



# Software Product Description

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**PRODUCT NAME: OS/8, Version 3D, Operating System**

**SPD 4.1.10**

## **DESCRIPTION:**

OS/8 is a comprehensive executive supporting PDP-8 computer systems. OS/8 provides an extensive collection of application software development tools and an efficient runtime environment for the production use of these application programs.

Programs stored on disk can be accessed for loading, modification or execution by simple keyboard commands.

OS/8 allows program chaining, so that a program can be divided into a set of smaller programs. Very large programs can be coded in small segments that can be overlaid during execution to conserve memory storage.

Programs written under OS/8 can be device-independent coded. Program I/O is performed by standard calls to the system device handlers and the I/O supervisor User Service Routines. This feature permits programs to be written without regard for the characteristics of a particular I/O device. When a device-independent program is executed, the user enters a runtime I/O specification command selecting the I/O devices to be employed during program execution. As the system configuration grows, device-independent programs can use the new I/O capabilities immediately, with no rewriting or reassembly.

Every OS/8 system is easily extended to include additional peripheral devices. Fully supported I/O device options include high- or low-speed paper tape equipment, card readers, line printers, a selection of hard-copy or CRT console terminals, and a variety of disk and magnetic tape mass storage devices. Device independence can be maintained even for nonstandard devices. Nonstandard devices are added to the system by coding a 1- or 2-page device handler and appending it to the standard device handlers supplied with the system.

OS/8 Monitor System Programs include:

**CCL (Concise Command Language)** — provides the user with a set of easy-to-use terminal commands. The OS/8 version of CCL is similar to that of TOPS-10, the DECsystem-10 monitor. Typical commands available in CCL include: COPY, DIRECTORY, HELP, RENAME, LIST, and DELETE.

The OS/8 version of *EDIT* incorporates all features of the stand-alone package and provides I/O device independence under the OS/8 operating system.

**PAL8** — is an extended assembler that runs under the OS/8 operating system. It includes some of the features of both PAL III and MACRO-8, plus additional features such as conditional assembly, expanded symbol table (allowing over 1500 entries on a 12K-word system), hash symbol table search, extended pseudo-operations, and paginated listings with page headings and numbered pages.

**ABSLDR** — is the OS/8 absolute loader program which reads a binary program into memory and creates a resident memory image suitable for addition to the system library or for immediate execution.

**ODT (Octal Debugging Technique)** — allows the user to run prototype programs under carefully controlled conditions, modify programs during execution, or monitor the state of main memory and the major registers. The OS/8 version of ODT does not require any memory other than certain areas of the 256-location resident monitor and at most 3 additional words in each field. It is swapped into memory from the system device whenever required, while overlaid portions of the running program are saved on the device for later restoration.

**PIP (Peripheral Interchange Program)** — is the file manipulation routine. OS/8 PIP can transfer ASCII, memory image, or binary files from one device to another. PIP can also merge or delete files and list, zero, or compress file directories.

**FOTP (File-oriented Transfer Program)** — allows the user to transfer groups of files between two OS/8 file-structured devices with minimum terminal interaction and device overhead. For example, all ASCII files can be transferred between a DECTape and disk with one command.

**OS/8 FORTRAN II** — is a complete FORTRAN II programming system consisting of: FORT, the FORTRAN compiler; SABR, a symbolic assembler for binary relocatable programs; and LOADER, the linking loader that accepts an open-ended list of relocatable binary files and generates a memory image suitable for saving or execution. The FORTRAN II system includes such features as Hollerith constants, implied DO loops, program chaining, and mixed FORTRAN and assembly language statements.

**BUILD** — the system generation program for OS/8, allows convenient generation or reconfiguration of any OS/8 system. BUILD is most frequently employed to insert or delete system I/O device handlers to permit the system I/O structure to be tailored to a particular application.

**CREF (Cross Reference Utility Program)** — aids the development programmer in writing, debugging, and maintaining assembly language programs by providing the ability to locate all references to a particular symbol. Input is supplied to the OS/8 version of CREF in the form of an ASCII listing file produced by either PAL8, RALF, or the SABR assembler.

**SRCCOM (Source Compare)** — compares two source files line by line and creates a third file listing all differences between the two sources.

**PIP10** — allows the user to transfer ASCII files between DECsystem-10 DECTapes and OS/8 devices. This utility runs only on a PDP-8, 8/I, 8/L, 8/E, 8/M, or 8/A equipped with either TC08 or TD8E DECTape.

#### MINIMUM HARDWARE REQUIRED:

- PDP-8, DECstation 78 or PDP-12 with at least 8K words of memory
- At least 64K words of mass storage
- Console terminal (LT33, LT35, LA30, LA36, VT05, VT50, VT52)

#### OPTIONAL HARDWARE:

- Additional memory to a system total of 32K words
- TM8-E magnetic tape controller and transport
- TA8-E DECCassette controller and dual drive
- RK8-E, RK08, DF32, or RF08 disk system
- RL8A disk system
- TC08 or TD8-E DECTape controller and dual transport with MR8-E ROM
- LS8-E, LE8-E, LA180, LQP78 or LV8 line printer
- CR8-F or CM8-F card reader
- TP8-E high-speed paper tape reader/punch
- RX8 single or dual floppy disk system
- KS33 low-speed paper tape reader/punch

#### PREREQUISITE SOFTWARE:

None

#### OPTIONAL SOFTWARE:

OS/8 Extension Kit  
OS/8 FORTRAN IV  
OS/8 MACREL/LINKER

#### TRAINING CREDITS:

None

#### SUPPORT CATEGORY:

B — Software Support will be provided as stated in the Software Support Categories Addendum to this SPD.

#### UPDATE POLICY:

Software Updates, if any, released by DIGITAL during the one (1) year period following installation, will be provided to the customer for a media charge (includes no installation). After the first year, updates, if any, will be made available according to then prevailing DIGITAL policies.

#### 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 Agreement between Purchaser and DIGITAL.

Source and/or listing options are only available after the purchase of at least one binary license and after a source license agreement is in effect.

The following key (A, B, C, E, N, Q, R, Y, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QF015-AC = binaries on DECTape.

- A = Linc Tape
- B = Paper Tape
- C = DECTape
- E = RK05 Disk Cartridge
- N = TU60 Cassette
- Q = RL01 Disk Cartridge
- R = Microfiche
- Y = RX01 Floppy Diskette
- Z = No hardware dependency

#### Standard Options

QF015 -A— Single-use license, binaries, documentation, support services (media: A, B, C, N, Y)

QF024 -A— Single-use license for combined OS/8, OS/8 Extension Kit and OS/8 FORTRAN IV, binaries, documentation, support services (media: E, Q)

#### Upgrade Option

The following option is available as an upgrade kit from OS/78 for use on the same single CPU on which OS/78 is licensed. The license previously granted for OS/78 shall be extended to cover this upgrade.

QF025 -C— OS/8, Version 3D, Single-use license, binaries, documentation, no support services (media: Y)

#### Update Options

Users of OS/8 whose specified Support Category warranty has expired may order under license the following software update at the then current charge for such update. The update is distributed in binary form on the appropriate medium and includes no installa-

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tion or other services unless specifically stated otherwise.

QF015 -H— Binaries, documentation (media: A, B, C, N, Y)

Users of OS/8 whose specified Support Category warranty has not expired may order under license the following software update for the then current media charge. The update is distributed in binary form on the appropriate medium and includes no installation or other services unless specifically stated otherwise.

QF015 -W— Binaries, documentation (media: A, B, C, N, Y)

#### *Source/Listing Options*

QF015 -E— All sources (media: A, C, E, Y)

QF015 -F— Listings (media: R)

QF024 -E— All sources for OS/8, OS/8 Extension Kit and OS/8 FORTRAN IV combined (media: E, Q)

#### *Source/Listing Update Options*

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

QF015 -N— Sources update (media: A, C, E, Y)

#### *Miscellaneous Options*

QF015 -G— Pre-delivery kit (media: Z)

#### **ADDITIONAL SERVICES:**

QF015 -S— Consulting Services (media: Z)

### ADDENDUM

#### SOFTWARE SUPPORT CATEGORIES

Each software product (hereinafter 'SOFTWARE') with a designated Support Category A or B in the applicable Software Product Description (SPD) existing at the time of order will be the current release at the time of delivery and will conform to the SPD. DIGITAL's sole obligation shall be to correct defects (nonconformance of the SOFTWARE to the SPD) as described below. Any SOFTWARE with a designated Support Category C will be furnished on an 'as is' basis.

For SOFTWARE with a designated Support Category A or B, DIGITAL will provide the services set forth below without additional charge.

#### CATEGORY A

1. Upon notification by customer to the nearest DIGITAL office that the computer system, including all required prerequisite hardware and software, is ready for the installation of the SOFTWARE, DIGITAL will install such SOFTWARE in any location within the contiguous forty-eight (48) United States, the District of Columbia, or a country in which DIGITAL or a subsidiary of DIGITAL has a software service facility. The notification must be received by DIGITAL and the system must be ready for installation within thirty (30) days after the delivery of the SOFTWARE to customer or DIGITAL will have no obligation to install. Installation will consist of: (1) verification that all components of the SOFTWARE have been received by customer, (2) loading the SOFTWARE, and (3) executing a DIGITAL sample procedure.
2. During the ninety (90) day period after installation, if the customer encounters a problem with the current unaltered release of the SOFTWARE which DIGITAL determines to be a defect in the SOFTWARE, DIGITAL will provide the following remedial service (on site where necessary): (1) if the SOFTWARE is inoperable, apply a temporary correction (TC) or make a reasonable attempt to develop an emergency by-pass, and (2) assist the customer to prepare a Software Performance Report (SPR) and submit it to DIGITAL.
3. During the one (1) year period following installation, if the customer encounters a problem with the SOFTWARE which his diagnosis indicates is caused by a SOFTWARE defect, the customer may submit an SPR to DIGITAL. DIGITAL will respond to problems reported in SPRs which are caused by defects in the current unaltered release of the SOFTWARE via the Maintenance Periodical for the SOFTWARE, which reports SPRs received, code corrections, temporary corrections, generally useful emergency by-passes and/or notice of the availability of corrected code. Software Updates, if any, released by DIGITAL during the one (1) year period, will be provided to the customer on DIGITAL's standard distribution media as specified in the applicable SPD. The customer will be charged only for the media on which such updates are provided, unless otherwise stated in the applicable SPD, at DIGITAL's then current media prices.

#### CATEGORY B

During the one (1) year period following delivery, the services provided to the customer will be the same as set forth in 3 above.

#### CATEGORY C

SOFTWARE is provided on an 'as is' basis. Any software services, if available, will be provided at the then current charges.

DIGITAL shall have the right to make additional charges for any additional effort required to provide services resulting from customer use of other than current unaltered release of the SOFTWARE operated in accordance with the SPD.