork Which Owns This Unit (Maint. Mode)
UDBERC
Current Retry Count
UDBSPE
Soft Positioning Error
UDBHPE
Hard Positioning Error
UDBPNM
Program Name to Log on Error
UDBUDR
User Directory Number to Log on Error
UDBSIZ
Unit Size (Number of Cylinders)
UDBFCT
Seek Fairness Count
UDBCHB
IORB Used by Home Block Check
UDBFCR
Fairness Cnt. for Read Seek Preference
UDBSLV
Slave number if tape
UDBCHR
Characteristics word
UDB2ND
Pointer to UDB for Dynamic Alternate Port
UDBALT
Pointer to UDB for Static Alternate Port
UDBDDP
Device Dependent Parts for MTA or for DSK

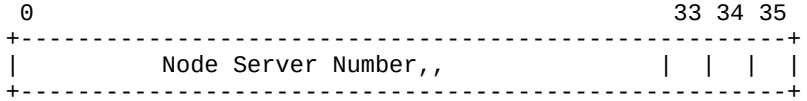
Device Dependent Parts for disks:





L.RP4 = Length of RP04/5/6/7 UDB

Words UDBP00 through UDBP15 have the following format:



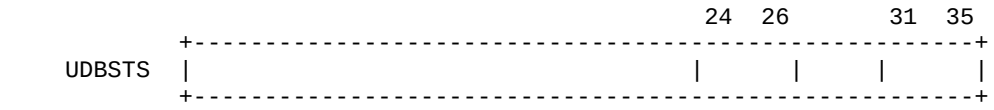
Symbol	Bit	Meaning
UDB%MA	33	Node in maintenance mode
UDB%WA	34	Wire A is good
UDB%WB	35	Wire B is good

Device Dependent Parts for Tapes:

UDBDDP= UDBRNR	Frames Read in NRZJ (Magtape)
UDBRPE	Frames Read in PE
UDBRGC	Frames Read in GCR
UDBRNR	Frames Written in NRZI
UDBWPE	Frames Written in PE
UDBWGC	Frames Written in GCR
UDBDDM= TU6HDN	Hardware-Determined Density
TU6EPS	Error Position
TU6EBP	Error Byte Pointer
TU6EBC	Error Byte Counter
TU6ECL	Tape Cleaner Flag

LU.TM2 = Length of TM02 UDB

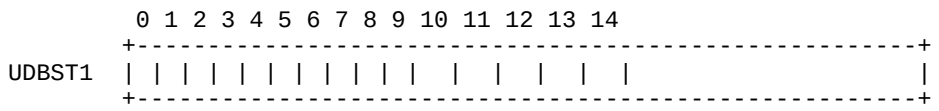
UDBPDB through UDBP15 is a copy of the PDB (processor data block) which resides on sector 3 of a disk. It has the same format.



Symbol	Bits	Pointer	Content
US.OFS	0	USOFL	Offline or unsafe
US.CHB	1		Check home blocks before any normal I/O
US.POS	2		Positioning in progress
US.ACT	3		Active
US.BAT	4		Off if bad BAT blocks on this unit
US.BLK	5		Lock bit for this units BAT blocks
US.PGM	6		Dual port switch in (A or B) (RP04,5,6)
US.MAI	7		Unit is in MAINT mode
US.MRQ	8		MAINT mode is requested on this unit
US.BOT	9		Unit is at BOT
US.REW	10		Unit is rewinding
US.WLK	11		Unit is write locked
US.CIP	12		Unit is on a CI port
US.OIR	13		Operator intervention required. Set at interrupt level, checked at SCHED.
US.OMS	14		Once a minute message to operator. Used in conjunction with US.OIR
US.PRQ	15		Positioning required on this unit
US.TAP	16		Tape type device
US.PSI	17		PSI online/offline/rewind done transition occurred
US.DSK	18		Disk type device
US.OR1	19		1st overdue rewind timer bit
US.OR2	20		2nd overdue rewind timer bit
US.2PT	21		Drive may be dual-ported between systems
US.TPD	22		Disk is offline to prevent three ports
US.BDK	23		CI broadcast needed
US.RTY	24-26		Retry count field
US.CIA	27		CI available
US.UNA	28		Device unavailable (like 16 bit disk)
	31-35	USTYP	Unit Type

Type Code for USTYP

Symbol	Code	Unit	Symbol	Code	Unit
.UTRP4	1	RP04	.UTT70	17	TU70
.UTRS4	2	RS04	.UTT71	20	TU71
.UTT45	3	TU45	.UTT72	21	TU72
.UTTM2	4	TM02 (as unit)	.UTT73	22	TU7X
.UTRP5	5	RP05	.UTDXB	23	DX20B for RP20 disks
.UTRP6	6	RP06	.UTP20	24	RP20
.UTRP7	7	RP07	.UTNOD	25	CI node w/o MSCP server
.UTRP8	10	RP08	.UTHSC	26	HSC50
.UTRM3	11	RM03	.UTR80	27	RA80
.UTTM3	12	TM03	.UTR81	30	RA81
.UTT77	13	TU77	.UTR60	31	RA60
.UTTM7	14	TM78	.UTR82	32	RA82 (future)
.UTT78	15	TU78	.UTR62	33	RA62 (future)
.UTDXA	16	DX20A for tapes	.UTTA7	34	TA78



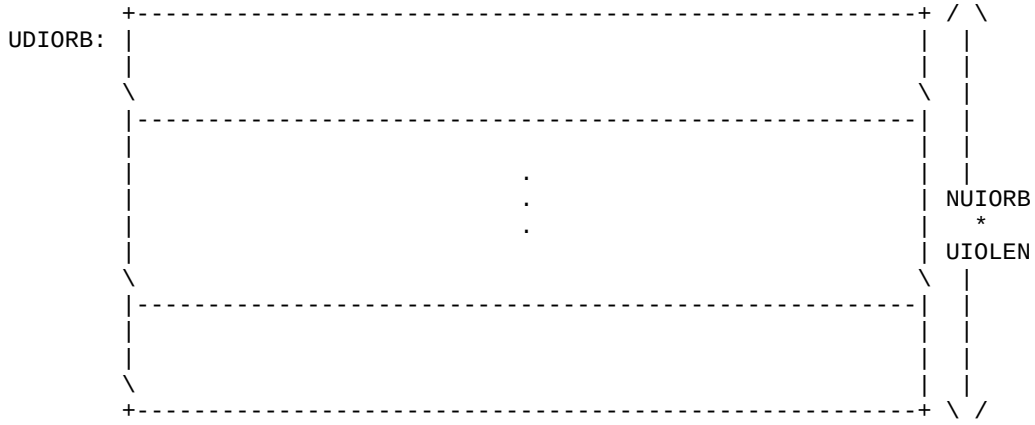
Symbol	Bits	Content
U1.OFS	0	Forced offline dual ported disk
U1.FED	1	UDB ported to front-end
U1.DCD	2	Disk with don't care set
U1.DCU	3	UDB don't care set
U1.HBR	4	Home block read in progress
U1.PDW	5	PDW write in progress
U1.STC	6	Status change while reading home blocks therefore we must do it again
U1.DCR	7	Don't care about this dual ported disk (U1.DCD!U1.DCU composite)
U1.PHB	8	Primary Home block bad
U1.SHB	9	Secondary home block bad
U1.PDR	10	PDV read in progress
U1.VV	11	Volume valid
U1.ODT	12	Overdue IORB Indicator
U1.SOF	13	Structure timer is triggered
U1.NOL	14	Unit not online; wait while searching for login structure

UDIORB

UDSKIO IORB Pool. The free IORBS are linked together in UDIORB and this list is pointed to by UIOLST. Used for disk IORBs (long).

Defined in: STG

Format



UDS

Unit Dispatch Service Routine Table. This table, one per unit type, contains vectored addresses to unit dependent functions, and is given in its generalized form. The specific unit dispatch tables are RP4DSP (in PHYP4) for the disk device, and TM2DSP (in PHYM2) for the magtape device. See PHYPAR for definitions of arguments given and returned on calls to these unit routines.

Defined in: PHYPAR

Format

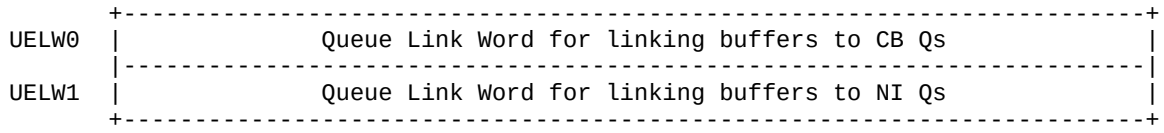
UDSINI=0	Initialize
UDSSIO=1	Start I/O on an IORB, skips if O.K.
UDSINT=2	Interrupt Routine (called on interrupts for XFER done)
UDSERR=3	Initiate Error Retry (skips if no more retrys)
UDSHNG=4	Hung Reset (called from TIMER to reset hung devices)
UDSCNV=5	Convert Unit Linear Address to CYL, SURF, SEC
UDSLTM=6	Return Latency or Best Request
UDSPOS=7	Start Positioning on IORB (skips if O.K.)
UDSATN=10	Attention Interrupt
UDSPRQ=11	Skip if Positioning Required
UDSSTK=12	Stack Second Command, Skip if OK
UDSEXT=13	Check Legality of Unit, Skip if Existant
UDSCCK=14	Check for Halted Microcode in Controllers
UDSPRL=15	Release Port

UE

This is an NI% user argument block (UN) extension, used for linking message buffers on and off the LAT message queues.

Defined in: LATSRV

Format

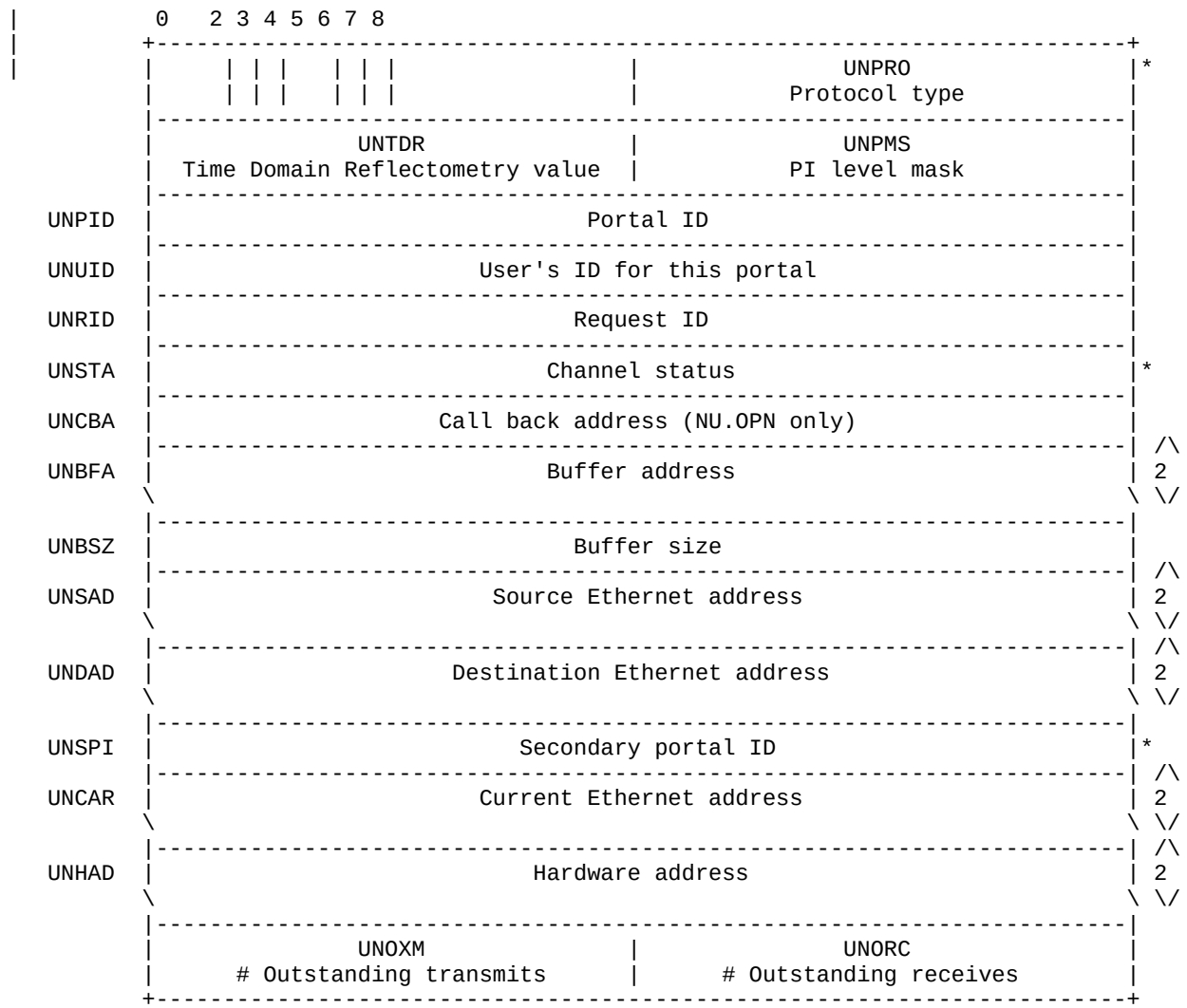


UN

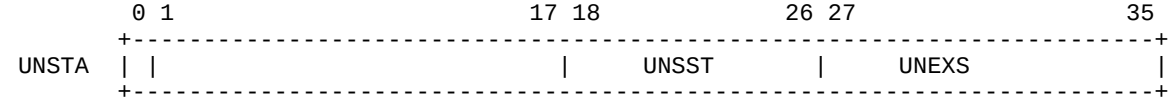
UN is the common argument block passed by all users of NISRV, the Network Interconnect Server.

Defined in: NIPAR

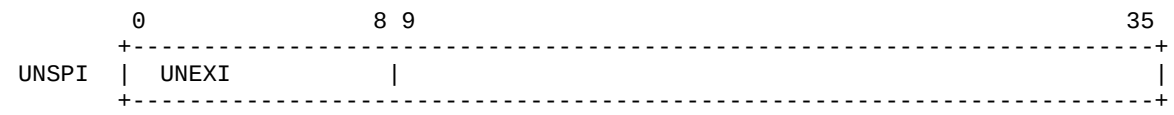
Format



Field	Bit	Meaning
UNCHN	0-2	Storage for the NI channel number
UNPAD	#3	Use padding for this portal (NU.OPN only)
UNZRO	#4	Zero counters after reading
UNADS	5-6	Address space of xmit or rcv buffer UNA.EV=0 Exec virtual UNA.UV=1 User virtual UNA.PH=2 Physical
UNPTR	#7	UNDAD contains a byte pointer
UNRSP	#8	Response desired



Symbol	Bit	Contents
UNRUN	0-1	Channel is running; should be 1b0
UNSST	18-26	Channel substate
UNEXS	27-35	Channel external state



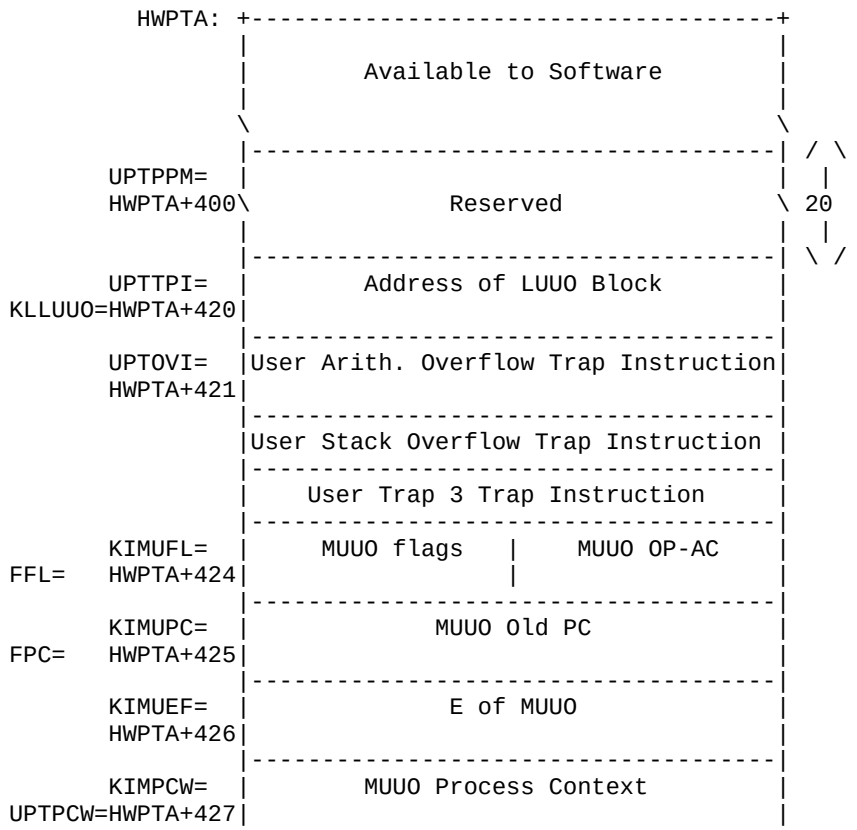
Symbol	Bit	Contents
UNEXI	0-8	External portal ID

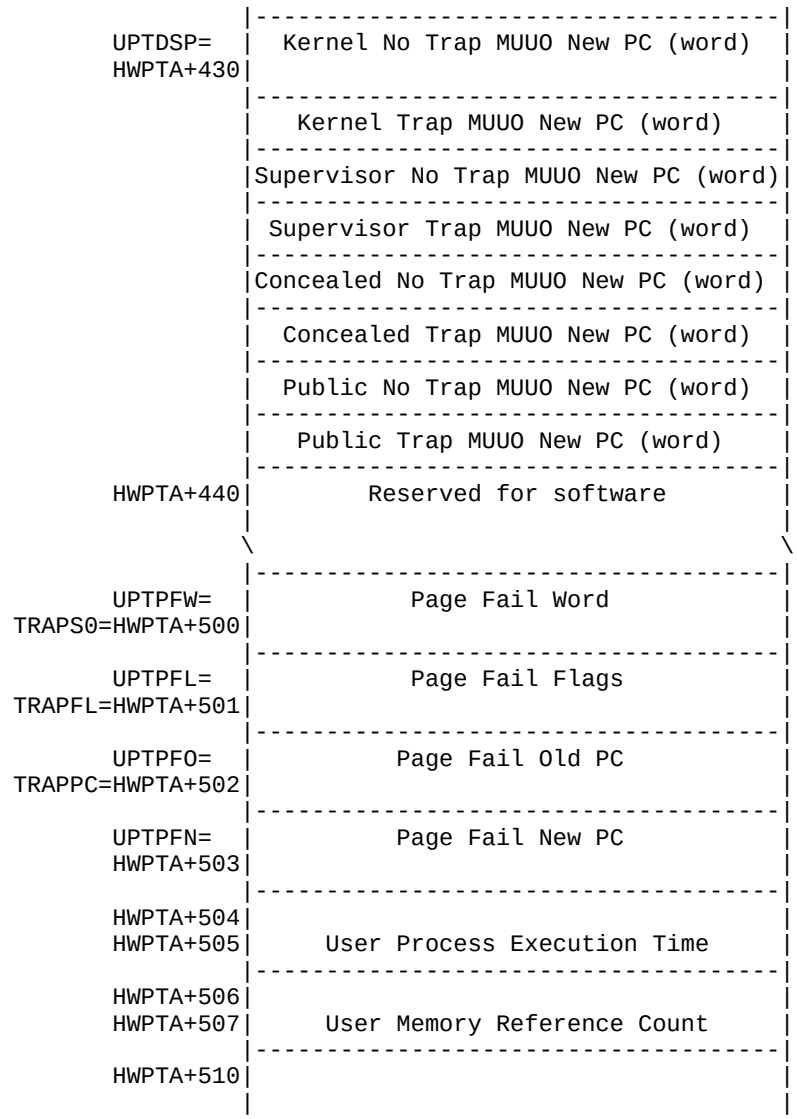
UPT

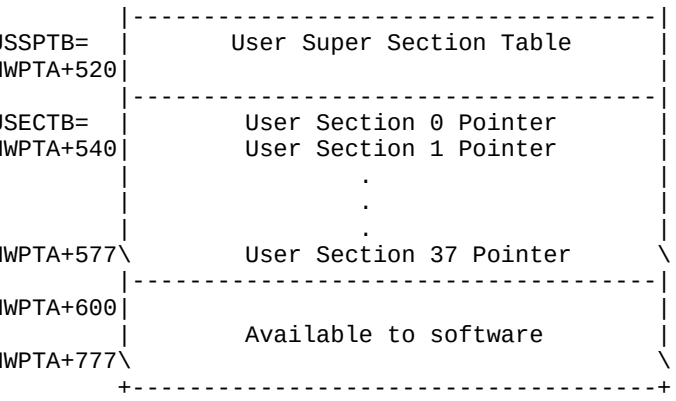
User Process Table. A one page User Process Table is associated with the process controller and with each fork in the system. (Those associated with forks may be swapped out with the fork.) However, there is only one UPT known to the hardware/firmware at any one time. The UPT known is the one whose address is pointed to by the hardware User Base Register (UBR), which is set-up when a process is chosen to run. UPT contains the dispatch address for process events (i.e., traps) and the user's section map table.

Defined in: STG

Format




UPTDSP=
HWPTA+430
Kernel No Trap MUUO New PC (word)
Kernel Trap MUUO New PC (word)
Supervisor No Trap MUUO New PC (word)
Supervisor Trap MUUO New PC (word)
Concealed No Trap MUUO New PC (word)
Concealed Trap MUUO New PC (word)
Public No Trap MUUO New PC (word)
Public Trap MUUO New PC (word)
HWPTA+440
Reserved for software
UPTPFW=
TRAPS0=HWPTA+500
Page Fail Word
UPTPFL=
TRAPFL=HWPTA+501
Page Fail Flags
UPTPFO=
TRAPPC=HWPTA+502
Page Fail Old PC
UPTPFN=
HWPTA+503
Page Fail New PC
HWPTA+504
HWPTA+505
User Process Execution Time
HWPTA+506
HWPTA+507
User Memory Reference Count
HWPTA+510



Note: Approximately 1/4 of the UPT is used for hardware cells, leaving the rest available to software. The monitor currently uses this area to house the first page of the PSB table. (See PSB table description.)

USER-PG-MAP-TBL

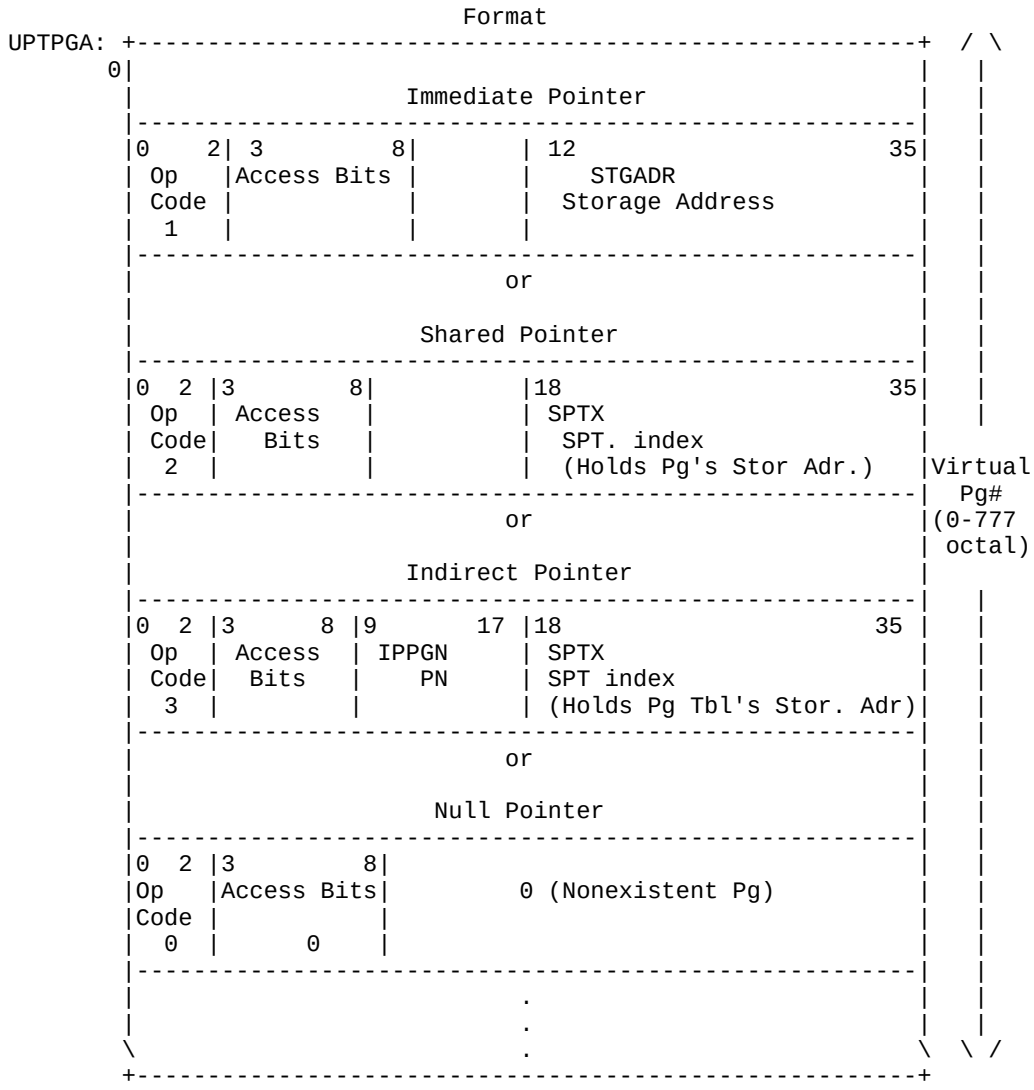
User Page Map Table. This 512-word swappable table, holds or points to other tables that hold all of the mapping information needed by the firmware to translate user mode virtual addresses in a given section into physical memory addresses. It is pointed to by an entry in the forks' section table in its User Process Table (UPT). (See UPT table description.)

The User Page Map, indexed by a 9 bit virtual page number (1), contains either the storage address for the virtual page if the page exists (immediate pointer) or a pointer to where the storage address resides in another table (shared or indirect pointer). The storage address can be a memory, swapping area, or disk page address.

If the Storage address for the virtual page referenced by the process contains a memory page address (i.e., Storage Address Bits <12-17>=0), then the microcode, after copying this translation information along with the page's access bits into the CPU's Hardware Page Table (2), concatenates this memory page number with the index into the page to compose the complete physical address.

If the storage address for the virtual page referenced does not contain a memory address (i.e., Storage Address Bits <12-17> not equal to 0), or the page is non-existant (i.e., Null Pointer word) or the page is being illegally accessed, the microcode will cause a page trap to the User Process Table (UPT). The monitor is then invoked to perform the analysis and resolution of the trap condition.

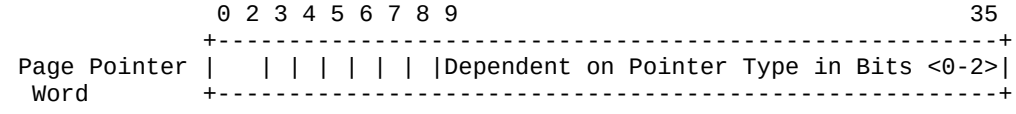
Defined in: PROLOG



* UPTPGA is the monitor's symbol used when it wishes to reference the current user's page map table for section 0.

(1) A fork's virtual 18-bit address within a section is viewed as an address within a 512-word page, (i.e., virtual page number - 9 bits), Index into page 9-bits.

(2) This 512-word table is examined first by the microcode for the virtual page translation information. If not there, it then goes to the fork's UPTA in memory.



Symbol	Bits	Meaning
PTRCOD	0-2	Operation Code for the page pointer type IMMCOD = 1 Immediate Pointer SHRCOD = 2 Share Pointer INDCOD = 3 Indirect
PTPUB	3	Public Bit
PTWR	4	Write Access
PTKEEP	5	'Keep' Bit*
PTCACH	6	Cache Bit
PTCPY	7	Copy-on-Write (Software Only)
PTSECM	8	Section is mapped
PTLOK	9	Page is Locked (Immediate Pointer only)

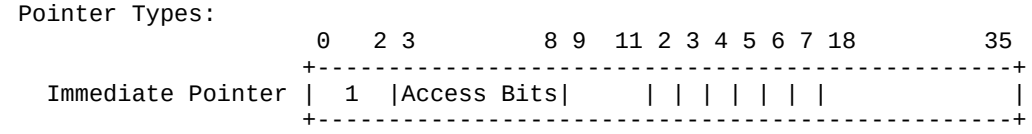
* Once the Keep bit is set in the hardware page table, the entry is kept until one of the following conditions occurs:

1. DATAO PAG is executed with bit 3 reset in E

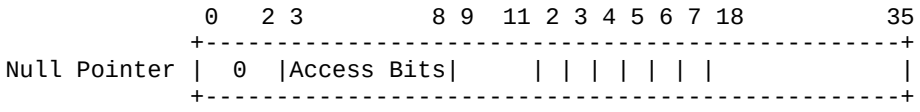
2. CONO PAG is executed

3. A reference to another section causes a refill that overwrites the entry.

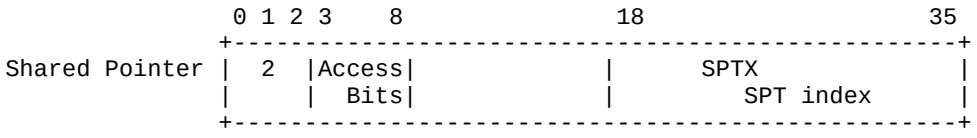
Pointer Types:



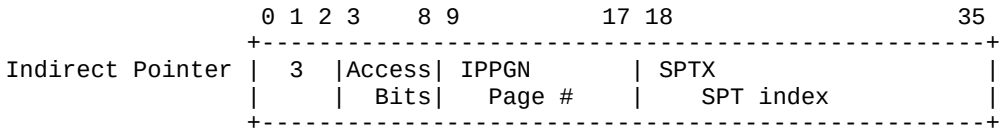
Symbol	Bits	Pointer	Meaning
	0-8	See above	
	STORAGE ADDRESS		
	12-35	STGADR	Storage address (Interpretation follows)
NCORTM	12-17		Non-Core Test Mask yielding type of storage. Bits <12-17>=0 => Bits <18-35>=Memory Pg Adr. Bits <12-17> not equal 0 => Bits <18-35>=Drum/DSK Adr.
DSKAB	14		Storage address is a disk address
DSKNB	15		Temporary bit used with DSKAB to say that disk address is newly assigned.
DRMAB	16		Storage address is a drum address
DRMOB	17		Used with DRMAB to indicate that the swapping area has overflowed to the disk file system. (Since TOPS-20 currently uses only the disk file system for swapping, a drum storage address will always have bits 16 _17 set.)
UAABC	17&35		Temporary bit used by the monitor's page trap handler when a copy-on-write page trap has occurred. If the page to be copied is a drum address, it will be faulted in before these bits are used, avoiding conflict over bit 17. These bits will signify to a lower level routine, SWPIN, that the page just gotten from the free list has no backup address and that it is to get a copy of another page.



Symbol	Bits	Meaning
	0-8	These bits will have a value of 0 for the Null Pointer case.
UAAB	17	Temporary bit used by the monitor's page trap handler to say that the page has no assigned backup address on disk/drum.



Bits	Pointer	Meaning
0-8		See Above
18-35	SPTX	The SPT index is used to obtain from the SPT, the page's storage address.



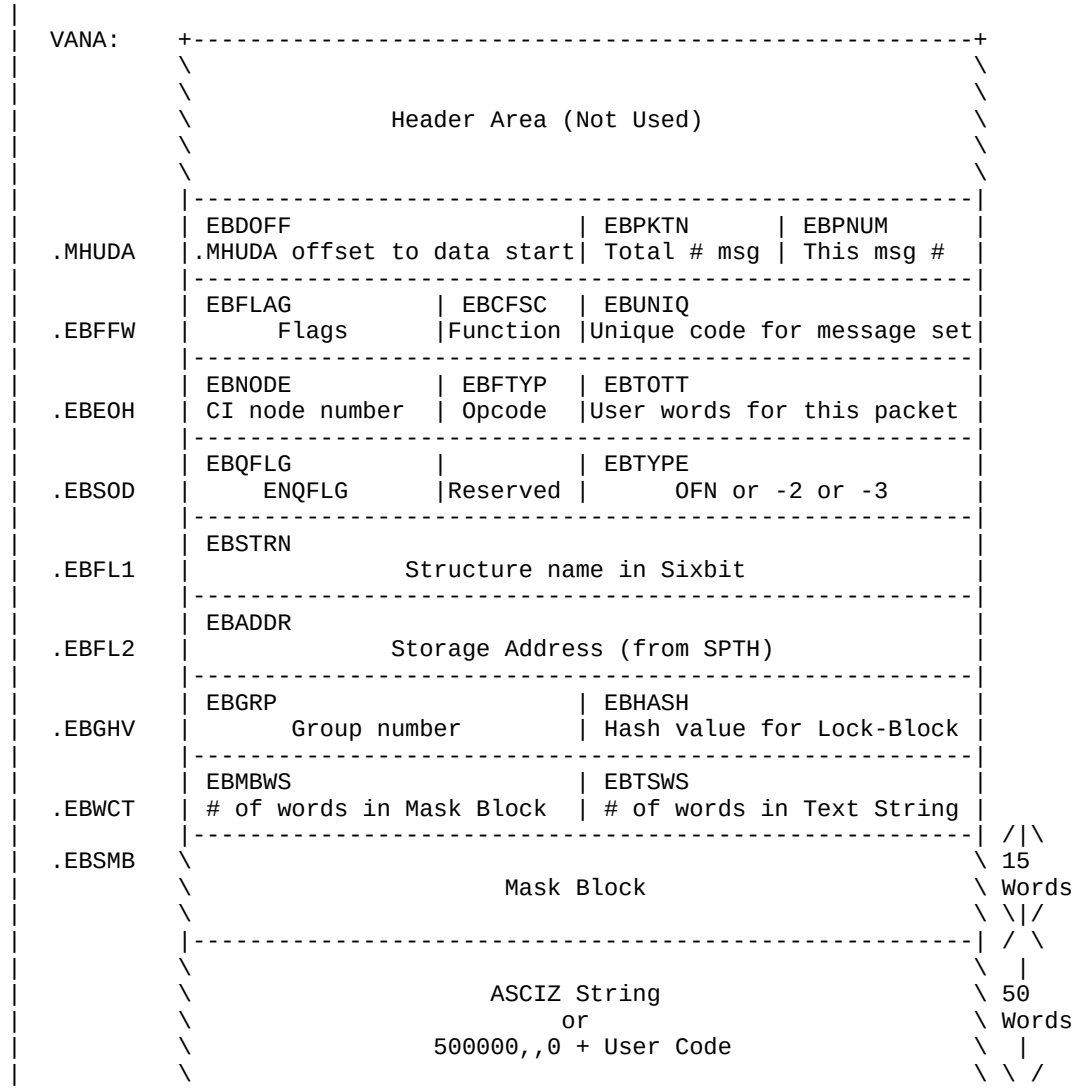
Bits	Pointer	Meaning
0-8		See Above
9-17	IPPGN	Page # whose value is used as an offset into the Page Table (pointed to by the SPT table address plus the SPT index in bits <18-35>) to obtain the page's translation information.
18-35	SPTX	The SPT index is used to obtain from the SPT the page table's storage address. The table's address plus the offset specified in bits <9-17> holds the virtual page's translation information.

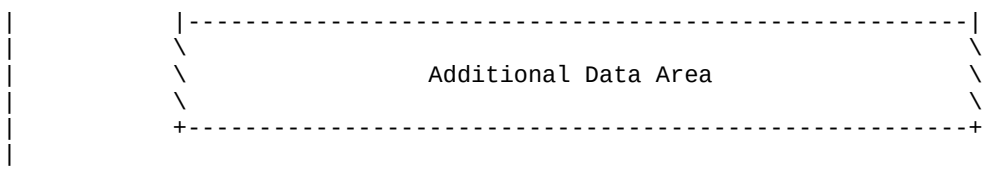
VANA

Vote Answer Area. The VANA is used by routines which compose the reply to an incoming vote (Request Message Set). VANA has the same format as VRQA with the exception that "Assorted Reserved Locations" is not used.

Defined in: ENQSRV

VANA:



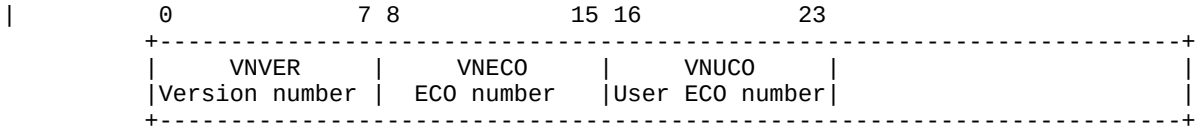

Additional Data Area
3 Words

VN

VN contains the DECnet NSP and Routing Version number words.

Defined in: D36PAR

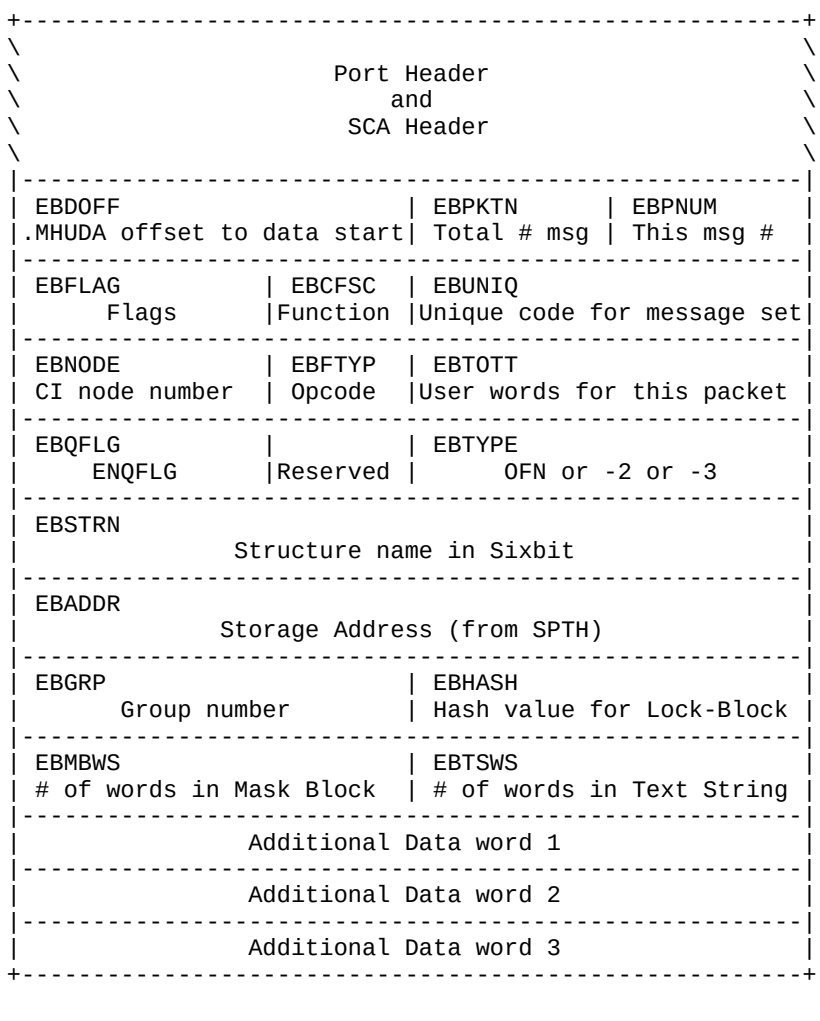
Format



VRB

Vote Request Buffer. VRB is used to send the reply back to the node which issued the vote request. All replies only require a single SCA message buffer.

Defined in: ENQSRV



VRPA

Vote Reply Area. VRPA is used to collect the replies to the vote request.

Defined in: ENQSRV

VRPA:

	VPFLAG		VPUNIQ	
.VPWD0	Flags	Reserved	Unique code for message set	
.VPAD1	Additional Data word 1			
.VPAD2	Additional Data word 2			
.VPAD3	Additional Data word 3			

	VPFLAG		VPUNIQ	
.VPWD0	Flags	Reserved	Unique code for message set	

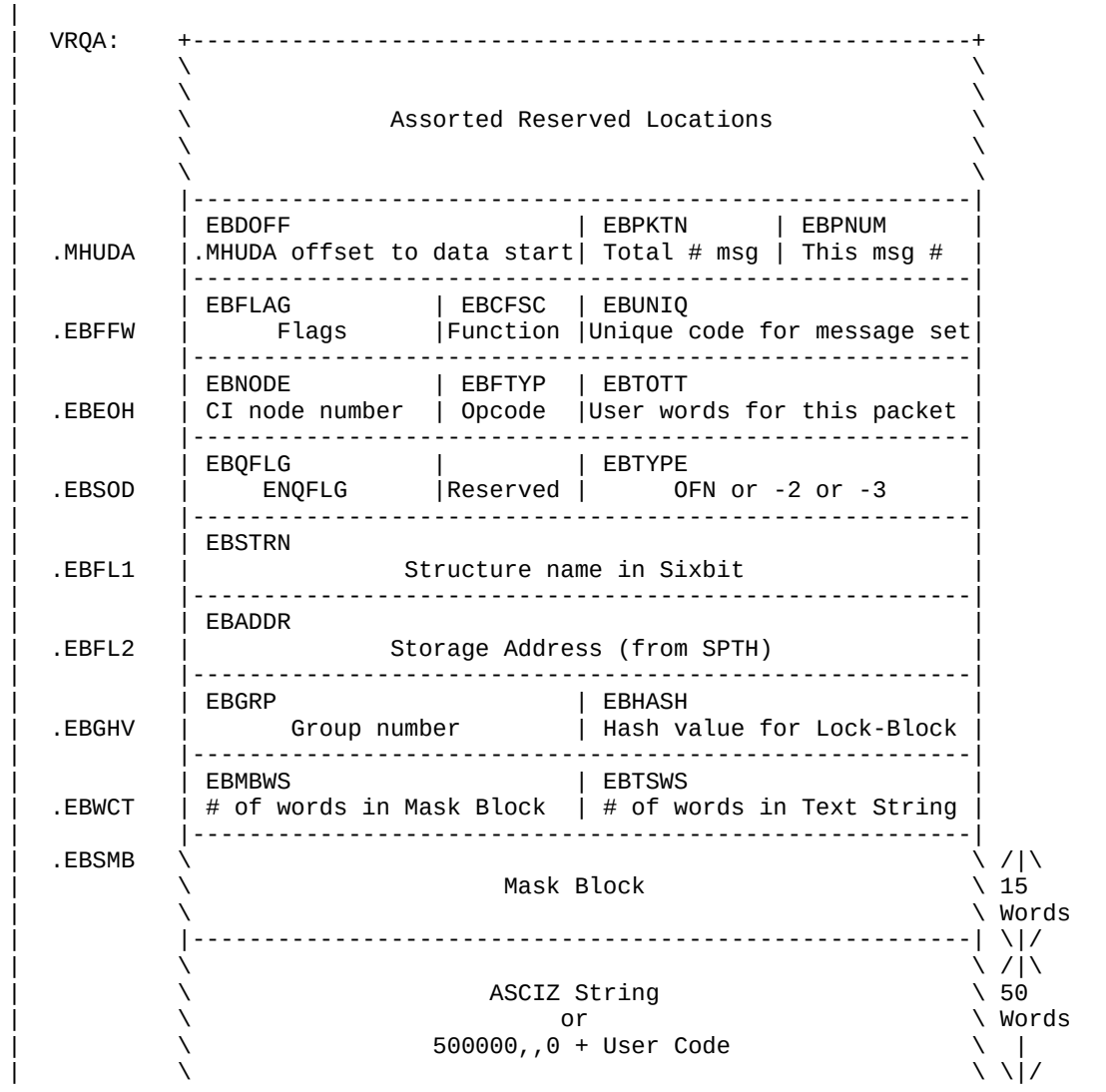
Contents of VPFLAG:

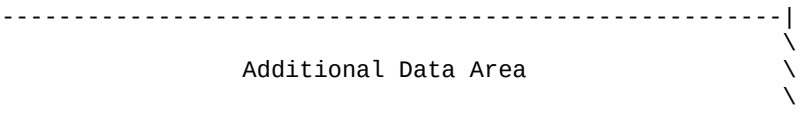
Symbol	Bits	Meaning
VPNOV	0	No vote required for this lock
VPNO	1	A "NO" reply was received from another node
VPRTY	2	A cluster state change occurred

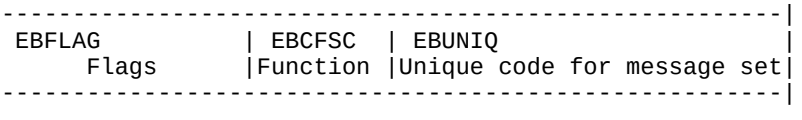
VRQA

Vote Request Area. VRQA is used by Interface Routines to compose the Request Message Set. The ten words of header exist so that the offsets exactly match the SCA message buffer in the Request Message Set.

Defined in: ENQSRV

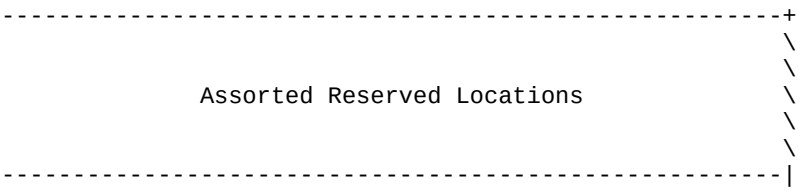






Contents of EBFLAG:

Symbol	Bits	Meaning
EQNOV	0	No vote required for this lock
EQNO	1	A "NO" reply was received from another node
EQANS	2	This is a reply to a vote request
EQBLN	3	Ignore level numbers for this vote
EQTXT	4	The lock is described by a text string



Contents of Port and SCA Header Section of VRQA:

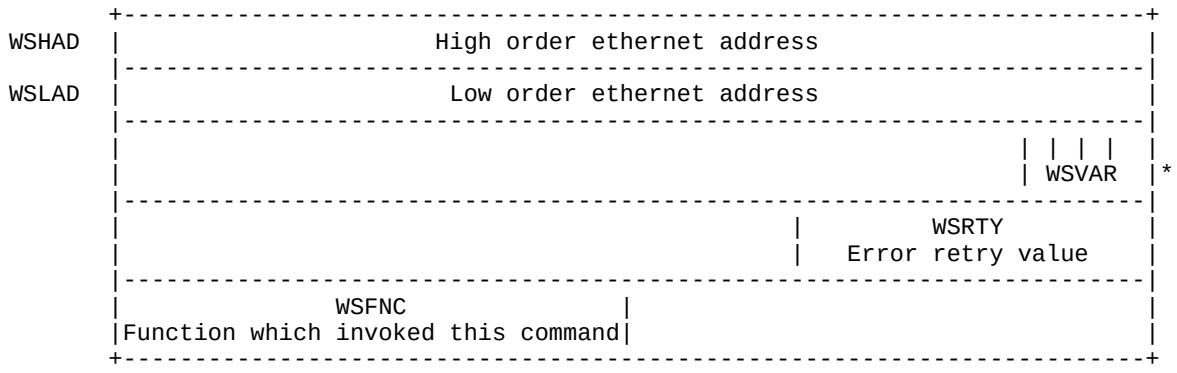
Symbol	Location	Meaning
VOTUNI	VRQA+0	Vote Unique Code
VOTVCT	VRQA+1	The count of outstanding replies
VRBADR	VRQA+2	The address of the vote reply buffer
ASMPTR	VRQA+3	Offset into VRQA used by EQMSG
RPLYND	VRQA+4	CFS host index to send reply to
EQLBLT	VRQA+5	Lock-Block Action List
EQLBCT	VRQA+6	Count of blocks on action list
EQCSTF	VRQA+7	Cluster state change flag

WS

WS defines the format for the NI Write Station Info command.

Defined in: PHYKNI

Format



For field WSVAR(32-35):

WSCRC	32	Allow receipt of frames with CRC errors
WSPMC	33	Promiscious multicast mode
WSH40	34	H4000 mode
WSPRM	35	Promiscious mode

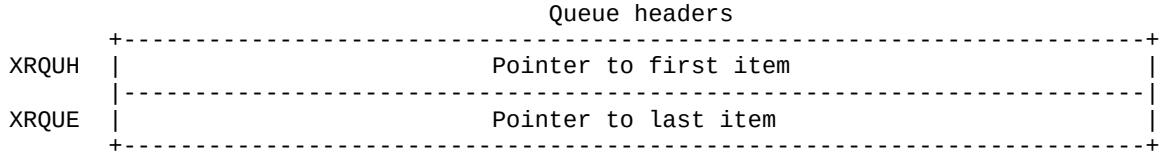
XR

The XR structure defines the format of the queue header for NI portal block transmit and receive queues (see NI Portal Block -- PR).

Defined in: NIUSR

Format

Queue headers



APPENDIX A

LISTING BY MONITOR MODULES

This appendix lists the TOPS-20 modules and the monitor tables defined in each.

Defined in	Table Title
APRSRV	SCHED-Variables
CFSPAR	CFS Resource Block
CFSSRV	CFS Voter Message Buffer
CLULSN	CLUHST CLUSTS
CLUPAR	CLUDGR Message Buffer
CSTnX	CSTnX
CTERMD	CA CH-CTERMD
D36COM	CH-D36COM FB
D36PAR	AA AJ BP CT DL EC EL

	ES
	ET
	FA
	IA
	IB
	KB
	LI
	MB
	MD-D36PAR
	NE
	NF
	NM
	NX
	OA
	PA
	QA
	QH-D36PAR
	QP
	RC-D36PAR
	RM
	SA
	SJ
	SL
	SS
	TR
	UD
	VN
DNADLL	LT
	QB
DSKALC	HOM
ENQPAR	ENQ/DEQ-LOCK-BLOCK
	Q-BLOCK
ENQSRV	VANA
	VRB
	VRPA
	VRQA
FREE	FREESPACE BLOCK HEADER/TRAILER
	FREESPACE DESCRIPTOR
	FREESPACE-DESCRIPTOR INDEX TABLE
	FREESPACE HISTORY RECORD
IPCF	IPCF-MESSAGE-HEADER
	IPCF-PID-HEADER
IPCIDV	PT-IPCIDV

LATSRV	AC
	CB-LATSRV
	CC-LATSRV
	GB
	HC
	HN
	QL
	SB-LATSRV
	UE
LLINKS	AK
	LK
	LS
	NN
	RT
	SG-LLINKS
	SV-LLINKS
LLMOP	CB-LLMOP
	CD
	CH-LLMOP
	IM
	LB
	LD
	LH
	RB
	RI
	SV-LLMOP
LOGNAM	LOGICAL-NAME-DEFINITION
MONSYM	DEVCH1
	FDB
	INIDVT
NIPAR	CC-NIPAR
	MD-NIPAR
	PC
	UN
NISRV	PR-NISRV
NIUSR	BR
	PI
	PL
	PR-NIUSR
	XR
NRTSRV	NR

NTMAN	DNA Parameter and Counter Data Base
	NT
	PRMP
PHYKLP	RIDSTS (Request-ID Status)
PHYKNI	BD
	C1
	CM
	FL
	MT
	PB-PHYKNI
	PS-PHYKNI
	PT-PHYKNI
	QE
	QH-PHYKNI
	RC-PHYKNI
	RD
	RS
	SB-PHYKNI
	SN
	WS
PHYM2	KDB
PHYMSC	CICMST
	CIDATA
	MSCCID
	MSCINT
	MSCOLD
	MSCTMO
PHYMVR	MSCP Server Command Header
	MSCP SERVER STORAGE
	SCDB
PHYP2	KDB
PHYPAR	CDB
	CDBCAD
	CDS
	IORB
	KDB
	UDB
	UDS
PHYSIO	DSKSIZ
	DSKUTP
	NAMUTP

PROLOG	BAT
	DEV`DTB
	DIRECTORY
	DIRECTORY CACHE
	DST
	FDB
	FKCNO
	FKSWP
	IDXFIL
	JOBRTL
	SPT
	SPTD
	SPTH
	SPTO
	SPTO2
	USER-PG-MAP-TBL
SCAMPI	CI Related Variables
	SBLIST (System Block List)
SCAPAR	Connect ID Format
	KDB
	PCB (Port Control Block)
	SCA Connection Block
	SCA Ring Buffer Entry
	System Block
SCHED	SCHED-VARIABLES
SCLINK	BU
	CF
	LN
	NO-SCLINK
SCPAR	CB-SCPAR
	MN
	NO-SCPAR
	PB-SCPAR
	PS-SCPAR
	PT-SCPAR
	SB-SCPAR
	ST
SERCOD	SYSERR-STORAGE-AREA
STG	ALOC1
	ALOC2
	BTB
	BUG-HLT/CHK/INF-STORAGE-AREA
	CDBCAD

CDR-STORAGE-AREA
CFHSHT
CFHSTS
CFNNAM
CFSHNM
CFSHST
CFSOFN
CFS Resource Block
CFSSTR
CHNTAB
CLASS-SCHEDULER-STORAGE
CST0
CST1
CST2
CST3
CST5
DEVCH1
DEVCH2
DEVCHR
DEVDSP
DEVNAM
DEVUNT
DIRECTORY CACHE
DRMBBT
DRMCNT
DSKSZ`n
DST
DTE-STORAGE-AREA
DTEDTV
ENQ/DEQ - STORAGE AREA
EPT
EXEC-PG-MAP-TBL
FE-STORAGE-AREA
FKBSPW
FKCNO
FKINT
FKINTB
FKJOB
FKJTQ
FKNBW
FKNR
FKPGS
FKPGST
FKPT
FKQ1
FKQ2
FKSTA2
FKSTAT
FKSWP
FKTIME

FKWSP
GTOKPR
HOME
HOMTAB
INIDEV
INIDV1
INIDVT
IPCF-STORAGE-AREA
JOB AREA
JOBDIR
JOBNAM
JOBPNM
JOBPT
JOBRT
JOBRTL
JSB
LOGICAL-NAMES-LIST
LPT-STORAGE-AREA
MONITOR-STATISTICS
MSCP SERVER STORAGE
MTA-STORAGE-AREA
MTCUTB
NTCTAB
OFNLEN
PHYUNT
PIDCNT
PIDTBL
PROCESS STORAGE AREA
PSB
PTYSTS
RES-FREE-SPACE
SCDBTB
SCHED-VARIABLES
SCOUNT
SDB
SNAMES
SNBLKS
SPFLTS
SPT
SPTD
SPTH
SPTO
SPTO2
SPTO3
SPTO4
SSIZE
STIMES
STRTAB
SWAP-FREE-SPACE (NON-EXTENDED)
SYNMTB

	SYS-STARTUP-VECTORS
	SYSERR-STORAGE-AREA
	TTACTL
	TTBUFS
	TTCSAD
	TTCSTM
	TTSPWD
	TTSTAT
	TTY-STORAGE-AREA
	UDIORB
	UPT
TTYDEF	TT-LINE-DYN-DATA-BLK