XVM/RSX PART III
SYSTEM MANAGEMENT

CHAPTER 1

CORE MANAGEMENT

This part of the manual provides guidelines for partitioning and managing core in the XVM/RSX environment. It supplies sample core allocations in several different system configurations and includes an analysis of fitting different kinds of system space together in a convenient and efficient way.

1.1 SYSTEM ORGANIZATION

Core in RSX is divided in the following way:

1. The Executive resides in the lowest part of core.
2. Partitions of differing sizes are allocated for the use of MCR or TDV routines, I/O Device Handler Tasks, user Tasks, and other programs.
3. System COMMON Blocks can be allocated to facilitate interTask communication.
4. System information is maintained in a series of system lists which are constructed from a linked set of ten-word pieces of core called nodes. Space for many of these nodes must be reserved by the user and is most conveniently allocated in areas between or above partitions.

Space for partitions and certain nodes is originally allocated at startup time. Partition assignments can subsequently be changed by means of the On-Line Systems Configurator, accessed with the RCP or RCF MCR function. The number of nodes in the system can be enlarged, using RCF, but cannot be reduced. The user should therefore be extremely careful in allocating the original number of nodes.

1.2 PARTITION MANAGEMENT

The optimal placement of partitions in core depends on the following considerations:

. Size of tasks to run in partitions

. Whether or not the tasks will remain in the system

. Whether the tasks have been built to run in exec or user mode

At task-building time, a task is declared to be either exec mode or user mode. The meaning of these modes is:

. Exec mode: privileged mode that implies access of any core area. A task built in exec mode must be task-built for a particular partition and must be rebuilt if moved.

. User mode: protected and relocatable mode that implies the ability to access only the addresses in the task partition (except when sharing memory via XVM hardware). A task built in user mode can be freely moved from partition to partition (assuming that the destination partition is sufficiently large).

An important restriction is placed on the installation of exec-mode tasks. Exec-mode tasks must reside in the lower 32K of core. User-mode tasks are not subject to this restriction. Because it is inconvenient to move exec-mode tasks from partition to partition, the initial configuration of such tasks should be made to facilitate the most efficient possible core use.

There are certain basic guidelines to follow in partitioning core. In addition, there are significant variations to these guidelines, depending on the amount of core available, the number of I/O devices in the configuration, and the batch, interactive or real-time orientation of the system. Some of the more important core partition guidelines are outlined in the following paragraphs.

1.2.1 Placement of the Executive

The RSX Executive resides in the lowest area of core memory. It fills nearly all of the first 8K of core, where the system configuration begins entering node space. The Executive code includes such distinct modules as the terminal handler, disk driver and MCR function dispatchers. The sizes of the Executive and of other system areas described in this manual are given in Appendix A of this part.

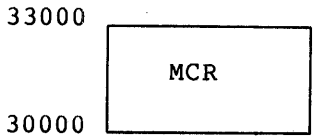
1.2.2 System COMMON Blocks

System COMMON blocks are a useful tool in promoting intertask communication. Space for COMMON blocks can be dynamically allocated by means of the On-Line System Configurator accessed with the RCF MCR Function task. If COMMON blocks are defined, they must be multiples of 256 decimal or 400 octal words of memory. COMMON blocks can occupy space above the 32K core boundary, but exec-mode tasks are able to access only those below 32K via the standard FORTRAN/Task-Builder interface.

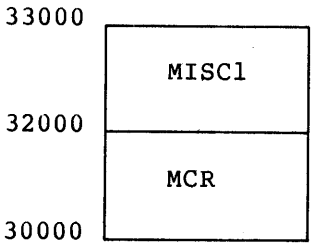
1.2.3 Monitor Console Routine

One core partition must normally be defined for the use of Monitor Console Routine (MCR) tasks. Disk-resident MCR functions are called into this partition for execution when requested. Although users without core constraints often choose to define a partition large enough for the largest of the MCR functions, it is possible to define a smaller partition and to build large MCR tasks to run in other partitions. Furthermore, several transient system tasks are usually built to run in the MCR partition. These include SPOOLER, NODCNT, TNTERM, FININS and AUTORM. It is possible to build user tasks to run in the MCR partition, but, because tasks tie up partitions until they exit, this may significantly reduce MCR response time.

Because MCR tasks are typically built to run in exec mode, the MCR partition must be in the lower 32K of core. It is fairly standard in RSX to define the MCR partition beginning at 30000 (octal). The MCR partition is given the name MCR. The default length of the MCR partition is 3000, but it can be made smaller during system configuration or later by reconfiguring it with the RCP or RCFMCF function task. If a smaller partition size is selected during configuration, the system configuration process causes a partition named MISC1 to be inserted between the end of the MCR partition and octal location 32777. Thus, either of the following configurations can result:



or:



1.2.4 I/O Device Handler Tasks

The number and kind of partition assignments that must be made for I/O device handler tasks differ, depending on the devices in use at a given installation. In general, the following three handlers are core-resident at all installations:

- RF, RP or RK disk handler
- Line printer handler

. DECtape or magtape handler

Because handlers are called into the appropriate partitions when a logical unit number is assigned to the device with the REASSIGN MCR Function or the TDV ASSIGN command, it is possible for several handlers to share a partition. This applies particularly to devices such as the paper tape reader and punch, where only one function is usually carried on at any one time. Another example is DECtape and magtape, where one form of tape is often used in place of the other. It is also possible for a handler to share a partition with a nonhandler task. (In every case of partition sharing, only one task can be in the partition at a time.)

I/O device handler tasks are built to run in exec mode and must reside in the lower 32K of core memory. The system disk file handler partition starts at 25000 for the RF handler or 24400 for the RK and RP handlers and has a length of:

. 3000 (octal) words for the RF handler (RF....)

. 3400 (octal) words for the RP (RP....) or RK (RK....) handler

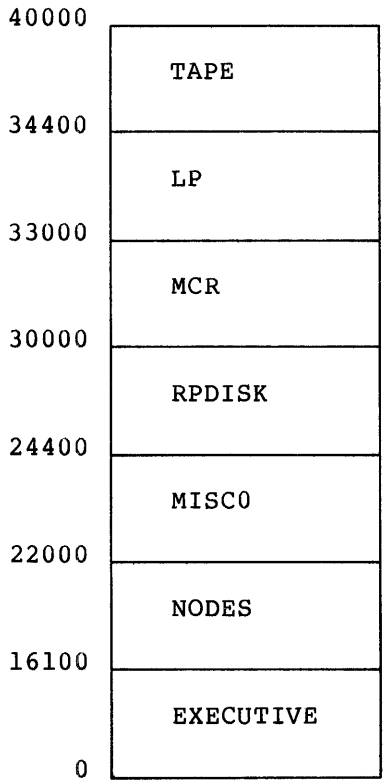
The partition is named RFDISK, RPDISK or RKDISK, respectively.

The line printer handler (LP....) partition starts at 33000 and is 1400 (octal) words in length. The line printer partition is named LP. The DECtape (DT....) or magtape (MT....) handler partition starts at 34400 and is 3400 (octal) words in length. The DECtape or magtape partition is named TAPE.

A miscellaneous partition named MISC0 is frequently defined immediately above the node space allocated during system configuration. Its size is dependent on the top of the Executive and the base of the partition for the system disk file handler. The top of the Executive is dependent on the number of terminals on the system and the number of LUNs specified.

If fewer than the default number of large or small nodes is specified during system configuration, the base of the partition MISC0 is decreased accordingly. Typically, decreasing the number of small nodes by 25 shifts the base of MISC0 400 (octal) words lower. Furthermore, decreasing the number of large nodes by five also reduces the base of MISC0 by 400 (octal) words.

If the default values are accepted for the number of large and small nodes during system configuration, core can be partitioned as follows:



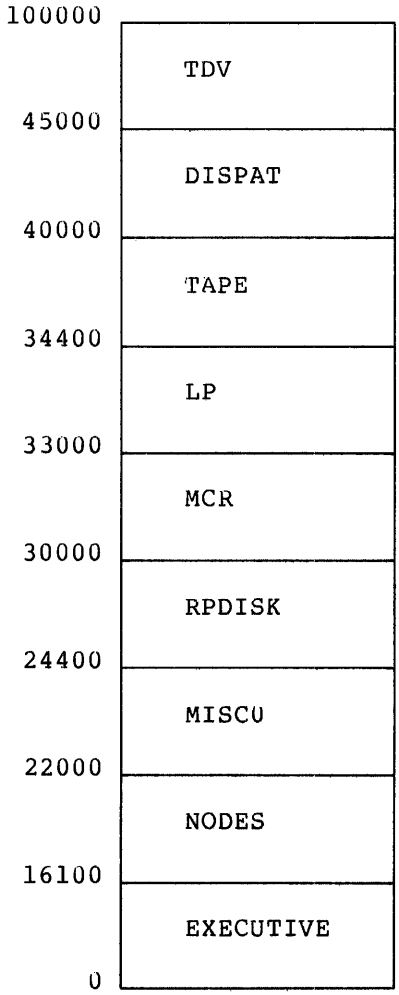
1.2.5 MULTIACCESS Monitor and Task Development Functions

To use MULTIACCESS for task development (TDV), at least two partitions must be defined. The first partition, usually named DISPAT, is needed for the MULTIACCESS Monitor. DISPAT must be within the first 32K of core and occupy at least 5000 (octal) words. If more than two users (when operational, Batch is considered a user) are expected to simultaneously use MULTIACCESS, the size of DISPAT must be increased by 400 (octal) words for each four additional users. For installations requiring fast response time, frequently called overlays of the MULTIACCESS Monitor can be included as part of the Monitor resident code. Such a scheme, however, increases the core requirements of DISPAT.

The second partition necessary to use MULTIACCESS is for TDV program modules (function tasks) such as the FORTRAN Compiler, MACRO Assembler, Task Builder, etc. If several users are to simultaneously execute TDV function tasks, there must be additional TDV partitions (one for each user) in the system. Each partition used for TDV functions must be named TDVxxx, where xxx is specified via RCP or RCF and must be unique for each partition.

All TDV function tasks are disk-resident modules called into core and executed when requested. The MULTIACCESS Monitor has the responsibility of running these tasks in a partition of sufficient size.

For a single user, core might be partitioned as follows:



Most TDV functions can be built to run in either user mode or exec mode. The major TDV tasks (e.g., FORTRAN Compiler, MACRO Assembler) also require core for symbol table space and work space, so at least one TDV partition should be 21000 octal or 8704 decimal words in length. I/O buffer space is required for all TDV functions and is included in the TDV sizes listed in Appendix A.

1.2.6 Unichannel Space

The Unichannel capability of XVM/RSX facilitates the use of PDP-11 peripherals such as card readers, line printers and plotters. The size of the Unichannel memory is 8K or 12K. Common memory space is 28K minus the size of the Unichannel memory and is, therefore, 20K or 16K, respectively.

1.2.7 User Partitions

Partitions for user or other system Tasks are generally assigned above the initial 32K of core in a user's memory area. Space is normally allocated in increments of 32K, so the following is a sample set of partitions in a 128K system:

Partition Name	Location
BLK1	32K to 64K
BLK2	64K to 96K
BLK3	96K to 128K

Both partition names and locations are completely user-specified, however, and can be reconfigured at any time with RCP or RCF.

The Tasks which execute in user partitions must be built to run in USER mode. The exact size of any given program which might execute in one of the partitions described above depends, of course, on the application and on the efficiency of the user's code. The following considerations also affect the size of a user Task:

1. A reentrant library package is not supplied with RSX, so each user Task must be built with its own copy of all required run-time and science-library functions.
2. In order to conserve core space, user Tasks can be broken into a series of overlays.
3. Use of I/O buffer space required for sequential disk file manipulation effectively increases the size of a user Task.

The number of disk I/O buffers a Task will need is the maximum number of sequential access files the Task has open on the disk at any one time. The buffers are allocated by the system (i.e., the user does not explicitly create buffers) at the top of the Task's partition. A USER-mode Task is prevented from accessing these buffers by the memory-protect register. To account for this buffer space in calculating the size of a user Task partition, the Task size and buffer space must be separately adjusted upwards to the next multiple of 400 (octal) words, and then added together. For example, if Task XYZ is 7640 (octal) or 4000 (decimal) words in size and requires one disk I/O buffer of size 422 (octal) or 274 (decimal) words, the following size allocation is made:

Size	Octal		Decimal	
	USER	EXEC	USER	EXEC
Task	7640	7640	4000	4000
Task (adjusted)	10000	--	4096	--

Size	Octal User	Octal Exec	Decimal User	Decimal Exec
I/O buffer	422	422	274	274
I/O buffer (adjusted)	1000	--	512	--
Sum of Task and buffer	11000	10262	4608	4274
Sum of Task and buffer (adjusted)	11000	10400	4608	4352

User partitions should normally be configured with a certain amount of leeway. User partitions can be freely reconfigured and user Tasks moved, so such partitions should be above 32K whenever possible. Core space above 32K is, of course, much less valuable than that below 32K.

1.3 NODE ANALYSIS

Nodes are chunks of contiguous core which are linked together to form system lists and other kinds of RSX status or request queues. A sufficient number of nodes must be allocated at system startup or supplied during reconfiguration to meet the requirements of XVM/RSX operation. It is possible to estimate the approximate number of nodes required by a particular system configuration, and some guidelines for such an analysis are supplied in this section.

1.3.1 Node Sizes

There are two sizes of RSX nodes used to maintain system lists. These are the following:

1. Partition Block Description List (PBDL) nodes are usually each 47 (decimal) words in length; one is allocated for each partition in the system.

2. All other kinds of nodes are ten (decimal) words in length.

1.3.2 Estimating Number of Nodes

Nodes are used for a variety of system lists and other queues. In estimating the approximate total number of nodes needed to maintain system information in a particular configuration, two kinds of system lists must be evaluated:

1. Permanent system lists (e.g., the System Task List), where information is normally maintained until it is explicitly removed

2. Transient queues (e.g., I/O requests), where information is normally removed as soon as the request has been honored

The number of nodes which might be needed by particular system lists is given below. More information on all of these lists can be found in the part of this manual on system organization and lists.

1. System Task List (STL): one ten-word node for each task installed in the RSX system

2. Active Task List (ATL): one ten-word node for each task active (i.e., running or waiting to run)

3. Clock Queue (CKQ): one ten-word node for each scheduled request for a task (i.e., a request entered by a RUN, SCHEDULE or SYNC directive)

4. Partition Block Description List (PBDL): one 47-word node for each partition in the system

5. Physical Device List (PDVL): one ten-word node for each physical device in the system

6. System COMMON Block Description List (SCDL): one ten-word node for each system COMMON block in the system

7. Batch Job List (JOBl): two ten-word nodes for each batch job in the system

8. Small Node Description List (SNDL): one ten-word node for each "partition" formed of small nodes

9. Large Node Description List (LNDL): one ten-word node for each "partition" formed of large nodes

Transient lists and suggested node allocations include:

1. Task Termination Notice Request List (TNRL): one ten-word node for each abnormal task exit

2. I/O Rundown Queue (IORDQ): one ten-word node for each task for which I/O rundown must be performed

3. Execute List (EXELH): one ten-word node for each request to execute a task from a created file

4. I/O request: one ten-word node for each request queued for an I/O device in the system

5. Open disk file: one ten-word node for each file currently open on disk

With these node uses defined, it is possible to predict the approximate number of nodes required for the particular installation described below. A user can extrapolate from this description to define the requirements of any particular installation. All numbers given below are decimal.

1. Assume ten partitions in the system and, therefore, ten 47-word PBDL nodes.

2. This implies ten entries in the ATL (one active task per partition) plus five additional ATL entries for internal system use:

TTY
MCR
IORD
DSA
DSK

In addition, there may be entries for user tasks that have been requested, but that cannot execute because these partitions are in use.

3. Assume 80 tasks installed in the system and, therefore, 80 ten-word STL nodes (80 is a typical number for an RSX installation that supports TDV and batch processing; 40 is more appropriate for an installation that does not require these facilities).

4. The following I/O devices are supported, where each unit requires one PDVL node:

   . Six terminals

   . One disk drive

   . One disk file handler

   . Three DECtape drives

   . One line printer

   Most systems have closer to 20 devices supported.

5. Assume no system COMMON blocks.

6. Assume six JOB1 nodes. This number is highly installation dependent.

7. Assume one SNDL node on system startup and one more later (two assumed in all).

8. Assume one LNDL node on startup and one more later (two assumed in all).

9. Assume five I/O requests queued for each running task and four simultaneously running tasks (20 assumed in all).

Nodes inserted in the CKQ, TNRL, IORDQ, WTL, EXELH and open file lists are too installation dependent to even estimate. The estimated sum of the defined small nodes is:

80	STL
15	ATL
12	PDVL
0	SCDL
12	JOB1
2	SNDL
2	LNDL
20	I/O requests
143	Small nodes (estimated)

There are also 10 PBDL large nodes to be allocated as well.

The numbers derived above are relatively accurate at many RSX installations. Therefore, the initial configuration at system startup time uses 150 small nodes and 10 large nodes as default values. The following is output:

```
HOW MANY LARGE NODES?[10]>

HOW MANY SMALL NODES?[150]>
```

By responding to each of these messages with a simple carriage return, the bracketed default values are used for node assignments.

A large number of nodes can be assigned at startup time, but the user should remember that nodes cannot be deleted once they are assigned, except by performing the entire startup procedure again. Nodes can, however, be added at any time with the On-Line System Configurator, accessed with the RCF MCR Function task. From a system point of view, it makes far more sense to assign a minimum number of nodes at startup and later to add more as small spaces between partitions become available. For example, if a different disk is added to the system, the size of the disk partition might be reduced. Reconfiguring the disk partition would then free space between the disk and line printer partitions, which might be very useful as node space.

1.4 TYPES OF CORE SPACE

Core space in RSX should be allocated in a way that permits convenient reconfiguration of certain areas. To aid in determining the areas that should be most accessible to reconfiguration, the following definitions categorize core areas as permanent, semipermanent, exec-mode and user-mode spaces:

1. Permanent core space includes the Executive, which must always be resident, and the nodes, which are assigned during startup or reconfiguration and cannot be removed.

2. Semipermanent core space includes tasks that are very rarely removed or changed. Handlers for the disk, and probably for the line printer and DECtape or magtape are in this category, along with any COMMON blocks in the system.

3. Exec-mode core space includes tasks built for exec-mode and, thus, not relocatable.

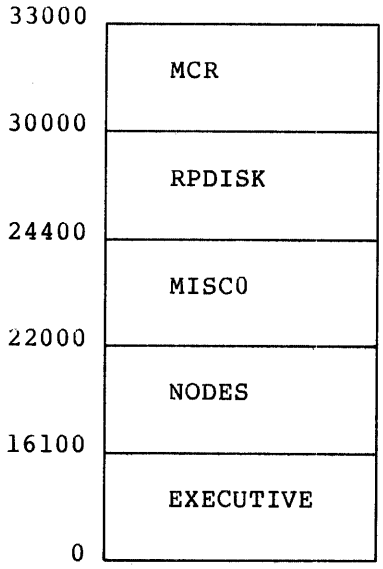
4. User-mode core space includes tasks built for user mode and, thus, easily relocatable.

There are certain approaches to be taken in optionally configuring these different areas of core. Some of these are outlined below.

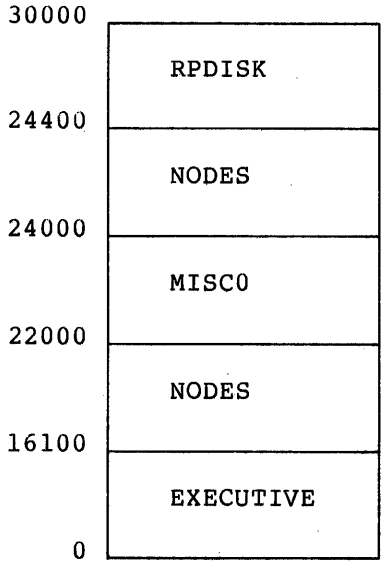
1.4.1 Permanent Core Space

Permanent core space should be positioned in a way that leaves the largest amount of reconfiguration memory available. The Executive is always in the lowest area of core.

System nodes are normally inserted above the Executive. The amount of space allocated depends on the type of system use and configuration. After the space required for the Executive and nodes, a partition named MISC0 is frequently present. MISC0 can subsequently be used for an exec-mode task partition or converted into more nodes. Above MISC0 are the partitions for the system disk file handler and the MCR function task. In a system with the full complement of 150 small nodes and 10 large nodes, the following space might typically be allocated:



The user should remember that the positioning of nodes can be very critical, since they cannot be removed once they have been added to an RSX system. Nodes should, therefore, be located in such a way that likely increases in tasks around them do not cause a problem of the following kind:



If the task built to run in MISC0 expands in size (from 2000 to 2140, for example), it will no longer fit in the partition space originally allocated for its use. Even by reconfiguring partitions, the core area used by the nodes shown above cannot be adjusted.

1.4.2 Semipermanent Core Space

Semipermanent core areas include tasks that are not necessarily resident and that can be moved to a different core area. These tasks are in such heavy use, however, that their movement interferes with normal system processes. I/O device handler tasks for the disk, and often for the line printer and DECtape or magtape, are in this category as is the MULTIACCESS Monitor. System COMMON blocks can be adjusted with the RCF MCR Function task, but it is unlikely that the user will want to move them.

Semipermanent tasks of this kind should normally be assigned space as close together in core as possible and as close to the Executive as possible. Refer to the sample core layouts in section 1.5 for helpful configuration information.

1.4.3 Exec-Mode Core Space

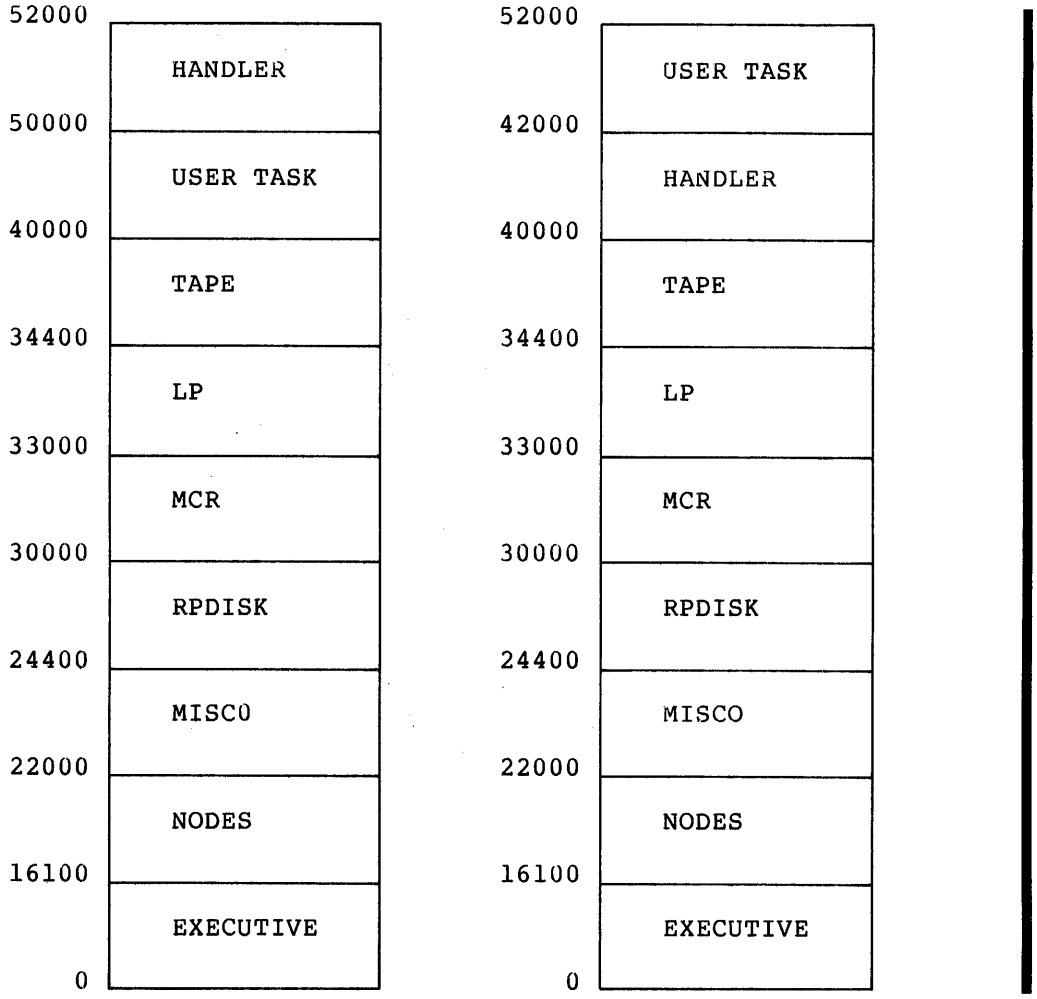
System tasks built in exec mode and used in RSX include the following:

- I/O handlers not frequently used (e.g., paper tape reader, paper tape punch)
- MULTIACCESS Monitor
- Batch Processor
- General-purpose system transient tasks (e.g., POLLER, FININS, AUTORM, TNTERM, NODCNT). These transients are built to run in MCR, but can be rebuilt and moved if the MCR partition must be kept free for frequent execution of MCR functions or if FININS and AUTORM must be runnable at all times (as is the case when MULTIACCESS is in use).

These tasks can be moved without affecting system processes in a major way, but any such movement requires that the tasks be rebuilt to run in the partitions to which they are moved. Therefore, exec-mode tasks should be positioned in such a way that any movement of tasks around them does not prove too disruptive.

In the following examples, if the configuration on the left is used

and the user task increases in size, one of the exec-mode handlers must be rebuilt for another partition. On the other hand, if the configuration on the right is used, the user task can grow without disrupting handler use.



When you partition tasks, remember that:

1. Partitions can be changed or moved at will (if enough large nodes have been allocated) with the RCF or RCP MCR Function task as long as repartitioning does not affect an active task.

2. Exec-mode tasks must be rebuilt for a new partition if they are moved.

3. No task (exec mode or user mode) can be moved from its current partition if it is active.

The last point implies that real-time tasks that run for a long time (e.g., several hours a day) should be installed in partitions outside the mainstream of reconfiguration.

1.4.4 User-Mode Core Space

Tasks built in user mode can be freely installed and reconfigured to run anywhere in core memory. On-line reconfiguration simplifies the job of positioning tasks in convenient core space. Remember, however, that good planning implies that the largest possible areas of core be kept available for reconfiguration purposes.

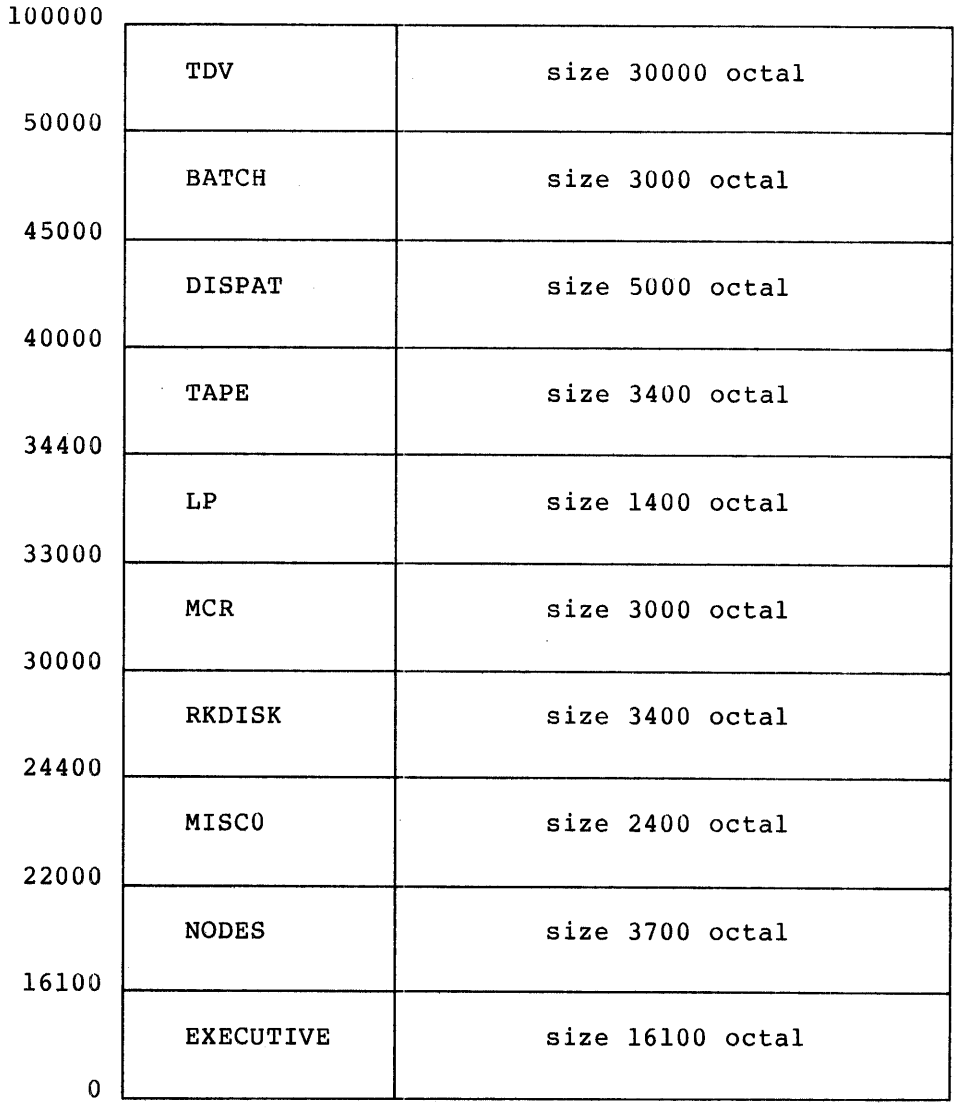
1.5 SAMPLE CORE ALLOCATIONS

This section presents several possible core allocations in different types of RSX systems. The systems described are very different and include:

- Batch system with 32K core memory
- Real-time TDV graphics-oriented system with 64K of core memory
- Real-time TDV system with 32K of core memory
- Small MULTIACCESS system with 32K of core memory
- Large MULTIACCESS/batch system with 64K of core memory

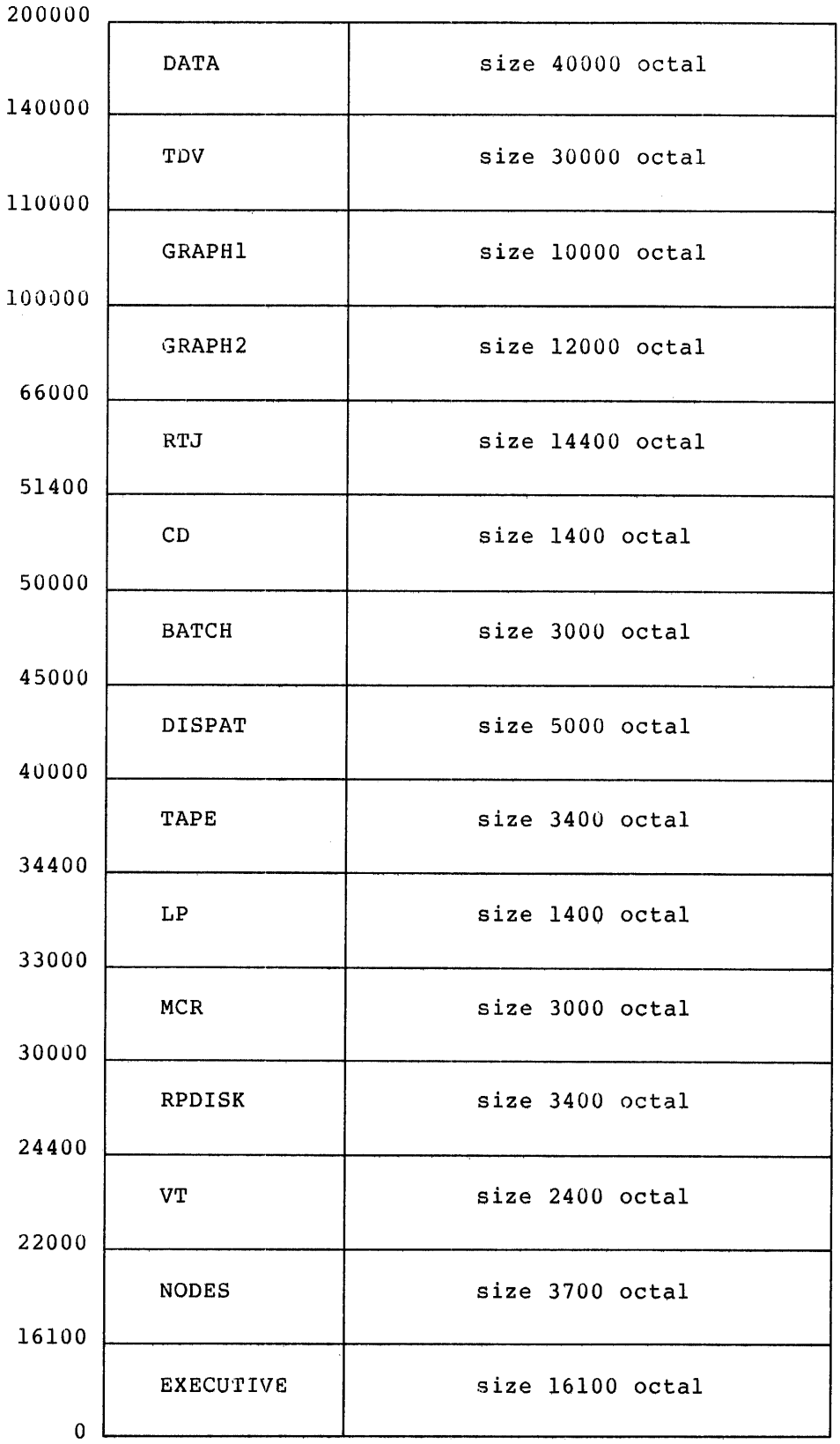
1.5.1 Batch System Configuration

The system shown below has 32K of core memory and is oriented toward a batch environment. Supported peripheral devices are the RK disk, line printer and DECtape. Core is laid out as follows:



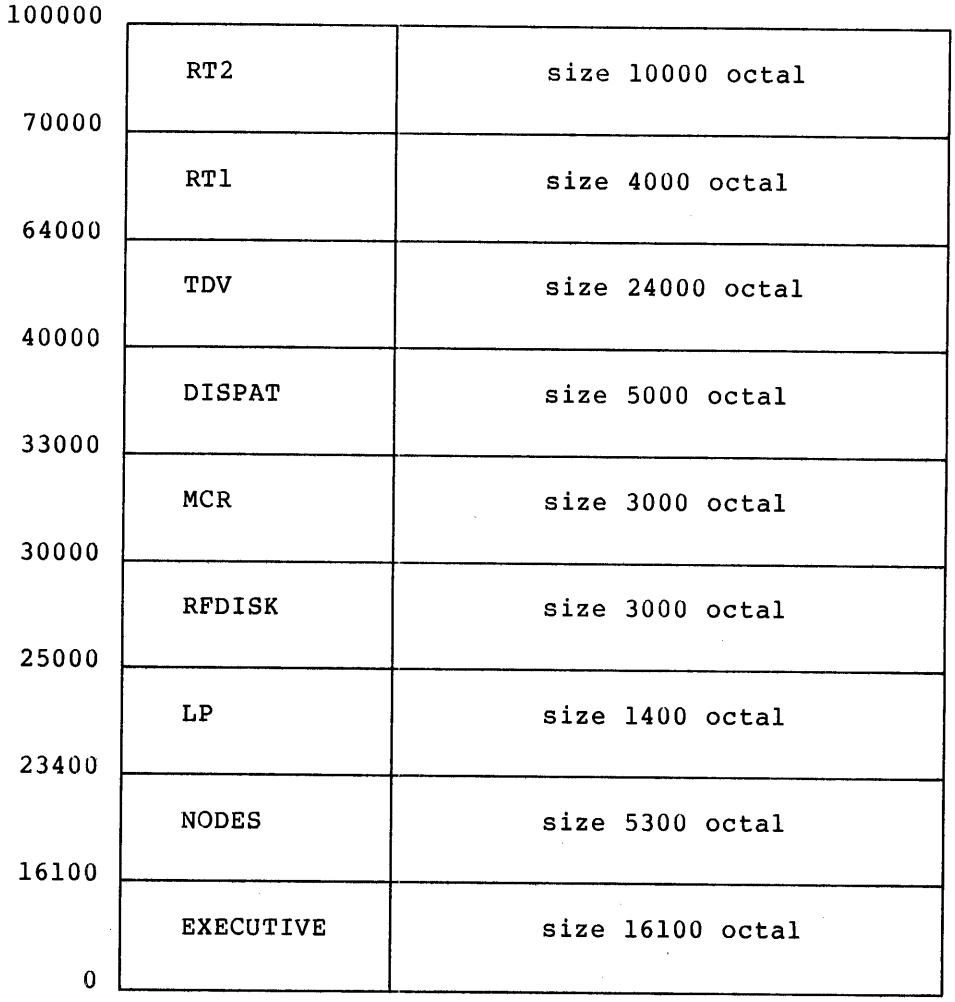
1.5.2 Real-Time Graphics Configuration

This system is a large (64K) configuration that supports both real-time and batch operations. Its orientation is toward graphics and it supports the VT handler and two scopes, each carrying on a graphics operation. These are in partitions GRAPH1 and GRAPH2. Partition RTJ is provided for the use of a real-time job. Partition DATA is reserved for a large data-reduction task. Supported peripheral devices are the RP disk, line printer, magtape, VT display and card reader. Core is laid out as follows:


200000
DATA
size 40000 octal
140000
TDV
size 30000 octal
110000
GRAPH1
size 10000 octal
100000
GRAPH2
size 12000 octal
66000
RTJ
size 14400 octal
51400
CD
size 1400 octal
50000
BATCH
size 3000 octal
45000
DISPAT
size 5000 octal
40000
TAPE
size 3400 octal
34400
LP
size 1400 octal
33000
MCR
size 3000 octal
30000
RPDISK
size 3400 octal
24400
VT
size 2400 octal
22000
NODES
size 3700 octal
16100
EXECUTIVE
size 16100 octal
0

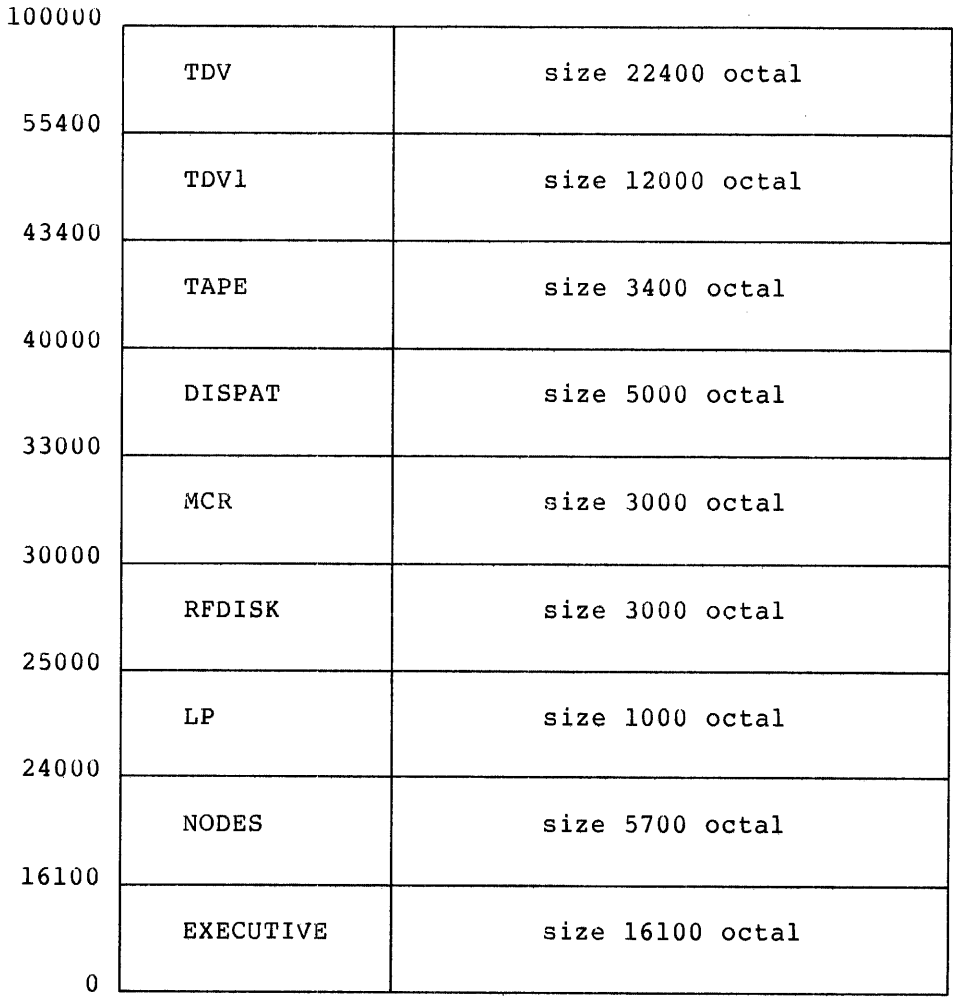
1.5.3 Real-Time TDV Configuration

The system shown below is a 32K real-time TDV configuration in which one user can perform all standard TDV activities. Batch is not supported. Two real-time jobs have partition assignments RT1 and RT2. Supported peripheral devices are the RF disk, line printer and terminals. Core is laid out as follows:



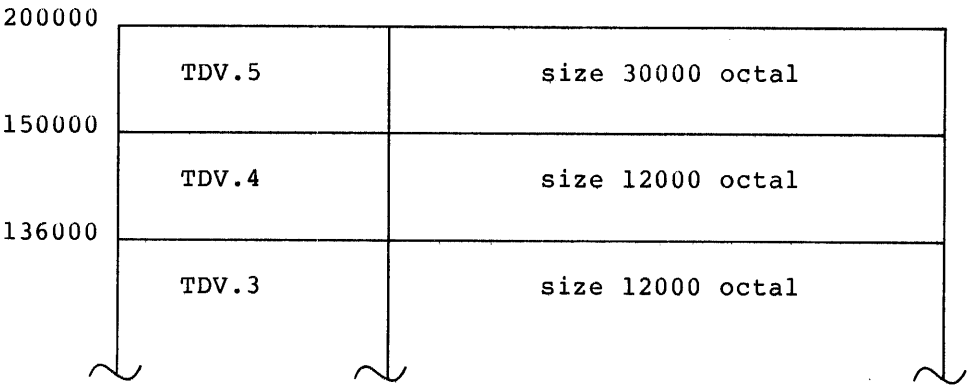
1.5.4 Small MULTIACCESS Configuration

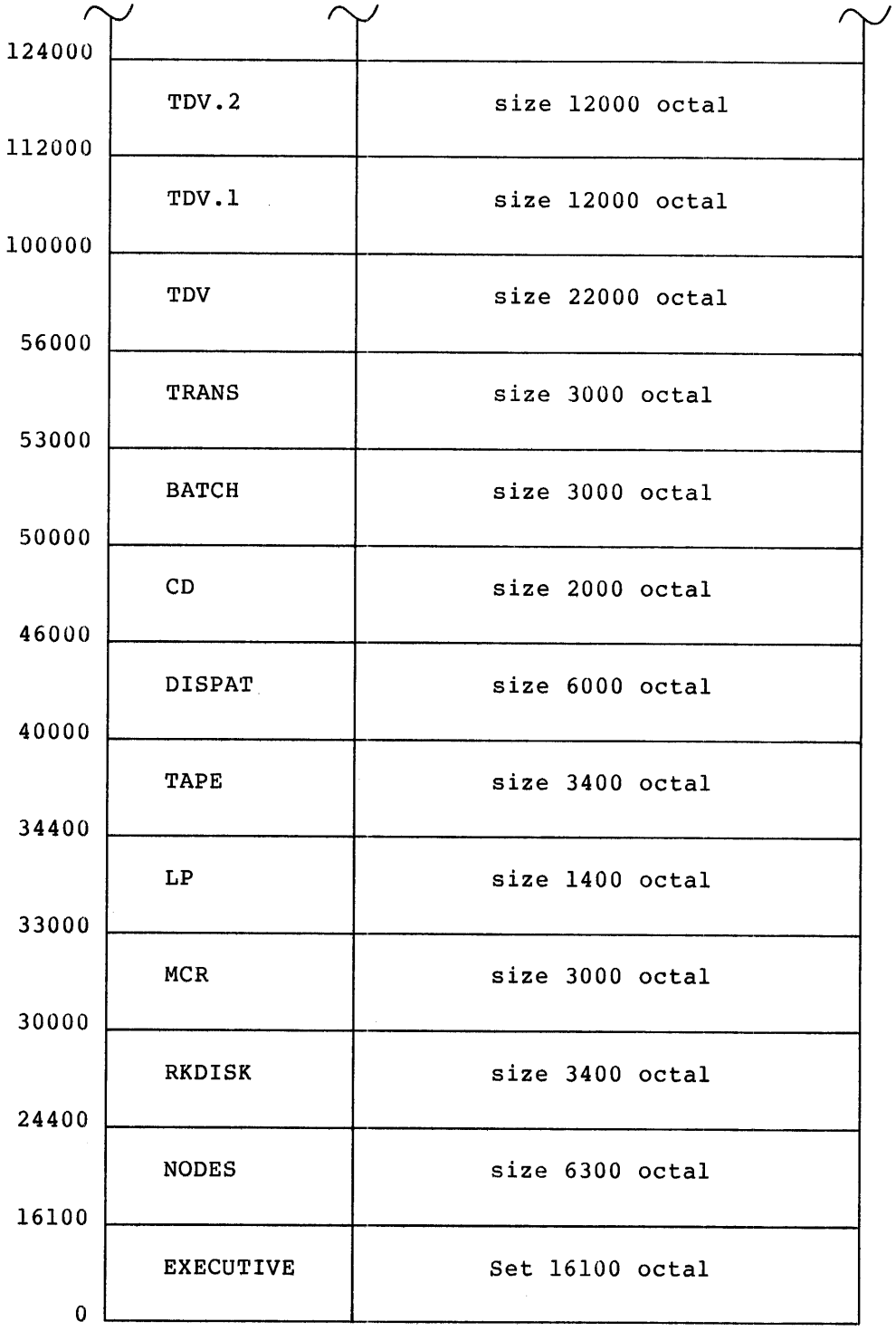
The system shown below is a 32K MULTIACCESS configuration supporting two simultaneous interactive users. Batch processing is not supported. Supported peripheral devices are the RF disk, line printer, DECtape and terminals. Core is laid out as follows:



1.5.5 Large MULTIACCESS/Batch Configuration

The system shown below is a 64K MULTIACCESS configuration supporting five simultaneous interactive users plus batch processing. A partition named TRANS has been reserved for system transient tasks, such as FINIS, AUTORM, POLLER, NODCNT and TNTERM. Supported peripheral devices are the RK disk, line printer, card reader, DECtape and terminals. Core is laid out as follows:




124000
TDV.2
size 12000 octal
112000
TDV.1
size 12000 octal
100000
TDV
size 22000 octal
56000
TRANS
size 3000 octal
53000
BATCH
size 3000 octal
50000
CD
size 2000 octal
46000
DISPAT
size 6000 octal
40000
TAPE
size 3400 octal
34400
LP
size 1400 octal
33000
MCR
size 3000 octal
30000
RKDISK
size 3400 octal
24400
NODES
size 6300 octal
16100
EXECUTIVE
Set 16100 octal
0

APPENDIX A

CORE SIZES OF SYSTEM PROGRAMS

Task Name	Core Size (Octal)	Core Size (Decimal)	Mode
Executive	15000	6656	exec
...INS	2400	1536	exec
...REA	2000	1024	exec
...OPE	2000	1024	exec
...MNT	2000	1024	exec
...REM	2400	1280	exec
...CON	2000	1024	exec
...RCF	3000	1536	exec
...RCP	3000	1536	exec
...SLI	1000	512	exec
...SAV	3000	1536	exec
...DTC	1000	512	exec
...DEQ	2400	1280	exec
...DEV	1000	512	exec
Other MCR functions	1000 (or less)	512 (or less)	exec
AUTORM	2000	1024	exec
FININS	3000	1536	exec
POLLER	400	256	exec
NODCNT	400	256	exec
TNTERM	1000	512	exec

Task Name	Core Size (Octal)	Core Size (Decimal)	Mode
RF....	3000	1536	exec
RP....	3400	1792	exec
RK....	3400	1792	exec
LP....	1400 *	768	exec
XY....	1400	768	exec
DT....	3400	1792	exec
MT....	3400	1792	exec
CD....	1400	768	exec
PP....	1400	768	exec
PR....	1400	768	exec
AD....	1400	768	exec
AF....	1000	512	exec
UD....	1000	512	exec
CC....	400	256	exec
BATCH	3000	1536	exec
TDV...	5000	2560	exec
FOR...	21000	8704	user
F4F...	20400	8448	user
MAC...	17000	7680	user
EDI...	12000	5120	user
TKB...	14000	6144	user
BTK...	12000	5120	user
DSM...	1400	768	exec
MNT...	2000	1024	exec
CON...	2000	1024	user

* 1000 for UNICHANNEL versions

Task Name	Core Size (Octal)	Core Size (Decimal)	Mode
QUE...	2400	1280	user
ACI...	15400	6912	user
ACD...	14000	6144	user
JOB...	14400	6400	user
END...	14000	6400	user
SLI...	15400	6912	user
INS...	2400	1280	exec
REQ...	1000	512	user/exec
REM...	2400	1280	exec
COP...	2400	1280	user
FIN...	3400	1792	user
FOU...	3400	1792	user
LIS...	3400	1792	user
TYP...	2400	1280	user
DIR...	2400	1280	user/exec
DTD...	2000	1024	user/exec
NEW...	1000	512	user/exec
REN...	1400	768	user
DEL...	1000	512	user/exec

APPENDIX B

RSX ASSEMBLY AND TASK-BUILDING PARAMETERS

This appendix summarizes parameters to be used in assembling source files supplied with the XVM/RSX system. Options to be specified in building Tasks for execution are also included. Because none of the Tasks shown below require the use of system COMMON blocks, the COMMON BLOCKS query has been omitted from the list. Recommended priorities appear in parentheses; parameters used to build Task images on the Tasks tapes are outside the parentheses. Where the TDV partition has been specified for USER-mode Tasks, a specification of TDV (30000) has been used for Tasks supplied with the system.

All Task files (i.e., those with the TSK extension) are written in IOPS BINARY form and can be transferred with PIP under DOS, using the B switch, or with FIN under RSX. Some Tasks are provided to RSX users in ready-to-run form; others can be assembled, Task-built, and installed as desired.

B.1 MONITOR CONSOLE ROUTINE FUNCTION SOURCES

The following summarizes assembly parameters for the MCR function sources and suggested Task-building procedures.

B.1.1 ABO.6 SRC ABORT MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...ABO
Task Priority:	1 (recommended)
Partition:	MCR
Resident Code:	ABO.6
Links & Structure:	None

B.1.2 ACCESS 001 ACCESS MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...ACC
Task Priority:	2 (recommended for MCR)

Partition:	MCR
Resident Code:	ACCESS
Links & Structure:	None

B.1.3 ADV.02 SRC ADD-A-DEVICE MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...ADV
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident code:	ADV.02
Links & Structure:	None

B.1.4 ASP.05 SRC ASSIGN-A-PARTITION MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...ASP
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	ASP.05
Links & Structure:	None

B.1.5 CAN.5 SRC CANCEL MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...CAN
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	CAN.5
Links & Structure:	None

B.1.6 COM.10 COMMON BLOCK DEFINITIONS MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...COM
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	COM.10
Links & Structure:	None

B.1.7 CON.12 SRC CONSTRUCT MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...CON
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	CON.12
Links & Structure:	None

B.1.8 DAT.11 SRC DATE MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...DAT
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	DAT.11
Links & Structure:	None

B.1.9 DEQ.07 SRC DEQUE LIST MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Task Name:	...DEQ
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	DEQ.07
Links & Structure:	None

B.1.10 DEV.10 SRC DEVICES AND ASSIGNMENTS MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...DEV
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	DEV.10
Links & Structure:	None

B.1.11 DIS.5 SRC DISABLE MCR Function

Assembly Parameters;	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...DIS
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	DIS.5
Links & Structure:	None

B.1.12 DOS.12 DOS BOOTSTRAP MCR Function

To create a standard DOS bootstrap:

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...DOS
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	DOS.12
Links & Structure:	None

A UC15 DOS system is one where the RK05 disk is used, but not as the system disk. A second task should be built to create the standard bootstrap, but named as a task, such as DOS.RG. This task can then be requested when the PDP-11 is down.

Assembly Parameters:	UC15=0
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...DOS
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	DOS.12
Links & Structure:	None

If RK, RP or RF is defined as an assembly parameter for either bootstrap, XVM/DOS is bootstrapped off of the RK0, RP0 or RF disk, regardless of the RSX system disk type. If these parameters are not defined, DOS is bootstrapped off of the RSX system disk.

B.1.13 DSM.05 SRC DISMOUNT-USER-DISK MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...DSM
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	DSM.05
Links & Structure:	None

B.1.14 DTC.7 SRC DEFINE TERMINAL MCR Function

Assembly Parameters;	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...DTC
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	DTC.7
Links & Structure:	None

B.1.15 ENA.5 SRC ENABLE MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...ENA
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	ENA.5
Links & Structure:	None

B.1.16 ETI.11 SRC: ENTER TIME MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...ETI
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	ETI.11
Links & Structure:	None

B.1.17 FIX.10 SRC FIX MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...FIX
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	FIX.10
Links & Structure:	None

B.1.18 INS.25 SRC INSTALL MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...INS
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	INS.25
Links & Structure:	None

B.1.19 MNT.09 SRC MOUNT-USER-DISK MCR Function

Assembly Parameters	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...MNT
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	MNT.09
Links & Structure:	None

B.1.20 OPE.64 SRC OPEN MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...OPE
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	OPE.64
Links & Structure:	None

B.1.21 PAR.11 SRC PARTITION DEFINITIONS MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM.NFP,PGR
Name of Task:	...PAR
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	PAR.11
Links & Structure:	None

B.1.22 RCF.25 SRC RECONFIGURE MCR Function

Assemby Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...RCF
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	RCF.25
Links & Structure:	None

To build RCP, reconfigure partitions only, as follows:

Assembly Parameters:	RCP=0
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...RCP
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	RCF.25
Links & Structure:	None

B.1.23 REA.35 SRC REASSIGN MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM.NFP.PGR
Name of Task:	...REA
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	REA.35
Links & Structure:	None

B.1.24 REM.34 SRC REMOVE MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...REM
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	REM.34
Links & Structure:	None

B.1.25 REQ.11 SRC REQUEST MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...REQ
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	REQ.11
Links & Structure:	None

B.1.26 RES.5 SRC RESUME MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...RES
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	RES.5
Links & Structure:	None

B.1.27 RUN.10 SRC RUN MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...RUN
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	RUN.10
Links & Structure:	None

B.1.28 SAV.47 SRC SAVE MCR Function

Assembly Parameters:	%RP02=0, %RK05=0, or %RF15=0 (depends upon the system device)
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...SAV
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	SAV.47
Links & Structure:	None

When SAV.RP TSK, SAV.RF TSK, and SAV.RK TSK (from the basic tasks tape) are being built, these names are used in place of ...SAV.

B.1.29 SCH.12 SRC SCHEDULE MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...SCH
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	SCH.12
Links & Structure:	None

B.1.30 SLICE 009 TIME-SLICING MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...SLI
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	SLICE
Links & Structure:	None

B.1.31 STROBE 008 STROBE MCR Function

Assembly Parameters:	BUFSIZ=buffer size (default BUFSIZ=17000)
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...STR
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	STROBE
Links & Structure:	None

B.1.32 SYN.10 SRC SYNC MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...SYN
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	SYN.10
Links & Structure:	None

B.1.33 TAS.61 SRC TASK LIST MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...TAS
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	TAS.61
Links & Structure:	None

B.1.34 TIM.5 SRC TIME MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...TIM
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	TIM.5
Links & Structure:	None

B.1.35 UFD 001 UFD MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...UFD
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	UFD
Links & Structure:	None

B.1.36 UNF.7 SRC UNFIX MCR Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...UNF
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	UNF.7
Links & Structure:	None

B.1.37 XQT.7 SRC EXECUTE Function

Assembly Parameters:	None
task Builder Options:	EXM,NFP.PGR
Name of Task:	...XQT
Task Priority:	2 (recommended for MCR)
Partition:	MCR
Resident Code:	XQT.7
Links & Structure:	None

B.2 TASK DEVELOPMENT FUNCTION SOURCES

The followng sections summarize assembly parameters and task-building procedures for MULTIACCESS Monitor sources.

B.2.1 TPOLLR 021

Assembly Parameters:	MA.NLU=31 (octal default)
Task Builder Options:	EXM,NFP,PGR
Name of Task:	TDV...
Task Priority:	260
Partition:	DISPAT
Resident Code:	TPOLLR, PWAIT
Links & Structure:	ABORT, INIT, SYDISP, XQT1, XQT2, LOGON1, LOGON2, LOGOFF, STOPIT, EXIT, PARTS, DEV, ASSIGN

B.2.2 PWAIT 000

Assembly Parameters:	None

B.2.3 ABORT 001

Assembly Parameters:	MA.NLU=31 (octal default)

B.2.4 INIT 009

Assembly Parameters:	MA.NLU=31 (octal default)

B.2.5 SYDISP 010

Assembly Parameters:	MA.NLU=31 (octal default)

B.2.6 XQT1 001

Assembly Parameters:	MA.NLU=31 (octal default)

B.2.7 XQT2 003

Assembly Parameters:	MA.NLU=31 (octal default)

B.2.8 LOGON1 014

Assembly Parameters:	MA.NLU=31 (octal default)

B.2.9 LOGON2 015

Assembly Parameters: MA.NLU=31 (octal default)

B.2.10 LOGOFF 008

Assembly Parameters: MA.NLU=31 (octal default)

B.2.11 STOPIT 002

Assembly Parameters: None

B.2.12 EXIT 003

Assembly Parameters: None

B.2.13 PARTS 000

Assembly Parameters: None

B.2.14 DEV 013

Assembly Parameters: MA.NLU=31 (octal default)

B.2.15 ASSIGN 019

Assembly Parameters: None

The following sections summarize assembly parameters and task-building procedures for the TDV function sources. All functions supplied in task-file format have been built to run in user mode whenever possible (NRM option). Functions not supplied in this format must be assembled and built for execution. If memory-protection/relocation hardware is not available on the user's machine, all TDV functions must be rebuilt in exec mode under DOS.

B.2.16 BCON 012: CONSTRUCT TDV Function

Assembly Parameters:	None
Task Builder Options:	NMR,NFP,PGR
Name of Task:	CON...
Task Priority:	300 (recommended)
Partition:	TDV (or same as for ...CON)
Resident Code:	BCON
Links & Structure:	None

B.2.17 BIN.25 SRC: INSTALL TDV Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	INS...
Task Priority:	300 (recommended)
Partition:	MCR (or same as for ...INS)
Resident Code:	BIN.25
Links & Structure:	None

B.2.18 BRM.34 SRC: REMOVE TDV Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	REM...
Task Priority:	300 (recommended)
Partition:	MCR (or same as for ...REM)
Resident Code:	BRM.34
Links & Structure:	None

B.2.19 BRQ.14 SRC: REQUEST TDV Function

Assembly Parameters:	None
Task Builder Options:	NRM,NFP,PGR
Name of Task:	REQ...
Task Priority:	300 (recommended)
Partition:	TDV
Resident Code:	BRQ.14
Links & Structure:	None

B.2.20 DEL.16 SRC: FILE DELETE TDV Function

Assembly Parameters:	None
Task Builder Options:	NRM,NFP,PGR
Name of Task:	DEL...
Task Priority:	300 (recommended)
Partition:	TDV (PIP recommended)
Resident Code:	DEL.16
Links & Structure:	None

B.2.21 DIR.70 SRC: DIRECTORY LISTING TDV Function

Assembly Parameters:	None
Task Builder Options:	NRM,NFP,PGR
Name of Task:	DIR...
Task Priority:	300 (recommended)
Partition:	TDV (PIP recommended)
Resident Code:	DIR.70
Links & Structure:	None

B.2.22 DSM.05 SRC: DISMOUNT-USER-DISK TDV Function

Assembly Parameters:	TDV=0
Task Builder Options:	EXM,NFP,PGR
Name of Task:	DSM...
Task Priority:	300 (recommended)
Partition:	MCR (or same as for ...DSM)
Resident Code:	DSM.05
Links & Structure:	None

B.2.23 DTD.15 SRC: DECTAPE DIRECTORY TDV Function

Assembly Parameters:	None
Task Builder Options:	NRM,NFP,PGR
Name of Task:	DTD...
Task Priority:	300 (recommended)
Partition:	TDV (PIP recommended)
Resident Code:	DTD.15
Links & Structure:	None

B.2.24 FORTRAN IV Compiler

For the version not requiring the FP15 floating-point processor:

Assembly Parameters:	RSX=0
Task Builder Options:	BKR,NRM,NFP
Name of Task:	FOR...
Task Priority:	300 (user's option)
Partition:	TDV (recommended)
Resident Code:	F4MP2
Links & Structure:	None

For the version requiring the FP15 floating-point processor:

Assembly Parameters:	RSX=0 and %FPP=0
Task Builder Options:	BKR,NRM,NFP
Name of Task:	F4F... (FOR... recommended)
Task Priority:	300 (user's option)
Partition:	TDV (recommended)
Resident Code:	F4MP2
Links & Structure:	None

When assembling the Compiler, use the format:

```
FZBP↵F4MP1 074,F4MP2 074
```

B.2.25 FIN.28 SRC: FILE INPUT, OUTPUT, and LIST TDV Functions

For the FILE INPUT TDV Function:

Assembly Parameters:	FIN=0
Task Builder Options:	NRM,NFP,PGR
Name of Task:	FIN...
Task Priority:	300 (recommended)
Partition:	TDV (PIP recommended)
Resident Code:	FIN.28
Links & Structure:	None

For the FILE OUTPUT TDV Function:

Rename Source Code:	From FIN.28 SRC to FOU.28 SRC
Assembled from Source Code:	FOU.28 SRC
Assembly Parameters Used:	FOU=0
Task Builder Options:	NRM,NFP,PGR
Name of Task:	FOU...
Task Priority:	300 (recommended)
Partition:	TDV (PIP recommended)
Resident Code:	FOU.28
Links & Structure:	None

For the FILE LIST TDV Function:

Rename Source Code:	From FIN.28 SRC to LIS.28 SRC
Assembled from Source Code:	LIS.28 SRC
Assembly Parameters:	LIS=0
Task Builder Options:	NRM,NFP,PGR
Name of Task:	LIS...
Task Priority:	300 (recommended)
Partition:	TDV (PIP recommended)
Resident Code:	LIS.28
Links & Structure:	None

B.2.26 COPY 003: Copy From LUN to LUN With File Name

Assembly Parameters:	None
Task Builder Options:	PGR, NFP, NRM
Name of Task:	COP...
Task Priority:	300
Partition:	TDV
Resident Code:	COPY
Links & Structure:	None

B.2.27 STATUS SRC: Main Program for MULTIACCESS Status Display

This code is written in FORTRAN.

Task Builder Options:	BKR, FP or NFP, NMR
Name of Task:	STA...
Task Priority:	300
Partition:	TDV
Resident Code:	STATUS, TASKS, USERS, CORE
Links & Structure:	None

B.2.28 TASKS SRC

This code is written in FORTRAN.

B.2.29 USERS SRC

This code is written in FORTRAN.

B.2.30 CORE SRC

This code is written in FORTRAN.

B.2.31 EDIT15 142: Text Editor

Assembly Parameters:	RSX=0
Task Builder Options:	BKR,NRM,NFP
Name of Task:	EDI...
Task Priority:	300 (recommended)
Partition:	TDV (recommended)
Resident Code:	EDIT15
Links & Structure:	None

B.2.32 MAC.9 SRC: Resident MACRO Assembler

The MACRO Assembler consists of one piece of resident code and two overlays. The following applies to the resident code:

Assembly Parameters:	None
Task Builder Options:	BKR,NRM,NFP
Name of Task:	MAC...
Task Priority:	300 (user's option)
Partition:	TDV (recommended)
Resident Code:	MAC.9
Links & Structure:	MACR15:CREF

B.2.33 MACR15 127: MACRO Assembler Overlay

Assembly Parameters:	%RSX=0

B.2.34 CREF 126: Cross-reference overlay

Assembly Parameters:	%RSX=0

B.2.35 MNT.09 SRC: MOUNT-USER-DISK TDV Function

Assembly Parameters:	TDV=0
Task Builder Options:	EXM,NPF,PGR
Name of Task:	MNT...
Task Priority:	300 (recommended)
Partition:	MCR (or same as for ...MNT)
Resident Code:	MNT.09
Links & Structure:	None

B.2.36 NEW.3 SRC: NEW DECTAPE DIRECTORY TDV Function

Assembly Parameters:	None
Task Builder Options:	NRM,NFP,PGR
Name of Task:	NEW...
Task Priority:	300 (recommended)
Partition:	TDV (PIP recommended)
Resident Code:	NEW.3
Links & Structure:	None

B.2.37 REN.15 SRC: FILE RENAME TDV Function

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	REN...
Task Priority:	20 (user's option)
Partition:	TDV (PIP recommended)
Resident Code:	REN.15
Links & Structure:	None

B.2.38 RSXODT 016: Octal Debugging Technique

Although this task is not actually a TDV function, it is included in this section because RSXODT is intended for use during task development. RSXODT is not supplied in TSK format.

Assembly parameters:	ONEPLS	(defined if the extended command repertoire is desired)
	SYMSIZ	(symbol table size; default is 20 octal)
	BRKSIZ	(breakpoint table size; default is 10 octal)
	LUN	(terminal I/O LUN; default is 40 decimal)
	FILLUN	(disk files handler I/O LUN; default is 41 decimal; relevant only if ONEPLS is defined)
	TIME	(number of seconds during which the task should run without RSXODT intervention; default is 10 octal)

Task Builder Options:	EXM,NFP,PGR
Name of Task:	ODT...
Task Priority:	300
Partition:	User's option
Resident Code:	RSXODT
Links & Structure:	None

B.2.39 TKB.101: Task Builder

For the version intended for on-line task development under RSX:

Assembly Parameters Used:	RSX=0
Task Builder Options:	BKR,NRM,NFP
Name of Task:	TKB...
Task Priority:	300 (user's option)
Partition:	TDV (recommended)
Resident Code:	TKB
Links & Structure:	None

For the version intended for RSX batch processing:

Assembly Parameters Used:	RSX=0 and BATCH=0
Task Builder Options:	BKR,NRM,NFP
Name of Task:	BTK...
Task Priority:	300 (recommended)
Partition:	TDV (recommended)
Resident Code:	TKB
Links & Structure:	None

For the version that operates under XVM/DOS:

Assembly Parameters Used:	None

B.3 BATCH PROCESSING SOURCES

The following sections summarize assembly parameters and task-building procedures for RSX batch functions.

B.3.1 BDRES 100: Batch Handler

The batch handler comprises one piece of resident code and nine overlays. The following applies to the resident code:

Assembly Parameters:	Usually none (see below)
Task Builder Options:	EXM,NFP,PGR
Name of Task:	BATCH
Task Priority:	80 (recommended)
Partition:	BATCH (50000,3000; user's option)
Resident Code:	BDRES
Links & Structure:	LINK=BDDONE/BDLGOF BDSLCT:BDOPEN:BDMSSG: BDSTRT:BDMAIN:LINK: BDFINI:~~BDABRT~~ BDABRT

The user can define any of the following optional assembly parameters when assembling BDRES 100:

DFTIME	Default job time limit (default value is 4). Used whenever no job time limit was specified or when a zero time was specified.
JOBLUN	LUN that the batch handler uses to access job files (default value is 6).
LSTLUN	LUN that the batch handler uses to access the listing device (default value is 7).
OPRLUN	LUN that the batch handler uses to access the operator terminal (default value is 3).
ACCTDEV	Disk name and unit containing the batch accounting file (default definition is system disk, unit 0). The disk name is in .SIXBT format in the upper 12 bits of the word. The binary unit number is in the lower six bits.
ACCTUFD	UFD containing the batch accounting file (default definition is RSX). The name is in .SIXBT format.

The following batch handler overlay sources should be assembled with no parameters:

```
BDSLCT 100
BDOPEN 100
BDMSSG 100
BDSTRT 102
BDMAIN 100
BDDONE 100
BDLGOF 100
BDFINI 100
BDABRT 100
```

B.3.2 ~~ACD.03~~ ACD.S SRC: ACCOUNT DISPLAY TDV Function

Assembly Parameters:	COMPILE with FOR...(NFP)
Task Builder Options:	NRM,NFP,PGR
Name of Task:	ACD...
Task Priority:	300
Partition:	TDV
Resident Code:	ACD.03
Links & Structure:	None

B.3.3 ~~ACI.03~~ ACI.S SRC: ACCOUNT INITIALIZATION TDV Function

Assembly Parameters:	COMPILE with FOR...(NFP)
Task Builder Options:	NRM,NFP,PGR
Name of Task:	ACI...
Task Priority:	300
Partition:	TDV
Resident Code:	ACI.03
Links & Structure:	None

B.3.4 END.01 SRC: BATCH Job Termination Processor

Assembly Parameters:	COMPILE with FOR...(NFP)
Task Builder Options:	NRM,NFP,PGR
Name of Task:	END...
Task Priority:	300
Partition:	TDV
Resident Code:	END.01
Links & Structure:	None

B.3.5 JOB.01 SRC: BATCH Job Startup Function

Assembly Parameters:	COMPILE with FOR...(NFP)
Task Builder Options:	NRM,NFP,PGR
Name of Task:	JOB...
Task Priority:	300
Partition:	TDV
Resident Code:	JOB.01
Links & Structure:	None

B.3.6 Miscellaneous Batch Functions

Compile all of the following using FOR... (NFP):

SLIP.4 SRC
CNTC SRC
COMPS SRC
GETCR SRC
SLI SRC

Assemble:

SLIOT 001
SLINP 001
FILES 002
TDVSUB 003

Task Builder Options:	NRM,NFP,PGR
Name of Task:	SLI...
Task Priority:	300
Partition:	TDV
Resident Code:	SLIP.4,CNTC,COMPS,GETCR,SLI, TDVSUB,FILES,SLIOT,SLINP
Links & Structure:	None

B.3.7 OPR ~~013~~ 016: BATCH Operator Interface

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	...OPR
Task Priority:	50
Partition:	MCR
Resident Code:	OPR
Links & Structure:	None

B.3.8 QUEUE ~~100~~ 105: QUEUE BATCH Function

Assembly Parameters:	None
Task Builder Options:	NRM,NFP,PGR
Name of Task:	QUE...
Task Priority:	300
Partition:	TDV
Resident Code:	QUEUE
Links & Structure:	None

B.3.9 Rename FIN.27 SRC to DEC.27 SRC

Assembly Parameters:	FIN=0 and DEC=0
Task Builder Options:	NRM,NFP,PGR
Name of Task:	DEC...
Task Priority:	300
Partition:	TDV
Resident Code:	DEC.27
Links & Structure:	None

B.3.10 SCHED 006: SCHEDULE BATCH Function

Assembly Parameters:	Usually none (see below)
Task Builder Options:	EXM,NFP,PGR
Name of Task:	SC.OPR
Task Priority:	50
Partition:	MCR
Resident Code:	SCHED
Links & Structure:	None

The user can define the following optional assembly parameter when assembling SCHED 006:

SCHLUN	LUN used to access batch scheduling parameter files (default value is 8).

B.4 I/O DEVICE HANDLERS SOURCES

The following summarizes assembly parameters for the I/O Handler sources.

B.4.1 AD.... 017 Analog-to-Digital Converter Handler

This Handler is not supplied in TSK format.

Assembly Parameters:	LKS=N (generate an N-LINK I/O Table; default value = 12 octal) AD.NT=N (N = number of clock ticks between clock-generated Significant Events; default value=1)
Task Builder Options:	EXM,NFP.PGR
Name of Task:	AD....
Task Priority:	1 (recommended for I/O)
Partition:	User's option
Resident Code:	AD....
Links & Structure:	None

B.4.2 AF.10 SRC: Automatic Flying Capacitor Scanner Handler

This Handler must be conditionally assembled for the specific hardware at an installation. It is thus not available in TSK format.

Assembly Parameters:	FMAD (first module address in bits 0-7) NMOD (number of modules)
Task Builder Options:	EXM,NFP,PGR
Name of Task:	AF....
Task Priority:	1 (recommended for I/O)
Partition:	User's option
Resident Code:	AF.10
Links & Structure:	None

B.4.3 CC.... 007: COMMON Communicator Handler

This Handler is not supplied in TSK format.

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	CC....
Task Priority:	1 (recommended for I/O)
Partition:	User's option
Resident Code:	CC....
Links & Structure:	None

B.4.4 CD.... 022 Card Reader Handler

The Handler for the CR15 reader is not supplied in TSK format.

Assembly Parameters:	None
Task Builder Options:	EXM,NFP.PGR
Name of Task:	CD....
Task Priority:	1 (recommended for I/O)
Partition:	User's option
Resident Code:	CD....
Links & Structure:	None

For the version reading 026 punched cards:

Assembly Parameters:	DEC026=0
Task Builder Options:	EXM,NFP.PGR
Name of Task:	CD....
Task Priority:	1 (recommended for I/O)
Partition:	User's option
Resident Code:	CD....
Links & Structure:	None

The Handler for the UC15 card reader is not supplied in TSK format. To disable spooling under PIREX, define NOSPL=0 at assembly time.

The entire handler partition must reside below 50000 for an 8K UNICHANNEL PDP-11, and below 40000 for 12K.

For the version reading 029 punched cards:

Assembly Parameters:	UC15=0
Task Builder Options:	EXM,NFP,PGR
Name of Task:	CD....
Task Priority:	1 (recommended for I/O)
Partition:	User's option
Resident Code:	CD....
Links & Structure:	None

For the version reading 026 punched cards:

Assembly Parameters:	UC15=0 and DEC026=0
Task Builder Options:	EXM,NFP,PGR
Name of Task:	CD....
Task Priority:	1 (recommended for I/O)
Partition:	User's option
Resident Code:	CD....
Links & Structure:	None

B.4.5 CP.... SRC: Card Punch Handler

This Handler is not supplied in TSK format.

Assembly Parameters:	Dependent on User's hardware
Task Builder Options:	EXM,NFP,PGR
Name of Task:	CP....
Task Priority:	1 (recommended of I/O)
Partition:	User's option
Resident Code:	CP....
Links & Structure:	None

B.4.6 CR.03B nnn: CR03B Card Reader Handler

The handler source file for the CR03B card reader is not supplied in TSK format.

For the version reading 029 punched cards:

```
Assembly Parameters: None
Task Builder Options: EXM,NFP,PGR
Name of Task:        CD....
Task Priority:       1 (recommended for I/O)
Partition:           User's option
Resident Code:       CR.03B
Links & Structure:   None
```

For the version reading 026 punched cards:

```
Assembly Parameters: DEC026 = 0
Task Builder Options: EXM,NFP,PGR
Name of Task:        CD....
Task Priority:       1 (recommended for I/O)
Partition:           User's option
Resident Code:       CR.03B
Links & Structure:   None
```

B.4.7 DT.61 SRC: DECtape Handler

```
Assembly Parameters: None
Task Builder Options: EXM,NFP,PGR
Name of Task:        DT....
Task Priority:       1 (recommended for I/O)
Partition:           TAPE(34400,3400) (user's option)
Resident Code:       DT.61
Links & Structure:   None
```

B.4.8 LP.~~33~~38 SRC: Line Printer Handler

The handler for the LP15 printers supports 80- and 120-columns. To disable spooling under PIREX, define NOSPL=0 at assembly time. The entire handler partition must reside below address 50000 for an 8K UNICHANNEL PDP-11 (below 40000 for 12K).

```
Assembly Parameters: LBZ=buffer size (for PDP-15 line
                     printers only) (default LBZ=134)
Task Builder Options: EXM,NFP,PGR
Name of Task:        LP....
Task Priority:       1 (recommended for I/O)
Partition:           LP(33000,1400) (user's option)
Resident Code:       LP.~~33~~38
Links & Structure:   None
```

The handler for the UC15 printers supports 80- and 120-columns. To disable spooling under PIREX, define NOSPL=0 at assembly time.

```
Assembly Parameters: UC15=0
Task Builder Options: EXM,NFP,PGR
Name Builder Options: LP....
Task Priority:       1 (recommended for I/O)
Partition:           LP (33000,1400) (user's option)
Resident Code:       LP.30
Links & Structure:   None
```

B.4.9 MT.25 SRC: Magtape Handler

The magtape handler supports TC59 (TU10, TU20) magnetic tape. It consists of one piece of resident code and seven overlays. This handler is not supplied in TSK format.

Assembly Parameters: None
Task Builder Options: EXM,NFP,PGR
Name of Task: MT....
Task Priority: 1 (recommended for I/O)
Partition: TAPE(34400,3400) (user's option)
Resident Code: MT.25
Links & Structure: MTREA7:MTWRA7:MTREA9:MTPGET:
MTMOV:MTRWB:MTWRA9:[illegible]

B.4.10 MTMOV 019: Magtape Handler Overlay

Assembly Parameters: None

B.4.11 MTPGET 008: Magtape Handler Overlay

Assembly Parameters: None

B.4.12 MTWRA7 010: Magtape Handler Overlay

Assembly Parameters: None

B.4.13 MTREA7 007: Magtape Handler Overlay

Assembly Parameters: None

B.4.14 MTREA9 010: Magtape Handler Overlay

Assembly Parameters: None

B.4.15 MTRWB 015: Magtape Handler Overlay

Assembly Parameters: None

B.4.16 MTWRA9 008: Magtape Handler Overlay

Assembly Parameters: None

B.4.17 PP.13 SRC: Paper Tape Punch Handler

The tape punch handler is not supplied in TSK format.

Assembly Parameters: None
Task Builder Options: EXM,NFP,PGR
Name of Task: PP....
Task Priority: 1 (recommended for I/O)
Partition: User's option
Resident Code: PP.13
Links & Structure: None

B.4.18 PR.15 SRC: Paper Tape Reader Handler

The tape reader handler is not supplied in TSK format.

```
Assembly Parameters: None
Task Builder Options: EXM,NFP,PGR
Name of Task:        PR....
Task Priority:       1 (recommended for I/O)
Partition:           User's option
Resident Code:       PR.15
Links & Structure:   None
```

B.4.19 RFRES 076: Fixed-Head Disk File Handler

The RF disk handler consists of one piece of resident code and five overlays. The following summary applies to the resident code.

```
Assembly Parameters: $RP02=0, $RF15=0, or $RK05=0
Task Builder Options: EXM,NFP,PGR
Name of Task:        RP...., RF...., or RK....
Task Priority:       1 (recommended for I/O)
Partition:           RPDISK(24400,3400), RFDISK
                     (25000,3000) or RKDISK
                     (24400,3400; user's option)
Resident Code:       RFRES
Links & Structure:   RFOPEN:RFCLOS:RFREAD:RFDLET:
                     RFCREA:RFSTAT
```

B.4.20 RFCLOS 075: Disk File Handler Overlay

```
Assembly Parameters: $RP02=0, $RF15=0, or $RK05=0
```

B.4.21 RFCREA 075: Disk File Handler Overlay

```
Assembly Parameters: $RP02=0, $RF15=0, or $RK05=0
```

B.4.22 RFDLET 075: Disk File Handler Overlay

```
Assembly Parameters: $RP02=0, $RF15=0, or $RK05=0
```

B.4.23 RFOPEN 076: Disk File Handler Overlay

```
Assembly Parameters: $RP02=0, $RF15=0, or $RK05=0
```

B.4.24 RFREAD 075: Disk File Handler Overlay

```
Assembly Parameters: None
```

B.4.25 UD.13 SRC: Universal Digital Controller Handler

The digital controller handler must be edited and conditionally assembled for the specific hardware at each installation. Parameters are described at the beginning of the service code. This handler is not supplied in TSK format.

```
Task Builder Options: EXM,NFP,PGR
Name of Task:        UD....
Task Priority:       1 (recommended for I/O)
Partition:           User's Option
Resident Code:       UD.13
Links & Structure:   None
```

B.4.26 VT.23 SRC: VT-15 Graphics Handler

WARNING

Do not run a VT-15 handler in a system containing more VTxx devices than the handler is assembled for.

If no assembly parameters are specified, the resulting handler binary will handle all four scopes, its maximum capacity. If any of the parameters SCOPE0-SCOPE3 are specified, the handler binary will handle only those scopes specified. SCOPE1 and SCOPE3 are the second displays on a VT-15 Graphics Processor, and may not be specified unless SCOPE0 and SCOPE2 are specified. A single scope handler requires 2000 (octal) locations; all others require 2400.

Assembly Parameters:	SCOPE0,SCOPE1,SCOPE2,SCOPE3
Task Builder Options:	EXM,NFP,PGR
Name of Task:	VT....
Task Priority:	1 (recommended for I/O)
Partition:	User's option
Resident Code:	VT.23
Links & Structure:	None

B.4.27 VW.04 SRC: Spark Tablet Handler

The Graphics Primitives Package VPR.34 SRC is Task Built with the user's programs, rather than a stand-alone unit. The Primitives Package recognizes the assembly parameter QEDIT. If QEDIT is not specified, the package stops and restarts the VT-15 processor each time a code modification call is issued. This stop and restart is present as a safety feature to guard against editing different length groups over COPY commands, among other things. If speed is essential, and complex editing operations are not being done, then this safety feature can be removed by specifying QEDIT=0 at assembly time.

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	VW....
Task Priority:	1 (recommended for I/O)
Partition:	User's option
Resident Code:	VW.04 SRC
Links & Structure:	None

B.4.28 XY.12 SRC:-- XY Plotter Handler

The handler for the XY Plotter is not supplied in TSK format. To disable spooling under PIREX, define NOSPL=0 at assembly time. The entire handler partition must reside below 50000 for an 8K UNI-channel PDP-11, and below 40000 for 12K.

For a version supporting a XY11

```
Assembly Parameters: None
Task Builder Options: EXM,NFP,PGR
Name of Task:        XY....
Task Priority:       1 (recommended for I/O)
Partition:           User's Option (see above)
Resident Code:       XY.11
Links & Structure:   None
```

For a version supporting a XY311 English Units:

```
Assembly Parameters: PL311=0
Task Builder Options: EXM,NFP,PGR
Name of Task:        XY....
Task Priority:       1 (recommended for I/O)
Partition:           User's Option (see above)
Resident Code:       XY.11
Links & Structure:   None
```

For a version supporting a XY311, Metric Units:

```
Assembly Parameters: PL311=0 and UNITS=0
Task Builder Options: EXM,NFP,PGR
Name of Task:        XY....
Task Priority:       1 (recommended for I/O)
Partition:           User's Option (see above)
Resident Code:       XY.11
Links & Structure:   None
```

B.5 MISCELLANEOUS SOURCES

The following sections summarize assembly parameters and applicable task-building procedures for MISC sources.

B.5.1 AUTORM 022: Autoremove Task

```
Assembly Parameters: None
Task Builder Options: EXM,NFP,PGR
Name of Task:        AUTORM
Task Priority:       5
Partition:           MCR (user's option)
Resident Code:       AUTORM
Links & Structure:   None
```

B.5.2 FININS 029: Task for Finishing Executable Task Installation

```
Assembly Parameters: None
Task Builder Options: EXM,NFP,PGR
Name of Task:        FININS
Task Priority:       3
Partition:           MCR (user's option)
Resident Code:       FININS
Links & Structure:   None
```

B.5.3 NODCNT 003: RSX Small Node Counter

Assembly Parameters:	COUNT=N (default N=16)
Task Builder Options:	EXM,NFP,PGR
Name of Task:	NODCNT
Task Priority:	5
Partition:	MCR (user's option)
Resident Code:	NODCNT
Links & Structure:	None

B.5.4 POLLER 006: Unichannel Poller

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	POLLER
Task Priority:	5
Partition:	MCR (user's option)
Resident Code:	POLLER
Links & Structure:	None

B.5.5 RMC.13 SRC: MACRO Definition File

This file must be available for use with the MACRO Assembler when the F assembly option is specified.

B.5.6 RSX.BT 024: DOS-to-RSX Bootstrap

This Task is a DOS system program.

Assembly Parameters:	%RP02=0, %RF15=0, or %RK05=0 (depending upon system device)

B.5.7 TNTERM 005 Task Termination Notice Processor Task

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Name of Task:	TNTERM
Task Priority:	25 (user's option)
Partition:	MCR
Resident Code:	TNTERM
Links & Structure:	None

B.6 SYSTEM LIBRARY SOURCES

The two system libraries, .LIBRX BIN and .LIBFX BIN, contain the assembled binaries of the sources below, as well as standard FORTRAN Object-Time System routines. There are no assembly parameters associated with the routines shown below. Source subroutines include the following:

1. ADCON 001: the AD-15 FORTRAN-callable I/O function ADCON
2. ADDIS 001: the AD-15 FORTRAN-callable I/O function ADDIS
3. ADRMAP 002: the AD-15 FORTRAN-callable I/O subroutine ADRMAP
4. ADRSET 002: the AD-15 FORTRAN-callable I/O function ADRSET
5. ADSMAP 001: the AD-15 FORTRAN-callable subroutine ADSMAP
6. ADSSET 003: the AD-15 FORTRAN-callable I/O function ADSSET
7. ADSTOP 001: the AD-15 FORTRAN-callable I/O function ADSTOP
8. ADSTRT 001: the AD-15 FORTRAN-callable I/O function ADSTRT
9. AI.3 SRC: the AFC-15 FORTRAN-callable subroutine AI
10. ATTF.3 SRC: the FORTRAN-callable I/O function ATTACH
11. .BP 000: the BANK-PAGE mode determinator subroutine .BP
12. BSF.1 SRC: the Magtape FORTRAN-callable I/O function BSPFIL
13. BSP.1 SRC: the Magtape FORTRAN-callable I/O function BSPREC
14. CANF.3 SRC: the FORTRAN-callable function CANCEL
15. CLOF.5 SRC: FORTRAN-callable I/O function CLOSE
16. COMCOM 001: the FORTRAN-callable functions COMGET and COMPUT
17. DATF.5 SRC: the FORTRAN-callable function DATE
18. DELF.1 SRC: the FORTRAN-callable I/O function DELETE
19. DETF.2 SRC: the FORTRAN-callable I/O function DETACH
20. DISF.3 SRC: the FORTRAN-callable function DISABLE
21. DOUT.0 SRC: the UDC-15 FORTRAN-callable subroutines DOS, DOL, and AO
22. DSAF.6 SRC: the FORTRAN-callable I/O function DSKAL
23. DSDF.4 SRC: the FORTRAN-callable I/O function DSKDAL
24. DSGP.1 SRC: the FORTRAN-callable I/O function DSKGET and DSKPUT
25. ENAF.4 SRC: the FORTRAN-callable function ENABLE
26. ENTF.2 SRC: the FORTRAN callable I/O function ENTER
27. EXIF.1 SRC: the FORTRAN-callable System Directive EXIT
28. EXQT.1 SRC: the FORTRAN-callable function to execute a Task
29. EXU.14 SRC: RSX EXECUTE subroutine (.RSXEX built into a Task by the Task Builder if the Task requires overlays

30. FIXF.3 SRC: the FORTRAN-callable function FIX

31. FMF.1 SRC: the Magtape FORTRAN-callable I/O function FORMAT

32. .FP 000: the dummy I/O initialization subroutine .FP

33. FTS.3 SRC: subroutine to convert 5/7 ASCII to SIXBT .FTSB

34. HINF.1 SRC: the FORTRAN-callable I/O function HINF

35. LAB.3 SRC: the Magtape FORTRAN-callable I/O function LABEL

36. MARF.3 SRC: the FORTRAN-callable System Directive MARK

37. MNT.1 SRC: the Magtape FORTRAN-callable I/O function MOUNT

38. MTGP.2 SRC: the Magtape FORTRAN-callable I/O function MTGET and MTPUT

39. QJOB.1 SRC: the FORTRAN-callable function to queue a job for batch

40. RBCD.2 SRC: the FORTRAN-callable I/O function READ SENSE SWITCH

41. RBIN.0 SRC: the UDC-15 FORTRAN-callable subroutine RBIN

42. RDC.2 SRC: the Magtape FORTRAN-callable function RDCOMP

43. RDDI.6 SRC: the UDC-15 FORTRAN-callable subroutines CTDI, RDDI, and DFDI

44. RDP.1 SRC: the UDC-15 FORTRAN-callable subroutine RDP

45. RENF.1 SRC: the FORTRAN-callable I/O function RENAME

46. REQF.2 SRC: the FORTRAN-callable function REQUEST

47. RESF.3 SRC: the FORTRAN-callable function RESUME

48. RUNF.5 SRC: the FORTRAN-callable function RUN

49. SCHF.6 SRC: the FORTRAN-callable function SCHEDULE

50. SEEF.2 SRC: the FORTRAN-callable function SEEK

51. SHAR.1 SRC: the FORTRAN-callable function to issued the SHARE directive

52. SPE.2 SRC: the Magtape FORTRAN-callable I/O function FSPEOT

53. SPF.1 SRC: the Magtape FORTRAN-callable I/O function FSPFIL

54. SPR.1 SRC: the Magtape FORTRAN-callable I/O function FSPREC

55. SPYF.1 SRC: the FORTRAN callable function to spy core

56. SPYR.0 SRC: the FORTRAN-callable function to spy core relative

57. SUSF.1 SRC: the FORTRAN-callable system directive SYSPEND

58. SYNF.4 SRC: the FORTRAN-callable function SYNC

59. SYPS.1 SRC: the FORTRAN-callable function to spyset

60. UNFF.4 SRC: the FORTRAN-callable function UNFIX

61. UPKF.0 SRC: the FORTRAN-callable I/O function DISK SETUP

62. WAFF.2 SRC: the FORTRAN-callable system directive WAITFOR

63. WAIF.1 SRC: the FORTRAN-callable system directive WAIT

B.7 EXECUTIVE SOURCES

The XVM/RSX Executive is supplied on two files that include:

- Basic Executive
- System Configurator
- Resident disk service routines
- Terminal handler

The two files of the Executive are assembled together to produce an absolute binary file. Because XVM/RSX disk file handlers do not support dump mode in which ABS files are written, the Executive must be assembled under XVM/DOS, unless only a listing is to be produced.

B.7.1 RSXP1 ~~207~~ 212: Executive

The RSXP1 source includes the resident disk service routine and the Basic Executive.

B.7.2 RSXP2 206: Executive

The RSXP2 source includes the System Configurator, which is overlayed after the initial system configuration (cold start) procedure has been completed, and the resident termanial handler. To obtain a binary of the Executive, pass the following command string to the MACRO Assembler:

```
FZB>RSXP1 ~~207~~ 212,RSXP2 206
```

This produces binary RSXP2 ABS, which is patched into RSXIMG via the DOS utility program PATCH.

Assembly parameters for the XVM/RSX Executive are:

NLU — Defines the number of LUNs in the system. The default value is NLU=100 for 64 LUNs.

%DTCLD — Set this parameter equal to 0 to install tasks from DT0 during system configuration. If %DTCLD is not defined, task installation is done from the RSX UFD on the system disk.

TTYS — Defines the maximum number of terminals attached to the system. The default value is TTYS=6.

DSKMA — Defines the number of retries that should be made on disk hardware errors. The default value is DSKMA=10.

NOXM — Define this parameter in order to delete the SHARE directive and the task timing software. Memory space made available by this action is converted into small nodes.

LIGHTS — Define this parameter in order to display the RSX light pattern in the AC, XR, LR and MQ registers. The default setting is pattern off (undefined).

MCRTMO — Set this parameter equal to the number of seconds to check for an MCR command before shutting down MCR. To have no MCR timeout, set MCRTMO=0. The default value is MCRTMO=30.

MA.NLU — Set this parameter to the number of LUNs in the user virtual LUN space. The default value is MA.NLU=25.

NOMAC — Define this parameter if MULTIACCESS is not to be run. The default setting is MUTLIACCESS on (undefined).

PARITY — Define this parameter in order to calculate odd parity for each terminal character sent. The default setting is no parity (undefined).

To selectively list the Executive, set L.SEL=0 and define one or more of the parameters:

L.SCOM — System communications and interrupt dispatch

L.DIR — System directives

L.SER — Significant-event recognition, and saves and restores

L.RER — Reentrant system routines

L.MAC — Memory protection, clock interrupt service, I/O Rundown task, and time-slicing subroutine

L.MCR — MCR dispatch routines

L.DSK — Disk driver

L.TTY — Multiterminal handler

L.LUN — LUN and ATTACH tables

L.SCF — System configuration routine

B.8 CHECKOUT PACKAGE SOURCES

Certain Tasks must be built for use in checking out the XVM/RSX system. The assembly parameters and Task-building instructions for these files are given below.

B.8.1 CANCOP SRC: Cancelling Checkout Package Execution

Assembly Parameters:	None number of terminals; default is six
Task Builder Options:	EXM,NFP,PGR
Task Name:	...KCH
Priority:	2
Partition:	MCR
Resident Code:	CANCOP

B.8.2 COPHM SRC: Logging Hours of Checkout

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Task Name:	COPHM
Priority:	504
Partition:	COP1(70000,2000)
Resident Code:	COPHM

B.8.3 COPST 007: Synchronizing Checkout Task Execution

Assembly Parameters:	TTYS=n(n is the maximum number of terminals; default is six)
Task Builder Options:	EXM,NFP,PGR
Task Name:	...COP
Priority:	2
Partition:	MCR
Resident Code:	COPST

B.8.4 DTRUN 004: Verifying DECtape Integrity

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Task Name:	DTRUN
Priority:	502
Partition:	COP2(72000,3000)
Resident Code:	DTRUN,DTSEEK,DTENTR,DTASGN DTREAD,DTWRIT,DTDUMY,DTCLOS LOG.3

B.8.5 DTASGN 004: DTRUN Subroutine

Assembly Parameters:	None

B.8.6 DTCLOS 004: DTRUN Subroutine

Assembly Parameters:	None

B.8.7 DTDUMMY SRC: DTRUN Subroutine

Assembly Parameters:	None

B.8.8 DTENTR 004: DTRUN Subroutine

Assembly Parameters:	None

B.8.9 DTWRIT 004: DTRUN Subroutine

Assembly Parameters:	None

B.8.10 DTREAD 004: DTRUN Subroutine

Assembly Parameters:	None

B.8.11 DTSEEK 004: DTRUN Subroutine

Assembly Parameters:	None

B.8.12 LOG.3 SRC: LOG Subroutine

Assembly Parameters:	None

B.8.13 RX.13 SRC: Checking Register Contents

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Task Name:	RX
Priority:	505
Partition:	COP3(75000,2000)
Resident Code:	RX.13, LOG.3

B.8.14 SATCHK 006: Verifying Disk Operation

Assembly Parameters:	None
Task Builder Options:	EXM,NFP,PGR
Task Name:	SATCHK
Priority:	501
Partition:	COP1(70000,2000)
Resident Code:	SATCHK,LOG.3

B.8.15 TTYIO 005: Checking Terminal Reliability

Assembly Parameters:	NL=n(n is the maximum number of terminals; default is six)
Task Builder Options:	NRM,NFP,PGR
Task Name:	TTYIO
Priority:	503
Partition:	TDV
Resident Code:	TTYIO

B.9 SYSTEM LIBRARY BINARIES

In XVM/RSX, two system library files are provided. Libraries contain the following:

- Library .LIBRX BIN contains the FORTRAN library subroutines that do not use the Floating-Point Processor.
- Library .LIBFX contains the FORTRAN library subroutines that do use the Floating-Point Processor

Note that separate libraries for BANK and PAGE mode operation are not needed, because routines requiring knowledge of the addressing node are capable of determining this mode dynamically.

When system libraries are being created with the DOS UPDATE program, the S switch must be used to remove local symbol definitions.

B.9.1 .LIBRX BIN Library

The following is a .LIBRX BIN Library update listing.

PROGRAM NAME	SOURCE EXTENSION	PROGRAM SIZE
NFPP	RSX	1
23DC75	RKB	1
24NV75	RKB	1
MTGF.2	SRC	53
FMF.1	SRC	24
LAB.3	SRC	34
MNT.1	SRC	24
BSF.1	SRC	24
BSP.1	SRC	24
SPE.2	SRC	20
SPR.1	SRC	24
SPF.1	SRC	24
RDC.2	SRC	33
ADSMAP	001	114
ADRMAP	002	126
ADSSET	003	74
ADRSET	002	66
ADSTRT	001	20
ADSTOP	001	20
ADCON	001	20
ADDIS	001	20
RDP.1	SRC	53
DOUT.0	SRC	105
RDDI.6	SRC	205
RBIN.0	SRC	31
RBCD.2	SRC	73
AI.3	SRC	43
WAIF.1	SRC	4
EXU.14	SRC	167
DATF.5	SRC	40
REQF.2	SRC	27
SCHF.6	SRC	50
RUNF.5	SRC	47
SYNF.4	SRC	55
CANF.3	SRC	23
RESF.3	SRC	24
HINF.1	SRC	17
FIXF.3	SRC	23
UNFF.4	SRC	23
DISF.3	SRC	23
ENAF.4	SRC	23
ATTF.3	SRC	20
DETF.2	SRC	20
RENF.1	SRC	35
DELF.1	SRC	35
SEEF.2	SRC	35

PROGRAM NAME	SOURCE EXTENSION	PROGRAM SIZE
ENTF.2	SRC	35
CLOF.5	SRC	57
DSAF.6	SRC	40
DSDF.4	SRC	41
DSGP.1	SRC	102
MARF.3	SRC	23
WAFF.2	SRC	13
SUSF.1	SRC	4
EXIF.1	SRC	3
UFKF.0	SRC	21
SPYF.1	SRC	24
SPYR.0	SRC	40
SPYS.1	SRC	24
QJOB.1	SRC	43
EXQT.1	SRC	41
COMCOM	001	65
FTS.3	SRC	70
SHAR.1	SRC	126
RSCDIO	009	126
RBINIO	006	100
RANCOM	014	525
DEFINE	020	747
DDIO	020	2024
EDCODE	003	253
JABS	001	15
JDFIX	001	13
JFIX	001	13
FLOATJ	001	13
JDBLE	001	10
ISNGL	002	30
JSIGN	004	23
JDIM	001	21
JMOD	003	23
JMNMX	005	103
ERRSET	000	25
IOERR	002	40
ABS	002	14
IABS	000	14
DABS	001	16
AINT	002	15
INT	002	13
IDINT	005	13
AMOD	003	27
MOD	000	24
DMOD	004	30
FLOAT	002	11

PROGRAM NAME	SOURCE EXTENSION	PROGRAM SIZE
IFIX	002	13
SIGN	004	31
DSIGN	004	31
ISIGN	000	20
DIM	002	22
IDIM	000	15
SNGL	004	27
DBLE	001	11
IMNMX	009	106
RMNMX	014	121
DMNMX	011	106
.BB	004	60
.BC	010	133
.BD	010	133
.BE	006	33
.BF	005	34
.BG	008	35
.BH	005	34
.BI	004	121
SQRT	008	73
SIN	003	13
COS	003	20
ATAN	002	13
ATAN2	008	70
EXP	002	13
ALOG	004	25
ALOG10	004	25
TANH	004	47
.EB	004	102
.ED	006	67
.EE	002	71
.EF	008	143
.EC	001	44
DSQRT	007	71
DSIN	001	13
DCOS	002	21
DATAN	001	13
DATAN2	008	73
DEXP	001	13
DLOG	005	26
DLOG10	003	26
IDZERO	001	16
ISENSW	001	30
IFLOW	001	22
.DD	006	146
.DB	004	120

PROGRAM NAME	SOURCE EXTENSION	PROGRAM SIZE
.DE	003	101
.DF	001	137
.DC	001	47
.DA	013	77
.DJ	000	51
BCDIO	053	3731
.CAT1	001	45
BINIO	020	267
AUXIO	019	133
.SS	009	110
GOTO	003	26
STOP	006	14
PAUSE	006	14
FIOPS	042	710
PARTWD	003	140
DBLINT	007	377
INTEAE	009	131
DOUBLE	004	203
RELEAE	011	1077
OTSER	015	245
SPMSG	012	124
.CB	004	22
.BP	000	10
.FP	000	2

B.9.2 .LIBFX BIN Library

The following is a .LIBFX BIN library update listing. 'F' in the file name extension indicates that the routine uses Floating-Point Processor instructions.

PROGRAM NAME	SOURCE EXTENSION	PROGRAM SIZE
FPP.	RSX	1
23DC75	RKB	1
24NV75	RKB	1
MTGP.2	SRC	53
FMF.1	SRC	24
LAB.3	SRC	34
MNT.1	SRC	24
BSF.1	SRC	24
BSP.1	SRC	24
SPE.2	SRC	20
SPR.1	SRC	24
SPF.1	SRC	24
RDC.2	SRC	33
ADSMAP	001	114
ADRMAP	002	126
ADSSET	003	74
ADRSET	002	66
ADSTRT	001	20
ADSTOP	001	20
ADCON	001	20
ADDIS	001	20
RDP.1	SRC	53
DOUT.0	SRC	105
RDDI.6	SRC	205
RBIN.0	SRC	31
RBCD.2	SRC	73
AI.3	SRC	43
WAIF.1	SRC	4
EXU.14	SRC	167
DATF.5	SRC	40
REQF.2	SRC	27
SCHF.6	SRC	50
RUNF.5	SRC	47
SYNF.4	SRC	55
CANF.3	SRC	23
RESF.3	SRC	24
HINF.1	SRC	17
FIXF.3	SRC	23
UNFF.4	SRC	23
DISF.3	SRC	23
ENAF.4	SRC	23
ATTF.3	SRC	20
DETF.2	SRC	20
RENF.1	SRC	35
DELF.1	SRC	35
SEEF.2	SRC	35

PROGRAM NAME	SOURCE EXTENSION	PROGRAM SIZE
ENTF.2	SRC	35
CLOF.5	SRC	57
DSAF.6	SRC	40
DSDF.4	SRC	41
DSGP.1	SRC	102
MARF.3	SRC	23
WAFF.2	SRC	13
SUSF.1	SRC	4
EXIF.1	SRC	3
UPKF.0	SRC	21
SPYF.1	SRC	24
SPYR.0	SRC	40
SPYS.1	SRC	24
QJOB.1	SRC	43
EXQT.1	SRC	41
COMCOM	001	65
FTS.3	SRC	70
SHAR.1	SRC	126
RBCDIO	009	126
RBINIO	006	100
RANCOM	014	525
DEFINE	020	747
DDIO	020	1775
EDCODE	003	253
JABS	001	14
JDFIX	001	12
JFIX	001	12
FLOATJ	001	10
JDBLE	001	10
ISNGL	002	13
JSIGN	004	16
JDIM	001	17
JMOD	003	17
JMNMX	005	100
ERRSET	000	25
IOERR	002	40
ABS	002	13
IABS	000	14
DABS	001	13
AINT	002	14
INT	002	12
IDINT	005	12
AMOD	003	23
MOD	000	24
DMOD	004	23
FLOAT	002	11

PROGRAM NAME	SOURCE EXTENSION	PROGRAM SIZE
IFIX	002	12
SIGN	004	24
DSIGN	004	24
ISIGN	000	20
DIM	002	17
IDIM	000	15
SNGL	004	16
DBLE	001	10
IMNMX	009	106
RMNMX	014	115
DMNMX	011	102
.EB	004	60
.BC	010	127
.BD	010	127
.BE	006	30
.BF	005	31
.BG	008	31
.BH	005	31
.BI	004	114
SQRT	008	73
SIN	003	12
COS	003	16
ATAN	002	12
ATAN2	008	61
EXP	002	12
ALOG	004	23
ALOG10	004	23
TANH	004	46
.EB	004	77
.ED	006	70
.EE	002	72
.EF	008	140
.EC	001	40
DSQRT	007	70
DSIN	001	12
DCOS	002	17
DATAN	001	12
DATAN2	008	64
DEXP	001	12
DLOG	005	24
DLOG10	003	24
IDZERO	001	16
ISENSW	001	30
IFLOW	001	22
.DD	006	137
.DB	004	115

PROGRAM NAME	SOURCE EXTENSION	PROGRAM SIZE
.DE	003	104
.DF	001	130
.DC	001	43
.DA	013	77
.DJ	000	51
BCDIO	053	3637
.CAT1	001	43
BINIO	020	267
AUXIO	019	133
.SS	009	110
GOTO	003	26
STOP	008	14
PAUSE	006	14
FIOPS	042	710
PARTWD	003	146
INTEAE	009	131
.FPP	018	461
OTSER	015	254
SFMSG	012	124
.CB	004	22
.BF	000	10
.FF	000	2

Appendix C
Assembly Parameters for FORTRAN OTS Components

The following chart indicates the assembly parameters for FORTRAN OTS Components. Some of the components listed only apply to XVM/DOS. These components are indicated with note 6 referenced in the "Standard Notes" column. Such routines are listed in the table below only for completeness.

Assembly Parameters for FORTRAN OTS Components of XVM/RSX V1A000

Source	Standard Notes	Additional Parameters	
		Parameter	Function
.BB ØØ4	None		
.BC Ø1Ø			
.BD Ø1Ø	1		
.BE ØØ6	1		
.BF ØØ5	1		
.BG ØØ8	1		
.BH ØØ5	1		
.BI ØØ4	1		
.BP ØØØ	5		
.CAT1 ØØ1	1		
.CB ØØ4	None		
.DA Ø13	4		
.DB ØØ4	1		
.DC ØØ1	1		
.DD ØØ6	1		
.DE ØØ3	1		
.DF ØØ1	1		

Assembly Parameters for FORTRAN OTS Components of XVM/RSX V1A000

Source		Standard Notes	Additional Parameters	
			Parameter	Function
.DJ	ØØØ	None		
.EB	ØØ4	1		
.EC	ØØ1	1		
.ED	ØØ6	1		
.EE	ØØ2	1		
.EF	ØØ8	1		
.FLTB	ØØ4	6	FLTBSZ=n	To increase size of .DAT slot table to "n". Default is 20_8
.FP	ØØØ	5		
.FPP	Ø18	2		
.SS	ØØ9			
ABS	ØØ2	1		
AINT	ØØ2	1		
ALOG	ØØ4	1		
ALOG1Ø	ØØ4	1		
AMOD	ØØ3	1		
ATAN	ØØ2	1		
ATAN2	ØØ8	1		

Assembly Parameters for FORTRAN OTS Components of XVM/RSX V1A000

Source	Standard Notes	Additional Parameters	
		Parameter	Function
AUXIO ØØ19	4	%NODBL=Ø	To use single buffered I/O. % applies only to DOS systems.
BCDIO ØØ53	1,4	MSCC=Ø	To cause the first character of each formatted output record to a non-printer device to be translated to an internal carriage control character.
		LFTOSP=Ø	To cause an initial line feed character to convert to a space character on formatted line records.
BINIO ØØ2Ø	4		
COS ØØØ3	1		
DABS ØØØ1	1		
DATAN ØØØ1	1		
DATAN2 ØØØ8	1		
DBLE ØØØ1	1		
DBLINT ØØØ7	3		
DCOS ØØØ2	1		
DDIO ØØ1Ø	1,4		
DEFINE ØØ2Ø	4	%TBS1Z=n	The maximum number of Random Access files which may be open at a time. Default is 4.
DEXP ØØØ1	1		
DIM ØØØ2	1		
DLOG ØØØ5	1		

Assembly Parameters for FORTRAN OTS Components of XVM/RSX V1A000

Source	Standard Notes	Additional Parameters	
		Parameter	Function
DLOG10 ØØ3	1		
DMOD ØØ4	1		
DMNMX Ø11	1,4		
DSIGN ØØ4	1		
DSIN ØØ1	1		
DSQRT ØØ7	1		
DOUBLE ØØ4	3		
EDCODE ØØ3	None		
EOF ØØØ	6		
ERRSET ØØØ	None		
EXP ØØ2	1		
FILE Ø1Ø	6		
FIOPS Ø42	4	%NODBL=Ø	To use single buffered I/O. %NODBL applies only to DOS Systems.
		DKTBSZ=n	To increase size of .DAT slot (DOS) or LUN (RSX) table to "n". Default size is 20_8 (DOS) or 77_8 (RSX).
		STTBSZ=n	To increase size of .DAT slot (DOS) or LUN (RSX) table to "n". Default size is 20_8 (DOS) or 77_8 (RSX).

Assembly Parameters for FORTRAN OTS Components of XVM/RSX V1A000

Source	Standard Notes	Additional Parameters	
		Parameter	Function
FLOAT ØØ2	None		
FLOATJ ØØ1	1		
GOTO ØØ3	None		
IABS ØØØ	None		
IDIM ØØØ	None		
IDINT ØØ5	1		
IDZERO ØØ1	None		
IFIX ØØ2	1		
IFLOW ØØ1	None		
IMNMX ØØ9	4		
INT ØØ2	1		
INTEAE ØØ9	None		
IOERR ØØ2	None		
ISENSW ØØ1			
ISIGN ØØØ			
ISNGL ØØ2	1		
JABS ØØ1	1		

Assembly Parameters for FORTRAN OTS Components of XVM/RSX V1A000

Source	Standard Notes	Additional Parameters	
		Parameter	Function
JDBLE ØØ1	1		
JDFIX ØØ1	1		
JDIM ØØ1	1		
JFIX ØØ1	1		
JMNMX ØØ5	1,4		
JMOD ØØ3	1		
JSIGN ØØ4	1		
MOD ØØØ			
OTSER Ø15	1,4		
PARTWD ØØ3	1		
PAUSE ØØ6	4		
RANCOM Ø14	4		
RBCDI0 ØØ9	4	MSCC=Ø	To cause the first character of each formatted output record to a non-printer device to be translated to an internal carriage control character.
RBINI0 ØØ6	4		
RELEAE Ø11	3		
RMNMX Ø14	1,4		
SIGN ØØ4	1		

Assembly Parameters for FORTRAN OTS Components of XVM/RSX V1A000

Source		Standard Notes	Additional Parameters	
			Parameter	Function
SIN	ØØ3	1		
SNGL	ØØ4	1		
SPMSG	Ø12	4		
SQRT	ØØ8	1		
STOP	ØØ8	4	STTBSZ=n	To increase size of .DAT slot (DOS) or LUN (RSX) table to "n". Default size is 20_8 (DOS) or 77_8 (RSX).
TANH	ØØ4	1		
TIME	ØØØ	6		
TIME1Ø	ØØØ	6		
UNIT	ØØ1	6		

NOTES:

1. Used for both FP15 or non-FP15 systems. For FP15 systems, define %FPP=Ø.
2. Used only in FP15 systems. %FPP conditional is not used.
3. Used only in non-FP15 systems.
4. Used in both DOS and RSX. For RSX, define RSX=Ø.
5. Used only in RSX. The RSX conditional is not used.
6. Used only in DOS.

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