

RT-11

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**THE
SOFTWARE
DISPATCH**

digital

RT-11 SOFTWARE DISPATCH

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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

BASIC-11/RT-11 V2
CTS-300 V6
DECnet-RT V1.1
FMS-11/RT-11 V1.1
FORTRAN GRAPHICS
PACKAGE V1.1

FORTRAN/RT-11 LAB Extensions V1
FORTRAN IV/RT-11 V2.5
GAMMA-11 F/B V3
LSP-11 V1.1
MSB11 V1
MSB/FORTRAN IV V1

MU BASIC-11/RT-11 V2
PLOT 11/RT-11 V1.1
RT-11 V4
RT-11 2780/3780
Protocol Emulator V4
SSP-11 V1.2

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PRODUCT AVAILABILITY DATES - RT-11

MAY 1982

The following are dates products have become available. Customers who are in warranty or have a Software Product Service contract during the month the product became available are eligible to receive the update. Customers who are eligible and have not received the update should contact their local Digital office.

Autopatch is distributed to Software Product Service Basic contract customers and to Self-Maintenance contract customers who have selected this option. Autopatch will be installed for DECsupport contract customers as part of their Preventive Maintenance.

<u>PRODUCT</u>	<u>VERSION</u>	<u>AVAILABLE</u>
CTS-300	7.0	MAR 82
LSP-11	1.2	NOV 81
MU-BASIC	2.1	SEP 81
SSP-11	1.3	NOV 81
RT-11 AUTOPATCH	E	MAR 82

SPR USER LETTER

Submitted by Sheila Hatchell, 8/11 Administration

How to Make the Best Use of the SPR Form

What We Can Do for You:

1. Blank SPR forms are returned with each SPR acknowledgement and 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.
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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.

LINK MULTIPLE ERROR FIXES (DBB)

This patch fixes three problems with LINK:

- a. LINK does not remember the correct block number and byte offset of the start of the current module for transfer address computations,
- b. LINK generates an incorrect block 0 in the resulting save image when the root of an overlaid program is composed entirely of library modules, and
- c. LINK causes a system crash due to a stack maintenance error when a large number of Command String Interpreter (CSI) input lines are specified to LINK.

- 1. The following is a required patch to the LINK.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 LINK.SAV is on a mounted volume. Create the file, LINK.009 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
44461
^Z                               (up-arrow/Z)
6512
26
^Z                               (up-arrow/Z)
15146
105267
176110
^Z                               (up-arrow/Z)
15272
5000
^Z                               (up-arrow/Z)
15322
12702
4
^Z                               (up-arrow/Z)
17632
402
166705
174424
20501
1406

```

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

Seq 7.9.10 M

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10567	
173576	
10405	
4767	
174316	
10504	
4767	
174130	
5300	
1407	
^Z	(up-arrow/Z)
17672	
174176	
771	
^Z	(up-arrow/Z)
17756	
740	
^Z	(up-arrow/Z)
20262	
4767	
2052	
^Z	(up-arrow/Z)
21312	
1006	
^Z	(up-arrow/Z)
22314	
4767	
171474	
^Z	(up-arrow/Z)
22324	
177440	
103401	
10112	
16701	
171020	
207	
162704	
6	
^Z	(up-arrow/Z)
23032	
4511	
^Z	(up-arrow/Z)
43250	
4767	
506	
5742	
^Z	(up-arrow/Z)
43762	
4767	
175636	
13402	
207	
^Y	(up-arrow/Y)
152500	
^C	(CTRL/C to exit)

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

Seq 7.9.10 M

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

@LINK.009

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

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

RT-11 V4.0
Error Control Package
ERROUT.MAC V04.00E

Seq 14.6.1 M

1 of 1

ERROR LOGGING SUPPORT OF USER-WRITTEN HANDLERS (MG)

Error records and device statistics information from user-written handlers with device ID's in the range 200-377 are treated as unknown devices and not reported correctly.

1. The following is a required patch to the ERROUT.MAC 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. To install the patch, first create a patch file for input to the SLP utility. Using an editor, create a file called ERROUT.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 spaces in the text should be entered in the file as single space characters.

```
-2,2
.IDENT<tab>/V04.00F/
-23,23
ELERRO<tab>== 6
-510,510
PATLVL:::ASCII<tab>/F - COMPILED/
-578,578
DEVICE:<tab>CLR<tab>R0
<tab>BISB<tab>ODEVIC(R5),R0
-853,853
l$:<tab>CLR<tab>R0
<tab>BISB<tab>l(R5),R0
/
```

3. To apply the patch to ERROUT.MAC type:

```
.R SLP
*ERROUT.MAC=ERROUT.MAC,ERROUT.001
?SLP-W-Audit trail overwrites line
*^C                                     ;004
                                     (CTRL/C to exit)
```

4. Now issue the following commands:

```
.MACRO ERROUT/OBJ
ERRORS DETECTED: 0

.MACRO ERRTXT/OBJ
ERRORS DETECTED: 0

.LINK/EXECUTE:ERROUT ERROUT,ERRTXT
```

The resulting version of the utility will be ERROUT V04.00F.

TITLE: BUILDING AN APPLICATION THAT USES THE FILE SYSTEM

The following listing shows how you can build a MicroPower/PASCAL file-system application if you have an RX02-based system. In the following it is assumed that you have installed the software using the BLUE VOLUMES provided for that purpose, and have not altered the contents of these volumes after the installation. Sections of text that represent interactive output are bounded by double-dashed lines (=====).

- o Boot the Blue Volume 1 diskette on drive 0. You will see the following output on your terminal.

=====

This is BLUE VOLUME 1 - the compiler disk.
You should boot this volume in DRIVE 0 - the left hand drive.

1. Insert BLUE VOLUME 4 - the applications disk in
DRIVE 1 - the right hand drive
2. Create your application on BLUE VOLUME 4 by using one of the
RT-11 editors, EDIT or KED.
3. Using the editor replace all occurrences of EXAMPL in the
command file with the name of your application program.
4. To compile your application, invoke the command file COMPLD.COM
using the monitor command:

@SY:COMPLD

The resulting object file will be stored on BLUE VOLUME 4.

=====

As directed, using an editor provided on BLUE VOLUME 1, create your application program on a blank diskette, henceforth referred to as BLUE VOLUME 4. The name of the application program in this example is, arbitrarily, FST007.PAS. Then create a new file called COMPLD.NEW on BLUE VOLUME 1, which will be a modified version of COMPLD.COM, a command file that is already on the disk. In the new file COMPLD.NEW the first COPY command must be commented out and every occurrence of the name EXAMPL must be replaced by FST007. In the following sample editing session, the RT-11 editor EDIT has been used to modify the command file. The symbol <ESC> stands for the "ESC" key on your keypad. Altered lines have been marked with a left arrow (<----).

NOTE: If you use any editor other than EDIT to make the changes, you obviously cannot use the edit-command lines shown below. Therefore when making the corresponding changes, pay close attention to the names and locations of files and check the alterations before you exit from the editor. Also, be careful to use only UPPERCASE letters when entering new commands.

The following example output shows the editing steps (using EDIT), that might be performed to properly modify the original command file.

```

=====
.DATE 26-FEB-82

.TIME 15:30

.EDIT/OUTPUT:SY:COMPLD.NEW SY:COMPLD.COM
*RGSY:<ESC>OAI!<ESC>A<ESC>2<GEXAMPL<ESC>=CFST007<ESC>><ESC><ESC>
*B/L<ESC><ESC>
!
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! ONLY IN ACCORDANCE WITH THE TERMS OF SUCH LICENSE.
!
! COPYRIGHT (c) 1982 BY DIGITAL EQUIPMENT CORPORATION. ALL RIGHTS RESERVED.
!
! Copy EXAMPL to BLUE VOLUME 4, and Compile it
!COPY SY:EXAMPL.PAS EXAMPL.PAS          <-----
R PASCAL
FST007=FST007/D/I:NHD                   <-----
*EX<ESC><ESC>

```

Then, with BLUE VOLUME 1 still in drive 0, insert BLUE VOLUME 2 in drive 1. Modify the command file BUILD.D.COM on BLUE VOLUME 2 to make FST007 the program name. Include FSLIB.OBJ (the file-system library) in the MERGE step and add the /I switch at the end of the MERGE command-line to include \$PUTCH and \$GETCH from FSLIB (to enable READs and WRITEs). Note that the lines \$PUTCH and \$GETCH must be followed by a blank line.

```

=====
.EDIT/OUTPUT:DY1:BUILDD.NEW DY1:BUILDD.COM
*R 100<GEXAMPL<ESC>=CFST007<ESC>><ESC><ESC>
?EDIT-F-Search failed
*BG.OBJ/D<ESC>I,FSLIB<ESC>GLIBNHD.OBJ<ESC>I/I
$PUTCH
$GETCH
<ESC>B/L<ESC><ESC>
!
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!

```

```

! Install Example with debug symbols
!
COPY SY:KERND.DBG FST007.DBG <-----
!
! Merge object module with kernel symbols and OTS library
!
R MERGE
FST007.MOB=FST007.OBJ/D,FSLIB,SY:KERND.STB,SY:LIBNHD.OBJ/I <-----
$PUTCH <-----
$GETCH <-----
^C
!
! Relocate Example to next available location in KERND.MIM
!
R RELOC
FST007.PIM/D,FST007.MAP,FST007.STB=FST007.MOB,SY:KERND.MIM <-----
^C
!
! Install relocated process image in MIM file
!
R MIB
FST007.MIM,,FST007.DBG=FST007.PIM,SY:KERND.MIM,FST007.STB/S <-----
^C
!
!
DEL/NOQ FST007.(STB,OBJ,MOB,PIM)
*EX<ESC><ESC>

```

=====

Again with BLUE VOLUME 1 still in drive 0, remove BLUE VOLUME 2 from drive 1 and insert BLUE VOLUME 3. Modify the kernel-configuration file KERND.MAC on BLUE VOLUME 3 to increase the size of the kernel to 28K words, and to include the RX02 interrupt vector (264).

Note that if you have an SBC-11/21 (Falcon) target system the listing will differ from the one shown below since the modifications have to be done to the FKERND.MAC file.

=====

```

EDIT/OUTPUT:DY1:KERND.MAC DY1:KERND.MAC
?EDIT-W-Superseding existing file
*RF 16<ESC>=C28<ESC>G100<ESC>I,264<ESC>B/L<ESC><ESC>
    .enabl  GBL
    .mcall  CONFIGURATION
    .sbttl  System Configuration File
CONFIGURATION
SYSTEM      debug=YES, optimize=YES

```

```

PROCESSOR      mmu=NO
MEMORY         base=0, size=<28.*32.>, type=RAM      <-----
RESOURCES      PACKETS=20., STRUCTURES=4096.
PRIMITIVES     ALL
TRAPS          ALL
DEVICES        60, 64, 100, 264, 300, 304          <-----
ENDCFG
.end
*EX<ESC><ESC>

```

```

=====
Then, do a directory listing of BLUE VOLUME 3, delete the old kernel files
(KERND.DBG, KERND.STB, and KERND.MIM) created during the installation procedure
from the volume, and squeeze the diskette to free up space on the volume before
building the new kernel.
=====

```

```

.DIR/VOL DY1:
26-Feb-82
Volume ID: BLUEVOL3
Owner      : USER
CKPFX .MAC      2  24-Feb-82      COMU .SML      92  24-Feb-82
DDPFX .MAC      2  24-Feb-82      DRVU .OBJ      84  24-Feb-82
DYPFX .MAC      2  24-Feb-82      FKERND.MAC     2  24-Feb-82
KERND .COM      3  24-Feb-82      KERNDF.COM     3  24-Feb-82
LIBNHD .OBJ     84  24-Feb-82      PAXU .OBJ     129  24-Feb-82
XAPFX .MAC      2  24-Feb-82      XLPFX .MAC      6  24-Feb-82
XLPFXE .MAC     6  24-Feb-82      XLPFXF.MAC     6  24-Feb-82
XPPFX .MAC      4  24-Feb-82      YFPFX .MAC      2  24-Feb-82
KERND .DBG     64  26-Feb-82      KERND .STB     12  26-Feb-82
KERND .MIM     35  26-Feb-82      KERND .MAC      2  26-Feb-82
  20 Files, 542 Blocks
  432 Free blocks

```

```

.DEL DY1:KERND.(DBG,STB,MIM)
Files deleted:
DY1:KERND.DBG ? Y
DY1:KERND.STB ? Y
DY1:KERND.MIM ? Y

```

```

.SQUEEZE/NOQ DY1:
=====

```

A new application image will be built on BLUE VOLUME 3. This application will differ from the one built during the installation procedure (EXAMPL) in three major respects:

- a) It will be 56KB in size. The one built during the installation is 32KB.
- b) The new kernel will be configured to include a device vector at 264. This is the RX02 vector needed for I/O to diskettes and is not included in the kernel built during the installation procedure. The RX02 driver process DYDRV will also be included in the new application image.
- c) The Directory Service Process (DSP) will be added to the new application image.

Preparatory to building the new application, four files from AUXILIARY VOLUME 3 must be copied to BLUE VOLUME 3. This auxiliary volume will be inserted in drive 0. Uppercase comments on the command lines (preceded by !) have been added for explanatory purposes and need not be typed in.

CAUTION: BE CAREFUL TO INSERT DISKS AT THE RIGHT TIMES. INSERTING AN AUXILIARY DISK IN DRIVE 0 WHEN THE SYSTEM DISK IS EXPECTED CAN DESTROY THE AUXILIARY DISK.

=====

```
.COPY/WAIT DY0:(DSPNHD.OBJ,DSP.COM,DSPPFX.MAC,FSMAC.SML) DY1:
Mount input volume in DY0:; Continue? Y    !REMOVE BLUE 1 AND INSERT AUX. 3
Files copied:
Mount output volume in DY1:; Continue? Y    !BLUE 3 IS ALREADY IN DRIVE 1
DY:DSPNHD.OBJ to DY1:DSPNHD.OBJ
DY:DSP.COM to DY1:DSP.COM
DY:DSPPFX.MAC to DY1:DSPPFX.MAC
DY:FSMAC.SML to DY1:FSMAC.SML
Mount system volume in DY0:; Continue? Y    !REINSERT BLUE VOLUME 1
```

=====

Now check the directory of BLUE VOLUME 3 to make sure we have everything.

=====

```
.DIR/VOL DY1:
26-Feb-82
Volume ID: BLUEVOL3
Owner   : USER
CKPFX .MAC      2  24-Feb-82      COMU .SML      92  24-Feb-82
DDPFX .MAC      2  24-Feb-82      DRVU .OBJ      84  24-Feb-82
DYPFX .MAC      2  24-Feb-82      FKERN .MAC     2  24-Feb-82
KERND .COM      3  24-Feb-82      KERND .COM     3  24-Feb-82
DSPNHD.OBJ     84  24-Feb-82      PAXU .OBJ     129  24-Feb-82
XAPFX .MAC      2  24-Feb-82      XLPFX .MAC     6  24-Feb-82
XLPFXE.MAC     6  24-Feb-82      XLPFXF.MAC    6  24-Feb-82
XPPFX .MAC      4  24-Feb-82      YFPFX .MAC     2  24-Feb-82
KERND .MAC      2  24-Feb-82      DSPNHD.OBJ    41  24-Feb-82
```

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DSP	.COM	6	24-Feb-82	DSPPFX.MAC	2	24-Feb-82
FSMAC	.SML	13	24-Feb-82			

21 Files, 493 Blocks
481 Free Blocks

=====
Remove BLUE VOLUME 3 from drive 1 and insert BLUE VOLUME 4. Copy 3 files from AUXILIARY VOLUME 3 (inserted in drive 0) to BLUE VOLUME 4. These will be needed for building the application. Verify the directory of BLUE VOLUME 4 when done.
=====

.COPY/WAIT DY: (EXC.PAS,FSINCL.PAS,FSLIB.OBJ) DY1:
Mount input volume in DY0:; Continue? Y !REMOVE BLUE 1 AND INSERT AUX. 3
Files copied:
Mount output volume in DY1:; Continue? Y !BLUE 4 IS ALREADY IN DRIVE 1
DY:EXC.PAS to DY1:EXC.PAS
DY:FSINCL.PAS to DY1:FSINCL.PAS
DY:FSLIB.OBJ to DY1:FSLIB.OBJ
Mount system volume in DY0:; Continue? Y !REINSERT BLUE VOLUME 1

.DIR DY1:
26-Feb-82
FST007.PAS 4 26-Feb-82 EXC .PAS 7 24-Feb-82
FSINCL.PAS 3 24-Feb-82 FSLIB .OBJ 40 24-Feb-82
4 Files, 54 Blocks
920 Free blocks

.
=====
Now compile the application creating the object file on BLUE VOLUME 4. Note that the modified command-file COMPLD.NEW is being used.
=====

.@SY:COMPLD.NEW

.R PASCAL
*FST007=FST007/D/I:NHD

.
=====
Remove both disks. Insert BLUE VOLUME 2 in drive 0 and BLUE VOLUME 3 in drive 1. Boot BLUE VOLUME 2. After that build the kernel.
=====

This is BLUE VOLUME 2 - the Kernel/Debugger disk.
You should boot this volume in DRIVE 0 - the left-hand drive ONLY AFTER your application has been compiled and the Kernel built.

1. Insert BLUE VOLUME 4 - the applications disk in
DRIVE 1 - the right hand drive
2. Edit the command file BUILDD.COM on this disk and replace all
occurrences of EXAMPL with the name of your program.
3. To build your application, invoke the command file BUILDD.COM
using the monitor command:

@BUILDD

The resulting memory image file will be stored on BLUE VOLUME 4.
4. Now use the commands

R PASDBG
PASDBG>LOAD name - where name is the name of your program.
PASDBG>GO

to load and start execution of your application on the target.

.DATE 26-FEB-82

.TIME 10:00

.@KERND

.R MACRO

*KERND=KERND,COMU.SML/M

ERRORS DETECTED: 0

*^C

.R MERGE

*KERND/D=KERND,PAXU

*^C

.R RELOC

*KERND,,KERNDI=KERND/D

*^C

.R MIB

*KERND,,KERND=KERND,,KERNDI/K/S

*^C

.DEL/NOQ KERND.OBJ,KERND.PIM,KERNDI.STB

.SQ/NOQ DK:

.R RELOC

*,,KERND=KERND

*^C

.DEL/NOQ KERND.MOB

.SQ/NOQ DK:


```
.R MACRO
*XLFXD=XLFXE,COMU,SML/M
ERRORS DETECTED: 0
*^C
```

```
.R MERGE
*XLDRVD=XLFXD,DRVU,KERND.STB
*^C
```

```
.SQ/NOQ DK:
```

```
.R RELOC
*XLDRVD=XLDRVD,KERND
*^C
```

```
.R MIB
*KERND=XLDRVD,KERND/S
*^C
```

```
.DEL/NOQ XLDRVD.PIM,XLDRVD.MOB,XLFXD.OBJ
```

```
.SQ/NOQ DK:
```

```
.COPY/NOL DK:(KERND.MIM,KERND.STB,KERND.DBG) SY:
```

```
=====
Build the Directory Service Process (DSP) on BLUE VOLUME 3 and insert it
into the application image. The resulting image file will be called RTDSP on
BLUE VOLUME 3. RTDSP.MIM can then be copied to BLUE VOLUME 2 with the name
KERND.MIM. The KERND.DBG and KERND.STB files are not updated because no
symbols are added to these files for the DSP or DYDRV processes. The command
file DSP.COM uses KERN.STB and KERN.MIM as inputs in the MERGE and RELOC steps.
Instead of editing the command file you can rename the files called KERND.STB
and KERND.MIM to KERN.STB and KERN.MIM before invoking the command file. This
is because DSP.COM is designed to work with a non-debug version of the kernel.
After the DSP has been built you can rename these two files back to KERND.STB
and KERND.MIM.
```

The following interactive output shows the appropriate DCL commands and the responses to them.

```
=====
.RENAME KERND.STB,KERND.MIM KERN.*
Files renamed:
DY1:KERND.STB to DY1:KERN.STB
DY1:KERND.MIM to DY1:KERN.MIM
```

```
.@DSP
```

```
.R MACRO
*DYPFX=DYPFX,COMU,SML/M
ERRORS DETECTED: 0
*^C
```

Micro/PASCAL V1.0

Seq 37.1.2 M

9 of 10

```

.R MERGE
*DYDRV=DYPFX,DRVU,KERN.STB
*^C

.R RELOC
*DYDRV=DYDRV,KERN
*^C

.R MIB
*RTDSP=DYDRV,KERN/S
*^C

.DEL/NOQ DYPFX.OBJ,DYDRV.(MOB,PIM)

.R MACRO
*DSPFX=DSPPFX,FSMAC.SML/M,COMU.SML/M
ERRORS DETECTED: 0
*^C

.R MERGE
*RTDSP=DSPPFX,DSPNHD,KERN.STB,LIBNHD
*^C

.R RELOC
*RTDSP=RTDSP,RTDSP
*^C

.R MIB
*RTDSP=RTDSP,RTDSP/S
*^C

.DEL/NOQ DSPPFX.OBJ,RTDSP.(MOB,PIM)

.RENAME KERN.STB,KERN.MIM KERND.*
Files renamed:
DY1:KERN.STB to DY1:KERND.STB
DY1:KERN.MIM to DY1:KERND.MIM

.COPY RTDSP.MIM DY:KERND.MIM

.SQUEEZE/NOQ DY1:

.DIR/VOL DY1:
26-Feb-82
Volume ID: BLUEVOL3
Owner : USER
CKPFX .MAC 2 24-Feb-82 COMU .SML 92 24-Feb-82
DDPFX .MAC 2 24-Feb-82 DRVU .OBJ 84 24-Feb-82
DYPFX .MAC 2 24-Feb-82 FKERN .MAC 2 24-Feb-82
KERND .COM 3 24-Feb-82 KERNDF.COM 3 24-Feb-82
LIBNHD.OBJ 84 24-Feb-82 PAXU .OBJ 129 24-Feb-82
XAPFX .MAC 2 24-Feb-82 XLPF X .MAC 6 24-Feb-82
XLPF XE.MAC 6 24-Feb-82 XLPF XF.MAC 6 24-Feb-82

```

XPPFX .MAC	4	24-Feb-82	YPPFX .MAC	2	24-Feb-82
KERND .MAC	2	24-Feb-82	DSPNHD.OBJ	41	24-Feb-82
DSP .COM	6	24-Feb-82	DSPPFX.MAC	2	24-Feb-82
FSMAC .SML	13	24-Feb-82	KERND .DBG	64	26-Feb-82
KERND .STB	12	26-Feb-82	KERND .MIM	35	26-Feb-82
RTDSP .MIM	66	26-Feb-82			

25 Files, 670 Blocks
304 Free blocks

=====

Now remove BLUE VOLUME 3 from drive 1, insert BLUE VOLUME 4 and invoke the command file BUILDD.NEW to build the application. Thereafter use PASDBG to downline load your application.

=====

```
.@SY:BUILDD.NEW

.COPY SY:KERND,DBG FST007,DBG

.R MERGE
*FST007.MOB=FST007.OBJ/D,FSLIB,SY:KERND.STB,SY:LIBNHD/I
Library search? $PUTCH
Library search? $GETCH
Library search?

.R RELOC
*FST007.PIM/D,FST007.MAP,FST007.STB=FST007.MOB,SY:KERND.MIM
*^C

.R MIB
*FST007.MIM,,FST007.DBG=FST007.PIM,SY:KERND.MIM,FST007.STB/S
*^C

.DEL/NOQ FST007.(STB,OBJ,MOB,PIM)

.R PASDBG
:
:
:
PASDBG>LOAD FST007
:
:
:
PASDBG>GO
```

=====

Note that FSLIB must PRECEDE LIBNHD in the MERGE command line because \$PUTCH and \$GETCH must be extracted from FSLIB when READs and WRITEs to a file are performed.

RT-11 Software Dispatch, May 1982

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

Seq. 50.6.2 M
1 of 2

Supersedes article dated April 1982

INSUFFICIENT NUMBER OF CCB'S and ULA TABLE ENTRIES (RDB)

The insufficient number of CCB's problem is as follows:

If a DMC11 is configured for high speed operation, then NSP may report a resource error in the I/O status block provided by a user written network task or FAL may abort with the following NSP resource error:

```
?FAL-F-EXITING DUE TO FATAL  
NSP ERROR. CODE: -1 AT PC: nnnnnn.
```

This resource error occurs because there is an insufficient number of communication control buffers (CCB's) allocated during DECnet-RT NETGEN.

This problem is corrected by generating the appropriate number of control buffers required by the Network Services.

The shortage of ULA table entries problem is as follows:

If more than half of the maximum number of logical links are active, then network tasks may exhibit erratic behavior.

The user link table (ULA) is referenced by NSP to map a user program logical link number to its own internal description of the logical link.

The logical link table (LLT) is used to save information for each logical link established by the user.

Because there is an insufficient number of user link table entries, data may be read from or written to the logical link table when NSP references the user link table.

This problem is corrected by generating the appropriate number of user link table entries.

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.

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

Seq. 50.6.2 M
2 of 2

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

```
.COPY KI:NSPDAT.MAC OU:NSPDAT.OLD
```

- 2) Create the following file named NSPDAT.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 NSPDAT.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.

```
-66,66  
CCBNUM = LINKS*2+2 ;NUMBER OF CCB'S  
-156,156  
.REPT ULASZ  
/
```

- 3) Apply the correction file:

```
.R SLP  
*OU:NSPDAT.MAC=OU:NSPDAT.OLD,OU:NSPDAT.SLP/A/T  
*^C  
.
```

- 4) If the correction process was successful then delete the backup file created by SLP and the work file.

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

- 5) The output media now contains the corrected file NSPDAT.MAC. The corrected source file must be assembled and linked or replaced into NFT, FAL, TLK, and the object library. All DECnet-RT tasks and utilities must be re-linked against the updated library.

One way of doing this is to assign the pseudo device names used during NETGEN (if any) and type:

```
@NETBLD
```

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

CTS-300 V6
for RT-11 V4.0
DKED V06-00C
(PATCH 37)

Seq 51.7.4 M

1 of 4

POSSIBLE BOTTOM OF SCREEN CORRUPTION USING DKED (DS)

There is a problem with the DIBOL keyboard editor, DKED, which can be demonstrated as follows.

In a screen of text that contains a "continued" line (i.e., a line over 78 characters long), move the cursor with the up-arrow key so that the continued line scrolls downward off the screen. If the cursor is then moved so that the continued line scrolls back onto the screen, the first 78 characters of the line is duplicated on the screen. Typing CTRL/W refreshes the screen and the text is displayed correctly.

Patch 37 corrects this problem so that text is not duplicated in the above situation and changes the version number of DKED to V06-00D.

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

Corrections are made to the source module STRTO.DBL using SLP (Source Language Patch) program. Please note that the last record in the file P037.PAT is "/". You must terminate each line in that file with a carriage return, including the last line "/".

CTS-300 V6
for RT-11 V4.0
DKED V06-00C
(PATCH 37)

Seq 51.7.4 M

2 of 4

```
#P037.PAT
-1,1
-207,207
      DIS1,  A12,'DKED V06-00D'
/
```

```
#P037.MAC
```

```
.TITLE DSCROL
.CSECT DSCROL
.GLOBL TABLE$
```

```
P037:
```

```
. = P037 + 62
TSTB TABLE$+16
```

```
.END
```

```
*
.LIBRARY/EXTRACT
Library? EDLIB
File ? DSCROL
Global? DSCROL
Global?
```

```
.RENAME (EDLIB,DSCROL).OBJ *.OLD
Files renamed:
DK:EDLIB.OBJ to DK:EDLIB.OLD
DK:DSCROL.OBJ to DK:DSCROL.OLD
```

```
.RENAME STRTO.DBL *.OLD
Files renamed:
DK:STRTO.DBL to DK:STRTO.OLD
```

```
.MACRO P037
ERRORS DETECTED: 0
```

```
.R PAT
* DSCROL.OBJ=DSCROL.OLD/C:100244,P037/C:10643
```

```
.R LIBR
*EDLIB.OBJ/A=EDLIB.OLD,DSCROL/R
*^C
```

```
.R SLP
*STRTO.DBL=STRTO.OLD,P037.PAT
*^C
```

```
.R DICOMP
*STRTO=STRTO/O
```

```
NO ERRORS DETECTED
*^C
```

CTS-300 V6
for RT-11 V4.0
DKED V06-00C
(PATCH 37)

Seq 51.7.4 M

3 of 4

```
.R LINK
*DKED=DKED,EDLIB,DIROL/P:500.//
*COMND/O:1
*COMN2/O:1
*CUTA,CUTB/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
*DROPN,SWOR/O:1
*FINDS/O:1
*FIND1/O:1
*HCOMN/O:1
*HELPC/O:1
*HELPD,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
*STRTO/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 V6
for RT-11 V4.0
DKED V06-00C
(PATCH 37)

Seq 51.7.4 M

4 of 4

```
.R LINK
*DKED,TSD/B:100000=DKED,EDLIB,TDIBOL/P:500.//
*COMND/O:1
*COMN2/O:1
*CUTA,CUTB/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
*HELPD,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,UDLCH/O:1
*YANK,ZTARG/O:1
*//
*^C
```

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

*

RT-11 Software Dispatch, May 1982

CTS-300 V6
for RT-11 V4.0
TSD VB06-00L
XMTSD VC06-00P
(PATCH 36)

Seq 51.18.13 M
Seq 51.20.17 M

1 of 3

TSD AND XMTSD HANG AFTER ATTEMPT TO ILLEGALLY START UP JOB (DS)

In TSD and XMTSD, if a program attempts to do a forced job startup to a non-existent terminal then an ERROR 58 - JOB STARTUP ERROR is generated. This is correct, but any subsequent attempts to force a job up on an existing terminal result in the job not being spawned and the terminal attempting to do the force hanging.

Patch 36 ensures that the run time system properly recovers after an ERROR 58 - JOB STARTUP ERROR. The version number of TSD and XMTSD are changed to VB06-00M and VC06-00Q respectively.

Using the editor, create the following two files exactly as shown. Name them as indicated in the comment line that is the first line of each file. Then, to install the patch, follow the procedure shown following the files.

CTS-300 V6
for RT-11 V4.0
TSD VB06-00L
XMTSD VC06-00P
(PATCH 36)

Seq 51.18.13 M

Seq 51.20.17 M

2 of 3

#P036V1.MAC

```
.TITLE DTO
.CSECT DTO

. = . + 4563
.ASCII /M/
.END
```

#P036V2.MAC

```
.TITLE $KDTO
.PSECT DATXX

. = . + 42
.BYTE 'Q'
.END
```

```
.
.RENAME (DTO,KDTO).OBJ *.OLD
Files renamed:
DK:DTO.OBJ to DK:DTO.OLD
DK:KDTO.OBJ to DK:KDTO.OLD

.COPY (FRUNIT,KFRUN).OBJ *.OLD
Files copied:
DK:FRUNIT.OBJ to DK:FRUNIT.OLD
DK:KFRUN.OBJ to DK:KFRUN.OLD

.MACRO P036V1,P036V2
ERRORS DETECTED: 0
ERRORS DETECTED: 0

.R PAT
*DTO.OBJ=DTO.OLD/C:133350,P036V1/C:003254

.R PAT
*KDTO.OBJ=KDTO.OLD/C:077247,P036V2/C:004726

.RUN SIPP
*FRUNIT.OBJ/C
Base? 7450
Offset? 6

Base Offset Old New?
007450 000006 000444 446
007450 000010 005004 ^Y

Checksum? 167611
*^C

.
```

CTS-300 V6
for RT-11 V4.0
TSD VB06-00L
XMTSD VC06-00P
(PATCH 36)

Seq 51.18.13 M
Seq 51.20.17 M

3 of 3

.RUN SIPP
*KFRUN.OBJ/C
Base? 10000
Offset? 40

Base	Offset	Old	New?
010000	000040	000436	440
010000	000042	005004	^Y

Checksum? 121436
*^C

.R CTSGEN ;FOR TSD SYSTEM
.R CTSGEN ;FOR EXTENDED MEMORY TSD

CTS-300 V06
for RT-11 V4.0
SYSTBL.CND
(PATCH 38)

Seq 51.25.3 M

1 of 1

RT-11 PATCH SEQ 10.3.3M TO SYSTBL.CND MODIFIED FOR CTS-300 USE (LG)

The RT-11 patch entitled "TERMINAL OUTPUT CORRUPTION ON DZ11 OR DZV11 LINES", which was published in the April 1982 issue of the RT-11 Software Dispatch, contains a patch file, SYSTBL.003, which cannot be properly installed in the CTS-300 version of SYSTBL.CND. CTS-300 users should instead substitute the following CTS-300 patch file for the one shown in the RT-11 patch:

```
-/ELSYTB == 2/...;/003/  
ELSYTB == 3  
-2,2,/;003/  
; SYSTBL.CND - SYSTEM DEVICE TABLES<tab>V04.00C  
-12,12,/;003/  
; SYSTBL.MAC - SYSTEM DEVICE TABLES<tab>V04.00C  
-329,329,/;003/  
X=.  
/
```

It should be applied to the copy of SYSTBL.CND from the CTS-300 V6 distribution. All other steps in the RT-11 patch are the same.

CTS-300 V7
for RT-11 V4.0
MACRO SORT
SORT.SAV V07-0A

Seq 52.15.2 M

1 of 2

PATCH 3: SINGLE USER SORT MAY LEAVE TEMPORARY FILES ON DISK (DS)

When the CHAIN option is used with the single user version of the Version 7 Macro Sort, there may be temporary work files that are not deleted before chaining to the specified program.

Patch 3 ensures that the work files are deleted under the above situation. Patch 3 changes the version number of SORT.SAV from V07-0A to V07-0B.

Using the editor, create the following two files exactly as shown. Name them as indicated in the comment line that is the first line of each file. Then, to install the patch, follow the procedure shown following the files.

CTS-300 V7
for RT-11 V4.0
MACRO SORT
SORT.SAV V07-0A

Seq 52.15.2 M
2 of 2

!P003.MAC

.TITLE \$RTIO
.PSECT \$RTIO
.MCALL .PURGE

P003: . = . + 3226
.PURGE R1

.END

.RENAME (RTIO,SRT11R).OBJ *.OLD
Files renamed:
DK:RTIO.OBJ to DK:RTIO.OLD
DK:SRT11R.OBJ to DK:SRT11R.OLD

.MACRO P003,P003V1
ERRORS DETECTED: 0
ERRORS DETECTED: 0

.R PAT
*RTIO.OBJ=RTIO.OLD/C:046436,P003/C:007567

.R PAT
*SRT11R.OBJ=SRT11R.OLD/C:157477,P003V1/C:005021

.R LINK
*SORT,SRT11/M:1400/B:1400=RTIO,SRT110,SRT11R/P:500./C
*MSGLIB/C
*SRT11C/O:1/C
*SRT11A/O:1/C
*SRT11D/O:1/C
*SRT11M/O:1
*^C

CTS-300 V07
for RT-11 V4.0
SYSTBL.CTS V04.00B

Seq 52.16.1 M

1 of 2

PATCH 4: TERMINAL OUTPUT CORRUPTION ON DZ11 OR DZV11 LINES

Corruption of terminal output may occur when using a multi-terminal monitor which includes more than one DZ11 or DZV11 mutliple XOR. An incorrect calculation is made when setting up the input/output buffer pointers. This error causes the pointers for lines on the first multiplexor to be relocated to the same area as another for each line on the second multiplexor. For example, the pointers for the first line on the DZ11 is the same for the first line on the second DZ11 multiplexor. It is recommended that you run CSYSGN after applying the patch below.

1. The following is a required patch to SYSTBL.CTS. It must be applied to all copies of SYSTBL.CTS.

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

To install the patch, first create a patch file for input to the SLP utility. Using an editor, create a file called P004.PAT 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 spaces in the text should be entered in the file as single space characters.

```
-/ELSYTB == 2/.,./;003/  
ELSYTB == 3  
-2,2,;/;003/  
; SYSTBL.CND - SYSTEM DEVICE TABLES<tab>V04.00C  
-12,12,;/;003/  
; SYSTBL.MAC - SYSTEM DEVICE TABLES<tab>V04.00C  
-329,329,;/;003/  
X=.  
/  
/
```

2. Rename SYSTBL.CTS to SYSTBL.OLD:

```
.RENAME SYSTBL.CTS SYSTBL.OLD
```

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

```
.R SLP  
*SYSTBL.CTS=SYSTBL.OLD,P004.PAT  
^C
```


CTS-300 V07
for RT-11 V4.0
SYSTBL.CTS V04.00B

Seq 52.16.1 M

2 of 2

4. Preserve the patched source file. If there are any future corrections to SYSTBL.CTS, you will be requested to apply them to the patched source file.

The resulting version will be SYSTBL.CTS V04.00C.

RT-11 V4.0
CUMULATIVE INDEX
MAY 1982

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.

*The "Autopatch Kit" column in the list which follows indicates the first RT-11 V4.0 Autopatch Kit in which the associated patch was included. Unless otherwise indicated, the patches also appear in subsequent Autopatch Kits as well. Note that Autopatch Kit "D" is the latest kit available from the SDC.

<u>Component</u>	<u>Autopatch Kit</u>	<u>Sequence</u>	<u>Mon/Yr</u>
RT-11 V4.0			
MONITOR PATCHES			
ISSUING .SETTOP #-2 AND .EXIT UNDER XM MONITOR MAY			
CORRUPT SYSTEM DISK	A	1.1.1 M	Jul 80
IMPLEMENTING INTERNAL HANDLER QUEUEING IN FB AND XM MONITORS	A	1.1.2 M	Jul 80
ADDING HIGH SPEED RING BUFFER SUPPORT	A	1.1.3 M	Jul 80
CORRUPTION OF CSI TEXT UNDER XM MONITOR	A	1.1.4 M	Jul 80
MISSING COLON IN BOOT XX CAUSES SYSTEM HALT	A	1.1.5 M	Jul 80
TYPING ^U WHILE IN A ^X SEQUENCE UNDER A SYSTEM JOB	A	1.1.6 M	Sep 80
ABNORMAL TERMINATION OF FG JOB WHICH IS USING CSI	A	1.1.7 M	Nov 80
MISCELLANEOUS MRRT-11 BUGS	A	1.1.8 M	Nov 80
MRRT-11 MINIMAL FILE SUPPORT PROBLEM	A	1.1.9 M	Nov 80
INCORRECT LIMIT CHECKS ON PRIVILEGED BACKGROUND JOBS USING			
VIRTUAL OVERLAYS	A	1.1.10 M	Nov 80
MULTI-TERMINAL MONITORS DON'T ALWAYS PROCESS CTRL/F PROPERLY	A	1.1.11 M	Nov 80
MONITOR CHANGES AND CORRECTIONS	A	1.1.12 M	Dec 80
MONITOR CORRECTIONS	B	1.1.13 M	Jan 81
MONITOR UPDATES	B	1.1.14 M	Feb 81
ABORT I/O IN_PROGRESS HANDLER BIT	B	1.1.15 M	Apr 81
CORRECTIONS FOR DISTRIBUTED AND SYSTEM GENERATED MONITORS	C	1.1.16 M	Jun 81
PRINT COMMAND RESTRICTION		1.1.17 R	Jul 81
UPDATES TO MONITOR FILES	D	1.1.18 M	Oct 81
CORRECTIONS TO THE MONITOR	E	1.1.19 M	Jan 82

<u>Component</u>	<u>Autopatch Kit</u>	<u>Sequence</u>	<u>Mon/Yr</u>
<u>DEVICE HANDLER SOURCES</u>			
<u>DEVICE HANDLER NOTES</u>			
RLO2s AT REV. LEVEL "F" FAIL DURING RT-11 SYSGEN		6.1.1 N	Oct 80
<u>DD.MAC</u>			
DD PRIMARY BOOTSTRAP PROBLEM	A	6.4.1 M	Jul 80
<u>DL.MAC</u>			
PATCH XM VERSION OF DL HANDLER .SPFUN GET SIZE ROUTINE	A	6.5.1 M	Dec 80
ERRORS ON RLO1 DISK DRIVES AFTER DISK PACKS ARE CHANGED	B	6.5.2 M	Jan 81
<u>DM.MAC</u>			
ERRORS IN DM OFFSET POSITIONING AND ERROR LOGGING	A	6.6.1 M	Jul 80
<u>DY.MAC</u>			
DELETED DATA MARK MAY BE LOST IF BUFFER STARTS ON PAR BOUNDARY	D	6.11.1 M	Aug 81
<u>LP.MAC</u>			
LP SET NOHANG MAY CRASH SYSTEM	A	6.12.1 M	Sep 80
<u>LS.MAC</u>			
LS SET NOHANG MAY CRASH SYSTEM	A	6.13.1 M	Sep 80
PROBLEMS WITH LS HANDLER	B	6.13.2 M	Jan 81
USING AN LA120 TERMINAL AS A LINE PRINTER WITH THE LS HANDLER		6.13.3 N	Jul 81
SET LS NOHANG IS CURRENTLY INOPERATIVE	C	6.13.4 M	Jul 81
RACE CONDITION IN LS HANDLER	D	6.13.5 M	Aug 81
LS HANDLER SET "NOHANG" PROBLEM	E	6.13.6 M	Jan 82
<u>PD.MAC</u>			
CORRECTION TO PDT ERROR LOGGING SUPPORT	B	6.16.1 M	Apr 81
<u>MAG TAPE HANDLERS</u>			
BUFFER CLEARING ON SHORT READ IN XM MONITOR	A	6.20.1 M	Jul 80
LINKING AN XM, NON-FILESTRUCTURED TS HANDLER GENERATES AN UNDEFINED GLOBAL	A	6.20.2 M	Aug 80
INCORRECT READ ERROR RECOVERY IN MT HANDLER	A	6.20.3 M	Sep 80
TS-11 DOES NOT RECOVER FROM SOFT ERROR ON WRITE EOF	C	6.20.4 M	Jul 81
<u>SYSTEM UTILITIES</u>			
<u>PIP.SAV</u>			
ERRORS IN PIP	A	7.1.1 M	Sep 80
COPY/PREDELETE COMMAND		7.1.2 N	Sep 80
MATCHING FILE SPECIFICATIONS ERRORS	B	7.1.3 M	Feb 81
COPY/BINARY/WAIT AND LOG HEADER PROBLEMS	B	7.1.4 M	Apr 81
COPY/PREDELETE AND COPY/NOREPLACE WORK INCORRECTLY WITH /WAIT	C	7.1.5 M	Jun 81
ERROR WITH RENAME/NOREPLACE	C	7.1.6 M	Jul 81
/POSITION:N SWITCH FOR MAGTAPE INPUT WORKS INCORRECTLY	D	7.1.7 M	Oct 81
COPY/BINARY STOPS PROCESSING AFTER ENCOUNTERING AN OBJ LIBRARY FILE	E	7.1.8 M	Nov 81
COPYING FILES TO UNINITIALIZED DISKS		7.1.9 N	Nov 81
ALLOCATE AND DELETE WORK INCORRECTLY WITH COPY OPERATIONS	F	7.1.10 M	Feb 82
<u>DUP.SAV</u>			
MISSING COLON IN BOOT XX CAUSES SYSTEM HALT	A	7.2.1 M	Jul 80
SQUEEZE CREATES <UNUSED> ENTRIES OF LENGTH ZERO BEFORE .BAD FILES	A	7.2.2 M	Aug 80
PROBLEMS WITH COPY/DEVICE AND INITIALIZE	A	7.2.3 M	Dec 80
BOOTSTRAPPING AN UNPATCHED MONITOR FROM A PATCHED SYSTEM	B	7.2.4 N	Jan 81
.SPFUN RETURN BUFFER PROCESSED INCORRECTLY FOR RK06/7	B	7.2.5 M	Jan 81
USE OF INITIALIZE/RESTORE ON MEDIA SUPPORTING BAD BLOCK REPLACEMENT		7.2.6 N	May 81
PROBLEMS WITH INIT/BAD AND COPY/DEVICE	C	7.2.7 M	May 81
PROBLEMS WITH INITIALIZE COMMAND	C	7.2.8 M	Jun 81
ATTEMPT TO RESTORE UNCLOSED TENTATIVE FILES FAILS	C	7.2.9 M	Jul 81
/V WITH NO DEVICE SPECIFICATION GIVES WRONG ERROR MESSAGE	D	7.2.10 M	Sep 81
OUTPUT ERROR DURING COPY/DEVICE TO MAGTAPE CAUSES SYSTEM ERROR	E	7.2.11 M	Oct 81
USE OF COPY/DEV/FILE WITHOUT FILE SPECIFICATION	E	7.2.12 M	Nov 81
PROBLEMS WITH COPY/DEVICE USING /END	F	7.2.13 M	Apr 82

<u>Component</u>	<u>Autopatch Kit</u>	<u>Sequence</u>	<u>Mon/Yr</u>
DIR.SAV			
DIR/OUT COMMAND PRODUCES DEVICE NOT ACTIVE MESSAGE	A	7.3.1 M	Jul 80
DIR/VOL GIVES ?MON-F-TRAP TO 4	A	7.3.2 M	Dec 80
LOSS OF LAST PRINT CHARACTER IN DIRECTORY LISTING	D	7.3.3 M	Sep 81
RESORC.SAV			
RESORC MAY REPORT INCORRECT JOB NAMES ON A SHOW JOBS COMMAND	A	7.5.1 M	Aug 80
ADD CIS DETECTION CAPABILITY TO RESORC	B	7.5.2 M	May 81
PROBLEM WITH IDENTIFYING 11/23 PROCESSOR	D	7.5.3 M	Sep 81
LINK.SAV			
LINK BYTE RELOCATION AND DIRECTORY SIZE	A	7.9.1 M	Jul 80
LINK MAP PROCESSING ERROR	A	7.9.2 M	Aug 80
LINK MAP ERROR AND MULTIPLE DEFINITION LIBRARIES	A	7.9.3 M	Oct 80
RT-11 V4 LINKER RESTRICTION	B	7.9.4 R	Jan 81
LINK TRANSFER ADDRESS CALCULATION BUGS	B	7.9.5 M	Mar 81
LINK ADDITIONS AND CORRECTIONS	D	7.9.6 M	Aug 81
LINK UPGRADE	E	7.9.7 M	Nov 81
LINK ERROR IN LIBRARY MODULE TRANSFER ADDRESS PROCESSING	E	7.9.8 M	Jan 82
LINK LIBRARY MODULE PLACEMENT ERROR	E	7.9.9 M	Jan 82
LINK MULTIPLE ERROR FIXES		7.9.10 M	May 82
LIBR.SAV			
A LIBR COMMAND WITH NO FILE-SPEC CAN CAUSE A SYSTEM CRASH	A	7.10.1 M	Jul 80
LIBR ERRORS	C	7.10.2 M	Jul 81
LIBR CORRUPTS FORM LIBRARY DIRECTORY	C	7.10.3 M	Jun 81
LIBR ERROR IN GENERATING ENTRY POINT TABLE	E	7.10.4 M	Jan 82
LIBR RESTRICTION		7.10.5 N	Jan 82
FILEX.SAV			
FILEX WILDCARD TRANSFERS CAUSE MONITOR TRAP	A	7.11.1 M	Aug 80
FILEX CREATES ZERO FILLED INTERCHANGE RECORDS	A	7.11.2 M	Sep 80
SIZE CALCULATION PROBLEM IN FILEX	D	7.11.3 M	Aug 81
RECORDS DROPPED BY FILEX	D	7.11.4 M	Sep 81
SRCCOM.SAV			
COMPARING TWO FILES MAY CAUSE TRAP TO 4	A	7.12.1 M	Aug 80
BLANK LINE COMPARISON FOR SLIDING MATCH	A	7.12.2 M	Dec 80
BINCOM.SAV			
BINCOM GENERATES ERRONEOUS ERROR MESSAGE	B	7.13.1 M	Apr 81
ERRONEOUS DOUBLE PRECISION CALCULATION IN BINCOM	C	7.13.2 M	Jun 81
BINCOM PLACES TAB CHARACTER AFTER OFFSET IN SIPP COMMAND FILE	E	7.13.3 M	Jan 82
DUMP.SAV			
BLOCK NUMBERS OUTPUT FROM DUMP	D	7.14.1 M	Aug 81
SLP.SAV			
TERMINATION OF PATCHING SESSION WITH SLP FATAL ERRORS	A	7.15.1 M	Nov 80
SLP GENERATES FATAL ERROR TRAP	B	7.15.2 M	Jan 81
SLP ERROR	B	7.15.3 M	Mar 81
SIPP.SAV			
CORRUPTION OF MULTI-BLOCK LOG FILES	A	7.16.1 M	Jul 80
PAT.SAV			
USE OF THE PAT UTILITY WITH RT-11 V3B PATCHES		7.17.1 N+	Mar 80
HELP.SAV			
PROBLEMS WITH HELP UTILITY	A	7.19.1 M	Nov 80
EDIT.SAV			
EDIT MISHANDLES OUTPUT FILE FULL ERROR	B	7.20.1 M	Nov 81
<u>SYSTEM SUBROUTINE LIBRARY (SYSLIB)</u>			
SYSLIB.OBJ			
PATCH TO ICSI	A	8.1.1 M	Oct 80
IASIGN REDEFINITIONS	A	8.1.2 M	Oct 80
ILUN RESTRICTION		8.1.3 R	Feb 81
VIRTUAL OVERLAY HANDLER CORRECTION	E	8.1.4 M	Feb 82

<u>Component</u>	<u>Autopatch Kit</u>	<u>Sequence</u>	<u>Mon/Yr</u>
<u>SYSTEM MACRO LIBRARY</u>			
.SPFUN PROGRAMMED REQUEST	A	9.1.1 M	Dec 80
ABORT I/O PROGRESS SUPPORT FOR SYSMAC	B	9.1.2 M	Apr 81
.CMKT PROGRAMMED REQUEST	C	9.1.3 M	Jun 81
INCORRECT EXPANSION OF .DRSET MACRO	F	9.1.4 M	Apr 82
<u>SYSTEM GENERATION PACKAGE</u>			
SYSGEN CREATES ONE MORE DEVICE SLOT THAN REQUESTED	A	10.3.1 M	Dec 80
ASSEMBLY ERROR AFTER SYSGEN	B	10.3.2 M	Mar 81
TERMINAL OUTPUT CORRUPTION ON DZ11 OR DZV11 LINES	F	10.3.3 M	Apr 82
<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
CHANGES TO DUP /I OPTION		11.2.3 N	Apr 81
INCORRECT DUP CUSTOMIZATION PATCHES		11.2.4 N	Sep 81
<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
DOCUMENTATION ERROR: REFERENCE TO RLO2 OMITTED FROM SYSGEN DIALOGUE		11.3.3 N	Oct 80
INCORRECT LINK MAPS FOR DISTRIBUTED MONITORS		11.3.4 N	Dec 80
INCORRECT PATCH FOR CHANGING QUEUE WORK FILE SIZE		11.3.5 N	Dec 80
CHANGING DEFAULT NUMBER OF DIRECTORY SEGMENTS		11.3.6 N	Apr 81
<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
CORRECTIONS TO SLP CHAPTER: RT-11 SYSTEM USER'S GUIDE		11.5.2 N	Oct 80
DIFFERENCES BETWEEN DEVICE COPYING COMMANDS		11.5.3 N	Dec 80
<u>RT-11 SYSTEM MESSAGE MANUAL</u>			
RT-11 V4.0 DOCUMENTATION CORRECTIONS AND ADDITIONS		11.6.1 N	Jul 80
CORRECTIONS TO SLP MESSAGES IN "RT-11 SYSTEM MESSAGE MANUAL"		11.6.2 N	Nov 80
NEW SLP ERROR MESSAGE		11.6.3 N	Feb 81
PIP ERROR MESSAGES MISSING		11.6.4 N	Oct 81
<u>RT-11 POCKET GUIDE</u>			
RT-11 V4.0 DOCUMENTATION CORRECTIONS AND ADDITIONS		11.7.1 N	Jul 80
<u>RT-11 PROGRAMMER'S REFERENCE MANUAL</u>			
DOCUMENTATION CORRECTIONS		11.8.1 N	Sep 80
INCORRECT PROGRAMMED REQUEST EXAMPLES		11.8.2 N	Mar 81
UNDOCUMENTED .SERR ERROR CODE		11.8.3 N	Dec 81
<u>RT-11 SOFTWARE SUPPORT MANUAL</u>			
RT-11 V4.0 DOCUMENTATION CORRECTIONS AND ADDITIONS		11.9.1 N	Jul 80
SOFTWARE SUPPORT MANUAL CORRECTION		11.9.2 N	Jun 81
ERROR IN DESCRIPTION OF DRSET MACRO		11.9.3 N	Sep 81
<u>DEBUGGING UTILITIES</u>			
<u>VDT.OBJ</u>			
NOTES ON USING ODT OR VDT IN AN XM ENVIRONMENT		12.2.1 N	Jan 81
<u>ERROR CONTROL PACKAGE</u>			
<u>ERROUT.MAC</u>			
ERROR LOGGING SUPPORT OF USER-WRITTEN HANDLERS		14.6.1 M	May 82
<u>BATCH PACKAGE</u>			
<u>BATCH.SAV</u>			
PATCH BATCH TO USE MONITOR SUFFIX	A	15.1.1 M	Oct 80

<u>Component</u>	<u>Autopatch Kit</u>	<u>Sequence</u>	<u>Mon/Yr</u>
<u>SPOOLING PACKAGE</u>			
<u>QUEUE.REL</u>			
SUPERFLUOUS LINEFEED FROM QUEUE	B	16.1.1 M	Mar 81
NARROW BANNER PAGES FROM QUEUE	C	16.1.2 F	May 81
/R FOLLOWING /S IF NO OUPUT QUEUED MAY CAUSE FATAL			
ERROR IN QUEUE	D	16.1.3 M	Aug 81
ATTEMPTING TO COMMUNICATE WITH 'QUEUE' FROM A VIRTUAL JOB		16.1.4 N	Apr 82
<u>QUEMAN.SAV</u>			
PROBLEMS WITH QUEMAN	B	16.2.1 M	Jan 81
<u>KEYPAD EDITOR</u>			
<u>KED</u>			
MAKE TERMINAL SETUP OPTIONAL IF MTATCH FAILS	A	17.1.1 F	Aug 80
PROVIDE A .CHAIN INTERFACE FOR KED	A	17.1.2 F	Aug 80
PROVIDE REASONABLE ACTIONS AND ERROR MESSAGES WHEN DEALING			
WITH DEGENERATE FILES	A	17.1.3 M	Oct 80
SEARCH FAILS IF TARGET IF FIRST OR LAST STRING IN THE FILE	A	17.1.4 M	Nov 80
KNOWN ERRORS AND RESTRICTIONS		17.1.5 R	Dec 80
"SET SEARCH EXACT JUNK" COMMAND CRASHES KED	C	17.1.6 M	Jul 81
REPEATED USE OF THE "APPEND" FUNCTION CRASHES KED	C	17.1.7 M	Dec 81
DISABLE REVERSE VIDEO DISPLAY BY KED	E	17.1.8 F	Jul 81
FILE SAMPLE.KED OMITTED FROM DISTRIBUTION		17.1.9 N	Aug 81
KED DOCUMENTATION CORRECTION		17.1.10 N	Nov 81
<u>K52</u>			
MAKE TERMINAL SETUP OPTIONAL IF MTATCH FAILS	A	17.2.1 F	Aug 80
PROVIDE A .CHAIN INTERFACE FOR K52	A	17.2.2 F	Aug 80
PROVIDE REASONABLE ACTIONS AND ERROR MESSAGES WHEN DEALING			
WITH DEGENERATE FILES	A	17.2.3 M	Oct 80
SEARCH FAILS IF TARGET IS FIRST OR LAST STRING IN THE FILE	A	17.2.4 M	Nov 80
KNOWN ERRORS AND RESTRICTIONS		17.2.5 R	Dec 80
"SET SEARCH EXACT JUNK" COMMAND CRASHES K52	C	17.2.6 M	Jul 81
REPEATED USE OF THE "APPEND" FUNCTION CRASHES K52	E	17.2.7 M	Dec 81
NO EQUIVALENT PATCH FOR K52 FOR SEQ 17.1.8		17.2.8 N	Aug 81
FILE SAMPLE.KED OMITTED FROM DISTRIBUTION		17.2.9 N	Aug 81
KED DOCUMENTATION CORRECTION		17.2.10 N	Dec 81
<u>AUTOMATED PATCHING FACILITY PACKAGE</u>			
<u>PACKAGE NOTES</u>			
AUTOPATCH SERVICE FOR RT-11		19.1.1 N	Jun 81
FMS-11/RT-11 V1.1			
ANNOUNCING FMS-11/RT-11 V1.1		33.1 N	Aug 80
<u>FRED V1.1</u>			
ZERO IMPURE AREA SIZE PROBLEM		33.3.1 M	Sep 81
BASIC-11/RT-11 V2.0			
<u>INTERPRETER</u>			
REPUBLICAION OF PATCHES		35.1.1 N+	Mar 80
PRINT USING - PATCH A	A	35.1.2 M+	Mar 80
RESEQ - PATCH B	A	35.1.3 M+	Mar 80
EDITING A DIM #n STATEMENT - PATCH C	A	35.1.4 M+	Mar 80
DOUBLE PRECISION HANG - PATCH D	A	35.1.5 M+	Mar 80
SAVE dev: AND REPLACE dev: - PATCH E	A	35.1.6 M+	Mar 80
SINGLE PRECISION HANG AND NUMERIC CONVERSION PROBLEM - PATCH F	A	35.1.7 M+	Mar 80
SAVE .XXX & UNSAVE .XXX - PATCH G	A	35.1.8 M+	Mar 80
NEW - PATCH H	A	35.1.9 M+	Mar 80
RESEQ - PATCH I	A	35.1.10 M+	Mar 80
LISTNH / OLD - PATCH J	A	35.1.11 M+	Mar 80
SYS(1) - PATCH K	A	35.1.12 M+	Mar 80
CALL - PATCH L	A	35.1.13 M+	Mar 80
DOUBLE PRECISION INTEGER VARIABLES - PATCH M	A	35.1.14 M+	Mar 80
FILESIZE 0 - PATCH N	A	35.1.15 M+	Mar 80
INTEGERS IN DOUBLE PRECISION BASIC-11		35.1.16 N+	Mar 80

<u>Component</u>	<u>Autopatch Kit</u>	<u>Sequence</u>	<u>Mon/Yr</u>
REM STATEMENTS ON MULTI-STATEMENT LINES - PATCH O	A	35.1.17 M+	Mar 80
INT FUNCTION - PATCH P FOR SINGLE USER BASIC-11	A	35.1.18 M	Nov 80
RETRACTED		35.1.19 M	May 81
PRINT USING - PATCH R FOR SINGLE USER BASIC-11	B	35.1.20 M	Jan 81
OMITTING TRIG FUNCTIONS FROM BASIC-11	B	35.1.21 N	Jan 81
STRING CONCATENATION - PATCH S FOR SINGLE USER BASIC-11	B	35.1.22 M	Mar 81
PROBLEM WITH BASIC-11 PATCH Q		35.1.23 N	May 81
UTILITIES			
CONVERSION PROGRAM		35.2.1 M+	Mar 80
BASIC-11/RT-11 V2 CONVERSION PROGRAM PATCH 1		35.2.2 M+	Mar 80
DOCUMENTATION			
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
NEW MANUAL AVAILABLE FOR BASIC-11/RT-11		35.3.9 N	May 81
MU BASIC-11/RT-11 V2.0			
INTERPRETER			
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
REMOTE LINES - PATCH R FOR MULTI-USER BASIC-11		36.1.20 M	Nov 80
INT FUNCTION - PATCH S FOR MULTI-USER BASIC-11		36.1.21 M	Nov 80
PRINT USING - REVISED PATCH T FOR MULTI USER BASIC-11		36.1.22 M	Apr 81
RETRACTED		36.1.23 MM	Jan 81
OMITTING TRIG FUNCTIONS FROM MU BASIC-11		36.1.24 N	Jan 81
SYS(1) FUNCTION - PATCH V FOR MULTI USER BASIC-11		36.1.25 M	Jan 81
STRING CONCATENATION - PATCH W FOR MULTI USER BASIC-11		36.1.26 M	Mar 81
CARD READER EOF - PATCH X FOR MULTI USER BASIC-11		36.1.27 M	May 81
CLOSE GIVES ILLEGAL FILES SPEC - PATCH Y FOR MULTI USER BASIC-11		36.1.28 M	May 81
TTYSET GIVES TRAP TO 10 - MU BASIC PATCH Z		36.1.29 M	May 81
PROBLEM WITH MU BASIC-11 PATCH U		36.1.30 N	Jul 81
UTILITIES			
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
DOCUMENTATION			
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

<u>Component</u>	<u>Autopatch Kit</u>	<u>Sequence</u>	<u>Mon/Yr</u>
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
MICROPOWER/PASCAL V1.0			
ANNOUNCING MICROPOWER/PASCAL V1.0		37.1.1 N	Apr 82
BUILDING AN APPLICATION THAT USES THE FILE SYSTEM		37.1.2 M	May 82
MU BASIC-11/RT V2.1			
MU BASIC V2.1 MAINTENANCE RELEASE AVAILABLE			Mar 82
APL-11 V2.0			
PACKAGE NOTES			
APL IS AVAILABLE IN THE DECUS LIBRARY		38.1.1 N	Sep 81
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

<u>Component</u>	<u>Autopatch Kit</u>	<u>Sequence</u>	<u>Mon/Yr</u>
FORTRAN IV/RT-11 V2.5			
COMPILER			
ANNOUNCING PDP-11 FORTRAN IV/RT-11 V2.5		45.1.1 N	Sep 80
THE COMPILER INCORRECTLY PARSES SOME EXPRESSIONS IN I/O LISTS	A	45.1.2 M	Nov 80
THE COMPILER INCORRECTLY CONVERTS INTEGER TO BYTE IN LOGICAL EXPRESSIONS	A	45.1.3 M	Nov 80
THE COMPILER GENERATES INCORRECT CODE FOR EQUIVALENCED ARRAYS (PAT 12)	D	45.1.4 M	Sep 81
THE COMPILER INCORRECTLY INTERPRETS COMMENTS WITH TABS (PAT 17)	E	45.1.5 M	Nov 81
MISSING END IN MAIN PROGRAM CAN CAUSE COMPILER CRASH (PAT 18)	E	45.1.6 M	Nov 81
THE COMPILER INCORRECTLY OPTIMIZES ARRAY ELEMENTS PASSED AS ARGUMENTS (PAT 20)	E	45.1.7 M	Dec 81
THE COMPILER INCORRECTLY PARSES PARENTHESES IN QUOTED STRINGS (PAT 21)	E	45.1.8 M	Jan 82
THE COMPILER CRASHES WHILE ACCESSING AN ODD ADDRESS IN PAT 12 (PAT 22)	E	45.1.9 M	Jan 82
CORRECTION FOR CONTINUATION LINES PRECEDED BY COMMENTS (PAT 27)	F	45.1.10 M	Apr 82
OTS			
THE OTS DOES NOT SET DEFAULT CARRIAGE CONTROL FOR SERIAL LINE PRINTER	B	45.2.1 M	Jan 81
THE LUN IS NOT SAVED WHEN AN ERROR OCCURS WHILE OPENING A FILE PATCH TO ALLOW THE PLACEMENT OF THE FORTRAN OTS WORK AREA BETWEEN THE PROGRAM'S HIGH LIMIT AND THE BASE OF THE FIRST VIRTUAL OVERLAY FOR PRIVILEGED FORTRAN JOBS	B	45.2.2 M	Jul 81
BOUNDARY CONDITION ON FORMATTED I/O CORRUPTS I/O (PAT 6)	B	45.2.3 F	Feb 81
DEFAULT CARRIAGE CONTROL FOR IMPLIED SEQUENTIAL ACCESS FILES (PAT 7)	C	45.2.4 M	Mar 81
STANDALONE FORTRAN YIELDS RUN-TIME ERROR 64 (PAT 8)	C	45.2.5 M	Jul 81
DISPOSE = 'KEEP' NOT RECOGNIZED WITH READONLY OPEN PARAMETER (PAT 9)	B	45.2.6 M	Apr 81
THE DATE ROUTINE DOES NOT PERMIT BYTE ALIGNED PARAMETERS (PAT10)	C	45.2.7 M	Jul 81
IMPLICIT READ FAILURE MAY HALT PROCESSOR (PAT 11)	C	45.2.8 M	Jul 81
FPU DOUBLE PRECISION SINE/COSINE MODULE ERRORS (PAT 13)	C	45.2.9 M	Jul 81
EMBEDDED BLANKS OVERRIDE THE ICNT PARAMETER IN THE ASSIGN ROUTINE	D	45.2.10 M	Sep 81
THE DEFAULT CARRIAGE CONTROL FOR THE ASSIGN ROUTINE IS INCORRECT	D	45.2.11 M	Oct 81
CORRECTION FOR UNIT CLOSING (PAT 16)	D	45.2.12 M	Oct 81
LIST DIRECTED INPUT CONVERSION ERROR (PAT 19)	E	45.2.13 M	Nov 81
LIST DIRECTED INPUT CONVERSION ERROR (PAT 19)	E	45.2.14 M	Dec 81
BOUNDARY CONDITION ON FORMATTED I/O CORRUPTS I/O IN PAT 6 (PAT 23)	F	45.2.15 M	Feb 82
BOUNDARY CONDITION ON FORMATTED I/O BACKSPACE CORRUPTS I/O	F	45.2.16 M	Feb 82
CORRECTION OF ASSIGN FILENAME HANDLING WHEN ICNT EQUALS ZERO	F	45.2.17 M	Feb 82
CONVERSION ERROR WHILE READING COMPLEX NUMBER FROM FILE (PAT 26)	F	45.2.18 M	Apr 82
GAMMA V3.1			
FGAMMA-FRAMES 3 TO 10 OF GSA STUDY SOMETIMES CORRUPT		49.2.1 M	Jul 81
SYSTEM MAY HANG WHEN DISK SQUEEZED		49.2.2 M	Oct 81
STATIC STUDIES ON LARGE DEVICES		49.2.3 M	Jan 82
STATIC STUDY ACQUISITION ON LARGE DEVICES		49.4.1 M	Jan 82
ISOMETRIC DISPLAY IMAGES USE INCORRECT INTENSITY LEVELS		49.5.1 M	Oct 81
SLICE - LAST POINT IS NOT PLOTTED		49.5.2 M	Nov 81
SLICE - <CR>, <LF> NOT ISSUED AFTER PRINTING SLICE DATA		49.5.3 M	Jan 82
TRANSFER STUDY IN SELECTIVE STEP MODE		49.8.1 F	Mar 82
GAMMA-11 DOCUMENTATION CORRECTIONS AND ADDITIONS		49.10.1 N	Mar 82
PATCHING THE RT-11 MONITOR FOR GAMMA-11		49.11.1 M	Nov 81
ERROR IN THE BASIC SUPPORT ROUTINE GPMR		49.12.1 M	Dec 81
ERRORS IN THE BASIC SUPPORT ROUTINES GPLR AND GPF		49.12.2 M	Mar 82
ERROR IN FORTRAN SUPPORT SUBROUTINE GPMR		49.13.1 M	Mar 82
ERRORS IN THE FORTRAN SUPPORT ROUTINES GPLR AND GPF		49.13.2 M	Mar 82

<u>Component</u>	<u>Autopatch Kit</u>	<u>Sequence</u>	<u>Mon/Yr</u>
DECnet-RT V1.1			
NETGEN			
FULL DUPLEX, EXTENDED MEMORY DUP DRIVER WON'T BUILD		50.3.1 M	Aug 80
COMMAND FILE ABORT AND FOREGROUND STACK SPACE PROBLEMS		50.3.2 M	Apr 82
DMC			
DMC DRIVER FAILS WITH THE SYSTEM JOB FEATURE		50.4.1 M	Apr 82
DDCMP			
DDCMP BRANCH OUT OF RANGE AND Q ELEMENT RETURN PROBLEMS		50.5.1 M	Aug 80
DDCMP FAILS WITH THE SYSTEM JOB FEATURE		50.5.2 M	Apr 82
NSP			
NSP CORRUPTS PHYSICAL LINE ERROR CODE		50.6.1 M	Aug 80
INSUFFICIENT NUMBER OF CCB'S AND ULA TABLE ENTRIES		50.6.2 M	May 82
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	Nov 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	Nov 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
CTS-300 V6.0			
DBUILD			
CORRECTION FOR THREE DECFORM PROBLEMS		51.2.1 M	Oct 81
DECFORM			
PROBLEM WITH DECFORM AND THE VT100		51.4.1 M	Nov 80
CORRECTION FOR THREE DECFORM PROBLEMS		51.4.2 M	Oct 81
DECFORM WITH VT100 TERMINAL CAUSES BAD CHARACTER ON TYPE-AHEAD		51.4.3 M	Nov 81
DIBOL			
TWO CORRECTIONS TO XCALL PAK/UNPAK		51.5.1 M	Aug 81
DICOMP			
FOUR DICOMP ERRORS FIXED		51.6.1 M	Oct 81
DKED			
TWO PROBLEMS WITH DKED		51.7 M	Aug 80
DKED SELECT/CUT AND KEYPAD ERRORS		51.7.2 M	Sep 80
DKED INCORRECTLY HANDLES CONTINUED LINES		51.7.3 M	Oct 81
POSSIBLE BOTTOM OF SCREEN CORRUPTION USING DKED		51.7.4 M	May 82
ISMUTL			
CORRECTIONS FOR ISAM UTILITY ERRORS		51.8.1 M	Nov 81
ISMUTL GIVES INCORRECT ERROR MESSAGES IF INSUFFICIENT MEMORY AVAILABLE		51.8.2 M	Apr 82
LPTSPL			
TSD SPOOLER GETS CONFUSED		51.9.1 M	Nov 80

<u>Component</u>	<u>Autopatch Kit</u>	<u>Sequence</u>	<u>Mon/Yr</u>
SORTM			
SORT SENDS MESSAGES INDISCRIMINATELY		51.14.1 M	Jan 81
SUD			
CORRECTIONS TO DIBOL RUN TIME SYSTEMS		51.16.1 M	Jan 81
PROBLEMS WITH XCALL RENAM AND ERROR 6		51.16.2 M	Feb 81
NO ERROR 22 RETURNED		51.16.3 M	Nov 81
DIBOL STACK OVERFLOW ON OPEN		51.16.4 M	Nov 81
PROBLEMS WITH STACK OVERFLOW AND INCREMENT		51.16.5 M	Dec 81
SUD MESSAGES OVER 100 CHARACTERS IN LENGTH ARE NOT RECEIVED CORRECTLY		51.16.6 M	Feb 82
ISAM FILE RECORD COUNT REVERTS TO 0		51.16.7 M	Apr 82
TDIBOL			
PROBLEM WITH XCALL PAK		51.17 M	Aug 80
PROBLEM UNPACKING DATA		51.17.2 M	Sep 80
TWO CORRECTIONS TO XCALL PAK/UNPAK		51.17.3 M	Aug 81
TSD			
CORRECTIONS TO DIBOL RUN TIME SYSTEMS		51.18.1 M	Jan 81
PROBLEMS WITH XCALL RENAM AND ERROR 6		51.18.2 M	Feb 81
INCORRECT TERMINAL WIDTHS AND CIS PROBLEM		51.18.3 M	Aug 81
CORRECTION TO TSD/XMTSD		51.18.4 M	Sep 81
CORRECTION FOR ISAM PROBLEM		51.18.5 M	Oct 81
"SEND" STARTS MULTIPLE JOBS		51.18.6 M	Oct 81
NO ERROR 22 RETURNED		51.18.7 M	Nov 81
DIBOL STACK OVERFLOW ON OPEN		51.18.8 M	Nov 81
PROBLEMS WITH STACK OVERFLOW AND INCREMENT		51.18.9 M	Dec 81
CORRECTION FOR SIDE EFFECTS FROM PATCH 27		51.18.10 M	Feb 82
LINE PRINTER IS SOMETIMES INCORRECTLY CONSIDERED IN USE		51.18.11 M	Feb 82
ISAM FILE RECORD COUNT REVERTS TO 0		51.18.12 M	Apr 82
TSD AND XMTSD HANG AFTER ATTEMPT TO ILLEGALLY START UP JOB		51.18.13 M	May 82
XMTSD			
CONFLICT BETWEEN XMTSD AND RT-11 OVER CHANNEL 16		51.20 M	Aug 80
CORRECTIONS TO DIBOL RUN TIME SYSTEMS		51.20.2 M	Jan 81
PROBLEMS WITH XCALL RENAM AND ERROR 6		51.20.3 M	Feb 81
PATCH FOR XMTSD WITH CIS		51.20.4 M	Apr 81
INCORRECT TERMINAL WIDTHS AND CIS PROBLEM		51.20.5 M	Aug 81
XMTSD HANGS WHEN LP IS OFF-LINE		51.20.6 M	Sep 81
CORRECTION TO TSD/XMTSD		51.20.7 M	Sep 81
CORRECTION FOR ISAM PROBLEM		51.20.8 M	Oct 81
"SEND" STARTS MULTIPLE JOBS		51.20.9 M	Oct 81
NO ERROR 22 RETURNED		51.20.10 M	Nov 81
DIBOL STACK OVERFLOW ON OPEN		51.20.11 M	Nov 81
PROBLEMS WITH STACK OVERFLOW AND INCREMENT		51.20.12 M	Dec 81
CORRECTION FOR SIDE EFFECTS FROM PATCH 27		51.20.13 M	Feb 82
LINE PRINTER IS SOMETIMES INCORRECTLY CONSIDERED IN USE		51.20.14 M	Feb 82
ISAM FILE RECORD COUNT REVERTS TO 0		51.20.15 M	Apr 82
XMTSD GIVES INCORRECT ERROR WHEN NO ROOM FOR I/O BUFFER		51.20.16 M	Apr 82
TSD AND XMTSD HANG AFTER ATTEMPT TO ILLEGALLY START UP JOB		51.20.17 M	May 82
DOCUMENTATION			
CTS-300 VERSION 6 IS RELEASED		51.21 N	Aug 80
TWO RT-11 PATCHES MODIFIED FOR CTS-300 USE		51.21.2 N	Oct 80
RT-11 PATCH TO LS.MAC MODIFIED FOR CTS-300 USE		51.21.3 N	Feb 81
ADDITIONS TO CTS-300 DOCUMENTATION ON PRINT UTILITY		51.21.4 N	Mar 81
LIST OF SEQUENCE NUMBERS FOR CTS-300 V6		51.21.5 N	Mar 81
SOME NOTES ON RT-11 PATCH SEQ 6.13.3 M TO LS.MAC FOR CTS-300 USERS		51.21.6 M	Jul 81
SOME NOTES ON RT-11 PATCH SEQ 6.13.4 M TO LS.MAC FOR CTS-300 USERS		51.21.7 N	Aug 81
SOME NOTES ON RT-11 PATCH SEQ 6.13.5 M TO LS.MAC FOR CTS-300 USERS		51.21.8 N	Aug 81
AVOIDING POSSIBLE PROBLEM WITH ISAM FILES		51.21.9 N	Dec 81
SOME NOTES ON RT-11 PATCH SEQ 6.13.6 M TO LS.MAC FOR CTS-300 USERS		51.21.10 N	Feb 82
RESTRICTION FOR CTS-300		51.21.11 R	Apr 82
LS.MAC			
SPECIAL CTS-300 PATCH FOR LS.MAC		51.23.1 M	Feb 81
CORRECTION TO CTS-300 PATCH 11 (SEQ 51.23.1 M) TO LS.MAC		51.23.2 M	Jun 81

<u>Component</u>	<u>Autopatch Kit</u>	<u>Sequence</u>	<u>Mon/Yr</u>
SYSTBL.CND			
RT-11 PATCH TO SYSTBL.CND MODIFIED FOR CTS-300 USE		51.25.1 M	Mar 81
RT-11 PATCH SEQ 10.3.2 M TO SYSTBL.CND MODIFIED FOR CTS-300 USE		51.25.2 M	Apr 81
RT-11 PATCH SEQ 10.3.3 M TO SYSTBL.CND MODIFIED FOR CTS-300 USE		51.25.3 M	May 82
CTS-300 V7.0			
DOCUMENTATION			
CTS-300 VERSION 7 IS RELEASED		52.1.1 N	Apr 82
DIBOL/TDIBOL			
PATCH 2: POSSIBLE INCORRECT RESULTS FROM THE INSTR ROUTINE		52.4.1 M	Apr 82
MACRO SORT			
PATCH 1: TWO SORT PROBLEMS EMERGE UNDER CERTAIN CONFIGURATIONS		52.15.1 M	Apr 82
PATCH 3: SINGLE USER SORT MAY LEAVE TEMPORARY FILES ON DISK		52.15.2 M	May 82
SYSTBL.CTS			
PATCH 4: TERMINAL OUTPUT CORRUPTION ON DZ11 OR DZV11 LINES		52.16.1 M	May 82
GAMMA-11 V3.0			
BGAMMA/FGAMMA			
PROBLEMS WITH GAMMA-11 V3.0		54.1.1 M	Jun 81
FGAMMA-FRAMES 3 TO 10 OF GSA STUDY SOMETIMES CORRUPT		54.1.2 M	Jul 81
ISOMETRIC DISPLAY IMAGES USE INCORRECT INTENSITY LEVELS		54.1.3 M	Sep 81
SYSTEM MAY HANG WHEN DISK SQUEEZED		54.1.4 M	Oct 81
CTS-300 DICAM (3271) V3.1			
INCORRECT ACK SENT IN CONVERSATIONAL MODE		55.1.1 M	Jul 81
LOOP WHEN CLOSE IS ISSUED WITH OUTSTANDING I/O REQUESTS		55.1.2 M	Jul 81
CTS-300 RDCP (2780/3780) V2.0			
ABNORMAL TERMINATION AND LISTING PROBLEMS		56.1.1 M	Dec 80
SUBSCRIPT ERROR IN RDCP EDITOR		56.1.2 M	Dec 80
MEMORY CORRUPTION PROBLEM		56.1.3 M	Dec 80

Software Product Description

PRODUCT NAME: SPETS-11 Version 1.0
Single Photon Emission Tomography System

SPD 12.56.0

DESCRIPTION:

SPETS-11 is a software application for GMS Series GAMMA-11 systems. It allows GAMMA-11 users to perform emission-computed rotational tomography.

Emission computed tomography is a medical diagnostic technique that shows radioactive distribution within cross-sectional planes. In tomography, the gamma camera revolves around the patient on a gantry, instead of being fixed as in a traditional installation. As it rotates, the gamma camera acquires conventional scintigraphic data views at a number of selected angles.

SPETS-11 controls the movement of the camera and the acquisition of conventional scintigraphic data. It then reconstructs the data and files the resulting cross-sectional images for display and analysis by GAMMA-11.

SPETS-11 emission tomography software

- Controls the gamma camera rotation and data acquisition
- Processes data including tomographic reconstruction
- Analyzes and displays tomographic images

Data Acquisition

A single program, AQU, controls gamma camera rotation and data acquisition. AQU can be run in either the background or foreground of the GAMMA-11 system and is independent of the GAMMA-11 acquisition program.

The acquisition program allows:

- Administrative data to be input at set-up time of acquisition
- Data to be acquired at 16, 32, 64 or 128 different angles around the patient
- Data acquisition to start at any angle
- Data to be collected in 64×64 matrices (one for each angle) using normal or zoom mode
- Camera rotation in a counterclockwise direction in 180° or 360°

- Data to be acquired at four angles for a longer period of time to obtain conventional views at different projections automatically
- The last acquired frame to be displayed with the current angle number during foreground acquisition
- The last acquired frame to be displayed with the reference frame during background acquisition

NOTE: SPETS-11 has been tested on the GE 400T rotating gamma cameras with revision 6 and 7 control units. Since the introduction of this software, other cameras may have been tested. Please contact Digital Equipment Corp., Medical Systems Group, Hudson, MA for up to date information regarding other cameras.

Data Processing

Processing of data includes procedures for:

- Converting the matrix data into projection data including correction for misalignment of rotation axis.
- Applying attenuation correction to permanently modify projection data through the use of a body outline, estimated from point source measurements.
- Applying iterative enhancement techniques to increase image contrast.
- Applying one of six filtering functions when reconstructing single or multiple transverse sections with a filtered backprojection algorithm.
- Reconstructing coronal and sagittal sections from the transverse images at user selectable angles of -89 to $+89$ degrees.

NOTE: The GAMMA-11 Foreground Acquisition Program (FGAMMA) cannot be used simultaneously with SPETS-11 data processing. However, the SPETS-11 Foreground Acquisition Program (AQU) can be used simultaneously with SPETS-11 data processing or the GAMMA-11 data analysis program (BGAMMA).

Display and Analysis

Display and analysis include standard GAMMA-11 F/B routines and commands.

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Utilities

SPETS-11 Utility Program collects camera measurements for Emission Computed Tomography. It is used to:

- Measure pixel size
- Measure point sources used in body outline definition
- Measure the matrices for misalignment
- Store misalignment error to correct data during preprocessing

MINIMUM HARDWARE REQUIRED:

GMS Series GAMMA-11 System

OPTIONAL HARDWARE:

None

PREREQUISITE SOFTWARE:

GAMMA-11 F/B, Version 3.1

OPTIONAL SOFTWARE:

FORTTRAN IV/RT-11, Version 2.5

TRAINING CREDITS:

None

SUPPORT CATEGORY:

DIGITAL SUPPORTED

SPETS-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:

SPETS-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.

SPETS-11 is available only on RL02 Disk Cartridge distribution media.

QJ812 -AH Single-use license, binaries, documentation, support services

Update Options

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

QJ812 -HH Binaries, documentation

QJ812 -HZ Right to copy for single-use, no binaries, no documentation

NOTE: GAMMA-11 updates are not included in SPETS-11

Miscellaneous Options

QJ812 -GZ Documentation-only kit

ADDITIONAL SERVICES:

None

Software Product Description

PRODUCT NAME: MACDBG-RT Version 1.0
MACRO-11 Debugging Tool

SPD 12.58.0

DESCRIPTION:

MACDBG-RT is a software development/debugging tool for dedicated microcomputer applications. It is targeted primarily at applications where the application hardware includes no mass storage. MACDBG supports development/debugging of MACRO-11 code only.

A user first creates and partially debugs the application software on a host RT-11 Operating System, using the facilities provided with RT-11. MACDBG-RT can then be used to down-line load this application software into the target application system, using a serial link from the host system to the console port of the target processor. MACDBG-RT can be used to control the execution of the application software in the target system and to debug that software using the features described below. Not all of the features are implemented in real-time.

Features

MACDBG-RT enables the user to:

- Down-line load RT-11 .LDA files from host RT-11 system to target system via a serial line
- Force bootstrapping of target system from the host
- Set and cancel breakpoints, watchpoints, tracepoints and single-step
- Utilize symbolic debugging including program symbols and user-defined symbols
- Set up graphic display of registers and status (host system hardware must include VT100 terminal or equivalent for this feature).
- Use keypad commands with four user-definable keys (VT100 or equivalent required).
- Use indirect command files
- Create log files
- Examine/deposit to memory/register locations.

MACRO-11 op-codes can be used with the "deposit" instruction. Memory/register contents can be disassembled to the equivalent MACRO-11 op-code with the "examine" instruction.

- Use "Virtual Terminal" capability to communicate directly with the target system via the host system terminal, while the target is executing the down-line loaded program

MINIMUM HARDWARE REQUIRED:

Host System

Any valid RT-11 system configuration with

- At least 64KB of memory for an SJ monitor and at least 128KB for an XM monitor
- At least one serial port, in addition to the console port, must be provided for communications with the target processor. The target serial port is supported on the following Q-bus modules: DLV11-E, DLV11-F, DLV11-J, MXV11-AA and MXV11-AC

NOTE: The PDT-130 and PDT-150 systems are not supported.

Target System

- Any Q-bus processor: LSI-11, LSI-11/2, LSI-11/23 or SBC-11/21. Memory management must *not* be enabled on the LSI-11/23 processor. Target processor must be equipped with micro-ODT and be configured to halt on framing error (BREAK).
- If the target is an SBC-11/21, an additional Q-bus RAM board must be provided in the target system to allow the use of the breakpoint, tracepoint, watchpoint, and single-step features. Other features can be used without the additional RAM board. The additional Q-bus RAM board need not be included in the user's final target configuration unless it is required by the application.
- If the target is an LSI-11, LSI-11/2 or LSI-11/23, and the target configuration does not provide for RAM at locations 14 and 16, an additional Q-bus RAM board must be provided in the target system to allow the use of the breakpoint, tracepoint, watchpoint and single-step features. Other features can be used without the additional RAM board. The additional Q-bus RAM board need not be included in the user's final target application unless it is required by the application.

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- Host must be connected to the target by a serial link to the target's console port

OPTIONAL HARDWARE:

None

PREREQUISITE SOFTWARE:

RT-11 Operating System, Version 4.0 is required on the host development system (not a PDT-11). Only the SJ and XM monitors are supported by MACDBG-RT. The FB monitor is *not* supported. The SJ or XM monitor used on the host development system must provide timer support.

MACDBG-RT is distributed with a special handler for the serial line from the host to the target system. In order to install this handler into the development system, the user must have access to the SYCND file for the existing software configuration:

- SYCND.DIS for standard SJ monitor
- SYCND.MAC if the user has performed a sysgen.

OPTIONAL SOFTWARE:

None

TRAINING CREDITS:

None

SUPPORT CATEGORY:

DIGITAL SUPPORTED

MACDBG-RT is a DIGITAL Supported Software Product.

SOFTWARE INSTALLATION:

CUSTOMER INSTALLED

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

SOFTWARE PRODUCT SUPPORT:

MACDBG-RT includes standard warranty services as defined in the Software Support Categories Addendum of this SPD except that no on-site remedial service will be provided. Telephone support will be provided only for usage and remedial problems specific to MACDBG-RT.

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 ordering number, e.g., QJ039-AH = binaries on RL02 disk cartridge.

- H = RL02 Disk Cartridge
- Q = RL01 Disk Cartridge
- X = RX02 Double Density Diskette
- Z = No hardware dependency

QJ039 -A— Single-use license, binaries, documentation, support services. Includes single-use license to use the debugger service module on the target system, for debugging purposes, during the development phase. (media: H, Q, X)

QJ039 -D— Single-use license-only option, no binaries, no documentation, no support services. Includes single-use license to use the debugger service module on the target system, for debugging purposes, during the development phase. (media: Z)

Update Options

Users of MACDBG-RT whose specified Support Category warranty has expired may order under license the following software option as an update to an earlier version. The option may also be purchased for use on a second or subsequent CPU, in conjunction with a binary, single-use, license-only option. Options are distributed in binary form on the appropriate medium and include no installation or other services unless specifically stated.

QJ039 -H— Binaries, documentation, (media: H, Q, X)

QJ039 -H— Right to copy for single use, no binaries, no documentation (media: Z)

Miscellaneous Options

QJ039 -G— Documentation-only kit (media: Z)

ADDITIONAL SERVICES:

Post-warranty Software Product Services for this software product are available to licensed customers.

The prerequisite being the purchase of the equivalent level RT-11 Software Product Service. Customers should contact their local DIGITAL office for additional information on the availability of these services.

Software Product Description

PRODUCT NAME: DEType-300, Version 1.2
Word Processing Application

SPD 13.15.2

DESCRIPTION:

DEType-300 is a word processing application designed to run on the CTS-300 Operating System, permitting concurrent word processing and data processing in a multiuser environment. This feature extends the data processing system with word processing capabilities.

The DEType-300 editor creates and maintains documents stored on the full range of disk devices supported by CTS-300. Storage available for documents will vary depending upon other data storage requirements on the same disk media.

Two DEType-300 terminals, running concurrently, is the maximum number recommended on any CTS-300 configuration.

Features

- Concurrent word processing and data processing
- Center screen editing allowing view of previous and following text
- Menu driven structure
- Special editing keypad
- Editing features:
 - Cut and paste blocks of text
 - Insert bodies of text and/or boilerplates from library files
 - Insert abbreviations, phrases and words from abbreviation files
 - Swap transposed characters and words
 - Delete and rubout by character and word, rubout by sentence and line
 - Search and replace capability
 - Wide document editing and printing
 - Four function math capabilities
 - Jump to page
 - Edit while viewing special control characters
- Full control of tabs, margins, justification, and pagination:
 - Automatic centering of text on a line
 - Discretionary pagination control
 - Decimal and right-adjusted tabs
- Ability to support up to four draft and/or letter quality printers

- Stop printer menu
- Selectable pitch on the letter quality printer
- Underlined and overstruck (bold) printout
- Superscript and subscript
- List processing of data prepared by DEType-300 and other data processing programs
- Date and time stamp
- Document statistics
- User-definable keys for predetermined and repetitive operations

MINIMUM HARDWARE REQUIRED:

Any valid CTS-300 configuration with 128KB of memory supporting one VT100-NA or VT102-NA Terminal with the advanced video option, one line printer and two RX02 Diskette Drives. The VT100-WA or VT102-WA Word Processing Terminals are recommended for DEType-300.

OPTIONAL HARDWARE:

- LQPSE-FA Letter Quality Printer (Serial)
- LQP02-AA Letter Quality Printer with LQPX2-AA bidirectional tractor
- Any valid line printer supported by the prerequisite software
- LA100 Letterprinter 100
- Additional VT100-WAs or VT102-WAs
- Any valid disk storage device supported by the prerequisite software
- VT1XX-CE Keyboard upgrade kit for VT100-NA to VT100-WA

PREREQUISITE SOFTWARE:

CTS-300 Operating System, Version 7.0

OPTIONAL SOFTWARE:

None

TRAINING CREDITS:

None

SUPPORT CATEGORY:

DIGITAL SUPPORTED

DEType-300 is a DIGITAL Supported Software Product.

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SOFTWARE INSTALLATION:**CUSTOMER INSTALLED**

DECType-300 is a software product engineered to be installed by the customer and includes other Software Product Support services listed below.

SOFTWARE PRODUCT SUPPORT:

DECType-300 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, V, X, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJ038-AH = binaries on RL02 Disk Cartridge.

H = RL02 Disk Cartridge
 Q = RL01 Disk Cartridge
 V = RK07 Disk Cartridge
 X = RX02 Double Density Diskette
 Z = No hardware dependency

English Language

- QJ038 -A— English single-use license, binaries, documentation, support services (media: H, Q, V, X)
- QJ038 -D— English single-use license-only option, no binaries, no documentation, no support services (media: Z)

French Language

- QJ068 -A— French single-use license, binaries, documentation, support services (media: H, Q, V, X)
- QJ068 -D— French single-use license-only option, no binaries, no documentation, no support services (media: Z)

Update/Unsupported Options

Users of DECType-300 whose specified Support Category warranty has expired may order under license the following software option as an update to an earlier version. The option may also be purchased for use on a second or subsequent CPU, in conjunction with a binary, single-use, license-only option. Options are distributed in binary form on the appropriate medium and include no installation or other services unless specifically stated.

English Language

- QJ038 -H— Binaries, documentation (media: H, Q, V, X)
- QJ038 -H— Right to copy for single use, no binaries, no documentation (media: Z)

French Language

- QJ068 -H— Binaries, documentation (media: H, Q, V, X)
- QJ068 -H— Right to copy for single use, no binaries, no documentation (media: Z)

Users of DECType-300 on D315-A-WA, -WD, -WY, or -WZ 64KB systems whose specified Support Category warranty has expired may order under license the following combination software update and hardware upgrade at the prevailing rate. The software update is distributed in binary form on the appropriate medium and includes no installation or other services unless specifically stated. The hardware upgrade includes a 64KB memory module with no installation or other services unless specifically stated.

- DS3AA -H— Binaries, documentation, MSV11-DD memory module (media: X)
- DS3AA -H— Right to copy for single use, no binaries, no documentation, MSV11-DD memory module (media: Z)

Miscellaneous Options

- QJ038 -G— English documentation-only kit (media: Z)
- QJ068 -G— French documentation-only kit (media: Z)

ADDITIONAL SERVICES:

The following post-warranty Software Product Service for this software product is available to licensed customers:

- Basic Service

The prerequisite being the purchase of the equivalent level CTS-300 Software Product Service. Customers should contact their local DIGITAL office for additional information on the availability of this service.

Software Product Description

PRODUCT NAME: MicroPower/PASCAL, Version 1.0
Microcomputer Software Development Toolset

SPD 19.12.0

DESCRIPTION:

MicroPower/PASCAL is a software package for development of microcomputer applications. It includes all components needed to create concurrent, real-time application programs on a PDP-11 host system and to execute and debug the application on PDP-11 (Q-BUS) microcomputer target systems.

The application software developed through the use of MicroPower/PASCAL is selectively combined with a library of executive service modules, thus eliminating the need for a general-purpose operating system. PASCAL application programs execute stand-alone and do not run under any DIGITAL operating system.

An extended version of PASCAL is provided as the implementation language suitable for most user applications, however, MACRO-11 can also be used as the implementation language.

Features

- PASCAL* language with extensions that support concurrent real-time programming
- Modular run-time system with language interfaces for both MicroPower/PASCAL and MACRO-11
- RT-11 compatible file system
- Symbolic debugger to aid debugging of application programs running on the target system
- Flexible set of utility programs to build and load the application software into target systems
- Host system support to produce ROM/RAM execution environments
- A set of device handlers for widely used I/O device interfaces

Transporting an application to the target system can be done by

- Down-line loading via a serial line interface
- Programming PROM chips and transferring them to the target system (PROM programming hardware and software are not included with this product)

* As defined by the ISO Specification for Computer Programming Language PASCAL, Draft Proposal 7185, Level 0.

- Manually transferring a bootable application via a TU58 DECtape II cartridge or an RX02 diskette

Components

- MicroPower/PASCAL compiler — Supports a superset of the PASCAL language plus real-time extensions. The compiler generates optimized machine code suitable for ROM/RAM execution environments. An extensive library of Object Time System (OTS) routines provides the compiler with run-time support for PASCAL functions and arithmetic routines, including floating-point support, utility, I/O and math routines.
- Run-time system — Composed of kernel and system processes included in the kit in the form of object libraries, which support the following target system features: process synchronization, communication and scheduling, exception handling, interrupt handling, timer services, device I/O, and file I/O. Also included are the OTS routines noted above.
- PASDBG — Aids debugging of application programs on the target system, and allows references to PASCAL source-code names, as well as system data structures.
- MACRO-11 source libraries — The MACRO-11 interface to the run-time system is included in the form of a macro library. Also contained in these libraries are macros, useful in developing MACRO-11 programs.
- Microfiche listing of run-time system sources (kernel, drivers, OTS, etc.)
- Subset of RT-11 (O/S) — MicroPower/PASCAL is a packaged software system that includes a subset of the RT-11 Operating System for use on the host development system. The following RT-11 components are included:

Extended memory (XM) monitor, SYSMAC, HELP, EDIT, KED and K52, MACRO-11, LINKER (LINK), peripheral interchange programs (PIP), Resource (RESORC), Librarian (LIBR), Device Utility Program (DUP), Directory (DIR), and Queue Packages, DUMP, SRCCOM, BINCOM, FILEX, and FORMAT.

Patching: SIPP and SLP

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The following RT-11 Device Handlers:

DDX.SYS	DEctape II handler
DLX.SYS	RL11/RL01/RL02 handler
DMX.SYS	RK611/RK06/RK07 handler
DXX.SYS	RX11/RX01 single-density diskette handler
DYX.SYS	RX211/RX02 handler
LPX.SYS	Parallel line-printer handler
LSX.SYS	Serial line-printer handler
NLX.SYS	Null handler

RT-11 Documentation Subset

MicroPower Utilities

- MERGE — Combines user-developed object modules into a single object module, resolving inter-module references
- RELOC — Relocates merged object modules to specific virtual memory addresses
- MIB — Creates memory image files for execution on the target system. These files can be booted, down-line loaded, used by the PASCAL Debugger with a symbol file, or used for PROM blasting.
- DLLOAD — Loads application programs from a host system into target systems via a serial line interface
- COPYB — Writes a bootstrap for loading application images from a TU58 DEctape II cartridge or RX02 diskette
 - Automatic installation procedure
- CONFIG — Configuration module

MINIMUM HARDWARE REQUIRED:

Host System

The following PDP-11 or LSI-11 systems:

- 11/24, 11/34, 11/35, 11/40, 11/44, 11/45, 11/50, 11/55, 11/60, 11/23, or 11/23-PLUS
- EIS, KT-11 memory management unit and line frequency clock
- 128KB memory
- Two random access, mass-storage device drives (RK06, RK07, RL01, RL02, or RX02), at least one of which must be either RL02 or RX02

NOTE: MicroPower/PASCAL is distributed only on RL02 or RX02 media

- Two serial-line interfaces of the DL11 or DLV11 family (with cables) for the console terminal and the host/target communication line
- Console terminal: VT52, VT100, LA34, LA36, LA120

Target Run-time System

MicroPower/PASCAL supports application execution on component and packaged microcomputer systems using SBC-11/21, LSI-11, LSI-11/2, and LSI-11/23 processors. Also supported are SB-11, PDP-11/03, PDP-11/23 and PDP-11/23-PLUS. The following memory and peripheral hardware is required:

- Memory — Any combination of RAM and ROM (PROM or EPROM) with a minimum of 4KB RAM and a maximum of 4MB
- Serial line interface when using PASDBG
- If the SBC 11/21 is being used as the target processor, the KXT11-A2 ROM chips are required during debugging.

OPTIONAL HARDWARE:

Host System

LP11, LS11, LA120 DECprinter, or any DECwriter UC/LC model

Target Run-time System

MRV11-C PROM Module
 MSV11-D, -L, -P RAM modules
 MXV11-A Multifunction module (includes PROM, RAM, two serial lines, 50/60Hz clock)
 DLV11, DLV11-F, -E, -J Serial line units
 DRV11, DRV11-J Parallel line units
 DPV11 Synchronous serial line unit
 TU58 DEctape II cartridge tape unit
 RXV21 Dual-density floppy disk system
 KEF11 Floating point option (for LSI-11/23 microcomputers)
 KEV11 EIS/FIS arithmetic option (for LSI-11 or LSI-11/2 microcomputers)

PREREQUISITE SOFTWARE:

None

OPTIONAL SOFTWARE:

None

TRAINING CREDITS:

None

SUPPORT CATEGORY:

DIGITAL SUPPORTED

MicroPower/PASCAL is a DIGITAL Supported Software Product.

SOFTWARE INSTALLATION:

CUSTOMER INSTALLED

MicroPower/PASCAL is a software product engineered to be installed by the customer and includes other Software Product Support services listed below.

The distribution media includes a master distribution disk set and a user working disk set. The user working disk set is tailored to lead the new user step-by-step through an interactive installation and application build procedure, while informing the user of the meaning and reason for each step.

SOFTWARE PRODUCT SUPPORT:

MicroPower/PASCAL includes standard warranty services as defined in the Software Support Categories Addendum of this SPD, except that no Newsletter or on-site remedial service will be provided.

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The customer is entitled to telephone support by the Product Service Center (PSC) for a period of one year (12 months) following installation of the product, or starting 30 days after delivery, whichever occurs first. Delivery will be F.O.B. DIGITAL's plants. Telephone support shall consist of answering customer's questions with regard to the operation of MicroPower/PASCAL, as well as aiding the customer in diagnosing MicroPower/PASCAL software application development problems. The Product Service Centers are located in Atlanta, Georgia for the U.S. and Canada, and in Munich, Germany for Europe. Users in other locations should consult the local DIGITAL office for the location of the Product Service Center (PSC) in their area.

Three software updates will be released by DIGITAL during the first year (12 months) following installation of the product, and will be provided to the customer at no charge. After the first year (12 months), further updates (if any) will be made available according to then prevailing DIGITAL policies.

GROWTH CONSIDERATIONS:

An update is the primary method by which DIGITAL provides corrected versions of a software product to users of that product. A MicroPower/PASCAL version update is functionally the same product as MicroPower/PASCAL, Version 1.0, but includes corrections to the product and can include enhancements. An enhancement is a capability not previously provided by this product, or is an improvement in efficiency.

The minimum memory requirements for executing future MicroPower/PASCAL version updates may be greater than the MicroPower/PASCAL, Version 1.0 minimum hardware requirements.

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.

The following key (H, X, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJ029-XH = binaries on RL02 Disk Cartridge.

H = RL02 Disk Cartridge
X = RX02 Double Density Diskette
Z = No hardware dependency

QJ029 -X— MicroPower/PASCAL host development software, single-use license, binaries, run-time system sources listings on microfiche, documentation, support services. This option includes a single-use license (QJ042-DZ) for use of MicroPower/PASCAL run-time software on one target system, no binaries, no sources, no documentation, no support services (media: H, X)

Special License Options

When the target run-time software is the only portion or component of MicroPower/PASCAL to be run on a given processor, the purchaser can obtain a license for the MicroPower/PASCAL run-time software only. If any other component of MicroPower/PASCAL is to be used, the purchaser must obtain the MicroPower/PASCAL license.

The following unit volume options are available for additional target processors:

- QJ042 -D— Quantity 1: Single-use license-only option for MicroPower/PASCAL run-time software, no binaries, no sources, no documentation, no support services (media: Z)
- QJ043 -D— Quantity 10: Single-use license-only option for MicroPower/PASCAL run-time software, no binaries, no sources, no documentation, no support services (media: Z)
- QJ044 -D— Quantity 25: Single-use license-only option for MicroPower/PASCAL run-time software, no binaries, no sources, no documentation, no support services (media: Z)
- QJ045 -D— Quantity 50: Single-use license-only option for MicroPower/PASCAL run-time software, no binaries, no sources, no documentation, no support services (media: Z)
- QJ046 -D— Quantity 100: Single-use license-only option for MicroPower/PASCAL run-time software, no binaries, no sources, no documentation, no support services (media: Z)
- QJ047 -D— Quantity 200: Single-use license-only option for MicroPower/PASCAL run-time software, no binaries, no sources, no documentation, no support services (media: Z)
- QJ048 -D— Quantity 500: Single-use license-only option for MicroPower/PASCAL run-time software, no binaries, no sources, no documentation, no support services (media: Z)

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Upgrade Options

Customers who are currently licensed users of RT-11, Version 4.0 may obtain MicroPower/PASCAL by purchasing a license to an upgrade kit for use on the same CPU as their previous license.

QJ032 -X— MicroPower/PASCAL host development software, single-use license, binaries, sources listings on microfiche, documentation, support services. This option includes a single-use license (QJ042-DZ) for use of MicroPower/PASCAL run-time software on one target system, no binaries, no sources, no documentation, no support services (media: H, X)

Miscellaneous Options

QJ029 -G— Documentation-only kit (media: Z)

ADDITIONAL SERVICES:

Basic Service is available to licensed customers as a post-warranty Software Product Service for this software product.

Customers should contact their local DIGITAL office for additional information on the availability of this service.



WHY YOU SHOULD JOIN DECUS

- SYMPOSIA
- PROGRAM LIBRARY
- TECHNICAL PUBLICATIONS
- SPECIAL USER GROUPS

DECUS (the Digital Equipment Computer Users Society), a worldwide association of customers and employees, provides a forum for the exchange of useful information, new program packages, and other innovations among those who use and supply the products of Digital Equipment Corporation.

Founded in 1961, DECUS is one of the largest and most active associations of its type in the world. Its objectives 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 of 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.

DECUS membership is free--upon application--to owners of DIGITAL computers and to their computer-interested employees. Membership carries important benefits and opportunities; among them are access to the program library; membership in local, regional, and national organizations; invitations to symposia dedicated to optimal use of DIGITAL equipment; opportunity to present papers and workshops on your own new ideas; and, finally, access to special interest groups dedicated to particular uses, languages, operating systems, and hardware configurations.

The program library maintained by DECUS contains over 1700 active software packages written and submitted by members and DIGITAL employees, and available to members for the media fee and reproduction cost only. Programs in the library range from enhanced editors and cross compilers to statistics packages and games. Of particular interest to college and university customers, for example, might be a package of programs for registration, class scheduling, dormitory management, and annual giving records. A laboratory user could take advantage of various statistical packages, or programs that perform Fourier transforms or least squares fitting. There are programs for circuit analysis, resonance simulation, blood-count evaluation, and stress testing, and scores of others which medical, scientific, or engineering customers could employ. Business people can find accounting packages, data analysis and

payroll programs among the library's offerings. In addition, of course, there is a wide range of text editing, display graphics, and enhanced utility programs available.

Local, regional, and national DECUS organizations give members the opportunity to meet other DIGITAL customers and employees in an informal setting. From the monthly local meeting to the semiannual national symposium, the members can discuss their ideas, can learn what others are doing, and can give DIGITAL feedback necessary in improvement and future development of important products. Often, the national meetings in the various countries also provide the stage for major new product announcements by the company, and a showplace for interesting developments in both hardware and software technology. At any meeting a member might describe ideas and programs he has implemented, or fine tuning that has been achieved for a particular application. Members give papers, participate in panel discussions, lead workshops, or conduct demonstrations for the benefit of other members.

DECUS also publishes newsletters focusing on special interest, technical books that contain the compilation of symposia presentations; and a society newsletter.

Many members derive a particular benefit from joining DECUS Special Interest Groups. Special Interest Groups often meet as subsets of regional and national meetings, or they may meet on their own, to discuss their special interest. Here, all RSTS/E users, or everyone interested in COBOL, for example, can have a chance to get together and discuss topics of mutual importance. At present there are more than 20 Special Interest Groups (SIGs) in the U.S. alone. Many of the SIGs print newsletters and disseminate valuable technical information to members. The SIGs really are the front-line of mutual help and problem solving.

DIGITAL provides DECUS with administrative personnel and office space around the world, but the organization is run by its members, who act as speakers for conferences, planners for meetings, editorial and production talent for newsletters and minutes, and the inventors of the ideas and new programs necessary to keep the library up to date. Belonging to DECUS is a valuable adjunct to owning DIGITAL equipment on both the program exchange and the information exchange fronts.

continued

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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).

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Maynard, MA 01754

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