

**RT-11**

**August 1980**

**AD-C740C-B5**

**THE  
SOFTWARE  
DISPATCH**

**digital**

## RT-11 SOFTWARE DISPATCH

Published by  
Corporate Administrative Systems Group, Software Services  
Digital Equipment Corporation  
P.O. Box F  
Maynard, MA 01754

The RT-11 Software Dispatch complements the RT-11 Software Dispatch Review. 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 RT-11 SOFTWARE DISPATCH

APL-11 V1	FORTRAN/RT-11 Extensions V2.1	PLOT 11/RT-11 V1.1
BASIC-11/RT-11 V2	FORTRAN IV/RT-11 V2, V2.1	RT-11 V3B, RT-11 V4
BASIC/RT Extensions V1	GAMMA-11 F/B V2C, V3	RT-11 (CTS-300) LSI-11
CTS-300 V5	Lab Applications-11 LIBRARY V3	2780 V2
DECnet/RT V1, V1.1	LSP-11 V1	RT-11/2780
FOCAL/RT-11 V1B	MSB11 V1	(CTS-300/2780) V2
FORTRAN Graphics	MSB/FORTRAN IV V1	SSP-11/RT-11 V1.1
Package V1.1	MU BASIC-11/RT-11 V2	

### DISTRIBUTION

The RT-11 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 Agreement, and/or Quantity Discount Agreement contain the licenses for all binaries other than DECsystem-10.

Eleanor F. Hunter, Editor  
Ann Owens, Associate Editor

Copyright © 1980 Digital Equipment Corporation

The material in this document is for information purposes only and is subject to change without notice. Digital Equipment Corporation assumes no responsibility for any errors which may appear in this document. Comments on the contents of this publication should be directed to your local DIGITAL Field Office.

TRADEMARKS of DIGITAL EQUIPMENT CORPORATION  
Maynard, Massachusetts

DEC  
DECUS  
DIGITAL LOGO  
DECnet  
DECsystem-10  
DECSYSTEM-20

DECwriter  
DIBOL  
EDUsystem  
IAS  
MASSBUS  
PDP

PDT  
RSTS  
RSX  
UNIBUS  
VAX  
VMS  
VT

TABLE OF CONTENTS

	SEQ. NO.	PAGE
SPR USER LETTER		1
RT-11 V4.0		
DEVICE HANDLER SOURCES		
LP.MAC		
LP SET NOHANG MAY CRASH SYSTEM	6.12.1 M	3
LS.MAC		
LS SET NOHANG MAY CRASH SYSTEM	6.13.1 M	5
TS.MAC		
LINKING AN XM, NON-FILESTRUCTURED TS HANDLER GENERATES AN UNDEFINED GLOBAL	6.20.2 M	7
SYSTEM UTILITIES		
DUP.SAV		
SQUEEZE CREATES <UNUSED> ENTRIES OF LENGTH ZERO BEFORE .BAD FILES	7.2.2 M	9
RESORC.SAV		
RESORC MAY REPORT INCORRECT JOB NAMES ON A SHOW JOBS COMMAND	7.5.1 M	11
LINK.SAV		
LINK MAP PROCESSING ERROR	7.9.2 M	13
FILEX.SAV		
FILEX WILDCARD TRANSFERS CAUSE MONITOR TRAP	7.11.1 M	15
SRCCOM.SAV		
COMPARING TWO FILES MAY CAUSE TRAP TO 4	7.12.1 M	17
DOCUMENTATION		
RT-11 SYSTEM RELEASE NOTES		
DOCUMENTATION CORRECTIONS	11.2.2 N	19
RT-11 INSTALLATION AND SYSTEM GENERATION GUIDE		
CORRECTION TO AN OPTIONAL PATCH TO LINK	11.3.2 N	21
KEYPAD EDITOR		
KED		
MAKE TERMINAL SETUP OPTIONAL IF MTATCH FAILS	17.1.1 F	23
PROVIDE A .CHAIN INTERFACE FOR KED	17.1.2 F	27
PROVIDE REASONABLE ACTIONS AND ERROR MESSAGES WHEN DEALING WITH DEGENERATE FILES	17.1.3 M	31
K52		
MAKE TERMINAL SETUP OPTIONAL IF MTATCH FAILS	17.2.1 F	35
PROVIDE A .CHAIN INTERFACE FOR K52	17.2.2 F	39
PROVIDE REASONABLE ACTIONS AND ERROR MESSAGES WHEN DEALING WITH DEGENERATE FILES	17.2.3 M	43
FMS-11/RT-11 V1.1		
ANNOUNCING FMS-11/RT-11 V1.1	33.1 N	47

## TABLE OF CONTENTS (Cont'd.)

	SEQ. NO.	PAGE
FORTRAN IV/RT-11 V2.1		
DOCUMENTATION		
INSTALLING FORTRAN IV V2.1 UNDER RT-11 V4	44.3.2 N	49
DECnet-RT V1.1		
NETGEN		
FULL DUPLEX, EXTENDED MEMORY DUP DRIVER WON'T BUILD	50.3.1 M	51
DDCMP		
DDCMP BRANCH OUT OF RANGE AND Q ELEMENT RETURN PROBLEMS	50.5.1 M	53
NSP		
NSP CORRUPTS PHYSICAL LINE ERROR CODE	50.6.1 M	55
FAL		
FAL MAY HANG ON ASCII TRANSFERS OF UNFILLED BLOCKS	50.10.2 M	57
FAL WILL NOT ALLOW ACCESS COMPLETE AFTER CONTROL CONNECT	50.10.3 M	59
NFARS		
DAP ROUTINES DO NOT REPORT PHYSICAL LINE ERRORS	50.11.1 M	61
DAP ATTEMPTS TO MULTIPLY RETURN BUFFERS ON ERROR	50.11.2 M	65
DAP SEND ONE CHARACTER ON ZERO LENGTH TRANSMITS	50.11.3 M	67
DAPAST CLEARS THE USER CHANNEL NUMBER TOO SOON	50.11.4 M	71
CTS-300 V06		
DKED		
TWO PROBLEMS WITH DKED	51.7 M	75
TDIBOL		
PROBLEM WITH XCALL PAK	51.17 M	79
XMTSD		
CONFLICT BETWEEN XMTSD AND RT-11 OVER CHANNEL 16	51.20 M	81
DOCUMENTATION		
CTS-300 VERSION 6 IS RELEASED	51.21 N	83
RT-11 V4.0 CUMULATIVE INDEX		85
RT-11 V3B CUMULATIVE INDEX		91
SOFTWARE PRODUCT DESCRIPTIONS (SPDs)		99
DIGITAL EQUIPMENT COMPUTER USERS SOCIETY (DECUS)		125

## SPR USER LETTER

Submitted by Sheila Hatchell, 8/11 Administration

The Dispatch SPR User Letter has been revised to reflect the new SPR form which is now available. These forms can be obtained from your local DIGITAL Office or SPR Center, or by requesting them from SPR Administration.

### How to Make the Best Use of the SPR Form

#### What We Can Do for You:

1. Blank SPR forms are available upon request in the desired quantities through the SPR Administration (P.O. Box F) and your local office/SPR Center.
2. Copies of the SPR acknowledgement and answer are sent to the appropriate DIGITAL Office/SPR Center for their information.
3. STATUS FOR SUBMITTED SPRs IS PROVIDED UPON REQUEST.
4. SPRs marked PROBLEM/ERROR will have a response for DIGITAL SUPPORTED products. These SPRs should refer to suspected deficiencies in the software.
5. SPRs marked SUGGESTION are forwarded to the pertinent software group for information purposes, and are responded to at their discretion.

#### What You Can Do for Us:

1. Fill out the form completely either by typing or printing clearly. **PLEASE INCLUDE YOUR SOFTWARE SERVICE CUSTOMER NUMBER IN THE ADDRESS BOX.**
2. Limit only one problem per SPR form. Several problems on an SPR can lengthen the turnaround time.
3. WHENEVER POSSIBLE, SUBMIT AN SPR WITH ATTACHMENTS, SUCH AS MACHINE READABLE DATA, DETAILED INSTRUCTIONS ON HOW TO REPRODUCE THE PROBLEM, PROGRAM AND/OR DATA FILES, LISTINGS, AND CONSOLE LOG.
4. It would be helpful to all concerned if problems with patches are reported as soon as possible.
5. For security SPRs, it is imperative that the DO NOT PUBLISH box be marked.
6. It would be helpful if tapes submitted with SPRs are labeled (track and density), and have a directory attached.
7. Complete the questionnaire that is supplied with each SPR answer. Your feedback is essential in monitoring the quality of our responses.
8. SPRs should not be used for problems concerning software policy, software distribution, or hardware. The local office should be contacted in these cases.

**LP SET NOHANG MAY CRASH SYSTEM (LP)**

If the LP handler is set NOHANG and the line printer is taken off-line while in operation, the system may crash under certain conditions.

1. The following is a required patch to the RT-11 device handler source file LP.MAC. You must apply it to the uncommented sources supplied with the Version 4 distribution kit and then rebuild your handler. You must apply this patch if you use the LP handler, whether or not you have performed a system generation.

NOTE: Since patching the distribution medium is not recommended, the patch must be installed whenever you copy the handler source from the distribution medium.

2. To install the patch, you must first create a patch file for input to the SLP utility. Using an editor, create a file called LP.001 on your system volume. Enter the text below into the file. The hyphen must be the first character in the file. The special symbol '<tab>' indicates the TAB character. All other blank space in the text should be entered in the file as single SPACE characters.

```

-\
-22, ,/;001/
ELLP<tab>= 1
-112, ,/;001/
.SBTTL<tab>DRIVER EDIT LEVEL
.ASECT
.=110
.WORD<tab>ELLP
-124, ,/;001/
<tab>MOV<tab>LPCQE,R4
/

```

3. Apply the patch to the source file as follows:

```

.R SLP
*LP.MAC=LP.MAC,LP.001
*^C (CTRL/C to exit)

```

4. Now issue the following commands. In these commands, the notation xxx represents the SYCND file type, either DIS for distributed, or MAC for system generated.

```

.MACRO SYCND.xxx+LP.MAC/OBJ
.LINK/EXECUTE:LP.SYS LP

```

RT-11 V4.0  
Device Handler Sources  
LP.MAC

Seq 6.12.1 M

2 of 2

NOTE: In addition if your monitor is XM the above MACRO command must include XM.MAC (for example, MACRO XM+SYCND+...). You must now either reboot or REMOVE and INSTALL your LP.MAC handler.

5. Preserve the patched handler source file. If there are any future corrections to LP.MAC, you will be required to apply them to the patched source file.

**LS SET NOHANG MAY CRASH SYSTEM (LP)**

If the LS handler is set NOHANG and the printer is taken off-line while in operation, the system may crash under certain conditions.

1. The following is a required patch to the RT-11 device handler source file LS.MAC. You must apply it to the uncommented sources supplied with the Version 4 distribution kit and then rebuild your handler. You must apply this patch if you use the LS handler, whether or not you have performed a system generation.

NOTE: Since patching the distribution medium is not recommended, the patch must be installed whenever you copy the handler source from the distribution medium.

2. To install the patch, you must first create a patch file for input to the SLP utility. Using an editor, create a file called LS.001 on your system volume. Enter the text below into the file. The hyphen must be the first character in the file. The special symbol '<tab>' indicates the TAB character. All other blank space in the text should be entered in the file as single SPACE characters.

```

-22, ,/;001/
ELLS<tab>== 1
-116, ,/;001/
.SBTTL<tab>DRIVER EDIT LEVEL
.ASECT
.=110
<tab>.WORD<tab>ELLS
-154, ,/;001/
<tab>MOV<tab>LSCQE,R4
/

```

3. Apply the patch to the source file as follows:

```

.R SLP
*LS.MAC=LS.MAC,LS.001
*^C (CTRL/C to exit)

```

4. Now issue the following commands. In these commands, the notation xxx represents the SYCND file type, either DIS for distributed, or MAC for system generated.

```

.MACRO SYCND.xxx+LS.MAC/OBJ
.LINK/EXECUTE:LS.SYS LS

```

NOTE: In addition if your monitor is XM the above MACRO command must include XM.MAC (for example, MACRO XM+SYCND+...). You must now either reboot or REMOVE and INSTALL your LS.MAC handler.

5. Preserve the patched handler source file. If there are any future corrections to LS.MAC, you will be required to apply them to the patched source file.



RT-11 V4.0  
Device Handler Sources  
TS.MAC

Seq 6.20.2 M

1 of 1

## LINKING AN XM, NON-FILESTRUCTURED TS HANDLER GENERATES AN UNDEFINED GLOBAL (SD)

The TS mag-tape handler generates an undefined global error message at LINK time if both XM and non-filestructured support are selected.

1. The following is a required patch to the RT-11 device handler source file TS.MAC. You must apply it to the uncommented sources supplied with the Version 4 distribution kit and then rebuild your handler if you use the XM, non-filestructured MS. You must apply this patch if you use the TS handler (previously modified in Seq 6.20.1 M), whether or not you have performed a system generation.

NOTE: Since patching the distribution medium is not recommended, the patch must be installed whenever you copy the handler source from the distribution medium.

2. To install the patch, you must first create a patch file for input to the SLP utility. Using an editor, create a file called TS.002 on your system volume. Enter the text below into the file. The hyphen must be the first character in the file. The special symbol '<tab>' indicates the TAB character. All other blank space in the text should be entered in the file as single SPACE characters.

```
-/ELTS<tab>== 3/.,./;002/  
ELTS<tab>== 4  
-31,31,./;002/  
.MCALL<tab>.MTPS,.MFPS,.DRDEF,.SYNCH  
-120,120,./;002/  
/
```

3. Apply the patch to the source file as follows:

```
.R SLP  
*TS.MAC=TS.MAC,TS.002  
*^C (CTRL/C to exit)
```

4. Preserve the patched handler source file. If there are any future corrections to TS.MAC, you will be required to apply them to the patched source file.

### Note

The magtape handlers can only be generated as described in "BUFFER CLEARING ON SHORT READ IN XM MONITOR (SD)", Seq 6.20.1 M which was published in the RT-11 July 1980 Software Dispatch.

RT-11 V4.0  
System Utilities  
DUP.SAV V04.00B

Seq 7.2.2 M

1 of 1

**SQUEEZE CREATES <UNUSED> ENTRIES OF LENGTH ZERO BEFORE .BAD FILES (DF)**

During a SQUEEZE operation DUP creates an <UNUSED> entry of length zero before each .BAD file. If a DIR/BAD/FILE is performed following the SQUEEZE, but before a directory consolidation occurs, the filenames corresponding to the bad blocks are listed as <UNUSED>, when actually they are covered by .BAD files.

1. The following is a required patch to the DUP.SAV V04.00B utility program (previously modified in Seq 7.2.1). It must be installed in all copies of the utility.

NOTE: Since patching the distribution medium is not recommended, the patch must be installed every time you copy the program from the distribution medium.

2. This patch is installed using SIPP, the Save Image Patching Program. First, ensure that a copy of the file DUP.SAV V04.00B is on a mounted volume. Create the file, DUP.002 as follows. Replace 'DK:' in the patch below with the name of the device that contains the program file.

```

RUN SIPP
DK:DUP.SAV/A/C
0
3546
103
^Z                               (up-arrow/Z)
37172
4737
14636
1402
^Z                               (up-arrow/Z)
40566
11646
10166
2
10065
10
241
207
^Y                               (up-arrow/Y)
137243
^C                               (up-arrow/C to exit)

```

3. To apply the patch to DUP.SAV V04.00B type:

@DUP.002

The resulting version of the utility will be DUP V04.00C.

4. Save the new version of the utility on a backup volume.

**RESORC MAY REPORT INCORRECT JOB NAMES ON A SHOW JOBS COMMAND (SD)**

RESORC can incorrectly report the name of a system job as FORE.

1. The following is a required patch to the RESORC.SAV utility program. It must be installed in all copies of the utility.

NOTE: Since patching the distribution medium is not recommended, the patch must be installed every time you copy the program from the distribution medium.

2. This patch is installed using SIPP, the Save Image Patching Program. First, ensure that a copy of the file RESORC.SAV is on a mounted volume. Create the file RESORC.001 as follows. Replace 'DK:' in the patch below with the name of the device that contains the program file.

```

RUN SIPP
DK:RESORC.SAV/C
0
2656
101
^Z (up-arrow/Z)
10350
4767
175076
16246
10
16246
2
12746
2165
12746
6
4767
175052
13705
54
^Y (up-arrow/Y)
131427
^C (up-arrow/C)

```

3. To apply the patch to RESORC.SAV type:

@RESORC.001

The resulting version of the utility will be RESORC V04.00A.

RT-11 V4.0  
System Utilities  
LINK.SAV V06.01A

Seq 7.9.2 M  
1 of 2

**LINK MAP PROCESSING ERROR (SD)**

LINK incorrectly omits global symbols from the map if they are defined in the blank PSECT. This condition occurs if the blank PSECT has a length of zero.

1. The following is a required patch to the LINK.SAV V06.01A utility program (previously modified in Seq 7.9.1). It must be installed in all copies of the utility.

NOTE: Since patching the distribution medium is not recommended, the patch must be installed every time you copy the program from the distribution medium.

2. This patch is installed using SIPP, the Save Image Patching Program. First, ensure that a copy of the file LINK.SAV V06.01A is on a mounted volume. Create the file LINK.002 as follows. Replace 'DK:' in the patch below with the name of the device that contains the program file.

```

RUN SIPP
DK:LINK.SAV/A/C
0
5022
41061
^Z                               (up-arrow/Z)
23032
4502
^Z                               (up-arrow/Z)
30746
4767
3234
103530
^Z                               (up-arrow/Z)
34206
103005
5704
1003
32713
7777
1401
5727
261
207
^Z                               (up-arrow/Z)
41530
2122
^Y
74515
^C                               (up-arrow/C)

```

3. To apply the patch to LINK.SAV V06.01A type:

@LINK.002

RT-11 V4.0  
System Utilities  
LINK.SAV V06.01A

Seq 7.9.2 M

2 of 2

The resulting version of the utility will be LINK V06.01B.

4. Save the new version of the utility on a backup volume.

RT-11 V4.0  
System Utilities  
FILEX.SAV V04.00B

Seq 7.11.1 M  
1 of 1

FILEX WILDCARD TRANSFERS CAUSE MONITOR TRAP (DF)

When wildcards are used to transfer files from RT-11 to DOS/BATCH format, FILEX writes over location 0, causing a monitor trap to occur.

1. The following is a required patch to the FILEX.SAV utility program. It must be installed in all copies of the utility.

NOTE: Since patching the distribution medium is not recommended, the patch must be installed every time you copy the program from the distribution medium.

2. This patch is installed using SIPP, the Save Image Patching Program. First, ensure that a copy of the file FILEX.SAV is on a mounted volume. Create the file FILEX.001 as follows. Replace 'DK:' in the patch below with the name of the device that contains the program file.

```
RUN SIPP
DK:FILEX.SAV/C/A
0
50
21716
^Z (up-arrow/Z)
2674
103
^Z (up-arrow/Z)
21414
4767
270
^Z (up-arrow/Z)
21710
10100
62700
256
207
^Y (up-arrow/Y)
142011
^C (up-arrow/C)
```

3. To apply the patch to FILEX.SAV type:

```
@FILEX.001
```

The resulting version of the utility will be FILEX V04.00C.

4. Save the new version of the utility on a backup volume.

RT-11 V4.0  
System Utilities  
SRCCOM.SAV V04.00

Seq 7.12.1 M

1 of 1

**COMPARING TWO FILES MAY CAUSE TRAP TO 4 (JM)**

If a file contains a carriage return and a line feed character as the last characters in a block and the first character of the next block is a line feed a TRAP to 4 error message may occur.

1. The following is a required patch to the SRCCOM.SAV utility program. It must be installed in all copies of the utility.

NOTE: Since patching the distribution medium is not recommended, the patch must be installed every time you copy the program from the distribution medium.

2. This patch is installed using SIPP, the Save Image Patching Program. First, ensure that a copy of the file SRCCOM.SAV is on a mounted volume. Create the file, SRCCOM.001 as follows. Replace 'DK:' in the patch below with the name of the device that contains the program file.

```
RUN SIPP
DK:SRCCOM.SAV/C
0
3254
40460
^Z                               (up-arrow/Z)
6064
4737
14374
^Z                               (up-arrow/Z)
14374
20461
40
1402
122744
15
207
^Y                               (up-arrow/Y)
73707
^C                               (up-arrow/C)
```

3. To apply the patch to SRCCOM.SAV type:

```
@SRCCOM.001
```

The resulting version of the utility will be SRCCOM V04.00A.

4. Save the new version of the utility on a backup volume.

## DOCUMENTATION CORRECTIONS (JP)

This article lists documentation corrections to the RT-11 System Release Notes. Change pages incorporating the corrections in this article will be released at a later date.

### RT-11 SYSTEM RELEASE NOTES

The following corrections apply to patches for DUP, MDUP, and PIP, which appear on pages 4-5 to 4-7.

In Section 4.2.1.1, Multi-Size Volume Patch, the correct base for patches 1 and 2 is 30 (octal).

In Section 4.2.1.2, Bad Block Replacement Patch, the correct base for patches A and B is 30 (octal).

In Section 4.2.1.3, Magtape Patch, the correct base for patches 1 and 3 is 30 (octal). The correct base for patch 2 is 26 (octal).



**CORRECTION TO AN OPTIONAL PATCH TO LINK (MS)**

In the RT-11 Installation and System Generation Guide, the patch to LINK that changes the default SYSLIB device is incorrect.

On page 2-35, Section 2.8.15, the response to Base? should be 10070 rather than 7470.

The correct patch to LINK.SAV is as follows:

```
.RUN SIPP<RET>
*LINK.SAV<RET>
Segment? 1<RET>
Base? 10070<RET>
Offset? 10<RET>
```

Segment	Base	Offset	Old	New?
000001	010070	000010	075250	;Rdev<RET>
000001	010070	000012	075273	<CTRL/Y><RET>

```
*<CTRL/C>
```

Change pages containing the information in this article will be released at a later date.

RT-11 V4.0  
Keypad Editor  
KED V01.01

Seq 17.1.1 F

1 of 3

MAKE TERMINAL SETUP OPTIONAL IF MTATCH FAILS. (JFW)

KED V01.01, when run under a multiple terminal system, attempts to attach the console to set certain terminal characteristics which were formerly set manually using SET commands. If the foreground (or a system job) has previously attached the console and not yet detached it, KED stops after printing the following message:

KED-F-TTY??? Logic error

This patch will cause KED to print the following prompt instead:

?KED-W-Can not set terminal options - Continue (Y,N) ?

If the reply is 'N', KED will exit. If the reply is 'Y', KED will continue (and will assume that the proper SET commands have been done). The proper SET commands are:

SET TT SCOPE ! For SJ single-terminal RT-11

SET TT SCOPE,NOCLRF,WIDTH=254 ! For all other RT-11 monitors

If the commands have not been done and 'Y' is the reply to the prompt, strange and misleading visual effects may be observed when the file is displayed and changed.

1. The following is a recommended patch to the KED.SAV editor. It must be installed in KED.SAV V01.01.

NOTE: Since patching the distribution medium is not recommended, the patch must be installed every time you copy the program from the distribution medium.

2. This patch is installed using SIPP, the Save Image Patch Program. First ensure that a copy of the file KED.SAV is on a mounted volume. Create the file KED.001 as follows. Replace 'dd:' in the patch below with the name of the device that contains the program file.

RT-11 V4.0  
 Keypad Editor  
 KED V01.01

Seq 17.1.1 F

2 of 3

RUN SIPP	261
dd:KED.SAV/A/C	207
Ø	167
2514	17446
26527	12767
60503	15030
20156	12164
67556	16700
20164	12160
62563	207
20164	^Z
62564	15452
66562	403
67151	62767
66141	2
67440	6642
72160	4767
67551	165146
71556	^Z
41455	16272
67157	4767
64564	164274
72556	103005
24145	12761
26131	16600
24516	177774
100077	167
10300	234
12710	240
17405	^Z
5060	22226
2	12700
110460	^Z
4	23626
104375	101
103005	^Z
4467	64044
1262	40461
2514	^Y
1002	142247
	^C

RT-11 V4.0  
Keypad Editor  
KED V01.01

Seq 17.1.1 F

3 of 3

3. To apply the patch to KED.SAV type:

```
@KED.001
```

4. Save the new version of the editor on a backup volume.

The resulting version of the editor will be KED V01.01A.

To test the patch, create the following macro program:

```
.Title CONHOG - CONHOG.MAC
.Mcall .Mattach .Twait .Print .Exit
Lun == 0 ; Console logical unit number
; may be different for your system
Start::
.Mattach #Area,#0,#Lun ; attach the console terminal
Bcs 20$ ; attach failed?
10$:
.Twait #Area,#Time ; wait a long time
Br 10$ ; wait some more
20$:
.Print #Cannot ; fatal error
.Exit ; and done
Area: .Blkw 3. ; EMT argument block
Time: .Word 0,-1 ; 64K Ticks
Cannot: .Asciz /?CONHOG-F-Attach failed for LUN (/<Lun+^o060>/)/
.Even
.End Start
```

Assemble, Link, and Run the test program (under a multi-terminal RT-11 system) with the following commands:

```
MACRO CONHOG
LINK CONHOG/FORE
FRUN CONHOG
RUN KED
FOO.BAR=
```

The new error message should be produced and you should test to insure that both the 'N' and 'Y' replies function correctly.

The CONHOG program will run 'forever', to get rid of it enter:

```
<CTRL>F
<CTRL>C<CTRL>C
```

RT-11 V4.0  
Keypad Editor  
KED V01.01A

Seq 17.1.2 F

1 of 4

## PROVIDE A .CHAIN INTERFACE FOR KED

Certain applications call for the ability to edit text. An example application is an electronic mail system. A low-risk approach to providing an editing function is to use an existing editor. The problem with using an editor is that editors normally prompt the user directly for file names and thus require the user to be familiar with the operating system conventions. Characteristics of an embedded editor are that it should be invoked from a program, that the program should provide the command string specifying the file(s) to be edited, and that the editor return control to a program when the editing is done or a fatal error occurs.

This patch adds that functionality to KED. To chain to KED, close all channels, and load the chain argument area (500 ...) with the following information, then issue the .CHAIN directive:

```
500:      .Rad50  /SY /           ; device containing KED.SAV
502:      .Rad50  /KED  /         ; KED file name
506:      .Rad50  /SAV/          ; KED file type
510:      .Word    0              ; reserved, should be zero
512:      .Rad50  /ddn/          ; device containing exit program
514:      .Rad50  /name /        ; name of exit program
520:      .Rad50  /SAV/          ; file type of exit program
522:      .Asciz   /csi command/ ; CSI command for KED
```

When the "EXIT" or "QUIT" command is given or an error which would cause KED to exit or reprompt for the command line occurs, KED chains to the exit program instead. When KED chains back, locations 500-507 will contain the contents of locations 512-521 as they were when KED was chained to. No error indication is passed back and the rest of the chain argument area is undefined. All channels are closed.

Note that this patch depends on patch 17.1.1 having been previously installed and may fail if it hasn't.

1. The following is a recommended patch to the KED.SAV editor. It must be installed in KED.SAV V01.01A.

NOTE: Since patching the distribution medium is not recommended, the patch must be installed every time you copy the program from the distribution medium.

2. This patch is installed using SIPP, the Save Image Patch Program. First ensure that a copy of the file KED.SAV is on a mounted volume. Create the file KED.002 as follows. Replace 'dd:' in the patch below with the name of the device that contains the program file.

RT-11 V4.0  
 Keypad Editor  
 KED V01.01A

Seq 17.1.2 F

2 of 4

RUN SIPP	175074	17276	24306
dd:KED.SAV/A/C	5720	103440	5767
0	12021	^Z	175166
2622	12021	17310	1407
1047	12021	103433	12701
^Z	12021	^Z	500
2630	207	17374	4767
5067	5767	167	153612
24310	24144	163404	12700
12701	1355	^Z	4000
24306	207	17402	104374
5067	4767	163404	104350
21444	14374	^Z	^Z
32737	4767	22302	64044
400	177720	167	41061
44	167	4604	^Y
1411	13732	^Z	56642
12700	^Z	22514	^C
510	15464	16746	
12021	165142	172306	
4767	^Z	^Z	
74	15532	22524	
12701	16700	5777	
24366	177270	172276	
112021	^Z	^Z	
1376	15542	22540	
12767	5060	16700	
15030	2	172262	
12122	104375	^Z	
16700	104352	22624	
12116	12700	16700	
207	2000	172176	
4777	104374	^Z	
21420	4767	22704	
5001	5360	16700	
5767	4767	172116	
21364	165204	^Z	
1402	10667	23302	
12701	11350	16700	
24366	^Z	171520	
207	17004	^Z	
5767	4767	23476	
21350	163702	16700	
1774	^Z	171324	
167	17022	^Z	
24144	10146	23626	
5767	^Z	102	
21346	17072	^Z	
1002	542	27112	
11077	^Z	12700	

RT-11 V4.0  
Keypad Editor  
KED V01.01A

Seq 17.1.2 F

3 of 4

3. To apply the patch to KED.SAV type:

```
@KED.002
```

4. Save the new version of the editor on a backup volume.

The resulting version of the editor will be KED V01.01B.

To test this patch, create the following two macro source files:

```
.Title  ICHAIN  -      ICHAIN.MAC
.Mcall  .Gtlin  .Print  .Chain
```

Start::

```
Mov      #500,R1          ; point to chain argument area
Mov      #Fixed,R0       ; point to fixed arguments
10$:     ; move loop
Mov      (R0)+,(R1)      ; get a word and put in arg area
Cmp      #-1,(R1)+      ; end of list?
Bne      10$            ; no, keep moving fixed part

Tst      -(R1)           ; backup over -1 word
.Gtlin   R1,#Prompt     ; get command line for KED
.Print   #Away          ; tell we're chaining
.Chain   ; and chain to KED
```

```
Fixed:  .Rad50 /SY /
        .Rad50 /KED /
        .Rad50 /SAV/
        .Word  0
        .Rad50 /DK /
        .Rad50 /OCHAIN/
        .Rad50 /SAV/
        .Word  -1          ; end of list
```

```
Prompt: .Ascii /KED>/<200>
```

```
Away:   .Asciz  /!ICHAIN-I-Chaining to KED/
        .Even
```

```
.End    Start
```

RT-11 V4.0  
Keypad Editor  
KED V01.01A

Seq 17.1.2 F

4 of 4

```
.Title  OCHAIN  -      OCHAIN.MAC
```

```
.Mcall  .Print  .Exit
```

```
Start::
```

```
.Print  #Hi          ; indicate we were entered  
.Exit    ; and done
```

```
Hi:     .Asciz  /!OCHAIN-I-Entered/  
        .Even
```

```
.End    Start
```

Enter the following commands:

```
MACRO   ICHAIN,OCHAIN  
LINK    ICHAIN  
LINK    OCHAIN
```

```
RUN ICHAIN
```

You should be prompted with 'KED>', enter a command line just as you would in response to the '\*' prompt from KED. The action of KED should be exactly the same, except instead of exiting or reprompting for a command line, OCHAIN should identify itself and then exit.

The second test is to run KED in the normal manner (with the RUN command). In this case KED should function as it did before, reprompting for commands upon exiting the file or upon errors.



RT-11 V04  
Keypad Editor  
KED V01.01B

Seq 17.1.3 M

1 of 3

PROVIDE REASONABLE ACTIONS AND ERROR MESSAGES WHEN DEALING WITH  
DEGENERATE FILES. (JFW)

KED acts rather strangely when confronted with empty files. If a  
file of length 0 blocks is used as an input file to KED, the  
error:

?KED-F-Unable to open input file

is produced. If a file is created, but, upon exiting KED, it is  
empty, it is not really created. If an existing file is edited  
and as a result it is empty upon exiting KED the previous version  
of the file is not renamed .BAK, rather it is left as it was.

Note patches 17.1.1 and 17.1.2 should be installed prior to  
installing this patch.

1. The following is a required patch to the KED.SAV editor. It  
must be installed in KED.SAV V01.01B.

NOTE: Since patching the distribution medium is not  
recommended, the patch must be installed every time you copy  
the program from the distribution medium.

2. This patch is installed using SIPP, the Save Image Patch  
Program. First ensure that a copy of the file KED.SAV is on  
a mounted volume. Create the file KED.003 as follows.  
Replace 'dd:' in the patch below with the name of the device  
that contains the program file.

RT-11 V04  
Keypad Editor  
KED V01.01B

Seq 17.1.3 M

2 of 3

RUN SIPP	163402
dd:KED.SAV/A/C	^Z
Ø	17414
2622	12701
1052	24424
^Z	5711
2664	1444
102	5761
^Z	2
2736	1447
24204	10100
^Z	16746
2742	4674
5767	104343
21342	103437
1771	10067
167	4664
24136	4467
5767	702
21340	24524
1002	16700
11077	175344
175066	12710
5720	401
^Z	10160
2772	2
12021	104375
12021	103425
12021	20027
207	^Z
4767	17566
14376	4600
4767	^Z
177730	20700
167	5767
13734	3464
Ø	1451
^Z	^Z
15566	23626
165144	103
^Z	^Z
17320	27132
5767	153620
5102	^Z
1423	64044
^Z	41461
17376	^Y
163402	50033
^Z	^C
17402	

RT-11 V04  
Keypad Editor  
KED V01.01B

Seq 17.1.3 M

3 of 3

3. To apply the patch to KED.SAV type:

@KED.003

4. Save the new version of the editor on a backup volume.

The resulting version of the editor will be KED V01.01C.

To test the patch, try the following (type in underscored items):

.RUN KED

\*FOO.BAR/C

<COMMAND>EXIT<ENTER>

\*FOO.ANT=FOO.BAR

This is a test

<COMMAND>EXIT<ENTER>

\*FOO.ANT

<DELLINE>

<COMMAND>EXIT<ENTER>

\*^C

.DIR FOO

```
FOO  .BAK      1          FOO  .ANT      0
FOO  .BAR      0
  3 Files, 1 Blocks
  ??? Free blocks
```

RT-11 V4.0  
Keypad Editor  
K52 V01.01

Seq 17.2.1 F

1 of 3

MAKE TERMINAL SETUP OPTIONAL IF MTATCH FAILS. (JFW)

K52 V01.01, when run under a multiple terminal system, attempts to attach the console to set certain terminal characteristics which were formerly set manually using SET commands. If the foreground (or a system job) has previously attached the console and not yet detached it, K52 stops after printing the following message:

KED-F-TTY??? Logic error

This patch will cause K52 to print the following prompt instead:

?KED-W-Can not set terminal options - Continue (Y,N) ?

If the reply is 'N', K52 will exit. If the reply is 'Y', K52 will continue (and will assume that the proper SET commands have been done). The proper SET commands are:

SET TT SCOPE ! For SJ single-terminal RT-11

SET TT SCOPE,NOCRLF,WIDTH=254 ! For all other RT-11 monitors

If the commands have not been done and 'Y' is the reply to the prompt, strange and misleading visual effects may be observed when the file is displayed and changed.

1. The following is a recommended patch to the K52.SAV editor. It must be installed in K52.SAV V01.01.

NOTE: Since patching the distribution medium is not recommended, the patch must be installed every time you copy the program from the distribution medium.

2. This patch is installed using SIPP, the Save Image Patch Program. First ensure that a copy of the file K52.SAV is on a mounted volume. Create the file K52.001 as follows. Replace 'dd:' in the patch below with the name of the device that contains the program file.

RT-11 V4.0  
Keypad Editor  
K52 V01.01

Seq 17.2.1 F

2 of 3

RUN SIPP	261
dd:K52.SAV/A/C	207
Ø	167
2414	16624
26527	12767
60503	14360
20156	11614
67556	16700
20164	11610
62563	207
20164	^Z
62564	14710
66562	403
67151	62767
66141	2
67440	6250
72160	4767
67551	165610
71556	^Z
41455	15530
67157	4767
64564	164736
72556	103005
24145	12761
26131	16036
24516	177774
100077	167
10300	234
12710	240
17405	^Z
5060	21304
2	12700
110460	^Z
4	22704
104375	101
103005	^Z
4467	61044
1140	40461
2414	^Y
1002	130075
	^C

RT-11 V4.0  
Keypad Editor  
K52 V01.01

Seq 17.2.1 F

3 of 3

3. To apply the patch to K52.SAV type:

```
@K52.001
```

4. Save the new version of the editor on a backup volume.

The resulting version of the editor will be K52 V01.01A.

To test the patch, create the following macro program:

```
.Title CONHOG - CONHOG.MAC
.Mcall .Mtouch .Twait .Print .Exit
Lun == 0 ; Console logical unit number
; may be different for your system
Start::
.Mtouch #Area,#0,#Lun ; attach the console terminal
Bcs 20$ ; attach failed?
10$:
.Twait #Area,#Time ; wait a long time
Br 10$ ; wait some more
20$:
.Print #Cannot ; fatal error
.Exit ; and done
Area: .Blkw 3. ; EMT argument block
Time: .Word 0,-1 ; 64K Ticks
Cannot: .Asciz /?CONHOG-F-Attach failed for LUN (<Lun+^o060>/)/
.Even
.End Start
```

Assemble, Link, and Run the test program (under a multi-terminal RT-11 system) with the following commands:

```
MACRO CONHOG
LINK CONHOG/FORE
FRUN CONHOG
RUN K52
FOO.BAR=
```

The new error message should be produced and you should test to insure that both the 'N' and 'Y' replies function correctly.

The CONHOG program will run 'forever', to get rid of it enter:

```
<CTRL>F
<CTRL>C<CTRL>C
```

RT-11 V4.0  
Keypad Editor  
K52 V01.01A

Seq 17.2.2 F

1 of 4

## PROVIDE A .CHAIN INTERFACE FOR K52

Certain applications call for the ability to edit text. An example application is an electronic mail system. A low-risk approach to providing an editing function is to use an existing editor. The problem with using an editor is that editors normally prompt the user directly for file names and thus require the user to be familiar with the operating system conventions. Characteristics of an embedded editor are that it should be invoked from a program, that the program should provide the command string specifying the file(s) to be edited, and that the editor return control to a program when the editing is done or a fatal error occurs.

This patch adds that functionality to K52. To chain to K52, close all channels, and load the chain argument area (500 ...) with the following information, then issue the .CHAIN directive:

```
500:      .Rad50  /SY /           ; device containing K52.SAV
502:      .Rad50  /K52  /        ; K52 file name
506:      .Rad50  /SAV/         ; K52 file type
510:      .Word   0             ; reserved, should be zero
512:      .Rad50  /ddn/         ; device containing exit program
514:      .Rad50  /name /       ; name of exit program
520:      .Rad50  /SAV/         ; file type of exit program
522:      .Asciz  /csi command/ ; CSI command for K52
```

When the "EXIT" or "QUIT" command is given or an error which would cause K52 to exit or reprompt for the command line occurs, K52 chains to the exit program instead. When K52 chains back, locations 500-507 will contain the contents of locations 512-521 as they were when K52 was chained to. No error indication is passed back and the rest of the chain argument area is undefined. All channels are closed.

Note that this patch depends on patch 17.2.1 having been previously installed and may fail if it hasn't.

1. The following is a recommended patch to the K52.SAV editor. It must be installed in K52.SAV V01.01A.

NOTE: Since patching the distribution medium is not recommended, the patch must be installed every time you copy the program from the distribution medium.

2. This patch is installed using SIPP, the Save Image Patch Program. First ensure that a copy of the file K52.SAV is on a mounted volume. Create the file K52.002 as follows. Replace 'dd:' in the patch below with the name of the device that contains the program file.

RT-11 V4.0  
Keypad Editor  
K52 V01.01A

Seq 17.2.2 F

2 of 4

RUN SIPP	23232	2000	172550
dd:K52.SAV/A/C	207	104374	^Z
0	5767	4767	21616
362	20314	5200	16700
377	1774	4767	172534
^Z	167	165646	^Z
2522	23110	10667	21702
1047	5767	10756	16700
^Z	20312	^Z	172450
2530	1002	16242	^Z
5067	11077	4767	21762
23254	175174	164344	16700
12701	5720	^Z	172370
23152	12021	16260	^Z
5067	12021	10146	22360
20410	12021	^Z	16700
32737	12021	16330	171772
400	207	542	^Z
44	5767	^Z	22554
1411	23110	16534	16700
12700	1355	103440	171576
510	207	^Z	^Z
12021	4767	16546	22704
4767	13732	103433	102
74	4767	^Z	^Z
12701	177720	16632	25756
23232	167	167	12700
112021	13270	164046	23152
1376	^Z	^Z	5767
12767	14722	16640	175166
14360	165604	164046	1407
11552	^Z	^Z	12701
16700	14770	21360	500
11546	16700	167	4767
207	177362	4372	154646
4777	^Z	^Z	12700
20364	15000	21572	4000
5001	5060	16746	104374
5767	2	172560	104350
20330	104375	^Z	^Z
1402	104352	21602	61044
12701	12700	5777	41061
			^Y
			144101
			^C



RT-11 V4.0  
 Keypad Editor  
 K52 V01.01A

3. To apply the patch to K52.SAV type:

@K52.002

4. Save the new version of the editor on a backup volume.

The resulting version of the editor will be K52 V01.01B.

To test this patch, create the following two macro source files:

```
.Title  ICHAIN  -      ICHAIN.MAC
.Mcall  .Gtlin  .Print  .Chain
```

Start::

```
Mov      #500,R1          ; point to chain argument area
Mov      #Fixed,R0       ; point to fixed arguments
10$:     ; move loop
Mov      (R0)+,(R1)      ; get a word and put in arg area
Cmp      #-1,(R1)+      ; end of list?
Bne      10$            ; no, keep moving fixed part

Tst      -(R1)           ; backup over -1 word
.Gtlin   R1,#Prompt     ; get command line for K52
.Print   #Away          ; tell we're chaining
.Chain   ; and chain to K52
```

Fixed:

```
.Rad50  /SY /
.Rad50  /K52 /
.Rad50  /SAV/
.Word   0
.Rad50  /DK /
.Rad50  /OCHAIN/
.Rad50  /SAV/
.Word   -1              ; end of list
```

Prompt: .Ascii /K52>/<200>

Away: .Asciz /!ICHAIN-I-Chaining to K52/  
 .Even

.End Start

RT-11 V4.0  
Keypad Editor  
K52 V01.01A

Seq 17.2.2 F

4 of 4

```
.Title  OCHAIN  -      OCHAIN.MAC
.Mcall  .Print  .Exit
```

Start::

```
.Print  #Hi          ; indicate we were entered
.Exit    ; and done
```

```
Hi:     .Asciz  /!OCHAIN-I-Entered/
        .Even
        .End    Start
```

Enter the following commands:

```
MACRO   ICHAIN,OCHAIN
LINK    ICHAIN
LINK    OCHAIN
```

RUN ICHAIN

You should be prompted with 'K52>', enter a command line just as you would in response to the '\*' prompt from K52. The action of K52 should be exactly the same, except instead of exiting or reprompting for a command line, OCHAIN should identify itself and then exit.

The second test is to run K52 in the normal manner (with the RUN command). In this case K52 should function as it did before, reprompting for commands upon exiting the file or upon errors.

RT-11 V04  
Keypad Editor  
K52 V01.01B

Seq 17.2.3 M

1 of 3

PROVIDE REASONABLE ACTIONS AND ERROR MESSAGES WHEN DEALING WITH DEGENERATE FILES. (JFW)

K52 acts rather strangely when confronted with empty files. If a file of length 0 blocks is used as an input file to K52, the error:

?KED-F-Unable to open input file

is produced. If a file is created, but, upon exiting K52, it is empty, it is not really created. If an existing file is edited and as a result it is empty upon exiting K52 the previous version of the file is not renamed .BAK, rather it is left as it was.

Note patches 17.2.1 and 17.2.2 should be installed prior to installing this patch.

1. The following is a required patch to the K52.SAV editor. It must be installed in K52.SAV V01.01B.

NOTE: Since patching the distribution medium is not recommended, the patch must be installed every time you copy the program from the distribution medium.

2. This patch is installed using SIPP, the Save Image Patch Program. First ensure that a copy of the file K52.SAV is on a mounted volume. Create the file K52.003 as follows. Replace 'dd:' in the patch below with the name of the device that contains the program file.

RT-11 V04  
 Keypad Editor  
 K52 V01.01B

Seq 17.2.3 M

2 of 3

RUN SIPP	177730	4272
dd:K52.SAV/A/C	167	4467
0	13272	702
2522	0	23370
1052	^Z	16700
^Z	15024	175436
2564	165606	12710
102	^Z	401
^Z	16556	10160
2636	5767	2
23150	4510	104375
^Z	1423	103425
2642	^Z	20027
5767	16634	^Z
20306	164044	17024
1771	^Z	4206
167	16640	^Z
23102	164044	20136
5767	^Z	5767
20304	16652	3072
1002	12701	1451
11077	23270	^Z
175166	5711	22704
5720	1444	103
^Z	5761	^Z
2672	2	25776
12021	1447	154654
12021	10100	^Z
12021	16746	61044
207	4302	41461
4767	104343	^Y
13734	103437	153272
4767	10067	^C

RT-11 V04  
Keypad Editor  
K52 V01.01B

Seq 17.2.3 M

3 of 3

3. To apply the patch to K52.SAV type:

```
@K52.003
```

4. Save the new version of the editor on a backup volume.

The resulting version of the editor will be K52 V01.01C.

To test the patch, try the following (type in underscored items):

```
.RUN K52  
-----
```

```
*FOO.BAR/C  
-----
```

```
<COMMAND>EXIT<ENTER>  
-----
```

```
*FOO.ANT=FOO.BAR  
-----
```

```
This is a test  
-----
```

```
<COMMAND>EXIT<ENTER>  
-----
```

```
*FOO.ANT  
-----
```

```
<DELLINE>  
-----
```

```
<COMMAND>EXIT<ENTER>  
-----
```

```
*^C  
--
```

```
.DIR FOO  
-----
```

```
FOO  .BAK    1          FOO  .ANT    0  
FOO  .BAR    0  
3 Files, 1 Blocks  
??? Free blocks
```

RT-11 Software Dispatch, August 1980

FMS-11/RT-11 V1.1

Seq 33.1 N

1 of 1

ANNOUNCING FMS-11/RT-11 V1.1 (BN)

FMS-11/RT-11 V1.1 is a maintenance release of the Forms Management System under the RT-11 operating system.

FMS-11/RT-11 V1.1 adds support for:

- o RT-11 V4.0
- o FORTRAN IV/RT-11 V2.5
- o VT52 terminals (Form Driver support only)
- o RL02 as distribution medium

Please note that the VT52 support is for application execution only; form creation still requires a VT100. Also note that a VT100 Form Driver will not support VT52's, but a VT52 Form Driver will support VT100s running in VT52 mode.

#### Removal of KED

Since slightly enhanced versions of KED, the PDP-11 Video Keypad Editor, are provided as standard components of RT-11 V4.0, KED is no longer included as part of FMS-11. Note that KED is now available on RSX-11M/M+ as the FMS-11/RSX Supplementary Software Kit (QJ715-T\_) and is compatible with screen editing mode of the new VAX-11 EDT V2.0.

#### Licensing Policy

Each system executing any component of FMS-11 requires a software license.

Two categories of license are available for FMS-11. The standard license allows execution of all components of the product on the licensed system. The run-time license allows the usage of only those components of the product used in application execution: the Form Driver (FDV) on RSX systems, or the Form Driver and the Application Run-Time Supervisor (ARTS) on RT-11 and RT<sup>2</sup> systems.

#### Availability:

FMS-11/RT-11 V1.1 is scheduled to be available from the SDC in August 1980.

RT-11 Software Dispatch, August 1980

FORTRAN IV/RT-11 V2.1  
for RT-11 V4.0  
DOCUMENTATION

Seq 44.3.2 N  
1 of 1

INSTALLING FORTRAN IV V2.1 UNDER RT-11 V4 (LCP)

Because the System Subroutine Library (SYSLIB) for version 4 has been re-structured (see Section 2.19, System Release Notes), any attempt to insert FORTRAN OTS routines in SYSLIB will result in the following error message:

```
?LIBR-W-illegal insert of $OVRH
```

To avoid this problem, invoke LIBR as follows:

```
.R LIBR  
*SYSLIB[-1]=SYSLIB,INP:xxx,OTSCOM,vvv{,sss}{,UNI}/G  
Global? $OVRH  
Global? $ERRS  
Global? $ERRTB  
Global? $VRINT  
Global? <RET>
```

The procedure above is a replacement for the one described in the FORTRAN IV V2.1 Installation Guide (AA-5240D-TC) on pages 16 and 17.

3-5.1

DECnet-RT V1.1  
for RT-11 V4  
NETGEN

Seq. 50.3.1 M

1 of 1

### FULL DUPLEX, EXTENDED MEMORY DUP DRIVER WON'T BUILD (WMD)

If the user is building DECnet-RT to run under the extended memory (XM) RT-11 monitor, and if the user selects to use the DUP as one of the communications devices, the running of BLDNET will abort with a syntax error when attempting to build the XP driver. This is because the LINK command in DRVBLD.COM has an error. The following correction will cause the LINK command for the XP driver to be correct.

Note that all corrections must be made on a copy of the original distribution media. No corrections should be made on the distribution media itself. In the following article the pseudo device name KI: will refer to the original media and the pseudo device name OU: will refer to the copy of the media which will hold the corrected DECnet-RT components.

- 1) Copy the file NETGEN.CND from the original distribution media to the media on which the correction will be made:

```
.COPY KI:NETGEN.CND OU:NETGEN.OLD
```

- 2) Create the following file named NETGEN.SLP on the correction media. Create the file exactly as shown. Any extra blank lines may cause a later correction to fail. The first character of the NETGEN.SLP file must be the minus sign, if a blank line is inserted before the minus sign the whole file will be offset by one line.

```
-975,975  
LINK/EXECUTE:OUT$:XPX.SYS/MAP:MAP$:XPX OUT$:XP  
/
```

- 3) Apply the correction file:

```
.R SLP  
*OU:NETGEN.CND=OU:NETGEN.OLD,OU:NETGEN.SLP/A/T  
*^C
```

- 4) Delete the backup file created by SLP:

```
.DELETE/NOQUERY OU:NETGEN.BAK,OU:NETGEN.OLD
```

- 5) The output media now contains the corrected file NETGEN.CND. In order to incorporate this correction into the DRVBLD.COM command file a NETGEN must be performed as described in the DECnet-RT V1.1 Users Guide chapter 13.



DECnet-RT V1.1  
for RT-11 V4  
DDCMP

Seq. 50.5.1 M  
1 of 2

**DDCMP BRANCH OUT OF RANGE AND Q ELEMENT RETURN PROBLEMS (WMD)**

DDCMP currently has a branch out of range if DECnet-RT is built for the extended memory (XM) version of the RT-11 monitor. DDCMP also has an error in the way in which the DECnet-RT device handlers return the RT-11 queue elements. Because of this problem, several unpredictable results could occur. Possible symptoms of this problem include a hang condition of the user task or user stack corruption. The correction below causes DDCMP to jump rather than branch to the label in question, and causes DDCMP to return it's queue elements in a proper manner.

NOTE that all corrections must be made on a COPY of the original distribution media. No corrections should be made on the distribution media itself. In the following article the pseudo device name KI: will refer to the original media and the pseudo device name OU: will refer to the copy of the media which will hold the corrected DECnet-RT components.

- 1) Copy the file DDCMP.MAC from the original distribution media to the media on which the correction will be made:

.COPY KI:DDCMP.MAC OU:DDCMP.OLD

- 2) Create the following file named DDCMP.SLP on the correction media. Create the file exactly as shown. Any extra blank lines may cause a later correction to fail. The first character of the DDCMP.SLP file must be the minus sign, if a blank line is inserted before the minus sign the whole file will be offset by one line.

```
-495,495      BMI      DDCP01      ; BRANCH IF NOT ENTER OR CLOSE.
                JMP      INIT      ; JUMP IF YES.
DDCP01::
-705,706      MOV      (R0),-(SP)      ; SAVE THE CURRENT STATUS.
                CLRB     1(R0)      ; CLEAR THE HOLD BITS.
-709,709      MOV      (SP)+,(R0)      ; RESTORE THE OLD STATUS
                BIS      #1000000,(R0) ; ASSURE THE HOLD BIT IS SET.
/
```

- 3) Apply the correction file:

.R SLP

DECnet-RT V1.1  
for RT-11 V4  
DDCMP

Seq. 50.5.1 M

2 of 2

\*OU:DDCMP.MAC=OU:DDCMP.OLD,OU:DDCMP.SLP/A/T  
\*^C  
.

- 4) Delete the backup file created by SLP:

.DELETE/NOQUERY OU:DDCMP.BAK,OU:DDCMP.OLD

- 5) The output media now contains the corrected file DDCMP.MAC. In order to include the corrections in the DECnet-RT drivers, the drivers must be re-built. One way of doing this is to assign the psuedo device names used during NETGEN (if any) and type:

.@DRVBLD

An alternate method is to re-run NETGEN as described in the DECnet-RT V1.1 Users Guide chapter 13.

DECnet-RT V1.1  
for RT-11 V4  
NSP

Seq. 50.6.1 M

1 of 2

**NSP CORRUPTS PHYSICAL LINE ERROR CODE (WMD)**

Currently if a physical line error occurs, in the process of informing the user task of the error NSP will corrupt the error code. The error code that the user sees will be some random number probably zero. The following correction causes NSP to save and restore the error code across informing the user task of the error.

Note that all corrections must be made on a copy of the original distribution media. The PAT utility will corrupt the original object file if an error occurs during the application of the correction file. During the following procedure the pseudo device name KI: refers to the original distribution media and the pseudo device OU: refers to the media on which the correction is to be applied.

- 1) Copy the file NSP.OBJ from the distribution media to the media on which the correction will be applied:

COPY KI:NSP.OBJ OU:NSP.OBJ

- 2) Create the following file named NSP.PAT on the correction media:

```

.TITLE DECNET-RT NSP
.IDENT /V01.11/
.PSECT $NSP,I

X=.
;
; *** BEGIN NSPP01 ***
;
; NSPP01 - SAVE AND RESTORE DDCMP LINE ERROR CODE
; AND LET TAST PROCESS XMITTS.
;
GIVEXC=X+12746
.=X+10012
      NOP      ; DO NOT PROCESS XMITTS NOW.
      NOP      ; LET TAST DO IT LATER.
;
.=X+12134
      CALL     NSPP01
      NOP
      NOP
;
.PSECT NSPP01,I

```

DECnet-RT V1.1  
for RT-11 V4  
NSP

Seq. 50.6.1 M

2 of 2

```

NSPP01::
        MOV     R4,-(SP)           ; SAVE THE DDCMP ERROR CODE.
        MOV     R2,R4             ; FAKE ONE BYTE OF DATA....
        INC     R2                 ; WHICH IS IMAGE DATA.
        CALL    GIVEXC            ; GIVE USER THE EXCEPTION AST.
        MOV     (SP)+,R4          ; RESTORE THE ERROR CODE.
        RETURN
;
; *** END NSPP01 ***
;
        .END

```

## 3) Assemble the correction file:

```

.MACRO/OBJECT:OU:NSP.POB OU:NSP.PAT
ERRORS DETECTED : 0

```

If any errors are detected, re-edit the file and re-assemble.

## 4) Apply the correction file:

```

.R PAT
*OU:NSP.NEW=OU:NSP.OBJ/C:160323,OU:NSP.POB/C:17551

```

If any errors are detected by PAT then verify that the entered checksums are correct and that the file NSP.PAT is correct. Go back to step one.

## 5) If the PAT program gives no errors then replace the original object with the corrected version of the object module and delete any extra files:

```

.COPY OU:NSP.NEW OU:NSP.OBJ
.DELETE/NOQUERY OU:NSP.NEW,OU:NSP.POB

```

## 6) The distribution device KI: now has the corrected file NSP.OBJ. The corrected object must be replaced in NETLIB.OBJ and all DECnet-RT tasks including the DECnet-RT utilities must be re-linked against the updated library. This should be done after all this months corrections to DECnet-RT have been applied. One method for re-building the DECnet-RT utilities is by assign the proper pseudo devices selected during NETGEN (if any) and typing:

```

.@NETBLD

```

An alternative method is to re-run NETGEN as directed in the DECnet-RT V1.1 Users Guide chapter 13.

DECnet-RT V1.1  
for RT-11 V4  
FAL

Seq. 50.10.2 M

1 of 2

**FAL MAY HANG ON ASCII TRANSFERS OF UNFILLED BLOCKS (WMD)**

The FAL utility may hang in the middle of transferring ASCII files whose last block contains only a small amount of data. This is due to the fact that FAL did not recognize that the end of the block was empty and would calculate that the number of segments necessary to transfer the last record would push the transmit buffering level over the maximum. This correction causes FAL to unconditionally attempt to send a record if there are no more transmits pending.

NOTE that all corrections must be made on a COPY of the original distribution media. The PAT utility will corrupt the original object file if an error occurs during the application of the correction file. During the following procedure the pseudo device name KI: refers to the original distribution media and the pseudo device OU: refers to the media on which the correction is to be applied.

- 1) Copy the file FALGET.OBJ from the distribution media to the media on which the correction will be applied:

COPY KI:FALGET.OBJ OU:FALGET.OBJ

- 2) Create the following file named FALGET.PAT on the correction media:

```
.TITLE      FALGET - FAL GET LOCAL RECORD AND SEND IT
.IDENT      /V01.11/
.PSECT      FALGET

X=.
;
; *** BEGIN FALP02 ***
;
; FALP02 - CAUSE FAL TO Q RECORD(S) AT AST LVL IF NO XMTS
;
.=X+154
      CALL      FALP02
;
      .PSECT    FALP02
      .GLOBL   MBXMT
FALP02:: TST     MBXMT(R5)      ; ANY XMTS PENDING?
      BEQ      10$            ; BR IF NO. Q RECORD REGARDLESS.
      CMP      (SP)+,(SP)+    ; SET STACK TO RTN TO XAST.
10$:   RETURN
;
```

DECnet-RT V1.1  
for RT-11 V4  
FAL

Seq. 50.10.2 M

2 of 2

```
; *** END FALP02 ***  
;  
    .END
```

3) Assemble the correction file:

```
.MACRO/OBJECT:OU:FALGET.POB OU:FALGET.PAT  
ERRORS DETECTED : 0  
.
```

If any errors are detected, re-edit the file and re-assemble.

4) Apply the correction file:

```
.R PAT  
*OU:FALGET.NEW=OU:FALGET.OBJ/C:175170,OU:FALGET.POB/C:16324  
.
```

If any errors are detected by PAT then verify that the entered checksums are correct and that the file FALGET.PAT is correct. Go back to step one.

5) If the PAT program gives no errors then replace the original object with the corrected version of the object module and delete any extra files:

```
.COPY OU:FALGET.NEW OU:FALGET.OBJ  
.DELETE/NOQUERY OU:FALGET.NEW,OU:FALGET.POB  
.
```

6) The distribution device KI: now has the corrected file FALGET.OBJ. The FAL utility must be re-built to include the corrected module. This can be achieved by assigning the proper pseudo devices specified during NETGEN (if any) and invoking the command file to re-build FAL:

```
.@FALBLD
```

An alternative method is to re-run NETGEN as directed in the DECnet-RT V1.1 Users Guide chapter 13.

DECnet-RT V1.1  
for RT-11 V4  
FAL

Seq. 50.10.3 M

1 of 2

**FAL WILL NOT ALLOW ACCESS COMPLETE AFTER CONTROL CONNECT (WMD)**

FAL currently rejects an access complete DAP request immediately following a control connect request. Remote operating systems such as VAX may desire to send an access complete message after a control connect message in order to delete the file. This correction modifies FAL's state tables to allow the access complete request after the control connect message.

NOTE that all corrections must be made on a COPY of the original distribution media. The PAT utility will corrupt the original object file if an error occurs during the application of the correction file. During the following procedure the pseudo device name KI: refers to the original distribution media and the pseudo device OU: refers to the media on which the correction is to be applied.

- 1) Copy the file FAL.OBJ from the distribution media to the media on which the correction will be applied:

COPY KI:FAL.OBJ OU:FAL.OBJ

- 2) Edit the previously created file named FAL.PAT on the correction media. Insert the following text between the line "; \*\*\* END FALP01 \*\*\*" and the ".END" statement.

```

;
; *** BEGIN FALP03 ***
;
; FALP03 - ALLOW ACCESS COMPLETE AFTER CONTROL CONNECT
;
      .PSECT  FAL
      .IDENT  /V01.12/
      .GLOBL  FALSTD
CMPMSG = X+3442
CPMSG  = X+2464
MOSERR = X+4114
.=X+2436
      MOV     #FALP03,FALSTD(R5)
;
.=X+5276
      .BYTE  0,7      ; ALLOW ACCESS COMPLETE
      .WORD  CMPMSG
      .WORD  -1,-1
      .WORD  MOSERR

```

DECnet-RT V1.1  
 for RT-11 V4  
 FAL

Seq. 50.10.3 M

2 of 2

```

;
      .PSECT  FALP03
FALP03::
      .BYTE  0,4      ; ALLOW CTL PUT
      .WORD  CPMSG
      .BYTE  0,7      ; ALLOW ACC CMP
      .WORD  CMPMSG
      .WORD  -1,-1    ; ELSE MOS
      .WORD  MOSERR
;
; *** END FALP03 ***
;
    
```

3) Assemble the correction file:

```

.MACRO/OBJECT:OU:FAL.POB OU:FAL.PAT
ERRORS DETECTED : 0
    
```

If any errors are detected, re-edit the file and re-assemble.

4) Apply the correction file:

```

.R PAT
*OU:FAL.NEW=OU:FAL.OBJ/C:152736,OU:FAL.POB/C:27751
    
```

If any errors are detected by PAT then verify that the entered checksums are correct and that the file FAL.PAT is correct. Go back to step one.

5) If the PAT program gives no errors then replace the original object with the corrected version of the object module and delete any extra files:

```

.COPY OU:FAL.NEW OU:FAL.OBJ
.DELETE/NOQUERY OU:FAL.NEW,OU:FAL.POB
    
```

6) The distribution device KI: now has the corrected file FAL.OBJ. The FAL utility must be re-built to include the corrected module. This can be achieved by assigning the proper pseudo devices specified during NETGEN (if any) and invoking the command file to re-build FAL:

```

.@FALBLD
    
```

An alternative method is to re-run NETGEN as directed in the DECnet-RT V1.1 Users Guide chapter 13.



DECnet-RT V1.1  
for RT-11 V4  
NFARS

Seq. 50.11.1 M  
1 of 3

**DAP ROUTINES DO NOT REPORT PHYSICAL LINE ERRORS (WMD)**

If a physical line error occurs, or if a remote DECnet-RT FAL is aborted, a user task speaking to the remote file access routines may not get the proper error code returned. In these cases the user program would get an NSP error code of -3 (illegal or inactive channel). If NFT is the task being used when the physical line fails, it will print a message similar to the following:

```
?NFT-F-I/O ERROR ON OUTPUT
      ERROR ACCESSING THE NETWORK
      NSP ERROR CODE: -3
```

The following correction causes the file access routines to pass back the proper error of -4 (physical line failure). With this correction applied NFT will inform the user that the physical line failed. In addition, if a fatal NSP error occurred in a transmit request, DAP would abort with a fatal internal buffer management error. This was due to the fact that an internal buffer pointer was not being pointed to the proper location in a transmit buffer. This correction also causes DAP to point at the proper location on the return of buffers for transmits which failed because of NSP errors.

NOTE that all corrections must be made on a COPY of the original distribution media. The PAT utility will corrupt the original object file if an error occurs during the application of the correction file. During the following procedure the pseudo device name KI: refers to the original distribution media and the pseudo device OU: refers to the media on which the correction is to be applied.

- 1) Copy the file DAPNSP.OBJ from the distribution media to the media on which the correction will be applied:

```
COPY KI:DAPNSP.OBJ OU:DAPNSP.OBJ
```

- 2) Create the following file named DAPNSP.PAT on the correction media:

```
.TITLE DAPNSP - DAP NSP INTERFACE
.IDENT /V01.11/
.PSECT DAPNSP

X=.
$PKTIOS=X+1510
;
; *** BEGIN DAPP01 ***
;
```

DECnet-RT V1.1  
for RT-11 V4  
NFARS

Seq. 50.11.1 M

2 of 3

```

; DAPP01 - IF CHANNEL NUMBER IS ZERO, A PLF OCCURED.
;
.=X+604          CALL    DAPP01
;
.=X+750          JMP     DAPP1B
;
.=X+1020         CALL    DAPP1A
;
.=X+1212         NOP
                 NOP
;
                 .PSECT  DAPP01
                 .ENABL  LSB
                 .GLOBL  $IDCMB,$ERRXMT
DAPP01::
MOV     (PC)+,-(SP)    ; FLAG XMT ENTRY DAPP1A::
CLR     -(SP)         ; FLAG RCV ENTRY
MOVB   $IDCMB(R5),R5  ; GET THE USER CHANNEL NUMBER.
BNE    20$           ; BR IF ONE IS THERE.
MOV    $PKTIOS,R2    ; GET THE IOSB ADDRESS
MOV    #177774,(R2)  ; INSERT A PHYSICAL LINE ERROR CODE.
TST    (SP)+         ; CHECK ENTRY.
BEQ    10$           ; BR IF RECEIVE.
SUB    #12,6(R2)     ; RESET THE BUFFER POINTER.
10$:   TST    (SP)+   ; TOSS RETURN ADD TO DAPNSP.
MOV    (SP)+,R0
JMP    $ERRXMT
20$:   TST    (SP)+   ; PROCESS THE ERROR.
                 ; TOSS ENTRY FLAG.
RETURN
;
DAPP1B::
MOV    $PKTIOS,R2
SUB    #12,6(R2)
JMP    $ERRXMT
;
                 .DSABL  LSB
;
; *** END DAPP01 ***
;
                 .END

```

DECnet-RT V1.1  
for RT-11 V4  
NFARS

Seq. 50.11.1 M

3 of 3

3) Assemble the correction file:

```
.MACRO/OBJECT:OU:DAPNSP.POB OU:DAPNSP.PAT  
ERRORS DETECTED : 0
```

.

If any errors are detected, re-edit the file and re-assemble.

4) Apply the correction file:

```
.R PAT  
*OU:DAPNSP.NEW=OU:DAPNSP.OBJ/C:116554,OU:DAPNSP.POB/C:37724
```

.

If any errors are detected by PAT then verify that the entered checksums are correct and that the file DAPNSP.PAT is correct. Go back to step one.

5) If the PAT program gives no errors then replace the original object with the corrected version of the object module and delete any extra files:

```
.COPY OU:DAPNSP.NEW OU:DAPNSP.OBJ  
.DELETE/NOQUERY OU:DAPNSP.NEW,OU:DAPNSP.POB
```

.

6) The distribution device KI: now has the corrected file DAPNSP.OBJ. The corrected object must be replaced in NETLIB.OBJ and all file access tasks including NFT must be re-linked against the updated library. One approach to updating NETLIB is to directly replace the DAPNSP object module in the library on the correction media:

```
.LIBR OU:NETLIB.OBJ OU:DAPNSP.OBJ/REPLACE
```

Now all remote file access programs must be re-linked against the updated NETLIB. This should be done after all this months corrections to DECnet-RT have been applied. In the case of NFT, NFT may be re-build by assigning the proper pseudo devices selected during NETGEN (if any) and typing:

```
.@NFTBLD
```

An alternative method is to re-run NETGEN as directed in the DECnet-RT V1.1 Users Guide chapter 13.

DECnet-RT V1.1  
for RT-11 V4  
NFARS

Seq. 50.11.2 M

1 of 2

**DAP ATTEMPTS TO MULTIPLY RETURN BUFFERS ON ERROR (WMD)**

If a fatal NSP error occurs during remote file access, the DAP routines may attempt to return internal resources several times. This would cause the user task to abort with a message of:

```
?DAP-F-INTERNAL BUFFER MANAGEMENT ERROR
      AT PC: xxxxxx
```

The following correction prevents DAP from entering this error state.

NOTE that all corrections must be made on a COPY of the original distribution media. The PAT utility will corrupt the original object file if an error occurs during the application of the correction file. During the following procedure the pseudo device name KI: refers to the original distribution media and the pseudo device OU: refers to the media on which the correction is to be applied.

- 1) Copy the file DAPSVCS.OBJ from the distribution media to the media on which the correction will be applied:

```
COPY KI:DAPSVCS.OBJ OU:DAPSVCS.OBJ
```

- 2) Create the following file named DAPSVCS.PAT on the correction media:

```
.TITLE DAPSVCS - DAP SERVICE ROUTINES
.IDENT /V01.11/
.PSECT DAPSVCS

X=.
;
; *** BEGIN DAPP02 ***
;
; DAPP02 - HNGRCV NO LONGER ATTEMPTS TO RELEASE BUFFERS ON ERROR
;
.=X+360
      NOP
      NOP
;
.=X+376
      NOP
      NOP
;
.PSECT DAPP02
```

DECnet-RT V1.1  
for RT-11 V4  
NFARS

Seq. 50.11.2 M

2 of 2

```
DAPP02::  
;  
; *** END DAPP02 ***  
;  
      .END
```

- 3) Assemble the correction file:

```
.MACRO/OBJECT:OU:DAP SVC.POB OU:DAP SVC.PAT  
ERRORS DETECTED : 0
```

If any errors are detected, re-edit the file and re-assemble.

- 4) Apply the correction file:

```
.R PAT  
*OU:DAP SVC.NEW=OU:DAP SVC.OBJ/C:42552,OU:DAP SVC.POB/C:11635
```

If any errors are detected by PAT then verify that the entered checksums are correct and that the file DAP SVC.PAT is correct. Go back to step one.

- 5) If the PAT program gives no errors then replace the original object with the corrected version of the object module and delete any extra files:

```
.COPY OU:DAP SVC.NEW OU:DAP SVC.OBJ  
.DELETE/NOQUERY OU:DAP SVC.NEW,OU:DAP SVC.POB
```

- 6) The distribution device KI: now has the corrected file DAP SVC.OBJ. The corrected DAP SVC module must be replaced in NETLIB.OBJ before re-linking any user tasks. One method of doing this is to directly replace DAP SVC in the NETLIB on the correction media as follows:

```
.LIBR OU:NETLIB.OBJ OU:DAP SVC.OBJ/REPLACE
```

All remote file access user tasks and the NFT utility must be re-linked against the updated NETLIB. This should be done after all DECnet-RT corrections for this month have been applied. In the case of NFT, this can be achieved by assigning any pseudo devices used during NETGEN (if any) and invoking the command file to re-build NFT:

```
.@NFTBLD
```

An alternative method is to re-run NETGEN as directed in the DECnet-RT V1.1 Users Guide chapter 13.

**DAP SEND ONE CHARACTER ON ZERO LENGTH TRANSMITS (WMD)**

Currently, if the remote file access user task attempts to send a zero length record to a remote FAL, the DAP routines will transmit a single character regardless. In the case of NFT sending ASCII files to a remote RSX or VAX FAL, a line of carriage return ,line feed (ie. a blank line) will come back as a carriage return, carriage return, line feed.

The following correction causes DAP to send a zero length buffer if that is what the user task requests.

Note that all corrections must be made on a copy of the original distribution media. The PAT utility will corrupt the original object file if an error occurs during the application of the correction file. During the following procedure the pseudo device name KI: refers to the original distribution media and the pseudo device OU: refers to the media on which the correction is to be applied.

- 1) Copy the file NWRITE.OBJ from the distribution media to the media on which the correction will be applied:

```
COPY KI:NWRITE.OBJ OU:NWRITE.OBJ
```

- 2) Create the following file named NWRITE.PAT on the correction media:

```
.TITLE NWRITE
.IDENT /V01.11/
.PSECT NWRITE
X=.
;
; *** BEGIN DAPP03 ***
;
; DAPP03 - DO NOT MOVE CHARACTER IF ZERO LENGTH BUFFER
;
.=X+220
CALL DAPP03
;
.=X+246
CALL DAPP3A
;
.=X+310
CALL DAPP3B
;
```

```

.PSECT DAPP03
.ENABL LSB
.GLOBL $NXMT
DAPP03::
    TST    R2                ; ANY CHARACTERS TO SEND?
    BEQ    30$                ; IF NO. DON'T MOVE A CHAR.
    MOVB   (R1)+,(R3)+       ; MOVE A CHARACTER.
    INC    R4                ; CLOCK THE CHARACTER MOVED.
    BR     30$                ;
    RETURN
;
DAPP3A::
DAPP3B::
    MOV    (PC)+,-(SP)       ; FLAG MULTI-SEG ENTRY, SKIP NEXT INSTR.
    CLR    -(SP)             ; FLAG SINGLE SEG ENTRY.
    CALL   $NXMT             ; TRANSMIT THE PACKET.
    BCC    20$                ; RETURN IF OK.
    TST    (SP)+             ; CHECK ENTRY.
    BEQ    10$                ; BR IF SINGLE SEG ENTRY.
    TST    (SP)+             ; ADJUST STACK ON MULTI-SEG ENTRY.
10$:    SEC                  ; INDICATE ERROR
20$:    MOV    (SP),(SP)+     ; ADJUST STACK, LEAVE C-BIT ALONE.
30$:    RETURN
        .DSABL LSB
;
; *** END DAPP03 ***
;
        .END

```

3) Assemble the correction file:

```

.MACRO/OBJECT:OU:NWRITE.POB OU:NWRITE.PAT
ERRORS DETECTED : 0
.

```

If any errors are detected, re-edit the file and re-assemble.

4) Apply the correction file:

```

.R PAT
*OU:NWRITE.NEW=OU:NWRITE.OBJ/C:116503,OU:NWRITE.POB/C:25565
.

```

If any errors are detected by PAT then verify that the entered checksums are correct and that the file NWRITE.PAT is correct. Go back to step one.

DECnet-RT V1.1  
for RT-11 V4  
NFARS

Seq. 50.11.3 M

3 of 3

- 5) If the PAT program gives no errors then replace the original object with the corrected version of the object module and delete any extra files:

```
.COPY OU:NWRITE.NEW OU:NWRITE.OBJ  
.DELETE/NOQUERY OU:NWRITE.NEW,OU:NWRITE.POB  
.
```

- 6) The distribution device KI: now has the corrected file NWRITE.OBJ. The corrected object must be replaced in NETLIB.OBJ and all file access tasks including NFT must be re-linked against the updated library. One approach to updating NETLIB is to directly replace the NWRITE object module in the library on the correction media:

```
.LIBR OU:NETLIB.OBJ OU:NWRITE.OBJ/REPLACE
```

Now all remote file access programs must be re-linked against the updated NETLIB. This should be done after all this months corrections to DECnet-RT have been applied .In the case of NFT, NFT may be re-build by assigning the proper pseudo devices selected during NETGEN (if any) and typing:

```
.@NFTBLD
```

An alternative method is to re-run NETGEN as directed in the DECnet-RT V1.1 Users Guide chapter 13.



DECnet-RT V1.1  
for RT-11 V4  
NFARS

Seq. 50.11.4 M

1 of 3

**DAPAST CLEARS THE USER CHANNEL NUMBER TOO SOON (WMD)**

Currently, if an unexpected line event occurs, such as a physical line failure, the exception AST routine in DAP clears the user channel mapping block too soon. This caused an internal DAP queue to only be partially flushed of messages. In the NFT utility, this will cause NFT to sometimes fail to complete a file transfer after a previous transfer has failed. This correction causes DAP to completely flush it's internal queues before clearing the channel number.

NOTE that all corrections must be made on a COPY of the original distribution media. The PAT utility will corrupt the original object file if an error occurs during the application of the correction file. During the following procedure the pseudo device name KI: refers to the original distribution media and the pseudo device OU: refers to the media on which the correction is to be applied.

- 1) Copy the file DAPAST.OBJ from the distribution media to the media on which the correction will be applied:

```
COPY KI:DAPAST.OBJ OU:DAPAST.OBJ
```

- 2) Create the following file named DAPAST.PAT on the correction media:

```
.TITLE DAPAST - DAP AST ROUTINES
.IDENT /V01.11/
.PSECT DAPAST

X=
;
; *** BEGIN DAPP04 ***
;
; DAPP04 - CLEAR CHANNEL MAPPING BLOCK AFTER FLUSHING RCVQ
;
.=X+12
NOP
NOP
;
.=X+56
JMP DAPP04
;
.PSECT DAPP04
.GLOBAL $IDCMB

DAPP04::
```

DECnet-RT V1.1  
for RT-11 V4  
NFARS

Seq. 50.11.4 M

2 of 3

```
          ADD      R1,SP          ; RESET STACK.  
          CLRB    $IDCMB(R5)     ; CLEAR THE CHANNEL.  
          RETURN                    ; EXIT THE AST.  
;  
; *** END DAPP04 ***  
;  
          .END
```

3) Assemble the correction file:

```
.MACRO/OBJECT:OU:DAPAST.POB OU:DAPAST.PAT  
ERRORS DETECTED : 0  
.
```

If any errors are detected, re-edit the file and re-assemble.

4) Apply the correction file:

```
.R PAT  
*OU:DAPAST.NEW=OU:DAPAST.OBJ/C:136666,OU:DAPAST.POB/C:13663  
.
```

If any errors are detected by PAT then verify that the entered checksums are correct and that the file DAPAST.PAT is correct. Go back to step one.

5) If the PAT program gives no errors then replace the original object with the corrected version of the object module and delete any extra files:

```
.COPY OU:DAPAST.NEW OU:DAPAST.OBJ  
.DELETE/NOQUERY OU:DAPAST.NEW,OU:DAPAST.POB  
.
```

6) The distribution device KI: now has the corrected file DAPAST.OBJ. The corrected object must be replaced in NETLIB.OBJ and all file access tasks including NFT must be re-linked against the updated library. One approach to updating NETLIB is to directly replace the DAPAST object module in the library on the correction media:

```
.LIBR OU:NETLIB.OBJ OU:DAPAST.OBJ/REPLACE
```

Now all remote file access programs must be re-linked against the updated NETLIB. This should be done after all this months corrections to DECnet-RT have been applied .In the case of NFT, NFT may be re-build by assigning the proper pseudo devices selected during NETGEN (if any) and typing:

RT-11 Software Dispatch, August 1980

DECnet-RT V1.1  
for RT-11 V4  
NFARS

Seq. 50.11.4 M

3 of 3

.@NFTBLD

An alternative method is to re-run NETGEN as directed in the DECnet-RT V1.1 Users Guide chapter 13.

CTS-300 V06  
DKED V06-00  
(PATCH 1)

Seq 51.7 M

1 of 4

## TWO PROBLEMS WITH DKED

1. The first problem occurs if DKED is opened in CREATE mode (i.e., OUTFILE= ) and the \P\ switch is used with the <FIND> command. Once the last search object has been located, if you repeat the search DKED continues looking through the file indefinitely.

Patch 1 corrects this problem so that under the conditions described above, DKED will report "Target not found" if the search is repeated after the last search object is located or if the search object does not exist in the file.

2. The second problem occurs when editing with DKED: if the <SECTION> command is used in backup mode it results in a TRAP TO 10.

Patch 1 corrects this so that the <SECTION> command in backup mode works properly, and does not cause a TRAP TO 10. It also changes the version number of DKED to V06-00A.

Using the editor, create the following source files. Name them as indicated in the comment line that begins each file. Then, to install the patch, follow the procedure shown following the source files.

Corrections are made to the source modules using the SLP (Source Language Patch) program. Please note that the last record in both P001A.PAT and P001B.PAT is "/". You must terminate each line in both files with a carriage return, including the last line "/".

NOTE: For ease and convenience in installing this and any future patches to DKED, it is recommended that you create an indirect command file for the LINKing procedure that is shown on the third and fourth pages of this patch.

CTS-300 V06  
DKED V06-00  
(PATCH 1)

Seq 51.7 M

2 of 4

#P001A.PAT

-86,86

\

EOF, D1

#EOF FLAG

[EOF]

-203,203

\

D1S1, A12, 'DKED V06-00A'

-364

\

EOF = 1

/

#P001B.PAT

-139,139

\

XCALL YCOLN(MOVE,CFLAG,BUFER)

#CHECK LOCATION OF CURSOR

/

.RENAME (STRTO,SECTN).DBL \*,OLD

Files renamed:

DK:STRTO.DBL to DK:STRTO.OLD

DK:SECTN.DBL to DK:SECTN.OLD

.R SLP

\*STRTO,DBL=STRTO.OLD,P001A.PAT

\*SECTN,DBL=SECTN.OLD,P001B.PAT

\*^C

.R DICOMP

\*STRTO=STRTO/O

NO ERRORS DETECTED

\*SECTN=SECTN/O

NO ERRORS DETECTED

\*^C

CTS-300 V06  
DKED V06-00  
(PATCH 1)

Seq 51.7 M

3 of 4

```
.R LINK
*DKED=DKED,EDLIB,DIBOL/P:500.//
*COMND/O:1
*COMN2/O:1
*CUTA,CUTE/O:1
*CUTC,TOFB/O:1
*CUTD/O:1
*CUTD0,BEOL/O:1
*DELLN/O:1
*DLCH4,D2CHA/O:1
*D3CHA/O:1
*DQUIT,DSCL1/O:1
*DROFN,SWORD/O:1
*FINDS/O:1
*FIND1/O:1
*HCOMN/O:1
*HELPC/O:1
*HELPO,DEXIT/O:1
*HELPE,CUTD2/O:1
*HWILD/O:1
*PAGE2/O:1
*PASTE/O:1
*REPLC/O:1
*RETRN/O:1
*SECTN,APNIA/O:1
*STRT0/O:1
*STRT1/O:1
*STRT2/O:1
*WPAGE/O:1
*XCASE,LINSP,RESEL,UNDEL/O:1
*CUTC1,CRSTR,UDLCH/O:1
*YANK,ZTARG/O:1
*//
*^C
```

CTS-300 V06  
DKED V06-00  
(PATCH 1)

Seq 51.7 M

4 of 4

```
.R LINK
*DKED, TSD/R:100000=DKED, EDLIB, TDIBOL/P:500.//
*COMND/O:1
*COMN2/O:1
*CUTA, CUTB/O:1
*CUTC, TOPB/O:1
*CUTD/O:1
*CUTD0, BEOL/O:1
*DELLN/O:1
*DLCH4, D2CHA/O:1
*D3CHA/O:1
*DQUIT, DSCL1/O:1
*DROFN, SWORD/O:1
*FINDS/O:1
*FIND1/O:1
*HCOMN/O:1
*HELPC/O:1
*HELFD, DEXIT/O:1
*HELPE, CUTD2/O:1
*HWILD/O:1
*PAGE2/O:1
*PASTE/O:1
*REPLC/O:1
*RETRN/O:1
*SECTN, APNDA/O:1
*STRT0/O:1
*STRT1/O:1
*STRT2/O:1
*WPAGE/O:1
*XCASE, LINSP, RESEL, UNDEL/O:1
*CUTC1, CRSTR, UIDLCH/O:1
*YANK, ZTARG/O:1
*//
*^C
```

```
.R REDUCE
*IKED/N
*^C
```

RT-11 Software Dispatch, August 1980

CTS-300 V06  
TDIBOL  
(PATCH 2)

Seq 51.17 M

1 of 2

#### PROBLEM WITH XCALL PAK

One of the arguments that can be passed in the PAK external subroutine is the SIZE field. Under TSD only, the size is always returned as 0.

Patch 2 causes the correct size to be returned under TSD.

Using the editor, create the following source file. Name it as indicated in the comment line that begins the file. Then, to install the patch, follow the procedure shown following the source file.



CTS-300 V06  
 TDIBOL  
 (PATCH 2)

Seq 51.17 M  
 2 of 2

!P002.MAC

```

        .TITLE   PAKING
        .CSECT
P002:
        .=.+406
        MOV     P002+6,R3
        ADD     P002+4,R3
        MOV     P002,R1
        SUB     P002+12,R1
        ADD     P002+14,R1
        JSR     PC,BIN2A
        MOV     P002+26,R4
        RTS     PC

        .PSECT  $P002

BIN2A:  JSR     PC,DIV
        ADD     #60,R2
        MOVB   R2,-(R3)
        DEC     P002+4
        BEQ     10$
        JSR     PC,BIN2A
10$:    RTS     PC

DIV:    CLR     R2
        MOV     #10.,R0
        MOV     #16.,R4
10$:    ASL     R2
        ASL     R1
        ADC     R2
        CMP     R2,R0
        BLT     20$
        INC     R1
        SUB     R0,R2
20$:    DEC     R4
        BGT     10$
        RTS     PC
        .END
    
```

```

.MACRO P002
ERRORS DETECTED:  0
    
```

```

.RENAME (PACKER,TDIBOL).OBJ *.OLD
Files renamed:
DK:PACKER.OBJ to DK:PACKER.OLD
DK:TDIBOL.OBJ to DK:TDIBOL.OLD
    
```

```

.R FAT
*PACKER.OBJ=PACKER.OLD/C:004417,P002/C:030563
    
```

```

.R LIBR
*TDIBOL.OBJ/A=TDIBOL.OLD,PACKER/R
*^C
    
```

RT-11 Software Dispatch, August 1980

CTS-300 V06  
XMTSD VC06-00  
(PATCH 3)

Seq 51.20 M

1 of 2

CONFLICT BETWEEN XMTSD AND RT-11 OVER CHANNEL 16

Version 6 of CTS-300 makes use of an overlaying scheme to load the run-time code. RT-11 uses channel 16 to read in these overlays. XMTSD assumes channel 16 is available for its use, as it was in past versions. Under XMTSD, if more than 15 channels are opened at any one time, XMTSD attempts to use channel 16. This causes an ERROR 50 - UNKNOWN system error message to be generated.

This patch marks channel 16 as used in the run-time system channel list table. The version number of XMTSD is changed to VC06-00A.

Using the editor, create the following source files. Name them as indicated in the comment line that begins each file. Then, to install the patch, follow the procedure shown following the source files.

The correction is made to the source module using the SLP (Source Level Patch) program. Please note that the last record in the following file P003.PAT is "/". You must terminate each line in P003.PAT with a carriage return, including the last line "/".

CTS-300 V06  
XMTSD VC06-00  
(PATCH 3)

Seq 51.20 M

2 of 2

#P003.PAT

-325,325

CHNLST:

```
.IF NDF KT11
.REPT CHNLMX
-327
.ENDC
.IF DF KT11
.IF LE CHNLMX-15.
.REPT CHNLMX
.BYTE 377
.ENDR
.ENDC
.IF GT CHNLMX-15.
.REPT 15.
.BYTE 377
.ENDR
.BYTE 376
.REPT CHNLMX-15.
.BYTE 377
.ENDR
.ENDC
.ENDC
```

/

#P003V1.MAC

```
.TITLE $KDTO
.PSECT DATXX

.= .+42
.BYTE 'A

.END
```

.RENAME TSDTBL.MAC,KDTO.OBJ \*.OLD

Files renamed:

```
DK:TSDTBL.MAC to DK:TSDTBL.OLD
DK:KDTO.OBJ to DK:KDTO.OLD
```

.R SLP

\*TSDTBL.MAC=TSDTBL.OLD,P003.PAT

\*^C

.MACRO P003V1

ERRORS DETECTED: 0

.R PAT

\*KDTO.OBJ=KDTO.OLD/C:032344,P003V1/C:004706

.R CTSGEN

#FOR XMTSD

RT-11 Software Dispatch, August 1980

CTS-300 V06  
DOCUMENTATION

Seq 51.21 N

1 of 1

CTS-300 VERSION 6 IS RELEASED

Version 6 of CTS-300, which runs under the recently released RT-11 Version 4, became available from the Software Distribution Center on June 27, 1980. Version 6 has several new features including the capability for concurrent program development under the Extended Memory run-time system, a DIBOL keypad text editor (DKED), and a PRINT Utility report generator program.

CTS-300 Version 5 is no longer available from the SDC, and support for Version 5 will cease 90 days after the release of Version 6.

RT-11 V4.0  
CUMULATIVE INDEX  
AUGUST 1980

This is a complete listing of all articles for RT-11 V4.0 and related products. In the case of subordinate software, missing sequence numbers may pertain to problems unique to interaction with previous 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 RT-11 Software Dispatch Review, March 1980.

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
RT-11 V4.0		
<b>MONITOR PATCHES</b>		
ISSUING .SETUP #-2 AND .EXIT UNDER XM MONITOR MAY CORRUPT SYSTEM DISK	1.1.1 M	Jul 80
IMPLEMENTING INTERNAL HANDLER QUEUEING IN FB AND XM MONITORS	1.1.2 M	Jul 80
ADDING HIGH SPEED RING BUFFER SUPPORT	1.1.3 M	Jul 80
CORRUPTION OF CSI TEXT UNDER XM MONITOR	1.1.4 M	Jul 80
MISSING COLON IN BOOT XX CAUSES SYSTEM HALT	1.1.5 M	Jul 80
<b>DEVICE HANDLER SOURCES</b>		
<b>DD.MAC</b>		
DD PRIMARY BOOTSTRAP PROBLEM	6.4.1 M	Jul 80
<b>DD.MAC</b>		
ERRORS IN DM OFFSET POSITIONING AND ERROR LOGGING	6.6.1 M	Jul 80
<b>LP.MAC</b>		
LP SET NOHANG MAY CRASH SYSTEM	6.12.1 M	Aug 80
<b>LS.MAC</b>		
LS SET NOHANG MAY CRASH SYSTEM	6.13.1 M	Aug 80
<b>TM.MAC</b>		
BUFFER CLEARING ON SHORT READ IN XM MONITOR	6.20.1 M	Jul 80
LINKING AN XM, NON-FILESTRUCTURED TS HANDLER GENERATES AN UNDEFINED GLOBAL	6.20.2 M	Aug 80
<b>SYSTEM UTILITIES</b>		
<b>DUP.SAV</b>		
MISSING COLON IN BOOT XX CAUSES SYSTEM HALT	7.2.1 M	Jul 80
SQUEEZE CREATES <UNUSED> ENTRIES OF LENGTH ZERO BEFORE .BAD FILES	7.2.2 M	Aug 80
<b>DIR.SAV</b>		
DIR/OUT COMMAND PRODUCES DEVICE NOT ACTIVE MESSAGE	7.3.1 M	Jul 80

25001  
 5  
 DUM...  
 Res...  
 13  
 LINK...  
 SR...  
 17  
 KED...  
 .002  
 .003

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
<b>RESORC.SAV</b> RESORC MAY REPORT INCORRECT JOB NAMES ON A SHOW JOBS COMMAND	7.5.1 M	Aug 80
<b>LINK.SAV</b> LINK BYTE RELOCATION AND DIRECTORY SIZE LINK MAP PROCESSING ERROR	7.9.1 M 7.9.2 M	Jul 80 Aug 80
<b>LIBR.SAV</b> A LIBR COMMAND WITH NO FILE-SPEC CAN CAUSE A SYSTEM CRASH	7.10.1 M	Jul 80
<b>FILEX.SAV</b> FILEX WILDCARD TRANSFERS CAUSE MONITOR TRAP	7.11.1 M	Aug 80
<b>SRCCOM.SAV</b> COMPARING TWO FILES MAY CAUSE TRAP TO 4	7.12.1 M	Aug 80
<b>SIPP.SAV</b> CORRUPTION OF MULTI-BLOCK LOG FILES	7.16.1 M	Jul 80
<b>PAT.SAV</b> USE OF THE PAT UTILITY WITH RT-11 V3B PATCHES	7.17.1 M+	Mar 80
<u>DOCUMENTATION</u>		
<u>RT-11 SYSTEM RELEASE NOTES</u>		
RT-11 V4.0 DOCUMENTATION CORRECTIONS AND ADDITIONS	11.2.1 N	Jul 80
DOCUMENTATION CORRECTIONS	11.2.2 N	Aug 80
<u>RT-11 INSTALLATION AND SYSTEM GENERATION GUIDE</u>		
RT-11 V4.0 DOCUMENTATION CORRECTIONS AND ADDITIONS	11.3.1 N	Jul 80
CORRECTION TO AN OPTIONAL PATCH TO LINK	11.3.2 N	Aug 80
<u>INTRODUCTION TO RT-11</u>		
RT-11 V4.0 DOCUMENTATION CORRECTIONS AND ADDITIONS	11.4.1 N	Jul 80
<u>RT-11 SYSTEM USER'S GUIDE</u>		
RT-11 DOCUMENTATION CORRECTIONS AND ADDITIONS	11.5.1 N	Jul 80
<u>RT-11 SYSTEM MESSAGE MANUAL</u>		
RT-11 V4.0 DOCUMENTATION CORRECTIONS AND ADDITIONS	11.6.1 N	Jul 80
<u>RT-11 POCKET GUIDE</u>		
RT-11 V4.0 DOCUMENTATION CORRECTIONS AND ADDITIONS	11.7.1 N	Jul 80
<u>RT-11 SOFTWARE SUPPORT MANUAL</u>		
RT-11 V4.0 DOCUMENTATION CORRECTIONS AND ADDITIONS	11.9.1 N	Jul 80
<u>KEYPAD EDITOR</u>		
<u>KED</u>		
MAKE TERMINAL SETUP OPTIONAL IF MNTATCH FAILS	17.1.1 F	Aug 80
PROVIDE A .CHAIN INTERFACE FOR KED	17.1.2 F	Aug 80
PROVIDE REASONABLE ACTIONS AND ERROR MESSAGES WHEN DEALING WITH DEGENERATE FILES	17.1.3 M	Aug 80
<u>K52</u>		
MAKE TERMINAL SETUP OPTIONAL IF MNTATCH FAILS	17.2.1 F	Aug 80
PROVIDE A .CHAIN INTERFACE FOR K52	17.2.2 F	Aug 80
PROVIDE REASONABLE ACTIONS AND ERROR MESSAGES WHEN DEALING WITH DEGENERATE FILES	17.2.3 M	Aug 80
<b>FMS-11/RT-11 V1.1</b>		
ANNOUNCING FMS-11/RT-11 V1.1	33.1 N	Aug 80
<b>BASIC-11/RT-11 V2.0</b>		
<u>INTERPRETER</u>		
REPUBLICANION OF PATCHES	35.1.1 N+	Mar 80
PRINT USING - PATCH A	35.1.2 M+	Mar 80
RESEQ - PATCH B	35.1.3 M+	Mar 80
EDITING A DIM #n STATEMENT - PATCH C	35.1.4 M+	Mar 80
DOUBLE PRECISION HANG - PATCH D	35.1.5 M+	Mar 80

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
SAVE dev: AND REPLACE dev: - PATCH E	35.1.6 M+	Mar 80
SINGLE PRECISION HANG AND NUMERIC CONVERSION PROBLEM - PATCH F	35.1.7 M+	Mar 80
SAVE .XXX & UNSAVE .XXX - PATCH G	35.1.8 M+	Mar 80
NEW - PATCH H	35.1.9 M+	Mar 80
RESEQ - PATCH I	35.1.10 M+	Mar 80
LISTNH / OLD - PATCH J	35.1.11 M+	Mar 80
SYS(1) - PATCH K	35.1.12 M+	Mar 80
CALL - PATCH L	35.1.13 M+	Mar 80
DOUBLE PRECISION INTEGER VARIABLES - PATCH M	35.1.14 M+	Mar 80
FILESIZE 0 - PATCH N	35.1.15 M+	Mar 80
INTEGERS IN DOUBLE PRECISION BASIC-11	35.1.16 N+	Mar 80
REM STATEMENTS ON MULTI-STATEMENT LINES - PATCH O	35.1.17 M+	Mar 80
<b>UTILITIES</b>		
CONVERSION PROGRAM	35.2.1 M+	Mar 80
BASIC-11/RT-11 V2 CONVERSION PROGRAM PATCH 1	35.2.2 M+	Mar 80
<b>DOCUMENTATION</b>		
OVERLAYING WHILE IN A SUBROUTINE	35.3.1 R+	Mar 80
OPERATION OF CTRLC, RCTRLC AND SYS(6) FUNCTIONS AND THE CTRL/C COMMAND	35.3.2 N+	Mar 80
OPERATION OF OLD, RUN, CHAIN, AND OVERLAY WHEN THE SPECIFIED FILE IS NOT FOUND	35.3.3 N+	Mar 80
CREATING AND ACCESSING VIRTUAL ARRAY FILES	35.3.4 N+	Mar 80
STORAGE OF THE NULL CHARACTER IN STRING VARIABLES AND VIRTUAL STRING ARRAYS	35.3.5 N+	Mar 80
USE OF COMPILE COMMAND	35.3.6 N+	Mar 80
STRING MANIPULATION IN ASSEMBLY LANGUAGE ROUTINES	35.3.7 N+	Mar 80
MAXIMUM ARRAY SUBSCRIPT SIZE	35.3.8 N+	Mar 80
<b>MU BASIC-11/RT-11 V2.0</b>		
<b>INTERPRETER</b>		
CHAINING WITH COMMON - PATCH A	36.1.1 M+	Mar 80
VIRTUAL FILE I/O - PATCH B	36.1.2 M+	Mar 80
SYS(1,n) FUNCTION - PATCH C	36.1.3 M+	Mar 80
RESEQ - PATCH D	36.1.4 M+	Mar 80
VALUES IN PATCHES A, B, C	36.1.5 N+	Mar 80
LISTNH / OLD - PATCH E	36.1.6 M+	Mar 80
CALL - PATCH F	36.1.7 M+	Mar 80
DOUBLE PRECISION INTEGER VARIABLES - PATCH G	36.1.8 M+	Mar 80
INPUT #/PRINT # - PATCH H	36.1.9 M+	Mar 80
OLD OF A ZERO BLOCK FILE - PATCH I	36.1.10 M+	Mar 80
ADDITION TO PATCH B - PATCH J	36.1.11 M+	Mar 80
DEVICE MNEMONIC PROBLEM - PATCH K	36.1.12 M+	Mar 80
CLOSE - PATCH L	36.1.13 M+	Mar 80
REM STATEMENTS ON MULTI-STATEMENT LINES - PATCH M	36.1.14 M+	Mar 80
DEASSIGNING A TERMINAL - PATCH N	36.1.15 M+	Mar 80
INTEGERS IN DOUBLE PRECISION MU BASIC-11	36.1.16 N+	Mar 80
USE OF SYS(1,n) FUNCTION WHEN ',n' IS OMITTED - PATCH O	36.1.17 M+	Mar 80
DISABLING CR/LF USING TTYSET - PATCH P	36.1.18 M+	Mar 80
HANDLER FETCH ERROR MAY LEAD TO MONITOR FAULT - PATCH Q	36.1.19 M+	Mar 80
<b>UTILITIES</b>		
MU BASIC-11/RT-11 V2 CONFIGURATION PROGRAM PATCH 1	36.2.1 M+	Mar 80
MU BASIC-11/RT-11 V2 CONVERSION PROGRAM	36.2.2 F+	Mar 80
<b>DOCUMENTATION</b>		
OPERATION OF CTRLC, RCTRLC AND SYS(6) FUNCTIONS AND THE CTRL/C COMMAND	36.3.1 N+	Mar 80
MEMORY REQUIREMENTS OF OPTIONAL FUNCTIONS, ETC.	36.3.2 N+	Mar 80
OPERATION OF OLD, RUN, CHAIN AND OVERLAY WHEN THE SPECIFIED FILE IS NOT FOUND	36.3.3 N+	Mar 80
CREATING AND ACCESSING VIRTUAL ARRAY FILES	36.3.4 N+	Mar 80
STORAGE OF THE NULL CHARACTER IN STRING VARIABLES AND VIRTUAL STRING ARRAYS	36.3.5 N+	Mar 80
USE OF COMPILE COMMAND	36.3.6 N+	Mar 80
STRING MANIPULATION IN ASSEMBLY LANGUAGE ROUTINES	36.3.7 N+	Mar 80
ERROR IN TABLE 4-1 OF THE USER'S GUIDE	36.3.8 N+	Mar 80
RESTRICTION ON USR RESIDENCY WHEN RUNNING IN FOREGROUND	36.3.9 N+	Mar 80
MAXIMUM ARRAY SUBSCRIPT SIZE	36.3.10 N+	Mar 80
ASSEMBLING SOURCE FILES (SOURCE LICENSE HOLDERS ONLY)	36.3.11 N+	Mar 80
USE OF PATCH UTILITY	36.3.12 N+	Mar 80

ComponentSequenceMon/Yr

## FORTRAN IV/RT-11 V2.1

**COMPILER**

PATCH 1	44.1.1 M+	Mar 80
PATCH 2	44.1.2 M+	Mar 80
PATCH 3	44.1.3 M+	Mar 80
REGISTER ALLOCATION - PATCH 8	44.1.4 M+	Mar 80
FORTRAN FAILS TO COMPILE DO-LOOPS - PATCH 11	44.1.5 M+	Mar 80
COMMON SUBEXPRESSION OPTIMIZATION - PATCH 17	44.1.6 M+	Mar 80
BYTE COMPARISON AND COMMON SUBEXPRESSION OPTIMIZATION - PATCH 20	44.1.7 M+	Mar 80
DIRECT ACCESS READ - PATCH 21	44.1.8 M+	Mar 80
COMPLEX VARIABLE TO CONSTANT COMPARISON - PATCH 22	44.1.9 M+	Mar 80

**OTS**

PATCH 4	44.2.1 M+	Mar 80
CARRIAGE CONTROL OPTION - PATCH 5	44.2.2 M+	Mar 80
OPEN FAILURE WITH TYPE='OLD' - PATCH 6	44.2.3 M+	Mar 80
FORTRAN LIBRARY FUNCTION ERRST - PATCH 7	44.2.4 M+	Mar 80
SMALLER EXECUTION-TIME PROGRAMS	44.2.5 N+	Mar 80
FORTRAN OTS - PATCH 9	44.2.6 M+	Mar 80
I/O FROM A FORTRAN COMPLETION ROUTINE - PATCH 10	44.2.7 M+	Mar 80
CALL CLOSE (FORTRAN LIBRARY SUBROUTINE) - PATCH 12	44.2.8 M+	Mar 80
UNFORMATTED BYTE I/O - PATCH 13	44.2.9 F+	Mar 80
LIST DIRECTED INPUT ERRORS - PATCH 14	44.2.10 M+	Mar 80
DISP='DELETE' OPTION - PATCH 15	44.2.11 M+	Mar 80
FORMATTED RECORD OUTPUT - PATCH 16	44.2.12 M+	Mar 80
CALL ASSIGN CARRIAGE CONTROL - PATCH 18	44.2.13 M+	Mar 80
NON-PLAS VIRTUAL ARRAY INITIALIZATION - PATCH 19	44.2.14 M+	Mar 80

**DOCUMENTATION**

FORTRAN IV V2.1 MAINTENANCE RELEASE	44.3.1 N+	Mar 80
INSTALLING FORTRAN IV V2.1 UNDER RT-11 V4	44.3.2 N	Aug 80

## DECnet-RT V1.1

**NETGEN**

FULL DUPLEX, EXTENDED MEMORY DUP DRIVER WON'T BUILD	50.3.1 M	Aug 80
---	----------	--------

**DDCMP**

DDCMP BRANCH OUT OF RANGE AND Q ELEMENT RETURN PROBLEMS	50.5.1 M	Aug 80
---	----------	--------

**NSP**

NSP CORRUPTS PHYSICAL LINE ERROR CODE	50.6.1 M	Aug 80
---------------------------------------	----------	--------

**NFT**

NFT INCORRECTLY ALLOCATES RT-11 QUEUE ELEMENTS	50.9.1 M	Jun 80
--	----------	--------

**FAL**

FAL INCORRECTLY ALLOCATES RT-11 QUEUE ELEMENTS	50.10.1 M	Jun 80
FAL MAY HANG ON ASCII TRANSFERS OF UNFILLED BLOCKS	50.10.2 M	Aug 80
FAL WILL NOT ALLOW ACCESS COMPLETE AFTER CONTROL CONNECT	50.10.3 M	Aug 80

**NFARS**

DAP ROUTINES DO NOT REPORT PHYSICAL LINE ERRORS	50.11.1 M	Aug 80
DAP ATTEMPTS TO MULTIPLY RETURN BUFFERS ON ERROR	50.11.2 M	Aug 80
DAP SEND ONE CHARACTER ON ZERO LENGTH TRANSMITS	50.11.3 M	Aug 80
DAPAST CLEARS THE USER CHANNEL NUMBER TOO SOON	50.11.4 M	Aug 80

**FORTRAN USER INTERFACES**

NOTES ON THE USE OF THE DECnet-RT FORTRAN INTERFACES	50.16.1 M	Jun 80
--	-----------	--------

**MACRO USER INTERFACES**

NOTES ON DECnet-RT MACRO PROGRAMMING	50.16.2 N	Jun 80
--------------------------------------	-----------	--------



<u>Component</u>		<u>Sequence</u>	<u>Mon/Yr</u>
	CTS-300 V06		
<b>DKED</b> TWO PROBLEMS WITH DKED		51.7 M	Aug 80
<b>TDIBOL</b> PROBLEM WITH XCALL PAK		51.17 M	Aug 80
<b>XMTSD</b> CONFLICT BETWEEN XMTSD AND RT-11 OVER CHANNEL 16		51.20 M	Aug 80
<b>DOCUMENTATION</b> CTS-300 VERSION 6 IS RELEASED		51.21 N	Aug 80

RT-11 V3B  
CUMULATIVE INDEX  
AUGUST 1980

This is a complete listing of all articles for RT-11 V4.0 and related products. In the case of subordinate software, missing sequence numbers may pertain to problems unique to interaction with previous 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.

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
BASIC-11/RT-11 V2		
RESEQUENCE PRODUCES AN INCORRECT PROGRAM UNDER CERTAIN CONDITIONS	01 M	Aug 78
PRINT USING	02 M	Jun 78
MAX SIZE OF LINE ENTERED TO BASIC-11	03 M	Jun 78
REM STATEMENT CONTAINING LEFT PARENTHESIS CAUSES SUBSEQUENT SPACES AND PERIODS TO BE REMOVED	04 R	Jun 78
RUN (NH) COMMAND MAY GIVE AN ERROR MESSAGE	05 M	Jul 78
TERMINAL MAY HANG	06 M	Jul 78
DATA FILES	07 M	Jul 78
SAVE DEV: AND REPLACE DEV:	08 M	Jul 78
SINGLE PRECISION HANG AND NUMERIC CONVERSION PROBLEM (PATCH F)	09 M	Aug 78
CONVERSION PROGRAM	10 M	Sep 78
OVERLAYING WHILE IN A SUBROUTINE	11 R	Nov 78
OPERATION OF CTRL/C, AND RCTRL/C AND SYS (6) FUNCTIONS AND THE CTRL/C COMMAND	12 N	Nov 78
BASIC-11/RT-11 V2 CONVERSION PROGRAM PATCH 1	13 M	Feb 79
OPERATION OF OLD, RUN, CHAIN AND OVERLAY WHEN THE SPECIFIED FILE IS NOT FOUND	14 N	Feb 79
CREATING AND ACCESSING VIRTUAL ARRAY FILES	15 N	Feb 79
REPUBLICANION OF PATCHES	16 N	Feb 79
PRINT USING - PATCH A	17 M	Feb 79
RESEQ - PATCH B	18 M	Feb 79
EDITING A DIM #n STATEMENT - PATCH C	19 M	Feb 79
DOUBLE PRECISION HANG - PATCH D	20 M	Feb 79
SAVE dev: AND REPLACE dev: - PATCH E	21 M	Feb 79
SINGLE PRECISION HANG AND NUMERIC CONVERSION PROBLEM - PATCH F	22 M	Feb 79
SAVE .XXX & UNSAVE .XXX - PATCH G	23 M	Feb 79
NEW - PATCH H	24 M	Feb 79
STORAGE OF THE NULL CHARACTER IN STRING VARIABLES AND VIRTUAL STRING ARRAYS	25 N	Feb 79
USE OF COMPILE COMMAND	26 N	Feb 79
RESEQ - PATCH I	27 M	Mar 79
LISTNH /OLD - PATCH J	28 M	Mar 79
SYS(1) - PATCH K	29 M	Mar 79
CALL - PATCH L	30 M	Mar 79
DOUBLE PRECISION INTEGER VARIABLES - PATCH M	31 M	May 79
FILESIZE 0 - PATCH N	32 M	May 79
INTEGERS IN DOUBLE PRECISION BASIC-11	33 M	Jul 79

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
REM STATEMENTS ON MULTI-STATEMENT LINES - PATCH 0	34 M	Jul 79
STRING MANIPULATION IN ASSEMBLY LANGUAGE ROUTINES	35 N	Aug 79
MAXIMUM ARRAY SUBSCRIPT SIZE	36 N	Aug 79

CTS-300 V5

<b>DECFORM</b>		
TWO PROBLEMS WITH FOCOMP	01 M	May 79
<b>DIBOL</b>		
TWO PROBLEMS: FILE CORRUPTION POSSIBILITY AND REPETITIVE I/O ERRORS	01 M	Mar 79
OPENING NON-STANDARD HANDLERS	02 M	Apr 79
ANOTHER FILE CORRUPTION POSSIBILITY	03 M	Apr 79
TWO PROBLEMS: OPENING 0 LENGTH FILE IN SUD AND OPENING LP IN I MODE	04 M	Jun 79
LINE PRINTER PROBLEM AND PROBLEM WITH LARGE ISAM FILE	05 M	Jun 79
I/O ERRORS AND PROBLEM WITH FMAC SUBROUTINE	06 M	Jun 79
ISAM FILE CORRUPTION	07 M	Jun 79
SHUFFLE CAUSES TRAP TO 4	08 M	Jul 79
MISLEADING ERROR MESSAGES	09 M	Aug 79
ERRONEOUS I/O ERROR	10 M	Aug 79
TWO PROBLEMS WITH MULTI-VOLUME FILES	11 M	Oct 79
INCORRECT ERROR ON WRITING DUPLICATE FILE TO MAGTAPE	12 M	Dec 79
ACCEPT CAUSES ERRORS	13 M	Mar 80
I-O ERROR ON ISAM STORE/DELETE	14 M	Mar 80
LP: MAY PRINT UNWANTED CHARACTERS	15 M	Jun 80
<b>DICOMP</b>		
DICOMP DISLIKES SOME COMMENTS	01 M	Sep 79
<b>ISMUTL</b>		
REORG PROBLEMS DUE TO INSUFFICIENT SPACE ON DEVICE	01 M	Feb 80
<b>REDUCE</b>		
HOW TO REDUCE PAINLESSLY	01 N	Aug 79
A REDUCING PROBLEM	02 M	Dec 79
<b>SORTM</b>		
MERGE DOES NOT ACCEPT EMPTY FILES	01 M	Apr 79
MERGING ISAM FILES	02 M	May 80

CTS-300 RDCP (2780/3780) V1.0

SENDING OF TRANSPARENT DATA AND TRANSLATION OF DATA AFTER		
SENDING A TRANSPARENT FILE	01 M	Jul 79
SEND A TRANSPARENT FILE AFTER RECEIVING AN ASCII DATA FILE	02 M	Oct 79
AN ACK IS RECEIVED WHEN ENQ HAS ALREADY BEEN SENT	03 M	Oct 79
MISCELLANEOUS ERRORS	04 M	Aug 79
RDCP11 LOOP MAY OCCUR	05 M	Oct 79
ASCII TRANSMISSION OF A FILE	06 M	Oct 79

DECnet-RT V1

<b>DAP</b>		
DAP ROUTINES DO NOT ARBITRATE DAP SEGMENT SIZE PROPERLY	07 M	Jan 79
NOTES ON CHANGES TO DAP INTERFACE	09 N	Feb 79
CORRECT BUFFER POINTER ERROR	16.11 M	May 79
DAP ATTEMPTS TO SEND A MESSAGE TOO LONG	17.7 M	Sep 79
<b>DDCMP</b>		
DDCMP LINE COUNTERS OVERFLOW TO ZERO	01 0	Jul 78
<b>DMC</b>		
DMC LINE COUNTERS OVERFLOW TO ZERO	01 0	Jul 78
<b>DOCUMENTATION</b>		
USER'S GUIDE DOCUMENTATION ERRORS	2.1 N	Aug 79

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
<b>FAL</b>		
CORRECT FAL PROCESSING OF END OF STREAM MESSAGE	01 M	Jan 79
FAL INCORRECTLY ALLOCATES DISC SPACE FOR FILES	02 M	Feb 79
FAL INCORRECTLY HANDLES REMOTE FILE REQUESTS	04 M	Feb 79
TIMING DEPENDENCY IN RT TO RSTS FILE TRANSFERS	17.5 M	Jul 79
MRS FIELD NOT DEFAULTED PROPERLY	17.6 M	Jul 79
<b>FORTRAN INTERFACE</b>		
DIFFERENCES IN RT AND RSX FORTRAN INTERFACE IMPLEMENTATIONS	01 N	Jul 78
USE OF THREADED AND INLINE FORTRAN COMPILER OPTIONS	04 R	Jan 79
FORTRAN REMOTE OPEN FOR WRITE MODIFIES FILE ATTRIBUTES	05 N	Jan 79
<b>MODEM CONTROL</b>		
SUPPORT OF ASYNCHRONOUS HALF DUPLEX MODEMS	01 R	Jul 78
<b>NFARS</b>		
DAP ROUTINES CHANGE MODE DURING FILE TRANSFER	02 M	Feb 79
CHECK FOR BLOCK MODE TRANSFER	03 M	Feb 79
DAP DEFAULTS DO NOT ALLOW RECORDS TO SPAN BLOCKS	06 O	Jan 79
ASCII FILE ACCESS TO VAX/RSX SYSTEMS	08 M	Feb 79
INVALID FILE TYPE SENT TO VAX IN ASCII TRANSFER	10 M	Mar 79
<b>NSP</b>		
PROTOCOL VIOLATION IN NODE INITIALIZATION	01 M	Jan 79
<b>NFT</b>		
NFT ASCII FILE TRANSFER TO VAX/RSX SYSTEMS	03 M	Feb 79
LOGICAL BLOCK NUMBERS NOW START AT ONE	17.5 M	May 79
<b>DECnet-RT V1.1</b>		
<b>NFT</b>		
NFT INCORRECTLY ALLOCATES RT-11 QUEUE ELEMENTS	50.9.1 M	Jun 80
<b>FAL</b>		
FAL INCORRECTLY ALLOCATES RT-11 QUEUE ELEMENTS	50.10.1 M	Jun 80
<b>FORTRAN USER INTERFACES</b>		
NOTES ON THE USE OF THE DECnet-RT FORTRAN INTERFACES	50.16.1 N	Jun 80
<b>MACRO USER INTERFACES</b>		
NOTES ON DECnet-RT MACRO PROGRAMMING	50.16.2 N	Jun 80
<b>FEP-11, FORTRAN ENHANCEMENT PACKAGE</b> (ALSO PERTAINS TO: RT-11/FORTRAN UPGRADE PACKAGE FOR MINC)		
FEP-11 INITIAL PROBLEMS, SOLUTIONS AND HINTS	01 M	May 79
PROBLEMS WITH IEEE-BUS SUBROUTINES	02 M	Feb 80
<b>FMS-11 V1</b>		
CONSOLE TERMINAL SPECIAL MODE BIT CLEARED	01 M	Jun 79
INCORRECT MCDemo FILE TYPES	02 O	Jun 79
TSKINI INPUT BUFFER TOO SMALL	03 M	Jun 79
ARTS ERROR MESSAGES LACK '?'	04 M	Jun 79
HANDLER FETCH CORRUPTS FORM FILE ID	05 M	Jul 79
ZERO-FILLED FIELD VALIDATION PROBLEM	06 M	Jul 79
FILED VIDEO ATTRIBUTES PROBLEM	07 M	Jul 79
FRED ERROR MESSAGES LACK'?'	08 M	Jul 79
ERROR IN SCROLL FORWARD/BACKWARD CODE	09 M	Jul 79
ERROR IN EXIT SCROLLED AREA FORWARD CODE	10 M	Jul 79
ANNOUNCING FMS-11 FORMS MANAGEMENT SYSTEM	11 F	Nov 79
<b>FOCAL/RT-11 V1B</b>		
FOR COMMAND WITHOUT AN ARGUMENT	01 M	Oct 75
OPERATE COMMAND CAUSES ERROR	04 M	Aug 76
FCLK ROUTINE GIVES INCORRECT TIME	05 O	Aug 76
"LIBRARY ASK" COMMAND	06 O	Feb 77

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
"/Z" SWITCH	07 M	Aug 77
@START NOT WORKING WHEN DOWN-LINE LOADING	08 M	Mar 78
LIBRARIES FROM FOCAL SOURCE DISK MUST BE REFORMATTED	09 N	Aug 78
CLOCK PROBLEM FOR PAPER TAPE (STAND-ALONE) FOCAL USERS	10 M	Nov 78
<b>FORTRAN GRAPHICS PACKAGE, V1.1</b>		
<b>DECGRAPHIC</b>		
NMBR SUBROUTINE IN DECgraphic	01 R	JAN 79
<b>FORTRAN/RT-11 EXTENSIONS V2.1</b>		
FORTRAN CRASHES AFTER RUNNING PROGRAM WITH "SETR"	01 M	Mar 79
TWO PROBLEMS WITH THE RT-11/FORTRAN GRAPHICS EXTENSIONS	02 M	Mar 79
NEGATIVE INTENSITY	03 N	Mar 79
<b>FORTRAN IV/RT-11 V2.1</b>		
FORTRAN IV V2.1 MAINTENANCE RELEASE	01 N	Dec 78
PATCH 1	02 M	Feb 79
PATCH 2	03 M	Feb 79
PATCH 3	04 M	Feb 79
PATCH 4	05 M	Sep 79
CARRIAGE CONTROL OPTION - PATCH 5	06 M	May 79
OPEN FAILURE WITH TYPE='OLD' - PATCH 6	07 M	Sep 79
FORTRAN LIBRARY FUNCTION ERRST - PATCH 7	08 M	Aug 79
REGISTER ALLOCATION - PATCH 8	09 M	Sep 79
SMALLER EXECUTION-TIME PROGRAMS	10 N	Jun 79
FORTRAN OTS - PATCH 9	11 M	Sep 79
I/O FROM A FORTRAN COMPLETION ROUTINE - PATCH 10	12 M	Aug 79
FORTRAN FAILS TO COMPILE DO-LOOPS - PATCH 11	13 M	Aug 79
CALL CLOSE (FORTRAN LIBRARY SUBROUTINE) - PATCH 12	14 M	Aug 79
UNFORMATTED BYTE I/O - PATCH 13	15 F	Aug 79
LIST DIRECTED INPUT ERRORS - PATCH 14	16 M	Aug 79
DISP='DELETE' OPTION - PATCH 15	17 M	Aug 79
FORMATTED RECORD OUTPUT - PATCH 16	18 M	Aug 79
COMMON SUBEXPRESSION OPTIMIZATION - PATCH 17	19 M	Aug 79
CALL ASSIGN CARRIAGE CONTROL - PATCH 18	20 M	Aug 79
NON-PLAS VIRTUAL ARRAY INITIALIZATION - PATCH 19	21 M	Aug 79
BYTE COMPARISON AND COMMON SUBEXPRESSION OPTIMIZATION - PATCH 20	22 M	Aug 79
DIRECT ACCESS READ - PATCH 21	23 M	Aug 79
COMPLEX VARIABLE TO CONSTANT COMPARISON - PATCH 22	24 M	Aug 79
<b>GAMMA-11 F/B V2.4</b>		
CONTINUE ANALYSIS (CA) OCCASIONALLY FAILS	01 M	Oct 79
GAMMA-11 SYSTEMS WITH RK07 DISKS AS A DEVICE	02 M	Jan 80
PROBLEM WITH ABORTING GAMMA-11	03 M	Oct 79
PROBLEMS WITH FOUR BIT MAP ANALYSIS COMMANDS	04 M	Oct 79
PROBLEMS WITH FORTRAN SUBROUTINES 'GPFR' AND GPFW'	05 F	Jan 80
PROBLEMS WITH DATA ANALYSIS	06 M	Jan 80
PROBLEMS WITH DYNAMIC ACQUISITION ON RK05 GAMMA-11	07 M	Nov 79
PROBLEMS WITH DATA ACQUISITION	08 M	Nov 79
TRANSFER STUDIES WITH MAGTAPE PROBLEM	09 M	Nov 79
<b>LABORATORY APPLICATIONS-11 V3</b>		
A NEW MODULE TO ENHANCE DATA FLOW WITHIN LA-11	01 N	Oct 76
<b>HISTO.MAC</b>		
ACQUIRING AND PROCESSING HISTOGRAM DATA	01 M	Sep 76
<b>LABMAC.SML</b>		
ERRONEOUS MACRO	01 M	Sep 77
INCLUDING LABMAC.SML IN SYSMAC.SML	02 M	Mar 79

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
<b>PEAK.MAC</b>		
WIDE PEAKS	01 M	Mar 76
PEAK PROBLEMS AND CORRECTIONS	02 M	Jul 76
ARITHMETIC CORRECTION FOR PEAK AREA	03 M	Dec 76
MISSING PATCH IN RELEASE NOTES	04 M	Oct 77
<b>SPARTA</b>		
LPS AND AR-11 VECTOR AND STATUS REGISTER	01 N	Dec 75
USING SPARTA AND FLOATING POINT BUFFERS	02 N	Feb 76
AR-11 TIMING PROBLEMS WITH ADSAM AND SPARTA	03 O	Feb 76
FFT SCALING CORRECTION	04 M	Feb 76
SCALE FACTOR CORRECTION FOR SPARTA COMMANDS FAC AND FCC	05 M	Mar 76
DATA DISPLAYS USING LA-11	06 N	Mar 76
DATA PREPARATION FOR SPARTA COMMANDS FAC AND FCC	07 N	Apr 76
SPARTA CORRECTIONS FOR POINT-PLOT DISPLAY	08 M	Apr 76
ADDING COMMANDS TO SPARTA	09 M	May 76
CORRECTION FOR THE DPV COMMAND WITH POINT PLOT DISPLAY	10 M	Jun 76
GENERAL SUBROUTINE MODULE FOR EAE	11 O	Jun 76
INCORRECT PHASE ANGLE CALCULATION	12 M	Oct 76
"MOU" AND "MIN" COMMANDS CAN BE READ OUT AND IN CORRECTLY	13 N	Jan 77
MULTIPLE SYNCH PULSES	14 M	Jan 77
AUTO AND CROSS CORRELATION	15 M	Jan 77
ALLOCATING MORE THAN 16K BUFFERS IN SPARTA	16 M	Feb 77
A/D SAMPLING: FAST MODE	17 M	Jul 77
A/D SAMPLING: FAST MODE EXIT	19 M	Mar 78
SCALE FACTOR PRINT FOR THE FFT	20 M	Jan 79
<b>SWEEP.MAC</b>		
SWEEP SAMPLING: FAST MODE	01 M	Aug 77
<b>THRU</b>		
HOW TO START DATA ACQUISITION WHEN CSTART EQUALS ZERO	01 N	Jun 76
MULTICHANNEL SINGLE RATE SCHMIT TRIGGER SWITCH BOUNCE	02 M	Dec 76
CONTINUOUS SAMPLING: CONDITIONAL ASSEMBLY ERRORS	03 M	Jul 77
CONTINUOUS SAMPLING: DMA WITH DUAL SAMPLE + HOLD	04 M	Jul 77
DOCUMENTATION CORRECTIONS	05 M	Nov 77
<b>LSP-11 V1</b>		
PATCH NO. 1 - GENERAL CORRECTIONS NO. 1	01 M	Jun 79
PATCH NO. 2 - PEAK CORRECTION NO. 1	02 M	Jun 79
PATCH NO. 3 - PEAK CORRECTION NO. 2	03 M	Jun 79
<b>MSB-11 V1.0</b>		
MSB-11 SOFTWARE ON THE PDP-11/03	01 M	Jul 79
<b>MU BASIC-11/RT-11 V2</b>		
MU BASIC-11/RT-11 V2 CONVERSION PROGRAM	01 R	Nov 78
OPERATION OF CTRL/C, RCTRLC AND SYS (6) FUNCTIONS AND THE CTRL/C COMMAND	02 N	Nov 78
MEMORY REQUIREMENTS OF OPTIONAL FUNCTIONS ETC.	03 O	Nov 78
MU BASIC-11/RT-11 V2 RELEASE NOTES AND INSTALLATION GUIDE CHANGES	04 N	Dec 78
ORDER OF COMMON STATEMENTS AT START OF MUCNFG.BOO, MUCNF1.BOO, MUCNF2.BOO	05 M	Dec 78
OPERATION OF OLD, RUN, CHAIN AND OVERLAY WHEN THE SPECIFIED FILE IS NOT FOUND	06 N	Feb 79
CREATING AND ACCESSING VIRTUAL ARRAY FILES	07 N	Feb 79
STORAGE OF THE NULL CHARACTER IN STRING VARIABLES AND VIRTUAL STRING ARRAYS	08 N	Feb 79
USE OF COMPILE COMMAND	09 N	Feb 79
MU BASIC-11/RT-11 V2 CONFIGURATION PROGRAM PATCH 1	10 O	Feb 79
CHAINING WITH COMMON -PATCH A	11 M	Feb 79
VIRTUAL FILE I/O - PATCH B	12 M	Feb 79
SYS (1,n) FUNCTION - PATCH C	13 M	Feb 79
RESEQ - PATCH D	14 M	Feb 79
VALUES IN PATCHES A, B, C	15 N	Feb 79
LISTNH /OLD - PATCH E	16 M	Mar 79
CALL - PATCH F	17 M	Mar 79

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
MU BASIC-11 DEVICE INDEPENDENCE FOR INIT.BOO - SPECIAL PATCH YY1	18 M	May 79
DOUBLE PRECISION INTEGER VARIABLES - PATCH G	19 M	May 79
INPUT #/PRINT # - PATCH H	20 M	May 79
OLD OF A ZERO BLOCK FILE - PATCH I	21 M	May 79
ADDITION TO PATCH B - PATCH J	22 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 1	23 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 2	24 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 3	25 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 4a	26 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 4b	27 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 4c	28 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 5	29 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 6	30 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 7	31 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 8	32 M	May 79
DEVICE MNEMONIC PROBLEM - PATCH K	33 M	Jul 79
CLOSE - PATCH L	34 M	Jul 79
REM STATEMENTS ON MULTI-STATEMENT LINES	35 M	Jul 79
DEASSIGNING A TERMINAL - PATCH N	36 M	Jul 79
OVERLAYING THE ERROR MESSAGE MODULE - SPECIAL PATCH WW1	37 M	Jul 79
UNEQUAL USER PARTITION SIZE ALLOCATION - SPECIAL PATCH XX1	38 M	Jul 79
HOW TO CHANGE INIT.BOO'S DEVICE AFTER INSTALLING SPECIAL PATCH YY1	39 M	Jul 79
INTEGERS IN DOUBLE PRECISION MU BASIC-11	40 M	Jul 79
STRING MANIPULATION IN ASSEMBLY LANGUAGE ROUTINES	41 N	Aug 79
SIZING MU BASIC-11	42 N	Aug 79
ERROR IN TABLE 4-1 OF THE USER'S GUIDE	43 N	Aug 79
RESTRICTION OF USR RESIDENCY WHEN RUNNING IN FOREGROUND	44 N	Aug 79
NOTES ON PERFORMANCE PATCHES NO. 4a, NO. 4b, NO. 4c	45 N	Aug 79
MAXIMUM ARRAY SUBSCRIPT SIZE	46 N	Aug 79
ASSEMBLING SOURCE FILES (SOURCE LICENSE HOLDERS ONLY)	47 M	Sep 79
USE OF SYS (1,n) FUNCTION WHEN ',n' IS OMITTED	48 M	Sep 79
DISABLING CR/LF USING TTYSET - PATCH P	49 M	Dec 79
HANDLER FETCH ERROR MAY LEAD TO MONITOR FAULT - PATCH Q	50 M	Jan 80

#### RT-11 V03B

##### DOCUMENTATION

ERROR IN FOREGROUND/BACKGROUND DEMONSTRATION	01 M	Aug 78
THE /LIST OPTION FOR THE DIBOL, FORTRAN, AND MACRO KEYBOARD MONITOR COMMANDS	02 M	Nov 78
UPDATE PAGES	03 N	Dec 78
RT-11 SOFTWARE SUPPORT DOCUMENTATION	04 M	Feb 79
SUMMARY OF UPDATES FOR RT-11 V03B DOCUMENTATION	05 M	Feb 79
NEW DEVICE RELEASE DOCUMENTATION, RT-11 V03B	06 N	Jun 79
.FORK AND .SYNCH BLOCK DOCUMENTATION	07 N	Jul 79
THE DEVICE TIME-OUT FEATURE	08 N	Sep 79
CORRECTION OF ERROR RETURNS IN .SYNCH CALL	09 M	Aug 79
EXAMPLE CODE IN .FORK DOCUMENTATION IS INCORRECT	10 N	Aug 79
EXTENDED MEMORY RESTRICTIONS	11 N	Dec 79
NOTES ON .MFPS/ .MTPS PROGRAMMED REQUEST	12 N	Apr 80

##### MACRO.SAV

INCORRECT HANDLING OF LOWER CASE IN MACRO/REPEAT BLOCKS	01 M	Jul 80
---	------	--------

##### MISCELLANEOUS

ERRORS IN THE SYSGEN CONDITIONAL FILE	01 M	Jul 78
ERRORS IN MTATCH ROUTINE	02 M	Nov 78
ODD RING BUFFER SIZES CAUSE ASSEMBLY ERRORS	03 R	Jun 79
INCORRECT NULL HANDLER DEVICE IDENTIFIER	04 M	Jun 79
GENERATING A SINGLE JOB MONITOR MAY CAUSE AN UNDEFINED GLOBAL	05 M	Aug 79
INCORRECT DEVICE IDENTIFIER FOR PC11	06 M	Sep 79
ERROR IN MTIN AND MTOUT ROUTINES	07 M	Sep 79
HIGH SPEED RING BUFFER PROBLEM ON SYSTEMS WITH ONE DL11	08 M	Jan 80
SYSGEN FOR TU58 SUPPORT	09 F	May 80
DEVICE TIME-OUT SUPPORT IN SYSGEN	10 F	May 80

##### MONITOR

SOURCE PATCHING PROCEDURES FOR V3B	01 M	Aug 78
MULTITERMINAL CORRECTIONS	02 M	Aug 78
SINGLE JOB TIMER SUPPORT CORRECTIONS	03 M	Aug 78
FIXES FOR TWO FB/XM PROBLEMS IN VP3B	04 M	Aug 78

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
TERMINATING CONSOLE OUTPUT	05 M	Aug 78
EDITORS AND V03B MONITORS	06 O	Aug 78
SEEK IN RK DRIVER	07 M	Aug 78
RL01 CONTROLLER VECTOR AT 160	08 M	Aug 78
FPU EXCEPTION HANDLING IN XM MONITOR	09 M	Sep 78
TWO EXTENDED MEMORY MONITOR PROBLEMS	10 M	Oct 78
TYPING CTRL/O TO THE CONSOLE TERMINAL SOMETIMES CRASHES RT-11	11 M	Oct 78
DX SJ MONITOR BOOTSTRAP CORRECTIONS	12 O	Oct 78
THE EDIT AND HELP MONITOR COMMANDS FAIL AFTER A VIRTUAL JOB HAS RUN	13 M	Nov 78
DIRECTORY CORRUPTION AND .UNPROTECT CORRECTIONS	14 M	Jan 79
FB AND XM MONITOR CLOCK SUPPORT	15 M	Apr 79
CHANGING CLOCK RATE ON GENERATED MONITORS	16 M	Apr 79
MULTI-TERMINAL CORRECTIONS TO DECREASE INTERRUPT LATENCY	17 M	Apr 79
FIXES FOR FB/XM PROBLEM IN V03B.00	18 M	Apr 79
FLOPPY SYSGEN WITH KW11-P CLOCK	19 M	May 79
DISTRIBUTED FB MONITOR CLOCK SUPPORT	20 M	May 79
OPTIONAL PATCH TO IMPROVE PERFORMANCE ON PDP-11/03 SYSTEMS	21 O	May 79
DISTRIBUTED PD AND DD FB MONITORS CLOCK SUPPORT	22 M	May 79
OPTIONAL PATCH TO IMPROVE PERFORMANCE ON PDP-11/03 AND PDT SYSTEMS FOR DD AND PD FB MONITORS	23 O	May 79
INPUT FILE LOST WHEN USING CSIGEN	24 M	Jun 79
NON-STANDARD VECTOR ADDRESSES FOR RX01 AND RX02 SECOND CONTROLLER	25 M	Nov 79
ABORT DURING COMPLETION CAUSES SYSTEM FAILURES	26 M	Nov 79
.ELRG CAN CAUSE THE SYSTEM TO CRASH	27 M	Sep 79
CORRECTION TO BOOTSTRAP TO RECOGNIZE LSI-11/23 PROCESSOR	28 M	Oct 79
FPU SAVE AREA IN XM MONITOR	29 M	Dec 79
BACKGROUND JOB MAY TRAP WHEN FOREGROUND ISSUES .SYNCH FROM INTERRUPT ROUTINE	30 M	Dec 79
PROBLEM WHEN FOREGROUND AND BACKGROUND JOB USE CSI AT SAME TIME	31 M	Mar 80
SYSTEM GENERATED SJ MONITOR WITH ESCAPE SEQUENCE SUPPORT	32 M	Apr 80
BREAKPOINT TRAP PROCESSOR STATUS WORD CORRUPTION	33 M	Apr 80
CORRECTIONS TO MULTI-TERMINAL SUPPORT	34 M	May 80
<b>SOURCES</b>		
UNRESOLVED DIFFERENCES IN DEMOX1.MAC	01 M	Jul 78
ISSUING SEEKS TO DX HANDLER IN XM CAUSES RANDOM SYSTEM FAILURES	02 M	Sep 78
DISTRIBUTED MAGTAPE HANDLER CORRECTIONS	03 M	Sep 78
DY HANDLER DOUBLE DENSITY ONLY SUPPORT	04 M	Apr 79
DL QUEUE ELEMENT AND XM ZERO FILL CORRECTIONS	05 M	Apr 79
MAGTAPE XM AND FSM CORRECTIONS	06 M	May 79
DL HANDLER SEEK AND UNIT CORRECTIONS	07 M	Aug 79
MAGTAPE ABORT ENTRY CORRECTION	08 M	Sep 79
MAGTAPE ABORT ENTRY CORRECTION IN XM	09 M	Dec 79
DL HANDLER SEEK CORRECTION	10 M	Jan 80
FILE SEQUENCE NUMBER SEARCH CORRECTION	11 M	Feb 80
HARD ERROR RECOVERY IN DM HANDLER	12 M	Mar 80
FSM DOES NOT PROCESS ERRORS CORRECTLY IN XM	13 M	Apr 80
RL01/RL02 HANDLER CORRECTIONS	14 M	Apr 80
MULTI-CONTROLLER DY HANDLER PROBLEM	15 M	May 80
SHORT MAGTAPE READS IN XM	16 M	Jun 80
MM HANDLER WRITELOCK ERRORS	17 M	Jun 80
CT HANDLER GETS JOB NUMBER FROM WRONG BYTE OF Q-ELEMENT	18 M	Jul 80
<b>SYSTEM HANDLERS</b>		
RL01 HANDLER CORRECTIONS	01 M	Sep 78
ISSUING A SEEK TO THE DY HANDLER CAUSES THE SYSTEM TO CRASH	02 M	Oct 78
DM HANDLER CORRECTIONS	03 M	Oct 78
DM SYSTEM HANDLERS CORRECTIONS	04 M	Dec 78
DY HANDLER SPFUN CORRECTION	05 M	Dec 78
DM HANDLER ERROR HANDLING CORRECTIONS	06 M	Jan 79
RL01 PATCH CLARIFICATION	07 N	Jan 79
DM CTO AND SPFUN 376 CORRECTIONS	08 M	May 79
BATCH INCORRECTLY LOGS TERMINAL OUTPUT	09 M	Apr 80
IMPROPERLY CHECKED INPUT CAUSES UNPREDICTABLE RESULTS	10 M	Apr 80
DY ERROR RECOVERY	11 M	Jul 80
<b>UTILITIES</b>		
ERRORS IN FILEX INTERCHANGE FORMAT	01 M	Jul 78
LINK PRODUCES INCORRECT .LDA FILES	02 M	Sep 78
LIBR CLEARING OF LOCATION ZERO	03 M	Oct 78
LINK ERROR IN PSECTS MOVED TO ROOT	04 M	Oct 78
DUP DOES NOT DETECT END OF SEGMENT	05 M	Oct 78
COPY/DEVICE FAILS ON DISK TO MAGTAPE	06 M	Oct 78



<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
LINK CAUSES MONITOR ODD ADDRESS TRAP	07 M	Nov 78
LIBR BLOCK BOUNDARY PROBLEM	08 M	Jan 79
EDIT ESCAPE CODE CORRECTION	09 O	Dec 78
ERROR IN ODT	10 M	Feb 79
ERROR IN EDIT	11 M	Feb 79
LINK CAN CAUSE TRAP TO 4	12 M	Feb 79
CORRECTIONS AND ADDITIONS TO FILEX	13 M	May 79
RESORC DISPLAYS STATUS OF FIRST 14 TERMINALS	15 M	Jun 79
LIBR /U SWITCH PROBLEM	16 M	Aug 79
IMPORTANT RESTRICTIONS FOR SQUEEZE OPERATIONS	17 M	Aug 79
DIR PROBLEMS	18 M	Oct 79
BAD BLOCK REPLACEMENT ON RK06s	19 N	Oct 79
WILD CARD MAGTAPE COPY ERROR PROCESSING CORRECTION	20 M	Oct 79
PROBLEM WITH PSECTS MOVED TO ROOT DURING LIBRARY PASS	21 M	Jan 80
PIP PROBLEMS	22 M	Feb 80
DIR PROBLEM	23 M	Feb 80
DUMPING DISK FILES WITH MAGTAPE HANDLER LOADED	24 M	Mar 80
BAD BLOCK REPLACEMENT ON RL01s	25 M	Apr 80
MDUP AND RLO1s	26 M	Apr 80
CORRECTION TO PDT-11/150 SUPPORT IN FILEX	27 M	Apr 80
PROBLEM WITH DUP ERRORS WHEN /W OPTION USED	28 M	Apr 80
INSUFFICIENT DIRECTORY SPACE ON NON-SYSTEM FLOPPY	29 M	Apr 80
EDITING FILES ON WRITE-LOCKED DEVICES	30 M	May 80
BAD BLOCK SCAN FOR LARGE DEVICES	31 M	May 80
SAVE/RESTORE OF TERMINAL I/O LOGGING ACTION IN BATCH	32 M	Jun 80
CORRECTION TO PREVIOUS DIR PATCH	33 M	Jun 80

RT-11/2780 V2

CORRECTIONS TO 2780 PACKAGE	01	Sep 77
RUNNING 2780 ON RT-11 V3	02	Nov 77
PATCHING THE 2780 IN RT-11 V3	03 M	Jan 79
CHECK FOR ZERO LENGTH RECORD	04 M	Jan 79
RESTRICTION OF THE CONSOLE AS AN INPUT/OUTPUT DEVICE	05 R	Jan 79

# digital

## Software Product Description

**PRODUCT NAME: RT-11 2780/3780 Protocol Emulator, Version 4.0**

**SPD 10.16.0**

### **DESCRIPTION:**

The RT-11 2780/3780 Protocol Emulator (PE) provides suitably configured PDP-11 systems running RT-11, Version 4.0 with communications capabilities similar to IBM 2780 and 3780 remote batch terminals.

The emulator runs under the RT-11 Version 4.0 Foreground/Background (FB) or Extended Memory (XM) monitor as either a foreground or background job. The emulator accepts commands interactively or from indirect command files. Commands are provided for operation in unattended environments. The emulator supports operation of a single full- or half-duplex synchronous point-to-point line at transmission speeds up to 9600 bits per second on an otherwise idle system (maximum line speed on PDT-11 is 4800 bits per second). Support for automatic answer to incoming calls is also available for use with those modems that provide this capability.

The communications discipline implemented by the RT-11 2780/3780 PE is a subset of IBM's Binary Synchronous Communications (BSC) protocol that uses the EBCDIC transmission code. Horizontal format control records can be received and processed. A subset of vertical format control escape sequences is supported, specifically single, double, and triple space, form feed, and space suppress. Any block addressable storage device supported by RT-11, Version 4.0 can be used as a source of transmission files. Both fixed length (80 character card image) and variable length transmitted as either EBCDIC (automatically translated from ASCII) or binary data (no translation). BSC control characters are automatically added to the data before transmission and stripped upon reception. Any block addressable storage device or line printer supported by RT-11, Version 4.0 can be used to receive files.

The following 2780/3780 remote batch terminal features are supported:

- 2780 multiple record transmission option
- Transparent mode
- 3780 space compression
- Variable horizontal forms control
- Print and punch component selection on receive

### **MINIMUM HARDWARE REQUIRED:**

Any valid RT-11 Operating System, Version 4.0 FB or XM configuration with at least 32K bytes of memory and one of the following devices:

- On PDP-11 - DU11 or DUP11
- On LSI-11 - DUV11
- On PDT-11/130 or PDT-11/150 - SCI

### **OPTIONAL HARDWARE:**

KG11 CRC arithmetic unit  
(The KG11 will not be supported in future releases.)

### **PREREQUISITE SOFTWARE:**

RT-11 Operating System, Version 4.0 with FB or XM monitor. The RT-11, Version 4.0 FB monitor is suitable, as distributed, for RT-11 2780/3780 PE operation. Certain optional RT-11 2780/3780 PE features will require an RT-11 sysgen.

### **OPTIONAL SOFTWARE:**

None

### **TRAINING CREDITS:**

None

### **SUPPORT CATEGORY:**

DIGITAL SUPPORTED

RT-11 2780/3780 PE is a DIGITAL Supported Software Product.

### **SOFTWARE INSTALLATION:**

DIGITAL INSTALLED

DIGITAL installation is required for Software Product Support. There is no charge for installation if performed at the time of system installation. DIGITAL installed software products, except for operating systems, are subject to an add-on installation fee when purchased subsequent to system installation.

### **SOFTWARE PRODUCT SUPPORT**

RT-11 2780/3780 PE includes standard warranty services as defined in the Software Support Categories Addendum of this SPD.

### **PREREQUISITE SUPPORT:**

A Customer Support Plan with its accompanying Network Profile must be prepared jointly by DIGITAL and the customer. This is a plan detailing support services

-2-

to be provided. It includes descriptions of the DIGITAL and IBM systems, the physical communications link(s), the application, the expected data traffic, the required level of support, and recommendations for additional support service.

#### **CUSTOMER RESPONSIBILITIES:**

Before installation of the software, the customer must:

- Previously have installed all requisite 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 201C and 208, or in Europe, PTT approved synchronous modems
- Provide a know working relevant file or job that can be submitted to the remote system to facilitate installation verification of the software
- Make available for a reasonable period of time, as mutually agreed by DIGITAL and the customer, all hardware, communication facilities terminals, and relevant remote system personnel that are to be used during installation.
- Accept responsibility for the proper operation of equipment or software not provided by DIGITAL and conformance of such equipment or software to the IBM specifications cited below

#### **WARRANTY LIMITATIONS:**

DIGITAL has designed this software according to the specifications for IBM 2780 and 3780 data transmission terminals as defined in IBM documents GA27-3005, and GA27-3063 respectively.

The following is an example of a specific configuration against which the software has been tested:

IBM OS/VS2 JES2

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

#### **ORDERING INFORMATION:**

All binary licensed software, including any subsequent updates, 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 the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU.

All source licensed software is furnished only under the terms and conditions of a separate Software Program Sources License Agreement between Purchaser and DIGITAL.

Options with no support services are only available after the purchase of one supported license.

A single-use license only option is a license to copy the software previously obtained under license.

Sources and/or listings options are only available after the purchase of at least one supported license and after a source license agreement is in effect.

The following key (D, E, G, H, Q, R, X, Y, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJD59-AY = binaries on RX01 Floppy Diskette.

D = 9-track 800 BPI Magtape (NRZI)

E = RK05 Disk Cartridge

G = TU58 DECtape II Cartridge

H = RL02 Disk Cartridge

Q = RL01 Disk Cartridge

R = Microfiche

X = RX02 Double Density Diskette

Y = RX01 Floppy Diskette

Z = No hardware dependency

QJD59 -A— Single-use license, binaries, documentation, support services (media: D, E, G, H, Q, X, Y)

QJD59 -C— Single-use license, binaries, documentation, no support services (media: D, E, G, H, Q, X, Y)

QJD59 -D— Single-use license only, no binaries, no documentation, no support services (media: Z)

#### *Sources/Listings Options*

QJD59 -E— All sources (media: Y)

QJD59 -F— Listings (media: R)

#### *Update Options*

Users of PDT-11 2780/3780 PE, RT-11/2780 (CTS-300/2780), or RT-11 (CTS-300)/LSI-11 2780 whose specified Support Category warranty has expired may order under license the following software update at the then current charge for such update. The update is distributed in binary form on the appropriate medium and includes no installation or other services unless specifically stated.

QJD59 -H— Binaries, documentation (media: D, E, G, H, Q, X, Y)

-3-

QJD59 -H— Right to copy for single-use (under existing license), no binaries, no documentation (media: Z)

*Sources/Listings Update Options*

The following options are available to licensed users as updates to sources and/or listings options. The update is distributed in source form on the appropriate medium and includes no installation or other services unless specifically stated.

QJD59 -N— Sources update (media: Y)

QJD59 -N— Sources update listings (media: R)

*Miscellaneous Options*

QJD59 -G— Documentation only kit (media: Z)

**ADDITIONAL SERVICES:**

Post-warranty Software Product Services for this software product are available with the prerequisite being the purchase of the RT-11 Self-Maintenance Service for Software. Customers should contact their local DIGITAL office for additional information.

# digital

## Software Product Description

PRODUCT NAME: DECnet Phase II Products, Version 1.0

SPD 10.78.5

### DESCRIPTION:

DECnet Phase II is the collective name for the set of software products that extend various DIGITAL operating systems by enabling the user to interconnect systems to form computer networks. The DECnet Phase II products include DECnet-IAS Version 2.1, DECnet/E Version 1.1, DECnet-RT Version 1.1, DECnet-VAX Version 1.3, and DECnet-20 Version 2.0. DECnet allows the user to build networks from a range of systems and communications components (CPUs, operating system software, line interfaces and speeds) in order to satisfy widely varying application needs.

DECnet allows users to interconnect systems using serial asynchronous, serial synchronous, and parallel facilities. When configuring DECnet systems, both ends of any given link must use the same type of communications discipline (e.g., synchronous, asynchronous, or parallel) running at the same line speed.

#### *DIGITAL Network Architecture*

DECnet includes a set of layered network protocols, each of which is designed to fulfill specific functions within the network architecture. Collectively, these protocols are known as the DIGITAL Network Architecture, or DNA. The major protocols and their functions are:

DIGITAL Data Communications Message Protocol (DDCMP) — DDCMP handles the physical link traffic control and physical link error recovery within DECnet. DDCMP operates over both full- and half-duplex facilities, using serial synchronous or serial asynchronous facilities in a point-to-point mode. DDCMP has the following important characteristics:

- Operates over a wide variety of hardware types
- Makes efficient use of full-duplex channel capacity
- Allows transmission of all data types (including binary with low overhead)
- Allows standard (character-oriented) communications hardware to be used

- Uses CRC-16 for error detection, with recovery by retransmission
- Effective on earth/satellite links (or other links) with long signal propagation delays

A full specification for DDCMP, Version 4.0 is available on request. DDCMP is not a proprietary protocol; DIGITAL allows others to implement and use the protocol, provided that an acknowledgement of the source is made in any public documentation.

Network Services Protocol (NSP) — NSP handles network management functions within DECnet. This includes sending messages between two nodes and routing messages within any given node. By establishing a logical communications channel (or logical link), NSP makes it possible for two programs on different machines to exchange data. These programs need not be aware of either the nature of the physical link (full/half duplex, parallel or serial) or the nature of the protocols supporting the physical link. NSP has the following important characteristics:

- Dynamic creation of logical links between tasks
- Exchange of data between tasks on a solicited basis
- Exchange of data between tasks on a non-solicited (e.g., interrupt) basis
- Ability to connect nodes dynamically within the network once NSP initialization occurs over a previously established physical link

A full specification for the NSP, Version 3.0 is available on request. NSP is not a proprietary protocol.

Data Access Protocol (DAP) — DAP enables programs on one node of the network to use the I/O services available on other network nodes. Some DECnet products provide facilities for translating the operating system's unique I/O calls into the DAP standard, and vice versa. Thus, DAP enables data requests to be processed in a meaningful way by many (possibly heterogeneous) operating systems. DAP's facilities include:

-2-

remote file access, including OPEN, READ, WRITE, CLOSE, and DELETE for sequential and random access files, and command files.

It should be noted that each DAP function requires support at both ends of the link. At the local node, where the user program initiates a data request, the DAP support must package the request for transmission through the network. At the remote node (where the device or file resides), the DAP support must cause the appropriate actions to be performed. Not all systems support both local and remote portions of each DAP operation.

A full specification for the DAP, Version 4.1 is available on request. DAP is not a proprietary protocol.

#### *DECnet Functions*

DIGITAL Network Architecture (DNA), implemented across a wide range of operating systems and hardware configurations, enables users to build a variety of networks. While such networks have a common attribute, individual systems in the network can have certain system-specific attributes. The common attribute is

- Task-to-task communication: Programs or tasks on one system can create logical links and exchange data with programs or tasks on other systems in a real-time fashion.

Additionally, many DECnet systems support other features that are useful in a network environment. These include

- Inter-system File Transfer: This facility allows an entire data file to be moved between systems, at either program or operator request. The common file type supported across systems that provide this function is sequential ASCII.
- Command/Batch File Submission: Local users can submit batch or command files to remote systems for execution.
- Command/Batch File Execution: Remote users can cause a batch or command file that resides at a remote node to be submitted for execution at the local node.
- Remote File Access: Tasks or programs can access sequential files on a record-by-record basis from files located on remote nodes.
- Down-line System Loading: Initial memory images for DECnet-11S systems in the network can be stored on the local system, and loaded on request into other systems in the network. Remote systems usually require the presence of a network bootstrap loader, implemented in read-only memory.
- Down-line Task Loading: Programs to be executed on DECnet-11S systems in the network can be stored on the local system, and loaded upon request into other systems, under the joint control of the

operating systems at both ends of the physical link. This and the preceding feature simplify the operation of network systems that do not have mass storage devices.

Table I provides the information for determining if the preceding functions are available on a particular DECnet system. Note that the above descriptions define the minimum capabilities provided by a given function. Additional capabilities, above those described as the minimum for a function, may be available between two of the same or different DECnet systems.

#### *Configuring DECnet Networks*

DECnet provides a basic level of interconnection between specific products. However, each DECnet system has its own level of functions. The user can recognize specific constraints when configuring a network of heterogeneous DECnet systems. Table II lists the communication interfaces supported by each DECnet Phase II product for a particular class of line characteristics (e.g., 9.6 kilobits/second, synchronous). Each column lists the connections that are permissible for those line characteristics in cross-product network configurations. Individual product SPDs must be consulted to determine whether any particular configuration violates the maximum number of communications interfaces and line speeds for an individual product.

#### **TRAINING CREDITS:**

No training credits are included with a DECnet software license. Training courses on DECnet software are scheduled at regular intervals in DIGITAL's Training Centers. Arrangements should be made directly with DIGITAL's Educational Services Department.

#### **PRODUCT SUPPORT:**

DECnet Phase II products are DIGITAL Supported software products. A Network Profile and DECnet Customer Support Plan covering all intended network nodes and their support must be prepared jointly by the customer and DIGITAL.

The customer may purchase DECnet Phase II product license options that do not include support services. The category of support applicable to such software is Customer Supported. When a DECnet product option that does not include support services is connected to a DECnet network, the category of support applicable to all DECnet products in that network is Customer Supported.

#### **INSTALLATION SERVICE:**

The installation of DECnet Phase II software under DIGITAL Supported/DIGITAL Installed shall consist of

1. Verifying that the software kit contains all software modules and manuals offered.

-3-

2. Generating the DECnet software.
3. Demonstrating the use of the majority of operator commands and system utilities.
4. Running a sample DIGITAL-supplied program.
5. Introducing the customer to the sources of software information and services.

Before installation of the software, the customer must

1. Obtain, install, and demonstrate operational to DIGITAL's satisfaction any modems and other equipment and facilities necessary to interface DIGITAL's communications line interfaces and terminals.
2. Make available to DIGITAL personnel all hardware, including terminals, to be used during installation for a reasonable period of time, as mutually agreed upon by DIGITAL and the customer, until installation is complete.

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

#### **ORDERING INFORMATION:**

All binary licensed software, including any subsequent updates, 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 the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU. All source licensed software is furnished only under

the terms and conditions of a separate Software Program Sources License Agreement between Purchaser and DIGITAL.

When multiple systems are connected in a single network, each individual system must be licensed separately with regard to both operating system and DECnet software.

#### **ADDITIONAL SERVICES:**

Software Consulting Services are offered on a time and materials basis to meet specific customer needs. Two levels of consulting services are available:

##### *Level I Services*

QJ680 -S— DECnet Level I Services (media: Z)

Level I services provide for the integration of DECnet nodes that carry DIGITAL Installed/DIGITAL Supported support into an interconnected network, with verification of network integrity and demonstration of DECnet functions. Level I services use DIGITAL sample procedures only.

##### *Level II Services*

QS912 -S— Daily Software Consulting Services (media: Z)

QS926 -S— Weekly Software Consulting Services (media: Z)

QS922 -S— 6-Month Resident Software Consulting Services (media: Z)

QS924 -S— 12-Month Resident Software Consulting Services (media: Z)

Level II services provide for additional support as mutually agreed upon by DIGITAL and the customer in the DECnet Customer Support Plan.

TABLE I

		DECnet-IAS Version 2.1	DECnet/E Version 1.1	DECnet-RT Version 1.1	DECnet-VAX Version 1.3	DECnet-20 Version 2.0
Task-to-Task		YES	YES	YES	YES	YES
Intersystem File Transfer		YES	YES	YES	YES	YES
Command/Batch File Submission	Requestor Server	YES YES	YES YES	YES NO	NO YES	NO YES
Command/Batch File Execution	Requestor Server	YES YES	YES YES	YES NO	YES YES	YES YES
Remote File Access	Requestor Server	YES YES	NO YES	YES YES	YES YES	NO NO
Down-Line System Loading		YES	NO	NO	YES	NO
Down-Line Task Loading		YES	NO	NO	NO	NO

Requestor — Requests Service  
 Server — Provides Service

TABLE II

	EIA Async ≤9.6K bits/sec	20mA Async ≤9.6K bits/sec	EIA Sync ≤9.6K bits/sec	EIA Sync ≤19.2K bits/sec	Remote Sync ≤56K bits/sec	Local Sync 56K bits/sec	Local Sync 1M bits/sec	Local Parallel
DECnet-IAS Version 2.1	DL11-E DZ11-A/B	DL11-C/WA DZ11-C/D	DP11 DU11-DA DUP11-DA DV11 DQ11-DA	DMC11-AR-DA		DMC11-AL-MD	DMC11-AL-MA	DA11-B/AL
DECnet-RT Version 1.1	DL11-E	DL11-C/WA	DU11-DA DUP11-DA DUV11-DA	DMC11-AR-DA	DMC11-AR-FA	DMC11-AL-MD	DMC11-AL-MA	
DECnet/E Version 1.1				DMC11-AR-DA	DMC11-AR-FA	DMC11-AL-MD	DMC11-AL-MA	
DECnet-VAX Version 1.3				DMC11-AR-DA		DMC11-AL-MD	DMC11-AL-MA	
DECnet-20 Version 2.0				DN20-BA (KMC/ DUP11-DA)	DN21-BA (DMC11-AR- FA)	DN21-BB (DMC11-AL- MD)	DN21-HA (DMC11-AL- MA)	



digital

# Software Product Description

**PRODUCT NAME: CTS-300, Version 6.0**  
**Commercial Transaction System-300**

**SPD 12.9.10**

## DESCRIPTION:

CTS-300 is a disk based single-user/multiuser system designed to support commercial applications on small PDP-11 based DEC Datasystems or equivalent configurations. CTS-300 applications are written in DIBOL, DIGITAL's own Business Oriented High-level Language. DIBOL is similar to COBOL in that it has a Data Division and a Procedure Division, but DIBOL is a more concise language. DIBOL provides the application programmer with the ability to do data manipulation, arithmetic expression evaluation, table subscripting, record redefinition, external calls to other programs, spooling, sequential and random access, and indexed access to files. Exception conditions cause control to transfer to a user-specified statement where the cause of the condition can be determined.

The following table illustrates the user/job capacity versus minimum configurations under each of the Datasystems:

	D150 (PDT150)	D320 (11/03)	D330 (11/23)	D350 (1134A)
Number of users	1	1-4	1-8	1-12
Number of jobs	1-4	1-4	1-16	1-16
Memory	32-60K bytes	32-56K bytes	32-248K bytes	32-248K bytes
Disk capacity	512K bytes	1-32M bytes	1-42M bytes	10-266M bytes

Although 12 users is the stated limit, most application environments should use caution beyond the eighth user, because terminal response time is likely to degrade as more users are added to the system. Particular care needs to be exercised with program size, overlay technique, file size and layout, etc.

CTS-300 is also available in fully supported mode *only* on other equivalently configured systems that meet minimum requirements.

CTS-300 is a packaged software system consisting of the RT-11 operating system, a choice of three run-time systems, and a number of utilities. Since RT-11 is included in this package, a CTS-300 licensee can order any RT-11 dependent product without reordering a specific license for RT-11.

Although CTS-300 is a layered product, it should be noted that DIBOL will not run concurrently with other languages.

## Run-Time Systems (RTS)

**SUD** — Single-user DIBOL RTS allows one DIBOL user or job to be run on a system. It is designed for an entry level system running in 32K bytes of memory. SUD runs on all RT-11 monitors (SJ, FB, XM). SUD also runs as the background job in the FB monitor with a line printer spooler running in the foreground. Control returns to the monitor upon completion of the SUD program.

**TSD** — Time Shared DIBOL RTS allows 1 to 4 DIBOL users or jobs to run simultaneously. It is designed for a medium-sized system running in 56K bytes of memory. File sharing facilities at the record level permit multiple users to share and update the same data files. TSD is an executive that normally is run on an SJ monitor SYSGENed for multiterminal support. TSD controls loading of DIBOL programs, allocation and recovery of memory for DIBOL programs, program scheduling, detached programs, file-sharing, record I/O, intertask communication, as well as other less visible functions. A DIBOL line printer spooler also runs in the TSD environment. Program completion, or the detaching of a program returns control to the TSD executive.

**XMTSD** — Extended Memory TSD RTS allows 1 to 12 DIBOL users or 1 to 16 DIBOL jobs to run simultaneously (up to 12 could be attached to terminals with the remainder running in a detached environment). Designed for larger systems running in 128K to 248K bytes of memory using the XM monitor, XMTSD has the same features and capability found in TSD. In addition, XMTSD offers multiuser program development. When XMTSD is loaded in the foreground of the XM monitor, the background is reserved for queuing and executing indirect command files. These files can contain compile and link instructions. Programs can be created and modified by running a CRT oriented editor called DKED, that executes as a DIBOL job. More than one copy of DKED can run concurrently.

**NOTE:** Relinking is required when changing from SUD to TSD or XMTSD or vice versa.

-2-

*CTS-300 Utility Programs*

**CTSGEN** — The CTS-300 Generator Program is an interactive DIBOL-11 utility program that tailors the system to a user's needs. It can create a SUD, TSD or XMTSD RTS to match the specific hardware and software of the installation. Through CTSGEN a user specifies such items as the total number of terminals, jobs, messages, and files open at one time. Support for DDT and forced job start-up are also among the choices available.

**DDT** — The DIBOL Debugging Technique is a system utility that allows for user/programmer interaction with a DIBOL program while it is executing. Using DDT, a programmer can set predetermined stopping points to halt the program, examine and/or alter the contents of variables, and trace through lines of a DIBOL program. These features allow a programmer to locate problems, correct data values, and test any programming errors directly, before reediting and recompiling.

**DECFORM** — The DECFORM Data Entry utility is a program generator that processes screen format directives and produces a DIBOL program that, when compiled and executed, performs specified data entry functions. In addition to defining screen formats, auto-duplication, alphabetic or decimal checking, range checking, field totaling, cross-field validation, and auto-increment characteristics, DECFORM makes possible additions, inquiries, changes, and verifications to sequentially ordered files or Indexed Sequential Access Method (ISAM) files. Deletions are possible only with ISAM files. DECFORM is primarily a tool to facilitate and reduce program development efforts. Its major use is in data file creation, modification and inquiry.

**DKED** — Is a version of RT-11's keyboard editor (K52) that runs as a job only under XMTSD. It is a text editor, designed to run in VT52 mode on a VT52 or VT100, and is used to create and modify ASCII text files.

**DICOMP** — DICOMP is the DIBOL compiler. It translates DIBOL source programs into interpretive code that, when linked, can be executed by the three RTS.

**DMS-300** — Data Management Services provide capabilities for handling sequential, random, or keyed records in files. Records in an ISAM file can be keyed by a symbolic value. DMS-300 also supports file sharing and multivolume files. Sequential and random file processing are standard in every RTS. ISAM is an option. DIBOL has special language statements to use these file access methods efficiently.

**ISMUTL** — ISAM files are created and maintained by means of the ISAM Utility Program. Its three major functions are CREATE, STATUS, and REORGANIZE.

- **CREATE** is used to create a new ISAM file. Options are provided to create an empty ISAM file, or convert a sequential file to an ISAM file. The CREATE function can be carried out without operator intervention.
- **STATUS** provides a concise view of the current structure of the file: length of keys, records, and groups, levels of indexing, and information about the use of load exclusion and overflow areas in the data file.
- **REORGANIZE** is used to reorganize an ISAM file for more efficient operation. It is used when most of the groups in the file are filled and the overflow area or append area is filled. The effect of REORG is to redistribute the records of the file so it appears to be a newly created file.

**LPTSPL** — The Line Printer Spooler is a utility program that prints data files and program source files. In response to an LPQUE statement, the spooler program receives information on the file to be printed. The spooler queues the file and begins to print it when the line printer is available. In the SUD RTS, the spooler outputs to one line printer. In the TSD and SMTSD RTS, the spooler is a DIBOL program consisting of a queue manager and four satellite programs that output to as many as four line printers.

**SORT/MERGE** — The SORT/MERGE utility permits the user to define the parameters for the sorting and/or merging of data files. A DIBOL program is then generated by the system to perform the required sort and/or merge. The user can specify up to eight key fields to control the ordering of the output records, in either ascending or descending sequence. A wide range of operating parameters, such as the number of work files to be used, is provided to enable the user to achieve maximum sort efficiency.

**STATUS** — The job and system state program, STATUS, retrieves and displays information about the TSD or XMTSD RTS. STATUS passes the information listed below to a line printer or a terminal:

- Available free core
- List of active jobs
- Detailed information of a specified active job
- Detailed information of pending messages
- List of pending line printer jobs
- Characteristics of the current RTS

**MINIMUM HARDWARE REQUIRED:**

CTS-300 is intended to run primarily on DEC Datasystem 150s and 300s; it will operate, however, on other similarly configured hardware with the following minimum:

- A VT05, VT50H, VT52, VT100, or LA36 console terminal. A VT50H, VT52, or VT100 terminal (in VT52 mode) is required for use with DECFORM, ISMUTL, STATUS utilities

The Extended Instruction Set (EIS or equivalent) for XMTSD

Memory management hardware is needed in the D330 and D350 series to use extended memory (memory above 56K bytes); it is needed, as well, in any 11/23, 1134A, 11/44 or 11/60 processor intending to use extended memory.

Memory required for SUD — 32K bytes; TSD — 56K bytes; XMTSD — 128K bytes

**OPTIONAL HARDWARE:**

The following options are available for D150 systems:

- Additional memory up to a system total of 60K bytes
- LA180 or LA120 Serial Printer
- VT100 Advanced Video Option (VT1XX-AB)

The following options are available for D320 systems:

- Additional memory up to a system total of 56K bytes
- VT100 Advanced Video Option (VT1XX-AB)
- Up to a system total of four VT05, VT50H, VT52, VT100, LA36 or LA120 terminals
- Up to four LAV11 or LPV11 line printers
- Up to four DLV11 asynchronous line interfaces (one per terminal)
- One DZV11 asynchronous line multiplexer with up to four lines
- RKV disk cartridge system with controller
- RK05 disk cartridge drives up to eight
- RLV disk cartridge system with controller
- RL disk cartridge drives up to four, two of which can be RL02 add-ons
- Up to two RXV floppy disk systems, with four drives total

The following options are available for special D323S and D325S systems:

- Additional memory up to a system total of 56K bytes
- VT100 advanced video option (VT1XX-AB)
- Up to a system total of four VT05, VT50H, VT52, VT100, LA36, or LA120 terminals
- Up to four LA11 or LP11 line printers
- Up to four DL11 asynchronous line interfaces (one per terminal)
- One DZ11 asynchronous line multiplexer with up to four lines
- RL disk cartridge system with controller
- RL disk cartridge drives up to four
- Up to two RX floppy disk systems, with four drive total

The following options are available for D330 systems:

- Additional memory up to a system total of 248K bytes
- VT100 advanced video options (VT1XX-AB)
- Up to a system total of eight VT05, VT50H, VT52, VT100, LA36 or LA120 terminals
- Up to four LAV11 or LPV11 line printers
- Up to eight DLV11 serial asynchronous line interfaces (one per terminal) for eight lines total

- Up to two DZV11 asynchronous line multiplexers for eight lines total
- RLV disk cartridge system with controller
- RL disk cartridge drives up to four
- Up to two RXV floppy disk systems, with four drives total

NOTE: Due to limited expansion space inside a base 11/23 CPU system box, additional hardware options can require an expander box and cabinet.

The following options are available for D350 systems:

- Additional memory to a system total of 248K bytes
- VT100 advanced video option (VT1XX-AB)
- Up to a system total of twelve VT05, VT50H, VT100, LA34, LA36, LA38, or LA120 terminals
- Up to four LS11, LA11, or LP11 line printers
- Up to sixteen DL11 asynchronous line interfaces (one per terminal) for sixteen lines total
- Up to two DZ11 multiplexers with up to eight lines each
- RK11 disk cartridge system with controller
- RK05 disk cartridge drives up to eight
- RL disk cartridge system with controller
- RL disk cartridge drives up to four
- RPR11 disk pack system with up to eight drives
- Up to two RX floppy disk systems, with four drives total
- RK611 disk pack system
- RK06 disk pack drives up to eight, or RK711 disk pack system
- RK07 disk pack drive up to eight

NOTE: A mix of up to eight RK06s and RK07s total is possible

- CR11 card reader
- TME11 magnetic tape controller with up to eight TU10 transports or TJE16 controller with up to two TS03 transports.

NOTE: CTS-300 will run on the 11/44 processor; but no more than 248K bytes of memory can be used by CTS-300.

**PREREQUISITE SOFTWARE:**

None

**OPTIONAL SOFTWARE:**

CTS-300 RDCP 2780/3780  
 CTS-300 DICAM/3271

**TRAINING CREDITS:**

TWO (2) — Applies only to options that include support services. Consult the latest Educational Services Catalog at your local DIGITAL office for available courses, course requirements, and guidelines.

**SUPPORT CATEGORY:**

DIGITAL SUPPORTED

CTS-300 is a DIGITAL Supported Software Product.

**SOFTWARE INSTALLATION:**

**DIGITAL INSTALLED**

DIGITAL installation is required for Software Product Support. There is no charge for installation if performed at the time of system installation. DIGITAL installed software products, except for operating systems, are subject to an add-on installation fee when purchased subsequent to system installation.

**SOFTWARE PRODUCT SUPPORT**

CTS-300 includes standard warranty services as defined in the Software Support Categories Addendum of this SPD.

CTS-300 installation requires a system generation. To help customers, DIGITAL will perform the initial system generation if the system disk is an RL01, RL02, RK05, RK06 or RK07. When requested by the customer, DIGITAL will install floppy disk systems, on a time and materials basis.

**ORDERING INFORMATION:**

All binary licensed software, including any subsequent updates, 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 the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU. All source licensed software is furnished only under the terms and conditions of a separate Software Program Sources License Agreement between Purchaser and DIGITAL.

Options with no support services are only available after the purchase of one supported license.

A single-use license only option is a license to copy the software previously obtained under license.

The following key (E, H, Q, T, V, X, Y, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJ354-AV = distribution on RK07 Disk Cartridge.

- E = RK05 Disk Cartridge
- H = RL02 Disk Cartridge
- Q = RL01 Disk Cartridge
- T = RK06 Disk Cartridge
- V = RK07 Disk Cartridge
- X = RX02 Double Density Diskette
- Y = RX01 Floppy Diskette
- Z = No hardware dependency

This software is available with a valid DEC Datasystem 150, 320, 330, or 350 that includes support services. License only CTS-300 is available only with a valid DEC Datasystem 150, 320, 330, or 350 that does not include software support services.

- D150 Floppy Disk Based (RX01)
- DS352 RX01 Floppy Disk Based
- DS356 RPR02 Disk Pack Based

- D322 RX01 Floppy Disk Based
- D323 RX02 Floppy Disk Based
- D324 RK05 Cartridge Disk Based
- D325 RL01 Cartridge Disk Based
- D333 RX02 Floppy Disk Based
- D335 RL01 Cartridge Disk Based
- D336 RL02 Cartridge Disk Based
- D354 RK05 Cartridge Disk Based
- D355 RL01 Cartridge Disk Based
- D356 RL02 Cartridge Disk Based
- D357 RK06 Cartridge Disk Based
- D358 RK07 Cartridge Disk Based

CTS-300 is also offered with full DIGITAL support services only on hardware configurations that meet minimum system requirements. A customer would order the line item:

- QJ354 -A— Single-use license, binaries, documentation, support services (media: E, H, Q, T, V, X, Y)

A partial listing of other DIGITAL packaged systems that meet CTS-300 requirements are listed below. For a more complete configuration guide, refer to the RT-11, Version 4.0 SPD (12.1).

- D532, D535, D538
- D542, D548
- DM30-LLB, DM30-HHB
- RE37-HHB
- SE30-HHB, SE30-LLB, SE30-MMA
- SE40-HHA, SE40-MMA
- SE60-HHA
- SM20-LLA
- SM30-HHB, SM30-LLB, SM30-MMA
- SM40-HHA, SM40-MMA
- SM60-HHA, SM60-HHB, SM60-LLA, SM60-MMA
- SP30-HVA, SP30-LLA
- SP60-HVA
- SR20-LLA, SR20-SSA
- SR30-LLB, SR30-SSB
- SR60-LLA
- SR-VXLLB, SR-VXSSA, SR-VXSSB
- SR-WXLLA, SR-WXSSA

*Update Options*

Users of previous CTS-300 versions whose specified Support Category warranty has expired may order under license the following software update at the then current charge for such update. The update is distributed in binary form on the appropriate medium and includes no installation or other services are included unless specifically stated.

- QJ354 -H— Binaries, documentation (media: E, H, Q, T, V, X, Y)
- QJ354 -H— Right to copy for single use (under existing license), no binaries, no documentation (media: Z)

**ADDITIONAL SERVICES:**

Post-warranty Software Product Services are available for licensed customers. Customers should contact their local DIGITAL office for additional information.



# Software Product Description

**PRODUCT NAME: FORTRAN IV/RT-11, Version 2.5**

**SPD 12.10.12**

## **DESCRIPTION:**

FORTRAN IV is an extended implementation of the FORTRAN language based on the ANSI FORTRAN, X3.9-1966 standard. It operates under the RT-11 Operating System. The PDP-11 FORTRAN IV language includes the following extensions to the ANSI standard:

- General expressions allowed in all meaningful contexts
- Mixed-mode arithmetic
- BYTE data type for character manipulation
- ENCODE, DECODE statements
- PRINT, TYPE, ACCEPT input/output statements
- Direct-access unformatted input/output DEFINE FILE statement
- Comments allowed at end of each source line
- PROGRAM statement
- OPEN and CLOSE file access control statements
- List-directed input/output

Additionally, virtual arrays are supported on systems with memory management directives. Virtual arrays are memory-resident, and require enough main memory to contain all elements of all arrays.

The PDP-11 FORTRAN IV compiler is a fast, one-pass compiler. Compiler options allow program size (threaded code) versus execution speed (in-line code) tradeoffs. FORTRAN IV compiler optimizations include:

- Common subexpression elimination
- Local code tailoring
- Array vectoring
- Optional in-line code generation for integer and logical operations

### *Object Time System*

FORTRAN IV includes a set of object modules, called the Object Time System (OTS), that are selectively linked with compiler-produced object modules to produce an executable program.

The RT-11 system provides several special features for FORTRAN IV. FORTRAN programs may be developed under RT-11 and output in absolute binary format for execution on a stand-alone PDP-11 system with minimal peripherals, or for loading into ROM or PROM memory.

Using SYSLIB, the RT-11 FORTRAN system subroutine library, all features of the RT-11 monitor are available to FORTRAN programs. Additionally, SYSLIB provides subroutines that support extensive character string manipulations, where the characters are stored as variable-length strings in BYTE arrays.

## **MINIMUM HARDWARE REQUIRED:**

Any valid RT-11 configuration (32K bytes of memory are required for string support).

RT-11 Memory Management Unit and EIS hardware are required for virtual arrays.

## **OPTIONAL HARDWARE:**

FORTRAN IV supports all devices supported by the operating system.

FORTRAN IV generated code can be selected to support the following arithmetic hardware options:

- KE11-A Extended Arithmetic Element
- KE11-B Extended Arithmetic Element
- KE11-E Extended Instruction Set
- KE11-F Floating Instruction Set
- KEV11 Extended Arithmetic Chip

The FORTRAN IV OTS additionally supports the FP11 floating point processor.

## **PREREQUISITE SOFTWARE:**

RT-11 Operating System, Version 4.0

## **OPTIONAL SOFTWARE:**

FORTRAN/RT-11 Extensions  
PLOT 11/RT-11  
SSP-11  
FMS-11/RT-11

## **TRAINING CREDITS:**

None

## **SUPPORT CATEGORY:**

DIGITAL SUPPORTED

FORTRAN IV/RT-11 is a DIGITAL Supported Software Product.

## **SOFTWARE INSTALLATION:**

CUSTOMER INSTALLED

FORTRAN IV/RT-11 is a software product engineered to be installed by the customer and includes other Software Product Support services listed below.

-2-

**SOFTWARE PRODUCT SUPPORT:**

FORTRAN IV/RT-11 includes standard warranty services as defined in the Software Support Categories Addendum of this SPD.

**ORDERING INFORMATION:**

All binary licensed software, including any subsequent updates, 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 the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU. All source licensed software is furnished only under the terms and conditions of a separate Software Program Sources License Agreement between Purchaser and DIGITAL.

Options with no support services are only available after the purchase of one supported license.

A single-use license only option is a license to copy the software previously obtained under license.

Sources and/or listings options are only available after the purchase of at least one supported license and after a source license agreement is in effect.

The following key (D, E, G, H, Q, R, Y, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJ813-AD = binaries on 9-Track 800 BPI magtape (NRZI).

D = 9-track 800 BPI Magtape (NRZI)  
 E = RK05 Disk Cartridge  
 G = TU58 DECTape II Cartridge  
 H = RL02 Disk Cartridge  
 Q = RL01 Disk Cartridge  
 R = Microfiche  
 Y = RX01 Floppy Diskette  
 Z = No hardware dependency

QJ813 -A— Single-use license, binaries, documentation, support services (media: D, E, G, H, Q, Y)

QJ813 -C— Single-use license, binaries, documentation, no support services (media: D, E, G, H, Q, Y)

QJ813 -D— Single-use license only, no binaries, no documentation, no support services (media: Z)

*Sources/Listings Options*

QJ813 -E— Sources (media: D, E, H, Q,)

QJ813 -F— Listings (media: R)

*Upgrade Options*

Customers who are currently licensed users of MSB/FORTRAN IV may obtain this new product by purchasing a license to an upgrade kit for use on the same CPU as their previous license.

QJE06 -A— Single-use license, binaries, documentation, support services (media: Y)

*Update Options*

Users of FORTRAN IV/RT-11 whose specified Support Category warranty has expired may order under license the following software update at the then current charge for such update. The update is distributed in binary form on the appropriate medium and includes no installation or other services unless specifically stated.

QJ813 -H— Binaries, documentation (media: D, E, G, H, Q, Y)

QJ813 -H— Right to copy for single-use (under existing license), no binaries, no documentation (media: Z)

*Sources/Listings Update Options*

The following options are available to licensed users as updates to sources and/or listings options. The update is distributed in source form on the appropriate medium and includes no installation or other services unless specifically stated otherwise.

QJ813 -N— Sources update (media: D, E, H, Q)

QJ813 -N— Sources listings (media: R)

*Miscellaneous Options*

QJ813 -G— Documentation only kit (media: Z)

**ADDITIONAL SERVICES:**

None

# digital

## Software Product Description

**PRODUCT NAME: MU BASIC-11/RT-11, Version 2.0**

**SPD 12.20.6**

### **DESCRIPTION:**

BASIC is a conversational programming language developed at Dartmouth College that uses simple English language-like statements and familiar mathematical notations to perform operations.

MU BASIC-11/RT-11 is an interpreter operating under the RT-11 operating system foreground/background (FB) monitor with multiterminal capability (up to eight).

#### *MU BASIC-11/RT-11 Features*

- One to four users on PDP-11/03, LSI-11, or PDT-11/150 systems
- One to eight users with equal size memory partitions on larger PDP-11s; no swapping
- A variety of program manipulation commands, including commands for saving, editing, running, and retrieving BASIC programs
- Support for real (single or double precision) integer and string data types
- Ability to run in either the foreground or background under the RT-11 FB monitor concurrently with another job; supports all RT-11 supported devices (except VT11)
- Support for all terminals supported by RT-11
- User identification and file protection scheme to control system access and utilization (optional); public and group libraries for file sharing; privileged user capability
- All peripheral devices can be used by any user at any terminal. However, the ASSIGN and DEASSIGN commands permit restricted use of a non-public device to a single user
- Limited ability for a user to ASSIGN a terminal (that is currently not in use) as an input or output device
- Sequential data storage using the RT-11 file system. The maximum number of simultaneously open files is limited only by available memory and RT-11 channel considerations
- Virtual arrays on disk (integer, real, and string) for processing quantities of data too large to fit in available memory, or for performing random-access I/O

- Program chaining and overlaying with COMMON to accommodate large programs
- Formatted output with PRINT USING statement
- String support, complete with string arrays and functions
- A CALL statement that allows easy interfacing of assembly language routines. These routines can be called by name and passed multiple arguments. These routines must be included at link time.
- Immediate mode execution for desk calculator operation and program debugging
- Privileged mode to protect applications programs

#### **MINIMUM HARDWARE REQUIRED:**

Any valid RT-11, Version 4.0 (FB monitor with multi-terminal support) configuration with:

- RK11, RX11, or RL11 controller and drive
- Line frequency clock
- 56K bytes of memory

Total memory required depends on the number of users, length of programs, BASIC features included, devices used, and number of simultaneously open files. A maximum of four users are supported for PDP-11/03, LSI-11, or PDT-11/150 based systems.

DECtape II is not supported as the system device.

#### **OPTIONAL HARDWARE:**

Supports any device supported by the prerequisite software (except VT11).

#### **PREREQUISITE SOFTWARE:**

One of the following:

- RT-11, Version 4.0 Operating System with multi-terminal support. Multiterminal support must be sysgened into RT-11; and RT-11 SYSGEN is included in an MU BASIC-11/RT-11 installation.
- RT<sup>2</sup>, Version 4.0 with multiterminal support

#### **OPTIONAL SOFTWARE:**

None

**TRAINING CREDITS:**

None

**SUPPORT CATEGORY:**

DIGITAL SUPPORTED

MU BASIC-11/RT-11 is a DIGITAL Supported Software Product.

**SOFTWARE INSTALLATION:**

DIGITAL INSTALLED

DIGITAL installation is required for Software Product Support. There is no charge for installation if performed at the time of system installation, DIGITAL installed software products, except for operating systems, are subject to an add-on installation fee when purchased subsequent to system installation.

**SOFTWARE PRODUCT SUPPORT:**

MU BASIC-11/RT-11 includes standard warranty services as defined in the Software Support Categories Addendum of this SPD.

**ORDERING INFORMATION:**

All binary licensed software, including any subsequent updates, 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 the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU. All source licensed software is furnished only under the terms and conditions of a separate Software Program Sources License Agreement between Purchaser and DIGITAL.

Options with no support services are only available after the purchase of one supported license.

A single-use license only option is a license to copy the software previously obtained under license.

Sources and/or listings options are only available after the purchase of at least one supported license and after a source license agreement is in effect.

The following key (E, G, H, Q, R, Y, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJ921-AY = binaries on RX01 Floppy Diskette.

E = RK05 Disk Cartridge  
G = TU58 DECTape II Cartridge

H = RL02 Disk Cartridge  
Q = RL01 Disk Cartridge  
R = Microfiche  
Y = RX01 Floppy Diskette  
Z = No hardware dependency

QJ921 -A— Single-use license, binaries documentation, support services (media: E, G, H, Q, Y)

QJ921 -C— Single-use license, binaries, documentation, no support services (media: E, G, H, Q, Y)

QJ921 -D— Single-use license only, no binaries, no documentation, no support services (media: Z)

*Sources/Listings Options*

QJ921 -E— Sources (media: E, Q, Y)

QJ921 -F— Listings (media: R)

*Update Options*

Users of MU BASIC-11/RT-11 whose specified Support Category warranty has expired may order under license the following software update at the then current charge for such update. The update is distributed in binary form on the appropriate medium and includes no installation or other services unless specifically stated.

QJ921 -H— Binaries, documentation (media: E, G, H, Q, Y)

QJ921 -H— Right to copy for single-use (under existing license), no binaries, no documentation (media: Z)

*Sources/Listings Update Options*

The following options are available to licensed users as updates to sources and/or listings options. The update is distributed in source form on the appropriate medium and includes no installation or other services unless specifically stated.

QJ921 -N— Sources update (media: E, Q, Y)

QJ921 -N— Listings update (media: R)

*Miscellaneous Options*

QJ921 -G— Documentation only kit (media: Z)

**ADDITIONAL SERVICES:**

None



**digital**

# Software Product Description

**PRODUCT NAME: LSP-11, Version 1.1**  
Laboratory Subroutine Package

**SPD 15.44.2**

## **DESCRIPTION:**

The Laboratory Subroutine Package (LSP) is a set of FORTRAN-callable subroutines that perform a variety of standard analytical tasks commonly encountered in the laboratory. All of the subroutines are dedicated to processing of data that has been acquired by other laboratory data acquisition software.

The Laboratory Subroutine Package provides the user with the following data manipulation subroutines.

- Peak processing
- Envelope processing
- Interval histogramming with reference points
- Fast Fourier transform
- Phase angle and amplitude spectrum
- Power spectrum
- Correlation function

## **MINIMUM HARDWARE REQUIRED:**

One of the following:

- Any valid RT-11 Operating System configuration supporting FORTRAN IV/RT-11 with at least 32K bytes of memory
- Any valid mapped RSX-11M Operating System configuration supporting either FORTRAN IV/IAS-RSX or FORTRAN IV-PLUS/RXS with at least a 32K byte user available partition
- Hardware configuration must contain a device capable of reading distribution media

## **OPTIONAL HARDWARE:**

- PDP-11 Extended Instruction Set
- PDP-11 Extended Arithmetic Element

## **PREREQUISITE SOFTWARE:**

- RT-11 Operating System, Version 4.0 and FORTRAN IV/RT-11, Version 2.5
- RSX-11M Operating System, Version 3.2 and either FORTRAN IV/IAS-RSX, Version 2.5 or FORTRAN IV-PLUS/RXS, Version 3.0

## **OPTIONAL SOFTWARE:**

None

## **TRAINING CREDITS:**

None

## **SUPPORT CATEGORY:**

DIGITAL SUPPORTED

LSP-11 is a DIGITAL Supported Software Product.

## **SOFTWARE INSTALLATION:**

CUSTOMER INSTALLED

LSP-11 is a software product engineered to be installed by the customer and includes other Software Product Support services listed below.

## **SOFTWARE PRODUCT SUPPORT:**

LSP-11 includes standard warranty services as defined in the Software Support Categories Addendum of this SPD.

## **ORDERING INFORMATION:**

All binary licensed software, including any subsequent updates, 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 the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU. All source licensed software is furnished only under the terms and conditions of a separate Software Program Sources License Agreement between Purchaser and DIGITAL.

Options with no support services are only available after the purchase of one supported license.

A single-use license only option is a license to copy the software previously obtained under license.

The following key (D, E, H, M, Q, T, Y, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJ724-AD = binaries on 9-track 800 BPI Magtape (NRZI).

-2-

D = 9-track 800 BPI Magtape (NRZI)  
 E = RK05 Disk Cartridge  
 H = RL02 Disk Cartridge  
 M = 9-track 1600 BPI Magtape (PE)  
 Q = RL01 Disk Cartridge  
 T = RK06 Disk Cartridge  
 Y = RX01 Floppy Diskette  
 Z = No hardware dependency

*For RT-11 Systems*

QJ624 -A— Single-use license, binaries, documentation, support services (media: E, H, Q, Y)  
 QJ624 -D— Single-use license only, no binaries, no documentation, no support services (media: Z)

*For RSX-11M Systems*

QJ724 -A— Single-use license, binaries, documentation, support services (media: D, E, H, M, Q, T)  
 QJ724 -D— Single-use license only, no binaries, no documentation, no support services (media: Z)

*Update Options*

Users of LSP-11 whose specified Support Category warranty has expired may order under license the following software update at the then current charge for

such update. The update is distributed in binary form on the appropriate medium and includes no installation or other services unless specifically stated.

*For RT-11 Systems*

QJ624 -H— Binaries, documentation (media: E, H, Q, Y)  
 QJ624 -H— Right to copy for single-use (under existing license), no binaries, no documentation (media: Z)

*For RSX-11M Systems*

QJ724 -H— Binaries, documentation (media: D, E, H, M, Q, T)  
 QJ724 -H— Right to copy for single-use (under existing license), no binaries, no documentation (media: Z)

**ADDITIONAL SERVICES:**

Post-warranty Software Product Services for this software product are available with the prerequisite being the purchase of the RT-11 and/or RSX-11M Self-Maintenance Service for Software. Customers should contact their local DIGITAL office for additional information.

digital

# Software Product Description

PRODUCT NAME: **SSP-11, Version 1.2**  
**PDP-11 Scientific Subroutine Package**

SPD 15.45.6

## DESCRIPTION:

The Scientific Subroutine Package (SSP) is a collection of over 100 mathematical and statistical routines commonly required in scientific programming. The subroutines are written in FORTRAN and contain no I/O statements.

Many of the larger statistical routines are provided as a collection of several smaller routines. This enables easier incorporation in larger programs requiring overlays.

### SSP-11 Subroutines

ABSNT	Detection of missing data	CTAB	Tabulate the columns of a matrix
ARRAY	Vector storage double dimensioned storage conversion	CTIE	Adjoin two matrices column-wise
AUTO	Autocovariances	DCLA	Replace diagonal with scalar
AVCAL	AND operation	DCPY	Copy diagonal of matrix into vector
AVDAT	Data storage allocation	DISCR	Discriminant functions
BESI	I Bessel function	DMATX	Means and dispersion matrix
BESJ	J Bessel function	EIGEN	Eigenvalues and eigenvectors of a real, symmetric matrix
BESK	K Bessel function	EXPI	Exponential integral
BESY	Y Bessel function	EXSMO	Triple exponential smoothing
BOUND	Selections of observations within bounds	FORIF	Fourier analysis of a given function
CADD	Add column of one matrix to column of another matrix	FORIT	Fourier analysis of a tabulated function
CANOR	Canonical correlation	GAMMA	Gamma function
CCPY	Copy column of matrix into vector	GAUSS	Normal random numbers
CCUT	Partition column-wise	GDATA	Data generation
CEL1	Elliptic integrals of the first kind	GMADD	Add two general matrices
CEL2	Elliptic integrals of the second kind	GMPRD	Product of two general matrices
CHISQ	CHI square test for a contingency table	GMSUB	Subtract two general matrices
CINT	Interchange two columns	GMTRA	Transpose of a general matrix
CORRE	Means, standard deviations, and correlations	GTPRD	Transpose product of two general matrices
CROSS	Cross covariances	KRANK	Kendall rank correlation
CS	Fresnel integrals	LEP	Legendre polynomial
CSRT	Sort matrix columns	LOAD	Factor loading
CSUM	Sum the columns of a matrix	LOC	Location in compressed-stored matrix
		MADD	Add two matrices
		MATA	Transpose product of matrix by itself
		MCPY	matrix copy
		MEANQ	Mean square operation
		MFUN	Matrix transformation by function
		MOMEN	First four moments
		MPRD	Matrix product (row into column)
		MSTR	Storage conversion
		MSUB	Subtract two matrices
		MTRA	Transpose a matrix
		MULTR	Multiple regression and correlation
		NROOT	Eigenvalues and eigenvectors of a special nonsymmetric matrix

-2-

ORDER	Rearrangement of integer correlations	SCLA	Matrix clear and add scalar
PADD	Add two polynomials	SADD	Add scalar to matrix
PADDM	Multiply polynomial by constant and add to another polynomial	SDIV	Matrix divided by a scalar
PCLA	Replace one polynomial by another	SCMA	Scalar multiply column and add to another column
PLCD	Complete linear synthetic division	SICI	Sine/cosine integral
PDER	Derivative of a polynomial	SIMQ	Solution of simultaneous linear algebraic equations
PDIV	Divide one polynomial by another	SMO	Application of filter coefficients (weights)
PILD	Evaluate polynomial and its first derivative	SMPY	Matrix multiplied by a scalar
PINT	Integral of a polynomial	SANK	Spearman rank correlation
PGCD	Greatest common divisor of two polynomials	SRMA	Multiply a row by a scalar and add to another row
PMPY	Multiply two polynomials	SSUB	Subtract scalar from matrix
PNORM	Normalize coefficient vector of polynomial	SUBMX	Build subset matrix
POLRT	Real and complex roots of a real polynomial	SUBST	Subset selection from observation matrix
PSUB	Subtract one polynomial from another	TAB1	Tabulation of data (one variable)
PQSD	Quadratic synthetic division of a polynomial	TAB2	Tabulation of data (two variables)
PVAL	Value of a polynomial	TALLY	Totals, means, standard deviations, minimums, and maximums
PVSUB	Substitute variable polynomial by another polynomial	TPRD	Transpose product
QATR	Integral of a given function by trapezoidal rule using Romberg's extrapolation method	TRACE	Cumulative percentage of eigenvalues
QSF	Integral of equidistantly tabulated function by Simpson's Rule	TTSTT	Tests on population means
QTEST	Cochran Q-test	TWOAV	Friedman 2-way analysis of variance
RADD	Add row of one matrix to row of another matrix	UTEST	Mann-Whitney U-test
RCPY	Copy row of matrix into vector	VARMX	Varimax rotation
RANK	Rank observations	WTEST	Kendall coefficient of concordance
RECP	Reciprocal function for MFUN	XCPY	Copy submatrix from given matrix
RCUT	Partition by row		
RKGS	Solution of a system of first order differential equations with given initial values by the Runge-Kutta method		
RINT	Interchanges two rows		
RK2	Tabulated integral of first order differential equation by Runge-Kutta method		
RK1	Integral of first-order differential equation by Runge-Kutta method		
RSUM	Sum the rows of a matrix		
RTAB	Tabulate the rows of a matrix		
RSRT	Sort matrix rows		
RTMI	Determine root within a range by Mueller's iteration		
RTIE	Adjoin two matrices row-wise		
RTWI	Refine estimate of root by Wegstein's iteration		
RTNI	Refine estimate of root by Newton's iteration		

**MINIMUM HARDWARE REQUIRED:**

- Any valid RT-11 Operating System configuration supporting FORTRAN IV/RT-11 with at least 32K bytes of memory
- Any valid mapped RSX-11M Operating System configuration supporting either FORTRAN IV/IAS-RSX or FORTRAN IV-PLUS with at least 32K byte user available partition
- Hardware configuration must include a device capable of reading distribution media

**OPTIONAL HARDWARE**

None

**PREREQUISITE SOFTWARE**

- RT-11 Operating System, Version 4.0 and FORTRAN IV/RT-11, Version 2.5
- RSX-11M Operating System, Version 3.2 and either FORTRAN IV/IAS-RSX, Version 2.5 or FORTRAN IV-PLUS, Version 3.0

**OPTIONAL SOFTWARE:**

None

**TRAINING CREDITS:**

None

-3-

**SUPPORT CATEGORY:**

DIGITAL SUPPORTED

SSP-11 is a DIGITAL Supported Software Product.

**SOFTWARE INSTALLATION:**

CUSTOMER INSTALLED

SSP-11 is a software product engineered to be installed by the customer and includes other Software Product Support services listed below.

**SOFTWARE PRODUCT SUPPORT:**

SSP-11 includes standard warranty services as defined in the Software Support Categories Addendum of this SPD.

**ORDERING INFORMATION:**

All binary licensed software, including any subsequent updates, 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 the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU. All source licensed software is furnished only under the terms and conditions of a separate Software Program Sources License Agreement between Purchaser and DIGITAL.

Options with no support services are only available after the purchase of one supported license.

A single-use license only option is a license to copy the software previously obtained under license.

The following key (D, E, H, M, Q, T, Y, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJ962-AD = binaries on 9-track 800 BPI Magtape (NRZI).

D = 9-track 800 BPI Magtape (NRZI)  
 E = RK05 Disk Cartridge  
 H = RL02 Disk Cartridge  
 M = 9-track 1600 BPI Magtape (PE)  
 Q = RL01 Disk Cartridge  
 T = RK06 Disk Cartridge  
 Y = RX01 Floppy Diskette  
 Z = No hardware dependency

*For RT-11 Systems*

QJ960 -A— Single-use license, binaries, documentation, support services (media: E, H, Q, Y)

QJ960 -D— Single-use license only, no binaries, no documentation, no support services (media: Z)

*For RSX-11M Systems*

QJ962 -A— Single-use license, binaries, documentation, support services (media: D, E, H, M, Q, T)

QJ962 -D— Single-use license only, no binaries, no documentation, no support services (media: Z)

*Update Options*

Users of SSP-11 whose specified Support Category warranty has expired may order the following software update at the then current charge for such update. The update is distributed in binary form on the appropriate medium and includes no installation or support services unless specifically stated.

*For RT-11 Systems*

QJ960 -H— Binaries, documentation (media: E, H, Q, Y)

QJ960 -H— Right to copy for single use (under existing license), no binaries, no documentation (media: Z)

*For RSX-11M Systems*

QJ962 -H— Binaries, documentation (media: D, E, H, M, Q, T)

QJ962 -H— Right to copy for single-use (under existing license), no binaries, no documentation (media: Z)

**ADDITIONAL SERVICES:**

Post-warranty Software Product Services for this software product are available with the prerequisite being the purchase of the RT-11 and/or RSX-11M Self-Maintenance Service for Software. Customers should contact their local DIGITAL office for additional information.

digital

# Software Product Description

**PRODUCT NAME: RT-11/FORTRAN Enhancement Package for MINC,  
Version 1.1**

**SPD 15.49.2**

## DESCRIPTION:

The RT-11/FORTRAN Enhancement Package for MINC is a complete FORTRAN Systems Software Package. It consists of seven components:

- RT-11, Version 4.0 Real-Time Operating System (Refer to SPD No. 12.1 for specifics)
- FORTRAN IV/RT-11, Version 2.5 Compiler and Run-Time System (Refer to SPD No. 12.10 for specifics)
- SSP-11, Version 1.2 Scientific Subroutines Package (Refer to SPD No. 15.45 for specifics)
- LSP-11, Version 1.1 Laboratory Subroutine Package (Refer to SPD No. 15.44 for specifics)
- FDT — FORTRAN Debugging Technique
- INSTRUMENT Bus Subroutines, Version 1.1 Library for the control of IEEE-488 bus instruments, (Refer to SPD No. 12.14 for specifics) The Extended Memory (XM) monitor cannot be used while the instrument bus routines are being used.
- Real-Time control library for MNC-series modules (REAL-11/MNC)

SSP-11 supplies over 100 subroutines written in FORTRAN IV that provide the user with a large cross-section of those mathematical and statistical routines commonly required in scientific applications.

LSP-11 Processing Capabilities:

- Peak processing
- Envelope processing
- Interval histogramming
- Interval histogramming with reference points
- Fast fourier transform
- Phase angle and amplitude spectrum analysis
- Power spectrum analysis
- Correlation (auto/cross) functions

FDT enables users at the console terminal to "debug" their FORTRAN programs at the FORTRAN level. FDT provides step-by-step control of execution of the program and the ability to examine and change the contents of any variable during program execution.

Instrument Bus Subroutines allow the user to control the IEEE Bus through commands that control data transfer via the IB11 or IBV11-A

REAL-11/MNC library provides subroutines that control the following MNC-series modules:

- MNCKW (programmable real-time clock)
- MNCAD (A/D converter)
- MNCAM (analog multiplexer)
- MNCAG (analog preamplifier)
- MNCAA (D/A converter)
- MNCDI (digital input)
- MNCDO (digital output)

This library provides multiple-buffered input and output sweeps (of analog or digital data) with FORTRAN completion routine support. Both post-stimulus and time interval histogram data can be acquired by a subroutine. The library is self-configuring for the particular set of devices in the user's configuration.

The PLOT55 subroutine is included within RT-11 and supports a VT105 operating in VT55 compatibility mode. It is capable of plotting two single-valued functions with a resolution of 512 points on the X-axis and 190 points on the Y-axis in either point-plot or histogram mode.

## MINIMUM HARDWARE REQUIRED:

Any valid MNC11-B, MNC11-C, MNC11-E, MNC11-J, MNC11-K, MNC11-L, MDL23-A, MDL23-B, or MDL23-C configuration.

## OPTIONAL HARDWARE:

- Any Q-Bus disks supported by RT-11, Version 4.0
- Any Q-Bus line printer supported by RT-11, Version 4.0

## Terminals

- Any terminal type supported by RT-11, Version 4.0

## Communication Device

- Any Q-Bus devices supported by RT-11, Version 4.0

MODULE	DESCRIPTION	MAXIMUM NUMBER
MNCKW	Programmable Real-Time Clock	2
MNCAD	A/D Converter	1
MNCAM	Dual Multiplexer	7*
MNCAG	Preamplifier	5*
MNCAA	D/A Converter	8
MNCDI	Digital Input	8
MNCDO	Digital Output	8

\*MNCAD required

NOTE: The maximum number of MNC-series modules in use at any one time is eight.

-2-

*Miscellaneous*

Seven additional IBV11-A options (subject to slot availability).

NOTE: The software can communicate through only one unit at a time.

**PREREQUISITE SOFTWARE:**

None

**OPTIONAL SOFTWARE:**

Any software that utilizes the RT-11 Operating System, Version 4.0.

**TRAINING CREDITS:**

None

This is a complete FORTRAN software package and contains standard software kits but the training credits for RT-11/FORTRAN Enhancement Package for MINC are determined solely by this SPD.

**SUPPORT CATEGORY:**

DIGITAL SUPPORTED

RT-11/FORTRAN Enhancement Package for MINC is a DIGITAL Supported Software Product.

**SOFTWARE INSTALLATION:**

DIGITAL INSTALLED

DIGITAL installation is required for Software Product Support. There is no charge for installation if performed at the time of system installation. DIGITAL installed software products, except for operating systems, are subject to an add-on installation fee when purchased subsequent to system installation.

**SOFTWARE PRODUCT SUPPORT**

RT-11/FORTRAN Enhancement Package for MINC includes standard warranty services as defined in the Software Support Categories Addendum of this SPD.

**ORDERING INFORMATION:**

All binary licensed software, including any subsequent updates, 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 the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU. All source licensed software is furnished only under

the terms and conditions of a separate Software Program Sources License Agreement between Purchaser and DIGITAL.

Options with no support services are only available after the purchase of one supported license.

A single-use license only option is a license to copy the software previously obtained under license.

The following key (H, Q, X, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJV32-AQ = binaries on RL01 Disk Cartridge.

H = RL02 Disk Cartridge

Q = RL01 Disk Cartridge

X = RX02 Double Density Diskette

Z = No hardware dependency

The following options are available as software enhancement products for MINC systems.

QJV32 -A— Single-use license, binaries, documentation, support services (media: H, Q, X)

QJV32 -C— Single-use license, binaries, documentation, no support services (media: H, Q, X)

QJV32 -D— Single-use license only, no binaries, no documentation, no support services (media: Z)

*Update Options*

Users of RT-11/FORTRAN Upgrade Package for MINC-11 or users of FEP-11/FORTRAN Enhancement Package whose specified Support Category warranty has expired may order under license the following software update at the then current charge for such update. The update is distributed in binary form on the appropriate medium and includes no installation or other services unless specifically stated.

QJV32 -H— Binaries, documentation (media: H, Q, X)

QJV32 -H— Right to copy for single-use (under existing license), no binaries, no documentation (media: Z)

*Miscellaneous Options*

QJV32 -G— Documentation only kit (media: Z)

**ADDITIONAL SERVICES:**

Post-warranty Software Product Services for this software product are available with the prerequisite being the purchase of the RT-11 Self-Maintenance Service for Software. Customers should contact their local DIGITAL office for additional information.



## DIGITAL EQUIPMENT COMPUTER USERS SOCIETY

### INTRODUCTION

DECUS, the Digital Equipment Computer Users Society, was established in March of 1961 to advance the effective use of DIGITAL computers. It is a not-for-profit users group supported in part by Digital Equipment Corporation.

### OBJECTIVES

The objectives of the Society are to advance the effective utilization of computers, computer peripheral equipment, and software manufactured and marketed by Digital Equipment Corporation, by promoting the interchange of information concerning their uses; advance the art of computation through mutual education and exchange of ideas and information; establish standards and provide channels to facilitate the exchange of computer programs among DECUS members; provide feedback to the computer industry on equipment and software needs; and to reduce the duplication of development efforts.

### ORGANIZATION

The Digital Equipment Computer Users Society is a federation of chapters, whose membership is determined by geographic location. The membership is organized to meet the specific needs of members in its area such as Symposia and Special User Group activities. The DECUS chapters are:

- AUSTRALIAN CHAPTER (*Australia, Indonesia, Malaysia, New Zealand, PNG, Singapore, )*
- EUROPEAN CHAPTER (*Europe, Middle East, North Africa, Russia*)
- CANADIAN CHAPTER (*Canada*)
- U.S. CHAPTER (*U.S. and All Others*)

### ACTIVITIES

#### 1. SYMPOSIA

Symposia are sponsored throughout the year by each of the DECUS Chapters and Regional/National User Groups. These meetings provide an opportunity for users of DIGITAL computers to meet with other users and with DIGITAL management, engineers, and customer service representatives. They provide a forum for users to exchange information on technique and approaches to issues of common interest and to provide feedback to DIGITAL on existing and future products and services. Sessions at the symposia include user-driven workshops, tutorials, product panels, as well as application/system-specific presentations.

The technical papers and presentations from each symposium are published as DECUS Proceedings.

#### 2. SPECIAL USER GROUPS

DECUS encourages subgrouping of users with common interests and/or geographical proximity.

Special Interest Groups (SIGs) promote the interchange of specialized information for application areas, subject areas (such as languages), or specific operating systems. A group of users must petition the Chapter Executive Board for recognition as a Special Interest Group. The group must have a chairman, a DIGITAL representative, and its organization must meet the guidelines of the Chapter Executive Board.

Geographic subgroupings are formed to service the DECUS members within a specific area although they may also be based on interests as in SIGs. There are four types of geographic subgroupings:

1. LUGs — *Local User Groups*
2. NUGs — *National User Groups*
3. RUGS — *Regional User Groups*
4. SLUGs — *Student Local User Groups*



### 3. STANDARDS

DECUS promotes user activity in reviewing DIGITAL standards. Users are given the opportunity to comment on DIGITAL standards prior to their finalization.

### 4. PROGRAM LIBRARY

One of the major activities of the users group is the DECUS Program Library. The Library contains programs written and submitted by users and is maintained and operated separate from the Digital Software Distribution Center. A wide range of software is available, including languages, editors, numerical functions, utilities, display routines, and various other types of application software.

### MEMBERSHIP

Membership in DECUS is voluntary and is not subject to membership fee. Members are invited to take an active interest in the Society by contributing to the Program Library, to newsletters, and by participating in its Special User Groups and Symposia. There are two types of membership: Installation Membership and Association Membership.

#### INSTALLATION MEMBERSHIP

An organization, institution, or individual that has purchased, leased or has on order a computer manufactured by Digital Equipment Corporation is eligible for Installation Membership in DECUS.

An Installation should appoint a person immediately concerned with the use of the computer to act as delegate to the Society. A delegate receives all official communications and has a vote on DECUS policies and elections. An organization or company is eligible for as many voting delegates as it has DIGITAL computers. Each delegate must file an application for Installation Membership.

#### ASSOCIATE MEMBERSHIP

Any person who is not an appointed Installation Delegate, who has a bona fide interest in DECUS is eligible for Associate Membership.

Membership status is acquired by submitting the enclosed application to the appropriate Chapter Executive Secretary for approval by the Chapter Executive Board.

---

To obtain a membership form for DECUS, please return this form to the appropriate Chapter office listed below.

NAME: \_\_\_\_\_  
(First) (Last/Family Name)

COMPANY: (INSTALLATION): \_\_\_\_\_

ADDRESS 1: \_\_\_\_\_

2: \_\_\_\_\_

3: \_\_\_\_\_

4: \_\_\_\_\_

(City Town, State Province, and Zip Postal Code)

COUNTRY: \_\_\_\_\_

TELEPHONE: \_\_\_\_\_ TELEX \_\_\_\_\_

I obtained this form from \_\_\_\_\_

### DECUS OFFICES

DECUS Australia  
P.O. Box 384  
Chatswood  
NSW 2067  
Australia

DECUS Canada  
P.O. Box 11500  
Ottawa, Ontario K2H 8K8  
Canada

DECUS Europe  
P.O. Box 510  
12, avenue des Morgines  
CH-1213 Petit-Lancy 1/GE  
Switzerland

DECUS U.S. and  
Office of the Executive Director  
One Iron Way  
Marlboro, Massachusetts 01752  
USA

## SOFTWARE PROBLEMS OR ENHANCEMENTS

Questions, problems, 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).*

<u>Areas Covered</u>	<u>SPR Center</u>	<u>Areas Covered</u>	<u>SPR Center</u>
United States; remainder of Far East, Middle East, Africa Latin America	Administrative Services Group, SWS P.O. Box F Maynard, Ma 01754	Japan	Digital Equipment Corp. INTL 3rd Floor Kowa Bldg. 8-7 Sanban Cho Chiyoda Ku Tokyo 102 Japan
Canada	Digital Equipment Canada P.O. Box 11500 Ottawa, Ontario Canada K2H 8K8	New Zealand	Digital Equipment N.Z. LTD P.O. Box 17093 Greenlane, Auckland 5, New Zealand
United Kingdom, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Qatar, Oman, Saudi Arabia, Syria, United Arab Emirates, Yemen, Arab Republic.	Digital Equipment Corp. LTD Fountain House Butts Centre GB - Reading RG17QN England	Belgium, Holland, Luxemburg	Digital Equipment B.V. KAAP Horndreef 38 NL - Utrecht/Overvecht Holland
Australia-Melbourne	Digital Equipment Aust. PTY. LTD 60 Park Street So. Melbourne Victoria Australia 3205	Sweden	Digital Equipment Corp. AB Englundavägen 7 S-171 24 Solna, Sweden
Australia-Sydney	Digital Equipment Aust. PTY. LTD 123 125 Willoughby Rd. P. O. Box 491 Crows Nest NSW Australia 2065	Denmark	Digital Equipment Corp. APS Kristineberg 3 DK-2100 Copenhagen Ø Denmark
Brazil	Digital Equipment Comercio Ind. Rua Batatais 429 Esq AL Campin 01423 Jardim Paulista Sao Paulo 0100 Brazil	Finland	Digital Equipment Corp. OY PL16 SF - 02201 ESPOO 20 Finland
Caribbean	De Latin America P. O. Box 11038 Fernando Juncos Sta. Santurce PR 00910	Norway	Digital Equipment Corp. A/S Pottenmakerveien 8 N - Oslo 5 Norway
France	Digital Equipment France 18, rue Saarinen France Silic 225 F - 94528 Rungis - Cedex France	Austria, East Germany, West Germany, Poland, Hungary, Rumania, Czechoslovakia, Russia, Bulgaria	Digital Equipment Corp. GMBH Wallsteinplatz 2 D - 8 Munich 40 West Germany
Italy	Digital Equipment S.P.A. Viale Fulvio Testi 117 I-20092 Cinisillo Balsamo Milan, Italy	Israël	DECSYS Computers LTD. 4, Yirmiyahou Str. P.O. Box 6359 IL - Tel-Aviv 63505 Israël

**Areas Covered**

Greece, Portugal,  
Spain, Switzerland,  
Yugoslavia & Sina  
(Morocco, Algeria,  
Tunisia, Cyprus,  
Turkey, Malta)

**SPR Center**

Digital Equipment Corp. SA  
9, route des Jeunes  
1211 Geneva 26  
Switzerland

DIGITAL EQUIPMENT CORPORATION, Corporate Headquarters: Maynard, Massachusetts 01754, Telephone: (617)897-5111—SALES AND SERVICE OFFICES: UNITED STATES—ALABAMA, Huntsville • ARIZONA, Phoenix and Tucson • CALIFORNIA, El Segundo, Los Angeles, Oakland, Ridgecrest, San Diego, San Francisco (Mountain View), Santa Ana, Santa Clara, Stanford, Sunnyvale and Woodland Hills • COLORADO, Englewood • CONNECTICUT, Fairfield and Meriden • DISTRICT OF COLUMBIA, Washington (Lanham, MD) • FLORIDA, Ft. Lauderdale and Orlando • GEORGIA, Atlanta • HAWAII, Honolulu • ILLINOIS, Chicago (Rolling Meadows) • INDIANA, Indianapolis • IOWA, Bettendorf • KENTUCKY, Louisville • LOUISIANA, New Orleans (Metairie) • MARYLAND, Odenton • MASSACHUSETTS, Marlborough, Waltham and Westfield • MICHIGAN, Detroit (Farmington Hills) • MINNESOTA, Minneapolis • MISSOURI, Kansas City (Independence) and St. Louis • NEW HAMPSHIRE, Manchester • NEW JERSEY, Cherry Hill, Fairfield, Metuchen and Princeton • NEW MEXICO, Albuquerque • NEW YORK, Albany, Buffalo (Cheektowaga), Long Island (Huntington Station), Manhattan, Rochester and Syracuse • NORTH CAROLINA, Durham/Chapel Hill • OHIO, Cleveland (Euclid), Columbus and Dayton • OKLAHOMA, Tulsa • OREGON, Eugene and Portland • PENNSYLVANIA, Allentown, Philadelphia (Bluebell) and Pittsburgh • SOUTH CAROLINA, Columbia • TENNESSEE, Knoxville and Nashville • TEXAS, Austin, Dallas and Houston • UTAH, Salt Lake City • VIRGINIA, Richmond • WASHINGTON, Bellevue • WISCONSIN, Milwaukee (Brookfield) • INTERNATIONAL—ARGENTINA, Buenos Aires • AUSTRALIA, Adelaide, Brisbane, Canberra, Melbourne, Perth and Sydney • AUSTRIA, Vienna • BELGIUM, Brussels • BOLIVIA, La Paz • BRAZIL, Rio de Janeiro and Sao Paulo • CANADA, Calgary, Edmonton, Halifax, London, Montreal, Ottawa, Toronto, Vancouver and Winnipeg • CHILE, Santiago • DENMARK, Copenhagen • FINLAND, Helsinki • FRANCE, Lyon, Grenoble and Paris • GERMAN FEDERAL REPUBLIC, Cologne, Frankfurt, Hamburg, Hannover, Munich, Nuremberg, Stuttgart and West Berlin • HONG KONG • INDIA, Bombay • INDONESIA, Djakarta • IRELAND, Dublin • ITALY, Milan, Rome and Turin • IRAN, Tehran • JAPAN, Osaka and Tokyo • MALAYSIA, Kuala Lumpur • MEXICO, Mexico City • NETHERLANDS, Utrecht • NEW ZEALAND, Auckland and Christchurch • NORWAY, Oslo • PUERTO RICO, Santurce • SINGAPORE • SPAIN, Madrid • SWEDEN, Gothenburg and Stockholm • SWITZERLAND, Geneva and Zurich • UNITED KINGDOM, Birmingham, Bristol, Epsom, Edinburgh, Leeds, Leicester, London, Manchester and Reading • VENEZUELA, Caracas •