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## software

## OS/8 V3D
## System Release Notes

Order No. DEC-S8-OSRNA-B-D

PDP8

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**ABSTRACT**

This document describes the differences between version V3D of
OS/8 and previous versions. The differences consist of new features
for V3D and corrections to known software problems.

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## 1.0  DIFFERENCES BETWEEN OS/8 V3D AND OS/8 V3C

OS/8 V3D is a maintenance release of OS/8. Differences consist of new and modified Commonly Used System Programs (CUSPs), new CCL commands and new or modified handlers. Also, OS/8 V3D includes corrections to known software problems as described in Section 2.0.

### 1.1  New/Modified Commonly Used System Programs (CUSPs)

The new and modified CUSPs for OS/8 V3D consist of RXCOPY, TECO, HELP, DIRECT, RKLFMT, SET, PIP, F4, FUTIL and RESORC.

**1.1.1  RXCOPY**  —  This CUSP has been substantially rewritten to utilize the standard command decoder interface. The format has been changed to allow RXCOPY to become a standard form CCL command. For a complete breakdown of the RXCOPY calling sequence and options, refer to *OS/8 Handbook Update* (DEC-S8-OSHBA-A-DN4).

**1.1.2  DIRECT**  —  The range of the date printout for this CUSP has been extended and the interpretation of the date format has been changed. The new date routine handles dates through 1999. However, dates encoded in file directories can be valid for no more than 7 years preceding the date entered into the system. Also, if no date is entered into the system, DIRECT will not print the dates of files.

**1.1.3  RKLFMT**  —  This disk formatting CUSP is now distributed with OS/8. It has been modified to support the standard ^C abort convention.

**1.1.4  SET**  —  A new CUSP called SET has been incorporated into OS/8. This CUSP is used primarily to activate/ deactivate certain operational features in OS/8 handlers. For example, SET can be used to establish the width of line printer output. Once a capability has been activated, it can be deactivated by the "No attribute" feature of SET. See *OS/8 Handbook Update* for a description of SET.

**1.1.5  PIP**  —  The directory listing routines have been removed from this CUSP. All switches which caused directories to be printed have been decommitted. If any of these switches are used, the message "USE DIRECT" appears.

**1.1.6  F4 (FORTRAN IV)**  —  FORTRAN IV no longer supports the /U option.

**1.1.7  RESORC**  —  This CUSP has been modified so that it recognizes the LQP printer.

**1.1.8  TECO**  —  This CUSP has undergone significant changes primarily in the command structure and error message areas. See *OS/8 Handbook Update* for a complete list of all changes to TECO.

**1.1.9  HELP**  —  Help messages are now handled differently than for OS/8 V3C and earlier versions. A HELP program and a single text file are now used in place of numerous text files. See *OS/8 Handbook Update* for more information.

**1.1.10  FUTIL**  —  This CUSP allows examination and modification of the contents of mass storage devices. Uses include patching programs that contain overlays, examination and repair of OS/8 directories, bad block checking and correction, decimal/octal conversion of double-precision numbers, outputting the Core Control Block of .SV files and the Header of .LD files, and creation of special directories.

### 1.2  New CCL Commands

New CCL commands incorporated in OS/8 V3D are described in the subsequent paragraphs.

**1.2.1  SET**  —  This command invokes the SET CUSP with the input parameters specified. See *OS/8 Handbook Update* for a complete description of the use of SET.

**1.2.2  MEMORY**  —  The MEMORY command replaces the CORE command.

**1.2.3 DUPLICATE** — This CCL command calls RXCOPY. No default devices are assumed. Standard syntax is

.DUPL DEV1:<DEV2:/OPTION

**1.2.4 BASIC** — This CCL command is identical to issuing the command: "R BASIC".

**1.2.5 New CCL Options** — CCL has two new options as follows:

1  -N sends output to NULL

2  -D sends output to DUMP

## 1.3 New or Modified Handlers

**1.3.1 KL8E** — This handler has been modified so that it can optionally pause after the output of a screenful of lines of text. This feature is required for the support of high speed CRTs. The SET command can be used to invoke this feature.

**1.3.2 SLU2** — This handler can be created from the standard KL8E handler. To do so change the following:

```
DEVICE      SLU2
INDVC   = 30
OUTDVC  = 31
```

It supports Serial Port #2 on the VT-78.

**1.3.3 SLU3** — This handler is identical to SLU2 except that it operates Serial Port #3 (SLU#3) on the VT-78. To change SLU2 to SLU3 change:

```
DEVICE      SLU3
INDVC   = 32
OUTDVC  = 33
```

**1.3.4 DUMP** — A new handler has been incorporated into OS/8 V3D. It is called DUMP and can be used to obtain binary image dumps of data sent from file structured devices. Use of DUMP is restricted to systems having an LP08 OR LA180 line printer. Features built into DUMP allow the user (via the keyboard) to specify the absolute file block number of the block to be dumped. See *OS/8 Handbook Update* for complete details regarding use of DUMP.

**1.3.5 LQP78** — A new line printer handler has been written to support this device. It is a 2-page handler with the standard interface. The group name to be used when building a system is LQP.

## 1.4 Miscellaneous Modifications

**1.4.1 KBM** — Whenever the system is bootstrapped, the monitor checks a command buffer to see if an initial command is there. If this command is present, the monitor then attempts to execute the command as if it had been typed on the console keyboard. This feature is useful if the system requires some amount of initialization before its use. The SET CUSP initializes this feature.

**1.4.2 BATCH** — BATCH now includes a HUSH (/H) option that can be used to inhibit printing of certain messages. This feature can be used to suppress display of $JOB and $END messages on the console. See *OS/8 Handbook Update* for a description of this new BATCH option.

**1.4.3 DATE** — The DATE printout for all CUSPs has been modified such that dates from 1978 to 1999 are now accommodated.

Directory entry dates are now valid for only seven years preceding the date entered at bootstrapping time. That means that if a user enters a date of 1978 and then lists the directory of a tape created in or before 1970, the file creation dates will be printed incorrectly. If no date is entered, directory dates will not be printed.

Space in several CUSPs requiring the new date algorithm is very tight. Hence, it is not possible to use the DIGITAL standard date format throughout the system. To maintain compatibility wherever possible the format DD-MMM-YY is used where the month is written out as a three character string. Where this format is impossible to implement, the month is printed as a decimal number. The DATE routine, which allows the date to be entered into the system, has been changed so that it conforms to DEC standards. The new date entry format is:

DD-MMM-YY

where MMM is a three character string indicating the month. The earlier version date format is illegal (e.g., 4/4/77).

**1.4.4 New Procedure for Entering CUSPs onto SYStem from Paper Tape Kits** — OS/8 V3D paper tape binary kits are now punched in a different format from those of previous versions. This necessitates a new load procedure centering around EPIC rather than ABSLDR. Refer to *OS/8 Handbook Update* for a complete description of the new paper tape load procedure.

## 2.0 CORRECTIONS TO KNOWN SOFTWARE PROBLEMS
The following sections describe OS/8 component errors that have been corrected for version V3D of OS/8.

### 2.1 BASIC
1. Certain problems existed in the way the BASIC Run Time System (BRTS) handled string field boundaries. All BRTS string handling code has been rewritten thereby eliminating these problems.
2. A problem with the GOSUB statement occurred when GOSUB fell at a core field extremity. This has been corrected.
3. At times, the POS function indicated an erroneous match when a like series of characters fell at the end of different strings. This has been corrected.
4. The "IF" error message handling code now checks to see whether or not OS/8 has been swapped out of core.
5. BASIC now responds to too long an input line by typing ?.
6. BASIC now accommodates the backspace to effect deletions (DELETE key).
7. New coding incorporated to handle exponents greater than 16. Use of both logarithms and exponents in new coding speeds up calculation time.
8. The format for the DAT$ function remains the same but now accommodates dates through 1999.
9. The BRTS BUILD procedure has been modified to eliminate any problems in systems having an EAE.
10. BASIC now prints a "CX" error message if incompatible file name extensions are used in CHAIN statements.
11. The CHAIN statement now issues an OS/8 RESET when chaining. This eliminates problems occurring when handling tentative files.
12. The BRTS floating point-to-ASCII conversion routine has been rewritten for greater accuracy.
13. The BASIC Compiler (BCOMP), BASIC loader (BLOAD) and BRTS have all been modified to accommodate 80 character strings.
14. BRTS has been modified to handle the scope (display) pause feature.

### 2.2 FORTRAN IV
1. FRTS now flags field overflow properly on output by printing a number of asterisks equal to the field width.
2. A calculation problem existed in FRTS when a variable plus one was equated with the same variable (e.g., K=K+1). This has been fixed.
3. FORTRAN IV compiler PASS2O now calculates correct indices for subscripted variables when using the compiler /Q option.

4. LIBRA now prints version numbers and names the second output file correctly.
5. The SINH function in FORLIB returns correct values for arguments greater than 88.029.
6. The DATE routine in FORLIB has been altered to accommodate new date format through 1999.
7. FRTS sometimes malfunctioned where negative numbers were output with an error of $2^-7$. This has been fixed.
8. RALF no longer generates faulty relocatable code under conditions where:
   a. The ESP is longer than one block.
   b. The list output is directed to a 2-page nonsystem handler.
9. In the heading of the PASS3 listing of a FORTRAN IV source program, four characters are printed after the version number. The significance of each character is as follows:
   a. First character is the F4 patch level.
   b. The second character is the PASS2 patch level.
   c. The third character is the PASS2O patch level.
   d. The fourth character is the PASS3 patch level.
   These characters are initially set to the letter "A" and are updated whenever a patch is issued to any of the above programs.

## 2.3 EDIT
1. The ESC (ALTMODE key on some systems) handling code has been altered so that it now echoes $ when typed. The $ symbol is also displayed when the PRINT and LIST commands are executed. When output to a file, the ESC is output as the proper code (033).
2. The DELETE (RUBOUT key on some systems) key now deletes characters from the screen provided that the scope mode bit is set.
3. A TLS race condition for /=, =, and rubout commands was fixed.

## 2.4 EPIC
1. A problem existed with the parity bit on messages to/from the terminal. This has been corrected.
2. A modification was made to make no /n default on startup.

## 2.5 PIP
1. This CUSP has been modified to disable all directory list coding.
2. Problems with the /Y command used to transfer system heads to and from files have been remedied.

## 2.6 RALF
1. RALF has been modified to accommodate new date range and format.
2. Fixed **IO** bug.

## 2.7 FORTRAN II Library
Problems existed in calling subroutines in the FORTRAN II library due to subroutine revision numbers being stored in subroutine entry points. These have been fixed.

## 2.8 MONITOR
1. It is now legal to specify keyboard monitor commands (e.g., R, DATE, etc.) as user commands via the UA, UB, and UC commands.
2. A program chaining to CCL can now pass CCL a KBM command to be executed.
3. Indirect files may now appear at the beginning of a line, e.g., .@FOO.
4. A bug was fixed having to do with the keyboard flag. Sometimes CCL would wait for the terminal keyboard flag to come up and it never would.
5. The EXECUTE command now works on files with a .BI extension. CCL chains to BATCH in such a case.
6. CCL now prints the warning message

   % BATCH SQUISHING SYS:!

   if the SQUISH command is issued while BATCH is running. The SQUISH continues however.

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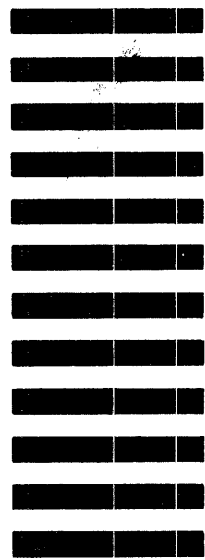                                                    or
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