PDP-11

INSTALLATION NOTES ON DOS MONITOR

RELEASE V08-02

November 1972

SOFTWARE SUPPORT CATEGORY

The software described in this document
is supported by Digital Equipment Cor-
poration under Category I, as defined
on page iv of this document.

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Your attention is invited to the last two pages of
this document. The "How to Obtain Software Informa-
tion" page tells you how to keep up-to-date with
DEC's software. The "Reader's Comments" page, when
filled in and mailed, is beneficial to both you and
DEC; all comments received are acknowledged and are
considered when documenting subsequent manuals.

Associated Documents:

PDP-11 Disk Operating System Monitor,
        Programmer's Handbook, DEC-11-OMONA-A-D

PDP-11 DOS System Manager's Guide, DEC-11-OMGRA-A-D

PDP-11 FORTRAN IV,
        Programmer's Manual, DEC-11-LFIVA-A-D

PDP-11 MACRO-11 Assembler,
        Programmer's Manual, DEC-11-OMACA-A-D

PDP-11 Edit-11 Text Editor,
        Programmer's Manual, DEC-11-EEDA-D

PDP-11 ODT-11R Debugging Program,
        Programmer's Manual, DEC-11-OODA-D

PDP-11 PIP File Utility Package,
        Programmer's Manual, DEC-11-UPUPA-A-D

PDP-11 LINK-11 Linker and LIBR-11 Librarian
        Programmer's Manual, DEC-11-ULLMA-A-D

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<u>PREFACE</u>

In-house testing of BATCH/DOS VØ8-Ø2 uncovered several minor software and documentation problems. Correcting these software and documentation problems would have unduly delayed the current release. Since by nature the problems fall into an annoyance category, we have documented them and where possible suggested appropriate procedures for avoiding them.

This document lists all known problems in BATCH/DOS VØ8-Ø2, the systems programs and FORTRAN.

It is recommended that you read this document carefully before bringing up BATCH/DOS VØ8-Ø2 on your system.

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This category includes all programs for which no support is given

CONTENTS

CONTENTS

- **File compatibility with RSX-11B,C.**

Files written under RSX-11B and C may be read under DOS VØ8-Ø2.
However, the reverse is not true. This is caused by changes to
the file structure UFD format under VØ8-Ø2.

Files created under V4A may be processed under VØ8-Ø2, pro-
vided that they have been properly closed. However, files cre-
ated under VØ8-Ø2 must be unlocked before they can be used under
V4A. A VØ8-Ø2 file which has been unlocked under V4A cannot then
be used under VØ8-Ø2. However, if it is copied (under V4A), the
copy can be used under VØ8-Ø2.

- **ASSIGN Keyboard Command**

The AS command does not work for group codes greater than 37
octal. AS command without arguments will give a fatal F344 error.

- **Low Density Disk Initialization**

Version VØ8-Ø2 does not work with low density RK disks. The
system has initialization problems.

- **Line Printer out of paper**

The system hangs when the line printer is out of paper.

- **File Update (OPENU)**

VØ8-Ø2 does not flag a linked file OPENed for update as an error.

- **Delete Files**

System may hang while deleting a file which contains a
block with a hardware checksum error.

- **Allocate File**

    The following sequence of Monitor requests will result in a fatal error. .INIT followed by .ALLOC which fails, gives a fatal error at .RLSE. .ALLOC failures should not issue a .RLSE request but should .EXIT instead.

- **Paper Tape BOOTSTRAP**

    RMON5 Monitor module clobbers paper tape bootstrap at top of core.

- **Nonexistent disk block reference**

    RK driver hangs when a nonexistent disk block is referenced.

- **RUN EMT Error Message Problem**

    All errors when executing the RUN EMT produce a message that states NO FILE even though a file with that name exists. The error message is ambiguous, as all of the errors in the RUN EMT take a common return and therefore issue the same message.

- **RESET Instruction**

    The keyboard commands BE, RE, KI, and ST, continue to issue RESETs.

- **Error Message**

    There have been no changes to error processing.

- **Drivers**

    V08-02 and V4A drivers are not interchangeable.

- **Access Privileges**

    DOS is not able to check to see if a file is open for input when deciding whether to permit destructive access (i.e., a file which is open for output cannot be deleted, but a file which is open only for input can).

● **Disk File Length**

When the last byte of data in a linked file coincides with the
end of a block, an extra block is allocated. Straightforward copy-
ing of the file will cause yet another block to be allocated.

● **Device EOM Processing**

If the user does not check for End-of-Medium on .WRITE, a loop
may result.

● **CSI Usage**

CSI2 returns a flag word on top of the stack. Bit 2 of the
flag word will be set to 1 if the device code in the Link Block
was set to a default value (i.e., there was no device code in the
dataset specifier). Programs which use CSI may have to be changed.

● **Free Core Function**

The .MONF function is specified to return the first available
location above the Resident Monitor. In V$08-$02, it does. In V4A,
the value returned was 2 less than it should have been.

● **RUN Keyboard Command**

The lookup sequence for the RUN command has changed. If no
extension is specified, an extension of LDA is tried first, fol-
lowed by the name as specified. This sequence is tried first for
the current UIC, then for UIC [1,1], unless a UIC is specified, in
which case only the specified UIC is used.

● **Disk Corruption**

If the system crashes to the extent that rebooting the Monitor
is the only recourse, the user must be aware that when a file is
opened for creation, its initial directory entry is made immedi-
ately. However, it is only when the file is closed that all the
blocks allocated to it are permanently recorded as such in the
device bit map. Because of the crash, the file may not have been
closed; some blocks assigned to it remain free and might be used
for some other purpose. However, the initial directory entry still

exists and the only way to remove it is by deletion, which includes
release of all blocks associated with the file. If the deletion
is not done immediately after the crash and before any other opera-
tions are carried out, it is possible that disk corruption can ensue.
This can only be avoided by the user doing the necessary clean-up
as soon as possible.

The use of the BEGIN command after a program failure requires
some care. The Monitor tries to clean up for the user by closing
any files currently open for input and deleting any files not yet
completely created. The Monitor employs its own methods for doing
this rather than using normal file-structured operations, because
such operations would attempt to write data stored in core which
must be suspect following the program crash. In particular, no
attempt is made to change bit maps as permanently recorded on the
relevant device. This can mean that on disks which require several
bit maps to cover their surface, some blocks allocated to the files
being deleted will not be released for further use, even though the
files themselves have been removed. A series of such crashes can
thus lead to the disk being filled, although other evidence appears
to contradict this. The user should therefore consider whether
he should chance disk-corruption and use KILL rather than BEGIN and
then delete the incomplete files with PIP. It also follows that if
the automatic deletion effected by BEGIN could lose irrecoverable
data to the user, he should KILL after a crash instead.

●   Swap Buffer Conflict

It is legal to type a command to the Monitor at any time.
However, if you are giving a command to the Monitor when it detects
a situation requiring a diagnostic message (i.e., an OPEN failure
in a running program while you are typing CTRL/C TI), a conflict
for the swap buffer will result. This causes the Monitor to hang.
If this happens, a Monitor restart is required.

●   Dataset Specifications

By its nature a dataset, other than one being updated, can
supply input or accept output but not both simulatenously. There-
fore, it is not possible to issue READ and WRITE commands to the
same dataset at any one time and obtain meaningful results. Because
a device such as paper tape reader or punch normally <u>forces</u>

uni-directional requests or because the device is treated as file-
structured, an appropriate OPEN command must be issued to force
the appropriate direction. The Monitor provides the necessary
checks in such cases. However, it does not presently protect the
user of the console device KB:, which is bi-directional and not
file-structured. READ and WRITE on the same dataset will be ac-
cepted but will cause invalid operations. The user must make two
datasets available or, if the same dataset is used, logically change
the direction by: .OPEN, .READ, .CLOSE, .OPEN, .WRITE, .CLOSE.

●   DECtape Directories

        When the attention message AØØ2 is printed by the Monitor
because a DECtape is not ready, it is safe to dial the
DECtape (by rotating the thumb switch) to the proper drive number;
unless the faulting request is OPENO, and the message is due to the
requested drive being in WRITE LOCK status, and you wish to dial
another transport to the drive number currently requested. In this
one instance, the directory of the DECtape has already been read
by the Monitor and the Monitor is unaware that the dialing took
place. Therefore, the directory of the latter tape will be garbled.

●   Disk Write Protection

        The Monitor expects to be able to write on any part of a disk
surface, therefore, the write protection must be disabled. In
particular, the user should be careful to ensure that the appropri-
ate switches are correctly set at times when there is no resident
Monitor in core to produce the proper error diagnosis (i.e., during
SYSLOD or a Monitor boot). Otherwise the system will not operate.

●   FINISH Keyboard Command

        This release of the Monitor has the following discrepancies
with the DOS Monitor Programmer's Handbook as published:

            No files are deleted on FInish, regardless of
            their protection codes.

● <u>Multiple PR Keyboard Commands</u>

Typing CTRL/C PR will terminate output to the console. If
CTRL/C and any other command is then typed, the running job will
hang.

● <u>CTRL/C during error message</u>

Typing CTRL/C during S, F, I or W error message printout
causes the running job to hang.

● <u>Line feed termination of MO Keyboard Command</u>

More than 113_{10} LFs for the MO command will cause the system
to hang.

● <u>Magtape Source Distribution</u>

The Magtape distribution of DOS sources contains two files
named PST.MAC. One is for assembly with MACRO sources, the other
is for assembly with FORTRAN sources. PST.MAC for FORTRAN is under
UIC 1,1 while PST.MAC for MACRO may be found on UIC 200,200.

Monitor sources can be found under UIC[200,200].

● <u>System Manager's Guide Errata</u>

Page 2-10 Step 2 of Magtape procedure instructs the user to use /SU
switch with PIP. The /SU switch will not work with Magtape, delete /SU
references. The other alternative is to retain /SU but use the file-
name on both input as well as the output side.

Pages 4-1 and 4-3 refer to DV.QT. This option is not implemented and
references to it or to device QT: are invalid throughout DOS V08-02 docu-
mentation.

Section B.3 indicates that the stack is longest during .OPEN proc-
essing. In fact, the stack is longest during .RUN processing since .RUN
uses .OPEN.

● The Monitor Support Sources DECtape (DEC-11-OMSDA-A-UA0) is not documented elsewhere. It's directory follows:


```
DIRECTORY DT0: [  1,1  ]

05-NOV-72

SLDBLD.DK0      9    01-NOV-72 <233>
SRMN1K.MAC     16    31-OCT-72 <233>
SRMN2A.MAC     21    31-OCT-72 <233>
SRMN3 .MAC     18    31-OCT-72 <233>
SRMN5A.MAC     11    31-OCT-72 <233>
SRMN6A.MAC     10    31-OCT-72 <233>
SDT   .MAC     11    31-OCT-72 <233>
SMT   .MAC     19    31-OCT-72 <233>
SPR   .MAC      4    31-OCT-72 <233>
SDC   .MAC      6    31-OCT-72 <233>
SDF   .MAC      6    31-OCT-72 <233>
SDKA  .MAC      9    31-OCT-72 <233>
SRWN  .MAC     52    31-OCT-72 <233>
PRID02.MAC      3    31-OCT-72 <233>
SIZE04.MAC     11    31-OCT-72 <233>
CMDV05.MAC     19    31-OCT-72 <233>
SLOD36.MAC     63    31-OCT-72 <233>
MONC05.MAC      6    31-OCT-72 <233>
INIT16.MAC     27    31-OCT-72 <233>
ERRS09.MAC      5    31-OCT-72 <233>
TTIO10.MAC     10    31-OCT-72 <233>
SFCL  .MAC     13    31-OCT-72 <233>
SCLS  .MAC     10    31-OCT-72 <233>
SEDPA .MAC      7    31-OCT-72 <233>
SFOP  .MAC     15    31-OCT-72 <233>
SLKP  .MAC     15    31-OCT-72 <233>
SCVT  .MAC     18    31-OCT-72 <233>
SCKX  .MAC     15    31-OCT-72 <233>
STRA  .MAC      9    31-OCT-72 <233>
SINT  .MAC     14    31-OCT-72 <233>
SCSXA .MAC     15    31-OCT-72 <233>
SCSMA .MAC     13    31-OCT-72 <233>
SMTO  .MAC     11    31-OCT-72 <233>
SRLS  .MAC      8    31-OCT-72 <233>
SOPN  .MAC     16    31-OCT-72 <233>
LDUMP .BLD      2    31-OCT-72 <233>
LDMP11.FTN     17    31-OCT-72 <233>
CSII4 .PAL     11    31-OCT-72 <233>
ICO03 .PAL      5    31-OCT-72 <233>
CREATE.DK1     15    31-OCT-72 <233>

FREE BLKS:      4
FREE FILES:    16
```

● Magtape Handling

System will hang up when SYSLOD attempts to find a nonexistent LICIL on a magtape, or if LICIL exists on the magtape under a different UIC.

● Copying SYSLOD

If it is desired to copy a DECtape containing a SYSLOD.CIL in bootable format it is necessary to use either a block-by-block DECtape copy program or CILUS. The nature of the SYSLOD file does not allow it to be copied by PIP as it is a position-dependent contiguous file.

● **UIC Problem**

CILUS does not handle UIC properly in command strings, i.e., if you run when logged under 2$\emptyset\emptyset$,2$\emptyset\emptyset$ it will not handle /LI in a different UIC.

● **.LCL on a DECtape**

CILUS gives an error message and at times may clobber the disk if you attempt to create a .CIL on disk, list on a line printer, and a .LCL on DECtape in one command string. The problem can be avoided by creating both .CIL and .LCL on disk and then PIPing the resultant .LCL to a DECtape.

● **Listing Switch**

Listings produced via the second field in a command string do not match those produced by /LI Switch. /LI produces the correct listings.

● **8K Systems**

CILUS will not fit in 8K and therefore cannot be used on 8K systems.

● **CILUS Version Number**

All the documentation on CILUS refers to V4A of CILUS, while the typeout from CILUS is V$\emptyset$1A69. CILUS will be corrected in the future to type out V4A.

BATCH Monitor VØ8

BATCH Monitor VØ8 has all the problems described under DOS VØ8. The following problems are particular to BATCH VØ8.

● CTRL/C Problem

The system may hang up while running BATCH, when a user types CTRL/C to gain console control.

● BATCH Crash After A002

With card reader as BI: device, a TE or KI command after an AØØ2 error crashes the BATCH system.

● Blank Suppress Card

If a blank suppress card is not the first card in the deck, the system not only does not suppress blanks, but prints a ? at the end of each line.

● Control Cards

Following control cards will be recognized by Version Ø8.

Control Cards	Column 1 Pattern
EOF	12-11-Ø-1-6-7-8-9
Ø26	12-2-4-8
Ø29	12-Ø-2-4-6-8
Blank suppress	12-11-Ø-7-8-9

● End of Card Deck

A blank card is required at the end of every card deck.

● BATCH Dataset

In order to run under BATCH, standard dataset names must be used for command input (CMI), command output (CMO), program command input (PCI), and command data input (CDI). See the Batch-11 User's Manual (Chapter 4) for details.

- <u>Default UIC</u>

  The default UIC is 2,1 not 1,2 as specified.

● Long Command String Problem

The LINKER cannot handle command strings longer than one line
if the /OV switch is specified. This is due to an improper algorithm
for allocating stack space at the time the /OV switch is seen. This
problem may be circumvented by not using the /OV switch on overlay
links having long command strings. The only way this will work is
to explicitly specify the output symbol table on the main link and
to explicitly specify the input symbol table on each of the subsidi-
ary links.

● Multiply Defined Globals Message

Under DOS multiply defined globals cause a message to be printed
on KB:. Under BATCH such messages will be lost if no log file dataset
is specified.

● Magtape Handling

In-house testing of PIP V7AØ1 has uncovered several problems in the magtape handling. These are:

● * construction fails in some cases.

● There may be a problem copying from one magtape to another magtape if number of files exceeds 3Ø on a 28K machine.

Identification Numbers - Document DEC-11-LFOAA-B-D

Various identification numbers for paper tapes are incorrectly shown. The correct numbers are as follows:

Item	Document Reads	Should Read
Compiler Concatenated Object Modules	DEC-11-LFCDA-A-PR1 (through) -PR15	DEC-11-LFCOA-A-PR1 (through) -PR15
OTS V2ØA Diagnostic File (Pre-Built)	DEC-11-LFDGA-B-PL	DEC-11-LFDBA-A-PL
OTS Library Tapes - FORMOD.OBJ	DEC-11-LFOMA-B-PR1 (through) -PR6	DEC-11-LFLTA-A-PR1 (through) -PR6
EISMOD.OBJ	DEC-11-LFEMA-B-PR	DEC-11-LFEIA-A-PR
FPUMOD.OBJ	DEC-11-LFPMA-B-PR	DEC-11-LFFPA-A-PR

● PDP-11/40 Users

System building instructions for the PDP-11/4Ø are not contained in the "Getting FORTRAN on the Air". PDP-11/4Ø users should note the following:

> Chapters 1 through 3, 5 and 6 (all except Chapter 4) may be followed as presented for all operations except building the FORTRAN OTS.

To build an OTS -

> for 11/4Ø without EAE, EIS or FIS, follow the directions for basic 11/2Ø, i.e., use the FORLIB.OBJ library

> for 11/4Ø with EAE, follow the directions for 11/2Ø with EAE, i.e., use the EAELIB.OBJ library

> for 11/4Ø with EIS, follow the directions for basic 11/45, i.e., use the EISLIB.OBJ library

> for 11/4Ø with FIS follow the directions for basic 11/45, i.e., use the EISLIB.OBJ library

NOTE

Support for 11/4∅ FIS is not included in this
release. It will be available separately at
a later time.

NOTE

FORTRAN has not been thoroughly tested on
11/4∅ configurations. Consequently, such
use will be considered to be unsupported
for the time being. However, very limited
testing has revealed no problems. Software
Performance reports on user experience of
DOS/FORTRAN on 11/4∅ will be appreciated.

● <u>Typographical Errors</u>

Page & Section	Reads	Should Read
1-2, 1.5.1	FORTRAN.OBJ	FORTRN.OBJ
4-4, 4.3	$RU LIBR	$RU PIP
4-4, 4.3	$RU PUP	$RU PIP

● <u>FORTRAN Building Control Files</u>

Four BATCH control files for building the FORTRAN Compiler and
OTS from the distributed sources are included with the source file
kits. They are included for information only and may need to be
adapted for a given user environment. The files are:

    ASMCOM.4A   -   To assemble the compiler sources.
    BLDCOM.4A   -   To build the compiler from the assembled
                    object modules.
    ASMOTS.2∅A -   To assemble OTS sources.
    BLDOTS.2∅A -   To build libraries from OTS object modules.

These control files are largely self-documenting and should be listed,
understood and edited as appropriate before use.

HOW TO OBTAIN SOFTWARE INFORMATION

Announcements for new and revised software, as well as programming notes, software problems, and documentation corrections are published by Software Information Service in the following newsletters.

> Digital Software News for the PDP-8 and PDP-12
> Digital Software News for the PDP-11
> Digital Software News for 18-bit Computers

These newsletters contain information applicable to software available from Digital's Software Distribution Center. Articles in Digital Software News update the cumulative Software Performance Summary which is contained in each basic kit of system software for new computers. To assure that the monthly Digital Software News is sent to the appropriate software contract at your installation, please check with the Software Specialist or Sales Engineer at your nearest Digital office.

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> Digital Equipment Corporation
> Software Information Service
> Programming Department
> Maynard, Massachusetts 01754

These forms, which are provided in the software kit, should be fully filled out and accompanied by Teletype output as well as listings or tapes of the user program to facilitate a complete investigation. An answer will be sent to the individual and appropriate topics of general interest will be printed in the newsletter.

Orders for new and revised software manuals, additional Software Performance Report forms, and software price lists should be directed to the nearest Digital Field office or representative. USA customers may order directly from the Software Distribution Center in Maynard. When ordering, include the code number and a brief description of the software requested.

Digital Equipment Computer Users Society (DECUS) maintains a user library and publishes a catalog of programs as well as the DECUSCOPE magazine for its members and non-members who request it. For further information, please write to:

> Digital Equipment Corporation
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> Maynard, Massachusetts 01754

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