The Software Dispatch

RSX

RSX-11M/S
RSX-11M-PLUS
Micro/RSX
April 1986
AD-FD06A-B7

digital software

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The RSX Software Dispatch complements the Software Dispatch Reviews for RSX-11M/S, RSX-11M-PLUS and Micro/RSX. New and revised Software Product Descriptions, programming notes, software problems and solutions, and documentation corrections are published here. Much of the material is developed from Software Performance Report (SPR) answers significant to the general audience and is printed here to supplement the maintenance notebook (established by the Software Dispatch Review).

PRODUCTS SUPPORTED in the RSX SOFTWARE DISPATCH

BASIC-PLUS-2
COBOL, PDP-11
COBOL-81/RSX
CORAL 66, PDP-11
DATATRIEVE-11
DBMS-11
DECnet-11M
DECnet-11M-PLUS
DECnet-11S
DECnet/SNA Gateway Products
DPM
DPM-PLUS Software
DT07-11M
FMS-11/RSX
FORTRAN IV/VAX to RSX
FORTRAN-77/RSX, PDP-11
FORTRAN-77 DEBUG, PDP-11
LSP-11
MUX200/RSX-IAS
PASCAL/RSX, PDP-11
RGL/11
RPG II, PDP-11
RSX MDE/T-11
RSX-11M
RSX-11S
RSX-11M-PLUS
RSX-11/3271 Protocol Emulator
RSX-11M 2780/3780 Emulator
RSX-11M/FORTRAN Enhancement Pkg. for MINC
RSX-11M/FORTRAN Real-Time Pkg. for MINC
RSX-11M/SNA Protocol Emulator
RTEM-11
SORT-11
SSP-11
UN1004/RSX

DISTRIBUTION

The RSX Software Dispatch is directed to one software contact for each software product. No mailing will be made to addresses without a software contact name. **Address change requests should be sent to the nearest DIGITAL field office. Include the new address and mailing label from the most recently received publication.**

Software binary and sources are provided under licenses only. The standard Terms and Conditions, OEM Agreements, and/or Quantity Discount Agreement contain the licenses for all binaries other than DECsystem-10.

Barbara Scollan, Editor

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PRODUCT AVAILABILITY DATES - RSX

APRIL 1986

The following list contains date and version of the latest release of supported software products. Customers who are in warranty or have a software product service agreement during the month the product became available, are eligible to receive the new release. Eligible customers who have not received the new release should contact their local DIGITAL office.

PRODUCT	VERSION	AVAILABLE
BASIC-PLUS-2 for RSX-11M and RSX-11M-PLUS,PDP-11	2.3	JUN 85
COBOL,PDP-11	4.4	MAY 82
COBOL-81/RSX	2.3 SPD ONLY	NOV 85
DATATRIEVE-11	3.1	SEP 84
DBMS-11	2.1	JAN 83
DECdx/RSX	1.0	NOV 84
DECmail-11 for RSX-11M-PLUS and Micro/RSX	2.0	AUG 84
DECnet Router Server	1.1 SPD ONLY	OCT 85
DECnet-11M	4.0	MAR 84
DECnet-11M-PLUS	2.0	MAR 84
DECnet-11S	4.0	MAR 84
DECnet/SNA Gateway Products	1.2	JAN 85
DPM	4.1	AUG 82
DPM-PLUS SOFTWARE	1.1	AUG 82
FORTRAN IV/RSX	2.6	JUN 83
FORTRAN-77 DEBUG/RSX,PDP-11	1.0	OCT 83
FORTRAN-77/RSX,PDP-11	5.0 SPD ONLY	JAN 86
LSP-11	1.2 DOC ONLY	JAN 86
MicroPower/Pascal-RSX	2.0	AUG 85
PASCAL/RSX,PDP-11	1.2	JAN 86
RGL/11	1.1 DOC ONLY	JAN 86
RPG II,PDP-11	8.8	JUL 83
RSX MDE/T-11	1.0	DEC 82
RSX-11 2780/3780 Emulator	4.1	JUL 82
RSX-11 PSI/M	2.0	MAR 84
RSX-11 PSI/M-PLUS	2.0	MAR 84
RSX-11/3271 Protocol Emulator	3.0	JAN 83
RSX-11M	4.2	JAN 86
RSX-11M V4.1 UPDATE	A	JAN 86
RSX-11M/FORTRAN Enhancement Pkg. for MINC	1.3	JAN 86
RSX-11M/FORTRAN Real-Time Pkg. for MINC	1.2	JAN 86

PRODUCT AVAILABILITY DATES - RSX (cont'd)

PRODUCT	VERSION	AVAILABLE
RSX-11M-PLUS	3.0	JAN 86
RSX-11M-PLUS DECgraph-11	1.2	NOV 84
RSX-11M-PLUS DECtype	3.0	FEB 84
RSX-11M-PLUS DIBOL	1.1	NOV 84
RSX-11M-PLUS V2.1 UPDATE	A	JAN 86
RSX-11S	4.2	JAN 86
RSX-11S V4.1 UPDATE	A	JAN 86
RTEM-11	2.0	MAR 84
SORT/MERGE,PDP-11	3.0	JUN 84
SPM-11M	2.1	JUL 84
SPM-11M-PLUS	2.1	JUL 84
SSP-11	1.3 DOC ONLY	JAN 86

RSX-11M V4.1

RSX-11M V4.1 Seq. No. 2.2.3.15 M
MCR
INDIRECT 1 of 2

Supersedes RSX-11M V4.1 November 1985 Software Dispatch Seq. No. 2.2.3.15 M

PROBLEMS WITH LOCAL SYMBOLS IN GLOBAL NAME FORMAT

PROBLEM
STATEMENT:

The Indirect Command Processor allows definitions of global and local symbols with the same name to exist on the same level. Also, it allows the individual deletion of local symbols when they assume the global naming convention. This is contradictory to the documentation.

The following command files demonstrate the problem:

A.CMD

```
.SETS $A "Howdie"                ! local symbol $A
.SETS $B "Doodie"                ! local symbol $B
@A2
.IFNDF $A .STOP                  ! ensure we are back on the correct level
.IF $B NE 2 .STOP                ! this $B is global from A2.CMD
.ERASE SYMBOL $B                 ! erases $B from global table
.IF $B NE "Doodle" .STOP         ! this $B is local from A.CMD
.ERASE SYMBOL $B                 ! erases $B from local table
.EXIT
```

A2.CMD

```
.ENABLE GLOBAL                   ! enable global symbol processing
.SETN $B 2                       ! global symbol $B
.EXIT
```

RESPONSE:

The Indirect Command Processor and the documentation are consistent in allowing global and local symbols with the same name to exist on the same level. Using local symbol names beginning with the dollar sign ($) is not recommended because of potential confusion with global symbols but is permitted by Indirect. If global and local symbols with the same name exist at a level, and reference is made to that symbol name, the global symbol takes precedence over the local one for assignments, comparisons, etc.

RSX-11M V4.1 Seq. No. 2.2.3.15 M
MCR
INDIRECT 2 of 2

The implementation of Indirect does allow the .ERASE SYMBOL to affect local symbols if their name begins with the dollar sign, contrary to the documented restriction that only global symbols may be individually erased. Investigation of this problem shows that the restriction can be removed without adverse impact. Its removal would also eliminate the apparent advantages of naming local symbols with dollar signs.

RSX-11M Version 4.2 Update C will include a change which removes this restriction. Specifically, the .ERASE SYMBOL directive will be able to erase individual global or local symbols. If two symbols with the same name, one global and one local, exist for the level on which the .ERASE SYMBOL is being executed, the global symbol will take precedence and be erased.

RSX-11M V4.1 Seq. No. 2.2.5.2 M
MCR
VMR 1 of 1

UNABLE TO BOOT TRUNCATED RX01 SYSTEM (SPR 11-81002 RC)

PROBLEM
STATEMENT:

Saving a system image file of 494 blocks or greater on an RX01 produces an unusable system.

RESPONSE:

This problem is caused because of a discrepancy between the code to truncate a system saved on an RX01 and the RX01 bootstrap driver. The bootstrap for an RX01 attempts to read a block and then checks to see if it is beyond the end of the system image. This causes a problem when the entire disk is used, since there is no extra block to mark the end of the system image. In this case, the controller is forced to attempt to read a block beyond the end of the disk, causing the bootstrap to hang.

The workaround is to restrict your system to 492 blocks or less.

This problem is corrected in RSX-11M/S Version 4.2 Update C.

RSX-11M V4.1 Seq. No. 4.1.5.6 M
BATCH/QUEUE MGR
LPP 1 of 1

LPP LOOPS ON NEGATIVE RECORD LENGTH (SPR 11-78038 RDH)

PROBLEM
STATEMENT:

LPP loops when printing a file containing a record with a negative record length.

RESPONSE:

PRT issues a GET$S directive to read each record from the file being printed. Two types of invalid record length may result from this operation:

1. Actual record length exceeds limit established for the device and specified in F.URBD

   In this case, File Control Services (FCS) transfers as many bytes as will fit in the user buffer and returns the error code IE.RBG. FCS updates F.RCNM to point at the next record.

2. Actual record length is negative.

   FCS returns the error code IE.RBG. No bytes are transferred to the user buffer. Also, FCS does not update F.RCNM to the next record, since it cannot determine its starting point because of the negative record length.

   On receiving the IE.RBG error code, PRT assumes that it resulted from the former case and proceeds to print the truncated record. If the error had resulted from the latter situation, PRT prints the contents of the user buffer (the preceding line) and requests the next record, thereby, looping until the entry is deleted from the queue.

RSX-11M Version 4.2 Update C includes a correction for this problem. Specifically, PRT will test for negative record length and abort with an error message if one occurs.

RSX-11M V4.1 Seq. No. 5.3.1.12 M
TASK BUILDER
TKB 1 of 1

TKB CORRUPTING VIRTUAL MEMORY UNDER RARE CONDITIONS (SPR 11-82336 LP)

PROBLEM
STATEMENT:

TKBFSL odd address traps while trying to build the user's task, which links to FCSFSL.

The task also links to a resident common, and the user observes that when a certain P-sect is removed from the common, the task will build.

RESPONSE:

Incorrectly, TKB was treating resident library symbol references as symbol definitions. When the symbol was from a supervisor-mode library this bug would also cause TKB to corrupt virtual memory. However, because of the way TKB uses virtual memory, this corruption would lead to problems if, and only if, two events occurred:

1. The symbol table entry for the supervisor-mode library symbol reference was allocated to exactly the last seven words of a virtual memory page.

2. The number of virtual memory page searches exceeded 64K.

Your task, when built with the FSL version of TKB, just happened to meet these two very rare conditions, and, thus, TKB failed. The bug which caused this problem is corrected in RSX-11M Version 4.2 Update C.

Since the slightest change in the virtual-memory requirements of your task would allow TKB to succeed, your task would build when you removed a P-sect from the resident common.

RMS-11 V2.0
for RSX-11M V4.1

Seq. 10.7.1.3 M

Supersedes RSX-11M V4.1 September 1985 Software Dispatch Seq. No. 10.7.1.3 M

INDEX FILE CORRUPTION IN ALTERNATE KEY PATH

PROBLEM:

There is a problem updating INDEX files with variable-length records.

If an attempt is made to update an existing variable-length record, a bad RRV is created in the alternate key path if the following conditions are true:

- The record size is increased.
- Either a new alternate key is introduced or an existing one is changed.
- As a result of the increased record size, a bucket split occurs. (If unaware of whether a bucket split occurs, assume that condition 3 is true.)

If an attempt is now made to GET this record by alternate key, RMS will return the error ER$RRV (Bad Internal Pointer).

SOLUTION:

The patching procedure detailed below corrects the above problem. In all cases, the files should be reloaded to correct the alternate key path.

RESPONSE:

This problem has been fixed and will be released in RSX-11M V4.2. In the meantime, the following procedure will fix the problem on the current post-Update E system.

NOTE

The program prompts with an underscore, so input begins after that. In all instances, make a copy of the file being modified in case a mistake occurs.

1. If RMSRES.TSK (the full function library) is used, copy it from LB:[1,1] into the user's account and invoke ZAP.

```
        ZAP>RMSRES.TSK
(you)   _113:10104;0r          comment: set relocation register for R3IUDR
(you)   _0,674/<CR>            comment: begin prior to the location to be
                                        patched to confirm that you are in
                                        the correct place

(ZAP)   113:0,000674/ 000054   comment: verify that these values are the same
                                        on your system
(you)   _<CR>
(ZAP)   113:0,000676/ 000566
(you)   _<CR>
(ZAP)   113:0,000700/ 116446
(you)   _<CR>
(ZAP)   113:0,000702/ 000024
(you)   _<CR>
(ZAP)   113:0,000704/ 132765
                               comment: now specify the patch location
(you)   0,700/<CR>
(ZAP)   113:0,000700/ 116446
(you)   _4767<CR>
(you)   _/<CR>
(ZAP)   113:0,000702/ 000024
(you)   _6626<CR>
(you)   0,700/<CR>             comment: now verify that you succeeded
(ZAP)   113:0,000700/ 004767   comment: SUCCESS
(you)   _<CR>
(ZAP)   113:0,000702/ 006626
(you)   _113:17636;1r<CR>      comment: set relocation register to start of
                                        patch space. The contents of all
                                        locations opened at this point
                                        should be ZEROS.
```

```
(you)   _1,0/<CR>
(ZAP)   113:1,000000/ 000000     comment: Start inserting new code at
(you)   11646<CR>                         this point
(you)   _<CR>
(ZAP)   113:1,000002/ 000000
(you)   _116466<CR>
(you)   _<CR>
(ZAP)   113:1,000004/ 000000
(you)   _24<CR>
(you)   _<CR>
(ZAP)   113:1,000006/ 000000
(you)   _2<CR>
(you)   _<CR>
(ZAP)   113:1,000010/ 000000
(you)   _1402<CR>
(you)   _<CR>
(ZAP)   113:1,000012/ 000000


(you)   _62716<CR>
(you)   _<CR>
(ZAP)   113:1,000014/ 000000
(you)   _106<CR>
(you)   _<CR>
(ZAP)   113:1,000016/ 000000
(you)   _207<CR>
(you)   _1,0/<CR>                comment: verify that the new code was
                                          correctly inserted
(ZAP)   113:1,000000/ 11646
(you)   _<CR>
(ZAP)   113:1,000002/ 116466
(you)   _<CR>
(ZAP)   113:1,000004/ 000024
(you)   _<CR>
(ZAP)   113:1,000006/ 000002
(you)   _<CR>
(ZAP)   113:1,000010/ 001402
(you)   _<CR>
```

```
(ZAP)   113:1,000012/ 062716
(you)   _<CR>
(ZAP)   113:1,000014/ 000106
(you)   _<CR>
(ZAP)   113:1,000016/ 000207
(you)   _x                      comment: exit from ZAP
```

Now copy the corrected RMSRES.TSK into LB:[1,1] and reinstall it.

NOTE

Tasks built against RMSRES do not have to be rebuilt to include this correction. Instead, INStall the corrected resident library. However, the resident library cannot be REMoved until all tasks installed against it are removed. It may be easier to simply reboot. The standard start-up procedure can then install it. Check to ensure that the libraries are indeed installed via that procedure.

2. If RMSLIB.OLB is used to build RMS disk-overlaid or nonoverlaid tasks:

   A. Extract the appropriate module from the object library.

```
$ LBR R3IUDR.OLD=LB:[1,1]RMSLIB.OLB/EX:R3IUDR
```

   B. Create a file R3IUDR.PAT containing:

```
.TITLE  R3IUDR
.IDENT  /0222CMA/
.PSECT  R3IUDR,I

$$$ = .


. = $$$+700

        CALL    PATCH
        .PSECT  PATCH
        R$IRP = 24
```

```
PATCH:
        MOV     (SP),-(SP)
        MOVB    R$IRP(R4),2(SP)
        BEQ     2$
        ADD     #106,(SP)
2$:     RETURN
        .END
```

C. Assemble the patch.

```
> MAC R3IUDR.PAT
```

D. Apply the patch using the PAT utility.

```
> PAT R3IUDR.NEW=R3IUDR.OLD/CS:022614,R3IUDR.OBJ/CS:013501
```

E. Replace into the library.

```
> LBR LB:[1,1]RMSLIB.OLB/RP=R3IUDR.NEW
```

3. If RMSLIB.OLB is used to build the RMS resident library (this is rarely done by the user):

A. Extract the appropriate module from the object library.

```
$ LBR R3IUDL.OLD=LB:[1,1]RMSLIB.OLB/EX:R3IUDL
```

B. Create a file R3IUDR.PAT containing:

```
        .TITLE  R3IUDL
        .IDENT  /0222CMA/
        .PSECT  R3IUDR,I

$$$ = .

. = $$$+700

        CALL    PATCH
        .PSECT  PATCH
        R$IRP = 24
```

```
PATCH:
        MOV     (SP),-(SP)
        MOVB    R$IRP(R4),2(SP)



        BEQ     2$
        ADD     #106,(SP)
2$:     RETURN
        .END
```

C. Assemble the patch.

```
> MAC R3IUDL.PAT
```

D. Apply the patch using the PAT utility.

```
> PAT R3IUDL.NEW=R3IUDL.OLD/CS:025534,R3IUDL.OBJ/CS:013473
```

E. Replace into the library.

```
> LBR LB:[1,1]RMSLIB.OLB/RP/-EP=R3IUDL.NEW
```

Rebuild any applications that are not built against RMSRES.

PDP-11 SYMBOLIC DEBUGGER V2.0
for RSX-11M V4.1

Seq. 17.1.1.1 N

ANNOUNCING THE PDP-11 SYMBOLIC DEBUGGER VERSION 2.0

PRODUCT DESCRIPTION

Introduction

The PDP-11 Symbolic Debugger Version 2.0 is designed to help users find logic and programming errors in successfully compiled and linked programs that do not run correctly. Version 2.0, an extension of PDP-11 FORTRAN-77 DEBUG Version 1.0, includes support for FORTRAN-77, COBOL-81, and MACRO-11. Capabilities have also been added to PDP-11 FORTRAN-77 DEBUG Version 1.0 to make it more powerful. Support is provided for debugging tasks built with I- and D-space, on systems where both the hardware and operating system support this feature, for example, RSTS/E V9.0 or higher, RSX-11M-PLUS V2.1 or higher, Micro/RSTS V2.0, and Micro/RSX V3.0.

The debugger is designed as two tasks, a kernel and a background task. The kernel is linked in with user programs. The kernel is either overlaid to occupy less than 4 kilobytes (KB) of user program space, or nonoverlaid to occupy about 5 KB. The default is an overlaid debugger kernel which can be used with all user programs (overlaid, cotrees, resident libraries, etc.), except those user programs that do manual overlay loading. The kernel communicates with the larger background task, which provides the debugger's main functionality.

Operating Systems/Installation

The debugger runs on the following versions of DIGITAL's operating systems:

- VAX-11 RSX Version 2.0 or higher
- RSX-11M Version 4.1 or higher
- RSX-11M-PLUS Version 2.1 or higher
- Professional Host Tool Kit Version 2.0 or higher and PRO/Tool Kit Version 2.0 or higher
- RSTS/E Version 9.2 or higher

- Micro/RSX Version 3.0 or higher
- Micro/RSTS Version 2.0 or higher

On each supported operating system, the debugger is installed using an automatic installation procedure. Installation will vary from system to system. The PDP-11 Symbolic Debugger Version 2.0 on VAX/VMS, Micro/RSX, Professional Host Tool Kit/VMS, RSTS/E, and Micro/RSTS use operating system-supplied installation procedures. The PDP-11 Symbolic Debugger Version 2.0 on RSX-11M/M-PLUS, P/OS, and Professional Host Tool Kit/RSX use an installation procedure supplied with the kit.

Documentation

The debugger documentation set has been completely revised. Below is a list of the new manuals.

- PDP-11 Symbolic Debugger User's Guide
- PDP-11 Symbolic Debugger Installation Guide
- PDP-11 Symbolic Debugger Quick Reference
- PDP-11 Symbolic Debugger Information for FORTRAN-77 Users
- PDP-11 Symbolic Debugger Information for COBOL-81 Users
- PDP-11 Symbolic Debugger Information for MACRO-11 Users

Availability

The PDP-11 Symbolic Debugger Version 2.0 was expected to be available from the Software Distribution Center (SDC) in March.

RELEASE NOTES

The Release Notes for the PDP-11 Symbolic Debugger Version 2.0 are distributed on line as part of the kit. These Release Notes describe known problems and restrictions in the PDP-11 Symbolic Debugger Version 2.0. Workarounds for the problems have been provided, whenever possible, to lessen their impact.

Accessing the On-Line Release Notes

The Installation Guide contains procedures for obtaining copies of the on-line Release Notes. The following paragraphs contain the correct commands and procedures to obtain the on-line Release Notes.

In the Installation Guide, page 5-3, "Installation on the Professional," the PIP and FLX commands given to copy the Release Notes are incorrect. The correct commands are:

FOR DISK USERS

```
> BRU/NOI/UFD/NEW/MOU indev:[1,5]DBGREL.DOC outdev:
```

FOR TAPE USERS

```
> BRU/BAC:DBGREL/REW/NOI/UFD/NEW indev:  outdev:
```

Replace indev with the device on which your distribution medium is allocated and mounted, replace outdev with the destination device. The Release Notes are copied to [1,5] and named DBGREL.DOC.

RSX-11M V4.1
CUMULATIVE INDEX
APRIL 1986

This is a complete listing of all articles for RSX-11M V4.1 and layered products. Missing sequence numbers may pertain to problems unique to other versions of the same product or other major operating systems.

IMPORTANT!

Unassigned articles are indicated: UNASSIGNED.

Flags are currently being installed for all articles. The flags and definitions are as follows.

M = Mandatory Patch. These patches correct errors in the software product. All users are required to apply these patches to maintain consistent "user level" unless the accompanying article specifies otherwise.

F = Optional Feature Patch. These patches extend or configure functionality into the product. These functions will be treated as a supported part of the product for the duration of the current release and will be incorporated with any future release, unless otherwise stated.

R = Restriction. These articles discuss areas that will not be patched in the current release because they require major modification or because they are not consistent with the design of the product. Restrictions, except those described as permanent, are reviewed and modified when possible as part of the normal release cycle.

N = Note. These articles provide explanatory information that supplements the manual set and provide more detailed information about a program or package. They also provide procedural information to make it easier to use a program or package.

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FDX-TTDRV		
SLAVED TERMINAL DIFFERENCE IN NEW RELEASE	3.1.3.1 F	Dec 83
REMOTE LINE HANGS UP WHILE CHANGING CHARACTERISTICS	3.1.3.2 M	Mar 84
CRDRV READ CHECK ERROR SENDS BAD CARD TO USER	3.1.3.3 R	Jul 84
TC.EPA AND TC.PAR CANNOT BE SET FOR DH11	3.1.3.4 M	Mar 85
ABORTING DHV11 CURRENT OUTPUT DISABLES TERMINAL I/O	3.1.3.5 M	Mar 85
LADRV		
FIX RCL, MOVE LABEL, ADD DOCUMENTATION	3.1.4.1 M	Mar 84
PATCH HB034 CAUSES SYSTEM CRASHES	3.1.4.2 M	Mar 84
XQDRV		
XQDRV CRASHES SYSTEM IF CANCEL I/O IS USED WITH READ	3.1.5.1 M	Jun 85
CODRV		
CONSOLE DRIVER MAY CRASH SYSTEM DURING LOW POOL CONDITIONS	3.1.6.1 M	Mar 84
FILE SYSTEM		
FCS		
FCS .EXTND AND TRUNCATION	3.2.1.1 N	Jan 84
MTAACP/F11MSG		
MOUNT REPORTS WRONG ERROR FOR OFFLINE TAPE	3.2.3.1 M	Jan 84
MTAACP HANGS/CRASHES SYSTEM	3.2.3.2 M	Jun 84
ERROR LOGGING		
CFL		
CORRECTION FOR CFL NOT GIVEN IN UPDATE C	3.3.1.1 N	Oct 85
RPT		
FILE READ ERROR ON RP03'S	3.3.4.1 M	Dec 83
LBN BAD FOR RL01/RL02 DISKS FROM ERRLOG	3.3.4.2 M	Mar 84
CONTROL FILES		
V4.1 RPT ABORTS ON RA80 ERROR	3.3.5.1 N	Jan 84
BATCH/QUEUE MGR		
QMG		
QUE /EN:xxx/FI:1/DEL DOESN'T DELETE THE FILE FROM THE JOB	4.1.3.1 M	Nov 83
STOP:AB DELETES FILES INSTEAD OF PUTTING THEM IN HELD STATE	4.1.3.2 N	Nov 83
QMG DOESN'T STOP SPOOLED LINE PRINTER PROPERLY	4.1.3.3 N	Jan 84
QUEUE /EN:xxxx ERROR MESSAGE INCONSISTENT	4.1.3.4 M	Apr 84
QUEUE PRODUCES ERROR ON ASSIGN OF QUEUE WITH 1 OR 2 CHARS	4.1.3.5 M	Apr 84
QUE HANGS IF UFD [1,7] IS NOT PRESENT	4.1.3.6 N	Apr 85
QUE/PRI		
LPP INCORRECTLY DELETES FILE BY FILE ID	4.1.4.1 M	Jan 85

Component	Sequence	Mon/Yr
LPP		
IF USER WRITTEN DEL CHECK ROUTINE USED PRI/DE DOESN'T DELETE	4.1.5.1 N	Nov 83
PROBLEM WITH SIMULATED FORMS AND FORMFEEDS	4.1.5.2 N	Jan 84
LA100 DEVICE SUPPORT ADDED TO DESPOOLER HAS 2 PROBLEMS	4.1.5.3 M	Mar 84
FILE WITH AN ILLEGAL RECORD SIZE WILL HANG IN QUEUE	4.1.5.4 M	Apr 84
NL0 SHOULD NOT BE SPOOLABLE	4.1.5.5 M	Apr 84
LPP LOOPS ON NEGATIVE RECORD LENGTH	4.1.5.6 M	Apr 86
MULTI-USER TASK		
SHUTUP		
SHUTUP INCORRECTLY TESTS FOR TASK IMAGE CHECKPOINT SPACE	4.2.5.1 M	Jun 84
UTILITIES		
DMP		
ANSI MAGTAPES AND DMP	5.1.5.1 R	Jan 84
FLX		
ENDLESS "DEVICE HANDLER MISSING" MESSAGES FROM FLX	5.1.7.1 M	Jan 84
FLX ABORTS ON COMMAND FOLLOWING "ILLEGAL SWITCH" MESSAGE	5.1.7.2 M	Jan 84
FLX DOES ONT SUPPORT DU:	5.1.7.3 M	Jan 84
INI		
INI CANNOT USE /INDEX=END SWITCH WITH LAST TRACK DEVICES	5.1.8.1 M	Sep 85
MOU		
MOUNT X:/FOR/ACP=UNIQUE CRASHES SYSTEM	5.1.10.1 N	Jan 84
PIP		
DELETING FILES,;0 DOES NOT ALWAYS WORK PROPERLY	5.1.12.1 M	Feb 86
BRU		
ERRORS OCCUR ON MULTI-DISK RESTORE TO MOUNTED DISK	5.1.17.1 M	Dec 83
BRU INCORRECTLY HANDLES EXTENSION HEADERS AND 32,000 FILES	5.1.17.2 M	Jul 84
BRU /VER ABORTS ON THIRD TAPE WITH LARGE MULTIHEADER FILES	5.1.17.3 M	Apr 85
BRU ABORTS WITH I/O ERROR -10 ON RESTORES	5.1.17.4 M	Apr 85
BRU ERROR RECOVERY DURING A BACKUP TO TAPE	5.1.17.5 M	May 85
IMPROPER ERROR RECOVERY DURING A DISK-TO-TAPE BACKUP	5.1.17.6 M	May 85
BRU /IMAGE:RESTORE TO A MOUNTED DISK IGNORES /BACKUP_SET	5.1.17.7 R	Jun 85
BRU DOESN'T VERIFY ALL TAPES IN A BACKUP SET BEFORE STOPPING	5.1.17.8 N	Jul 85
BRU /BAD:MANUAL DOES NOT WORK AS DOCUMENTED	5.1.17.9 M	Sep 85
CANNOT DO SELECTIVE BACKUP/RESTORE WITH BRUSYS V3.0	5.1.17.10 M	Feb 86
SYSTEM LIBRARIES		
K-SERIES		
A/D IS NOT ENABLED IF NO KW-11 IN SYSTEM	5.2.5.1 M	Apr 84
MISC SYSLIB		
SYSLIB MODULE $CBASG DROPS MSD	5.2.6.1 N	Feb 85
TASK BUILDER		
TKB		
TKB DOESN'T PROPERLY CK FOR MEM RES O'LAYED CLUSTER ELEMENT	5.3.1.1 M	Nov 83

Component	Sequence	Mon/Yr
TKB "VSECT' OPTION DOES NOT WORK CORRECTLY	5.3.1.2 M	Nov 83
TKB DOES NOT CORRECTLY SET FORTRAN TASK APR BITMAP	5.3.1.3 M	Jan 84
TKB ODD ADDRESS TRAPS WHEN BUILDING LARGE I/D TASK	5.3.1.4 M	Mar 84
READ ONLY AND READ WRITE CLUSTERING	5.3.1.5 R	Mar 84
NOTES REGARDING CLUSTER LIBRARY USE	5.3.1.6 M	Jun 84
TKB OFTEN CREATES MULTIPLE AUTOLOAD VECTORS FOR SAME SYMBOL	5.3.1.7 M	Aug 84
TKB CAN'T LINK SHARED REGIONS TOGETHER IF USING SYS PARTITION	5.3.1.8 M	Oct 84
FORTRAN-77 APR BITMAP IS INCORRECT	5.3.1.9 M	Dec 84
MULTIPLE REFERENCES TO .PSECT IN SEGMENT CAUSES TKB TO ABORT	5.3.1.10 M	Oct 85
TKB SWITCHES /LI AND /CO DO NOT WORK AS DOCUMENTED	5.3.1.11 N	Nov 85
TKB CORRUPTING VIRTUAL MEMORY UNDER RARE CONDITIONS	5.3.1.12 M	Apr 86
FTB PRINTS GARBLED SYMBOL NAME AND MODULE NAME	5.3.2.1 M	Nov 83
STK CANNOT BUILD LARGE HEAVILY O'LAYED TASK CORRECTLY	5.3.3.1 M	Mar 84
DEBUGGING AIDS		
ODT		
TASK WITH LARGE NUMBER OF LUNS HANGS IN ODT	5.5.1.1 M	Jan 86
MISC SYS TASKS		
HELP		
HELP KEYWORDS DO NOT ACCEPT DEVICE NUMBERS HIGHER THAN 7	5.7.1.1 M	Jul 84
HELP /OUT:TTNN: <PARAMETER> DOES NOT WORK	5.7.1.2 N	Feb 86
CDA		
CDA ODD ADDRESS TRAP ON ADDRESS OUT OF RANGE	5.7.2.1 M	Apr 84
CDA DOES NOT DISPLAY ALL I/O PACKETS	5.7.2.2 M	Jun 84
CDA /MEMSIZ SWITCH EXTENDS FILE TOO FAR	5.7.2.3 M	Jul 85
CDA DOES NOT OUTPUT LAST WORD OF ERRLOG BUFFERS	5.7.2.4 M	Jul 85
CDA DOES NOT ALLOW MS: TO FINISH REWINDING	5.7.2.5 M	Jul 85
RMDEMO		
RMDEMO IN/OUT STATISTICS INCORRECT	5.7.5.1 M	Jan 84
RUNNING RMD FROM CLOCK QUEUE DOES NOT WORK CORRECTLY	5.7.5.2 M	Apr 84
FMD DOES NOT SHOW PARTITIONS BELOW 32K	5.7.5.3 M	Apr 85
TDX		
TDX PROBLEMS FIXED IN UPDATE C	5.7.7.1 M	Jan 84
CATCHALL.CMD MISSING FROM DISTIRBUTION KITS	5.7.7.2 M	Mar 84
CVT DOES NOT WORK FROM A COMMAND FILE	5.7.7.3 M	Apr 84
FLYING INDIRECT OPTION OFTEN FAILS	5.7.7.4 M	Jun 84
RCT		
RCT PROBLEMS	5.7.15.1 M	Dec 83
DCL		
DCL		
VARIOUS SYNTAX PROBLEMS IN DCL FIXED IN UPDATE B	6.1.0.1 M	Nov 83
/NO JOURNAL DOESN'T WORK FOR DCL EDIT/EDT	6.1.0.2 M	Nov 83
DCL 'STOP/ABORT' COMMAND FAILS WITH 'STOP WHAT?' MESSAGE	6.1.0.3 M	Dec 83

Component	Sequence	Mon/Yr
RMSCNV / PD SWITCH TAKES ASCII 0 TO 7 AS OCTAL NUMBER	6.1.0.4 N	Dec 83
LINK COMMAND DELETES INTERMEDIATE FILE TOO SOON	6.1.0.5 M	Jan 84
DCL FORTRAN COMMAND LISTING SWITCHES DO NOT WORK	6.1.0.6 M	Jan 84
DCL ALLOWS MULTIPLE INVOCATIONS OF AT.	6.1.0.7 M	Jan 84
DCL FIXES TO STOP/QUEUE/MANAGER/ABORT NOT ON UPDATE B KITS	6.1.0.8 N	Jun 84
DCL DOES NOT ACCEPT BAC @ @FILESPEC SYNTAX	6.1.0.9 M	Mar 84
VARIOUS DCL PROBLEMS FIXED IN UPDATE C	6.1.0.10 M	Apr 84
NEW DCL COMMANDS FOR DECNET/SNA SUPPORT	6.1.0.11 M	Jun 84
DCL DOES NOT ALWAYS DETECT A FILE SPEC ERROR	6.1.0.12 M	Jun 84
DCL PROBLEMS WITH NETWORK NODE SPECIFICATIONS	6.1.0.13 M	Jun 84
"MOUNT/DENS=800 DD:" TRANSLATES TO MOU DD:/DENS=800.	6.1.0.14 M	Aug 84
SET DEVICE /SYSTEM AND DCL COBOL/C11 PROBLEMS	6.1.0.15 M	Aug 84
DCL/ATT/OUT=FILESPEC DOES NOT PLACE OUTPUT IN FILESPEC	6.1.0.16 M	Aug 84
DCL SE DE ABBREVIATION AMBIGUOUS	6.1.0.17 M	Nov 84
DCL LINK /OPTION:FILESPEC NOT ACCEPTED AS VALID SYNTAX	6.1.0.18 M	Nov 84
DCL DELETE [*,*] FILESPEC DOESN'T WORK FOR UPDATE C	6.1.0.19 M	Dec 84
"DCL LIBRARY/CREATE LIBRARYSPEC" PROMPTS FOR INPUT MODULES	6.1.0.20 M	Jan 85
DCL SUBMIT/NOPRINT DOES NOT WORK CORRECTLY WITH UPDATE D	6.1.0.21 M	Jan 85
DCL FORTRAN/NOF77 SHOULD NOT ALSO REQUIRE /F77	6.1.0.22 M	Jan 85
"!" AT BEGINNING OF QUOTED STRING IS STILL TREATED AS COMMENT	6.1.0.23 M	Jan 85
ADD /[NO]WARNINGS QUALIFIER TO DCL PRINT AND SUBMIT COMMANDS	6.1.0.24 M	Jan 85
CREATE/DIR/ALL=NUM. DOES NOT TRANSLATE DECIMAL POINT	6.1.0.25 M	Mar 85
PURGE/KEEP:N/NOLOG FILE TRANSLATES TO PIP/SB=FILE/PU:N	6.1.0.26 N	Jun 85
RUN /DELAY:N DOES NOT WORK WITH THE /STATUS:TASK QUALIFIER	6.1.0.27 N	Jul 85
DCL START/PRINTER LPN:/PAGE:N DOES NOT WORK	6.1.0.28 N	Jul 85
DCL CONVERTS CERTAIN SPECIAL CHARACTERS INCORRECTLY	6.1.0.29 N	Jul 85
DCL LINK/OPTION DOES NOT FUNCTION AS DOCUMENTED	6.1.0.30 M	Jan 86
DCL "LIBRARY @FILESPEC" DOES NOT WORK	6.1.0.31 M	Jan 86
DOCUMENTATION		
SYSGEN GUIDE		
PIP COMMAND LINE FOR COPYING 11M TARGET SYSTEM IS INCORRECT	7.1.19.1 N	May 85
MINI REF		
THE DCL COMMAND DIRECTORY/PRINTER DOES NOT WORK ON RSX-11M	7.1.28.1 R	Dec 84
SORT/MERGE V3.0		
PACKAGE NOTES		
ANNOUNCING PDP-11 SORT/MERGE V3.0	10.6.2.1 N	May 84
RMS-11 V2.0		
SUMMARY OF RMS-11 MODIFICATIONS SINCE DISTRIBUTION ON RSX-11M	10.7.1.1 N	Aug 84
SUMMARY OF RMS-11 MODIFICATIONS ON RSX-11M FOR UPDATE E	10.7.1.2 N	Feb 85
INDEX FILE CORRUPTION IN ALTERNATE KEY PATH	10.7.1.3 M	Apr 86
CORRUPTION IN VERY LARGE FILES	10.7.1.4 M	Sep 85

Component	Sequence	Mon/Yr
DECnet-11M/S V3.1		
RSX DECnet PROGRAMMER'S REFERENCE MANUAL CORRECTIONS	10.8.2.2 N	Nov 83
RSX DECnet SYSTEM MANAGER'S GUIDE CORRECTION	10.8.2.3 N	Nov 83
PROPER SYSLIB.OLB FOR NETGEN	10.8.2.4 N	Nov 83
TIPS ON SUBMITTING A DECnet SPR	10.8.2.5 N	Nov 83
DOCUMENTATION CORRECTION FOR RSX-11S SYSTEMS	10.8.2.6 N	Nov 83
ERRORS IN THE DECnet SYSTEM MANAGER'S GUIDE	10.8.2.7 N	Nov 83
INCORRECT FORMAT FOR NCP SHOW MODULE X25-PROTOCOL	10.8.2.8 N	Nov 83
THE MICROFICHE FOR RSX DECnet 3.1/1.1 IS NO LONGER RESTRICTED	10.8.2.9 N	Nov 83
PROBLEMS DOWN-LINE LOADING OVERLAYS VIA DECnet	10.8.2.10 N	Nov 83
HOW TO WRITE A NETWORK SPR	10.8.2.11 N	Nov 83
DECnet-11M/S PROBLEMS FIXED ON RSX-11M/S LAYERED UPDATE A	10.8.2.12 N	Aug 83
DECnet AUTOPATCH MAY NOT APPLY ALL PATCHES	10.8.2.13 N	Nov 83
DOWN-LINE LOADING OVER THE DMV11 GIVES WRONG TRIBUTARY ADDRESS	10.8.2.14 N	Nov 83
DECnet-11M/S PROBLEMS FIXED ON RSX-11M LAYERED UPDATE B	10.8.2.15 N	Nov 83
DECnet-11M/S PROBLEMS FIXED ON RSX-11M LAYERED UPDATE C	10.8.2.16 N	Apr 84
DECnet-11M/S V4.0		
DECnet-11M PROBLEMS FIXED ON RSX-11M LAYERED UPDATE E	10.8.3.1 N	Dec 84
DATATRIEVE-11 V2.4		
KEYED OR BOOLEAN	10.14.4.26 M	Jun 83
QDICT MAY NOT CREATE A QUERY DICTIONARY	10.14.4.27 M	Jun 83
CHANGES TO SUPPORT RMS V2.0	10.14.4.28 M	Jun 83
REQUIRED PATCHES FOR DATATRIEVE-11	10.14.4.29 M	Jun 83
DATATRIEVE-11 V3.0		
ANNOUNCING DATATRIEVE-11 VERSION 3	10.15.1.1 N	Dec 83
NEW DATA DICTIONARY FOR VERSION 3	10.15.1.2 N	Dec 83
PROBLEM WITH REDEFINES	10.15.1.3 M	Dec 83
RSM V2.0 CHANGE TO DATATRIEVE-11 V3.0	10.15.1.4 M	Feb 84
FMS-11/RSX V1.0		
FDV		
FMS TERMINAL SUPPORT PATCHES	10.17.1.1 M	May 84
BASIC-PLUS-2 V2.1		
PACKAGE NOTES		
PDP-11 BASIC-PLUS-2 V2.1 NOW AVAILABLE	10.18.1.1 N	Jun 83

Component	Sequence	Mon/Yr
BASIC-PLUS-2 V2.2		
PACKAGE NOTES		
BASIC-PLUS-2 V2.2 TO SHIP IN MARCH	10.19.1.1	Apr 84
BASIC-PLUS-2 V2.3		
PROBLEM WITH PRINT USING	10.20.1.1 N	Dec 85
PDP-11 CORAL 66 V4.0		
PDP-11 CORAL 66 V4.0		
GENERAL		
ANNOUNCEMENT OF PDP-11 CORAL 66 V4.0	11.5.1.1 N	Apr 84
PROCEDURE FOR INSTALLATION OF PATCHES ON PDP-11 CORAL 66 V4.0	11.5.1.2 N	Apr 84
COMPILER		
ARRAY INDEX INCORRECTLY COMPUTED SOMETIMES	11.5.2.1 M	Apr 84
ERROR IN FLOATING POINT OPTIMIZATION	11.5.2.2 M	Apr 84
'UNION' OPERATOR CAN CAUSE COMPILER TO ABORT	11.5.2.3 M	Apr 84
DIVISION BY ONE CAN GENERATE INCORRECT CODE	11.5.2.4 M	Apr 84
OBJECT CODE PRINT CAN CAUSE PRINTER FORMAT ERRORS	11.5.2.5 M	Apr 84
ABNORMAL TERMINATION OF COMPILER IF SOURCE TOO BIG	11.5.2.6 M	Apr 84
ARRAY PARAMETERS CAN CAUSE ERROR 189	11.5.2.7 M	Apr 84
COBOL-81 V2.0		
PACKAGE NOTES		
ANNOUNCING COBOL-81 VERSION 2.0	12.1.1.1 N	Jun 83
PDP-11 RPG II V8.8		
ANNOUNCEMENT OF PDP-11 RPG II V8.8	14.1.1.1 N	Nov 83
RGL/11 V1.1		
THE COLOR OF A GRAPH'S LABELS AND TITLES IS NOT CONTROLLED BY THE CURRENT WRITING COLOR	15.1.1.1 N	Jan 84
FORTRAN IV/RSX V2.6		
OTS		
LIST-DIRECTED READ	16.1.1.1 N	Dec 85

Component	Sequence	Mon/Yr
PDP-11 SYMBOLIC DEBUGGER V2.0		
ANNOUNCING THE PDP-11 SYMBOLIC DEBUGGER V2.0	17.1.1.1 N	Apr 86

RSX-11M V4.2

RSX-11M V4.2 Seq. No. 1.1.1.3 M
SYSGEN
AUTOCONFIGURE 1 of 1

ACF MAY NOT CORRECTLY SET UP DV.NUC IN CONFIG.DAT FOR RS03/4s
(SPR 11-00211X CS)

PROBLEM
STATEMENT:

Autoconfigure (ACF) may not correctly set up DV.NUC in the CONFIG.DAT file for RS03/4 devices.

RESPONSE:

This problem occurs if the RS03/4 device does not have the Serial Number register implemented, as allowed by the MASSBUS specification.

If the RS03/4 Serial Number register is not implemented, the Autoconfigure logic does not handle it as an exception condition and incorrectly sets up DV.NUC in the device configuration file, CONFIG.DAT.

A user, under this condition and performing a SYSGEN, finds that the ACO SHOW operation aborts abnormally. The user must then restart the SYSGEN, not include the Autoconfiguration process, and manually provide SYSGEN with the hardware configuration information.

This problem is corrected in RSX-11M Version 4.2 Update C.

RSX-11M V4.2 Seq. No. 2.2.2.1 M
MCR
INS 1 of 1

NEW "TASK IMAGE I/O ERROR" MESSAGE FOR DEVICES (SPR 11-00207X RC)

PROBLEM
STATEMENT:

INS aborts with the message "SYNTAX ERROR" for certain I/O errors returned by the driver.

RESPONSE:

For those I/O errors other than device off line, no pool, device not in system, device not mounted, parse error, and file privilege violation, which are currently reported explicitly, we have changed the message to read:

"Task image I/O error"

This problem is corrected in RSX-11M Version 4.2 Update C.

RSX-11M V4.2 Seq. No. 2.2.2.2 M
MCR
INS 1 of 1

SCHEDULING OF SHUFFLER MAY CRASH SYSTEM (SPR 11-00212X KF)

PROBLEM
STATEMENT:

Scheduling the Shuffler may crash the system if the Shuffler is not fixed in memory.

RESPONSE:

If the Shuffler is not fixed in memory and is requested by the system, the $RQSCH pointer into the Active Task List (ATL) can get redirected to the task control block (TCB) of the Shuffler even though it is not in the ATL. This can cause the system to attempt to activate the Shuffler. If the Shuffler is not yet loaded in memory, the system looks to the next task in the ATL to make the current task. Since the Shuffler is not in the ATL, the link word may not be a valid TCB address. At this point, the system will most likely attempt to access an odd address and crash.

This problem is corrected by calling an alternate entry to the Executive request routine when the Shuffler is requested by the system. This alternate entry checks if the task is active before possibly resetting the $RQSCH pointer. If the task is not active, which is the case of the unfixed Shuffler, $RQSCH will be redirected only after the task is loaded and placed in the ATL.

This problem is corrected in RSX-11M Version 4.2 Update B. Although this situation has been corrected, to avoid other problems with the Shuffler, we suggest that a separate partition be created for the Shuffler, and the task be fixed in memory.

RSX-11M V4.2 Seq. No. 2.2.3.9 M
MCR
INDIRECT 1 of 1

ESCAPE RESPONSE TO .ASKS DEFINES SYMBOL AS LOGICAL (SPR 11-00206X RDH)

PROBLEM
STATEMENT:

When an ".ASKS ssssss txt-string" directive is responded to with the ESCAPE key, the symbol "ssssss" is defined as logical and set true. A subsequent use of "ssssss" as a string variable (as in another .ASKS directive) results in a "Redefining symbol to different type" error message.

RESPONSE:

A change was made to Indirect in RSX-11M Version 4.2 to implement setting symbol "ssssss" true when an ".ASK ssssss txt-string" directive is answered with the ESCAPE key, thereby, complying with the documentation. In making the change, the internal variable SYMTYP was used to test if "ssssss" is a logical symbol. Variable SYMTP should have been used instead.

The following command line sequence will provide a workaround, where the .TEST immediately precedes the .ASKS line.

```
.TEST ssssss
.ASKS ssssss txt-string
```

It establishes a valid context for SYMTYP such that the succeeding .ASKS will not arbitrarily make "ssssss" a logical symbol.

RSX-11M Version 4.2 Update B includes a correction for this problem.

RSX-11M V4.2 Seq. No. 2.2.3.10 M
MCR
INDIRECT 1 of 2

ERASING LOCAL SYMBOLS WITH DOLLAR-SIGN NAMES (SPR 11-00213X RDH)

PROBLEM
STATEMENT:

The Indirect Command Processor allows definitions of global and local symbols with the same name to exist on the same level. Also, it allows the individual deletion of local symbols when they assume the global naming convention. This is contradictory to the documentation.

The following command files demonstrate the problem:

A.CMD

```
.SETS $A "Howdie"                ! local symbol $A
.SETS $B "Doodie"                ! local symbol $B
@A2
.IFNDF $A .STOP                  ! ensure we are back on the correct level
.IF $B NE 2 .STOP                ! this $B is global from A2.CMD
.ERASE SYMBOL $B                 ! erases $B from global table
.IF $B NE "Doodle" .STOP         ! this $B is local from A.CMD
.ERASE SYMBOL $B                 ! erases $B from local table
.EXIT
```

A2.CMD

```
.ENABLE GLOBAL                   ! enable global symbol processing
.SETN $B 2                       ! global symbol $B
.EXIT
```

RESPONSE:

The Indirect Command Processor and the documentation are consistent in allowing global and local symbols with the same name to exist on the same level. Using local symbol names beginning with the dollar sign ($) is not recommended because of potential confusion with global symbols but is permitted by Indirect. If global and local symbols with the same name exist at a level, and reference is made to that symbol name, the global symbol takes precedence over the local one for assignments, comparisons, etc.

RSX-11M V4.2 Seq. No. 2.2.3.10 M
MCR
INDIRECT 2 of 2

The implementation of Indirect does allow the .ERASE SYMBOL to affect local symbols if their name begins with the dollar sign, contrary to the documented restriction that only global symbols may be individually erased. Investigation of this problem shows that the restriction can be removed without adverse impact. Its removal would also eliminate the apparent advantages of naming local symbols with dollar signs.

RSX-11M Version 4.2 Update C includes a change which removes this restriction. Specifically, the .ERASE SYMBOL directive will be able to erase individual global or local symbols. If two symbols with the same name, one global and one local, exist for the level on which the .ERASE SYMBOL is being executed, the global symbol will take precedence and be erased.

RSX-11M V4.2 Seq. No. 2.2.3.11 M
MCR
INDIRECT 1 of 1

CORRUPTED BEGIN-END BLOCK POINTERS IN LOCAL SYMBOL TABLE (SPR 11-00214X RDH)

PROBLEM
STATEMENT:

Both .SETS assignments to local string symbols and .ERASE LOCAL directives can cause memory protect violations or Illegal Nesting errors when executed from within Begin-End blocks or from files invoked with the /LO switch.

RESPONSE:

Begin-End blocking context, which is stored in the Local Symbol Table as special frames, includes pointers to the start of the next-higher symbol block. The pointers are not correctly maintained when a .SETS is executed on a string symbol that is outside the current Begin-End block but still within the current Local Symbol Table range, for example, a local symbol defined at a higher level of Begin-End block. If the .SETS changes the length of the string, a Memory Protect violation may occur when the task exits.

In a similar manner, execution of the .ERASE LOCAL directive from the beginning block level of a file which was invoked with the /LO switch will corrupt the Begin-End block pointers, resulting in an Illegal Nesting error.

These failures can be avoided by:

1. Do not modify higher-level local string symbols from within Begin-End blocks. If you need to implement this functionality, define the string symbol as global.

2. Do not execute the .ERASE LOCAL directive from the highest block level of a file which has been invoked with a /LO switch. Defining the symbols as global and erasing them with the .ERASE SYMBOL xxxx directive provides an alternative implementation.

RSX-11M Version 4.2 Update C includes corrections for these problems.

RSX-11M V4.2 Seq. No. 3.3.5.5 M
ERROR LOGGING
CONTROL FILES 1 of 1

ERLRPT-F-MODLOASYM UNDEFINED SYMBOL IN MODULE TO BE LOADED (SPR 11-00208X GM)

PROBLEM
STATEMENT:

RPT aborted, while analyzing TK50 errors, with the following error message:

"ERLRPT-F-MODLOASYM, Undefined symbol in module to be loaded"

RESPONSE:

One of the control file modules that analyzes the MSCP device's information message has undefined symbols in it. This causes RPT to abort with the above error message.

This problem is corrected in RSX-11M Version 4.2 Update B.

RSX-11M V4.2 Seq. No. 4.1.5.1 M
BATCH/QUEUE MGR
LPP 1 of 1

LPP LOOPS ON NEGATIVE RECORD LENGTH (SPR 11-00210X RDH)

PROBLEM
STATEMENT:

LPP loops when printing a file containing a record with a negative record length.

RESPONSE:

PRT issues a GET$S directive to read each record from the file being printed. Two types of invalid record length may result from this operation:

1. Actual record length exceeds limit established for the device and specified in F.URBD

   In this case, File Control Services (FCS) transfers as many bytes as will fit in the user buffer and returns the error code IE.RBG. FCS updates F.RCNM to point at the next record.

2. Actual record length is negative.

   FCS returns the error code IE.RBG. No bytes are transferred to the user buffer. Also, FCS does not update F.RCNM to the next record, since it cannot determine its starting point because of the negative record length.

   On receiving the IE.RBG error code, PRT assumes that it resulted from the former case and proceeds to print the truncated record. If the error had resulted from the latter situation, PRT prints the contents of the user buffer (the preceding line) and requests the next record, thereby, looping until the entry is deleted from the queue.

RSX-11M Version 4.2 Update C includes a correction for this problem. Specifically, PRT will test for negative record length and abort with an error message if one occurs.

RSX-11M V4.2 Seq. No. 5.1.12.1 M
UTILITIES
PIP 1 of 1

DELETING FILES, ;0 DOES NOT ALWAYS WORK PROPERLY (SPR 11-00205X JG)

PROBLEM
STATEMENT:

Deleting files and using wildcards for the member number in the UFD and a zero for the version number, causes the latest version number of the file from the first UFD to remain sticky for all files in all other UFDs.

RESPONSE:

This problem has been corrected so that the latest version of the file is found in each UFD, and not just the first UFD. The correction for this problem is in RSX-11M Version 4.2 Update B.

RSX-11M V4.2 Seq. No. 5.1.17.11 M
UTILITIES
BRU 1 of 1

POTENTIAL PROBLEM WHEN FIRST FILE RESTORED IS CONTIGUOUS (SPR 11-00204X SIR)

PROBLEM
STATEMENT:

A potential problem was discovered in BRU under RSX-11M V4.2, which could cause the contiguous file attribute not to be set for the first file restored.

RESPONSE:

This problem is caused by the duplicate use of a single flag to indicate two different conditions. In the extremely unlikely event that both of these conditions occur, the first, and only the first, file created on the output disk of a copy or restore operation will not have the contiguous file attribute set, even if this attribute were set for the original input file. However, the output file is created contiguously.

Using PIP with the /CO switch to copy the file contiguously will correct this problem, should it ever occur.

This problem is corrected in RSX-11M Version 4.2 Update B.

RSX-11M V4.2 Seq. No. 5.3.0.1 M
TASK BUILDER
TASK BUILDER 1 of 1

TKB SWITCH /CL DOES NOT WORK (SPR 11-00112P DR)

PROBLEM
STATEMENT:

When a task built with the TKB switch /CL is installed, it does not end up marked as such. The following command displays the task status where "xxxxxx" is the name of a task. This task should have the CLI status displayed but does not.

```
MCR TAL xxxxxx
```

RESPONSE:

When the TKB switch /CL was implemented, the original task flag word did not have any bits available. A second task flag word was added to the task label block. Although the task build command line is properly parsed and the internal representations updated, the process of setting the new task flag word contained an error.

The INS switch /CLI=YES can be used as a workaround to force the desired status.

The task flag word is correctly set in RSX-11M Version 4.2 Update B.

RSX-11M V4.2 Seq. No. 5.3.0.2 M
TASK BUILDER
TASK BUILDER 1 of 1

MULTIPLE REFERENCES TO .PSECT IN SEGMENT CAUSE TKB TO ABORT (SPR 11-00202X DR)

PROBLEM
STATEMENT:

Multiple references in a single segment to a .PSECT specified in an ODL file cause TKB to behave unpredictably, including aborting because of an odd address trap. A multiple reference may inadvertently be created when tailoring an ODL file by combining segments. The following is an artificially simple example:

```
.PSECT  X
.PSECT  Y
.ROOT   X- X- Y- Y
.END
```

RESPONSE:

TKB, upon detecting the multiple occurrence, improperly skips over inserting the .PSECT into the segment's section list, resulting in an extra word being popped off the stack.

Since specifying a .PSECT more than once serves no function, the obvious workaround is to remove all multiple references from the ODL files.

Multiple occurrences will be allowed by being properly handled (that is, ignored) in RSX-11M Version 4.2 Update B.

RSX-11M V4.2 Seq. No. 5.5.1.1 M
DEBUGGING AIDS
ODT 1 of 1

TASK WITH LARGE NUMBER OF LUNs HANGS IN ODT (SPR 11-00201X LP)

PROBLEM
STATEMENT:

The user's I/D task works when built non-I/D, but crashes when built I/D. The task, which uses a large number of LUNs (110), hangs immediately when built with ODT.

RESPONSE:

When a task is built with ODT, two additional LUNs are included for ODT. ODT was incorrectly using the first of these LUNs as an event flag number to issue QIOs to the terminal. This error caused the task to hang in ODT because the ODT LUN number (111) was higher than the any of the legal event flag numbers (0-96). This error will be corrected in RSX-11M Version 4.2 Update B.

As a workaround, when using ODT, specify fewer LUNs with the TKB UNITS option. Also, avoid using event flag numbers in the task, which coincide with the ODT LUNs.

RSX-11M V4.2 Seq. No. 5.7.1.1 N
MISC SYS TASKS
HELP 1 of 1

HELP /OUT:TTNN: <PARAMETER> DOES NOT WORK (SPR 11-00174X JF)

PROBLEM
STATEMENT:

The command HELP/OUT:TTnn: <parameter> does not work as expected. The parameter is ignored.

RESPONSE:

There is a problem with the way HELP parses file specifications for the /OUT and /FIL switches. If just a device is specified without a file name and it is followed by another parameter, HELP treats the next parameter as the file name.

As a workaround, provide a file name after the device name, or add another switch after the device name. For example, HELP/OUT:TTnn:/MCR <parameter>.

This problem is corrected in RSX-11M Version 4.2 Update B.

RSX-11M V4.2 Seq. No. 6.1.0.5 M
DCL
DCL 1 of 1

DCL LINK/OPTION DOES NOT FUNCTION AS DOCUMENTED (SPR 11-00193X JJA)

PROBLEM
STATEMENT:

The DCL LINK/OPTION command does not work as documented. The RSX-11M V4.1 Command Language Manual, page 6-74, specifies that there are three ways of supplying options to the /OPTION qualifier:

1. Supply a file specification of a file which contains the list of options, i.e., LINK/OPTION:filespec.

2. Respond to the options prompt.

```
Example:        LINK/OPTION
                Option?  opt1
                Option?  opt2
                Option?  opt3
                Option?  <CR/LF>
```

3. List the options on the command line separated by commas, i.e., LINK/OPTION:opt1,opt2,opt3.

However, the third format, where the options are listed on the same command line, separated by commas, does not work.

RESPONSE:

This problem results from an error in the parsing code for the DCL LINK command. It has been corrected. The correction will appear in RSX-11M Version 4.2 Update B.

For now, use one of the formats which work, or refer to the Task Builder Manual, and invoke TKB directly.

RSX-11M V4.2 Seq. No. 6.1.0.6 M
DCL
DCL 1 of 1

DCL "LIBRARY @FILESPEC" DOES NOT WORK (SPR 11-00196X JJA)

PROBLEM
STATEMENT:

The DCL command "LIBRARY @filespec" does not work.

RESPONSE:

It is currently documented that a user may perform operations with the DCL LIBRARY command in one of two ways. A user may either specify the operation with associated qualifiers directly on the command line or supply the LIBRARY command with a file that contains the intended operations, i.e., DCL LIBRARY @filespec. Currently, however, the latter format does not work.

This is corrected in RSX-11M Version 4.2 Update B.

For now, to circumvent the problem, the user may invoke the MCR LBR command. LBR will then accept a file containing the intended operations, i.e., MCR LBR @filespec.

PDP-11 SYMBOLIC DEBUGGER V2.0
for RSX-11M V4.2

Seq. 17.1.1.1 N

ANNOUNCING THE PDP-11 SYMBOLIC DEBUGGER VERSION 2.0

PRODUCT DESCRIPTION

Introduction

The PDP-11 Symbolic Debugger Version 2.0 is designed to help users find logic and programming errors in successfully compiled and linked programs that do not run correctly. Version 2.0, an extension of PDP-11 FORTRAN-77 DEBUG Version 1.0, includes support for FORTRAN-77, COBOL-81, and MACRO-11. Capabilities have also been added to PDP-11 FORTRAN-77 DEBUG Version 1.0 to make it more powerful. Support is provided for debugging tasks built with I- and D-space, on systems where both the hardware and operating system support this feature, for example, RSTS/E V9.0 or higher, RSX-11M-PLUS V2.1 or higher, Micro/RSTS V2.0, and Micro/RSX V3.0.

The debugger is designed as two tasks, a kernel and a background task. The kernel is linked in with user programs. The kernel is either overlaid to occupy less than 4 kilobytes (KB) of user program space, or nonoverlaid to occupy about 5 KB. The default is an overlaid debugger kernel which can be used with all user programs (overlaid, cotrees, resident libraries, etc.), except those user programs that do manual overlay loading. The kernel communicates with the larger background task, which provides the debugger's main functionality.

Operating Systems/Installation

The debugger runs on the following versions of DIGITAL's operating systems:

- VAX-11 RSX Version 2.0 or higher
- RSX-11M Version 4.1 or higher
- RSX-11M-PLUS Version 2.1 or higher
- Professional Host Tool Kit Version 2.0 or higher and PRO/Tool Kit Version 2.0 or higher
- RSTS/E Version 9.2 or higher

- Micro/RSX Version 3.0 or higher
- Micro/RSTS Version 2.0 or higher

On each supported operating system, the debugger is installed using an automatic installation procedure. Installation will vary from system to system. The PDP-11 Symbolic Debugger Version 2.0 on VAX/VMS, Micro/RSX, Professional Host Tool Kit/VMS, RSTS/E, and Micro/RSTS use operating system-supplied installation procedures. The PDP-11 Symbolic Debugger Version 2.0 on RSX-11M/M-PLUS, P/OS, and Professional Host Tool Kit/RSX use an installation procedure supplied with the kit.

Documentation

The debugger documentation set has been completely revised. Below is a list of the new manuals.

- PDP-11 Symbolic Debugger User's Guide
- PDP-11 Symbolic Debugger Installation Guide
- PDP-11 Symbolic Debugger Quick Reference
- PDP-11 Symbolic Debugger Information for FORTRAN-77 Users
- PDP-11 Symbolic Debugger Information for COBOL-81 Users
- PDP-11 Symbolic Debugger Information for MACRO-11 Users

Availability

The PDP-11 Symbolic Debugger Version 2.0 was expected to be available from the Software Distribution Center (SDC) in March.

RELEASE NOTES

The Release Notes for the PDP-11 Symbolic Debugger Version 2.0 are distributed on line as part of the kit. These Release Notes describe known problems and restrictions in the PDP-11 Symbolic Debugger Version 2.0. Workarounds for the problems have been provided, whenever possible, to lessen their impact.

PDP-11 SYMBOLIC DEBUGGER V2.0
for RSX-11M V4.2

Seq. 17.1.1.1 N

3 of 3

Accessing the On-Line Release Notes

The Installation Guide contains procedures for obtaining copies of the on-line Release Notes. The following paragraphs contain the correct commands and procedures to obtain the on-line Release Notes.

In the Installation Guide, page 5-3, "Installation on the Professional," the PIP and FLX commands given to copy the Release Notes are incorrect. The correct commands are:

FOR DISK USERS

```
> BRU/NOI/UFD/NEW/MOU indev:[1,5]DBGREL.DOC outdev:
```

FOR TAPE USERS

```
> BRU/BAC:DBGREL/REW/NOI/UFD/NEW indev:  outdev:
```

Replace indev with the device on which your distribution medium is allocated and mounted, replace outdev with the destination device. The Release Notes are copied to [1,5] and named DBGREL.DOC.

RSX-11M V4.2
CUMULATIVE INDEX
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* = Articles appeared in the RSX Software Dispatch Review, September 1985.

Component	Sequence	Mon/Yr
MCR		
INS		
NEW "TASK IMAGE I/O ERROR" MESSAGE FOR DEVICES	2.2.2.1 M	Apr 86
SCHEDULING OF SHUFFLER MAY CRASH SYSTEM	2.2.2.2 M	Apr 86
INDIRECT, ICQ, ICM, ICP		
INDIRECT CAN CONFUSE IDENTICAL LABELS	2.2.3.1 R*	Sep 85
FILE NAME AND SUBSTITUTION ERRORS IN INDIRECT	2.2.3.2 M	Jan 86
INDIRECT PROBLEMS CORRECTED IN UPDATE B	2.2.3.3 M	Feb 86
24-HOUR MAXIMUM FOR .DELAY DIRECTIVE	2.2.3.4 M	Mar 86
INVALID CHARACTERS IN SUBSTITUTION SYMBOL NAMES	2.2.3.5 M	Mar 86
INDIRECT COMMAND .SETT <ERSEEN> LEAVES IT FALSE	2.2.3.6 M	Mar 86
.EXIT DIRECTIVE WITHIN BEGIN-END BLOCK	2.2.3.7 M	Mar 86
ERROR IN EXECUTION ON @/LB:MODULE FROM DCL OR MCR	2.2.3.8 M	Mar 86
ESCAPE RESPONSE TO .ASKS DEFINES SYMBOL AS LOGICAL	2.2.3.9 M	Apr 86
ERASING LOCAL SYMBOLS WITH DOLLAR-SIGN NAMES	2.2.3.10 M	Apr 86
CORRUPTED BEGIN-END BLOCK POINTERS IN LOCAL SYMBOL TABLE	2.2.3.11 M	Apr 86
SAV/BOO		
BOOT HANGS ON COPY OF A SYSTEM SAVED ON DIFFERENT CONTROLLER	2.2.6.1 N*	Sep 85
SAV DOES NOT SIZE MEMORY CORRECTLY ON UNIBUS SYSTEMS	2.2.6.2 M	Feb 86
SAVE DOES NOT SIZE MEMORY ABOVE 1920 kW ON Q-BUS SYSTEMS	2.2.6.3 M	Feb 86
DRIVERS		
DYDRV, DUDRV, DRDRV, DDDRV, DLDRV		
SUPPORT FOR DOUBLE-SIDED FLOPPY	3.1.1.1 M*	Sep 85
DDDRV TIMES OUT WHILE COPYING LARGE FILES	3.1.1.2 M	Mar 86
DLDRV's ERROR RECOVERY SHOULD MAKE COMPLETE DRIVE-STATUS CHECK	3.1.1.3 M	Mar 86
MUDRV		
MUDRV DOES NOT SUPPORT MULTIPLE-DENSITY TAPE DRIVES	3.1.2.1 M	Mar 86
SYSTEM CRASHES WITH MUDRV/PUCOM MAPPED	3.1.2.2 M	Mar 86
FDX-TTDRV		
DRIVER DOUBLE FORK CAUSES SYSTEM CRASH ON Q-BUS SYSTEM	3.1.3.1 N	Feb 86
VARIOUS TTDRV PROBLEMS	3.1.3.2 M	Mar 86
XEDRV		
VARIOUS XEDRV PROBLEMS	3.1.5.1 M	Mar 86
ERROR LOGGING		
CONTROL FILES		
RPT DOES NOT RECOGNIZE USER-WRITTEN MODULES	3.3.5.1 M	Mar 86
UPDATE ERROR-CODE TABLE IN MSCP60.CNF	3.3.5.2 M	Mar 86
END MESSAGE PACKETS FOR MU ARE NOT ANALYZED PROPERLY	3.3.5.3 M	Mar 86
ERROR LOG MESSAGE PACKETS FOR TK50 ARE NOT ANALYZED PROPERLY	3.3.5.4 M	Mar 86
ERLRPT-F-MODLOASYM UNDEFINED SYMBOL IN MODULE TO BE LOADED	3.3.5.5 M	Apr 86
BATCH/QUEUE MGR		
QMG		
STICKINESS IS LOST IN FILE EXTENSION IF FILES DO NOT EXIST	4.1.3.1 M	Mar 86

Component	Sequence	Mon/Yr
LPP		
LPP LOOPS ON NEGATIVE RECORD LENGTH	4.1.5.1 M	Apr 86
DMP		
ANSI MAGTAPES AND DMP	5.1.5.1 R*	Sep 85
UTILITIES		
MOU		
MOUNT DOES NOT WAIT FOR RA80/81 TO SPIN DOWN1	5.1.10.1 M	Mar 86
PIP		
DELETING FILES, ;0 DOES NOT ALWAYS WORK PROPERLY	5.1.12.1 M	Apr 86
BRU		
BRU "NO FILES FOUND" PROBLEM CORRECTED	5.1.17.1 M	Dec 85
BRU ENDS WITH MEMORY PROTECTION VIOLATION DURING RESTORES	5.1.17.2 N	Mar 86
BRU INDICATES OUTPUT DISK IS TOO FRAGMENTED DURING VERIFY	5.1.17.3 N	Mar 86
BRU MAY FAIL ON THE VERIFY PASS OF A BACKUP OPERATION	5.1.17.4 N	Mar 86
BRU REPORTS I/O STATUS OF -255	5.1.17.5 N	Mar 86
BRU REPORTS ERRORS ABOUT FILES THAT DO NOT EXIST	5.1.17.6 N	Mar 86
BRU USES WRONG IMAGE FILE FOR RESTORE/COMPARE	5.1.17.7 N	Mar 86
BRU DOES NOT RECOVER PROPERLY FROM TAPE-LABEL ERRORS	5.1.17.8 M	Mar 86
ABNORMAL TERMINATION DURING THE VERIFY PASS OF A RESTORE	5.1.17.9 M	Mar 86
BRU REPORTS ATTACH FAILED AS SECOND FATAL ERROR	5.1.17.10 N	Mar 86
POTENTIAL PROBLEM WHEN FIRST FILE RESTORED IS CONTIGUOUS	5.1.17.11 M	Apr 86
SYSTEM LIBRARIES		
CSI		
CSI$1 AND CSI$2 MEMORY PROTECT	5.2.6.1 M	Mar 86
TASK BUILDER		
TASK BUILDER		
TKB SWITCH /CL DOES NOT WORK	5.3.0.1 M	Apr 86
MULTIPLE REFERENCES TO .PSECT IN SEGMENT CAUSE TKB TO ABORT	5.3.0.2 M	Apr 86
TKB		
TKB OPENED AND CLOSED THE COMMAND FILE FOR EACH OPTION	5.3.1.1 N	Nov 85
I/D TASK LINKED TO LIBRARY AND COMMON DOES NOT BUILD	5.3.1.2 M	Feb 86
DEBUGGING AIDS		
ODT		
TASK WITH LARGE NUMBER OF LUNs HANGS IN ODT	5.5.1.1 M	Apr 86
DCL		
DCL		
DCL LINK/OPTION DOES NOT FUNCTION AS DOCUMENTED	6.1.0.5 M	Apr 86
DCL "LIBRARY @FILESPEC" DOES NOT WORK	6.1.0.6 M	Apr 86
MISC SYS TASKS		
HELP		
HELP /OUT:TTNN: <PARAMETER> DOES NOT WORK	5.7.1.1 N	Apr 86

Component	Sequence	Mon/Yr
MFT/DTE		
MFT FAILS TO FUNCTION PROPERLY	5.7.12.1 N	Mar 86
RCT		
RCT DOES NOT REPLACE ALL BAD BLOCKS	5.7.15.1 M	Feb 86
DCL		
DCL		
CORRECT PRINTERPORTS PROBLEM AND ADD DEVICE NEGATIONS	6.1.0.1 M	Feb 86
RUN/STATUS:COMMAND DOES NOT MAP CORRECTLY	6.1.0.2 M	Feb 86
/LOG QUALIFIER SHOULD BE /LOGFILE ON SUBMIT COMMAND	6.1.0.3 M	Feb 86
DCL LINK DOES NOT WORK CORRECTLY IN SET DEBUG/EXECUTE MODE	6.1.0.4 M	Mar 86
DCL LINK/OPTION DOES NOT FUNCTION AS DOCUMENTED	6.1.0.5 M	Apr 86
DCL "LIBRARY @FILESPEC" DOES NOT WORK	6.1.0.6 M	Apr 86
RSX-11 2780/3780 PROTOCOL EMULATOR V4.1		
CONDITIONS FOR AUTOMATIC SIGN ON	10.5.1.1 N*	Sep 85
BASIC-PLUS-2 V2.3		
PROBLEM WITH PRINT USING	10.20.1.1 N	Dec 85
FORTRAN IV/RSX V2.6		
OTS		
LIST-DIRECTED READ	16.1.1.1 N	Dec 85
PDP-11 SYMBOLIC DEBUGGER V2.0		
ANNOUNCING THE PDP-11 SYMBOLIC DEBUGGER V2.0	17.1.1.1 N	Apr 86

RSX-11S V4.1

RSX-11S V4.1 Seq. No. 2.2.5.1 M
MCR
VMR 1 of 1

UNABLE TO BOOT TRUNCATED RX01 SYSTEM (SPR 11-S81002 RC)

PROBLEM
STATEMENT:

Saving a system image file of 494 blocks or greater on an RX01 produces an unusable system.

RESPONSE:

This problem is caused because of a discrepancy between the code to truncate a system saved on an RX01 and the RX01 bootstrap driver. The bootstrap for an RX01 attempts to read a block and then checks to see if it is beyond the end of the system image. This causes a problem when the entire disk is used, since there is no extra block to mark the end of the system image. In this case, the controller is forced to attempt to read a block beyond the end of the disk, causing the bootstrap to hang.

The workaround is to restrict your system to 492 blocks or less.

This problem is corrected in RSX-11M/S Version 4.2 Update C.

RSX-11S V4.1
CUMULATIVE INDEX
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Component	Sequence	Mon/Yr
RSX-11S V4.1		
EXECUTIVE		
MISC ROUTINES		
22-BIT SYS RUNNING WITH 128KW MEMORY CRASHES ON VIRGIN BOOT	2.1.6.1 M	Nov 83
MCR		
BASIC MCR		
REMOVE OF UNFIXED TASK ON 11S WILL CAUSE SYSTEM HANG	2.2.4.1 M	Apr 84
VMR		
UNABLE TO BOOT TRUNCATED RX01 SYSTEM	2.2.5.1 M	Apr 86
MISC SYS TASKS		
OTL		
OTL HAS SEVERAL PROBLEMS	5.7.8.1 M	Apr 84
OTL DOES NOT SET UP WINDOW BLOCKS PROPERLY	5.7.8.2 M	Dec 84
OTL WILL NOT WORK WITH VIRTUAL ARRAY TASKS	5.7.8.3 M	Feb 85

Component	Sequence	Mon/Yr
DECnet-11M/S V3.1		
RSX DECNET PROGRAMMER'S REFERENCE MANUAL CORRECTIONS	10.8.2.2 N	Nov 83
RSX DECNET SYSTEM MANAGER'S GUIDE CORRECTION	10.8.2.3 N	Nov 83
PROPER SYSLIB.OLB FOR NETGEN	10.8.2.4 N	Nov 83
TIPS ON SUBMITTING A DECNET SPR	10.8.2.5 N	Nov 83
DOCUMENTATION CORRECTION FOR RSX-11S SYSTEMS	10.8.2.6 N	Nov 83
ERRORS IN THE DECNET SYSTEM MANAGER'S GUIDE	10.8.2.7 N	Nov 83
~~INCORRECT FORMAT FOR NCP SHOW MODULE X25-PROTOCOL~~	10.8.2.8 N	Nov 83
THE MICROFICHE FOR RSX DECNET 3.1/1.1 IS NO LONGER RESTRICTED	10.8.2.9 N	Nov 83
PROBLEMS DOWN-LINE LOADING OVERLAYS VIA DECNET	10.8.2.10 N	Nov 83
HOW TO WRITE A NETWORK SPR	10.8.2.11 N	Nov 83
DECNET-11M/S PROBLEMS FIXED ON RSX-11M/S LAYERED UPDATE A	10.8.2.12 N	Aug 83
DECNET AUTOPATCH MAY NOT APPLY ALL PATCHES	10.8.2.13 N	Nov 83
DOWN-LINE LOADING OVER THE DMV11 GIVES WRONG TRIBUTARY ADDRESS	10.8.2.14 N	Nov 83
DECNET-11M/S PROBLEMS FIXED ON RSX-11M LAYERED UPDATE B	10.8.2.15 N	Nov 83
DECNET-11M/S PROBLEMS FIXED ON RSX-11M LAYERED UPDATE C	10.8.2.16 N	Apr 84
DECnet-11M/S V4.0		
DECnet-11M PROBLEMS FIXED ON RSX-11S LAYERED UPDATE E	10.8.3.1 N	Dec 84
PERFORMING A DECnet-11S V4.0 NETGEN ON A VMS V4.0 HOST	10.8.3.2 N	Mar 85

RSX-11S V4.2

RSX-11S V4.2 Seq. No. 1.1.6.2 M
SYSGEN
11SGEN2 1 of 1

11SGEN2 PROBLEMS (SPR 11-00180X MR)

PROBLEM
STATEMENT:

1. The 11SGEN2 command procedure issues the command SET NOON on a VAX/VMS host, and VAX-11 RSX MCR gives an error message.

2. The 11SGEN2 VMR example fails to show that a partition should be created for DYCOM and the common should be installed when the DY driver is built loadable.

RESPONSE:

1. SET NOON is not a legal VAX-11 RSX MCR command. This erroneous command will be removed from 11SGEN2 in RSX-11S Version 4.2 Update B.

2. The missing example for installing DYCOM will be added to 11SGEN2 in RSX-11S Version 4.2 Update B.

RSX-11S V4.2
CUMULATIVE INDEX
APRIL 1986

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Component	Sequence	Mon/Yr
SYSTEM LIBRARIES		
CSI		
CSI$1 AND CSI$2 MEMORY PROTECT	5.2.6.1 M	Mar 86
MISC SYS TASKS		
RCT		
RCT DOES NOT REPLACE ALL BAD BLOCKS	5.7.15.1 M	Feb 86

RSX-11M-PLUS V2.1

RSX-11M-PLUS V2.1 Seq. No. 2.2.3.20 M
MCR
INDIRECT 1 of 2

Supersedes RSX-11M-PLUS V2.1 November 1985 Software Dispatch Seq. 2.2.3.20 M

PROBLEMS WITH LOCAL SYMBOLS IN GLOBAL NAME FORMAT (SPR 11-P00215X RDH)

PROBLEM
STATEMENT:

The Indirect Command Processor allows definitions of global and local symbols with the same name to exist on the same level. Also, it allows the individual deletion of local symbols when they assume the global naming convention. This is contradictory to the documentation.

The following command files demonstrate the problem:

A.CMD

```
.SETS $A "Howdie"               ! local symbol $A
.SETS $B "Doodie"               ! local symbol $B
@A2
.IFNDF $A .STOP                 ! ensure we are back on the correct level
.IF $B NE 2 .STOP               ! this $B is global from A2.CMD
.ERASE SYMBOL $B                ! erases $B from global table
.IF $B NE "Doodle" .STOP        ! this $B is local from A.CMD
.ERASE SYMBOL $B                ! erases $B from local table
.EXIT
```

A2.CMD

```
.ENABLE GLOBAL                  ! enable global symbol processing
.SETN $B 2                      ! global symbol $B
.EXIT
```

RESPONSE:

The Indirect Command Processor and the documentation are consistent in allowing global and local symbols with the same name to exist on the same level. Using local symbol names beginning with the dollar sign ($) is not recommended because of potential confusion with global symbols but is permitted by Indirect. If global and local symbols with the same name exist at a level, and reference is made to that symbol name, the global symbol takes precedence over the local one for assignments, comparisons, etc.

RSX-11M-PLUS V2.1 Seq. No. 2.2.3.20 M
MCR
INDIRECT 2 of 2

The implementation of Indirect does allow the .ERASE SYMBOL to affect local symbols if their name begins with the dollar sign, contrary to the documented restriction that only global symbols may be individually erased. Investigation of this problem shows that the restriction can be removed without adverse impact. Its removal would also eliminate the apparent advantages of naming local symbols with dollar signs.

RSX-11M-PLUS Version 3.0 Update C and the next release of Micro/RSX will include a change which removes this restriction. Specifically, the .ERASE SYMBOL directive will be able to erase individual global or local symbols. If two symbols with the same name, one global and one local, exist for the level on which the .ERASE SYMBOL is being executed, the global symbol will take precedence and be erased.

RSX-11M-PLUS V2.1 Seq. No. 2.2.5.4 M
MCR
VMR 1 of 1

SET /NOTYPEAHEAD CAUSES CRASH (SPR 11-00109P JF)

PROBLEM
STATEMENT:

A non-I/D RSX-11M-PLUS system with a DHU/DHV terminal controller and the no typeahead characteristic set in VMR crashes after bringing on line the fourth DHU/DHV line.

RESPONSE:

The size of the typeahead buffer cannot be changed in a non-I/D system. When VMR processes the SET /NOTYPEAHEAD command, it does not check to see if the system is I/D or not, and it always sets the size of the typeahead buffer to one. This is correct for an I/D system, but not for a non-I/D system. VMR should not change the size of the typeahead buffer on a non-I/D system. This eventually causes the system to crash when the terminals are brought on line.

As a workaround, set the no typeahead characteristic in MCR instead of VMR and then SAVe the system.

This problem is corrected in RSX-11M-PLUS Version 3.0 Update C.

RSX-11M-PLUS V2.1 Seq. No. 2.2.6.5 M
MCR
SAV 1 of 1

SAV CRASHES WHEN SYSTEM DISK IS A DUAL-ACCESS DEVICE (SPR 11-83266 KF)

PROBLEM
STATEMENT:

When SAVing a virgin system following system generation, the system crashes with an odd address trap. The system device is dual access between two RH controllers.

RESPONSE:

The system crash occurs when trying to access the second RH controller of your system disk. When SAV brings the system down, it sets the system device and its controllers off line. The system device is necessarily on line. One of its controllers must also be on line for the system to work. In the case of a dual-access device, the second controller does not have to be on line or physically in the system. SAV fails to check the controller to see if it is there before it accesses its control and status register (CSR) address in memory. Since the controller is not there in this case, accessing this location causes the system to crash. Since the system has been generated with XDT, when the XDT prompt appears on the console, typing G will make the system proceed as if nothing were wrong. The crash does not corrupt the system in any way.

This problem is corrected in RSX-11M-PLUS Version 3.0 Update C. Until then, when SAVing your system, type G to the XDT prompt, and your system will start up. This problem will not occur if the second RH controller is installed properly. Check the switches on the controller to be sure they are set for the correct CSR address.

RSX-11M-PLUS V2.1 Seq. No. 4.1.5.6 M
BATCH/QUEUE MGR
LPP 1 of 1

LPP LOOPS ON NEGATIVE RECORD LENGTH (SPR 11-P78038 RDH)

PROBLEM
STATEMENT:

LPP loops when printing a file containing a record with a negative record length.

RESPONSE:

PRT issues a GET$S directive to read each record from the file being printed. Two types of invalid record length may result from this operation:

1. Actual record length exceeds limit established for the device and specified in F.URBD.

   In this case, File Control Services (FCS) transfers as many bytes as will fit in the user buffer and returns the error code IE.RBG. FCS updates F.RCNM to point at the next record.

2. Actual record length is negative.

   FCS returns the error code IE.RBG. No bytes are transferred to the user buffer. Also, FCS does not update F.RCNM to the next record, since it cannot determine its starting point because of the negative record length.

   On receiving the IE.RBG error code, PRT assumes that it resulted from the former case and proceeds to print the truncated record. If the error had resulted from the latter situation, PRT prints the contents of the user buffer (the preceding line) and requests the next record, thereby, looping until the entry is deleted from the queue.

RSX-11M-PLUS Version 3.0 Update C and the next release of Micro/RSX will include a correction for this problem. Specifically, PRT will test for negative record length and abort with an error message if one occurs.

RSX-11M-PLUS V2.1 Seq. No. 5.3.1.11 M
TASK BUILDER
TKB 1 of 1

TKB CORRUPTING VIRTUAL MEMORY UNDER RARE CONDITIONS (SPR 11-P82336 LP)

PROBLEM
STATEMENT:

TKBFSL odd address traps while trying to build the user's task, which links to FCSFSL.

The task also links to a resident common, and the user observes that when a certain P-sect is removed from the common, the task will build.

RESPONSE:

Incorrectly, TKB was treating resident library symbol references as symbol definitions. When the symbol was from a supervisor-mode library this bug would also cause TKB to corrupt virtual memory. However, because of the way TKB uses virtual memory, this corruption would lead to problems if, and only if, two events occurred:

1. The symbol table entry for the supervisor-mode library symbol reference was allocated to exactly the last seven words of a virtual memory page.

2. The number of virtual memory page searches exceeded 64K.

Your task, when built with the FSL version of TKB, just happened to meet these two very rare conditions, and, thus, TKB failed. The bug which caused this problem will be corrected in RSX-11M-PLUS Version 3.0 Update C and the next release of Micro/RSX.

Since the slightest change in the virtual-memory requirements of your task would allow TKB to succeed, your task would build when you removed a P-sect from the resident common. This also means that TKB, TKBRES, and TKBFSL in V3.0 and V3.0B will work with your task because modifications made to TKB itself for the new release have changed virtual memory requirements.

RMS-11 V2.0
for RSX-11M-PLUS V2.1

Seq. 10.7.1.3 M

Supersedes RSX-11M-PLUS V2.1 September 1985 Software Dispatch Seq 10.7.1.3 M

INDEX FILE CORRUPTION IN ALTERNATE KEY PATH

PROBLEM:

There is a problem updating INDEX files with variable-length records.

If an attempt is made to update an existing variable-length record, a bad RRV is created in the alternate key path if the following conditions are true:

- The record size is increased.
- Either a new alternate key is introduced or an existing one is changed.
- As a result of the increased record size, a bucket split occurs. (If unaware of whether a bucket split occurs, assume that condition 3 is true.)

If an attempt is now made to GET this record by alternate key, RMS will return the error ER$RRV (Bad Internal Pointer).

SOLUTION:

The patching procedure detailed below corrects the above problem. In all cases, the files should be reloaded to correct the alternate key path.

RESPONSE:

This problem has been fixed and will be released in RSX-11M-PLUS V3.0. In the meantime, the following procedure will fix the problem on the current post-Update E system (select the appropriate procedure).

NOTE

The program prompts with an underscore, so input begins after that. In all instances, make a copy of the file being modified in case a mistake occurs.

1. If RMSRES.TSK (the resident library) is used, copy RMSLBF.TSK from LB:[1,1] and invoke ZAP.

```
        ZAP>RMSLBF.TSK
(you)   _2:50104;0r             comment: set relocation register for  R3IUDR
(you)   _0,674/<CR>             comment: come in a few locations before,  to
                                         confirm that you are in the correct
                                         place

(ZAP)   2:0,000674/ 000054      comment: verify that these values are the same
                                         on your system.
(you)   _<CR>
(ZAP)   2:0,000676/ 000566
(you)   _<CR>
(ZAP)   2:0,000700/ 116446
(you)   _<CR>
(ZAP)   2:0,000702/ 000024
(you)   _<CR>
(ZAP)   2:0,000704/ 132765
                                comment: now come back to make the change
(you)   0,700/<CR>
(ZAP)   2:0,000700/ 116446
(you)   _4767<CR>
(you)   _/<CR>
(ZAP)   2:0,000702/ 000024
(you)   _6626<CR>
(you)   0,700/<CR>              comment: now verify that you succeeded
(ZAP)   2:0,000700/ 004767      comment: SUCCESS
(you)   _<CR>
(ZAP)   2:0,000702/ 006626
(you)   _2:57636;1r<CR>         comment: set relocation register to start of
                                         patch space. The contents of all
                                         locations opened at this point
                                         should be ZEROS.
```

```
(you)   _1,0/<CR>
(ZAP)   2:1,000000/ 000000      comment: start inserting new code at
(you)   11646<CR>                        this point
(you)   _<CR>
(ZAP)   2:1,000002/ 000000
(you)   _116466<CR>
(you)   _<CR>
(ZAP)   2:1,000004/ 000000
(you)   _24<CR>
(you)   _<CR>
(ZAP)   2:1,000006/ 000000
(you)   _2<CR>
(you)   _<CR>
(ZAP)   2:1,000010/ 000000
(you)   _1402<CR>
(you)   _<CR>
(ZAP)   2:1,000012/ 000000


(you)   _62716<CR>
(you)   _<CR>
(ZAP)   2:1,000014/ 000000
(you)   _106<CR>
(you)   _<CR>
(ZAP)   2:1,000016/ 000000
(you)   _207<CR>
(you)   _1,0/<CR>               comment: now verify that the new code was
                                         put in correctly
(ZAP)   2:1,000000/ 11646
(you)   _<CR>
(ZAP)   2:1,000002/ 116466
(you)   _<CR>
(ZAP)   2:1,000004/ 000024
(you)   _<CR>
(ZAP)   2:1,000006/ 000002
(you)   _<CR>
(ZAP)   2:1,000010/ 001402
(you)   _<CR>
(ZAP)   2:1,000012/ 062716
(you)   _<CR>
(ZAP)   2:1,000014/ 000106
(you)   _<CR>
(ZAP)   2:1,000016/ 000207
(you)   _x                      comment: exit from ZAP
```

Now copy the corrected RMSLBF.TSK into LB:[1,1].

Next, to remove the old RMSLBF.TSK and install the new RMSLBF.TSK. This requires removing all tasks installed against RMSLBF. Once this is done, RMSLBF can be removed by issuing the following command:

```
REM/REG RMSLBF
```

Now install the the new one by issuing:

```
INS LB:[1,1]RMSLBF/PAR=GEN/READ
```

Now reinstall all the tasks.

If unable to remove RMSLBF, it may be easier to reboot the system. Since RMSLBF has already been copied into the account where the standard start-up procedure looks for it, the system will come up with the newly installed version. However, check your start-up procedure to confirm this.

NOTE

Tasks built against RMSRES will not have to be rebuilt to include this correction.

2. If RMSLIB.OLB is used to build RMS disk-overlaid or nonoverlaid tasks:

   A. Extract the appropriate module from the object library.

```
$ LBR R3IUDR.OLD=LB:[1,1]RMSLIB.OLB/EX:R3IUDR
```

   B. Create a file R3IUDR.PAT containing:

```
.TITLE  R3IUDR
.IDENT  /0222CMA/
.PSECT  R3IUDR,I

$$$ = .

. = $$$+700
```

```
        CALL    PATCH
        .PSECT  PATCH
        R$IRP = 24
PATCH:
        MOV     (SP),-(SP)
        MOVB    R$IRP(R4),2(SP)
        BEQ     2$
        ADD     #106,(SP)
2$:     RETURN
        .END
```

C. Assemble the patch.

```
> MAC R3IUDR.PAT
```

D. Apply the patch using the PAT utility.

```
> PAT R3IUDR.NEW=R3IUDR.OLD/CS:022614,R3IUDR.OBJ/CS:013501
```

E. Replace into the library.

```
> LBR LB:[1,1]RMSLIB.OLB/RP=R3IUDR.NEW
```

3. If RMSLIB.OLB is used to build the RMS resident library satellites (this is rarely done by the user):

A. Extract the appropriate module from the object library.

```
$ LBR R3IUDL.OLD=LB:[1,1]RMSLIB.OLB/EX:R3IUDL
```

B. Create a file R3IUDR.PAT containing:

```
        .TITLE  R3IUDL



        .IDENT  /0222CMA/
        .PSECT  R3IUDR,I

$$$ = .

. = $$$+700
```

```
                CALL    PATCH
                .PSECT  PATCH
                R$IRP = 24
        PATCH:
                MOV     (SP),-(SP)
                MOVB    R$IRP(R4),2(SP)
                BEQ     2$
                ADD     #106,(SP)
        2$:     RETURN
                .END
```

C. Assemble the patch.

```
> MAC R3IUDL.PAT
```

D. Apply the patch using the PAT utility.

```
> PAT R3IUDL.NEW=R3IUDL.OLD/CS:025534,R3IUDL.OBJ/CS:013473
```

E. Replace into the library.

```
> LBR LB:[1,1]RMSLIB.OLB/RP/-EP=R3IUDL.NEW
```

Rebuild any applications that are not built against RMSRES.

PDP-11 SYMBOLIC DEBUGGER V2.0
for RSX-11M-PLUS V2.1

Seq. 18.1.1.1 N

ANNOUNCING THE PDP-11 SYMBOLIC DEBUGGER VERSION 2.0

PRODUCT DESCRIPTION

Introduction

The PDP-11 Symbolic Debugger Version 2.0 is designed to help users find logic and programming errors in successfully compiled and linked programs that do not run correctly. Version 2.0, an extension of PDP-11 FORTRAN-77 DEBUG Version 1.0, includes support for FORTRAN-77, COBOL-81, and MACRO-11. Capabilities have also been added to PDP-11 FORTRAN-77 DEBUG Version 1.0 to make it more powerful. Support is provided for debugging tasks built with I- and D-space, on systems where both the hardware and operating system support this feature, for example, RSTS/E V9.0 or higher, RSX-11M-PLUS V2.1 or higher, Micro/RSTS V2.0, and Micro/RSX V3.0.

The debugger is designed as two tasks, a kernel and a background task. The kernel is linked in with user programs. The kernel is either overlaid to occupy less than 4 kilobytes (KB) of user program space, or nonoverlaid to occupy about 5 KB. The default is an overlaid debugger kernel which can be used with all user programs (overlaid, cotrees, resident libraries, etc.), except those user programs that do manual overlay loading. The kernel communicates with the larger background task, which provides the debugger's main functionality.

Operating Systems/Installation

The debugger runs on the following versions of DIGITAL's operating systems:

- VAX-11 RSX Version 2.0 or higher
- RSX-11M Version 4.1 or higher
- RSX-11M-PLUS Version 2.1 or higher
- Professional Host Tool Kit Version 2.0 or higher and PRO/Tool Kit Version 2.0 or higher
- RSTS/E Version 9.2 or higher

- Micro/RSX Version 3.0 or higher
- Micro/RSTS Version 2.0 or higher

On each supported operating system, the debugger is installed using an automatic installation procedure. Installation will vary from system to system. The PDP-11 Symbolic Debugger Version 2.0 on VAX/VMS, Micro/RSX, Professional Host Tool Kit/VMS, RSTS/E, and Micro/RSTS use operating system-supplied installation procedures. The PDP-11 Symbolic Debugger Version 2.0 on RSX-11M/M-PLUS, P/OS, and Professional Host Tool Kit/RSX use an installation procedure supplied with the kit.

Documentation

The debugger documentation set has been completely revised. Below is a list of the new manuals.

- PDP-11 Symbolic Debugger User's Guide
- PDP-11 Symbolic Debugger Installation Guide
- PDP-11 Symbolic Debugger Quick Reference
- PDP-11 Symbolic Debugger Information for FORTRAN-77 Users
- PDP-11 Symbolic Debugger Information for COBOL-81 Users
- PDP-11 Symbolic Debugger Information for MACRO-11 Users

Availability

The PDP-11 Symbolic Debugger Version 2.0 was expected to be available from the Software Distribution Center (SDC) in March.

RELEASE NOTES

The Release Notes for the PDP-11 Symbolic Debugger Version 2.0 are distributed on line as part of the kit. These Release Notes describe known problems and restrictions in the PDP-11 Symbolic Debugger Version 2.0. Workarounds for the problems have been provided, whenever possible, to lessen their impact.

PDP-11 SYMBOLIC DEBUGGER V2.0
for RSX-11M-PLUS V2.1

Seq. 18.1.1.1 N

Accessing the On-Line Release Notes

The Installation Guide contains procedures for obtaining copies of the on-line Release Notes. The following paragraphs contain the correct commands and procedures to obtain the on-line Release Notes.

In the Installation Guide, page 5-3, "Installation on the Professional," the PIP and FLX commands given to copy the Release Notes are incorrect. The correct commands are:

FOR DISK USERS

```
> BRU/NOI/UFD/NEW/MOU indev:[1,5]DBGREL.DOC outdev:
```

FOR TAPE USERS

```
> BRU/BAC:DBGREL/REW/NOI/UFD/NEW indev:  outdev:
```

Replace indev with the device on which your distribution medium is allocated and mounted, replace outdev with the destination device. The Release Notes are copied to [1,5] and named DBGREL.DOC.

RSX-11M-PLUS V2.1
CUMULATIVE INDEX
APRIL 1986

This is a complete listing of all articles for RSX-11M-PLUS V2.1 and layered products. Missing sequence numbers may pertain to problems unique to other versions of the same product or other major operating systems.

IMPORTANT!

Unassigned articles are indicated: UNASSIGNED.

Flags are currently being installed for all articles. The flags and definitions are as follows.

M = Mandatory Patch. These patches correct errors in the software product. All users are required to apply these patches to maintain consistent "user level" unless the accompanying article specifies otherwise.

F = Optional Feature Patch. These patches extend or configure functionality into the product. These functions will be treated as a supported part of the product for the duration of the current release and will be incorporated with any future release, unless otherwise stated.

R = Restriction. These articles discuss areas that will not be patched in the current release because they require major modification or because they are not consistent with the design of the product. Restrictions, except those described as permanent, are reviewed and modified when possible as part of the normal release cycle.

N = Note. These articles provide explanatory information that supplements the manual set and provide more detailed information about a program or package. They also provide procedural information to make it easier to use a program or package.

Component	Sequence	Mon/Yr
RSX-11M-PLUS V2.1		
SYSGEN		
COMMAND FILES		
SYSGEN SETS UP INCORRECT CONTROL FUNCTION BITS FOR CO:	1.1.1.1 F	Dec 83
SGNKLAB EXITS WITH UNDEFINED SYMBOL ERRORS	1.1.1.2 M	Dec 83
DUDRV GETS TASK BUILD ERROR IF TWO CONTROLLERS	1.1.1.3 M	Dec 83
SYSGEN DOES NOT HANDLE OVERFLOW CORRECTLY	1.1.1.4 M	Mar 84
AUTOCONFIGURE DOES NOT SKIP CONTROLLER IDs, G, I, O, AND Q	1.1.1.5 M	Apr 84
DHU11 SUPPORT, DHV11 CHANGE	1.1.1.6 M	Jun 84
IMPROVE TEST FOR CORRECTLY INSTALLED KIT	1.1.1.7 M	Jun 84
CHANGE TO SPM-11 TEXT	1.1.1.8 M	Jun 84
SYSGEN ON A VAX/VMS HOST	1.1.1.9 M	Jun 84
STARTUP HANDLES DAPRES INCORRECTLY ON RL02	1.1.1.10 N	Jun 84
CRASH MESSAGE DISPLAYS PHYSICAL, NOT LOGICAL, UNIT NUMBER	1.1.1.11 M	Jun 85

Component	Sequence	Mon/Yr
EXECUTIVE		
DIRECTIVES		
$IODON DOES NOT CHECK FOR S.KRB=0	2.1.1.1 M	Jul 85
GSSW$ CRASHED SYSTEMS WITHOUT SWITCH REGISTER	2.1.1.2 R	Jan 86
LOADR		
LOADR MAY CRASH SYSTEM WHEN LOADING I- AND D-SPACE TASKS	2.1.5.1 F	Aug 85
DRIVER WITH A CLOCK BLK IN THE CTB CRASHES THE SYSTEM	2.1.5.2 M	Feb 86
MISC ROUTINES		
PROBLEMS SPAWNING TASKS	2.1.6.1 N	Jan 84
INVALID CACHE PARITY ERROR REGISTERS GIVEN TO ERRLOG	2.1.6.2 M	Jul 84
PARITY ERROR ON BLOCK BOUNDARY CAUSES FIXER TO HANG	2.1.6.3 M	Jul 84
HARD/SOFTWARE LIMIT OFFSETS IN ERRLOG DEV UCB ARE REVERSED	2.1.6.4 M	Aug 84
CANNOT PROPERLY CRASH TO MM: DEVICE ON PDP-11/24	2.1.6.5 N	Apr 85
MCR		
MCR		
ALLOW ".;" COMMENTS AFTER .ENABLE DATA TO BE PASSED	2.2.0.1 M	Aug 84
DCL HELP COMMAND PASSES COMMENT STRING TO MCR	2.2.0.2 N	Jul 85
INTERNAL CMDS		
DISK OPT FAIRNESS COUNT DISPLAY IS SOMETIMES WRONG	2.2.1.1 N	Feb 85
ASN PPNN:= DOES NOT GIVE SYNTAX ERROR	2.2.1.2 M	Jun 85
SET /CLI COMMAND FAILS IN NONPRIVILEGED BATCH JOB	2.2.1.3 N	Jun 85
SET /HOLD DOES NOT WORK ON VT100 TERMINAL	2.2.1.4 N	Dec 85
INS		
INS FAILS TO INSTALL LARGE TASKS WITH VIRTUAL ARRAYS	2.2.2.1 M	Dec 83
INS DOES NOT CORRECTLY CHECK ADDRESS BOUNDS FOR I/D TASK	2.2.2.2 M	Dec 83
INS INCORRECTLY CALCULATES D-ROOT OFFSET	2.2.2.3 M	Jan 84
INSTALL FAILS UNEXPECTEDLY PROCESSING $XXX	2.2.2.4 M	Mar 84
INS ERROR WITH SOME TASKS LINKED TO CLUSTER	2.2.2.5 M	Jul 84
INS FAILS TO INSTALL CERTAIN I/D TASKS	2.2.2.6 M	Nov 84
SYSTEM CRASH RUNNING /ID/MU TASK WITH EMPTY RO,D PORTION	2.2.2.7 M	May 85
INDIRECT		
INDIRECT GIVES INVERTED OUTCOME OF .IFLOA OR .IFNLOA	2.2.3.1 M	Nov 83
SEVERAL PROBLEMS WITH INDIRECT	2.2.3.2 M	Mar 84
ICM FORMAT CONTROL FOR RIGHT/LEFT JUSTIFY DOES NOT WORK	2.2.3.3 M	Mar 84
.TESTFILE DOES NOT WORK ON A MODULE WITHIN A LIBRARY	2.2.3.4 M	Apr 84
INDIRECT MAY CONFUSE IDENTICAL LABELS	2.2.3.5 R	Apr 84
LBR LOOKS FOR INDINDEX IN WRONG UIC	2.2.3.6 M	Jun 84
MULTIPLE PARAMETERS TO .ENABLE /.DISABLE	2.2.3.7 M	Jun 84
ALLOW ";" COMMENTS ON .SETO AND .SETD	2.2.3.8 M	Jul 84
.CHAIN LOSES CONTEXT	2.2.3.9 M	Jul 84
F.FFBY FIELD OF <FILATR> LIST SHOULD BE A WORD	2.2.3.10 M	Aug 84
FINAL DELIMITER NOT INCLUDED IN LAST SYMBOL	2.2.3.11 M	Aug 84
INDIRECT FAILS AFTER UPDATE D	2.2.3.12 M	Feb 85
<FILSPC> IS SOMETIMES CORRUPTED	2.2.3.13 M	Mar 85
ICP FORMAT CONTROL RIGHT/LEFT JUSTIFY DOESN'T WORK	2.2.3.14 N	Mar 85
.PARSE "1,2" "," A DEFINES A AS "1,2"	2.2.3.15 R	Aug 85

Component	Sequence	Mon/Yr
TIMING PROBLEM WITH .XQT AND .WAIT FROM DCL TERMINAL	2.2.3.16 R	Sep 85
RESTRICTION ON .TEST WITH LOWERCASE CHARACTERS	2.2.3.17 R	Oct 85
PRO HOST TOOL KIT INSTALLATION PROCEDURE BROKE	2.2.3.18 M	Oct 85
INVALID CHARACTERS IN SUBSTITUTION SYMBOL NAMES	2.2.3.19 M	Nov 85
PROBLEMS WITH LOCAL SYMBOLS IN GLOBAL NAME FORMAT	2.2.3.20 M	Apr 86
.EXIT DIRECTIVE WITHIN BEGIN-END BLOCK	2.2.3.21 M	Nov 85
INDIRECT COMMAND .SETT <ERSEEN> LEAVES IT FALSE	2.2.3.22 M	Nov 85
24-HOUR MAXIMUM FOR .DELAY DIRECTIVE	2.2.3.23 M	Jan 86
DEFAULT RADIX FOR INDIRECT SUBSTITUTION FORMAT CONTROL	2.2.3.24 M	Feb 86
ERROR IN EXECUTION OF @/LB:MODULE FROM MCR OR COMMAND FILE	2.2.3.25 M	Mar 86
BASIC MCR		
CO: DCB CORRUPTION IF COT NOT ACTIVE	2.2.4.1 M	Mar 84
VMR		
VMR DOES NOT CHECK FOR OTHER COPIES OF A MULTIUSER TASK	2.2.5.1 M	Mar 84
VMR CANNOT INSTALL SOME I/D TASKS	2.2.5.2 M	Aug 84
SECPOL PERCENTAGE WRONG FOR LARGE SECONDARY POOL	2.2.5.3 M	Sep 84
SET /NOTYPEAHEAD CAUSES CRASH	2.2.5.4 M	Apr 86
SAV/BOO		
SAV HANGS IF SYSTEM IMAGE TOO LARGE	2.2.6.1 M	Jan 84
SAV SIZES A MAXIMUM MEMORY CONFIGURATION INCORRECTLY	2.2.6.2 M	Mar 84
BOOT HANGS ON COPY OF A SYSTEM SAVED ON DIFFERENT CONTROLLER	2.2.6.3 M	Mar 84
MEMORY IS NOT SIZED CORRECTLY ON AN 11/44 WITH 4 MB OF MEMORY	2.2.6.4 M	Feb 86
SAV CRASHES WHEN SYSTEM DISK IS A DUAL-ACCESS DEVICE	2.2.6.5 M	Apr 86
DRIVERS		
DUDRV, DYDRV		
DU DRIVER INHIBITS TERMINAL TIMEOUTS	3.1.1.2 M	Dec 83
RX02 SUPPORT FOR 22 BIT QBUS SYSTEMS	3.1.1.3 M	Jan 84
DO MULTIPLE FORKS, DO NOT ALWAYS BUFFER DATA INTO DYCOM	3.1.1.4 M	Mar 84
DUDRV MODIFICATIONS :ERROR RECOVERY, UNIT FAIRNESS	3.1.1.5 M	Apr 84
WHEN POWER IS OFF OF RX02, ANY I/O TO RX02 WILL CRASH	3.1.1.6 M	Jun 84
RSX SLOWS DOWN ON Micro/PDP-11	3.1.1.7 M	Jul 85
FDX-TTDRV		
SLAVED TERMINAL DIFFERENCE IN NEW RELEASE	3.1.3.1 F	Dec 83
REMOTE LINE HANGS UP WHILE CHANGING CHARACTERISTICS	3.1.3.2 M	Mar 84
SYSTEM CRASHES IF DM11-BB DEV SYSGENNED BUT NOT INSTALLED	3.1.3.3 M	Sep 84
TC.EPA AND TC.PAR CANNOT BE SET FOR DH11	3.1.3.4 M	Mar 85
ABORTING DHV11 CURRENT OUTPUT DISABLES TERMINAL I/O	3.1.3.5 M	Mar 85
DTR IS NOT ASSERTED UNTIL RING IS DETECTED	3.1.3.6 N	Mar 85
LADRV		
FIX RCL, MOVE LABEL, ADD DOCUMENTATION	3.1.4.1 M	Mar 84
PATCH HB034 CAUSES SYSTEM CRASHES	3.1.4.2 M	Mar 84
CODRV		
CONSOLE DRIVER MAY CRASH SYSTEM DURING LOW POOL CONDITIONS	3.1.6.1 M	Mar 84

Component	Sequence	Mon/Yr
FILE SYSTEM		
FCS		
FCS .EXTND AND TRUNCATION	3.2.1.1 N	Jan 84
MTAACP/F11MSG		
MOUNT REPORTS WRONG ERROR FOR OFFLINE TAPE	3.2.3.1 M	Jan 84
MTAACP HANGS/CRASHES SYSTEM	3.2.3.2 M	Jun 84
ERROR LOGGING		
RPT		
FILE READ ERROR ON RP03s	3.3.4.1 M	Dec 83
LBN BAD FOR RL01/RL02 DISKS FROM ERRLOG	3.3.4.2 M	Mar 84
CONTROL FILES		
V2.1 RPT ABORTS ON RA80 ERROR	3.3.5.1 N	Jan 84
BATCH/QUEUE MGR		
BPR		
BATCH PROCESSOR EXITS WHEN JOB ABORTED	4.1.1.1 M	Sep 84
BPR GIVES CRYPTIC ERROR MSG. WHEN FILE IS EDITED AND PURGED	4.1.1.2 M	Mar 86
QMG		
STOP:AB DELETES FILES INSTEAD OF PUTTING THEM IN HELD STATE	4.1.3.1 N	Nov 83
QMG DOESN'T STOP SPOOLED LINE PRINTER PROPERLY	4.1.3.2 N	Jan 84
QUEUE /EN:xxxx ERROR MESSAGE INCONSISTENT	4.1.3.3 M	Apr 84
QUEUE PRODUCES ERROR ON ASSIGN OF QUEUE WITH 1 OR 2 CHARS	4.1.3.4 M	Apr 84
QUE /EN:NNN/HO ABORTS AN ACTIVE BATCH JOB	4.1.3.5 M	Jun 84
SUBMIT /[NO]TR COMMAND PRODUCES ERROR MESSAGE	4.1.3.6 M	Sep 84
QUE HANGS IF UFD [1,7] IS NOT PRESENT	4.1.3.7 N	Apr 85
QUE/PRI		
BATCH JOBS COPIED FROM PRIVATE DISK TO LB:[1,7] NOT DELETED	4.1.4.1 M	Sep 84
SHOW QUEUE SOMETIMES HANGS	4.1.4.2 M	Dec 84
LPP INCORRECTLY DELETES FILE BY FILE ID	4.1.4.3 M	Jan 85
LPP		
IF USER WRITTEN DEL CHECK ROUTINE USED PRI/DE DOESN'T DELETE	4.1.5.1 N	Nov 83
PROBLEM WITH SIMULATED FORMS AND FORMFEEDS	4.1.5.2 N	Jan 84
LA100 DEVICE SUPPORT ADDED TO DESPOOLER HAS 2 PROBLEMS	4.1.5.3 M	Mar 84
FILE WITH AN ILLEGAL RECORD SIZE WILL HANG IN QUEUE	4.1.5.4 M	Apr 84
NL0 SHOULD NOT BE SPOOLABLE	4.1.5.5 M	Apr 84
LPP LOOPS ON NEGATIVE RECORD LENGTH	4.1.5.6 M	Apr 86
MULTIUSER TASK		
BYE		
BYE SOMETIMES REPORTS WRONG CPU TIME USED	4.2.3.1 M	Nov 84
SHUTUP		
SHUT UPP ODD ADDRESS TRAPS IF FIRST CHAR OF DEVICE NAME IS ODD	4.2.5.1 M	Mar 84

Component	Sequence	Mon/Yr
ACCOUNTING		
ACCOUNTING		
START/ACC WITH NL: TRANSACTION FILE CRASHES THE SYSTEM	4.3.0.1 R	Jan 84
ACCOUNTING NOT STARTED CORRECTLY	4.3.1.1 M	Mar 84
SHADOW RECORDING		
SHADOW RECORDING		
SHADOW RECORDING DOESN'T WORK ON SINGLE SCB CONTROLLERS	4.4.0.1 R	Apr 84
SHA		
SHADOW RECORDING WORKS ON DU: DEVICES	4.4.1.1 N	Jun 85
UTILITIES		
CRF		
CRF EXITS IF A SYMBOL IS REFERENCED TOO MANY TIMES	5.1.3.1 M	Jan 84
DMP		
ANSI MAGTAPES AND DMP	5.1.5.1 R	Jan 84
FLX		
ENDLESS "DEVICE HANDLER MISSING" MESSAGES FROM FLX	5.1.7.1 M	Jan 84
FLX ABORTS ON COMMAND FOLLOWING "ILLEGAL SWITCH" MESSAGE	5.1.7.2 M	Jan 84
FLX DOES NOT SUPPORT DU:	5.1.7.3 M	Jan 84
INI		
INI CANNOT USE /INDEX=END SWITCH WITH LAST TRACK DEVICES	5.1.8.1 M	Sep 85
MOU		
MOUNT X:/FOR/ACP=UNIQUE CRASHES SYSTEM	5.1.10.1 N	Jan 84
BOOTING DU SYSTEM DISK CAUSES EXTRA MESSAGE	5.1.10.2 M	May 85
PIP		
DELETING FILES,;0 DOES NOT ALWAYS WORK PROPERLY	5.1.12.1 M	Feb 86
BRU		
ERRORS OCCUR ON MULTI-DISK RESTORE TO MOUNTED DISK	5.1.17.1 M	Dec 83
BRU INCORRECTLY HANDLES EXTENSION HEADERS AND 32,000 FILES	5.1.17.2 M	Jul 84
BRU /VER ABORTS ON THIRD TAPE WITH LARGE MULTIHEADER FILES	5.1.17.3 M	Apr 85
BRU ABORTS WITH I/O ERROR -10 ON RESTORES	5.1.17.4 M	Apr 85
BRU ERROR RECOVERY DURING A BACKUP TO TAPE	5.1.17.5 M	May 85
IMPROPER ERROR RECOVERY DURING A DISK-TO-TAPE BACKUP	5.1.17.6 M	May 85
BRU /IMAGE:RESTORE TO A MOUNTED DISK IGNORES /BACKUP_SET	5.1.17.7 R	Jun 85
BRU DOESN'T VERIFY ALL TAPES IN A BACKUP SET BEFORE STOPPING	5.1.17.8 N	Jul 85
BRU /BAD:MANUAL DOES NOT WORK AS DOCUMENTED	5.1.17.9 M	Sep 85
CANNOT DO SELECTIVE BACKUP/RESTORE WITH BRUSYS V3.0	5.1.17.10 M	Feb 86
BRU--MISLEADING ERROR MESSAGE/ACTION FOR UNMOUNTED TAPES	5.1.17.11 N	Feb 86
FMT		
RK07 GETS "DEVICE NOT READY" WHEN BEING FORMATTED	5.1.18.1 N	Aug 85

Component	Sequence	Mon/Yr
SYSTEM LIBRARIES		
K-SERIES		
A/D IS NOT ENABLED IF NO KW-11 IN SYSTEM	5.2.5.1 M	Apr 84
MISC SYSLIB		
SYSLIB MODULE $CBASG DROPS MSD	5.2.6.1 N	Feb 85
TASK BUILDER		
TKB		
SEVERAL M-PLUS TKB PROBLEMS	5.3.1.1 M	Nov 83
TKB "VSECT' OPTION DOES NOT WORK CORRECTLY	5.3.1.2 M	Nov 83
TKB FAILS TO BUILD TASK WHICH IS 1 WORD LARGER	5.3.1.3 N	Jan 84
READ ONLY AND READ WRITE CLUSTERING	5.3.1.4 R	Mar 84
TKB CANNOT BUILD I/D TASK W/24K I-SPACE & VSECTS W/COMMON	5.3.1.5 M	Mar 84
NOTES REGARDING CLUSTER LIBRARY USE	5.3.1.6 M	Jun 84
TKB OFTEN CREATES MULTIPLE AUTOLOAD VECTORS FOR SAME SYMBOL	5.3.1.7 M	Aug 84
TKB CAN'T LINK SHARED REGIONS TOGETHER IF USING SYS PARTITION	5.3.1.8 M	Oct 84
MULTIPLE REFERENCES TO .PSECT IN SEGMENT CAUSES TKB TO ABORT	5.3.1.9 M	Oct 85
TKB SWITCHES /LI AND /CO DO NOT WORK AS DOCUMENTED	5.3.1.10 N	Nov 85
TKB CORRUPTING VIRTUAL MEMORY UNDER RARE CONDITIONS	5.3.1.11 M	Apr 86
FTB		
FTB PRINTS GARBLED SYMBOL NAME AND MODULE NAME	5.3.2.1 M	Nov 83
STK CANNOT BUILD LARGE HEAVILY O'LAYED TASK CORRECTLY	5.3.3.1 M	Mar 84
DEBUGGING AIDS		
ODT		
TASK WITH LARGE NUMBER OF LUNS HANGS IN ODT	5.5.1.1. M	Jan 86
EDITORS		
SLP		
SLPR11 DOESN'T REPORT EXIT STATUS ON CHECKSUM FAILURE	5.6.2.1 N	Dec 83
MISC SYS TASKS		
HELP		
HELP KEYWORDS DO NOT ACCEPT DEVICE NUMBERS HIGHER THAN 7	5.7.1.1 M	Apr 84
HELP /OUT:TTNN: <PARAMETER> DOES NOT WORK	5.7.1.2 N	Feb 86
CDA		
CDA ODD ADDRESS TRAP ON ADDRESS OUT OF RANGE	5.7.2.1 M	Apr 84
CDA /DENS SWITCH GIVES SYNTAX ERROR	5.7.2.2 M	Aug 84
CDA /MEMSIZ SWITCH EXTENDS FILE TOO FAR	5.7.2.3 M	Jul 85
CDA DOES NOT OUTPUT LAST WORD OF ERRLOG BUFFERS	5.7.2.4 M	Jul 85
CDA DOES NOT ALLOW MS: TO FINISH REWINDING	5.7.2.5 M	Jul 85
CDA DOES NOT DISPLAY L.ICB FOR CONTROLLER TABLE BLOCKS	5.7.2.6 M	Feb 86
RMDEMO		
RMDEMO IN/OUT STATISTICS INCORRECT	5.7.5.1 M	Jan 84
AVERAGES ON S PAGE CLOBBERED WHEN SWITCH TO COMMAND PAGE	5.7.5.2 M	Jan 84
RUNNING RMD FROM CLOCK QUEUE DOES NOT WORK CORRECTLY	5.7.5.3 M	Apr 84
UPDATE C OF RMDEMO I/O PAGE MAY CAUSE SYSTEM CRASH	5.7.5.4 M	Oct 84

Component	Sequence	Mon/Yr
RMD DOES NOT SHOW PARTITIONS BELOW 32K	5.7.5.5 M	Apr 85
RMD I/O HARD/SOFT ERROR LIMITS ARE REVERSED	5.7.5.6 N	Jul 85
TDX		
TDX PROBLEMS FIXED IN UPDATE C	5.7.7.1 M	Jan 84
CVT DOES NOT WORK FROM A COMMAND FILE	5.7.7.2 M	Apr 84
FLYING INDIRECT DOES NOT WORK WHEN SY: CHANGES	5.7.7.3 M	Jun 84
COT		
COT... ABORTS WITH ODD ADDRESS TRAP	5.7.14.1 N	Jun 84
RCT		
RCT PROBLEMS	5.7.15.1 M	Dec 83
DCL		
DCL		
VARIOUS SYNTAX PROBLEMS IN DCL FIXED IN UPDATE B	6.1.0.1 M	Nov 83
/NOJOURNAL DOESN'T WORK FOR DCL EDIT/EDT	6.1.0.2 M	Nov 83
DCL 'STOP/ABORT' COMMAND FAILS WITH 'STOP WHAT?' MESSAGE	6.1.0.3 M	Dec 83
RMSCNV / PD SWITCH TAKES ASCII 0 TO 7 AS OCTAL NUMBER	6.1.0.4 N	Dec 83
LINK COMMAND DELETES INTERMEDIATE FILE TOO SOON	6.1.0.5 M	Jan 84
DCL FORTRAN COMMAND LISTING SWITCHES DO NOT WORK	6.1.0.6 M	Jan 84
VARIOUS PROBLEMS IN DCL FIXED IN UPDATE C	6.1.0.7 M	Mar 84
DCL INCORRECTLY TRANSLATES STOP/QUEUE/MANAGER/ABORT	6.1.0.8 M	Mar 84
DCL DOES NOT ACCEPT BAC @FILESPEC SYNTAX	6.1.0.9 M	Mar 84
NEW DCL COMMANDS FOR DECNET SNA SUPPORT	6.1.0.10 M	Jun 84
DCL DOES NOT ALWAYS DETECT A FILE SPEC ERROR	6.1.0.11 M	Jun 84
DCL PROBLEMS WITH NETWORK NODE SPECIFICATIONS	6.1.0.12 M	Jun 84
SET DEVICE/SYSTEM AND DCL COBOL/CLI PROBLEMS	6.1.0.13 M	Jul 84
"MOUNT/DENS=800 DD:" TRANSLATES TO MOU DD:/DENS=800.	6.1.0.14 M	Aug 84
DCL/ATT/OUT=FILESPEC DOES NOT PLACE OUTPUT IN FILESPEC	6.1.0.15 M	Aug 84
DCL SE DE ABBREVIATION AMBIGUOUS	6.1.0.16 M	Nov 84
DCL LINK /OPTION:FILESPEC NOT ACCEPTED AS VALID SYNTAX	6.1.0.17 M	Nov 84
DCL DELETE [*,*] FILESPEC DOESN'T WORK FOR UPDATE C	6.1.0.18 M	Dec 84
"DCL LIBRARY/CREATE LIBRARYSPEC" PROMPTS FOR INPUT MODULES	6.1.0.19 M	Jan 85
DCL SUBMIT/NOPRINT DOES NOT WORK CORRECTLY WITH UPDATE D	6.1.0.20 M	Jan 85
DCL FORTRAN/NOF77 SHOULD NOT ALSO REQUIRE /F77	6.1.0.21 M	Jan 85
"!" AT BEGINNING OF QUOTED STRING IS STILL TREATED AS COMMENT	6.1.0.22 M	Jan 85
ADD /[NO]WARNINGS QUALIFIER TO DCL PRINT AND SUBMIT COMMANDS	6.1.0.23 M	Jan 85
CREATE/DIR/ALL=NUM. DOES NOT TRANSLATE DECIMAL POINT	6.1.0.24 N	Mar 85
CERTAIN DCL SUBMIT QUALIFIERS DO NOT WORK WITH UPDATE D	6.1.0.25 M	Apr 85
DCL DOES NOT WORK AS A CATCHALL FOR MCR	6.1.0.26 N	Jun 85
SET ACCOUNTING DOES NOT WORK IN DCL	6.1.0.27 N	Jun 85
PURGE/KEEP:N/NOLOG FILE TRANSLATES TO PIP/SB=FILE/PU:N	6.1.0.28 N	Jun 85
RUN /DELAY:N DOES NOT WORK WITH THE /STATUS:TASK QUALIFIER	6.1.0.29 N	Jul 85
DCL START/PRINTER LPN:/PAGE:N DOES NOT WORK	6.1.0.30 N	Jul 85
DCL CONVERTS CERTAIN SPECIAL CHARACTERS INCORRECTLY	6.1.0.31 N	Jul 85
DCL LINK/OPTION DOES NOT FUNCTION AS DOCUMENTED	6.1.0.32 M	Jan 86
DCL "LIBRARY @FILESPEC" DOES NOT WORK	6.1.0.33 M	Jan 86

Component	Sequence	Mon/Yr
PDP-11 FORTRAN-77/RSX V5.0		
UNFORMATTED SEQUENTIAL WRITE ERRORS AFTER APPLYING UPDATE E	10.5.4.1 N	Dec 85
SORT/MERGE V3.0		
PACKAGE NOTES		
ANNOUNCING PDP-11 SORT/MERGE V3.0	10.6.2.1 N	May 84
RMS-11 V2.0		
SUMMARY OF RMS-11 MODIFICATIONS SINCE DISTRIBUTION ON RSX-11M-PLUS	10.7.1.1 N	Aug 84
SUMMARY OF RMS-11 MODIFICATIONS ON RSX-11M-PLUS FOR UPDATE E	10.7.1.2 N	Feb 85
INDEX FILE CORRUPTION IN ALTERNATE KEY PATH	10.7.1.3 M	Apr 86
CORRUPTION IN VERY LARGE FILES	10.7.1.4 M	Sep 85
DECnet-11M-PLUS V1.1		
RSX DECnet PROGRAMMER'S REFERENCE MANUAL CORRECTIONS	10.8.2.2 N	Nov 83
RSX DECNET SYSTEM MANAGER'S GUIDE CORRECTION	10.8.2.3 N	Nov 83
UNASSIGNED	10.8.2.4	XXX XX
TIPS ON SUBMITTING A DECnet SPR	10.8.2.5 N	Nov 83
INCORRECT FORMAT FOR NCP SHOW MODULE X25-PROTOCOL	10.8.2.6 N	Nov 83
THE MICROFICHE FOR RSX DECnet 3.1/1.1 IS NO LONGER RESTRICTED	10.8.2.7 N	Nov 83
DLX TASKS MUST NOT HAVE EXTERNAL HEADERS	10.8.2.8 N	Nov 83
HOW TO WRITE A NETWORK SPR	10.8.2.9 N	Nov 83
DECnet-11M-PLUS PROBLEMS FIXED ON RSX-11M-PLUS LAYERED UPDATE A	10.8.2.10 N	Nov 83
DECnet AUTOPATCH MAY NOT APPLY ALL PATCHES	10.8.2.11 N	Nov 83
DECnet-11M-PLUS PROBLEMS FIXED ON RSX-11M-PLUS LAYERED UPDATE B	10.8.2.12 N	Nov 83
DECnet-11M-PLUS PROBLEMS FIXED ON RSX-11M-PLUS LAYERED UPDATE C	10.8.2.13 N	Mar 84
DECnet-11M-PLUS V2.0		
DECnet-11M-PLUS PROBLEMS FIXED ON RSX-11M-PLUS LAYERED UPDATE E	10.8.3.1 N	Dec 84
PERFORMING A DECnet-11S V4.0 NETGEN ON A VMS V4.0 HOST	10.8.3.2 N	Dec 84
FAL ABORTS WITH "T-bit trap or BPT" ERROR	10.8.3.3 N	Jul 85
DATATRIEVE-11 V2.4		
KEYED OR BOOLEAN	10.14.4.26 M	Jun 83
QDICT MAY NOT CREATE A QUERY DICTIONARY	10.14.4.27 M	Jun 83
CHANGES TO SUPPORT RMS V2.0	10.14.4.28 M	Jun 83
REQUIRED PATCHES FOR DATATRIEVE-11	10.14.4.29 M	Jun 83
DATATRIEVE-11 V3.0		
ANNOUNCING DATATRIEVE-11 VERSION 3	10.15.1.1 N	Dec 83
NEW DATA DICTIONARY FOR VERSION 3	10.15.1.2 N	Dec 83
PROBLEM WITH REDEFINES	10.15.1.3 M	Dec 83
RMS V2.0 CHANGE TO DATATRIEVE-11 V3.0	10.15.1.4 M	Feb 84

Component		Sequence	Mon/Yr
	FMS-11/RSX V1.0		
FDV			
FMS TERMINAL SUPPORT PATCHES		10.17.1.1 M	May 84
	BASIC-PLUS-2 V2.1		
PACKAGE NOTES			
PDP-11 BASIC-PLUS-2 V2.1 NOW AVAILABLE		10.18.1.1 N	Jun 83
	BASIC-PLUS-2 V2.2		
PACKAGE NOTES			
BASIC-PLUS-2 V2.2 TO SHIP IN MARCH		10.19.1.1 N	Apr 84
	BASIC-PLUS-2 V2.3		
PROBLEM WITH PRINT USING		10.20.1.1 N	Dec 85
	PDP-11 CORAL V4.0		
PDP-11 CORAL 66 V4.0			
GENERAL			
ANNOUNCEMENT OF PDP-11 CORAL 66 V4.0		11.5.1.1 N	Apr 84
PROCEDURE FOR INSTALLATION OF PATCHES ON PDP-11 CORAL 66 V4.0		11.5.1.2 N	Apr 84
COMPILER			
ARRAY INDEX INCORRECTLY COMPUTED SOMETIMES		11.5.2.1 M	Apr 84
ERROR IN FLOATING POINT OPTIMIZATION		11.5.2.2 M	Apr 84
'UNION' OPERATOR CAN CAUSE COMPILER TO ABORT		11.5.2.3 M	Apr 84
DIVISION BY ONE CAN GENERATE INCORRECT CODE		11.5.2.4 M	Apr 84
OBJECT CODE PRINT CAN CAUSE PRINTER FORMAT ERRORS		11.5.2.5 M	Apr 84
ABNORMAL TERMINATION OF COMPILER IF SOURCE TOO BIG		11.5.2.6 M	Apr 84
ARRAY PARAMETERS CAN CAUSE ERROR 189		11.5.2.7 M	Apr 84
	COBOL-81 V2.0		
PACKAGE NOTES			
ANNOUNCING COBOL-81 VERSION 2.0		12.1.1.1 N	Jun 83
	SPM-11M-PLUS V2.1		
GENERAL NOTES			
ANNOUNCING SPM-11M-PLUS VERSION 2.1		13.1.1.1 N	Sep 84
	PDP-11 RPG II V8.8		
ANNOUNCEMENT OF PDP-11 RPG II V8.8		14.1.1.1 N	Nov 83

Component	Sequence	Mon/Yr
RSX-11M-PLUS DIBOL V1.0		
DOCUMENTATION		
CORRECTION NOTE TO DIBOL-83 LANGUAGE REFERENCE MANUAL	15.1.1.1 M	Jul 84
FORTRAN IV/RSX V2.6		
OTS		
LIST-DIRECTED READ	16.1.1.1 N	Dec 85
DECmail-11 V2.0		
GENERAL NOTES		
ANNOUNCING DECmail-11 V2.0 FOR RSX-11M-PLUS V2.1	17.1.1.1 N	Sep 84
PDP-11 SYMBOLIC DEBUGGER V2.0		
ANNOUNCING THE PDP-11 SYMBOLIC DEBUGGER V2.0	18.1.1.1 N	Apr 86

RSX-11M-PLUS V3.0

RSX-11M-PLUS V3.0 Seq. No. 1.1.0.1 M
SYSGEN
SYSGEN 1 of 1

AUTOCONFIGURE DOES NOT PASS MULTIPLE T(MSCP) INFO TO SYSGEN (SPR 11-00191X GNL)

PROBLEM
STATEMENT:

If a system has multiple MSCP/TMSCP controllers, Autoconfigure does not pass this information to SYSGEN. During a SYSGEN, if a user selects Autoconfigure and wants more than one MSCP/TMSCP controller generated in, it is necessary to override Autoconfigure results and manually enter the information, which has potential for getting erroneous CSRs and vectors in the system for those devices.

RESPONSE:

The information for multiple (T)MSCP controllers, those at the floating CSRs, was not previously recorded in the Autoconfigure data file CONFIG.DAT.

This problem is corrected in RSX-11M-PLUS Version 3.0 Update B.

RSX-11M-PLUS V3.0 Seq. No. 1.1.1.1 M
SYSGEN
AUTOCONFIGURE 1 of 1

ACF MAY NOT CORRECTLY SET UP DV.NUC IN CONFIG.DAT FOR RS03/4s
(SPR 11-P00211X CS)

PROBLEM
STATEMENT:

Autoconfigure (ACF) may not correctly set up DV.NUC in the CONFIG.DAT file for RS03/4 devices.

RESPONSE:

This problem occurs if the RS03/4 device does not have the Serial Number register implemented, as allowed by the MASSBUS specification.

If the RS03/4 Serial Number register is not implemented, the Autoconfigure logic does not handle it as an exception condition and incorrectly sets up DV.NUC in the device configuration file, CONFIG.DAT.

A user, under this condition and performing a SYSGEN, finds that the ACO SHOW operation aborts abnormally. The user must then restart the SYSGEN, not include the Autoconfiguration process, and manually provide SYSGEN with the hardware configuration information.

This problem is corrected in RSX-11M-PLUS Version 3.0 Update C.

RSX-11M-PLUS V3.0
EXECUTIVE
DIRECTIVES

GSSW$ CRASHES SYSTEMS WITH NO SWITCH REGISTER (SPR 11-00194X LBM)

PROBLEM
STATEMENT:

The GSSW$ directive (get sense switches) on PDP-11/73 and PDP-11/84 processors crashes the system.

RESPONSE:

In the past, when all RSX systems required a customized SYSGEN, Executives generated for processors without switch registers did not include support for the GSSW$ directive. Also, some hardware implementations returned some more or less meaningful value, even if there was no switch register, instead of trapping with a Q-bus or UNIBUS time-out error.

With the elimination of customized SYSGENs (for user friendliness), the GSSW$ directive code may now be included in Executives running on systems without switch registers. Some of these systems respond with a Q-bus or UNIBUS time-out error to references addressing the nonexistent switch register. The Executive quite rightly interprets the resulting trap in system state as being indicative of a software fault (in this case, attempting to address nonexistent hardware), and crashes the system. In fact, issuing the GSSW$ directive on hardware without a switch register should not cause a system crash. The GSSW$ directive code will be enhanced in a future update to preclude this from happening. In the meantime, the obvious workaround is to refrain from issuing the GSSW$ directive on hardware having no switch register.

RSX-11M-PLUS V3.0 Seq. No. 2.1.5.1 M
EXECUTIVE
LOADR 1 of 1

DRIVER WITH A CLOCK BLOCK IN THE CTB CRASHES THE SYSTEM (SPR 11-00192X GM)

PROBLEM
STATEMENT:

When reloaded, a user-written driver with a clock block in the CTB crashes the system.

RESPONSE:

The above problem is the result of an error in the module LDFIN.MAC, where the pointer to clock queue block is set incorrectly.

This problem is corrected in RSX-11M-PLUS Version 3.0 Update B. Until then, please avoid setting the clock block in the CTB.

RSX-11M-PLUS V3.0 Seq. No. 2.2.1.2 M
MCR
INTERNAL CMDS 1 of 1

ASN COMMANDS WITH NULL LOGICALS CAUSE SYSTEM CRASH (SPR 11-00217X JK)

PROBLEM
STATEMENT:

The MCR ASN command causes a system crash if the logical name being assigned consists of a blank node name or blank device name.

RESPONSE:

Since the ASN command strips off one or two colons from a logical name before an assignment, the following commands will result in a null logical name and cause an odd address system crash within the third directive common:

```
ASN eqv=:
ASN eqv=::
```

This problem is corrected in RSX-11M-PLUS Version 3.0 Update C.

RSX-11M-PLUS V3.0 Seq. No. 2.2.2.1 M
MCR
INS 1 of 1

NEW "TASK IMAGE I/O ERROR" MESSAGE FOR DEVICES (SPR 11-P00207X RC)

PROBLEM
STATEMENT:

INS aborts with the message "SYNTAX ERROR" for certain I/O errors returned by the driver.

RESPONSE:

For those I/O errors other than device off line, no pool, device not in system, device not mounted, parse error, and file privilege violation, which are currently reported explicitly, we have changed the message to read:

"Task image I/O error"

This problem is corrected in RSX-11M-PLUS Version 3.0 Update C.

RSX-11M-PLUS V3.0 Seq. No. 2.2.3.10 M
MCR
ICP 1 of 1

.ASK DOES NOT WORK AS DOCUMENTED WITH <ESC> RESPONSE (SPR 11-00200X LP)

PROBLEM
STATEMENT:

Entering <ESC> in response to an .ASK directive only sets the special logical symbol <ESCAPE> to true. According to the RSX-11M-PLUS V3.0 MCR Operations Manual, pages 4-24 and 4-33, the logical symbol specified in the .ASK directive should also be set to true.

RESPONSE:

The .ASK directive will be corrected in the next release so that it sets both the specified logical symbol and the special logical symbol <ESCAPE> to true when an <ESC> is entered.

RSX-11M-PLUS V3.0 Seq. No. 2.2.3.11 M
MCR
INDIRECT 1 of 2

ERASING LOCAL SYMBOLS WITH DOLLAR-SIGN NAMES (SPR 11-P00213X RDH)

PROBLEM
STATEMENT:

The Indirect Command Processor allows definitions of global and local symbols with the same name to exist on the same level. Also, it allows the individual deletion of local symbols when they assume the global naming convention. This is contradictory to the documentation.

The following command files demonstrate the problem:

A.CMD

```
.SETS $A "Howdie"               ! local symbol $A
.SETS $B "Doodie"               ! local symbol $B
@A2
.IFNDF $A .STOP                 ! ensure we are back on the correct level
.IF $B NE 2 .STOP               ! this $B is global from A2.CMD
.ERASE SYMBOL $B                ! erases $B from global table
.IF $B NE "Doodle" .STOP        ! this $B is local from A.CMD
.ERASE SYMBOL $B                ! erases $B from local table
.EXIT
```

A2.CMD

```
.ENABLE GLOBAL                  ! enable global symbol processing
.SETN $B 2                      ! global symbol $B
.EXIT
```

RESPONSE:

The Indirect Command Processor and the documentation are consistent in allowing global and local symbols with the same name to exist on the same level. Using local symbol names beginning with the dollar sign ($) is not recommended because of potential confusion with global symbols but is permitted by Indirect. If global and local symbols with the same name exist at a level, and reference is made to that symbol name, the global symbol takes precedence over the local one for assignments, comparisons, etc.

RSX-11M-PLUS V3.0 Seq. No. 2.2.3.11 M
MCR
INDIRECT 2 of 2

The implementation of Indirect does allow the .ERASE SYMBOL to affect local symbols if their name begins with the dollar sign, contrary to the documented restriction that only global symbols may be individually erased. Investigation of this problem shows that the restriction can be removed without adverse impact. Its removal would also eliminate the apparent advantages of naming local symbols with dollar signs.

RSX-11M-PLUS Version 3.0 Update C includes a change which removes this restriction. Specifically, the .ERASE SYMBOL directive will be able to erase individual global or local symbols. If two symbols with the same name, one global and one local, exist for the level on which the .ERASE SYMBOL is being executed, the global symbol will take precedence and be erased.

RSX-11M-PLUS V3.0 Seq. No. 2.2.3.12 M
MCR
INDIRECT 1 of 1

CORRUPTED BEGIN-END BLOCK POINTERS IN LOCAL SYMBOL TABLE (SPR 11-P00214X RDH)

PROBLEM
STATEMENT:

Both .SETS assignments to local string symbols and .ERASE LOCAL directives can cause memory protect violations or Illegal Nesting errors when executed from within Begin-End blocks or from files invoked with the /LO switch.

RESPONSE:

Begin-End blocking context, which is stored in the Local Symbol Table as special frames, includes pointers to the start of the next-higher symbol block. The pointers are not correctly maintained when a .SETS is executed on a string symbol that is outside the current Begin-End block but still within the current Local Symbol Table range, for example, a local symbol defined at a higher level of Begin-End block. If the .SETS changes the length of the string, a Memory Protect violation may occur when the task exits.

In a similar manner, execution of the .ERASE LOCAL directive from the beginning block level of a file which was invoked with the /LO switch will corrupt the Begin-End block pointers, resulting in an Illegal Nesting error.

These failures can be avoided by:

1. Do not modify higher-level local string symbols from within Begin-End blocks. If you need to implement this functionality, define the string symbol as global.

2. Do not execute the .ERASE LOCAL directive from the highest block level of a file which has been invoked with a /LO switch. Defining the symbols as global and erasing them with the .ERASE SYMBOL xxxx directive provides an alternative implementation.

RSX-11M-PLUS Version 3.0 Update C includes corrections for these problems.

RSX-11M-PLUS V3.0 Seq. No. 2.2.6.3 M
MCR
SAV 1 of 1

SAV DOES NOT SIZE MEMORY CORRECTLY ON UNIBUS SYSTEMS (SPR 11-P00199X KF)

PROBLEM
STATEMENT:

SAV does not size memory correctly on UNIBUS systems with 4 megabytes of memory.

RESPONSE:

UNIBUS systems experience this problem when they have between 1920kW and 2048kW (4 MB) of main memory. The UNIBUS Map maps addresses between 1920kW and 2044kW back to main memory, leaving the top 4kW for the I/O page. Please refer to Figure 6-26, page 162, of the PDP-11 Processor Handbook. When SAV sizes memory, it clears memory until it traps because of nonexistent memory. In this case, SAV does not discover nonexistent memory at the UNIBUS addresses because the UMRs point back to low memory. Therefore, low memory ends up being cleared. The system will crash when it tries to start backup. Notice, because of the UNIBUS, SAV is correct in sizing memory to 1920kW, even though there are up to 4 megabytes of main memory in the system.

This problem is corrected in RSX-11M-PLUS Version 3.0 Update B. Until then, size the system image file so it is even and not divisible by 4. This causes SAV to start on the correct boundary when sizing memory. In this way, SAV will not attempt to access the UNIBUS addresses, therefore, low memory will not be cleared.

RSX-11M-PLUS V3.0 Seq. No. 2.2.6.4 M
MCR
SAV 1 of 1

SAV CRASHES WHEN SYSTEM DISK IS A DUAL-ACCESS DEVICE (SPR 11-00216X KF)

PROBLEM
STATEMENT:

When SAVing a virgin system following system generation, the system crashes with an odd address trap. The system device is dual access between two RH controllers.

RESPONSE:

The system crash occurs when trying to access the second RH controller of your system disk. When SAV brings the system down, it sets the system device and its controllers off line. The system device is necessarily on line. One of its controllers must also be on line for the system to work. In the case of a dual-access device, the second controller does not have to be on line or physically in the system. SAV fails to check the controller to see if it is there before it accesses its control and status register (CSR) address in memory. Since the controller is not there in this case, accessing this location causes the system to crash. Since the system has been generated with XDT, when the XDT prompt appears on the console, typing G will make the system proceed as if nothing were wrong. The crash does not corrupt the system in any way.

This problem is corrected in RSX-11M-PLUS Version 3.0 Update C. Until then, when SAVing your system, type G to the XDT prompt and your system will start up. This problem will not occur if the second RH controller is installed properly. Check the switches on the controller to be sure they are set for the correct CSR address.

RSX-11M-PLUS V3.0 Seq. No. 4.1.1.1 M
BATCH/QUEUE MGR
BPR 1 of 1

BPR GIVES CRYPTIC ERROR MESSAGE WHEN FILE IS DELETED (SPR 11-00198X DR)

PROBLEM
STATEMENT:

An ambiguous and incomplete error message is produced by the batch processor under the following conditions:

BPR -- *FATAL*- I/O error

BPR -- *FATAL*- Job was aborted via CLI

BPR -- *DIAG*- I/O error

The messages are cryptic because the batch job exits fatally when BPR cannot find the original batch file.

RESPONSE:

The batch processor is doing two processes wrong. First, internally, it is not handling the error at the proper severity level. This is why the second error message is produced. Secondly, it tries to close a batch file that was never open; thus, the second I/O error. This happens because the internal flags were not being used correctly for this condition.

These problems will be corrected in RSX-11M-PLUS Version 3.0 Update C. The error message which will be produced is:

BPR -- *FATAL*- I/O error -- file not found

RSX-11M-PLUS V3.0 Seq. No. 4.1.5.1 M
BATCH/QUEUE MGR
LPP 1 of 1

LPP LOOPS ON NEGATIVE RECORD LENGTH (SPR 11-P00210X RDH)

PROBLEM
STATEMENT:

LPP loops when printing a file containing a record with a negative record length.

RESPONSE:

PRT issues a GET$S directive to read each record from the file being printed. Two types of invalid record length may result from this operation:

1. Actual record length exceeds limit established for the device and specified in F.URBD.

   In this case, File Control Services (FCS) transfers as many bytes as will fit in the user buffer and returns the error code IE.RBG. FCS updates F.RCNM to point at the next record.

2. Actual record length is negative.

   FCS returns the error code IE.RBG. No bytes are transferred to the user buffer. Also, FCS does not update F.RCNM to the next record, since it cannot determine its starting point because of the negative record length.

   On receiving the IE.RBG error code, PRT assumes that it resulted from the former case and proceeds to print the truncated record. If the error had resulted from the latter situation, PRT prints the contents of the user buffer (the preceding line) and requests the next record, thereby, looping until the entry is deleted from the queue.

RSX-11M-PLUS Version 3.0 Update C includes a correction for this problem. Specifically, PRT will test for negative record length and abort with an error message if one occurs.

RSX-11M-PLUS V3.0 Seq. No. 4.2.2.1 N
MULTI-USER TASK
BRO 1 of 1

BRO ON SYSTEMS WITHOUT ACCOUNTING: GARBAGE IN USER NAME (SPR 11-00175X JF)

PROBLEM
STATEMENT:

Broadcast on a system without resource accounting puts garbage in the user name.

RESPONSE:

Broadcast relies on assembly-time conditionals to determine the presence of resource accounting in the system. This is incorrect because broadcast is not assembled during SYSGEN. It must be changed to check for the presence of resource accounting at run time.

This problem is corrected in RSX-11M-PLUS Version 3.0 Update B.

RSX-11M-PLUS V3.0 Seq. No. 5.1.12.1 M
UTILITIES
PIP 1 of 1

DELETING FILE, ;0 DOES NOT ALWAYS WORK PROPERLY (SPR 11-00195X JG)

PROBLEM
STATEMENT:

Deleting files and using wildcards for the member number in the UFD and a zero for the version number, causes the latest version number of the file from the first UFD to remain sticky for all files in all other UFDs.

RESPONSE:

This problem has been corrected so that the latest version of the file is found in each UFD, and not just the first UFD. The correction for this problem is in RSX-11M-PLUS Version 3.0 Update B.

BRU--MISLEADING ERROR MESSAGE/ACTION FOR UNMOUNTED TAPES (SPR 11-00190X SIR)

PROBLEM
STATEMENT:

When attempting a BACKUP/RESTORE operation to/from a tape that has not been mounted, BRU issues a warning message, physically dismounts the tape from the drive, and requests another tape. Any attempts to remount the tape are futile because BRU will persistently dismount it. The only solution is to abort BRU, mount the tape foreign, and run BRU again.

There are two problems with this. First, BRU can be aborted only by a privileged terminal. Secondly, if the terminal from which BRU was initiated is in a remote location, the user is forced to walk to the tape drive to remount the tape on the drive.

RESPONSE:

The message BRU displays when the tape is not mounted depends upon the operation being performed. Attempts to back up to an unmounted tape result in the messages:

```
BRU -- *WARNING* -- Tape label error
I/O error code -16

BRU -- Mount another tape
```

Attempts to restore from an unmounted tape result in the messages:

```
BRU -- *WARNING* -- Tape label error
I/O error code -16

BRU -- *WARNING* -- Volume not a backup tape

BRU -- Mount another tape
```

We recognize these messages can be misleading, and the action taken by BRU under these circumstances is inappropriate. The reason for this is that BRU does not check the mount status of the devices involved in BACKUP or RESTORE operations before it begins the operation. Some types of read errors and any errors which occur while writing the tape are treated as recoverable.

Obviously, this behavior is not appropriate when the errors are caused by the fact that the tape is not mounted.

The best solution we can offer at this time is to avoid this user error; tapes involved in any BACKUP or RESTORE operation must always be mounted foreign. After the error has been made, the only way to correct it is to abort BRU, remount the tape, mount the tape foreign, and run BRU again.

Enhancements to BRU are being considered for a future release of RSX-11M-PLUS, which would enable it to issue a more appropriate error message and take a more reasonable action when a device is not mounted properly.

RSX-11M-PLUS V3.0 Seq. No. 5.3.0.1 M
TASK BUILDER
TASK BUILDER 1 of 1

TKB SWITCH /CL DOES NOT WORK (SPR 11-P00112P DR)

PROBLEM
STATEMENT:

When a task built with the TKB switch /CL is installed, it does not end up marked as such. The following command displays the task status where "xxxxxx" is the name of a task. This task should have the CLI status displayed but does not.

```
MCR TAL xxxxxx
```

RESPONSE:

When the TKB switch /CL was implemented, the original task flag word did not have any bits available. A second task flag word was added to the task label block. Although the task build command line is properly parsed and the internal representations updated, the process of setting the new task flag word contained an error.

The INS switch /CLI=YES can be used as a workaround to force the desired status.

The task flag word is correctly set in RSX-11M-PLUS Version 3.0 Update B.

RSX-11M-PLUS V3.0 Seq. No. 5.3.0.2 M
TASK BUILDER
TASK BUILDER 1 of 1

MULTIPLE REFERENCES TO .PSECT IN SEGMENT CAUSE TKB TO ABORT
(SPR 11-P00202X DR)

PROBLEM
STATEMENT:

Multiple references in a single segment to a .PSECT specified in an ODL file cause TKB to behave unpredictably, including aborting because of an odd address trap. A multiple reference may inadvertently be created when tailoring an ODL file by combining segments. The following is an artificially simple example:

```
.PSECT  X
.PSECT  Y
.ROOT   X- X- Y- Y
.END
```

RESPONSE:

TKB, upon detecting the multiple occurrence, improperly skips over inserting the .PSECT into the segment's section list, resulting in an extra word being popped off the stack.

Since specifying a .PSECT more than once serves no function, the obvious workaround is to remove all multiple references from the ODL files.

Multiple occurrences will be allowed by being properly handled (that is, ignored) in RSX-11M-PLUS Version 3.0 Update B.

RSX-11M-PLUS V3.0 Seq. No. 5.5.1.1 M
DEBUGGING AIDS
ODT 1 of 1

TASK WITH LARGE NUMBER OF LUNs HANGS IN ODT (SPR 11-P00201X LP)

PROBLEM
STATEMENT:

The user's I/D task works when built non-I/D, but crashes when built I/D. The task, which uses a large number of LUNs (110), hangs immediately when built with ODT.

RESPONSE:

When a task is built with ODT, two additional LUNs are included for ODT. ODT was incorrectly using the first of these LUNs as an event flag number to issue QIOs to the terminal. This error caused the task to hang in ODT because the ODT LUN number (111) was higher than the any of the legal event flag numbers (0-96). This error will be corrected in RSX-11M-PLUS Version 3.0 Update B.

As a workaround, when using ODT, specify fewer LUNs with the TKB UNITS option. Also, avoid using event flag numbers in the task, which coincide with the ODT LUNs.

RSX-11M-PLUS V3.0 Seq. No. 5.7.1.1 N
MISC SYS TASKS
HELP 1 of 1

HELP /OUT:TTNN: <PARAMETER> DOES NOT WORK (SPR 11-P00174X JF)

PROBLEM
STATEMENT:

The command HELP/OUT:TTnn: <parameter> does not work as expected. The parameter is ignored.

RESPONSE:

There is a problem with the way HELP parses file specifications for the /OUT and /FIL switches. If just a device is specified without a file name and it is followed by another parameter, HELP treats the next parameter as the file name.

As a workaround, provide a file name after the device name, or add another switch after the device name. For example, HELP/OUT:TTnn:/MCR <parameter>.

This problem is corrected in RSX-11M-PLUS Version 3.0 Update B.

RSX-11M-PLUS V3.0 Seq. No. 5.7.3.1 M
MISC SYS TASKS
PMD/SNAP 1 of 1

PMD SNAPSHOT FOR I/D SNAPSHOT DUMPS I-SPACE AND NOT D-SPACE (SPR 11-00203X NH)

PROBLEM
STATEMENT:

PMD snapshot for I/D stack dumps the I-space and not the D-space.

RESPONSE:

We have determined that there is a problem concerning PMD snapshot and the space that it dumps. The problem resides in PMD.MAC. It fails to check IDFLAG for the proper area to dump before calling DUMP3, which dumps the stack. However, this is done before the module DUMP4 is called by PMD. Therefore, the correct partition is identified.

This problem will be corrected in a future update or release.

RSX-11M-PLUS V3.0 Seq. No. 6.1.0.2 M
DCL
DCL 1 of 1

DCL LINK/OPTION DOES NOT FUNCTION AS DOCUMENTED (SPR 11-P00193X JJA)

PROBLEM
STATEMENT:

The DCL LINK/OPTION command does not work as documented. The RSX-11M-PLUS V2.1 Command Language Manual, page 6-74, specifies that there are three ways of supplying options to the /OPTION qualifier:

1. Supply a file specification of a file which contains the list of options, i.e., LINK/OPTION:filespec.

2. Respond to the options prompt.

```
Example:        LINK/OPTION
                Option?  opt1
                Option?  opt2
                Option?  opt3
                Option?  <CR/LF>
```

3. List the options on the command line separated by commas, i.e., LINK/OPTION:opt1,opt2,opt3.

However, the third format, where the options are listed on the same command line, separated by commas, does not work.

RESPONSE:

This problem results from an error in the parsing code for the DCL LINK command. It has been corrected. The correction will appear in RSX-11M-PLUS Version 3.0 Update B.

For now, use one of the formats which work, or refer to the Task Builder Manual, and invoke TKB directly.

RSX-11M-PLUS V3.0 Seq. No. 6.1.0.3 M
DCL
DCL 1 of 1

DCL "LIBRARY @FILESPEC" DOES NOT WORK (SPR 11-P00196X JJA)

PROBLEM
STATEMENT:

The DCL command "LIBRARY @filespec" does not work.

RESPONSE:

It is currently documented that a user may perform operations with the DCL LIBRARY command in one of two ways. A user may specify the operation with associated qualifiers directly on the command line or supply the LIBRARY command with a file that contains the intended operations, i.e., DCL LIBRARY @filespec. Currently, however, the latter format does not work.

This is corrected in RSX-11M-PLUS Version 3.0 Update B.

To circumvent the problem, the user may invoke the MCR LBR command. LBR will then accept a file containing the intended operations, i.e., MCR LBR @filespec.

PDP-11 SYMBOLIC DEBUGGER V2.0
for RSX-11M-PLUS V3.0

Seq. 17.1.1.1 N

ANNOUNCING THE PDP-11 SYMBOLIC DEBUGGER VERSION 2.0

PRODUCT DESCRIPTION

Introduction

The PDP-11 Symbolic Debugger Version 2.0 is designed to help users find logic and programming errors in successfully compiled and linked programs that do not run correctly. Version 2.0, an extension of PDP-11 FORTRAN-77 DEBUG Version 1.0, includes support for FORTRAN-77, COBOL-81, and MACRO-11. Capabilities have also been added to PDP-11 FORTRAN-77 DEBUG Version 1.0 to make it more powerful. Support is provided for debugging tasks built with I- and D-space, on systems where both the hardware and operating system support this feature, for example, RSTS/E V9.0 or higher, RSX-11M-PLUS V2.1 or higher, Micro/RSTS V2.0, and Micro/RSX V3.0.

The debugger is designed as two tasks, a kernel and a background task. The kernel is linked in with user programs. The kernel is either overlaid to occupy less than 4 kilobytes (KB) of user program space, or nonoverlaid to occupy about 5 KB. The default is an overlaid debugger kernel which can be used with all user programs (overlaid, cotrees, resident libraries, etc.), except those user programs that do manual overlay loading. The kernel communicates with the larger background task, which provides the debugger's main functionality.

Operating Systems/Installation

The debugger runs on the following versions of DIGITAL's operating systems:

- VAX-11 RSX Version 2.0 or higher
- RSX-11M Version 4.1 or higher
- RSX-11M-PLUS Version 2.1 or higher
- Professional Host Tool Kit Version 2.0 or higher and PRO/Tool Kit Version 2.0 or higher
- RSTS/E Version 9.2 or higher

- Micro/RSX Version 3.0 or higher
- Micro/RSTS Version 2.0 or higher

On each supported operating system, the debugger is installed using an automatic installation procedure. Installation will vary from system to system. The PDP-11 Symbolic Debugger Version 2.0 on VAX/VMS, Micro/RSX, Professional Host Tool Kit/VMS, RSTS/E, and Micro/RSTS use operating system-supplied installation procedures. The PDP-11 Symbolic Debugger Version 2.0 on RSX-11M/M-PLUS, P/OS, and Professional Host Tool Kit/RSX use an installation procedure supplied with the kit.

Documentation

The debugger documentation set has been completely revised. Below is a list of the new manuals.

- PDP-11 Symbolic Debugger User's Guide
- PDP-11 Symbolic Debugger Installation Guide
- PDP-11 Symbolic Debugger Quick Reference
- PDP-11 Symbolic Debugger Information for FORTRAN-77 Users
- PDP-11 Symbolic Debugger Information for COBOL-81 Users
- PDP-11 Symbolic Debugger Information for MACRO-11 Users

Availability

The PDP-11 Symbolic Debugger Version 2.0 was expected to be available from the Software Distribution Center (SDC) in March.

RELEASE NOTES

The Release Notes for the PDP-11 Symbolic Debugger Version 2.0 are distributed on line as part of the kit. These Release Notes describe known problems and restrictions in the PDP-11 Symbolic Debugger Version 2.0. Workarounds for the problems have been provided, whenever possible, to lessen their impact.

PDP-11 SYMBOLIC DEBUGGER V2.0
for RSX-11M-PLUS V3.0

Seq. 17.1.1.1 N

Accessing the On-Line Release Notes

The Installation Guide contains procedures for obtaining copies of the on-line Release Notes. The following paragraphs contain the correct commands and procedures to obtain the on-line Release Notes.

In the Installation Guide, page 5-3, "Installation on the Professional," the PIP and FLX commands given to copy the Release Notes are incorrect. The correct commands are:

FOR DISK USERS

```
> BRU/NOI/UFD/NEW/MOU indev:[1,5]DBGREL.DOC outdev:
```

FOR TAPE USERS

```
> BRU/BAC:DBGREL/REW/NOI/UFD/NEW indev:  outdev:
```

Replace indev with the device on which your distribution medium is allocated and mounted, replace outdev with the destination device. The Release Notes are copied to [1,5] and named DBGREL.DOC.

RSX-11M-PLUS V3.0
CUMULATIVE INDEX
APRIL 1986

This is a complete listing of all articles for RSX-11M-PLUS V3.0 and layered products. Missing sequence numbers may pertain to problems unique to other versions of the same product or other major operating systems.

IMPORTANT!

Unassigned articles are indicated: UNASSIGNED.

Flags are currently being installed for all articles. The flags and definitions are as follows.

M = Mandatory Patch. These patches correct errors in the software product. All users are required to apply these patches to maintain consistent "user level" unless the accompanying article specifies otherwise.

F = Optional Feature Patch. These patches extend or configure functionality into the product. These functions will be treated as a supported part of the product for the duration of the current release and will be incorporated with any future release, unless otherwise stated.

R = Restriction. These articles discuss areas that will not be patched in the current release because they require major modification or because they are not consistent with the design of the product. Restrictions, except those described as permanent, are reviewed and modified when possible as part of the normal release cycle.

N = Note. These articles provide explanatory information that supplements the manual set and provide more detailed information about a program or package. They also provide procedural information to make it easier to use a program or package.

* = Articles appeared in the RSX-11M-PLUS V3.0 Software Dispatch Review, August 1985.

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ACF MAY NOT CORRECTLY SET UP DV.NUC IN CONFIG.DAT FOR RSO3/4s	1.1.1.1 M	Apr 86
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Component	Sequence	Mon/Yr
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EXECUTIVE		
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Micro/RSX V1.0

Micro/RSX V1.0
CUMULATIVE INDEX
APRIL 1986

This is a complete listing of all articles for Micro/RSX V1.0 and layered products. Missing sequence numbers may pertain to problems unique to other versions of the same product or other major operating systems.

IMPORTANT!

Unassigned articles are indicated: UNASSIGNED.

Flags are currently being installed for all articles. The flags and definitions are as follows.

M = Mandatory patch. These patches correct errors in the software product. All users are required to apply these patches to maintain consistent "user level" unless the accompanying article specifies otherwise.

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R = Restriction. These articles discuss areas that will not be patched in the current release because they require major modification or because they are not consistent with the design of the product. Restrictions, except those described as permanent, are reviewed and modified when possible as part of the normal release cycle.

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Micro/RSX V3.0

Micro/RSX V3.0 Seq. No. 2.2.1.1 M
MCR
INTERNAL CMDS 1 of 1

ASN COMMANDS WITH NULL LOGICALS CAUSE SYSTEM CRASH (SPR 11-X00217X JK)

PROBLEM
STATEMENT:

The MCR ASN command causes a system crash if the logical name being assigned consists of a blank node name or blank device name.

RESPONSE:

Since the ASN command strips off one or two colons from a logical name before an assignment, the following commands will result in a null logical name and cause an odd address system crash within the third directive common:

```
ASN eqv=:
ASN eqv=::
```

This problem will be corrected in the next release of Micro/RSX.

Micro/RSX V3.0 Seq. No. 2.2.2.1 M
MCR
INS 1 of 1

NEW "TASK IMAGE I/O ERROR" MESSAGE FOR DEVICES (SPR 11-X00207X RC)

PROBLEM
STATEMENT:

INS aborts with the message "SYNTAX ERROR" for certain I/O errors returned by the driver.

RESPONSE:

For those I/O errors other than device off line, no pool, device not in system, device not mounted, parse error, and file privilege violation, which are currently reported explicitly, we have changed the message to read:

"Task image I/O error"

This problem Will be corrected in the next release of Micro/RSX.

Micro/RSX V3.0 Seq. No. 2.2.3.8 M
MCR
INDIRECT 1 of 2

ERASING LOCAL SYMBOLS WITH DOLLAR-SIGN NAMES (SPR 11-X00213X RDH)

PROBLEM
STATEMENT:

The Indirect Command Processor allows definitions of global and local symbols with the same name to exist on the same level. Also, it allows the individual deletion of local symbols when they assume the global naming convention. This is contradictory to the documentation.

The following command files demonstrate the problem:

A.CMD

```
.SETS $A "Howdie"              ! local symbol $A
.SETS $B "Doodie"              ! local symbol $B
@A2
.IFNDF $A .STOP                ! ensure we are back on the correct level
.IF $B NE 2 .STOP              ! this $B is global from A2.CMD
.ERASE SYMBOL $B               ! erases $B from global table
.IF $B NE "Doodle" .STOP       ! this $B is local from A.CMD
.ERASE SYMBOL $B               ! erases $B from local table
.EXIT
```

A2.CMD

```
.ENABLE GLOBAL                 ! enable global symbol processing
.SETN $B 2                     ! global symbol $B
.EXIT
```

RESPONSE:

The Indirect Command Processor and the documentation are consistent in allowing global and local symbols with the same name to exist on the same level. Using local symbol names beginning with the dollar sign ($) is not recommended because of potential confusion with global symbols but is permitted by Indirect. If global and local symbols with the same name exist at a level, and reference is made to that symbol name, the global symbol takes precedence over the local one for assignments, comparisons, etc.

Micro/RSX V3.0 Seq. No. 2.2.3.8 M
MCR
INDIRECT 2 of 2

The implementation of Indirect does allow the .ERASE SYMBOL to affect local symbols if their name begins with the dollar sign, contrary to the documented restriction that only global symbols may be individually erased. Investigation of this problem shows that the restriction can be removed without adverse impact. Its removal would also eliminate the apparent advantages of naming local symbols with dollar signs.

The next release of Micro/RSX includes a change which removes this restriction. Specifically, the .ERASE SYMBOL directive will be able to erase individual global or local symbols. If two symbols with the same name, one global and one local, exist for the level on which the .ERASE SYMBOL is being executed, the global symbol will take precedence and be erased.

Micro/RSX V3.0 Seq. No. 2.2.3.9 M
MCR
INDIRECT 1 of 1

CORRUPTED BEGIN-END BLOCK POINTERS IN LOCAL SYMBOL TABLE (SPR 11-X00214X RDH)

PROBLEM
STATEMENT:

Both .SETS assignments to local string symbols and .ERASE LOCAL directives can cause memory protect violations or Illegal Nesting errors when executed from within Begin-End blocks or from files invoked with the /LO switch.

RESPONSE:

Begin-End blocking context, which is stored in the Local Symbol Table as special frames, includes pointers to the start of the next-higher symbol block. The pointers are not correctly maintained when a .SETS is executed on a string symbol that is outside the current Begin-End block but still within the current Local Symbol Table range, for example, a local symbol defined at a higher level of Begin-End block. If the .SETS changes the length of the string, a Memory Protect violation may occur when the task exits.

In a similar manner, execution of the .ERASE LOCAL directive from the beginning block level of a file which was invoked with the /LO switch will corrupt the Begin-End block pointers, resulting in an Illegal Nesting error.

These failures can be avoided by:

1. Do not modify higher-level local string symbols from within Begin-End blocks. If you need to implement this functionality, define the string symbol as global.

2. Do not execute the .ERASE LOCAL directive from the highest block level of a file which has been invoked with a /LO switch. Defining the symbols as global and erasing them with the .ERASE SYMBOL xxxx directive provides an alternative implementation.

The next release of Micro/RSX will include corrections for these problems.

Micro/RSX V3.0 Seq. No. 4.1.1.1 M
BATCH/QUEUE MGR
BPR 1 of 1

BPR GIVES CRYPTIC ERROR MESSAGE WHEN FILE IS DELETED (SPR 11-X00198X DR)

PROBLEM
STATEMENT:

An ambiguous and incomplete error message is produced by the batch processor under the following conditions:

BPR -- *FATAL*- I/O error

BPR -- *FATAL*- Job was aborted via CLI

BPR -- *DIAG*- I/O error

The messages are cryptic because the batch job exits fatally when BPR cannot find the original batch file.

RESPONSE:

The batch processor is doing two processes wrong. First, internally, it is not handling the error at the proper severity level. This is why the second error message is produced. Secondly, it tries to close a batch file that was never open; thus, the second I/O error. This happens because the internal flags were not being used correctly for this condition.

These problems will be corrected in the next release of Micro/RSX. The error message which will be produced is:

BPR -- *FATAL*- I/O error -- file not found

Micro/RSX V3.0 Seq. No. 4.1.5.1 M
BATCH/QUEUE MGR
LPP 1 of 1

LPP LOOPS ON NEGATIVE RECORD LENGTH (SPR 11-X00210X RDH)

PROBLEM
STATEMENT:

LPP loops when printing a file containing a record with a negative record length.

RESPONSE:

PRT issues a GET$S directive to read each record from the file being printed. Two types of invalid record length may result from this operation:

1. Actual record length exceeds limit established for the device and specified in F.URBD

   In this case, File Control Services (FCS) transfers as many bytes as will fit in the user buffer and returns the error code IE.RBG. FCS updates F.RCNM to point at the next record.

2. Actual record length is negative.

   FCS returns the error code IE.RBG. No bytes are transferred to the user buffer. Also, FCS does not update F.RCNM to the next record, since it cannot determine its starting point due to the negative record length.

   On receiving the IE.RBG error code, PRT assumes that it resulted from the former case and proceeds to print the truncated record. If the error had resulted from the latter situation, PRT prints the contents of the user buffer (the preceding line) and requests the next record, thereby, looping until the entry is deleted from the queue.

The next release of Micro/RSX will include a correction for this problem. Specifically, PRT will test for negative record length and abort with an error message if one occurs.

Micro/RSX V3.0 Seq. No. 5.3.0.1 M
TASK BUILDER
TASK BUILDER 1 of 1

MULTIPLE REFERENCES TO .PSECT IN SEGMENT CAUSE TKB TO ABORT
(SPR 11-X00202X DR)

PROBLEM
STATEMENT:

Multiple references in a single segment to a .PSECT specified in an ODL file cause TKB to behave unpredictably, including aborting because of an odd address trap. A multiple reference may inadvertently be created when tailoring an ODL file by combining segments. The following is an artificially simple example:

```
.PSECT  X
.PSECT  Y
.ROOT   X- X- Y- Y
.END
```

RESPONSE:

TKB, upon detecting the multiple occurrence, improperly skips over inserting the .PSECT into the segment's section list, resulting in an extra word being popped off the stack.

Since specifying a .PSECT more than once serves no function, the obvious workaround is to remove all multiple references from the ODL files.

Multiple occurrences will be allowed by being properly handled (that is, ignored) in the next release of Micro/RSX.

Micro/RSX V3.0 Seq. No. 5.3.0.2 M
TASK BUILDER
TASK BUILDER 1 of 1

TKB SWITCH /CL DOES NOT WORK (SPR 11-X00112P DR)

PROBLEM
STATEMENT:

When a task built with the TKB switch /CL is installed, it does not end up marked as such. The following command displays the task status where "xxxxxx" is the name of a task. This task should have the CLI status displayed but does not.

```
MCR TAL xxxxxx
```

RESPONSE:

When the TKB switch /CL was implemented, the original task flag word did not have any bits available. A second task flag word was added to the task label block. Although the task build command line is properly parsed and the internal representations updated, the process of setting the new task flag word contained an error.

The INS switch /CLI=YES can be used as a workaround to force the desired status.

The task flag word will be correctly set in the next release of Micro/RSX.

Micro/RSX V3.0 Seq. No. 6.1.0.2 M
DCL
DCL 1 of 1

DCL LINK/OPTION DOES NOT FUNCTION AS DOCUMENTED (SPR 11-X00193X JJA)

PROBLEM
STATEMENT:

The DCL LINK/OPTION command does not work as documented. For Micro/RSX, it is specified that there are three ways of supplying options to the /OPTION qualifier:

1. Supply a file specification of a file which contains the list of options, i.e., LINK/OPTION:filespec.

2. Respond to the options prompt.

```
Example:        LINK/OPTION
                Option?  opt1
                Option?  opt2
                Option?  opt3
                Option?  <CR/LF>
```

3. List the options on the command line separated by commas, i.e., LINK/OPTION:opt1,opt2,opt3.

However, the third format, where the options are listed on the same command line, separated by commas, does not work.

RESPONSE:

This problem results from an error in the parsing code for the DCL LINK command. It has been corrected. The correction will appear in the next release of Micro/RSX.

For now, use one of the formats which work, or refer to the Task Builder Manual, and invoke TKB directly.

Micro/RSX V3.0 Seq. No. 6.1.0.3 M
DCL
DCL 1 of 1

DCL "LIBRARY @FILESPEC" DOES NOT WORK (SPR 11-X00196X JJA)

PROBLEM
STATEMENT:

The DCL command "LIBRARY @filespec" does not work.

RESPONSE:

It is currently documented that a user may perform operations with the DCL LIBRARY command in one of two ways. A user may either specify the operation with associated qualifiers directly on the command line or supply the LIBRARY command with a file that contains the intended operations, i.e., DCL LIBRARY @filespec. Currently, however, the latter format does not work.

The problem will remain a restriction of Micro/RSX until it is fixed in our next release.

Micro/RSX V3.0
CUMULATIVE INDEX
APRIL 1986

This is a complete listing of all articles for Micro/RSX V3.0 and layered products. Missing sequence numbers may pertain to problems unique to other versions of the same product or other major operating systems.

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EXECUTIVE		
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FAST MAP FACILITY HAS ADDITIONAL RESTRICTION AND ERROR CODE	2.1.1.1 M	Mar 86
ERROR IN EXECUTION OF @/LB:MODULE FROM DCL	2.1.1.2 M	Mar 86
MCR		
INTERNAL CMDS		
ASN COMMANDS WITH NULL LOGICALS CAUSE SYSTEM CRASH	2.2.1.1 M	Apr 86

Component	Sequence	Mon/Yr
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Component	Sequence	Mon/Yr
TASK BUILDER		
TASK BUILDER		
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Software Product Descriptions (SPDs)

Below is a list of the revised SPDs which appear on the following pages:

10.42.03	RSX-11 PSI/M, Version 2.1
10.43.03	RSX-11 PSI/M-PLUS, Version 2.1
14.18.06	PDP-11 PASCAL/RSX, Version 1.2
18.04.01	Micro/RSX FORTRAN-77, Version 5.0
18.07.02	Micro/RSX PDP-11 PASCAL, Version 1.2
30.43.02	DECserver 100 Terminal Server, Version 1.1

Software Product Description

PRODUCT NAME: **RSX-11 PSI/M, Version 2.1**
Packetnet System Interface

SPD 10.42.03

DESCRIPTION

RSX-11 PSI/M allows a suitably configured RSX-11M system to connect to Packet Switching Data Networks (PSDNs) conforming to the CCITT recommendation X.25 (June 1980). Using RSX-11 PSI/M, the system may function as packet-mode Data Terminal Equipment (DTE) on the PSDN. The software product supports access to the facilities offered by X.25 communication for RSX-11M user programs written in MACRO-11, FORTRAN IV, and FORTRAN IV-PLUS. RSX-11 PSI/M supports task-to-task and remote terminal communications via the X.25 network.

RSX-11 PSI/M can coexist with, or operate as a layered product under DECnet-11M to allow use of DECnet facilities over X.25 PSDNs, as well as point-to-point connections such as private leased lines or switched telephone networks. For details please refer to the DECnet-11M SPD (SPD 10.66.xx).

Task-to-Task Communication

For intertask communication, application programs use RSX-11M executive calls to use the X.25 functions, including setting up and breaking connections, transmitting and receiving data, sending and receiving interrupt messages and resetting virtual circuits. This interface, in addition to CCITT X.25 level 3 functions, provides translation of symbolic DTE addresses, transfer of calls between tasks, and splitting and recombination of messages which are longer than the packet size selected for the circuit. National extensions not part of the international recommendations are not provided. RSX-11 PSI/M does not include, for example, file transfer, file access, or task addressing.

When using this interface an application program can communicate with complementary software on any other system (packet-mode DTE) connected to the network (DIGITAL or non-DIGITAL). This interface conforms to the DIGITAL Network Architecture specification for X.25 access.

Remote Terminal Communications

RSX-11 PSI/M supports access by remote terminals (character-mode DTEs) according to CCITT recommendations X.3, X.28 and X.29. Terminals are supported in 'Remote X.29 Terminal' mode in which code conversions between ASCII and the actual code used by the terminal are performed by the network. Note that terminals are connected via a Packet Assembly Disassembly (PAD) facility provided by the network; no facility is offered in the software product whereby a terminal locally connected to an RSX-11M system can act as a network terminal to other systems connected to the network.

Operation of remote X.29 terminals appears similar to that of terminals locally connected to the RSX-11M system; application programs need not be aware that access to the terminal is via the RSX-11 PSI/M software. However, applications that bypass operating system control mechanisms such as LOGON/LOGOFF may not function as expected. There may also be restrictions imposed by the network itself.

The interface presented to an application program using a remote X.29 terminal is compatible with that to a local terminal, except for those facilities where adequate support is not provided by the network; for example, the support provided by the PAD for data forwarding upon input of an escape sequence is not compatible with that required by DIGITAL standard software. This means that FMS and some of the screen editors may not function as expected unless the PAD is set up in a cost-ineffective way. Additional facilities are provided which allow a program to manipulate the terminal parameters maintained by the PAD.

Virtual Circuits

RSX-11 PSI/M offers communications over both Permanent and Switched Virtual Circuits (PVCs and SVCs), the maximum total number of virtual circuits supported being 255, subject to memory availability. The maximum number of remote terminals supported is 140. Note, however, that each remote terminal uses a virtual circuit. Up to two physical connections can be made to the PSDN.

Line Discipline

The communications discipline used is the CCITT recommendation X.25. Specifically, the product supports V.24 (EIA - RS232) and CCITT V.35 at the hardware level, the symmetric LAPB variant of the X.25 frame level protocol, and the X.25 packet level protocol over point-to-point, 4-wire, synchronous, full-duplex lines. An RSX-11M system configured with PSI appears as a packet-mode DTE. Operation as Data Circuit Terminating Equipment (DCE) is not supported.

Network Management

A Network Control Program and Configuration File Editor are provided for the control of the operation of the X.25 soft-

digital software

October 1985
AE-N141D-TC

ware. This includes loading and unloading the software, defining the lines, specification of addressing information for incoming calls and access to error counters and other maintenance functions. This interface provides a subset of the DIGITAL Network Architecture specification for Network Management.

Communications

RSX-11 PSI/M supports two types of communications interface as presented in the table below. They differ in many respects, particularly in their effect on CPU utilization. The table shows rated bandwidth for each device type used at maximum configuration for that device. Bandwidth is defined as the total number of bits per second full duplex (input and output), including protocol overhead, being handled by the RSX-11 PSI/M software. Maximum Line Speed is defined as the maximum number of bits per second per hardware device that is supported by the software. Therefore, the following algorithm may be used in determining valid configurations:

<device line speed>*2*<# device lines>=<bandwidth>

- Character Interrupt Devices — With the DUP11, CPU cycles are required for X.25 packet and frame level protocol processing, and also for each character sent and received
- The KMS11-B and KMS11-P are medium-speed Direct Memory Access (DMA) communications controllers. The KMS11-BD/E is an 8-line multiplexer of which 2 lines are supported. The KMS11-PX/Y is a single-line device. Character transmission and reception and the X.25 frame level protocol (LAPB) processing is executed in microcode by the KMS11 communications controller. The PDP-11 CPU processes only the X.25 packet level protocol.

Table 1

Device	Type	Maximum Line speed Supported (Kbits/sec)	Maximum Number of Supported Lines	Maximum Bandwidth Supported (Kbits/sec)
DUP11	Character	9.6	2	38.4
DPV11	Character	4.8	2	19.2
KMS11-BD/E	DMA	19.2	2	76.8
KMS11-PX	DMA	19.2	2	76.8
KMS11-PY	DMA	64.0	2	128.0

Note: This table describes the physical hardware configurations supported by RSX-11 PSI/M. It should be noted that the attachment of such devices as A/D converters and timesharing terminals can reduce the maximum number of lines or bandwidth that can be supported.

PREREQUISITE SUPPORT PLAN

A Network Profile and Customer Support Plan covering all the intended network nodes, their usage of PVCs and SVCs and other network facilities and their support must be prepared jointly by the customer and DIGITAL.

MINIMUM HARDWARE REQUIRED

Any valid RSX-11M system configuration with:

Memory Requirements

- A minimum of 20K words additional memory for resident RSX-11 PSI/M software and data storage. This includes sufficient memory for basic X.25 operation for 8 virtual circuits. Additional memory is required for optional features and additional circuits; for example, each additional virtual circuit will require approximately 250 words.
- A minimum of 9K words additional memory for the RSX-11 PSI/M X.29 software if Remote Terminals are supported
- A minimum of 26K words of additional memory to dynamically load the RSX-11 PSI/M software

RSX Pool Requirements

- A minimum of 60 words plus 10 words for each network task - for basic X.25 operation
- An additional 22 words for each Remote Terminal

Operation with DECnet-11M

- Operation of X.25 virtual circuits under DECnet-11M incurs extra memory requirements. (Please consult the DECnet-11M SPD (SPD 10.66.xx) for further details.)

Disk Space

- A maximum of 25,000 blocks of disk space is required for Network Generation, of which approximately 5000 blocks must be on a disk that is available throughout the generation process and will subsequently be used for RSX-11 PSI/M operation.

Processors

- PDP-11/23-PLUS, PDP-11/24, PDP-11/44, or PDP-11/70 central processors with one of the following communications devices supporting one (1) line:
- DUP11-DA low-speed synchronous interface
- DPV11-DA low-speed sychronous interface
- KMS11-BD/E medium-speed synchronous interface
- KMS11-PX/Y medium-speed synchronous interface

Note: For PTT certification purposes, the combination of any KMS11-B controller hardware and X.25 level 2 microcode (which is supplied as part of RSX-11 PSI/M product) is known as the KMX11.

GROWTH CONSIDERATIONS

The minimum hardware requirements for any future version of this product may be different from the minimum hardware requirements for the current version.

OPTIONAL HARDWARE

A communications interface and/or additional line. The product supports up to two (2) DUP11s or one (1) KMS11 line together with one (1) DUP11.

PREREQUISITE SOFTWARE

RSX-11M Operating System

Refer to the RSX-11M Optional Software Cross Reference Table (SPD 20.99.xx) for the required version.

OPTIONAL SOFTWARE

DECnet-11M

FORTRAN IV/RSX

FORTRAN-77/RSX

SOFTWARE WARRANTY

For networks listed in Table 2 under WARRANTY LIMITATIONS when operated in the associated country as shown

Warranty for this software product is provided by DIGITAL with the purchase of a license for the product. There is no additional charge. This software product is warranted to conform to the Software Product Description (SPD). This means that DIGITAL will remedy any nonconformance when it is reported to DIGITAL by the customer during the warranty period.

The warranty period is ninety (90) days. It begins when the software is installed or thirty (30) days after delivery to the end user, whichever occurs first and expires ninety (90) days later. All warranty related support for this software will end 180 days after release of the subsequent version.

Warranty is provided in the country of purchase. DIGITAL will provide a service location which will accept reporting (in a format prescribed by DIGITAL) of a nonconformance problem caused when using the licensed software under normal conditions as defined by the SPD. DIGITAL will remedy a nonconformance problem in the current unaltered release of the licensed software by issuing correction information such as: correction documentation, corrected code, or notice of availability of corrected code; or a restriction or a bypass. The customer will be responsible for the preparation and submission of the problem report to the service location.

Warranty Exclusion

DIGITAL DOES NOT WARRANT THAT THE SOFTWARE LICENSED TO CUSTOMER SHALL BE ERROR FREE, THAT THE SOFTWARE SHALL OPERATE WITH ANY HARDWARE AND SOFTWARE OTHER THAN AS SPECIFIED IN THIS SPD, THAT THE SOFTWARE SHALL SATISFY CUSTOMER'S OWN SPECIFIC REQUIREMENTS, OR THAT COPIES OF THE SOFTWARE OTHER THAN THOSE PROVIDED OR AUTHORIZED BY DIGITAL SHALL CONFORM TO THE SPD.

DIGITAL MAKES NO WARRANTIES WITH RESPECT TO THE FITNESS AND OPERABILITY OF MODIFICATIONS NOT MADE BY DIGITAL.

IF THE SOFTWARE FAILS TO FUNCTION FOR REASONS STATED ABOVE, THE CUSTOMER'S WARRANTY WILL BE INVALIDATED AND ALL SERVICE CALLS WILL BE BILLABLE AT THE PREVAILING PER CALL RATES.

For networks and country combinations other than those listed in Table 2 under WARRANTY LIMITATIONS

THIS PRODUCT IS PROVIDED **"AS IS"** WITHOUT ANY WARRANTY OF ANY KIND EITHER EXPRESS OR IMPLIED.

WARRANTY LIMITATIONS

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While this software may function correctly with other packet-switching networks, DIGITAL cannot offer its standard warranty for this software unless it has been tested with such networks and found acceptable to DIGITAL.

Table 2

	Network-specific documentation included	DIGITAL installed and Supported
Datapac (Canada)	yes	yes
Datex-P (West Germany)	yes	yes
PSS (United Kingdom)	yes	yes
Telenet (United States)	yes	yes
Telepac (Switzerland)	yes	yes
Transpac (France)	yes	yes
Tymnet (United States)	yes	yes
Pacnet (Taiwan)	yes	yes

Since the introduction of this software, other configurations may have been tested. Please contact your local DIGITAL office for up-to-date information regarding listed configurations.

INSTALLATION

Customer Responsibilities

Before installation of the software, the customer must:

- Previously have installed all requisite software and hardware including terminals.
- Obtain, install and demonstrate as operational any modems and other equipment and facilities necessary to interface to DIGITAL's communication equipment.
- Demonstrate equivalency of operation for modems other than Bell 208A, 208B, 209, 212A synchronous modems or in Europe, PTT approved modems.
- Make available for a reasonable period of time, as mutually agreed by DIGITAL and the customer, all hardware, communication facilities and terminals that are to be used during installation.
- For multi-node networks, designate one adjacent node to verify installation/connectivity.
- The X.25 network verification portion of this product's installation requires that the customer subscribe to the Open User Group and to at least one Switched Virtual

Circuit. Systems with exclusively Permanent Virtual Circuits or Closed User Group membership require specially negotiated arrangements for DIGITAL installation of this product.

Delays caused by any failure to meet the responsibilities will be charged at the then prevailing rate for time and materials.

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For subsequent purchases of this product only experienced customers should attempt installation. DIGITAL recommends that all other customers purchase DIGITAL's Installation Services.

DIGITAL's Installation Services can be purchased as a separate service.

Courtesy Installation Service

This software product will be installed by DIGITAL at no additional charge if you purchase it concurrent with a Startup Service Package that includes installation service. Both the operating system and this product must be installed concurrently.

For networks other than those listed in Table 2 under WARRANTY LIMITATIONS

This software product can be installed by the customer using the step-by-step documentation available for this product.

ORDERING INFORMATION

Single-Use licensed software is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide in part that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of DIGITAL's copyright notice and any proprietary notices on the software) for use on such CPU.

You will need a separate license for each CPU on which you will be using the software product (except as otherwise specified by DIGITAL). Then you will select the Materials and Service Options you need to utilize the product effectively. **IF YOU ARE ALREADY FAMILIAR WITH THESE OPTIONS, YOU MAY OBTAIN THE ORDERING INFORMATION DIRECTLY FROM THE SOFTWARE OPTIONS CHART.** In most cases, you will want to review the following descriptions to determine what options you require.

LICENSE OPTIONS

Single-Use License Option

The Single-Use License is your right to use the software product on a single CPU and it includes your 90 day warranty.

For your first installation of this software product you must purchase as a **minimum:**

- Single-Use License Option, and
- Distribution and Documentation Option

The license gives you the right to use the software on a single CPU and the Distribution and Documentation Option provides the machine-readable software and related documentation.

To use this software product on additional CPUs, you must purchase for each CPU as a **minimum:**

- Single-Use License Option

In addition to the right to use, the license gives you the one-time right to copy the software from your original CPU installation to the additional CPU. Therefore, the Distribution and Documentation Option is not required, but optional.

MATERIALS AND SERVICE OPTIONS

Distribution and Documentation Option

The Distribution and Documentation option provides the machine-readable software in binary form and the basic documentation. You must have, or order, a Single-Use License to obtain this option. You will need this option to install the software for the first time. When revised versions of this software product become available, they may also be obtained by purchasing this option again.

If you prefer to receive automatic distribution of revised versions for this product, you must purchase a Software Product Service Agreement.

Software Revision Right-To-Copy Option

The Right-To-Copy Option allows a customer with multiple CPUs to copy a revised version of a software product from one CPU to another. Each CPU must be licensed for that product. You first install the revised software on one CPU; then you can make copies for additional CPUs by purchasing the Right-To-Copy Option for each additional CPU.

If you prefer to automatically obtain the right-to-copy, you must purchase a Service Right-to-Copy for each additional CPU; this is a service added to a Software Product Service Agreement.

Documentation-Only Option

You can obtain one copy of the basic documentation by purchasing the Documentation-Only Option.

Installation Service Option

DIGITAL's Installation Service is provided by a DIGITAL Software Specialist and accelerates your productive use of this product. For more information on what is included in this service, please obtain the appropriate Service Description from your local DIGITAL office.

Installation Service will be provided at no additional charge (Courtesy Installation) under the conditions described in the Installation section above.

Consult Table 2 under WARRANTY LIMITATIONS for a list of networks and countries where this service is available.

Software Product Service Agreements

DIGITAL offers licensed customers annual Software Product Service Agreements to maintain their software:

DECsupport Service is the most comprehensive level of service offering critical problem on-site assistance and scheduled preventative maintenance. You receive telephone support that gives you timely answers and solves most software problems. In addition, you get revised versions of the software and documentation, and system newsletters or dispatches.

BASIC Service is ideal for customers who have a staff whose experience and expertise enables them to analyze and communicate a software problem to DIGITAL remote support centers. You receive telephone support that gives you timely answers and solves most software problems. In addition, you get revised versions of the software and documentation, and system newsletters or dispatches.

Self-Maintenance Service is designed for customers who require revised versions of the software and documentation from DIGITAL. In addition, you get system newsletters or dispatches and may submit software performance questions.

All agreements are available to licensed DIGITAL customers on an annual, contractual basis. Service coverage is extended to the DIGITAL Engineering Certified networks (in the specified countries) listed in Table 2.

A variety of service options may be added to an existing Software Product Service Agreement, such as service for multiple-like systems. Contact your DIGITAL representative for additional information and ordering details.

The Prerequisite Software, as specified by this SPD, must have the equivalent level Software Product Service.

For more information on what is included in these agreements, please obtain the appropriate Service Description from your local DIGITAL office.

Training From Educational Services

To ensure customer success with DIGITAL products, Educational Services sells training for the installation, maintenance and/or management of DIGITAL software. Course formats vary from seminars to packaged training materials that include self-paced instruction and computer-based instruction to traditional lecture/labs at DIGITAL's worldwide Training Centers.

For a complete listing of course schedules and prices, refer to the *DIGEST*, Educational Services' quarterly publication. For curriculum-specific information, training recommendations and assistance in planning training programs, please contact your Educational Services Representative.

Professional Software Services

DIGITAL Software Specialists are available on a per-call or resident contract basis to help in all phases of software development or implementation. Specialists are available to serve as technical consultants, decision support consultants or business systems analysts. Resources are available to:

- Supplement your programming staff
- Assume project management responsibility
- Develop software
- Augment a system start-up service package with tailored services to meet specific needs

Contact your DIGITAL representative for additional information and ordering details.

SOFTWARE OPTIONS CHART

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g., QJD91-HD = binaries on 9-track 800 BPI Magtape (NRZI).

D = 9-track 800 BPI Magtape (NRZI)
H = RL02 Disk Cartridge
M = 9-track 1600 BPI Magtape (PE)
V = RK07 Disk Cartridge
Z = No hardware dependency

NOTE: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability

OPTIONS	ORDER NUMBER
LICENSE OPTIONS: A LICENSE IS REQUIRED FOR EACH CPU.	
Single-Use License	QJD91-UZ
MATERIALS AND SERVICE OPTIONS:	
Distribution and Documentation Option	QJD91-HD QJD91-HH QJD91-HM QJD91-HV
Software Revision Right-To-Copy Option	QJD91-HZ
Documentation Only Option	QJD91-GZ
Installation Service Option	QJD91-ID QJD91-IH QJD91-IM QJD91-IV
DECsupport Service	QJD91-9D QJD91-9H QJD91-9M QJD91-9V
Basic Service	QJD91-8D QJD91-8H QJD91-8M QJ191-8V
Self-Maintenance Service	QJD92-3D QJD92-3H QJD92-3M QJD92-3V

Software Product Description

PRODUCT NAME: **RSX-11 PSI/M-PLUS, Version 2.1**
Packetnet System Interface

SPD 10.43.03

DESCRIPTION

RSX-11 PSI/M-PLUS allows a suitably configured RSX-11M-PLUS system to connect to Packet Switching Data Networks (PSDNs) conforming to the CCITT recommendation X.25 (June 1980). Using RSX-11 PSI/M-PLUS, the system may function as packet-mode Data Terminal Equipment (DTE) on the PSDN. The software product supports access to the facilities offered by X.25 communication for RSX-11M-PLUS user programs written in MACRO-11, FORTRAN IV, and FORTRAN IV-PLUS. RSX-11 PSI/M-PLUS supports task-to-task and remote terminal communications via the X.25 network.

RSX-11 PSI/M-PLUS can coexist with, or operate as a layered product under DECnet-11M-PLUS to allow use of DECnet facilities over X.25 PSDNs, as well as point-to-point connections such as private leased lines or switched telephone networks. For details please refer to the DECnet-11M-PLUS SPD (SPD 10.66.xx).

Task-to-Task Communication

For intertask communication, application programs use RSX-11M-PLUS executive calls to use the X.25 functions, including setting up and breaking connections, transmitting and receiving data, sending and receiving interrupt messages and resetting virtual circuits. This interface, in addition to CCITT X.25 level 3 functions, provides translation of symbolic DTE addresses, transfer of calls between tasks, and splitting and recombination of messages which are longer than the packet size selected for the circuit. National extensions not part of the international recommendations are not provided. RSX-11 PSI/M-PLUS does not include, for example, file transfer, file access, or task addressing.

When using this interface an application program can communicate with complementary software on any other system (packet-mode DTE) connected to the network (DIGITAL or non-DIGITAL). This interface conforms to the DIGITAL Network Architecture specification for X.25 access.

Remote Terminal Communications

RSX-11 PSI/M-PLUS supports access by remote terminals (character-mode DTEs) according to CCITT recommendations X.3, X.28 and X.29. Terminals are supported in 'Remote X.29 Terminal' mode in which code conversions between ASCII and the actual code used by the terminal are performed by the network. Note that terminals are connected via a Packet Assembly Disassembly (PAD) facility provided by the network; no facility is offered in the software product whereby a terminal locally connected to an RSX-11M-PLUS system can act as a network terminal to other systems connected to the network.

Operation of remote X.29 terminals appears similar to that of terminals locally connected to the RSX-11M-PLUS system; application programs need not be aware that access to the terminal is via the RSX-11 PSI/M-PLUS software. However, applications that bypass operating system control mechanisms such as LOGON/LOGOFF may not function as expected. There may also be restrictions imposed by the network itself.

The interface presented to an application program using a remote X.29 terminal is compatible with that to a local terminal, except for those facilities where adequate support is not provided by the network; for example, the support provided by the PAD for data forwarding upon input of an escape sequence is not compatible with that required by DIGITAL standard software. This means that FMS and some of the screen editors may not function as expected unless the PAD is set up in a cost-ineffective way. Additional facilities are provided which allow a program to manipulate the terminal parameters maintained by the PAD.

Virtual Circuits

RSX-11 PSI/M-PLUS offers communications over both Permanent and Switched Virtual Circuits (PVCs and SVCs), the maximum total number of virtual circuits supported being 255, subject to memory availability. The maximum number of remote terminals supported is 140. Note, however, that each remote terminal uses a virtual circuit. Up to two physical connections can be made to the PSDN.

Line Discipline

The communications discipline used is the CCITT recommendation X.25. Specifically, the product supports V.24 (EIA - RS232) and CCITT V.35 at the hardware level, the symmetric LAPB variant of the X.25 frame level protocol, and the X.25 packet level protocol over point-to-point, 4-wire, synchronous, full-duplex lines. An RSX-11M-PLUS system configured with PSI appears as a packet-mode DTE. Operation as Data Circuit Terminating Equipment (DCE) is not supported.

Network Management

A Network Control Program and Configuration File Editor

October 1985
AE-N142D-TC

digital software

are provided for the control of the operation of the X.25 software. This includes loading and unloading the software, defining the lines, specification of addressing information for incoming calls and access to error counters and other maintenance functions. This interface provides a subset of the DIGITAL Network Architecture specification for Network Management.

Communications

RSX-11 PSI/M-PLUS supports two types of communications interface as presented in the table below. They differ in many respects, particularly in their effect on CPU utilization. The table shows rated bandwidth for each device type used at maximum configuration for that device. Bandwidth is defined as the total number of bits per second full duplex (input and output), including protocol overhead, being handled by the RSX-11 PSI/M-PLUS software. Maximum Line Speed is defined as the maximum number of bits per second per hardware device that is supported by the software. Therefore, the following algorithm may be used in determining valid configurations:

<device line speed>*2*<# device lines>=<bandwidth>

- Character Interrupt Devices — With the DUP11, CPU cycles are required for X.25 packet and frame level protocol processing, and also for each character sent and received
- The KMS11-B and KMS11-P are medium-speed Direct Memory Access (DMA) communications controllers. The KMS11-BD/E is an 8-line multiplexer of which 2 lines are supported. The KMS11-PX/Y is a single-line device. Character transmission and reception and the X.25 frame level protocol (LAPB) processing is executed in microcode by the KMS11 communications controller. The PDP-11 CPU processes only the X.25 packet level protocol.

Table 1

Device	Type	Maximum Line speed Supported (Kbits/sec)	Maximum Number of Supported Lines	Maximum Bandwidth Supported (Kbits/sec)
DUP11	Character	9.6	2	38.4
DPV11	Character	4.8	2	19.2
KMS11-BD/E	DMA	19.2	2	76.8
KMS11-PX	DMA	19.2	2	76.8
KMS11-PY	DMA	64.0	2	128.0

Note: This table describes the physical hardware configurations supported by RSX-11 PSI/M-PLUS. It should be noted that the attachment of such devices as A/D converters and timesharing terminals can reduce the maximum number of lines or bandwidth that can be supported.

PREREQUISITE SUPPORT PLAN

A Network Profile and Customer Support Plan covering all the intended network nodes, their usage of PVCs and SVCs and other network facilities and their support must be prepared jointly by the customer and DIGITAL.

MINIMUM HARDWARE REQUIRED

Any valid RSX-11M-PLUS system configuration with:

Memory Requirements

- A minimum of 20K words additional memory for resident RSX-11 PSI/M-PLUS software and data storage. This includes sufficient memory for basic X.25 operation for 8 virtual circuits. Additional memory is required for optional features and additional circuits; for example, each additional virtual circuit will require approximately 250 words.
- A minimum of 9K words additional memory for the RSX-11 PSI/M-PLUS X.29 software if Remote Terminals are supported
- A minimum of 26K words of additional memory to dynamically load the RSX-11 PSI/M-PLUS software

RSX Pool Requirements

- A minimum of 60 words plus 10 words for each network task - for basic X.25 operation
- An additional 22 words for each Remote Terminal

Operation with DECnet-11M-PLUS

- Operation of X.25 virtual circuits under DECnet-11M-PLUS incurs extra memory requirements. (Please consult the DECnet-11M-PLUS SPD (SPD 10.66.xx) for further details.)

Disk Space

- A maximum of 25,000 blocks of disk space is required for Network Generation, of which approximately 5000 blocks must be on a disk that is available throughout the generation process and will subsequently be used for RSX-11 PSI/M-PLUS operation.

Processors

- PDP-11/23-PLUS, PDP-11/24, PDP-11/44, or PDP-11/70 central processors with one of the following communications devices supporting one (1) line:

- DUP11-DA low-speed synchronous interface
- DPV11-DA low-speed sychronous interface
- KMS11-BD/E medium-speed synchronous interface
- KMS11-PX/Y medium-speed synchronous interface

Note: For PTT certification purposes, the combination of any KMS11-B controller hardware and X.25 level 2 microcode (which is supplied as part of RSX-11 PSI/M-PLUS product) is known as the KMX11.

GROWTH CONSIDERATIONS

The minimum hardware requirements for any future version of this product may be different from the minimum hardware requirements for the current version.

OPTIONAL HARDWARE

A communications interface and/or additional line. The product supports up to two (2) DUP11s or one (1) KMS11 line together with one (1) DUP11.

PREREQUISITE SOFTWARE

RSX-11M-PLUS Operating System

Refer to the RSX-11M-PLUS Optional Software Cross Reference Table (SPD 20.99.xx) for the required version.

OPTIONAL SOFTWARE

DECnet-11M-PLUS

FORTRAN IV/RSX

FORTRAN-77/RSX

SOFTWARE WARRANTY

For networks listed in Table 2 under WARRANTY LIMITATIONS when operated in the associated country as shown

Warranty for this software product is provided by DIGITAL with the purchase of a license for the product. There is no additional charge. This software product is warranted to conform to the Software Product Description (SPD). This means that DIGITAL will remedy any nonconformance when it is reported to DIGITAL by the customer during the warranty period.

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Telepac (Switzerland)	yes	yes
Transpac (France)	yes	yes
Tymnet (United States)	yes	yes
Pacnet (Taiwan)	yes	yes

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INSTALLATION

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Self-Maintenance Service is designed for customers who require revised versions of the software and documentation from DIGITAL. In addition, you get system newsletters or dispatches and may submit software performance questions.

All agreements are available to licensed DIGITAL customers on an annual, contractual basis. Service coverage is extended to the DIGITAL Engineering Certified networks (in the specified countries) listed in Table 2.

A variety of service options may be added to an existing Software Product Service Agreement, such as service for multiple-like systems. Contact your DIGITAL representative for additional information and ordering details.

The Prerequisite Software, as specified by this SPD, must have the equivalent level Software Product Service.

For more information on what is included in these agreements, please obtain the appropriate Service Description from your local DIGITAL office.

Training From Educational Services

To ensure customer success with DIGITAL products, Educational Services sells training for the installation, maintenance and/or management of DIGITAL software. Course formats vary from seminars to packaged training materials that include self-paced instruction and computer-based instruction to traditional lecture/labs at DIGITAL's worldwide Training Centers.

For a complete listing of course schedules and prices, refer to the *DIGEST*, Educational Services' quarterly publication. For curriculum-specific information, training recommendations and assistance in planning training programs, please contact your Educational Services Representative.

Professional Software Services

DIGITAL Software Specialists are available on a per-call or resident contract basis to help in all phases of software development or implementation. Specialists are available to serve as technical consultants, decision support consultants or business systems analysts. Resources are available to:

- Supplement your programming staff
- Assume project management responsibility
- Develop software
- Augment a system start-up service package with tailored services to meet specific needs

Contact your DIGITAL representative for additional information and ordering details.

SOFTWARE OPTIONS CHART

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g., QJD92-HD = binaries on 9-track 800 BPI Magtape (NRZI).

D = 9-track 800 BPI Magtape (NRZI)
H = RL02 Disk Cartridge
M = 9-track 1600 BPI Magtape (PE)
V = RK07 Disk Cartridge
Z = No hardware dependency

NOTE: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability

OPTIONS	ORDER NUMBER
LICENSE OPTIONS: A LICENSE IS REQUIRED FOR EACH CPU.	
Single-Use License	QJD92-UZ
MATERIALS AND SERVICE OPTIONS:	
Distribution and Documentation Option	QJD92-HD QJD92-HH QJD92-HM QJD92-HV
Software Revision Right-To-Copy Option	QJD92-HZ
Documentation Only Option	QJD92-GZ
Installation Service Option	QJD92-ID QJD92-IH QJD92-IM QJD92-IV
DECsupport Service	QJD92-9D QJD92-9H QJD92-9M QJD92-9V
Basic Service	QJD92-8D QJD92-8H QJD92-8M QJD92-8V
Self-Maintenance Service	QJD92-3D QJD92-3H QJD92-3M QJD92-3V

Software Product Description

PRODUCT NAME: PDP-11 PASCAL/RSX, Version 1.2 **SPD 14.18.06**

DESCRIPTION

PDP-11 PASCAL/RSX is an implementation of the Pascal language that accepts programs compatible with Level 0 of the ISO Specification for the Computer Programming Language Pascal (Draft International Standard 7185). PDP-11 PASCAL/RSX is a multipass optimizing compiler that provides all standard Pascal data types and statements as well as extensions.

Major Pascal Language Elements

The data types, control statements, and predeclared functions and procedures provided by Pascal include:

- INTEGER, REAL, CHAR, BOOLEAN, enumerated and subrange data types
- ARRAY, RECORD, SET and FILE structured data types
- FOR, REPEAT, WHILE repetitive control statements
- CASE, IF-THEN, and IF-THEN-ELSE conditional statements
- BEGIN...END compound statement
- GOTO statement
- READ, WRITE, READLN, and WRITELN input and output procedures
- FORWARD procedure and function directive

PDP-11 PASCAL/RSX Extensions

- Support for RSX File Control System (FCS) sequential files with fixed or variable length records
- Sequential access to fixed or variable length records, and both direct and sequential access to fixed length records
- User-Mode Instruction and Data space support on processors where both the hardware and software support this feature.
- EXTERNAL procedure and function directive
- OTHERWISE clause in case statements
- REM operator to supply the remainder in division operations
- GLOBAL, LOCAL, and EXTERNAL attributes on variables and subprograms
- MODULE reserved word for separate and independent compilation
- STATIC and AUTOMATIC allocation attributes
- %INCLUDE directive to allow multiple compilation units to access the same program text
- Binary, hexidecimal, and octal constants
- Exponential operator
- Dollar sign ($) and underscore (_) characters in identifiers
- Value initialization in declaration section at program level
- Predefined procedures CLOSE, DATE, OPEN, TIME, and HALT

Compilation

PDP-11 PASCAL/RSX programs can be compiled in interactive mode or with an indirect command file. The PDP-11 PASCAL/RSX compiler performs optimizations designed to improve execution speed, including constant folding, constant conversion, constant pooling, and global register assignment. Optional instruction to the compiler and input and output file attributes are specified by compiler switches that:

- Perform run-time checks of array bound, case selectors, pointers, string bounds, and subrange bounds
- Limit the number of error messages printed and allow compilation to continue regardless of the number of errors
- Cause code to be generated that provides source line numbers at run-time
- Determine whether to generate EIS or FPP instructions
- Produce an optimal, machine-code listing
- Identify the PDP-11 PASCAL/RSX compiler version number
- Print warning-level messages that identify the use of PDP-11 PASCAL/RSX extensions
- Provide automatic spooling of the listing file
- Maintain qualifier settings for subsequent compilations in interactive mode or in the same indirect command file

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Task Building

After compilation, the RSX Task Builder is used to produce an executable image file, and to provide support for both relocatable and resident object libraries. Task builder options create checkpointable tasks, identify the use of floating point hardware, provide On-line Debugging Technique (ODT) support and allow simultaneous execution of multiple versions of a single task.

RSX Environment

PDP-11 PASCAL/RSX allows use of the FORTRAN standard calling sequence,permitting Pascal programs to communicate with FORTRAN callable system routines for real-time applications. However, routines written in FORTRAN cannot be called from PDP-11 PASCAL/RSX. In addition, PDP-11 PASCAL/RSX programs can call RSX system services for process-control operations, system directives, and special peripheral access.

MINIMUM HARDWARE REQUIRED

Any valid mapped RSX-11M or RSX-11M-PLUS system configuration that includes:

- Extended Instruction Set (EIS)
- A minimum of 30K words of available memory, with approximately 800 free blocks of disk space required for the compiler and OTS files. Of the 800 free blocks required, 675 blocks must be contiguous.

Additional disk space is required during compiler execution. The amount of additional space required varies with the size and complexity of the source program.

OPTIONAL HARDWARE

- Floating Point Processor as supported by the system configuration

PREREQUISITE SOFTWARE

RSX-11M or RSX-11M-PLUS Operating System

Refer to the RSX-11M and RSX-11M-PLUS Optional Software Cross Reference Tables (SPD 20.98.xx and SPD 20.99.xx) for the required versions.

OPTIONAL SOFTWARE

None

SOFTWARE WARRANTY

Warranty for this software product is provided by DIGITAL with the purchase of a license for the product. There is no additional charge. This software product is warranted to conform to the Software Product Description (SPD). This means that DIGITAL will remedy any nonconformance when it is reported to DIGITAL by the customer during the warranty period.

The warranty period is ninety (90) days. It begins when the software is installed or thirty (30) days after delivery to the end user, whichever occurs first and expires ninety (90) days later. All warranty related support for this software will end 180 days after release of the subsequent version.

Warranty is provided in the country of purchase. DIGITAL will provide a service location which will accept reporting (in a format prescribed by DIGITAL) of a nonconformance problem caused when using the licensed software under normal conditions as defined by the SPD. DIGITAL will remedy a nonconformance problem in the current unaltered release of the licensed software by issuing correction information such as: correction documentation, corrected code, or notice of availability of corrected code; or a restriction or a bypass. The customer will be responsible for the preparation and submission of the problem report to the service location.

Warranty Exclusion

DIGITAL DOES NOT WARRANT THAT THE SOFTWARE LICENSED TO CUSTOMER SHALL BE ERROR FREE, THAT THE SOFTWARE SHALL OPERATE WITH ANY HARDWARE AND SOFTWARE OTHER THAN AS SPECIFIED IN THIS SPD, THAT THE SOFTWARE SHALL SATISFY CUSTOMER'S OWN SPECIFIC REQUIREMENTS, OR THAT COPIES OF THE SOFTWARE OTHER THAN THOSE PROVIDED OR AUTHORIZED BY DIGITAL SHALL CONFORM TO THE SPD.

DIGITAL MAKES NO WARRANTIES WITH RESPECT TO THE FITNESS AND OPERABILITY OF MODIFICATIONS NOT MADE BY DIGITAL.

IF THE SOFTWARE FAILS TO FUNCTION FOR REASONS STATED ABOVE, THE CUSTOMER'S WARRANTY WILL BE INVALIDATED AND ALL SERVICE CALLS WILL BE BILLABLE AT THE PREVAILING PER CALL RATES.

INSTALLATION

This software product can be installed by the customer using the step-by-step documentation available for this product. Optionally you can purchase DIGITAL Installation Services which provide for the installation of the software product by an experienced DIGITAL Software Specialist.

DIGITAL's Installation Services can be purchased as a separate service.

Courtesy Installation Service

This software product will be installed by DIGITAL at no additional charge if you purchase it concurrent with a Startup Service Package that includes installation service. Both the operating system and this product must be installed concurrently.

ORDERING INFORMATION

Single-Use licensed software is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide in part that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of DIGITAL's copyright notice and any proprietary notices on the software) for use on such CPU.

You will need a separate license for each CPU on which you will be using the software product (except as other-

wise specified by DIGITAL). Then you will select the Materials and Service Options you need to utilize the product effectively. **IF YOU ARE ALREADY FAMILIAR WITH THESE OPTIONS, YOU MAY OBTAIN THE ORDERING INFORMATION DIRECTLY FROM THE SOFTWARE OPTIONS CHART.** In most cases, you will want to review the following descriptions to determine what options you require.

LICENSE OPTIONS

Single-Use License Option

The Single-Use License is your right to use the software product on a single CPU and it includes your 90 day warranty.

For your first installation of this software product you must purchase as a **minimum**:

- Single-Use License Option, and
- Distribution and Documentation Option

The license gives you the right to use the software on a single CPU and the Distribution and Documentation Option provides the machine-readable software and related documentation.

To use this software product on additional CPUs, you must purchase for each CPU as a **minimum**:

- Single-Use License Option

In addition to the right to use, the license gives you the one-time right to copy the software from your original CPU installation to the additional CPU. Therefore, the Distribution and Documentation Option is not required, but optional.

The licensee may also reproduce and distribute object modules and/or resident libraries which are necessary to run programs compiled with this product provided such programs are distributed: 1) in accordance with the provisions of licensee's standard software license; or 2) with licensee's copyright notice included on such programs; or 3) if conditions (1) or (2) are not met, with DIGITAL'S COPYRIGHT notice included on such programs.

MATERIALS AND SERVICE OPTIONS

Distribution and Documentation Option

The Distribution and Documentation option provides the machine-readable software in binary form and the basic documentation. You must have, or order, a Single-Use License to obtain this option. You will need this option to install the software for the first time. When revised versions of this software product become available, they may also be obtained by purchasing this option again.

If you prefer to receive automatic distribution of revised versions for this product, you must purchase a Software Product Service Agreement.

Software Revision Right-To-Copy Option

The Right-To-Copy Option allows a customer with multiple CPUs to copy a revised version of a software product from one CPU to another. Each CPU must be licensed for that product. You first install the revised software on one CPU; then you can make copies for additional CPUs by purchasing the Right-To-Copy Option for each additional CPU.

If you prefer to automatically obtain the right-to-copy, you must purchase a Service Right-to-Copy for each additional CPU; this is a service added to a Software Product Service Agreement.

Documentation-Only Option

You can obtain one copy of the basic documentation by purchasing the Documentation-Only Option.

Installation Service Option

DIGITAL's Installation Service is provided by a DIGITAL Software Specialist and accelerates your productive use of this product. For more information on what is included in this service, please obtain the appropriate Service Description from your local DIGITAL office.

Installation Service will be provided at no additional charge (Courtesy Installation) under the conditions described in the Installation section above.

Software Product Service Agreements

DIGITAL offers licensed customers annual Software Product Service Agreements to maintain their software:

DECsupport Service is the most comprehensive level of service offering critical problem on-site assistance and scheduled preventative maintenance. You receive telephone support that gives you timely answers and solves most software problems. In addition, you get revised versions of the software and documentation, and system newsletters or dispatches.

BASIC Service is ideal for customers who have a staff whose experience and expertise enables them to analyze and communicate a software problem to DIGITAL remote support centers. You receive telephone support that gives you timely answers and solves most software problems. In addition, you get revised versions of the software and documentation, and system newsletters or dispatches.

Self-Maintenance Service is designed for customers who require revised versions of the software and documentation from DIGITAL. In addition, you get system newsletters or dispatches and may submit software performance questions.

A variety of service options may be added to an existing Software Product Service Agreement, such as service for multiple-like systems. Contact your DIGITAL representative for additional information and ordering details.

The Prerequisite Software, as specified by this SPD, must have the equivalent level Software Product Service.

For more information on what is included in these agreements, please obtain the appropriate Service Description from your local DIGITAL office.

Training From Educational Services

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nance and/or management of DIGITAL software. Course formats vary from seminars to packaged training materials that include self-paced instruction and computer-based instruction to traditional lecture/labs at DIGITAL's worldwide Training Centers.

For a complete listing of course schedules and prices, refer to the *DIGEST*, Educational Services' quarterly publication. For curriculum-specific information, training recommendations and assistance in planning training programs, please contact your Educational Services Representative.

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- Supplement your programming staff
- Assume project management responsibility
- Develop software
- Augment a system start-up service package with tailored services to meet specific needs

Contact your DIGITAL representative for additional information and ordering details.

SOFTWARE OPTIONS CHART

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g., QJ128-HD = binaries on 9-track 800 BPI Magtape (NRZI).

5 = TK50 Tape Cartridge
D = 9-track 800 BPI Magtape (NRZI)
H = RL02 Disk Cartridge
M = 9-track 1600 BPI Magtape (PE)
V = RK07 Disk Cartridge
Z = No hardware dependency

NOTE: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability.

OPTIONS	ORDER NUMBER CLASS H[1] SYSTEMS	ORDER NUMBER CLASS L[2] SYSTEMS
LICENSE OPTIONS:A LICENSE IS REQUIRED FOR EACH CPU.		
Single-Use License	QJ128-UZ	QY128-UZ
MATERIALS AND SERVICE OPTIONS		
Distribution and Documentation Option	QJ128-HD QJ128-HH QJ128-HM QJ128-HV	QY128-H5 QY128-HH QY128-HM
Software Revision Right-To-Copy Option	QJ128-HZ	QY128-HZ
Documentation Only Option	QJ128-GZ	QY128-GZ
Installation Service Option	QJ128-ID QJ128-IH QJ128-IM QJ128-IV	QY128-I5 QY128-IH QY128-IM
DECsupport Service	QJ128-9D QJ128-9H QJ128-9M QJ128-9V	QY128-95 QY128-9H QY128-9M
Basic Service	QJ128-8D QJ128-8H QJ128-8M QJ128-8V	QY128-85 QY128-8H QY128-8M
Self-Maintenance Service	QJ128-3D QJ128-3H QJ128-3M QJ128-3V	QY128-35 QY128-3H QY128-3M

[1] Class H (for high-end systems)
- –All UNIBUS models and systems
- –MicroPDP-11/83

[2] Class L (for low end systems)
- –All Q-BUS models and systems except MicroPDP-11/83
- –KD11, KDF11, KDJ11 CPU modules
- –DCT11, DCF11, DCJ11 microprocessor chips

Software Product Description

PRODUCT NAME: Micro/RSX FORTRAN-77, Version 5.0 **SPD 18.04.01**

DESCRIPTION

Micro/RSX FORTRAN-77 is an extended implementation of the ANSI subset FORTRAN-77 standard (X3.9-1978) that runs on the Micro/RSX Operating System. Micro/RSX FORTRAN-77 contains all the features of the ANSI FORTRAN-77 subset, many of the full-set language features, and extensions that are not included in the ANSI FORTRAN-77 standard. Switch selectable support is provided for user programs based on the previous ANSI FORTRAN Standard (X3.9-1966).

Micro/RSX FORTRAN-77 meets the Federal Information Processing Standard Publication (FIPS PUB-69) requirement for a flagger. The flagger optionally produces diagnostic messages for syntax and/or source form elements that do not conform to the full-level ANSI FORTRAN X3.9-1978 Standard.

Micro/RSX FORTRAN-77 programs can be optionally executed under control of Micro/RSX FORTRAN-77 DEBUG (SPD 14.79.xx). Execution of application programs using PDP-11 FORTRAN-77 DEBUG aids in the locating of progamming errors in successfully compiled programs that behave abnormally when executed.

Micro/RSX FORTRAN-77 includes all subset ANSI features including:

- CHARACTER data type
- Block IF construct including IF...THEN, ELSE IF, ELSE and END IF statements, for conditional execution of blocks of statements

The Micro/RSX FORTRAN-77 compiler includes the following features of full-language FORTRAN as defined by the ANSI Standard:

- Double precision and complex data types
- Intrinsic functions, including LEN, ICHAR, and INDEX
- Exponentiation forms, including double precision and complex
- Format edit descriptors, including S, SP, SS, T, TL, TR, Lw.m, and Gw.dEe
- Generalized DO loop parameters
- Generic function selected based on argument data type for FORTRAN-defined functions
- Lower and upper bounds specification in array declarators
- Substrings of character variables and character array elements
- Optional syntax for I/O statements (UNIT = and FMT =)

Micro/RSX FORTRAN-77 includes the following extensions to the ANSI Standard:

- Language elements for keyed and sequential access to RMS multikey ISAM files
- DEFINE FILE, FIND, DELETE, REWRITE, and UNLOCK statements
- TYPE and ACCEPT input/output statements
- Comments permitted at the end of each source line
- INCLUDE statement
- BYTE data type
- ENCODE, DECODE statements
- Explicit specification of storage allocation units for data types (e.g., INTEGER*4)
- Hexadecimal and octal constants
- Virtual array support for systems with memory management directives. Virtual arrays are memory-resident and require enough main memory to contain all elements of all arrays.
- O and Z format edit descriptors

The Micro/RSX FORTRAN-77 compiler produces direct PDP-11 machine code optimized for execution-time efficiency on a Micro/PDP-11 with a floating point processor. Micro/RSX FORTRAN-77 compiler optimizations include:

- Optimization of arithmetic and logical IF statements
- Common subexpression elimination
- Removal of invariant expressions from DO loops
- Allocation of processor registers across block IF constructs and DO loops

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Object Time System

The Micro/RSX FORTRAN-77 Object Time System (OTS) is a set of object modules that are selectively linked with compiler-produced object modules by the operating system's task builder, to produce a task (program) ready for execution.

Micro/RSX FORTRAN-77 provides the capability of creating an OTS based on Record Management Services (RMS) which uses RMS to provide access to sequential, relative, and indexed organization files.

MINIMUM HARDWARE REQUIRED

A valid Micro/RSX system configuration with a KEF11-AA Floating Point Chip Option or an FPF11 Hot Floating Point Processor Card.

OPTIONAL HARDWARE

The following optional workstation specific hardware is supported:

- VSxxx-AB Digitizing Tablet with cursor and stylus LA210
- LA50, LA100, and LN03 printers

PREREQUISITE SOFTWARE

Micro/RSX Operating System (Base Kit)

Refer to the Micro/RSX Optional Software Cross Reference Table (SPD 20.95.xx) for the required version.

OPTIONAL SOFTWARE

Micro/RSX FORTRAN-77 DEBUG

SOFTWARE WARRANTY

Warranty for this software product is provided by DIGITAL with the purchase of a license for the product. There is no additional charge. This software product is warranted to conform to the Software Product Description (SPD). This means that DIGITAL will remedy any nonconformance when it is reported to DIGITAL by the customer during the warranty period.

The warranty period is ninety (90) days. It begins when the software is installed or thirty (30) days after delivery to the end user, whichever occurs first and expires ninety (90) days later. All warranty related support for this software will end 180 days after release of the subsequent version.

Warranty is provided in the country of purchase. DIGITAL will provide a service location which will accept reporting (in a format prescribed by DIGITAL) of a nonconformance problem caused when using the licensed software under normal conditions as defined by the SPD. DIGITAL will remedy a nonconformance problem in the current unaltered release of the licensed software by issuing correction information such as: correction documentation, corrected code, or notice of availability of corrected code; or a restriction or a bypass. The customer will be responsible for the preparation and submission of the problem report to the service location.

Warranty Exclusion

DIGITAL DOES NOT WARRANT THAT THE SOFTWARE LICENSED TO CUSTOMER SHALL BE ERROR FREE, THAT THE SOFTWARE SHALL OPERATE WITH ANY HARDWARE AND SOFTWARE OTHER THAN AS SPECIFIED IN THIS SPD, THAT THE SOFTWARE SHALL SATISFY CUSTOMER'S OWN SPECIFIC REQUIREMENTS, OR THAT COPIES OF THE SOFTWARE OTHER THAN THOSE PROVIDED OR AUTHORIZED BY DIGITAL SHALL CONFORM TO THE SPD.

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INSTALLATION

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DIGITAL's Installation Services can be purchased as a separate service.

Courtesy Installation Service

This software product will be installed by DIGITAL at no additional charge if you purchase it concurrent with a Startup Service Package that includes installation service. Both the operating system and this product must be installed concurrently.

ORDERING INFORMATION

Single-Use licensed software is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide in part that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of DIGITAL's copyright notice and any proprietary notices on the software) for use on such CPU.

You will need a separate license for each CPU on which you will be using the software product (except as otherwise specified by DIGITAL). Then you will select the Materials and Service Options you need to utilize the product effectively. You can order these options individually. But, to ensure that you get the set of services you need and to simplify ordering, DIGITAL offers Startup Service Packages designed for your environment and experience level. **IF YOU ARE ALREADY FAMILIAR WITH THESE OPTIONS, YOU MAY OBTAIN THE ORDERING INFORMATION DIRECTLY FROM THE SOFTWARE OPTIONS CHART.** In most cases, you will want to review the following descriptions to determine what options you require.

LICENSE OPTIONS

Single-Use License Option

The Single-Use License is your right to use the software product on a single CPU and it includes your 90 day warranty.

For your first installation of this software product you must purchase as a **minimum**:

- Single-Use License Option, and
- Distribution and Documentation Option

The license gives you the right to use the software on a single CPU and the Distribution and Documentation Option provides the machine-readable software and related documentation.

To use this software product on additional CPUs, you must purchase for each CPU as a **minimum**:

- Single-Use License Option

In addition to the right to use, the license gives you the one-time right to copy the software from your original CPU installation to the additional CPU. Therefore, the Distribution and Documentation Option is not required, but optional.

The licensee may also reproduce and distribute object modules and/or resident libraries which are necessary to run programs compiled with this product provided such programs are distributed: 1) in accordance with the provisions of licensee's standard software license; or 2) with licensee's copyright notice included on such programs; or 3) if conditions (1) or (2) are not met, with DIGITAL'S COPYRIGHT notice included on such programs.

MATERIALS AND SERVICE OPTIONS

This product is serviced by two basic mechanisms. First, new releases of the product may provide new features and remedies for known software problems. Second, suggestion/problem reports will be acknowledged upon receipt by DIGITAL. If there is a suitable workaround available for a suggestion/problem report it will be provided, otherwise it will be considered for inclusion or remedy in a future new release. The optional service agreements include these two mechanisms as well as other service offerings.

Distribution and Documentation Option

The Distribution and Documentation option provides the machine-readable software in binary form and the basic documentation. You must have, or order, a Single-Use License to obtain this option. You will need this option to install the software for the first time. When revised versions of this software product become available, they may also be obtained by purchasing this option again.

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If you prefer to automatically obtain the right-to-copy, you must purchase a Service Right-to-Copy for each additional CPU; this is a service added to a Software Product Service Agreement.

Documentation-Only Option

You can obtain one copy of the basic documentation by purchasing the Documentation-Only Option.

Installation Service Option

DIGITAL's Installation Service is provided by a DIGITAL Software Specialist and accelerates your productive use of this product. For more information on what is included in this service, please obtain the appropriate Service Description from your local DIGITAL office.

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DIGITAL Software Specialists are available on a per-call or resident contract basis to help in all phases of software development or implementation. Specialists are available to serve as technical consultants, decision support consultants or business systems analysts. Resources are available to:

- Supplement your programming staff
- Assume project management responsibility
- Develop software
- Augment a system start-up service package with tailored services to meet specific needs

Contact your DIGITAL representative for additional information and ordering details.

SOFTWARE OPTIONS CHART

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g., QY803-H3 = binaries on a RX50 Floppy Diskette.

3 = RX50 Floppy Diskette
5 = TK50 Tape Cartridge
Z = No hardware dependency

NOTE: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability.

OPTIONS	ORDER NUMBER CLASS L[1]	ORDER NUMBER CLASS H[2]
LICENSE OPTIONS: A LICENSE IS REQUIRED FOR EACH CPU.		
Single-Use License	QP805-UZ	QY803-UZ
MATERIALS AND SERVICE OPTIONS:		
Distribution and Documentation Option		QY803-H3 QY803-H5
Software Revision Right-To-Copy Option		QY803-HZ
Documentation Only Option		QY803-GZ
Installation Service Option		QY803-I3 QY803-I5
DECsupport Service		QY803-93 QY803-95
Basic Service		QY803-83 QY803-85
Self-Maintenance Service		QY803-33 QY803-35

[1] *Class L Single-Use License:*
- All Q-BUS models and systems except MicroPDP-11/83
- KD11, KDF11, KDJ11 CPU modules
- DCT11, DCF11, DCJ11 microprocessor chips

[2] *Class H Single-Use License:*
- All UNIBUS models and systems
- MicroPDP-11/83

Software Product Description

PRODUCT NAME: Micro/RSX PDP-11 PASCAL, Version 1.2 **SPD 18.07.02**

DESCRIPTION

Micro/RSX PDP-11 PASCAL is an implementation of the Pascal language that accepts programs compatible with Level 0 of the ISO Specification for the Computer Programming Langauge Pascal (Draft International Standard 7185). Micro/RSX PDP-11 PASCAL is a multipass optimizing compiler that provides all standard Pascal data types and statements as well as extensions.

Major Pascal Language Elements

The data types, control statements, and predeclared functions and procedures provided by Pascal include:

- INTEGER, REAL, CHAR, BOOLEAN, enumerated and subrange data types
- ARRAY, RECORD, SET and FILE structured data types
- FOR, REPEAT, WHILE repetitive control statements
- CASE, IF-THEN, and IF-THEN-ELSE conditional statements
- BEGIN...END compound statement
- GOTO statement
- READ, WRITE, READLN, and WRITELN input and output procedures
- FORWARD procedure and function directive

Micro/RSX PDP-11 PASCAL Extensions

- Support for Micro/RSX File Control System (FCS) sequential files with fixed or variable length records
- Sequential access to fixed or variable length records, and both direct and sequential access to fixed length records
- User Mode Instruction and Data space support on processors where both the hardware and software support this feature
- EXTERNAL procedure and function directive
- OTHERWISE clause in case statements
- REM operator to supply the remainder in division operations
- GLOBAL, LOCAL, and EXTERNAL attributes on variables and subprograms
- MODULE reserved word for separate and independent compilation
- STATIC and AUTOMATIC allocation attributes
- %INCLUDE directive to allow multiple compilation units to access the same program text
- Binary, hexidecimal, and octal constants
- Exponential operator
- Dollar sign ($) and Underscore (_) characters in identifiers
- Value initialization in declaration section at program level
- Predefined procedures CLOSE, DATE, OPEN, TIME, and HALT

Compilation

The Micro/RSX PDP-11 PASCAL compiler performs optimizations designed to improve execution speed, including constant folding, constant conversion, constant pooling, and global register assignment. Optional instruction to the compiler and input and output file attributes are specified by compiler switches that:

- Perform run-time checks of array bound, case selectors, pointers, string bounds, and subrange bounds
- Limit the number of error messages printed and allow compilation to continue regardless of the number of errors
- Cause code to be generated that provides source line numbers at run-time
- Produce an optimal, machine-code listing
- Identify the Micro/RSX PDP-11 PASCAL compiler version number
- Print warning-level messages that identify the use of Micro/RSX PDP-11 PASCAL extensions
- Provide automatic spooling of the listing file

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Task Building

After compilation, the RSX Task Builder is used to produce an executable image file, and to provide support for both relocatable and resident object libraries. Task builder options create checkpointable tasks, identify the use of floating point hardware, provide On-line Debugging Technique (ODT) support and allow simultaneous execution of multiple versions of a single task.

Micro/RSX Environment

Micro/RSX PDP-11 PASCAL allows use of the FORTRAN standard calling sequence, permitting Pascal programs to communicate with FORTRAN callable system routines for real-time applications. However, routines written in FORTRAN cannot be called from Micro/RSX PDP-11 PASCAL. In addition, Micro/RSX PDP-11 PASCAL programs can call Micro/RSX system services for process-control operations, system directives, and special peripheral access.

MINIMUM HARDWARE REQUIRED

Any valid Micro/RSX system configuration with:

- KEF11-AA Floating Point Chip option or an FPF11 Hot Floating Point Processor Card
- A minimum of 34K words of available memory, with approximately 850 free blocks of disk space required for the compiler and OTS files. Of the 850 free blocks required, 700 blocks must be contiguous.
- Additional disk space is required during compiler execution. The amount of additional space required varies with the size and complexity of the source program.

OPTIONAL HARDWARE

None

PREREQUISITE SOFTWARE

Micro/RSX Operating System Base Kit

Refer to the Micro/RSX Optional Software Cross Reference Table (SPD 20.95.xx) for the required version.

OPTIONAL SOFTWARE

Micro/RSX Advanced Programmers Kit (for ODT)

SOFTWARE WARRANTY

Warranty for this software product is provided by DIGITAL with the purchase of a license for the product. There is no additional charge. This software product is warranted to conform to the Software Product Description (SPD). This means that DIGITAL will remedy any nonconformance when it is reported to DIGITAL by the customer during the warranty period.

The warranty period is ninety (90) days. It begins when the software is installed or thirty (30) days after delivery to the end user, whichever occurs first and expires ninety (90) days later. All warranty related support for this software will end 180 days after release of the subsequent version.

Warranty is provided in the country of purchase. DIGITAL will provide a service location which will accept reporting (in a format prescribed by DIGITAL) of a nonconformance problem caused when using the licensed software under normal conditions as defined by the SPD. DIGITAL will remedy a nonconformance problem in the current unaltered release of the licensed software by issuing correction information such as: correction documentation, corrected code, or notice of availability of corrected code; or a restriction or a bypass. The customer will be responsible for the preparation and submission of the problem report to the service location.

Warranty Exclusion

DIGITAL DOES NOT WARRANT THAT THE SOFTWARE LICENSED TO CUSTOMER SHALL BE ERROR FREE, THAT THE SOFTWARE SHALL OPERATE WITH ANY HARDWARE AND SOFTWARE OTHER THAN AS SPECIFIED IN THIS SPD, THAT THE SOFTWARE SHALL SATISFY CUSTOMER'S OWN SPECIFIC REQUIREMENTS, OR THAT COPIES OF THE SOFTWARE OTHER THAN THOSE PROVIDED OR AUTHORIZED BY DIGITAL SHALL CONFORM TO THE SPD.

DIGITAL MAKES NO WARRANTIES WITH RESPECT TO THE FITNESS AND OPERABILITY OF MODIFICATIONS NOT MADE BY DIGITAL.

IF THE SOFTWARE FAILS TO FUNCTION FOR REASONS STATED ABOVE, THE CUSTOMER'S WARRANTY WILL BE INVALIDATED AND ALL SERVICE CALLS WILL BE BILLABLE AT THE PREVAILING PER CALL RATES.

INSTALLATION

This software product can be installed by the customer using the step-by-step documentation available for this product. Optionally you can purchase DIGITAL Installation Services which provide for the installation of the software product by an experienced DIGITAL Software Specialist.

DIGITAL's Installation Services can be purchased as a separate service.

Courtesy Installation Service

This software product will be installed by DIGITAL at no additional charge if you purchase it concurrent with a Startup Service Package that includes installation service. Both the operating system and this product must be installed concurrently.

ORDERING INFORMATION

Single-Use licensed software is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide in part that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of DIGITAL's copyright notice and any proprietary notices on the software) for use on such CPU.

You will need a separate license for each CPU on which you will be using the software product (except as otherwise specified by DIGITAL). Then you will select the Materials and Service Options you need to utilize the product effectively. **IF YOU ARE ALREADY FAMILIAR WITH THESE OPTIONS, YOU MAY OBTAIN THE ORDERING INFORMATION DIRECTLY FROM THE SOFTWARE OPTIONS CHART.** In most cases, you will want to review the following descriptions to determine what options you require.

LICENSE OPTIONS

Single-Use License Option

The Single-Use License is your right to use the software product on a single CPU and it includes your 90 day warranty.

For your first installation of this software product you must purchase as a **minimum**:

- Single-Use License Option, and
- Distribution and Documentation Option

The license gives you the right to use the software on a single CPU and the Distribution and Documentation Option provides the machine-readable software and related documentation.

To use this software product on additional CPUs, you must purchase for each CPU as a **minimum**:

- Single-Use License Option

In addition to the right to use, the license gives you the one-time right to copy the software from your original CPU installation to the additional CPU. Therefore, the Distribution and Documentation Option is not required, but optional.

The licensee may also reproduce and distribute object modules and/or resident libraries which are necessary to run programs compiled with this product provided such programs are distributed: 1) in accordance with the provisions of licensee's standard software license; or 2) with licensee's copyright notice included on such programs; or 3) if conditions (1) or (2) are not met, with DIGITAL'S COPYRIGHT notice included on such programs.

MATERIALS AND SERVICE OPTIONS

This product is serviced by two basic mechanisms. First, new releases of the product may provide new features and remedies for known software problems. Second, suggestion/problem reports will be acknowledged upon receipt by DIGITAL. If there is a suitable workaround available for a suggestion/problem report it will be provided, otherwise it will be considered for inclusion or remedy in a future new release. The optional service agreements include these two mechanisms as well as other service offerings.

Distribution and Documentation Option

The Distribution and Documentation option provides the machine-readable software in binary form and the basic documentation. You must have, or order, a Single-Use License to obtain this option. You will need this option to install the software for the first time. When revised versions of this software product become available, they may also be obtained by purchasing this option again.

If you prefer to receive automatic distribution of revised versions for this product, you must purchase a Software Product Service Agreement.

Software Revision Right-To-Copy Option

The Right-To-Copy Option allows a customer with multiple CPUs to copy a revised version of a software product from one CPU to another. Each CPU must be licensed for that product. You first install the revised software on one CPU; then you can make copies for additional CPUs by purchasing the Right-To-Copy Option for each additional CPU.

If you prefer to automatically obtain the right-to-copy, you must purchase a Service Right-to-Copy for each additional CPU; this is a service added to a Software Product Service Agreement.

Documentation-Only Option

You can obtain one copy of the basic documentation by purchasing the Documentation-Only Option.

Installation Service Option

DIGITAL's Installation Service is provided by a DIGITAL Software Specialist and accelerates your productive use of this product. For more information on what is included in this service, please obtain the appropriate Service Description from your local DIGITAL office.

Installation Service will be provided at no additional charge (Courtesy Installation) under the conditions described in the Installation section above.

Software Product Service Agreements

DIGITAL offers licensed customers annual Software Product Service Agreements to maintain their software:

DECsupport Service is the most comprehensive level of service offering critical problem on-site assistance and scheduled preventative maintenance. You receive telephone support that gives you timely answers and solves most software problems. In addition, you get revised versions of the software and documentation, and system newsletters or dispatches.

BASIC Service is ideal for customers who have a staff whose experience and expertise enables them to analyze and communicate a software problem to DIGITAL remote support centers. You receive telephone support that gives you timely answers and solves most software problems. In addition, you get revised versions of the software and documentation, and system newsletters or dispatches.

Self-Maintenance Service is designed for customers who require revised versions of the software and documentation from DIGITAL. In addition, you get system newsletters or dispatches and may submit software performance questions.

A variety of service options may be added to an existing Software Product Service Agreement, such as service for multiple-like systems. Contact your DIGITAL representative for additional information and ordering details.

The Prerequisite Software, as specified by this SPD, must have the equivalent level Software Product Service.

For more information on what is included in these agreements, please obtain the appropriate Service Description from your local DIGITAL office.

Training From Educational Services

To ensure customer success with DIGITAL products, Educational Services sells training for the installation, maintenance and/or management of DIGITAL software. Course formats vary from seminars to packaged training materials that include self-paced instruction and computer-based instruction to traditional lecture/labs at DIGITAL's worldwide Training Centers.

For a complete listing of course schedules and prices, refer to the *DIGEST*, Educational Services' quarterly publication. For curriculum-specific information, training recommendations and assistance in planning training programs, please contact your Educational Services Representative.

Professional Software Services

DIGITAL Software Specialists are available on a per-call or resident contract basis to help in all phases of software development or implementation. Specialists are available to serve as technical consultants, decision support consultants or business systems analysts. Resources are available to:

- Supplement your programming staff
- Assume project management responsibility
- Develop software
- Augment a system start-up service package with tailored services to meet specific needs

Contact your DIGITAL representative for additional information and ordering details.

SOFTWARE OPTIONS CHART

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g., QY806-H3 - binaries on a RX50 Floppy Diskette.

3 - RX50 Floppy Diskette
5 - TK50 Tape Cartridge
Z - No hardware dependency

NOTE: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability.

OPTIONS	ORDER NUMBER CLASS L[1]	ORDER NUMBER CLASS H[2]
LICENSE OPTIONS: A LICENSE IS REQUIRED FOR EACH CPU.		
Single-Use License	QY806-UZ	QP806-UZ
MATERIALS AND SERVICE OPTIONS		
Distribution and Documentation Option	QY806-H3 QY806-H5	
Software Revision Right-To-Copy Option	QY806-HZ	
Documentation Only Option	QY806-GZ	
Installation Service Option	QY806-I3 QY806-I5	
DECsupport Service	QY806-93 QY806-95	
Basic Service	QY806-83 QY806-85	
Self-Maintenance Service	QY806-33 QY806-35	

Class L Single-Use License:
- All Q-BUS models and systems except MicroPDP-11 83
- KD11, KDF11, KDJ11 CPU modules
- DCT11, DCF11, DCJ11 microprocessor chips

Class H Single-Use License:
- All UNIBUS models and systems
- MicroPDP-11 83

Software Product Description

PRODUCT NAME: DECserver 100 Terminal Server, Version 1.1 **SPD 30.43.02**

DESCRIPTION

The DECserver 100 Terminal Server is a network terminal switch for Ethernet Local Area Networks. The DECserver 100 provides a convenient method to logically connect up to eight DIGITAL asynchronous terminals to one or more service nodes (hosts) on an Ethernet. Once the terminal is connected, the user can utilize application programs and utilities as they would through a terminal directly connected to a host via a DZ11, DMF32, or DH11 device. Thus, it may be possible to utilize the DECserver 100 to connect all terminals to service nodes in place of traditional interfaces, except for host console terminals.

The DECserver 100 implements the Local Area Transport (LAT) protocol for communication with service nodes that implement this protocol on the same Ethernet. This new interface has been optimized for high terminal I/O performance over an Ethernet, while reducing host CPU cycles required to handle interrupts. Hence, under most I/O loading conditions, a significant performance gain may be realized by using the DECserver 100 over direct terminal connections via DZ11s.

Software that runs on the DECserver 100 is downline loaded over the network from a DECnet-VAX, DECnet-11M-PLUS, DECnet-Micro/RSX, or DECnet-20 load host. Terminal access using the DECserver 100 does not require DECnet running in the same service node; LAT uses the Ethernet addressing mechanism to transport terminal messages. However, one Phase IV DECnet load host must be running on the same Ethernet such that DECserver 100 software can be downline loaded.

For wide area network communications, terminal users can connect to a local service node running DECnet, where they can "SET HOST" to a remote system via the DECnet network terminal protocol. Note, too, that if this system has the requisite X.29 or SNA 3270 access routines, a terminal user could communicate to a remote SNA or X.25 host through the appropriate gateway and this intervening host. A DECserver 100 terminal user cannot communicate directly to remote hosts through DECnet Routers or X.25/SNA Gateways. Wide area network traffic will not provide the same high level of performance as local terminal connections, due to the additional DECnet and internet protocol overhead.

In a VAXcluster or TOPS-20 Common File System environment, the DECserver 100 provides functions to help balance processor loading and to maintain access to the cluster in the event of a cluster node failure. Features such as login load balancing, multiple terminal sessions, and automatic login failover can lead to greater user productivity.

Features

Terminal Connection Management

Through the use of a simple command, users can establish a logical connection, called a session, to any local service node that implements the LAT protocol. This connection makes the terminal appear as if it were physically connected to the service node, and the terminal user can use standard system utilities and applications supported by that node. Each terminal connected to the server can connect to the same or a different service node on the Ethernet. Furthermore, several servers can be used to connect many terminals to one or more service nodes.

A service node can have one or more services that are offered to DECserver 100 users. Services and nodes are identified by name. Users always connect to services, not to nodes, although often one of the service names will be the node name.

In a VAXcluster environment, the DECserver 100 sees each VAXcluster on the Ethernet as a collection of service nodes offering a common service. Each cluster node may also offer a service whose name is equivalent to its node name. In this case, a terminal user can connect either to the cluster service or a service associated with a particular cluster node.

Load Balancing

When a connection is made to a service, the actual node for the connection is determined by load balancing. Load balancing is a process the server uses when more than one node offers the same service. Service nodes do not have to be configured in a cluster in order for load balancing to be used. Using this process, the server connects to the node with the highest rating for the service desired. This rating is based on the current loading on the nodes that offer the service.

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Multiple Sessions

The DECserver 100 allows each user to establish and maintain up to four sessions to one or more service nodes. Only one session can be active at a time. Through simple switching commands, the user can access the different sessions without repeating a login dialog each time. Some operating systems may impose limitations on the number of LAT sessions such a host will support.

Local Mode and Service Mode

For the most part, the environment provided by the DECserver 100 is identical to that the user would experience if attached directly to the service node. When operating in this mode, the user is said to be in Service Mode. Occasionally, such as during connection establishment, the user interacts directly with the DECserver 100. When operating in this mode, the user is in Local Mode.

In Local Mode, the terminal input is interpreted directly by DECserver 100 as commands to be performed by the server. Local Mode has two different levels of operation: nonprivileged and privileged. Nonprivileged commands allow the terminal users to control their service sessions, set terminal characteristics, and show server information. Privileged mode is provided for the server manager to control the environment of the server and of the terminal users. Access to this mode is password protected.

The Terminal Server Manager environment is a logical extension of the user environment. The Server Manager is treated as a server user with a privileged status. The Server Manager sets a terminal to this status using a command which requires a password. This privileged status allows the Server Manager to enter commands not normally available to server users. These commands set server characteristics, provide control over server port usage, and provide the ability to control the user's access to the server and network services.

In Service Mode, the terminal input is passed directly to the connected service node with several exceptions. One exception, called the local switch character, allows the user to enter Local Mode from Service Mode. Other exceptions, called the forward and backward switch characters, allow the user to switch between sessions without the need to enter local mode. The switch characters are disabled by default but may be enabled by command. Both CTRL/S and CTRL/Q are normally interpreted locally but flow control using these characters can be disabled.

Autoconnection

Autoconnection is a function that automatically connects a user terminal to a service node when connection failures occur or upon user login to the server. In conjunction with this function, a dedicated or preferred service can be specified for each terminal user.

If a dedicated service is specified, the DECserver 100 will attempt to connect to that service when a character is typed on the terminal keyboard or when an existing connection fails. In dedicated service mode, only one session is available. As this mode is designed to simulate a direct terminal connection, no local mode commands or messages are available to the terminal user.

If a preferred service is specified, the DECserver 100 will attempt to connect to that service as with the dedicated service mode of operation. However, the terminal user can enter local mode and establish other sessions.

Automatic Session Failover

If a service is available on two or more service nodes and a connection to a service fails, the server will attempt to connect the user to another service node offering the same service. Autoconnection must be enabled for this feature to work. The user does not have to be already connected to that service node. Furthermore, the user's context at the time of failure is not automatically restored and login to the new service is required.

Groups

Every terminal and service node in a LAT network is a member of one or more groups. These groups are identified by numbers called group codes. Group codes allow an easy means of subdividing the network into what appears to be many smaller networks. A terminal user is only aware of the services that are offered by nodes in the same group(s).

A privileged user can change the group(s) in which a terminal is a member. Group codes provide a restrictive view of the network. This restricted view is mainly for user convenience and, although it also provides a form of security, it is not intended to be the primary form of access authorization or system security for a node.

Security

The DECserver 100 provides functions which enhance security features already available in the service nodes. DECserver 100 security includes the ability to lock a terminal's keyboard from other users, optional login protection, and nonprivileged local mode of operation as a default.

A user may lock the terminal using a lock password. This allows the user to leave sessions running at the terminal without fear of security violations. When a terminal is locked, all input from the terminal is ignored until the lock password is re-entered.

Login passwords can be enabled on a per-line basis by the privileged user. If enabled, the terminal user must enter a login password to access server functions. If a dedicated service is specified, login protection is not available.

DECserver 100 users normally have access to the nonprivileged local mode. In this mode, users may only issue commands that affect their own terminal environment. The server has a privileged mode for server manager's use. The mode is password protected.

Online HELP Facility

A limited online HELP facility is available to remind users of command syntax. It is not intended as a replacement for the documentation set.

Directory Service

Any DECserver 100 user can obtain a directory of services available to that user with a SHOW SERVICES command. Services for which the user is not authorized will not be displayed.

Terminal Parameter Configuration

Parameters governing the operation of an individual terminal can be modified and displayed by a nonprivileged terminal user interactively from their terminal. In the privileged mode, a server manager can modify parameters for other users' ports or for the server as a whole.

Permanent characteristics are maintained in DECserver 100 memory, even when the power is disconnected. Permanent characteristics are maintained for server-wide parameters as well as per-terminal parameters. Permanent characteristics can be reset to factory defaults by pressing the software reset button on the hardware unit while plugging in the power cord. Terminal parameters that can be set and displayed include: speed, character size, group codes, parity, and terminal type.

Terminal Operation

The DECserver 100 software supports the simultaneous operation of up to eight terminals at speeds from 75 bps to 19.2K bps. The software also supports:

- Split speed (transmit and receive) terminal operation
- Block Mode transfers
- Automatic line speed detection
- DIGITAL Personal Computer file transfer
- XON/XOFF handling

Terminals Supported

The DECserver 100 software supports the following DIGITAL terminal devices that have keyboards:

- LA12, 34, 35, 36, 38
- VT52
- VT100, 101, 102, 125, 131
- VT220, 240, 241

The DECserver 100 software also supports the following DIGITAL Personal Computers (PCs) in both terminal emulation mode and file transfer mode:

- Professional 325, 350, 380
- Rainbow 100A, 100B, 100+, 190
- DECmate II
- DECmate III

Note: This product is not warranted to support non-DIGITAL terminal devices and Personal Computers. However, those supporting VT100-like characteristics may operate with this product.

Modems Supported

None

Server Management

Several facilities exist for managing and troubleshooting server operation. A server manager in privileged mode can set up server identification information, change terminal parameters, or fine tune the operating characteristics of the server. Troubleshooting facilities include diagnostic tests and online statistics.

A privileged user can diagnose Ethernet communications problems by looping messages to an Ethernet host and through the Ethernet hardware interface at the server. To diagnose terminal problems, users can execute a command to transmit test data to their terminal, or the server manager can send test data to any terminal.

The server maintains a variety of statistics and counters. These include the following: Ethernet data link statistics, LAT protocol statistics, and terminal line error statistics. These data can be displayed and zeroed by a privileged terminal user. Server parameters that can be modified and displayed include the server identification, circuit timer, and login limits.

Remote Server Management

The DECserver 100 implements the console carrier feature which enables access to the DECserver 100 local mode from a Phase IV DECnet host on the same LAN. A restricted set of local mode functions are available to a console carrier user. This capability provides centralized server management and remote server diagnosis.

Communications

DECserver 100 software is designed to run on DECserver hardware exclusively. This hardware includes an Ethernet interface for connection to an Ethernet transceiver cable, and eight EIA RS-232-C/CCITT V.24 asynchronous line interfaces for connecting terminals to the unit. This product is designed for local terminal use only. Support for remote terminals and modem control is not provided.

DECserver 100 Operation

The DECserver 100 ROM-based firmware provides the necessary maintenance operation protocols for downline loading DECserver 100 software from a Phase IV DECnet load host over the Ethernet into server memory. All self-test diagnostics are in DECserver ROM, so downline loading is not a precondition for DECserver self-test. In the event of a bugcheck caused by a fatal error, the unit will normally attempt to upline dump server memory to a DECnet Phase IV host. Following this, the unit will automatically initialize itself and invoke a downline load.

Restrictions on DECserver 100 Usage

While terminal connections using the DECserver 100 have been designed to simulate direct terminal connections as much as possible, a few differences necessarily exist because of the nature of the product. Under most circumstances, these differences are not noticed by terminal users or service node application programs. However, applications which are directly dependent on the following functions may not operate as with a direct connection:

- Applications that depend on reading or setting the terminal speed, character size and parity by manipulating system data structures
- Applications that depend on an extremely fast response time (typically less than 200 ms) to operate
- Applications that utilize an alternate terminal driver in the service node
- Applications that directly receive and send BREAK signals and/or the XON/XOFF flow control characters (since these characters are normally intercepted and processed locally by the DECserver 100)

MINIMUM HARDWARE REQUIRED

The DECserver 100 software runs on either of the following packaged hardware options:

DSRVA-AA	DECserver 100 hardware, including eight EIA RS-232-C/CCITT V.24 asynchronous lines supporting speeds up to 19.2K bps, factory set at 120V.
DSRVA-AB	DECserver 100 hardware, including eight EIA RS-232-C/CCITT V.24 asynchronous lines supporting speeds up to 19.2K bps, factory set at 240V.

Use the following SHIELDED cable with each of the physical lines on the unit:

BC22D	Null modem cable for local terminal connections

The DECserver hardware requires both a transceiver drop cable and Ethernet connection, H4000 or DELNI, to connect to the Ethernet physical channel.

VMS service node software requires a valid MicroVAX I, MicroVAX II, VAX-11/725, VAX-11/730, VAX-11/750, VAX-11/780, VAX-11/782, VAX-11/785, or VAX 8600 system configuration.

An R80/RL02 configuration is required for VAX-11/730 systems.

Because all software run on the DECserver is downline loaded over the Ethernet from a Phase IV DECnet load host, this node must be a valid VAX/VMS, MicroVMS, RSX-11M-PLUS, Micro/RSX, or TOPS-20 system.

Refer to the Software Options Chart below to determine the distribution media available for a particular processor and operating system.

Block Space Requirements (Block Cluster Size = 1):

Disk space required for installation	300 blocks (153,600 bytes)
Disk space required for use (permanent)	300 blocks (153,600 bytes)

The Block Space Requirements above refer to the disk space required on the system disk. The sizes are approximations; actual sizes may vary depending on the user's system environment, configuration, and software options.

GROWTH CONSIDERATIONS

The minimum hardware requirements for any future version of this product may be different from the minimum hardware requirements of the current version.

OPTIONAL HARDWARE

None

PREREQUISITE SOFTWARE

DECnet-VAX (either full or end node license), DECnet-11M-PLUS (either full or end node license), DECnet-20, or DECnet-Micro/RSX (end node license) support on one or more DECserver load hosts (on the Ethernet) to downline load DECserver 100 software.

The DECserver 100 software license applies to the DECserver 100 on which the server software runs, not to service host node CPUs in the network.

Service Node and Downline Load Host Operating Systems

Service Node	Load Host
VAX/VMS, Version 4.0 or later	DECnet-VAX, Version 4.0 or later
MicroVMS, Version 4.0 or later	DECnet-VAX, Version 4.0 or later
RSX-11M-PLUS, Version 3.0 or later	DECnet-11M-PLUS, Version 3.0 or later
Micro/RSX, Version 3.0 or later	DECnet-Micro/RSX, Version 3.0 or later
TOPS-20, Version 6.1 or later	DECnet-20, Version 4.0 or later
ULTRIX-32, Version 1.1 or later	
ULTRIX-32m, Version 1.1 or later	

To support an ULTRIX-32 or ULTRIX-32m, Version 1.1 - DECserver 100 combination, it is necessary to downline load the DECserver 100 from a service host that is capable of doing so.

OPTIONAL SOFTWARE

None

SOFTWARE WARRANTY

Warranty for this software product is provided by DIGITAL with the purchase of a license for the product. There is no additional charge. This software product is warranted to conform to the Software Product Description (SPD). This means that DIGITAL will remedy any nonconformance when it is reported to DIGITAL by the customer during the warranty period.

The warranty period is ninety (90) days. It begins when the software is installed or thirty (30) days after delivery to the end user, whichever occurs first and expires ninety (90) days later. All warranty related support for this software will end 180 days after release of the subsequent version.

Warranty is provided in the country of purchase. DIGITAL will provide a service location which will accept reporting (in a format prescribed by DIGITAL) of a nonconformance problem caused when using the licensed software under normal conditions as defined by the SPD. DIGITAL will remedy a nonconformance problem in the current unaltered release of the licensed software by issuing correction information such as: correction documentation, corrected code, or notice of availability of corrected code; or a restriction or a bypass. The customer will be responsible for the preparation and submission of the problem report to the service location.

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DIGITAL DOES NOT WARRANT THAT THE SOFTWARE LICENSED TO CUSTOMER SHALL BE ERROR FREE, THAT THE SOFTWARE SHALL OPERATE WITH ANY HARDWARE AND SOFTWARE OTHER THAN AS SPECIFIED IN THIS SPD, THAT THE SOFTWARE SHALL SATISFY CUSTOMER'S OWN SPECIFIC REQUIREMENTS, OR THAT COPIES OF THE SOFTWARE OTHER THAN THOSE PROVIDED OR AUTHORIZED BY DIGITAL SHALL CONFORM TO THE SPD.

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IF THE SOFTWARE FAILS TO FUNCTION FOR REASONS STATED ABOVE, THE CUSTOMER'S WARRANTY WILL BE INVALIDATED AND ALL SERVICE CALLS WILL BE BILLABLE AT THE PREVAILING PER CALL RATES.

INSTALLATION

This software product can be installed by the customer using the step-by-step documentation available for this product. Optionally you can purchase DIGITAL Installation Services which provide for the installation of the software product by an experienced DIGITAL Software Specialist.

Customer Responsibilities

Before installation of the software, the customer must:

- Previously have installed all requisite hardware including terminals.
- Obtain, install, and demonstrate as operational other communications equipment and facilities necessary to interface to DIGITAL's communication equipment.
- Make available for a reasonable period of time, as mutually agreed by DIGITAL and the customer, all hardware, communication facilities, and terminals that are to be used during the installation.
- For multinode networks, designate one Ethernet host to verify installation/connectivity.

DIGITAL's Installation Services can be purchased as a separate service.

Courtesy Installation Service

This software product will be installed by DIGITAL at no additional charge if you purchase it concurrent with a Startup Service Package that includes installation service. Both the operating system and this product must be installed concurrently.

ORDERING INFORMATION

Single-Use licensed software is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide in part that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of DIGITAL's copyright notice and any proprietary notices on the software) for use on such CPU.

You will need a separate license for each Server CPU on which you will be using the software product (except as otherwise specified by DIGITAL). Then you will select the Materials and Service Options you need to utilize the product effectively. **IF YOU ARE ALREADY FAMILIAR WITH THESE OPTIONS, YOU MAY OBTAIN THE ORDERING INFORMATION DIRECTLY FROM THE SOFTWARE OPTIONS CHART.** In most cases, you will want to review the following descriptions to determine what options you require.

LICENSE OPTIONS

Single-Use License Option

The Single-Use License is your right to use the software product on a single Server and it includes your 90 day warranty.

For your first installation of this software product you must purchase as a **minimum**:

- Single-Use License Option, and
- Distribution and Documentation Option

The license gives you the right to use the software on a single Server and the Distribution and Documentation Option provides the machine-readable software and related documentation.

To use this software product on additional Servers, you must purchase for each CPU as a **minimum**:

- Single-Use License Option

In addition to the right to use, the license gives you the one-time right to copy the software from your original CPU installation to the additional CPU. Therefore, the Distribution and Documentation Option is not required, but optional.

VAXcluster License Option

You are eligible for a VAXcluster license option on your second or each subsequent CPU that is part of a VAXcluster system. This is a Single-Use License offered at a reduced price and provides all of the License rights described above. A standard, Single-Use License Option (QDxxx-UZ, QExxx-UZ, or QKxxx-UZ) is required with the first purchase of this software product and is also required for the first CPU of a VAXcluster system.

For software configuration purposes, a VAXcluster system is a set of VAX processors, each running the VMS operating system, where each VAX processor has a direct

path to every other VAX processor via Computer Interconnect (CI) Bus.

MATERIALS AND SERVICE OPTIONS

Distribution and Documentation Option

The Distribution and Documentation option provides the machine-readable software in binary form and the basic documentation. You must have, or order, a Single-Use License to obtain this option. You will need this option to install the software for the first time. When revised versions of this software product become available, they may also be obtained by purchasing this option again.

If you prefer to receive automatic distribution of revised versions for this product, you must purchase a Software Product Service Agreement.

Software Revision Right-To-Copy Option

The Right-To-Copy Option allows a customer with multiple CPUs to copy a revised version of a software product from one CPU to another. Each CPU must be licensed for that product. You first install the revised software on one CPU; then you can make copies for additional CPUs by purchasing the Right-To-Copy Option for each additional CPU.

If you prefer to automatically obtain the right-to-copy, you must purchase a Service Right-to-Copy for each additional CPU; this is a service added to a Software Product Service Agreement.

Documentation-Only Option

You can obtain one copy of the basic documentation by purchasing the Documentation-Only Option.

Installation Service Option

DIGITAL's Installation Service is provided by a DIGITAL Software Specialist and accelerates your productive use of this product. For more information on what is included in this service, please obtain the appropriate Service Description from your local DIGITAL office.

Installation Service will be provided at no additional charge (Courtesy Installation) under the conditions described in the Installation section above. The installation service consists of:

- Installation of DECserver 100 software on up to two DECnet load hosts
- Configuration of up to ten DECserver 100 unites on each load host
- Configuration of LAT service node software (i.e. LTDRIVER) on up to two service nodes
- Installation verification and checkout
- Customer Orientation Demo

Software Product Service Agreements

DIGITAL offers licensed customers annual Software Product Service Agreements to maintain their software:

DECsupport Service is the most comprehensive level of service offering critical problem on-site assistance and scheduled preventative maintenance. You receive telephone support that gives you timely answers and solves most software problems. In addition, you get revised versions of the software and documentation, and system newsletters or dispatches.

BASIC Service is ideal for customers who have a staff whose experience and expertise enables them to analyze and communicate a software problem to DIGITAL remote support centers. You receive telephone support that gives you timely answers and solves most software problems. In addition, you get revised versions of the software and documentation, and system newsletters or dispatches.

Self-Maintenance Service is designed for customers who require revised versions of the software and documentation from DIGITAL. In addition, you get system newsletters or dispatches and may submit software performance questions.

A variety of service options may be added to an existing Software Product Service Agreement, such as service for multiple-like systems. Contact your DIGITAL representative for additional information and ordering details.

The Prerequisite Software, as specified by this SPD, must have the equivalent level Software Product Service.

For more information on what is included in these agreements, please obtain the appropriate Service Description from your local DIGITAL office.

Training From Educational Services

To ensure customer success with DIGITAL products, Educational Services sells training for the installation, maintenance and/or management of DIGITAL software. Course formats vary from seminars to packaged training materials that include self-paced instruction and computer-based instruction to traditional lecture/labs at DIGITAL's worldwide Training Centers.

For a complete listing of course schedules and prices, refer to the *DIGEST*, Educational Services' quarterly publication. For curriculum-specific information, training recommendations and assistance in planning training programs, please contact your Educational Services Representative.

Professional Software Services

DIGITAL Software Specialists are available on a per-call or resident contract basis to help in all phases of software development or implementation. Specialists are available to serve as technical consultants, decision support consultants or business systems analysts. Resources are available to:

- Supplement your programming staff
- Assume project management responsibility
- Develop software
- Augment a system start-up service package with tailored services to meet specific needs

Contact your DIGITAL representative for additional information and ordering details.

SOFTWARE OPTIONS CHARTS

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g., QC925-HG = binaries on TU58 DECtape II Cartridge.

3 = RX50 Floppy Diskette
5 = TK50 Tape Cartridge
G = TU58 DECtape II Cartridge *
H = RL02 Disk Cartridge
M = 9-track 1600 BPI Magtape (PE)
Y = RX01 Floppy Diskette
Z = No hardware dependency

* The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Chart I

NOTE: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability.

OPTIONS	ORDER NUMBER VAX-11/725 VAX-11/730	ORDER NUMBER VAX-11/750	ORDER NUMBER VAX-11/780 VAX-11/782* VAX-11/785	ORDER NUMBER VAX 8600
LICENSE OPTIONS: A LICENSE IS REQUIRED FOR EACH CPU.				
Single-Use License	QC925-UZ	QD925-UZ	QE925-UZ	QK925-UZ
VAXcluster License		QD925-QZ	QE925-QZ	QK925-QZ
MATERIALS AND SERVICE OPTIONS:				
Distribution and Documentation Option	QC925-HG QC925-HM	QD925-HG QD925-HM	QE925-HM QE925-HY	QK925-HM
Software Revision Right-To-Copy Option	QC925-HZ	QD925-HZ	QE925-HZ	QK925-HZ
Documentation Only Option	QL925-GZ	QL925-GZ	QL925-GZ	QL925-GZ
Installation Service Option	QC925-IG QC925-IM	QD925-IG QD925-HM	QE925-IM QE925-IY	QK925-IM
DECsupport Service	QC925-9G QC925-9M	QD925-9G QD925-9M	QE925-9M QE925-9Y	QK925-9M
Basic Service	QC925-8G QC925-8M	QD925-8G QD925-8M	QE925-8M QE925-8Y	QK925-8M
Self-Maintenance Service	QC925-3G QC925-3M	QD925-3G QD925-3M	QE925-3M QE925-3Y	QK925-3M

* For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

Chart II

NOTE: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability.

OPTIONS	ORDER NUMBER MicroVAX I	ORDER NUMBER MicroVAX II	ORDER NUMBER MicroRSX	ORDER NUMBER RSX-11M-PLUS
LICENSE OPTIONS: A LICENSE IS REQUIRED FOR EACH CPU.				
Single-Use License	QN925-UZ	QZ925-UZ	QYAAC-UZ	QR925-UZ
MATERIALS AND SERVICE OPTIONS:				
Distribution and Documentation Option	QN925-H3	QZ925-H3 QZ925-H5	QYAAC-H3 QYAAC-H5	QR925-HH QR925-HM
Software Revision Right-To-Copy Option	QN925-HZ	QZ925-HZ	QYAAC-HZ	QR925-HZ
Documentation Only Option	QL727-GZ	QL727-GZ	QYAAC-GZ	QR925-GZ
Installation Service Option	QN925-I3	QZ925-I3 QZ925-I5	QYAAC-I3 QYAAC-I5	QR925-IH QR925-IM
DECsupport Service	QN925-93	QZ925-93 QZ925-95	QYAAC-93 QYAAC-95	QR925-9H QR925-9M
Basic Service	QN925-83	QZ925-83 QZ925-85	QYAAC-83 QYAAC-85	QR925-8H QR925-8M
Self-Maintenance Service	QN925-33	QZ925-33 QZ925-35	QYAAC-33 QYAAC-35	QR925-3H QR925-3M

SOFTWARE PERFORMANCE REPORT (SPR) SUBMISSIONS

Digital Equipment Corporation guarantees a response to every SPR submitted by DIGITAL specialists and customers who purchase software product service agreements.

Blank SPR forms are available upon request in desired quantities from SPR Administration, P.O. Box F, Maynard, MA 01754, or your local DIGITAL office.

Inquiries on the progress of submitted SPRs should be directed to your local DIGITAL office or SPR Administration at (617) 493-4722.

An SPR Answer Survey Card is enclosed with each SPR response. Please complete the survey card; it provides essential feedback for monitoring the quality of our SPR responses.

Completing an SPR Form

Complete the entire form by either typing or printing clearly. Remove "Customer File Copy" for your records. Leave carbon in tact.

Include customer name and **complete** mailing address.

To expedite the processing of your SPR, enter your **Customer Number** in the space provided. This number is located in the upper left-hand corner of your Dispatch label. It can also be obtained from your local DIGITAL office or by calling SPR Administration at (617) 493-6683.

If you do not want your SPR to be published, check the "DO NOT PUBLISH" box on the SPR form. However, if the SPR is determined to be of universal value and it does not describe a security problem, DIGITAL may elect to publish it. For SPRs which describe security problems, it is imperative that the "DO NOT PUBLISH" box be marked.

Describe one problem per SPR form. If an SPR is submitted with more than one problem, it can lengthen the turnaround time.

State the problem clearly. If necessary, summarize the problem, then describe in detail.

Include all the information needed to reproduce the problem. The easiest problems to fix are those reported in statements similar to the following: if you do X, Y happens when Z should.

State all version numbers and all inserted patches. The problem can be fixed sooner if the version is known. Please include the operating system version even on operating system SPRs, since operating system bugs sometimes manifest themselves as "bugs" in other programs. A statement of patches inserted in the relevant software is also helpful. State the type of terminal or work station on which the software is running, e.g., VT100, VT220, PRO 350, DECmate.

Include as much information as possible; too much information is better than not enough. Send all information in machine-readable format if it occupies more than half a page. Please include the following:

1. Program causing the problems
2. All necessary auxiliary files, such as DBMS or LIBRARY files
3. Assembly switches which are on (if applicable)
4. Switches handed to the software, since different switches cause different sections of the code to be executed
5. All necessary run-time files for language run-time problems
6. A directory listing of media, when included; label media carefully

SUGGESTIONS FOR SUBMITTING TAPES WITH SPRs

To insure timely processing of SPRs submitted with tapes, please follow the suggestions below:

1. Use either a floppy or a magnetic tape.
2. If a magnetic tape is used, it should be either 800, 1600, or 6250 bpi.
3. Include a directory with each tape submitted.
4. Label each tape with the following information:
    a. Customer name
    b. Tape format
    c. bpi
    d. Track
    e. Preprinted number of the SPR submitted with the tape
5. Remove from the tape any unnecessary or confidential files.

Thank you.

SOFTWARE PROBLEMS OR ENHANCEMENTS

Questions and problems regarding, and enhancements to, DIGITAL software should be reported on a Software Performance Report (SPR) form and mailed to the SPR Center at one of the following DIGITAL offices (SPR forms are available from the SPR Center):

AREAS COVERED	SPR CENTER
United States	Corporate Administrative Services Group P.O. Box F Maynard, MA 01754
Canada	Digital Equipment of Canada, Ltd. P.O. Box 13000 Kanata, Ontario Canada, K2K 2A6
Mexico	Digital Equipment de Mexico S.A. de C.V. Apartado Postal 12-1009 Mexico 12, O.F. Mexico
Puerto Rico	Digital Equipment Latin America P.O. Box 11038 Fernandez Juncos Station Santurce 00910 Puerto Rico
Australia, New Zealand	Digital Equipment Aust Pty Ltd 754 Pacific Hwy 1st floor M/SSNH/B-1 Chatswood, New South Wales 2067 Australia
Brazil	Digital Equipment Comercio e Industria Ltda. Avenida Augusto Severo, 156-A 20021 Rio de Janeiro, RJ Brazil
China	Digital Equipment Hong Kong Ltd. 5-7th Floor Intercontinental Plaza 94 Granville Road Tsimshatsui East Kowloon Hong Kong
Remainder of General International District (GID)	Digital Equipment Corp. General International District - SWS 100 Nagog Park Acton, MA 01720-3499 United States
United Kingdom, Bahrein, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Qatar, Oman, Saudi Arabia, Syria, United Arab Emirates, Yemen Arab Republic	Digital Equipment Co. Ltd. Jays Close Basingstoke, Hampshire RG22 4DE England
France	Digital Equipment France Zone Industrielle Bois de L'Epine 11 Avenue Joliot Curie BP 202 91007 Evry Cedex France

AREAS COVERED	SPR CENTER
Italy	Digital Equipment S.p.A. Viale Fulvio Testi, 11 Ang. Via Gorki 105 1-20092 Cinisello Balsamo Milan Italy
Japan	Nihon Digital Equipment Corp. Sunshine 60, P.O. Box 1135 1-1 Higashi Ikebukuro 3-Chome, Toshima-Ku, Tokyo, 170 Japan
Belgium, Luxemburg	Digital Equipment N.V./S.A. Rue De L'Aeronef 1 B-1140 Brussels Belgium
Holland	Digital Equipment B.V. Kaap Hoorndreef 38 NL-3563 AV Utrecht Holland
Sweden	Digital Equipment AB SPR Admin. M-B Duff/CSC Allen 6 S-172 89 Sundbyberg Sweden
Denmark	Digital Equipment Corp. A/S Sandtoften 9 DK-2820 Gentofte Denmark
Finland	Digital Equipment Corp. OY Box 16 02201 ESPOO Finland
Norway	Digital Equipment Corp. A/S Ammerudveien 22 N-0958 Oslo 9 Norway
Austria, East Germany, West Germany, Poland, Hungary, Rumania, Czechoslovakia, Russia, Bulgaria	Digital Equipment Corp. GmbH SPR Centre - D2 Freischuetzstrasse 91 8000 Muenchen 81 West Germany
Israel	Digital Equipment Ltd. Digital House Acadia Junction Herzlia 46 733 Israel
Greece, Portugal, Spain, Switzerland, Yugoslavia, (Morocco, Algeria, Tunisia, Cyprus, Turkey, Malta)	Digital Equipment Corp. AG Kanalstrasse 21 CH-8152 Glattbrugg (Zurich) Switzerland

DIGITAL SOFTWARE LICENSING

DATA SHEET

This data sheet explains what software licenses are and why customers must obtain a software license to run any item of DIGITAL proprietary software.

DIGITAL does not sell software; DIGITAL offers software under a license agreement. DIGITAL has a license agreement for source software and object software. Since DIGITAL software programs are made available primarily in object code, this data sheet focuses on the purchase of object programs.

Introduction to Software Licensing

When DIGITAL hardware is purchased, all rights of ownership (legally called "title") to the hardware pass to the customer. This is not the case with software. DIGITAL regards software as proprietary information. Since software is easily reproduced, it must be legally protected from improper copying. Therefore, DIGITAL uses a combination of trade secret and copyright legal protection for software. DIGITAL protects its investment by retaining title to its software at all times and requires anyone wishing to use it to obtain a license.

How DIGITAL Licenses Software

The license agreement for object programs is contained in DIGITAL's standard Terms and Conditions of Sale and Corporate Volume Purchase Agreements instead of as a separate agreement. Therefore, when software products are purchased under DIGITAL's Terms of Sale, the software license agreement is made at the same time.

Key Principles of the License Agreement

Object code is licensed for single use. This means obtaining a license for a product allows the associated software to be used on the "single" CPU on which it was first installed. Other key points are as follows:

- If the licensed CPU temporarily malfunctions, the software may be run on another machine while the CPU is down.
- Copies of the software may be made for backup purposes if appropriate proprietary and copyright notices are included.
- The software may be modified or merged with other software if appropriate proprietary and copyright notices are included.
- The software may be used by the customer's employees and its agents directly concerned with the internal use, but may not be made available to anyone else.

Modification to the Software Product

Any modification to licensed software does not exempt the product from DIGITAL license terms. Every line of code from a software product falls under the terms of the license. Only those modifications that are not part of the original software are the customer's property. It is important to note that warranty on the product is limited to the original software supplied by DIGITAL.

Transferability of Licensed Software Products

License Transfer - A license agreement does not automatically allow transfer of licensed software to another party or another CPU. If the customer intends to sell the licensed CPU and pass on the software with the sale or move the software onto another CPU, permission must be obtained from DIGITAL. A case-by-case License Transfer is required to relicense the software.

Software Sublicensing - DIGITAL customers with a purchase agreement authorizing sublicensing, such as OEMs, may transfer licensed object products to their customers without a License Transfer. A valid sublicense, executed by an OEM with its customer, gives the OEM's customer the same license rights and responsibilities as a license agreement made directly with DIGITAL.

Source Software

Sources are only available for selected products. A license agreement for source software must be separately executed for each facility/location which intends to purchase sources in machine-readable, listing, or microfiche form. Further information and availability of sources can be found in the applicable Software Product Description (SPD).

Software Warranty

Each licensed software product offered has an SPD describing the warranty commitment for the product. Software products under DIGITAL warranty must conform to the description provided for a 90-day period, which generally begins upon product installation or 30 days after delivery. All other products are provided AS IS, without warranty. The SPD clearly states under which warranty category the product falls.

Purchasing the License for the Software Product

A license must be obtained for each CPU on which the licensed software will be used (unless otherwise specified by DIGITAL).

A Single-use License for object code is generally ordered according to the type/classifcation of the CPU or system configuration intended to run the product. Further information and availability can be found in the applicable SPD

Software Product

A license is a prerequisite to purchase the associated software. The Media and Documentation Option for a product is ordered according to media type. Further information and availability of media can be found in the applicable SPD.

Purchasing Software Product Revisions/Updated Versions

If a licensed customer is not covered by a product service agreement, updated versions can be purchased when they are made generally available. Updated versions are ordered according to media type. A customer can also choose to run updated versions on additional CPUs, but not purchase multiple media distributions. If this is the case, the Software Revision Right-to-Copy option must be purchased for each CPU which runs the updated version.

Software Product Services

A licensed customer can purchase annual product service agreements to receive updated versions on media when available. A customer may choose to copy updated versions onto additional CPUs during this service agreement period. In this case, the software Service Right-to-Copy must be purchased for each CPU which runs the updated version. Further information and availability can be found in the applicable SPD. Your local DIGITAL office can be contacted for additional assistance.

DIGITAL EQUIPMENT COMPUTER USERS SOCIETY

BENEFITS OF BELONGING

The Digital Equipment Computer Users Society (DECUS) is one of the largest and most respected users groups in the computer industry today. Membership in DECUS, which is free and voluntary, provides the individual user with information and services not found anywhere else.

DECUS provides an environment where users of Digital Equipment Corporation products can share information with other users and with DIGITAL. Members can find out the latest news on DIGITAL's hardware, software, and educational products. The feedback exchange with DIGITAL allows the users of DIGITAL's products to have a voice in the company's future.

Founded in 1961, DECUS now has three autonomous areas worldwide - DECUS U.S., DECUS Europe, made up of eight independent chapters, and DECUS GIA (General International Area), made up of four independent chapters. DECUS services and activities are shared between these chapters through mutual agreements.

All DECUS services promote the exchange of information in a noncommercial environment. Included in these services are:

Special Interest Groups (SIGs)

These groups, formed around an area of common interest, exist for a variety of hardware, operating systems, languages, applications, and marketing areas. Participation in these groups allows fellow users to exchange information and share technical expertise in the areas of most interest to the users.

Local Users Groups (LUGs) and National Users Groups (NUGs)

LUGs and NUGs are licensed groups of individuals who gather to share information with other users on a periodic basis. Not only do they have common professional interest, but they also have geographic and cultural ties. DIGITAL representatives attending these meetings often unveil new products and services and supply updates on existing policies and procedures.

Symposia

DECUS holds symposia each year in the different chapters, two per year in the U.S. These meetings provide a unique opportunity for users with a wide spectrum of experience to meet for up to five days of intensive technical exchange. Symposium activities include workshops, clinics, panels, tutorials, and formal paper presentations. DIGITAL participates in symposia by sending Product Group managers and developers to discuss strategies, products, problems, and solutions.

Publications

The flow of information among users, as well as between users and DIGITAL, is the primary goal of DECUS. Various publications generated by DECUS support this communication. They include chapter newsletters and *The Proceedings*, a technical volume published after each symposium. DECUS also publishes Special Interest Groups' newsletters that provide information pertaining to specific DIGITAL products.

Program Library

The DECUS Program Library is the main vehicle for the exchange of software among users of all DIGITAL systems. The Library contains over 1000 software programs written and voluntarily submitted by users. These programs include compilers, editors, utilities, numerical and statistical functions, as well as games and graphic routines. The Library publishes an annual software catalog that lists and describes all the DECUS programs available to all users for a minimal charge.

You are cordially invited to join over 60,000 other users of DIGITAL products around the world and begin to share your experiences, both successes and problems.

For more information, contact the appropriate DECUS chapter office listed here.

DECUS CHAPTER OFFICES — WORLDWIDE

DECUS U.S.

DECUS, U.S. Chapter
219 Boston Post Road (BPO2)
Marlborough, Massachusetts 01752
U.S. Activities: (617) 480-3259 (3302)
Library: (617) 480-3521
Finance and Administration: (617) 480-3634

DECUS Europe

DECUS At Large (in Europe)
C.P. 510
CH-1213 PETIT-LANCY 1/GE
Switzerland

DECUS Denmark
Digital Equipment Corp. A/S
Sandtoften 9
DK-2820 Gentofte
Denmark

DECUS France
BP. 136
F-91004 EVRY CEDEX

DECUS Holland
Kaap Hoorndreef 38
NL-3563 AV UTRECHT
The Netherlands

DECUS Muenchen
Freischuetzstrasse 91
D-8000 MUENCHEN 81
Federal Republic of Germany

DECUS Italia
Viale Fulvio Testi 11
I-20092 CINISELLO BALSAMO

DECUS Norway
Digital Equipment Corp. A/S
Ammerudveien 22
N-0958 Oslo 9
Norway

DECUS Sweden
S-172 89 SUNDBYBERG
Sweden

DECUS U.K., Ireland and
Middle East
P.O. Box 53
READING, RG2 OTW
U.K.

DECUS Switzerland
Schaffhauserstrasse 144
8302 Kloten
Switzerland

DECUS GIA (General International Area)

DECUS Australia
Northern Tower, Chatswood Plaza
Railway Street
Chatswood, New South Wales 2067
Australia
Phone: (02) 412.5237

DECUS Canada
100 Herzberg Road
P.O. Box 13000
Kanata, Ontario K2K 2A6
Canada
Phone: (613) 592-5111, ext. 2115

DECUS Japan
Nihon Digital Equipment KK
Sunshine 60, P.O. Box 1135
1-1, Higashi Ikeburo 3-Chome
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