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DIGITAL SOFTWARE NEWS

FOR THE

PDP-8 & PDP-12

Software Information Service Digital Equipment Corporation Maynard, Massachusetts 01754

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DIGITAL SOFTWARE NEWS FOR THE PDP-8 AND THE PDP-12

Digital Software News for the PDP-8 & PDP-12 is designed to provide users of PDP-8 and PDP-12 software with up to date information on software problems, programming notes, and new and revised software. Each article, other than announcements and documentation corrections, is coded sequentially by system program in the lower right corner for ease in maintaining a quick reference file. The original material for such a file is supplied in the <u>Software Performance Summary for the PDP-8</u> & PDP-12. This publication which is placed in each basic software kit, is a collection of all current information on known software problems, patches, and programming notes. As new versions correct software problems and obsolete patches, and reprinted manuals include programming notes and manual corrections, new articles in the Digital Software News will announce the revised software and specify by code which article should be removed from your Software Performance Summary file. Articles may also be replaced when new information becomes available; such as, procedure to circumvent a problem may replace the original report of the problem. All articles in the Digital Software News which should be added to your file will be appropriately coded.

Any questions or problems on the articles contained in these publications or concerning the use of Digital's software should be reported to the Software Specialist or Sales Engineer at your nearest Digital Office.

Additional copies of the current <u>Software Performance Summary</u> and updated issues of the PDP-8 and PDP-12 software price lists are available at no charge upon request from the Program Library. As with usual orders for software, the Program Library will accept orders received directly from U.S. customers. All other customer orders must be routed through the nearest Digital Representative.

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PDP-8 & PDP-12 SOFTWARE NEWS

MAY 1972

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PDP-8 NEW AND REVISED SOFTWARE

RK8 Disk and Control Instruction Test

MAINDEC-08-D5JB

The installation of ECO #RK08-00008 causes a failure in test #41 of this program. Therefore, the program was corrected by deleting the write flop test. This revision also includes changing IOT 6271 to 6211 in test #22 to allow for 8/L operation.

Customers may order this software for the applicable fee:

Paper Tape Binary MAINDEC-08-D5JB-PB \$ 5.00 Document MAINDEC-08-D5JB-D \$10.00

All prices are in U.S. dollars and apply to U.S. customers only. Because currency and import considerations affect the prices in all countries outside the U.S., all other users must check with the nearest Digital office or representative to place their orders.

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OS/8 ANNOUNCEMENT

New Software

OS/8 is a new software operating system now available from the Software Distribution Center It is designed for the PDP-8 family of computers with 8K, or more, core memory and mass storage, either disk or DECtape. It is the only general purpose system software that supports TD8-E Dectape.

OS/8 is an expansion of PS/8 with all of PS/8's features plus several new ones. While it has been replaced by OS/8, PS/8 will still be available as support category 2 software (support for a fee). However, registered PS/8 customers are offered OS/8 at a reduced cost. A registration card for OS/8 is included in each OS/8 kit. It should be completed and returned to the Software Distribution Center to authorize orders for additional materials.

Customers may order OS/8 for a charge of \$300.00. Registered PS/8 customers may obtain OS/8 for a reduced cost of \$180.00.

All prices are in U.S. dollars and apply to U.S. customers only. Because currency and import considerations affect the prices in all countries outside the U.S., all other users must check with the nearest Digital office or representative to place their orders.

U.S. customers may send orders with purchase order, check or money order directly to

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Note: Sources and listings of the Monitor, Command Decoder, and BUILD are not available and will not be released or distributed.

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COMPLETE OS/8 PRICE LIST

DEC-S8-OSUMA-A-D (1)DEC-S8-OSSMA-A-D	OS/8 System User's Guide OS/8 Software Support Manual	Manual S	5.00
DEC-S8-OOS8A-A-PB	OS/8 System/Keyboard Monitor	Bin Tape	20.00
DEC-S8-OCMDA-A-PB	OS/8 Command Decoder/ODT		15.00
DEC-S8-OBLDA-A-PB	OS/8 System Builder (BUILD)	II	25.00
DEC-S8-OBADA-A-PB	OS/8 Aux. Device Handlers	II	15.00
DEC-S8-ODRKA-A-PB DEC-S8-ODRFA-A-PB DEC-S8-ODDFA-A-PB DEC-S8-OCFGA-A-LA DEC-S8-OCFGA-A-PA (Individual	OS/8 RK8 Std. Configuration OS/8 RF08 Std. Configuration OS/8 DF32 Std. Configuration OS/8 Configuration (CONFIG) OS/8 Configuration (3 Tapes) parts of DEC-S8-OCFGA may be pur	" " Listing Source cchased at \$50.	10.00 10.00 10.00 40.00 120.00
DEC-S8-OPIPA-A-PB	OS/8 PIP (Util. I/O Program)	Bin Tape	10.00
DEC-S8-OPIPA-A-LA	OS/8 PIP	Listing	
DEC-S8-OEDTA-A-PB	OS/8 Symbolic Editor	Bin Tape	10.00
DEC-S8-OEDTA-A-LA	OS/8 Symbolic Editor	Listing	
DEC-S8-OPALA-A-PB	OS/8 PAL8 Assembler	Bin Tape	10.00
DEC-S8-OPALA-A-LA	OS/8 PAL8 Assembler	Listing	75.00
DEC-S8-OCRFA-A-PB	OS/8 Cross Referencer(CREF)	Bin Tape	10.00
DEC-S8-OCRFA-A-LA	OS/8 Cross Referencer	Listing	75.00
DEC-S8-OFORA-A-PB	OS/8 FORTRAN Compiler	Bin Tape	15.00
DEC-S8-OFORA-A-LA	OS/8 FORTRAN Compiler	Listing	80.00
DEC-S8-OSABA-A-PB	OS/8 SABR Assembler	Bin Tape	15.00
DEC-S8-OSABA-A-LA	OS/8 SABR Assembler	Listing	80.00
DEC-S8-OLLDA-A-PB	OS/8 Linking Loader	Bin Tape	10.00
DEC-S8-OLLDA-A-LA	OS/8 Linking Loader	Listing	
DEC-S8-OLIBA-A-PR	OS/8 FORTRAN Library (LIB8)	Rel Tape	15.00
DEC-S8-OLIBA-A-LA	OS/8 FORTRAN Library	Listing	60.00
DEC-S8-OLSTA-A-PB	OS/8 Library Setup (LIBSET)	Bin Tape	10.00
DEC-S8-OLSTA-A-LA	OS/8 Library Setup	Listing	
DEC-S8-OTBSA-A-PM	TD8-E Bootstrap	RIM Tape	3.00
DEC-S8-OTINA-A-PM	OS/8 TD8-E Initializer	RIM Tape	

⁽¹⁾ Not available until late summer. The PS/8 Software Support Manual, DEC-08-MEXB-D, will be substituted. The \$5.00 price will apply.

OS/8 PRICE LIST (Cont'd)

DEC-S8-OSYSA-A-UC	OS/8 System DECtape This tape contains a working OS/8 System for either TC08 or TD8-E DECtape, plus it contains core image files of all OS/8 system programs including BUILD. It does not contain CONFIG. Ø5.	\$ 50.00
DEC-S8-OSC1A-A-UA	OS/8 System Program Source DECtape This tape contains source files for PIP, EDITOR, PAL8 and CREF system programs.	25 0. 00
DEC-S8-OSC2A-A-UA	OS/8 FORTRAN Library Source DECtape This tape contains source files for all the SABR/FORTRAN Library subroutines, plus the Linking Loader and Library Setup Program.	150.00
DEC-S8-OSC3A-A-UA	OS/8 FORTRAN/SABR Source DECtape This tape contains source files for the FORTRAN Compiler and SABR Assembler.	150.00
DEC-S8-OSC4A-A-UA	OS/8 Configuration Source DECtape This tape contains the source of CONFIG. Ø5. It includes all the standard OS/8 device handlers, and LIBSET and LIB8 binary files.	120.00

OS/8 System DECtape Kit (LIBKIT-S8-OS8DA-A-K) Contents

	DEC-S8-OSYSA-A-UC	OS/8 System DECtape	\$ 50.00
	DEC-S8-OSUMA-A-D	OS/8 System User's Guide	5.00
(1)	DEC-S8-OSSMA-A-D	OS/8 Software Support Manual	10.00
	DEC-S8-OOS8A-A-PB	OS/8 System Binary Paper Tape	20.00
	DEC-S8-OCMDA-A-PB	OS/8 Command Decoder Binary Tape	15.00
	DEC-S8-ODRKA-A-PB	RK8 Configuration Binary Tape	10.00
	DEC-S8-ODRFA-A-PB	RF08 Configuration Binary Tape	10.00
	DEC-S8-ODDFA-A-PB	DF32 Configuration Binary Tape	10.00
	DEC-S8-OBLDA-A-PB	OS/8 System Build Binary Tape	25.00
	DEC-S8-OBADA-A-PB	OS/8 Auxiliary Device Handler Binary Tape	15.00
	DEC-S8-OTBSA-A-PM	TD8-E Bootstrap (RIM) Binary Tape	3.00
	DEC-S8-OTINA-A-PM	TD8-E Initializer (RIM) Binary Tape	10.00
	DEC-S8-OSC4A-A-UA	OS/8 Configuration (CONFIG. Ø5) DECtape	120.00
	MAINDEC-08-D9KA-PB	Multi-Break System Exerciser	5.00
	MAINDEC-08-D9KA-D	Multi-Break System Exerciser Listing	7.00

⁽¹⁾ Not currently available. DEC-08-MEXB will be substituted.

OS/8 System Paper Tape Kit(LIBKIT-S8-OS8PA-A-K) Contents

DEC-S8-OSUMA-A-D	OS/8 System User's Guide	\$ 5.00
(1)DEC-S8-OSSMA-A-D	OS/8 Software Support Manual	10.00
DEC-OS-OOS8A-A-PB	OS/8 System Binary Paper Tape	20.00
DEC-S8-OCMDA-A-PB	OS/8 Command Decoder Binary Tape	15.00
DEC-S8-ODRKA-A-PB	RK8 Configuration Binary Tape	10.00
DEC-S8-ODRFA-A-PB	RF08 Configuration Binary Tape	10.00
DEC-S8-ODDFA-A-PB	DF32 Configuration Binary Tape	10.00
DEC-S8-OBLDA-A-PB	OS/8 System Build Binary Tape	25.00
DEC-S8-OBADA-A-PB	OS/8 Auxiliary Dev. Handler Binary Tape .	15.00
DEC-S8-OEDTA-A-PB	OS/8 Symbolic Editor Binary Tape	10.00
DEC-S8-OPIPA-A-PB	OS/8 PIP (Utility I/O Program) Binary Tape	10.00
DEC-S8-OPALA-A-PB	OS/8 PAL-8 Assembler Binary Tape	10,00
DEC-S8-OCRFA-A-PB	OS/8 CREF Cross Reference Prog. Binary Tape	10.00
DEC-S8-OFORA-A-PB	OS/8 FORTRAN Compiler Binary Tape	15.00
DEC-S8-OSABA-A-PB	OS/8 SABR Assembler Binary Tape	15.00
DEC-S8-OLLDA-A-PB	OS/8 Linking Loader Binary Tape	10.00
DEC-S8-OLIBA-A-PR	OS/8 FORTRAN/SABR Library Tape (LIB8)	15.00
DEC-S8-OLSTA-A-PB	OS/8 Library Setup (LIBSET) Binary Tape .	10.00
DEC-S8-OCFGA-A-PA	OS/8 Configuration Source Paper Tape	120.00
MAINDEC-08-D9KA-PB	Multi-Break System Exerciser	5.00
MAINDEC-08-D9KA-D	Multi-Break System Exerciser Listing	7.00

⁽¹⁾ Not currently available. DEC-08-MEXB-D will be substituted.

PDP-12 NEW SOFTWARE

OS/12 Announcement

OS/12 is OS/8 for the PDP-12. As with OS/8, it is available to customers for \$300.00 while PS/12 registered customers may order it for \$180.00. The system is on two Linctapes and includes the OS/8 User's Guide. Tape #1 contains the complete OS/12 system. Tape #2 contains the source of CONFIG and binaries of OS/12 device handlers, LIB8, and LIBSET. Additional copies may be ordered by registered OS/12 customers at the following rates.

	OS/8 User's Guide	\$ 5.00
DEC-12-OSYSA-A-UO	OS/12 System Linctape #1	50.00
DEC-12-OSC4A-A-UO	OS/12 System Linctape #2	120.00

All prices are in U.S. dollars and apply to U.S. customers only. Because currency and import considerations affect the prices in all countries outside the U.S., all other users must check with the nearest Digital office or representative to place their orders.

 $\mbox{U.S.}$ customers may send orders with purchase order, check or money order directly to

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FPP FORTRAN IV RUN-TIME SYSTEM-FORRTS.FT (V4)

Patch to correct erroneous results from unfilled format fields

In a formatted READ, if rubout is used to delete characters and they are not replaced to fill the format field, an erroneous value results. For example, for a format field F5.2, typing 1.234 \W produces 1.03. The following fix solves the problem.

Use the program FPIP as follows:

```
.R FPIP
                                     Paper tape and editing program
*DSK: FORRTS.FT</l>
                                     Systems device; $=altmode
R,11
                                     Read block 11
0,315
                                     Open relative location 315
7001/5341
                                     Change to 5341
0,341
                                     Open relative loc. 341
ØØØØ/1774
                                     Change 341 to 1774
ØØØØ/3350
                                     Change 342 to 3350
ØØØØ/1114
                                     Change 343 to 1114
ØØØØ/3750
                                     Change 344 to 3750
0000/7001
                                     Change 345 to 7001
ØØØØ/5316
                                     Change 346 to 5316
                                     Write the block
Ε
                                     Exit FPIP
1C
                                     Return to Command Decoder
```

The underlined portions are printed by FPIP and are the current contents of the locations. Note that FPIP is a new OS/8 program whose 2 main functions are to read in paper-tape patches and to permit typing in short fixes (similar to ODT) for the FPP FORTRAN IV files.

FPP FORTRAN IV-LOAD.SV (V13)

Patch to prevent the omission of overlay information

An input line to the loader (LOAD.SV) of just \star /O (no input files) causes all preceding overlay information to be disregarded.

The following patch eliminates the problem.

Use OS/8 ODT to add the changes.

LOCATION	OLD CONTENTS	NEW CONTENTS
13152	3421	7450
13153	2Ø21	574 [′] 1
13154	3Ø22	3421
13155	5741	2021
13156	Ø	3022
13157	ø	5741

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OS/8 PIP WITH TD8E

Patch to correct loss of data files

Trying to compress a device onto DTA1 produces a shortened directory on DTA1. In particular, compressing DTA1 onto itself can cause loss of data files. This error only exists on TD8E systems, and only when the tape on DTA1 is a non-system tape.

The correction is:

- . GET SYS PIP
- · ODT

15276/7620 7640

51352/0177 0171

7600G

. SAVE SYS PIP

		r

PS/8 ON TD8E

Patch to correct file operations

In the preliminary release of PS/8 on the TD8E the user is not able to successfully zero the directory or perform a file compression on devices SYS or DSK. When these operations are tried, the number of free blocks remaning on the tape is in error. The problem is that PIP's device length table was not updated to reflect the TD8E device type. The new release of OS/8 does not contain that problem.

To correct the situation, use ODT with PIP as follows:

₹ GET SYS PIP

- ODT

13621 / ØØØØØ 6437

7600G

-SAVE SYS PIP

This gives SYS and DSK on the TD8E the correct device size.

RTPS FORTRAN IV (FORRTS.FT version 4)

Patch to correct logical input field

It is possible for a logical input field to be incorrectly filled if T or F is not the first character read. Use FPIP to effect the following one location patch to correct this problem.

.R EPIC

Call EPIC

* FORRTS.FT </1\$

Load FORRTS for editing (\$ is altmode)

R,24

Read block 24

0,335

Open location 335

5316/5317

Change 5316 to 5317

W

Write the block

E

Exit

* 1 C

Return to OS/8

RTPS FORTRAN IV (DEC-08-LRTDA) (F4.SV version 1.06)

Problem with arithmetic functions

When using arithmetic functions, a problem with temporary storage occurs if an arithmetic operation of more than 1 step is performed before using the arithmetic function on a calculation. For example,

ROUT (A) = A*2+SQRT(A)

V = (3.+C) / ROUT (C)

The result of the calculation of 3.+C is destroyed during the calculation of ROUT(C), so the value of V is incorrect.

This problem can be avoided by using an external function instead of an arithmetic function. (Another means would be to use only 1 step arithmetic calculations after the arithmetic function description, but this path is not recommended.) The above calculation will execute successfully if ROUT is described in an external function as:

FUNCTION ROUT (A)

ROUT = A*2+SQRT(A)

END

		-

RTPS FORTRAN IV (F4.SV version 1.06)

Problem with DO loops in I/O statements

An error occurs if a subscripted variable is the upper limit in a DO loop in an I/O statement. For example: WRITE (4,100) (PAR(I), I=1,4), (DATA(I), I= 1, PAR(1)

This problem will be corrected in the next release of FORTRAN. For the current version it is possible to code the program so a subscripted variable is not the upper limit in an I/O statement. For example, J=PAR(1)

WRITE (4,100) (PAR(I), I=1,4) (DATA(I), I=1,J)

RTPS FORTRAN IV (DEC-08-LRTDA)

Programming Note

The following details of the RTPS FORTRAN IV system may be of interest to some users.

FORTRAN does not add a line feed after each carriage return when transferring formatted data to a mass storage device. Also, null characters in a Hollerith field are currently treated as \emptyset . More preferable handling would be for the character to be 40. Both of these conditions will be corrected in the next release.

Users should also be aware that, due to the nature of binary numbers, some numbers cannot be represented internally as an exact value. This is most observable after a propogating-type calculation where a result of \emptyset is anticipated and a value such as 9×10^{-25} is returned.

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RTPS FORTRAN IV (F4.SV version 1.06)

Programming note

When using an assigned GOTO statement, a comma is required after the right parentheses of the list. For example, GOTO (201, 202, 203), J will compile correctly, but GOTO (201, 202, 203) J will generate an error.

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TSS/8 V22B

Patch to correct LPT/DTA interference

The patch below removes the DTSF from the LPT/PTP driver whenever the DTSF is removed from the interrupt chain and inserts it whenever the DTSF is inserted in the chain. This prevents the LPT driver from dispatching to the DTA routine when the DTA has been disabled by a select error or other causes.

Unit \emptyset should be selected when the system is started unless the ECO for DTCA has been installed.

The following patch should be made to TS8II.

LOCATION	OLD CONTENTS	NEW CONTENT	S SOURCE
125Ø	3437	4776	JMS I PATCH M
1376	ØØØØ	2156	РАТСНМ, РАТСН
1651	3437	4775	JMS I PATCHL
1712	3437	4775	JMS I PATCHL
1775	ØØØØ	2156	PATCHL, PATCH
2156	9999 9999 9999 9999 9999 9999	ØØØØ 3365 1365 3437 1365 3766 5756 Ø 7535	PATCH, Ø DCA SAVE TAD SAVE DCA I Z 37 TAD SAVE DCA I LPTDTI JMP I PATCH SAVE, Ø LPTDTI, 7535

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MR8-EA Read Only Memory Test

MAINDEC-8E-DlJA

The following patch corrects the problem of data being taken from the wrong address to produce incorrect data in the error typeout.

For the low version (MAINDEC-8E-DlJA-PB1) change the contents of address 1633 to 1775 (TAD ACHECK).

For the high version (MAINDEC-8E-DlJA-PB2) change the contents of address 6433 to 1773 (TAD ACHECK).

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DF32 DISCLESS Logic Test, MINIDISC (MAINDEC-08-D5BB)

Patch and revision

Because of the speed at which a PDP-8E or a PDP-12 with ECO EP-00021 and above handles data breaks, the "DATA REQUEST LATE" test in this program always fails. This does not mean that there is a hardware problem, only that it cannot be tested.

The following temporary patch causes the DRL test to be by-passed.

LOCATION	OLD CONTENTS	NEW CONTENTS
2620	7410 (SKP)	7000 (NOP)

This problem has been corrected in a revision of this diagnostic program. Customers may order the following items for the applicable fee.

Binary Paper Tape	MAINDEC-08-D5BC-PB	\$5.00
Document	MAINDEC-08-D5BC-D	\$5.00

All prices are in U.S. dollars and apply to U.S. customers only. Because currency and import considerations affect the prices in all countries outside the U.S., all other users must check with the nearest Digital office or representative to place their orders.

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AD8E, AM8E A-D CONVERTER & MULTIPLEXER DIAGNOSTIC (MAINDEC-8E-D6BB)

Problems with incorrect tag and switch setting

Two problems have been reported in this diagnostic.

There is an incorrect tag which can be rectified by the following patch.

LOCATION	OLD CONTENTS	NEW CONTENTS
2704	5245	5247

Another problem is that the program fails when SW \emptyset is not set to a one (printout inhibit) when running the Resolution Accuracy Test.

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FLOATING POINT INSTRUCTION TEST 2C (MAINDEC-12-DØOB) Patch to correct time out loop

The following minor correction is needed for a time out loop.

LOCATION	OLD CONTENTS	NEW CONTENTS
4071 4072	1367 3107	4505 1367
4073	4505	3107

				à

PDP-8/E TELETYPE AND KL8 ASYNCHRONOUS DATA CONTROL TESTS (MAINDEC-8E-D2AC)

Patch to correct erroneous characters

If SR2 is set in program 4 to loop the test, erroneous characters are printed out.

To correct this problem, toggle the following change into memory after loading the program.

LOCATION	OLD CONTENTS	NEW CONTENTS		
0245	7500 (SMA)	7700 (SMA CLA)		

			1

RF08 DISK DATA (MAINDEC-08-D5EB)

Patch to check IOT operation

This program fails to verify that IOT 6603 (DMAR) clears the AC. To correct this problem, make the following changes.

LOCATION	OLD CONTENTS	NEW CONTENTS
3174	7440	SZA
3175	7402	HLT/ERROR
3176	7200	CLA
3177	5756	JMP T READ