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The PDP-8 Digital Software News (a Bi-Monthly Publication) complements Reviews for COS-310, OS/8 and OS/78. It publishes new and revised Software Product Descriptions, programming notes, software problems and solutions, and documentation corrections. Much of the material is developed from answers to customer Software Performance Reports (SPRs) significant to the general audience, and is printed here to establish a reference notebook.

PRODUCTS SUPPORTED in the PDP-8 DIGITAL SOFTWARE NEWS

CAPS-8 V1
COS-310 V3 (V7.00)
COS-310/2780 RDCP V6.05, V7
DECnet-8 V1
FOCAL/MPS V1
OS/8 V3D
OS/8 FORTRAN IV V3D
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Eleanor F.Hunter, Editor
Roxanne Alexander, Associate Editor

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CIRCULATION LIST UPDATE

Over 7500 copies of this PDP-8 DSN are sent for each issue. Since we probably have many incorrect addresses on our mailing list, we request that you complete the following by 1 DECEMBER 1978. If we don't hear from you, we will assume that you no longer wish to receive this publication.

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USER LETTER

Jan Fair, SPR Administration

Customers (and others) have brought to our attention the need for additional information regarding SPR service, particularly as it involves SPR Administration. The following represents our attempt to fulfill this need. Your comments and suggestions are most welcome.

HOW TO MAKE THE BEST USE OF SPR FORM

What WE Can Do for YOU

1. Blank SPR forms are available upon request in the desired quantities through SPR Administration (P.O.Box F) and your local office/SPR Center.

2. Copies of the SPR acknowledgment and answer are sent to the appropriate DIGITAL Office/SPR Center for their information.

3. SPRs marked *SOFTWARE ERROR or INQUIRY* will have a response for supported Category A and B products. These SPRs should refer to suspected deficiencies in the software.

4. SPRs marked *FYI or SUGGESTION* are forwarded to the pertinent software group for information purposes, and are responded to at their discretion.

5. SPRs marked *DOCUMENTATION ERROR* should report those problems dealing with software manuals or newsletters, and will be forwarded to the pertinent software group.

What YOU Can Do For US

1. Customer Name and Address and Problem Statement should always be typed or printed clearly.

2. SPRs should not be used for problems concerning software policy, software distribution, or hardware. Your local office should be contacted in these cases.

3. It would be most helpful to all concerned, if problems with patches are reported as soon as possible.

4. For security SPRs, it is imperative that the *DO NOT PUBLISH box* be marked.

5. It would be helpful if tapes submitted with SPRs are labeled (track and density), and have a directory attached.

6. Should you ever receive an unacceptable SPR response, please contact us or the appropriate SPR Center so that the response may be readdressed.

COS-31Ø V2 (6.Ø5)

Seq 8 M
1 of 1

ERRORS ON RXØ1 DISKETTES IN VERSION 6.Ø5

If an error occurs on an RXØ1, COS-31Ø may not produce the message "I/O error on RXn; RETRY?".

The following patch to SYSGEN corrects this problem by eliminating the RXØ1 error logger. It also changes the version number of SYSGEN to V6.Ø5C. SYSGEN/C must be run immediately after installing this patch.

```
RUN PATCH
COS PATCH SYSTEM VERSION 6.Ø5
FILE NAME: SYSGEN
BLOCK: 22
LOCATION: 301
OLD VALUE: 43ØØ
NEW VALUE: 44ØØ
LOCATION: END
RELATIVE CHECKSUM: Ø1ØØ
NEW BLOCK PATCHED OK

BLOCK: 24
LOCATION: 321
OLD VALUE: 72Ø1
NEW VALUE: 5337
LOCATION: END
RELATIVE CHECKSUM: 6136
NEW BLOCK PATCHED OK

BLOCK: END
Ø2 BLOCK(S) PATCHED IN THIS FILE
FILE NAME: /X
EXIT
```

DECnet-8 V1 Seq 10.2.1 M
NSP 1 of 1

BYTES LOST IN INTERRUPT MESSAGE (SR)

The released version of NSP, a module of DECNET V1, contains a bug. BYTES 10 - 12 of an interrupt message are lost. The following source fixes should be made:

LOCATION	OLD	NEW
TOP OF LISTING	PATCH = "B	PATCH = "C
MOVOFN-1	JMP OPTLP	JMP OPTLP-1

The released version of NIP, a module of DECNET V1, contains a bug. NIP, when assembled with SKIMP=0, gives assembly errors. The following source fixes should be made:

LOCATION	OLD	NEW
TOP OF LISTING	PATCH = "B	PATCH = "C
MONTH,	MONTH, 0	MONTH, 0 >
PRTNM+11	PAGE >	PAGE IFDEF SKIMP<PAGE>
PCSTAT,	PCSTAT, 0	PCSTAT, 0

PROBLEM WHEN YOU DESTROY BATCH (SR)

There is a deficiency in the design of OS/8 that causes the system to malfunction if a user program destroys BATCH and then chains to a CUSP that attempts to use BATCH support utilities. Normally, the CUSP would be invoked from the KBM. The KBM carefully checks to see if the user program destroyed BATCH (by examining bit 4 of the JSW), and if BATCH had been destroyed, then the KBM reads BATCH back into memory. By chaining to the CUSP, the KBM is bypassed and this check does not occur. The CUSP checks the BATCH-in-progress bit at location Ø7777, and seeing that BATCH is running, makes free use of the BATCH support. Since the BATCH support code is no longer present, the CUSP does not run properly.

One way of fixing this problem is to have all user programs reload BATCH before chaining to a CUSP that is friendly to BATCH. This is not a good solution but may be useful until such time (if ever) that a cleaner solution is found. This procedure need be used only if your user-written program destroys BATCH.

A better solution would be to modify the USR so that the CHAIN function reloads BATCH if the calling program destroyed BATCH and the program being cxhained to does not destroy BATCH. Such a change cannot be made at the present time as a patch.

Programs that are friendly with BATCH include: CCL, PAL8, MACREL, and LINK, all of which send error messages to the BATCH log if BATCH is running. Users should, therefore, not chain to any of these CUSPs if they destroy BATCH.

This problem presents itself when running some standard programs; and users should adhere to the following restrictions:

MACREL: You should not run MACREL specifying the /Z switch (which means destroy BATCH) and at the same time chain to LINK (via /L or /G) since LINK uses BATCH support. If you must specify /Z and you desire to chain to LINK, then you should also include the /T switch in your command line to tell LINK not to use BATCH support.

BASIC: In BASIC V6, you should not invoke the CCL function from a BATCH stream since CCL uses BATCH support, unless your BASIC program does not destroy BATCH. You can ensure that BASIC will not destroy BATCH by telling it not to use the highest memory field. For example, the command

```
.EXECUTE FILE.BA=2
```

will ensure that BASIC will not use any field above field 2.

TECO: In TECO V5, if you have 16K or less memory, you should not invoke the EG command from a BATCH stream since CCL uses BATCH support. For users with 16K machines the following patch to TECO will prevent TECO from destroying BATCH:

```
.GET SYS:TECO
.ODT
16441/6400 1000
 5507/1323 1257
 5512/4377 6377
 5514/4377 0777
 6252/7710 7200
^C
.SAVE SYS:TECO
```

This is an optional patch so it does not bump TECOs version number. This patch removes long error messages from TECO but preserves memory-resident overlays.

OS/8 V3D
UTILITIES
FOTP V9A

Seq 21.19.1 M
1 of 1

INCORRECT DIRECTORY VALIDATION (SR)

Problem: If a device contains many files and the directory contains no additional information words (i.e., no dates) then FOTP may think the directory is invalid.

Diagnosis: FOTP checks the validity of a directory by several means. One method is a range check on the number of file entries in the first directory segment. If the directory had been built with 0 additional information words (/Z=100), then the segment can contain more entries than FOTP believes is possible.

Solution: Modify FOTP so that it permits a directory segment with as many as 71 entries. To do this, install the following patch:

```
.GET SYS:FOTP
.ODT
12375/7700 7671
14346/7700 7671
17236/7101 7102
^C
.SAVE SYS:FOTP
```

This patch upgrades FOTP to Version 9B. Most users are not affected by this patch.

OS/8 V3D
UTILITIES
PAL8 V10A

Seq 21.22.1 M
1 of 1

INCORRECT CORE SIZE ROUTINE (SR)

Problem: PAL8's core size routine fails on certain machines such as an 8K PDP-8L.

Diagnosis: There was no room in PAL8 for the standard size routine. The routine used by PAL8 includes a typo.

TAD I (FLD4 should read TAD I FLD4 and,
DCA I (FLD4 should read DCA I FLD4.

Solution: Apply the following patch:

```
.GET SYS:PAL8
.ODT
5675/3755 3715
5677/1755 1715
1533/0301 302
^C
.SAVE SYS:PAL8
```

This patch upgrades PAL8 to V10B.

OS/8 V3D
UTILITIES
PAL8 V10B

Seq 21.22.2 M
1 of 1

ERRONEOUS LINK GENERATION NOTED ON PAGE DIRECTIVE (SR)

Problem: An apostrophe (') is sometimes printed to the right of the binary column on the listing line for a PAGE directive (pseudo-op). Such a symbol is meaningless in this case.

Diagnosis: This occurs if the previous line had a link generated in it. The PAGE directive code fails to reset the links generated flag (LININD).

Cure: Install the following patch which upgrades PAL8 to V10C:

```
.GET SYS:PAL8
.ODT
0463/5550 5367
0567/xxxx 3070;5550
1533/0302 0303
^C
.SAVE SYS:PAL8
```

OS/8 V3D
UTILITIES
PIP V12A

Seq 21.23.1 M
1 of 1

PIP /Y OPTION DOES NOT WORK PROPERLY WHEN TRANSFERRING A SYSTEM HEAD FROM A DEVICE WHICH IS NOT CO-RESIDENT WITH SYS. (ES)

Problem: PIP /Y option always reads absolute block 7 of the input devices even if the input is from a file.

The following patch:

1) Fixes /Y problems in PIP
2) Adds RL01 Disk to PIP device tables
3) Upgrades patch level to V12B (from V11A - an incorrect revision code)

```
.GET SYS PIP (CR)
.ODT (CR)
13626/0000 17 (CR)
13631/0000 4027(CR)
16012/1373 7001 (CR)
16051/4764 7410 (CR)
16112/3400 1600 (CR)
16134/3243 7200 (CR)
16151/7400 5600 (LF)
16152/0016 0007 (LF)
16153/7774 7770 (CR)
16167/6254 6210 (CR)
16210/1377 3032 (LF)
16211/3020 1766 (LF)
16212/1376 3024 (LF)
16213/3344 5763 (CR)
16622/6161 6162 (LF)
16623/0100 0200 (CR)
(CONTROL C)
.SAVE SYS PIP (CR)
(CR) = CARRIAGE RETURN
(LF) = LINE FEED
(CONTROL ^C)
DEPRESS "C" WHILE
HOLDING DOWN "CTRL"
```

OS/8 V3D
SET V1D

Seq 21.26.3 M
1 of 1

PARSING OF = IN TTY WIDTH OPTION (SR)

Problem: The valid command SET TTY WIDTH=80 results in a syntax error.

Diagnosis: The code that checks for an optional equals sign is failing to advance the character scan pointer.

Solution: Install the following patch:

```
.GET SYS:SET
.ODT
5763/5754 4564;7200;5754
0507/6104 6105
^C
.SAVE SYS:SET
```

This patch upgrades SET to Version V1E. In both the commands

```
SET TTY WIDTH=n
```

and

```
SET CDR CODE=02x
```

the equals sign is optional, and may be replaced by one or more spaces. If the equals sign is specified, it may also be optionally preceded or followed by spaces.

OS/8 EXTENSION KIT V3D
BASIC.UF V5A

Seq 31.5.1 M
1 of 10

BASIC.UF INCOMPATIBLE FROM OS/8 V3C (SPR 8-2537 JG)

BASIC.UF is incompatible with OS/8 V3D BASIC due to PAGE ZERO references that were not updated.

The following binary patch or source change can be made to fix this problem.

This patch upgrades BASIC.UF to V5B.

```
.GET SYS;BASIC.UF
/ODT
3447/1073 1177
3467/4514 4556
3474/4514 4556
3523/4514 4556
3525/1074 1171
3531/1074 1171
3561/1073 1177
3607/4535 4526
3624/4514 4556
3636/4514 4556
3716/1073 1177
3752/4536 4524
4012/4514 4556
4021/1074 1171
4044/4514 4556
4060/1073 1177
4067/1077 1172
4160/3064 3056
4162/4534 4557
4163/0307 0311
4207/4535 4526
4216/4514 4556
4225/4514 4556
4275/4514 4556
4312/4514 4556
4403/4514 4556
4433/4514 4556
4444/4514 4556
4451/1073 1177
4476/4556 4573
4504/4514 4556
4507/4514 4556
4513/4514 4556
```

```
4532/1Ø73 1177
^C (CONTROL C)
.SAVE SYS:BASIC.UF
```

The following is a list of the source so you can make the proper changes to correct.

```
/OS8 BASIC USER FUNCTIONS, V5A          PAL8-V1ØA          PAGE 1

                /OS8 BASIC USER FUNCTIONS, V5A
                /
                /
                /
                /
                /
                /
                /
                /
                /COPYRIGHT (C) 1974 BY DIGITAL EQUIPMENT CORPORATION
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                /
                /
                /
                /
                /
                /JR                     MODIFIED FOR V5
                /JPG                    MODIFIED FOR V5A
                /

        0005            VERSON= 5       /VERSION OF BRTS
        0001            SUBVUF=01       /SUBVERSION OF BASIC.UF
                                        /FIRST WORD OF THIS OVERLAY
                                        CONTAINS
                                        /BRTS VERSION IN LEFT HALF AND
                                        SUBVERSION IN RIGHT HALF

        4000            FPP=   4000

/OS8 BASIC USER FUNCTIONS, V5A          PAL8-V10A           PAGE 1-1

        6000    FADD=       FPP+2000
        6117    FSUB=       FPP+2117
        5600    FMPY=       FPP+1600
        5722    FDIV=       FPP+1722
        6135    FFNEG=      FPP+2135
        6256    FFPUT=      FPP+2256
        6241    FFGET=      FPP+2241
        6215    FFNOR=      FPP+2215
        0323    FACCLR=     0323
        1615    UNSFIX=     1615
        1262    PSWAP=      1262
        0311    ARGPRE=     311
```

```
/VC8E POINT PLOTTING DISPLAY CONTROL IOT'S

6052    DISD=   6052        /SKIP ON DONE FLAG
6053    DILX=   6053        /LOAD AC2-11 INTO X-REGISTER (DOESN'T CLEAR AC)
6054    DILY=   6054        /LOAD AC2-11 INTO Y-REGISTER (DOESN/T CLEAR AC)
6055    DIXY=   6055        /INTENSIFY

        /DK8EP PROGRAMMABLE REAL TIME CLOCK IOT'S

6130    CLZE=   6130        /CLEAR CLOCK ENABLE BITS PER AC
6131    CLSK=   6131        /SKIP ON CLOCK FLAG
6132    CLOE=   6132        /SET CLOCK ENABLE BITS PER AC
6133    CLAB=   6133        /AC TO CLOCK BUFFER
6135    CLSA=   6135        /READ CLOCK STATUS TO AC
                            /BIT 0 SET ON OVERFLOW
                            /BITS 9-11 SET ON RESPECTIVE SCHMITT TRIGGER
                            FIRING
                /CLOCK ENABLE REGISTER BITS
                /BIT        FUNCTION
                /0          INTERRUPT ENABLE BIT
                /1-2        MODE BITS:
                /           00          RUN COUNTER, INTERRUPTING EACH
                                        4096 TICKS
                /           01          RUN COUNTER AND RESET WITH CLOCK
                                        BUFFER ON OVERFLOW
                /           10          RUN COUNTER AND READ COUNTER WHEN
                                        EVENT OCCURS
                /           11          RUN COUNTER AND READ AND CLEAR IT
                                        ON EVENT
                /3-5        RATE SELECTION:
                /           000         STOPPED
                /           001         EXTERNAL TIME BASE
                /           010         100 HZ
                /           011         1 KHZ
                /           100         10 KHZ
                /           101         100 KHZ
                /           110         1 MHZ
                /           111         STOPPED
                /6          OVERFLOW STARTS A-D
                /7          SET TO INHIBIT CLOCK
                /8          EVENT ON CHAN 1, 2, OR 3 CAUSE INTERRUPT AND
                            OVERFLOW
                /9-11       ENABLE EVENTS 1 THRU 3
                /AD8EA A-D CONVERTER IOT'S
```

OS/8 EXTENSION KIT V3D
BASIC.UF V5A

Seq 31.5.1 M
5 of 10

```
6530    ADCL=     6530        /CLEAR A-D
6531    ADLM=     6531        /LOAD MULTIPLEXOR FROM AC8-11 AND
                              CLEAR AC
6532    ADST=     6532        /START A-D CONVERTER
6533    ADRB=     6533        /READ A-D BUFFER INTO ACO-11 AND
                              CLEAR FLAG
6534    ADSK=     6534        /SKIP ON A-D DONE FLAG (DOESN'T
                              CLEAR FLAG)
6536    ADLE=     6536        /SKIP ON TIMING ERROR
6537    ADRS=     6537        /READ STATUS REGISTER

        /STATUS REGISTER FORMAT:
        /0        A-D DONE FLAG
        /1        TIMING ERROR FLAG
        /2        ENABLE INTERRUPT ON DONE FLAG
        /3        ENABLE INTERRUPT ON TIMING ERROR
        /4        ENABLE EXTERNAL START (EG CLOCK)
        /5        AUTO INCREMENT MODE
        /6-7      UNUSED
        /8-11     4 BIT CHANNEL NUMBER

        /DR8E DIGITAL BUFFERED I/O BASE IOT'S
        /DEVICE CODE CHANGED TO 52 TO AAVOID CONFLICT
        /WITH LQP-8E WHICH IS DEVICE CODE 50

6520    DBDI=     6520        /DISABLE INTERRUPTS
6521    DBEI=     6521        /ENABLE INTERRUPTS
6522    DBSK=     6522        /SKIP IF IN FLAG IS SET
6523    DBCI=     6523        /SET SELECTED BITS IN INPUT
                              REGISTER
6524    DBRI=     6524        /READ INPUT REGISTER TO AC
6525    DBCO=     6525        /CLEAR SELECTED BITS IN OUTPUT
                              REGISTER
6526    DBSO=     6526        /SET SELECTED BITS IN OUTPUT
                              REGISTER
6527    DBRO=     6527        /READ OUTPUT REGISTER TO AC

0044    ACX=      44
0045    ACH=      45
0046    ACL=      46

0010    MAXPTS=   XRO
0011    REFRFL=   XR1
0012    BUFXR=    XR2
0013    DX=       XR3                 /XR3,XR4,XR5= TEMP FL PT
LOC
```

OS/8 EXTENSION KIT V3D
BASIC.UF V5A

Seq 31.5.1 M
6 of 10

```
        6040    SPF=        6040            /SET TTY PRINTER FLAG
        6007    CAF=        6007            /RESET PROCESSOR

        1465    IA=         1465            /ENTRY POINT FOR USER FUNCTION
                                            ERROR MESSAGE
                NOPUNCH                     /DUMMY SECTION FOR MISC PAGE 0
                                            REFERENCES

        0001    *1          /JPG 13-DEC-77 DUMMY PAGE 0 CHANGED SO THAT
                                            POINTERS
00001   5402    JMP I       .+1              /AND ADDRESSES MATCH UP WITH
                                            CURRENT VERSION
00002   4456    SERVC
        0006    *6
00006   0000    USECON,     0               /ENTRY #OF USER BUF IN DIM TBL
        0010                *10
00010   0000    XR0,        0
00011   0000    XR1,        0
00012   0000    XR2,        0
00023   0000    XR3,        0
00014   0000    XR4,        0
00015   0000    XR5,        0
        0020                *10
00020   6211    CDFIO,      CDF 10          /FLD OF PSEUDO DIM TBL
00021   0000                0
00022   0000    ARSTRT,     0               /ADR-1 OF PSEUDO DIM TBL
        0056                *56
00056   0000    INSAV,      0
        0124                *124
00124   6215    FNORL,      FFNOR
        0126                *126
00126   6256    FPUTL,      FFPUT
        0156                *156
00156   1615    FIXP,       UNSFIX
00157   6241    FGETL,      FFGET
        0161                *161
00161   0323    FCLR,       FACCLR
        0171                *171
00171   0017    K0017,      17
00172   0200    K0200,      200
00173   1262    P1SWAP,     PSWAP
        0177                *177
00177   0010    K0010,      10

                            ENPUNCH
        3400                *3400
```

```
                    /INI(N)-INITIALIZE ROUTN;CALLED BY USER BEFORE 'PLY
                    /          OR ADC';INITIALIZE CTRS, FLGS, ETC
                    /          N IS A DUMMY ARG
                    /
03400   0501        INI,       VERSON^100+SUBVUF      /VERSION NUMBER OF USER
                                                      FUNCTIONS
03401   4214                   JMS            BUFCDF
03402   1236                   TAD            BUFBAK  /PICK UP ADDR OF DISPLAY
                                                      BUFFER
03403   3012                   DCA            BUFXR   /STOR IN BUFFER XR FOR
                                                      PUTBUF ROUTINE
03404   3237                   DCA            TOTPTS  /BUF IS NOW EMPTY
03405   7001                   IAC
03406   3777                   DCA I          (STPT   /ACCES BUF AT 1ST PT
03407   7001                   IAC
03410   3776                   DCA I          (NTHY   /ACCES EVERY PT
03411   7001                   IAC
03412   3775                   DCA I          (XFLG   /BUF MAYBE DISPLAYED
03413   5600                   JMP I          INI

                               /ROUTINE TO GET FIELD AND ADDRESS OF USER BUFFER
                               /FROM 'USECON' LOCATION

03414   0000        BUFCDF,    0
03415   1006                   TAD            USECON  /ENTRY PT OF BUF IN DIM
TBL
03416   7106                   CLL RTL                /MULT BY 4
03417   1022                   TAD            ARSTRT  /ADR-1 OF STRT F DIM TBL
03420   3015                   DCA            XR5     /ADR-1 OF ENTRY IN DIM TBL
03421   1020                   TAD            CDFIO   /COPY CDF TO BRTS TABLES
INLINE
03422   3223                   DCA            .+1
03423   0000                   0

04110   7740                   SMA SZA CLA            /R<=6?
04111   5346                   JMP     IAA            /NO
04112   1350                   TAD     R              /R GIVES CORRECT VAL FOR
04113   7106                   CLL RTL                /EXT START,
.1,1,10,100,1000 KHZ RATE
04114   7006                   RTL
04115   7006                   RTL                    /RATE GOES INTO BITS 3-5
                                                      OF EN REG
04116   1372                   TAD            (5050   /BITS 0,2,6,8 OF EN REG
                                                      ALWAYS SET
04117   3200                   DCA            SAM     /SAVE TEMP
04120   1351                   TAD            0       /OVERFLOW CNT
04121   7041                   CIA
```

```
04122   6133            CLAB                    /SET BUF PRESET REG
04123   7200            CLA
04124   1352            TAD             S
04125   7640            SZA CLA                 /ANY SCHMITT TRIGS ASKED
FOR?
04126   1371            TAD             (27     /YES,SET BITS 7,9-11 OF EN
REG
04127   1200            TAD             SAM     /FINAL ENABLE VAL
04130   7040            CMA
04131   6130            CLZE                    /CLEAR BAD BITS FROM EN
REG
04132   7040            CMA                     /ENABLE VAL IS BACK AGAIN
04133   6132            CLOE                    /START CLOCK
04134   7200            CLA
04135   1353            TAD             SAMFLG
04136   7450            SNA                     /JUST SETTING UP FOR A
SIMPLE TIMING DEV?
04137   5343            JMP             DONE    /YES,RTN TO BASIC
04140   7710            SPA CLA                 /SAMPLE ADC'S?
04141   5770            JMP I           (DRESET /NO,DO DIGITAL IO
04142   5767            JMP I           (SRESET /YES
04143   3353    DONE,   DCA             SAMFLG  /CLR FLG
04144   6040            SPF                     /RESET TTY FLG FOR BASIC
04145   5677            JMP I           CLK     /RTN TO BASIC
04146   6040    IAA,    SPF
04147   5776            JMP I           (IA
04150   0000    RR,     0                       /THESE 3 LOCATIONS
04151   0000    0.      0                       /MUST BE TOGETHER IN
04152   0000    S,      0                       /THIS ORDER
04153   0000    SAMFLG, 0
04154   0015    FL4096, 15;2000;0
04155   2000
04156   0000

                /GETARG-ENTER WITH SCALER(0=ARG2,1=ARG3,2=ARG4) IN AC;
                /       CALL 'ARGPRE' & ON RTN THE D.F. OF ARG IS SET
                /       & ADR OF ARG IS IN FAC
                /       PUT FL PT ARG IN FAC( 44-46)

04157   0000    GETARG, 0
04160   3056            DCA             INSAV   /ARGPRE USES THIS SCALER
LOC 56
04161   4763            JMS I           KARG    /GET ADR OF ARG
04162   4557            JMS I           FGETL   /PUT ARG IN FAC
04163   0311    KARG,   ARGPRE                  /USED TO ADVANTAGE
04164   6201            CDF                     /RESET D.F.
04165   5757            JMP I           GETARG
```

OS/8 EXTENSION KIT V3D
BASIC.UF V5A


```
04167   4260
04170   4516
04171   0027

ACH     0045    DIXY    6055    Ø       4151
ACL     0046    DLY     3473    PCTR    4075
ACX     0044    DONE    4143    PLY     3454
ADC     3522    DPY1    3643    PSAM    4074
ADCL    6530    DRESET  4516    PSWAP   1262
ADLE    6536    DRI     4267    PUT     4432
ADLM    6531    DRO     4311    PUTBUF  3440
ADRB    6533    DX      0013    PUTCDF  3441
ADRS    6537    D3      3700    P1SWAP  0173
ADSAM   4243    D4      3655    R       4150
ADSAM1  4237    EARLY   3560    REFRFL  0011
ADSK    6534    ENDPT   3651    S       4152
ADST    6532    FACCLR  0323    SAM     4000
ARGN    4274    FADD    6000    SAMFLG  4153
ARGPRE  0311    FCLR    0161    SAM1    4026
ARG123  4500    FDIV    5722    SAM3    4065
ARSTRT  0022    FFGET   6241    SERVC   4456
A1      4053    FFLOT   3746    SETDX   4200
BUFBAK  3436    FFNEG   6135    SPF     6040
BUFCDF  3414    FFNOR   6215    SRESET  4260
BUFPTR  3742    FFPUT   6256    STPT    3650
BUFXR   0012    FGETL   0157    SUBVUF  0001
CDFBAK  3435    FIXP    0156    TION    4265
CDFIO   0020    FLGNEG  4311    TOTPTS  3437
CLAB    6133    FL1022  3757    TSAM    4076
CLK     4077    FL4096  4154    UNSFIX  1615
CLOE    6132    FL513   3754    USECON  0006
CLSA    6135    FMPY    5600    VERSON  0005
CLSK    6131    FNORL   0124    XCOORD  3744
CLUGE   4347    FPP     4000    XCRD    3743
CLW     3542    FPUTL   0126    XFLG    3653
CLW1    3551    FSUB    6117    XR0     0010
CLZE    6130    GET     4400    XR1     0011
COMMON  4441    GETARG  4157    XR2     0012
CONST   4077    IA      1465    XR3     0013
CSAM    4072    IAA     4146    XR4     0014
DBCI    6523    INI     3400    XR5     0015
DBCO    6525    INSAV   0056
DBDI    6520    KARG    4163
DBEI    6521    KDBCI   4551
DBRI    6524    KDBCO   4327
DBRO    6527    LDBRO   4550
DBSK    6522    KDBSO   4331
```

OS/8 EXTENSION KIT V3D
BASIC.UF V5A

Seq 31.5.1 M
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DBSO	6526	LLBRD	4471
DELTAX	3745	K0010	0177
DIG	4023	K0017	0171
DIGIO	4543	K0200	0172
DIGSAM	4532	LHOLD	4500
DILX	6053	MASK	4543
DILY	6054	MAXPTS	0010
DIS	3600	MSKCTR	4431
DISCDF	3704	NCTR	4076
DISCTR	3741	NEGCHK	4334
DISD	6052	NSAM	4073
DISPLY	3654	NTHY	3652

OS/8 EXTENSION KIT V3D
BASIC V5A

Seq 31.12.1 M
1 of 1

BASIC EDITOR HAS A FIELD BOUNDARY BUG (SPR 8-2517 JR)

Problem: The BASIC EDITOR has a field boundary bug - if a line stored in core crosses a field, a list of that line lists other parts of your program, or garbage.

This patch fixes BASIC and raises the EDITOR to V5B.

```
GET.SYS BASIC
ODT
1431/5234 5240
1434/7001 7141
1435/3023 1023
1436/4542 5370
1571/XXXX 6214
1572/XXXX 7420
1573/XXXX 1107
1574/XXXX 5240
1321/2642 2643
^C
SA SYS BASIC
```

NEW FEATURES IN TECO V5 (SR)

Several new features have been incorporated into Version 5 of TECO (released with OS/8 V3D) that have not been adequately documented. These features are described below:

1. One line English-sentence error messages are now available in addition to the three-letter code if you have 16K or more memory. These can be suppressed via use of the EH flag. 1EH means use short error message only (?XXX). 2EH means use one-line error message. 0EH is the same as 2EH which is the default. The setting of the EH flag has no significance in 8 or 12K systems.

2. Several new conditionals have been added as a convenience feature (and to be compatible with PDP-10 TECO):

"T execute commands if true	same as "L
"F execute commands if false	same as "E
"< execute commands if less than	same as "L
"> execute commands if greater than	same as "G
"S execute commands on success	same as "L
"F execute commands if unsuccessful	same as "E
"R execute commands if alphanumeric	same as "C

3. If no iteration count is specified to an iteration, the count is presumed to be infinite (no limit). In TECO V4, the count was presumed to be 4096.

4. The command n^T types the character whose ASCII code is n.

5. The command n:= is the same as n= (types the value of n) except that no carriage return/line feed is typed.

6. It is now an error if an argument is given to a Y (Yank) command. nY produces the message ?NAY - Numeric Argument with Y.

7. It is an error if two arguments are given with a D command.

8. The ^R, "A, and "B commands have been removed. They are obsolete. ^R was equivalent to FS. "A and "B are now equivalent to "L and "G.

9. The range of arithmetic precision has been increased. Numbers can now range in value from -4095 to +4095. Exceeding this range can give unpredictable results. In particular, -4096 should be avoided. Numbers in this range can be stored in Q-registers. However, you can only store numbers in the range -2047 to +2047 in flags.

10. The = and \ commands now give signed results (when the radix is decimal). If the number is negative, a minus sign results. In octal radix, all results are 13-bit unsigned.

11. It is an error if 3 numeric arguments are given to any command.

12. The P command has been fixed to be compatible with TOPS-10 in the sense that the P command will no longer create form feeds from nothing. The P command will output a form feed if and only if the current buffer ended with a form feed when it was read in.

13. ER, EW, EB, and EG may now be @-sign modified.

14. The EK command can be used to "kill" an outstanding output file. Use of EK will make TECO think that no output file is open. Use of EK does not delete any files.

15. During typeout, the character CTRL/S may be typed to freeze the typeout. Typeout will remain frozen until a CTRL/Q is typed. These are execution time characters and may not be entered in up-arrow mode. These characters retain their original meaning when typed at times when TECO is not typing characters.

16. The EG command has been expanded to optionally allow a text argument. EGcommand$ will perform an EX and then cause the monitor (or CCL) to execute the command specified. For example, EGDIR$ will exit from TECO and get a directory listing. The specified characters must be in upper case and there can't be too many of them. If the original meaning of EG is desired, you must now type EG$.

17. The F_ and ^Z commands have been removed.

18. It is now an error if the F command is not followed by an S or an N.

19. W is now an illegal command (except on a PDP-12 where w replaces the ^W command to prevent conflicting with PDP-10 TECO). Also ^K is now an illegal command (it used to be ignored).

20. The :Gq command types out the contents of the string portion of Q-register q.

21. Protection against accidental Yanks has been included. The Y and _ commands are now aborted if there is text in the text buffer and an output file is open. Under these circumstances, it is presumed that you will be losing valuable data. A Yank is always legal if the text buffer is empty. Consequently, HKY will always succeed.

22. TECO now performs scope rubouts if your terminal is a scope. (You must say SET TTY SCOPE to the KBM). In this mode, when a character is rubbed out, it will actually disappear from the screen. Scope support only works on VT52's (including VT78's).

23. The n== command prints the value of n in the octal radix (unsigned).

24. The n= command prints the value of n in the decimal radix (signed) regardless of what TECO's current radix is. The current radix is not changed.

25. TECO can be set to flag lower case characters on typeout by typing the upper case equivalent preceded by a single quote. This is the normal mode. The EU flag controls this mode. ØEU is default and means flag lower case. -1EU means no case flagging; and 1EU means flag upper case (not a very useful feature). If the SET TTY SCOPE command has been issued to the KBM, then TECO presumes you have a VT52 and sets the initial value of the EU flag to -1.

26. The ET flag has been implemented and controls terminal characteristics. Each bit in the 12-bit ET word has significance, but only 2 bits are currently used. Bit 11 (low order bit) if a 1 means go into image mode typeout. While in image mode, any character typed by TECO via use of the T, ^A, or n^T commands will be typed literally with no conversions. Thus escape will not be converted to dollar-sign, and control characters will not be typed in up-arrow mode. This is useful when sending escape sequences to a VT52. Note that literal mode typeout does not apply to the :G command.

    Bit 8 is the echo bit. If set to a 1, then characters typed into TECO in response to a ^T command will not echo.

27. TECO now gives an error if you try to do an EB to a file with a .BK extension.

28. Vertical tab and form feed are now considered to be line terminators as well as line feed. This affects the behavior of all line-oriented commands such as L and K.

29. The bell character echoes as ^G now in addition to ringing the bell.

30. The ^V version number command has been changed to the EO command.

OS/8 EXTENSION KIT V3D
TECO V5

Seq 31.20.14 N
4 of 4

31. An iteration will be skipped if the iteration count is 0 or negative.

32. Typing the execution time CTRL/C command will return control to TECO. The ?XAB (execution aborted) message will be given. The same thing applies to the immediate mode CTRL/C command, except that if CTRL/C is typed as the very first character after TECO's prompt, then control is returned to the monitor.

33. The ^N flag has been implemented. It is a -1 if an end-of-file condition has been reached on the input file. Its initial value is 0.

OS/8 EXTENSION KIT V3D
FUTIL V7B

PATCH TO FIX 'SHOW CCB' AND MAPPING OF 'CD' MODULES (SPR 8-2550)

The following contains the corrections to both of these problems.

```
.GET SYS;FUTIL
.ODT
12024/3242 5345
12025/1642 7650
12026/7450 5236
12027/5236 1642
12145/XXXX 3242
12146/XXXX 1242
12147/XXXX 1351
12150/XXXX 5225
12075/7040 7000
12520/0200 0400
^C (CONTROL C)
.SAVE SYS:FUTIL
```

This patch upgrades FUTIL to V7D.

OS/8 EXTENSION KIT V3D
FUTIL V7A

Seq 31.21.3 0
1 of 1

-237 PATCH (SR)

The XS format in FUTIL is useful for dumping data stored in excess 240 packed six bit. This is the format of PAL12 six bit strings.

Users who would prefer the XS format to dump data stored in excess 237 packed six bit may install the following optional patch:

```
.GET SYS:FUTIL
.ODT
5355/4532 4770
5360/4532 4770
5370/xxxx 5761
5762/xxxx 1365;4532;5761;7777
^C
.SAVE SYS:FUTIL
```

Excess 237 packed six bit is the format used by COS data files.

Optional patches do not change FUTIL's version number.

OS/8 EXTENSION KIT V3D
BATCH V7A

Seq 31.23.1 M
1 of 1

MANUAL INTERVENTION REQUIRED ERRONEOUSLY (SR)

Problem: The message MANUAL HELP NEEDED is sometimes printed even though no use is made of a terminal, paper tape reader or card reader in the BATCH stream. (The message does not hurt, the system continues to function properly.)

Diagnosis: This problem was fixed in BATCH V5D and V6A for KBM commands that called the CD in special mode. This fix was incorporated in BATCH V7A. However, a similar problem exists if a CCL command does a special mode decode. The problem is that routine CDSCN at location 7200 (in the field of BATCH) is being called with a 5200 in the AC (the special mode indicator), but CDSCN thinks 0 means special mode. The solution is to allow either 0 or 5200 to mean special mode.

Cure: Install the following patch which upgrades BATCH to V7B:

```
.GET SYS:BATCH
.ODT
7201/3340 5344
7344/xxxx 1351;7440;1352;3340;5202;2600;5200
7326/4752 7000
1701/0137 0237
^C
.SAVE SYS:BATCH
```

OS/8 FORTRAN IV KIT V3D
FRTS.SV V5

Seq 51.3.3 O
1 of 1

FORTRAN RUNTIME SYSTEM 2 PAGE HANDLER (JM)

The FORTRAN Run-Time System has worked wih the TD8E 2 page system handler. To add it to work with other 2 page system handlers and, in particular the RL01, the following patch must be installed.

```
.GET SYS:FRTS
.ODT
12675/7001 0342
12742/XXXX 7770
17526/0000 0000
17527/3763 3307
17530/1763 1333
17531/3762 3363
17532/1763 5346
17533/7001 7635
17534/3761 1750
17535/5726 7710

17546/XXXX 1763
17547/XXXX 1334
17550/XXXX 7100
17551/XXXX 1335
17552/XXXX 7630
17553/XXXX 5360
17554/XXXX 1763
17555/XXXX 0341
17556/XXXX 1307
17557/XXXX 3763
17560/XXXX 2363
17561/7642 5346
17562/7727 5726
17563/7721 0

17566/0212 6220
^C (CONTROL C)
.SAVE SYS:FRTS
```

This patch is optional and does not change the patch level.

RTS/8 V2B
PARAM

Seq 61.2.1 N
1 of 1

INCORRECT CLOCK VALUE IN PARAM FILE (SR)

The RTS8 V2B parameter file contains an octal - decimal bug.

```
IFNZRO CLKTYP&1 <HERTZ=1750>
```

should be

```
IFNZRO CLKTYP & 1 <HERTZ=1000>
```

RTS/8 V2B
OS/8 SUP

Seq 61.3.2 O
1 of 1

OS/8 TASKS HANGS WITH TIME SHARE NOT ENABLED (SR)

If your system does not run OS/8 in the RTS8 background, your time share trap may not be enabled. The following program will loop if the trap is enabled, and halt if not enabled.

```
START,          CAF             /CLEAR ALL
                TAD (100        /USER MODE BIT
                RTF             /ESTABLISH ON NEXT JMP
                IOF             /CANCELL IMPLIED ION
                JMP TAG 1       /ENTER USER MODE
TAG1,           HLT             /HALT IF TRAP NOT ON
TAG2,           JMP TAG1        /TRAP, BUT STAY HERE SINCE IOF!
```

Note - after running program, it is necessary to press the LXA Load Extended Address switch to clear user mode.

RTS/8 V2B
CLOCK

Seq 61.16.1 M
1 of 1

PROBLEM WITH DOUBLE PRECISION CLOCK REQUESTS (SR)

The clock handler of RTS8 (V2 and V2B) contains an obscure but dangerous bug, concerning double precision clock requests. The following source changes should be made:

GETICK+3 — Delete five lines of code, and remove the slash from JMP FIXQ

CLKQT+4 — Delete two lines of code, and remove the slashes from

```
ISZ  CLIPTR
ISZ I CLIPTR
SKP
```

We are reactivitating previous code that was correct, but slightly slower at interrupt level.

OS/78 V1
BASIC

Seq 70.70.1 N
1 of 1

GOOD RANDOM NUMBERS FOR OS/8 BASIC

The following BASIC program may be used to generate really good random numbers. It should be noted that the RND function gives only 12 bits of precision and has a short period.

```
  10 REM ** INITIALIZE RANDOM ARRAY **
  20 DIM R8(55)
  30 FOR R8=1 TO 55
  40 R8(R8)-RND(0)+ .00244141*RND(0)
  50 NEXT R8
 100 REM **DEMONSTRATION PROGRAM **
 110 GOSUB 9000 / REM R=RANDOM VALUE
 120 PRINT R;
 130 GOTO 100
9000 REM ** SUBROUTINE: R=RANDOM VALUE **
9010 R8=R8-1
9020 IF R8>0 THEN 9040
9030 R8=55
9040 R9=R8-31
9050 IF R9>0 THEN 9070
9060 R9=R9+55
9070 R8(R8)=R8(R8)-R8(R9)
9080 IF R8(R8)>=0 THEN 9100
```

OS/78 V1
FORTRAN IV
F4.SV V4B

Seq 70.93.1 M
1 of 1

"FORTRAN COMPILER FAILS TO RECOGNIZE " AS AN ERROR (SPR 8-2428 JB)

Problem: The F4 compiler fails to recognize the double quotes (") as an incorrect character in a subroutine call argument. Instead, it generates an argueless call.

Solution: The following patch corrects this problem and should be installed:

```
LOAD F4.SV/I
.ODT
3343/7440 7640
1130/6402 6403
^C (Control C)
.SAVE SYS F4.SV
```

This patch corrects this problem and upgrades the F4.SV to V4C.

OS/78 V2
UTILITIES
BITMAP.SV V4A

Seq 71.12.1 M
1 of 1

BITMAP FAILS WITH SPOOLR RUNNING (RJ)

BITMAP can fail running with the line printer spooler or any other OS/78 symbiont. This patch corrects the problem and upgrades BITMAP to V4B.

```
.LOAD BITMAP.SV/I
.ODT
12064/          1305            5354
12154/          XXXX            1305L1357;5265;0200
12377/          7001            7201
13106/          6000            6200
13177/          6401            6601
13376/          6000            6200
13422/          7240            1343
13543/          XXXX            0177
13617/          6401            6402
12741/          3023            5363
12763/          XXXX            1366;3023;5342;0200
^C
.SAVE SYS:BITMAP.SV 12000-13777;12000=6101
```

Note - This patch is already installed in all OS/78 V2 kits.

OS/78 V2
BASIC
BCOMP V6A

Seq 71.71.1 N
1 of 1

STRING ARRAY CONCATENATION (RJ)

Problem: String arrays do not always concatenate properly.

A$=A$&B$(1) fails.

The patch for this problem is:

```
.LOAD BCOMP.SV/I
.ODT
5345/6700 6400
5645/6501 6602
.SAVE SYS BCOMP.SV 0-7577,12000-16377=2100
```

This patch upgrades BCOMP to V6B.

NOTE - This patch is already installed in all OS/78 V2 kits.

OS/78 V2
BASIC
BLOAD.SV V6A

Seq 71.72.1 M
1 of 2

LARGE CORE IMAGE SAVE PROBLEM (RJ)

There is a problem in BLOAD V6: save file creation still does not work properly. When the CCB is created a check is not made for the last page of Field 1 (or of Field 2 if a 2 page system handler is present). Consequently, if a large program is compiled and subsequently loaded, page 17600 may be destroyed. Note that programs compiled and run on the same system will usually work since page 17600 was being written over with a copy of itself; this is why the problem was not found sooner.

The following patch to BLOAD V6A will fix the problem and raise the version to V6B.

```
            .LOAD BLOAD.SV/I
            .ODT
            (patch shown as source)

/           Patch file for BLOAD save file problem
                    /       Patch file for BLOAD save file problem

            0057            TEMP=    57
            2724            TDFLAG=  2724
            2723            FLDCNT=  2723

            2135            *2135
02135       7326    PATCHI, CLA STL  RTL

02136       1753            TAD I    RFLDCNT  /Test if about to save field
                                                 1 or 2
02137       7110            CLL RAR
02140       7640            SZA CLA
02141       5347            JMP      FLDN     /Jmp if not field 1 or 2
02142       7430            SZL               /Link on if field 1
02143       5346            JMP      FLD1     /Jmp if field 1 to leave
                                                 last page alone
02144       1754            TAD I    PTDFLAG  /Test if 2 page system
                                                 handler if field 2
02145       7640            SZA CL            /Skp if not a 2 page system
                                                 handler and keep 7600
02146       1352    FLD1,   TAD      03700    /Decrement page count if
                                                 7600 to be discarded
02147       1057    FLDN,   TAD      TEMP     /Add handler control word
02150       5751            JMP I    .+1      /Return
02151       2653            2653
02152       3700    03700,  3700
```

OS/78 V2
BASIC
BLOAD.SV V6A

Seq 71.72.1 M
2 of 2

```
02153        2723     PFLDCNT, FLDCNT
02154        2724     PTDFLAG, TDFLAG

             2616              *2616
02616        5222              JMP       .+4       /Bypass current 2 page
                                                     handler test

             2651              *2651
02651        5652              JMP I     .+1
02652        2135              PATCHI                /Jmp to the patch

             3035              *3035
03035        6602     6602                           /Change version to V6B
(End of patch in source)
^C
.SAVE SYS:BLOAD.SV 400-3577,7000-7577;3000=2100
```

Note - This patch is already installed in all OS/78 V2 kits.

digital

Software Product Description

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 (Consise 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.

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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, documenation, 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-

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

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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.
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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.

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Software Product Description

PRODUCT NAME: OS/78, Version 2, DECstation 78 Operating System **SPD 4.3.3**

DESCRIPTION:

OS/78 is a comprehensive executive designed to support the DECstation 78 computer system. OS/78 provides an extensive collection of application software development tools and an efficient run-time environment for the production use of these application programs. OS/78 is controlled through a Concise Command Language (CCL) that simplifies program development and execution.

Programs stored on diskettes can be accessed for loading, modification or execution by simple keyboard commands. OS/78 also allows program chaining, so that a complex program can be divided into a series of smaller modules.

The CCL (Concise Command Language) allows the user to operate the system through terminal commands. Three classes of functions are available through CCL: system functions, language functions, and utility functions.

System Functions:

Batch Processing

The SUBMIT instruction calls in a batch processor to execute a sequence of commands which have been stored in a file. This feature permits the user to execute a series of pre-determined operations using a single command. SUBMIT also provides an optional method for redirecting line printer output to diskette files when there is no line printer in the system.

I/O Handlers

In addition to I/O support for the VT78 processor and the RX78 diskette drives, OS/78 supports an LQP printer, the LA78 printer and two asynchronous serial line units.

System Configuration

The SET command enables the user to set I/O handler options. (Examples: print-line length, read-only device, etc.)

Concurrent Processing (Symbiont)

A symbiont is a user-written interrupt-driven assembly language program that uses the upper 4K words of memory. The OS/78 symbiont facility allows such a symbiont task to run in parallel with OS/78 while OS/78 operates normally in 12K words of memory. The symbiont task may run communications, print, monitor real-time jobs, etc.

Simple keyboard commands can be used to start the symbiont or to return OS/78 to single-task operation with 16K words of memory.

OS/78 includes an LA78 printer-spooler symbiont.

File Management

The system provides standard routines for the creation, modification, renaming, and deletion of files. CCL commands invoke these routines.

Language Functions:

BASIC

OS/78 BASIC is implemented as a compiler language. It consists of an editor, compiler, and a run-time system, all three supporting BASIC's dual functions as an interactive program development tool and a system for both interactive and batch-mode program execution.

OS/78 BASIC includes features oriented to the commercial user:

- Multiple Data Formats — the system supports three types of data format: floating point numeric, alphanumeric string, and commercial decimal (numeric string) data.
- Commercial Decimal Arithmetic to 15-digit precision, including data format conversion.
- PRINT USING statement for formatted printing of numeric strings; especially useful for columns and tables.
- Full upper/lower case capability.
- Cursor control function to facilitate data entry.
- Random-access record oriented I/O for rapid storing and retrieval of individual records.

Assembler

The PAL command calls a three-pass assembler. The optional third pass creates a side-by-side octal and symbolic listing and symbol table. This assembler accepts input generated by the EDIT function and generates output acceptable to the LOAD (absolute loader) and CREF (Cross Reference Utility) functions.

FORTRAN

OS/78 FORTRAN IV permits generalized array subscripting and 1- to 7-dimension arrays. Large amounts of data can be easily stored and accessed. FORTRAN IV also offers direct access I/O. With this feature, the user can directly reference any record in a data file.

OS/78 FORTRAN IV supports mixed-mode arithmetic, octal constants, logical IF statements, and general integer expressions in IF statements. In addition, OS/78 FORTRAN IV allows initial values in operators, including EQU and XOR.

Text manipulation is aided by Hollerith field specifications for text as well as literals and constants. DATA statements, BLOCK statements and BLOCK DATA statements are supported.

OS/78 FORTRAN IV has a library of mathematical functions for calculating logarithms, absolute values, and trigonometric functions. Other functions manipulate character strings.

Utility Functions:
The HELP utility can display on the screen instructions for use of OS/78 utilities and languages.

EDIT calls a symbolic editor which is used to create and modify ASCII source files so that these files can be used as input to BASIC, the PAL 8 assembler, or the FORTRAN IV compiler.

LOAD calls an absolute loader 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 programs under carefully controlled conditions, modify programs during execution, or monitor the state of main memory and processor registers.

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 CREF in the form of an ASCII listing file produced by the PAL assembler.

The MAP command runs a utility program that constructs a table showing the memory locations used by a particular binary file. This feature assists the programmer in allocating memory.

DIRECT produces a listing of the file directory for any OS/78 diskette. Selective listings can be obtained through the use of command options.

DUPLICATE allows the copying of an entire diskette with a single command.

The COPY command transfers one or more selected files from diskette to any I/O device. The method of specifying files is flexible and allows users to copy selected groups of files with simple commands.

MINIMUM HARDWARE REQUIRED:

DECstation 78/40

OPTIONAL HARDWARE:

LQP 78 Letter Quality Printer
LA78-P Line Printer
Additional RX78 Dual Floppy Disk Drive

PREREQUISITE SOFTWARE:

None

OPTIONAL SOFTWARE:

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.

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

The following key (Y) represents the distribution media for the product and must be specified at the end of the order number, e.g., QF022-AY = binaries on floppy disk.

Y = RX01 Floppy Diskette

Standard Options

For DECstation 78-A Systems

78/40	-B—	DECstation 78 (tabletop), single-use license, binaries, documentation, support services (media: Y)
78/40	-D—	DECstation 78 with cabinet, single-use license, binaries, documentation, support services (media: Y)
78/60	-D—	DECstation 78, single-use license, binaries, documentation, support services (media: Y)
QF022	-A—	Single-use license, binaries, documentation, support services (media: Y)

Upgrade Options

The following option is available as an upgrade kit from OS/8, Version 3D, for use on the same single CPU on which OS/8, Version 3D, is licensed. The license previously granted for OS/8, Version 3D, shall be extended to cover this upgrade.

QF023 -C— OS/78 Version 2 Single-use license, binaries, documentation, no support services (media: Y)

Update Options

Users of OS/78, Version 1, 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 installation or other services unless specifically stated otherwise.

QF022 -W— Binaries, documentation (media: Y)

Source/Listing Options

QF022 -E— All sources (media: Y)

ADDITIONAL SERVICES:

None

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.

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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.

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Software Product Description

PRODUCT NAME: OS/8 Extension Kit, Version 3D **SPD 4.5.8**

DESCRIPTION:

The OS/8 Extension Kit is comprised of OS/8 BATCH, BASIC, and TECO. The following is a general description of each program.

OS/8 BATCH processing is used to monitor and execute frequently run production jobs, large and long-running programs, and programs that require little or no interaction with the user. BATCH permits the user to prepare a job on punched cards, high-speed paper tape or the OS/8 system device, and leave it for the computer operator to start and run. Output is returned to the user in the form of a line-printer and/or console-terminal listing that includes program output as well as a summary of all action taken by the user program, the monitor system and the computer operator.

BATCH optionally provides output file spooling to slow devices. This feature increases throughput on any system, and is particularly valuable when a line printer is not available. BATCH also performs command analysis and error diagnosis. BATCH interacts with the operator to initialize the system and establish system parameters.

Almost any program that runs interactively under OS/8 can also be run under BATCH. With a few exceptions, BATCH uses the standard OS/8 command set. Since BATCH is initiated from the keyboard in the same manner as any other system program, interactive users can use BATCH to execute multiple utility routines, even when continuous batch processing is not desired.

OS/8 BASIC is a BASIC language compiler and run-time system. It can be used to create programs interactively, or compile, load, and execute ASCII input files in response to a single monitor command. Alternatively, a program and data files can be prepared under the interactive monitor for subsequent stand-alone processing under BATCH. The run-time system permits dynamic file management and program chaining. I/O device independence is maintained through the OS/8 Operating system. OS/8 BASIC permits interfacing with functions written in assembly langugage.

Features include: the creation of source programs with the BASIC editor (i.e., NEW or OLD) or any of the OS/8 editors (i.e., EDIT or TECO); support for up to 32K words of memory; support for increased speed of execution (using KE8-E extended arithmetic).

A set of 12 LAB-8/E functions for OS/8 BASIC is also included in this kit. These functions enable the user to solve a range of real-time and pseudo-real-time problems using BASIC. The following LAB-8/E peripherals are supported: the 10-bit A/D converter, the VC8-E display control, the DK8-LA real-time programmable clock, and up to three DR8-EC Digital I/O units (12 bits).

TECO: A selected subset of TECO commands (less than 20) are easily learned mnemonics which provide full editing capabilities to the novice programmer after only a few hours of instruction. The commands are very similar to corresponding Symbolic Editor commands. The I/O device independence of OS/8 system programs permits TECO to create or modify ASCII files on any medium. Other TECO capabilities and features include: character string search and replacement; 36 variable-length temporary storage buffers with associated integer counters; match control characters; choice of decimal or octal radix; and a number of versatile I/O techniques.

TECO commands can be combined in sophisticated command strings which are essentially editing "programs." Once a command string has been written to perform a specified editing task, it can be saved on any convenient medium for subsequent execution whenever the same editing job is required. Advanced TECO commands provide capabilities for conditional execution, branching, program control and multi-file processing. A macro programming feature is included, along with commands that facilitate the creation, maintenance and use of a TECO macro library. The full TECO command set is a highly sophisticated programming language which is suited to generalized format conversion, text processing and file management.

MINIMUM HARDWARE REQUIRED:

- Any valid OS/8 operating system configuration
- A system total of at least 12K words of memory are required for BATCH.

OPTIONAL HARDWARE:

Any mass storage, unit record or terminal device supported by OS/8 with the exceptions of magnetic tape or low-speed paper tape reader/punch, and with the addition of the KE8-E Extended Arithmetic Element.

In addition, BASIC supports:

AD8-EA 10-bit A/D Converter

DK8-ES Real-time Programmable Clock
VC8-E Point Plot Display
DR8-EC Digital I/O Display

PREREQUISITE SOFTWARE:

OS/8 Operating System, Version 3D or later

OPTIONAL SOFTWARE:

None

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.

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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

Standard Options

QF006 -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)

Update Options

Users of OS/8 Extension Kit, Version 3 or later, 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 source or binary form on the appropriate medium and includes no installation or other services unless specifically stated otherwise.

QF006 -H— Binaries, documentation (media: A, B, C, N, Y)

Users of OS/8 Extension Kit, Version 3, 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.

QF006 -W— Binaries, documentation (media: A, B, C, N, Y)

Source/Listing Options

QF006 -E— All sources (media: A, C, E, Y)

QF006 -F— Listings (media: R)

QF024 -E— All source 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.

QF006 -N— Sources update (media: A, C, E, Y)

ADDITIONAL SERVICES:

None

ADDENDUM
SOFTWARE SUPPORT CATEGORIES

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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

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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.

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Software Product Description

PRODUCT NAME: OS/8 FORTRAN IV, Version 3D **SPD 4.10.7**

DESCRIPTION:

FORTRAN IV is a programming language consisting of formatted statements that are very similar to the language of conventional algebra and higher mathematics. OS/8 FORTRAN IV is a FORTRAN IV language compiler which runs under the OS/8 operating system.

OS/8 FORTRAN IV permits generalized array subscription and 1- to 12-dimensional arrays. Large amounts of data can be stored and accessed easily. FORTRAN IV also offers direct access I/O. With this feature, the user can reference any record in a data file directly. Direct access I/O provides virtual array capability and decreases processing time.

OS/8 FORTRAN IV supports mixed-mode arithmetic, octal constants, logical IF statements, and general integer expressions in IF statements. In addition, OS/8 FORTRAN IV allows initial values in specification statements and provides a full set of Boolean operators, including EQU and XOR.

Text manipulation is aided by Hollerith field specifications for text as well as literals and constants. DATA statements, BLOCK statements and BLOCK DATA statements are supported. The user can also make arithmetic function definitions.

OS/8 FORTRAN IV provides a tree-structured dynamic overlay mechanism that automatically loads overlays on call without the need for explicit call overlay, call link or call chain statements. As many as seven independent overlay levels can be defined with up to 16 overlays in each level and 63 subroutines in any overlay.

All floating point operations are optimized for execution speed. Real-time device independent input/output operations provided by OS/8 FORTRAN IV are greatly enhanced by the inclusion of the FPP-12 Floating Point Processor in the hardware configuration. In this case, the PDP-8 processor functions as a fully parallel I/O processor. While the FPP-12 is processing data, the PDP-8 can be acquiring data, displaying data, reading or writing mass storage files, or driving a plotter. The system is also device independent, allowing run-time device specifications without recompilation or reassembly.

MINIMUM HARDWARE REQUIRED:

Any valid OS/8 operating system configuration with at least 128K words of mass storage.

OPTIONAL HARDWARE:

Any mass storage, unit record, or terminal device supported by OS/8 with the following additions:

KE8-E Extended Arithmetic Element
FPP12-AB, -AN, or -AP Floating Point Processor
FPP12-AE Double-Precision Option (required for double precision operations)

PREREQUISITE SOFTWARE:

OS/8 Operating System, Version 3D or later

OPTIONAL SOFTWARE:

None

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.

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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) represents the distribution media for the product and must be specified at the end of the order number, e.g., QF008-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

Standard Options

QF008 -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)

Update Options

Users of OS/8 FORTRAN IV, Version 3 or later, 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 installation or other services unless specifically stated otherwise.

QF008 -H— Binaries, documentation (media: A, B, C, N, Y)

Users of OS/8 FORTRAN IV, Version 3D, 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.

QF008 -W— Binaries, documentation (media: A, B, C, N, Y)

Source/Listing Options

QF008 -E— All sources (media: A, C, E, Y)

QF008 -F— Listings (media: R)

QF024 -E— All sources for OS/8, OS/8 Extension Kit and OS/8 FORTRAN IV (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.

QF008 -N— Sources update (media: A, C, E, Y)

ADDITIONAL SERVICES:

None

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.

digital

Software Product Description

PRODUCT NAME: WPS-8/FTS, Version 3.0, WPS-8 Floppy-based Terminal System **SPD 5.88.0**

DESCRIPTION:

WPS-8/FTS is a two-terminal hardware/software text processing system for office and business use. Both users have the full capabilities of the WPS-8 Word Processing System. A menu-driven editor creates and updates documents stored on floppy disks. Up to 200 documents of various lengths or up to a total of 125 pages can be stored on a single floppy disk. Editing capabilities make changes easy without retyping. Final or draft documents can be queued to a letter quality printer or a draft printer if so equipped. Printing and editing can be done concurrently.

WPS-8/FTS enables the user to:

- Prepare and edit reports which may require several drafts before final printing.
- Create contracts and other documents from a library of stored paragraphs.
- Print form letters using a stored form document and a list from which items, such as names and addresses, are automatically selected.

System features include:

- Dynamic floppy disk file allocation
- Responsive menu-driven operation
- Easy-to-learn commands
- Special editing keypad
- Full editing features:
  1. cut and paste of blocks of text
  2. operations by grammatical entity (character, tab position, sentence, paragraph, page, section, line)
  3. boilerplate insert from library file
  4. shorthand expressions
  5. swap transposed character key
  6. delete and rubout by word and character
- Full control of tabs, margins, justification, and pagination:
  1. automatic centering of text on a line
  2. discretionary pagination control
  3. semi-automatic hyphenation
  4. decimal and right-adjusted tabs
- Greater than 500 words per minute letter quality printed output
- Higher speed draft printer support
- Selectable pitch and type fonts
- Underlined and overstruck (bold) printout
- Proportional spaced printing
- Multi-column printing
- Superscript and subscript
- Mailing list utilities
- Form letter merge
- Time and date stamp
- Operator statistics
- Single sheet or continuous forms printing
- Document transfer between users with unattended receive
- User definable keys

Communication Features:

Using the WPS-8 communications option, documents prepared under WPS-8 can be sent to a remote timesharing system or to another WPS-8 system. Transmission is serial asynchronous ASCII, RS232-C compatible. A variety of transmission options is possible. Used in conjunction with a TOPS-10 or RSTS/E timesharing system, WPS-8 allows data entry and verification to take place off-line. The WPS-8 editor makes file modifications easy. Once in final form, files can be sent to the remote system for processing. Files can also be sent from TOPS-10 or RSTS/E systems to a WPS-8 system for off-line editing, printing, and review.

When used to send documents to another WPS-8 system, printer control information is sent with each file. The document received at the remote system contains all margin, spacing, hyphenation and justification information found in the original. A special error correction protocol is used to insure accurate document transmission.

Features:

- Asynchronous serial transmission — RS232-C compatible
- Speeds to 9600 baud using XON/XOFF protocol
- Flexible control of keyboard, printer, and floppy
  1. input from keyboard, document, or remote host
  2. output to screen, printer, document, or remote host
  3. multiple combinations possible
- Special transmission mode between WPS-8 systems

1. error correcting protocol
2. format control information sent with documents

- Buffered operation
- Automatic document send and receive
- IBM Communicating Mag Card I support

MINIMUM HARDWARE REQUIRED:

- WS202-AA or WS202-CA Word Processing System

OPTIONAL HARDWARE:

One of the following:

- Communications Interface add-on to a WS202-AA
- LE8 line printer or
- LA8 draft printer
- LQP8 letter quality printer

PREREQUISITE SOFTWARE:

None

OPTIONAL SOFTWARE:

None

TRAINING CREDITS:

None

SUPPORT CATEGORY:

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

Included in on-site installation is an explanation and demonstration of the system. Installation will be deemed complete when the Digital Sample Procedure included with the software has been successfully executed.

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.

The following key (A) represents the form of power source for the product and must be specified at the end of the "WS" or "WP" code, i.e., WS100-AA = system power provided in United States.

A = United States (60 Hz)

Distribution for the WPS-8 software is on floppy diskette.

Standard Options

WS202 -AA—
Word Processing System, single-use license, binaries, documentation, support services (Power: A)

WS202 -CA—
Word Processing System with KL8-A, single-use license, binaries, documentation, support services (Power: A)

ADDITIONAL SERVICES:

None

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.

digital

Software Product Description

PRODUCT NAME: WPS-8/78, Version 3.0, MICRO-8 Word Processing System **SPD 5.91.3**

DESCRIPTION:

WPS-8/78 is a hardware/software text processing system for office and business use. A menu-driven editor creates and updates documents stored on floppy disks. Up to 200 documents of various lengths, or up to a total of 125 pages can be stored on a single floppy disk. Editing capabilities make changes easy without retyping. Final or draft documents can be queued to a letter quality printer or a draft printer (if so equipped). Printing and editing can be done concurrently.

WPS-8/78 enables the user to:

- Prepare and edit reports which may require several drafts before final printing.
- Create contracts and other documents from a library of stored paragraphs.
- Print form letters using a stored form document and a list from which items, such as names and addresses, are automatically selected.

System features include:

- Dynamic floppy disk file allocation
- Supports either two- or four-floppy system configuration
- Responsive menu-driven operation
- Easy-to-learn commands
- Special editing keypad
- Full editing features:
  1. cut and paste of blocks of text
  2. operations by grammatical entity (character, tab position, sentence, paragraph, page, section, line)
  3. boilerplate insert from library file
  4. shorthand expressions
  5. swap transposed character key
  6. delete and rubout by word and character
- Full control of tabs, margins, justification, and pagination:
  1. automatic centering of text on a line
  2. discretionary pagination control
  3. semi-automatic hyphenation
  4. decimal and right-adjusted tabs
- Greater than 500 words per minute letter quality printed output
- Higher speed draft printer support
- Selectable pitch and type fonts
- Underlined and overstruck (bold) printout
- Proportionally spaced printing
- Multi-column printing
- Superscript and subscript
- Mailing list utilities
- Form letter merge
- Time and date stamp
- Operator statistics
- Single sheet or continuous forms printing
- User definable keys

Communication Features:

Using the WPS-8 communications option, documents prepared under WPS-8 can be sent to a remote timesharing system or to another WPS-8 system. Transmission is serial asynchronous ASCII, RS232-C compatible. A variety of transmission options is possible. Used in conjunction with a TOPS-10 or RSTS/E timesharing system, WPS-8 allows data entry and verification to take place off-line. The WPS-8 editor makes file modifications easy. Once in final form, files can be sent to the remote system for processing. Files can also be sent from TOPS-10 or RSTS/E systems to a WPS-8 system for off-line editing, printing, and review.

When used to send documents to another WPS-8 system, printer control information is sent with each file. The document received at the remote system contains all margin, spacing, hyphenation and justification information found in the original. A special error correction protocol is used to insure accurate document transmission.

Features:

- Asynchronous serial transmission — RS232-C compatible
- Speeds to 9600 baud using XON/XOFF protocol
- Flexible control of keyboard, printer, and floppy
  1. input from keyboard, document, or remote host
  2. output to screen, printer, document, or remote host
  3. multiple combinations possible
- Special transmission mode between WPS-8 systems
  1. error correcting protocol

2. format control information sent with documents

- Buffered operation
- Automatic document send and receive
- IBM Communicating Mag Card I support

MINIMUM HARDWARE REQUIRED:

WS78-AA or WS78-CA Word Station 78.

OPTIONAL HARDWARE:

- One WX78-BA Add-on communication/OCR interface to WS78-AA
- One LQP78-PA letter quality printer, or one LA78-PA draft printer, and/or
- One LA78-SA serial draft printer
- One additional RX78 dual floppy drive

PREREQUISITE SOFTWARE:

None

OPTIONAL SOFTWARE:

None

TRAINING CREDITS:

None

SUPPORT CATEGORY:

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

Included in on-site installation is an explanation and demonstration of the system. Installation will be deemed complete when the DIGITAL Sample Procedure included with the software has been successfully executed.

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.

The following key (Y) represents the distribution media for the product and must be specified at the end of the order number, e.g., QF705-HY = binaries on floppy diskette.

Y = RX01 Floppy Diskette

Standard Options

WS78 AA WPS-8/78 Word Processing System, single-use license, binaries, documentation, support services, distribution on floppy disk, (power: 115 volt/60 Hertz)

WS78 CA WPS-8/78 Word Processing System with communication option, single-use license, binaries, documentation, support services, distribution on floppy disk, (power: 115 volt/60 Hertz)

Upgrade Options

The following option is available as an upgrade kit from a D308A-AA or D308A-AY COS-310 system and requires previous purchase of one license with support services.

WP78 CA Single-use license, binaries, documentation, support services, distribution on floppy diskette.

Update Options

Users of WPS-8/78, Version 2.7, 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 installation or other services unless specifically stated otherwise.

QF705 -H— Binaries, documentation (media: Y)

Users of WPS-8/78, Version 2.7, 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.

QF705 -W— Binaries, documentation (media: Y)

ADDITIONAL SERVICES:

None

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.

digital

Software Product Description

PRODUCT NAME: WPS-8, Version 3.0, PDP-8 Word Processing System **SPD 5.94.5**

DESCRIPTION:

WPS-8 is a hardware/software text processing system for office and business use. A menu-driven editor creates and updates documents stored on floppy disks. Up to 200 documents of various lengths, or up to 125 pages can be stored on a single floppy disk. Editing capabilities make changes easy without retyping. Final or draft documents can be queued to a letter quality printer or a draft printer(if so equipped). Printing and editing can be done concurrently.

WPS-8 enables the user to:

- Prepare and edit reports which may require several drafts before final printing.
- Create contracts and other documents from a library of stored paragraphs.
- Print form letters using a stored form document and a list from which items, such as names and addresses, are automatically selected.

System features include:

- Dynamic floppy disk file allocation
- Supports either two- or four-floppy system configuration
- Responsive menu-driven operation
- Easy-to-learn commands
- Special editing keypad
- Full editing features:
  1. cut and paste of blocks of text
  2. operations by grammatical entity (character, tab position, sentence, paragraph, page, section, line)
  3. boilerplate insert from library file
  4. shorthand expressions
  5. swap transposed character key
  6. delete and rubout by word and character
- Full control of tabs, margins, justification and pagination:
  1. automatic centering of text on a line
  2. discretionary pagination control
  3. semi-automatic hyphenation
  4. decimal and right-adjusted tabs
- Greater than 500 words per minute letter quality printed output
- Higher speed draft printer support
- Selectable pitch and type fonts
- Underlined and overstruck (bold) printout
- Proportional spaced printing
- Multi-column printing
- Superscript and subscript
- Mailing list utilities
- Form letter merge
- Time and date stamp
- Operator statistics
- Single sheet or continuous forms printing
- User definable keys

Communication Features:

Using the WPS-8 communications option, documents prepared under WPS-8 can be sent to a remote timesharing system or to another WPS-8 system. Transmission is serial asynchronous ASCII, RS232-C compatible. A variety of transmission options is possible. Used in conjunction with a TOPS-10 or RSTS/E timesharing system, WPS-8 allows data entry and verification to take place off-line. The WPS-8 editor makes file modifications easy. Once in final form, files can be sent to the remote system for processing. Files can also be sent from TOPS-10 or RSTS/E systems to a WPS-8 system for off-line editing, printing, and review.

When used to send documents to another WPS-8 system, printer control information is sent with each file. The document received at the remote system contains all margin, spacing, hyphenation and justification information found in the original. A special error correction protocol is used to insure accurate document transmission.

Features:

- Asynchronous serial transmission — RS232-C compatible
- Speeds to 9600 baud using XON/XOFF protocol
- Flexible control of keyboard, printer, and floppy
  1. input from keyboard, document, or remote host
  2. output to screen, printer, document, or remote host
  3. multiple combinations possible
- Special transmission mode between WPS-8 systems
  1. error correcting protocol
  2. format control information sent with documents

- Buffered operation
- Automatic document send and receive

MINIMUM HARDWARE REQUIRED:

One of the following systems:

- WS100 Word Processing System
- DS310-K or DS310-L COS-310 system with WP310 upgrade

OPTIONAL HARDWARE:

One KL8-JA communications interface
One LE8 line printer or
One LA8 draft printer
One additional RX01 dual floppy drive

PREREQUISITE SOFTWARE:

None

OPTIONAL SOFTWARE:

None

TRAINING CREDITS:

None

SUPPORT CATEGORY:

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

Included in on-site installation is an explanation and demonstration of the system. Installation will be deemed complete when the Digital Sample Procedure included with the software has been executed successfully.

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.

The following key (A) represents the form of power source for the product and must be specified at the end of the "WS" or "WP" code, i.e., WS100-AA = system power provided in United States.

A = United States (60 Hz)

Standard Options

WS100 -B— Word Processing System, Single-use license, binaries, documentation, support services (power: A)

WS100 -A— Word Processing System with KL8-JA, Single-use license, binaries, documentation, support services (power: A)

Upgrade Options

The following option is available as an upgrade kit from a DS310-K or DS310-L COS-310 system and requires previous purchase of one license with support services.

WP310 -A— Single-use license, binaries, documentation, support services (power: A)

The following key (Y) represents the distribution media for the product and must be specified at the end of the order number, e.g., QF700-HY = binaries on floppy diskette.

Y = RX01 Floppy Diskette

Update Options

Users of WPS-8, Version 2, 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 source or binary form on the appropriate medium and includes no installation or other services unless specifically stated otherwise.

QF700 -H— Binaries, documentation (media: Y)

Users of WPS-8, Version 2, 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.

QF700 -W— Binaries, documentation (media: Y)

ADDITIONAL SERVICES:

None

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.

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Software Product Description

PRODUCT NAME: WPS-8/MTS, Version 3.0, WPS-8 Multi Terminal System **SPD 5.96.5**

DESCRIPTION:

WPS-8/MTS is a two-terminal hardware/software text processing system for office and business use. Both users have the full capabilities of the WPS-8 Word Processing System. A menu-driven editor creates and updates documents stored on floppy disks. Up to 200 documents of various lengths or up to a total of 125 pages can be stored on a single floppy disk. Editing capabilities make changes easy without retyping. Final or draft documents can be queued to a letter quality printer or a draft printer. Printing and editing can be done concurrently.

WPS-8/MTS enables the user to:

- Prepare and edit reports which may require several drafts before final printing.
- Create contracts and other documents from a library of stored paragraphs.
- Print form letters using a stored form document and a list from which items, such as names and addresses, are automatically selected.

System features include:

- Dynamic floppy disk file allocation
- Responsive menu-driven operation
- Easy-to-learn commands
- Special editing keypad
- Full editing features:
  1. cut and paste of blocks of text
  2. operations by grammatical entity (character, tab position, sentence, paragraph, page, section, line)
  3. boilerplate insert from library file
  4. shorthand expressions
  5. swap transposed character key
  6. delete and rubout by word and character
- Full control of tabs, margins, justification, and pagination:
  1. automatic centering of text on a line
  2. discretionary pagination control
  3. semi-automatic hyphenation
  4. decimal and right-adjusted tabs
- Greater than 500 words per minute letter quality printed output
- Higher speed draft printer support
- Selectable pitch and type fonts
- Underlined and overstruck (bold) printout
- Proportional spaced printing
- Multi-column printing
- Superscript and subscript
- Mailing list utilities
- Form letter merge
- Time and date stamp
- Operator statistics
- Single sheet or continuous forms printing
- User definable keys

Communication Features:

Using the WPS-8 communications option, documents prepared under WPS-8 can be sent to a remote timesharing system or to another WPS-8 system. Transmission is serial asynchronous ASCII, RS232-C compatible. A variety of transmission options is possible. Used in conjunction with a TOPS-10 or RSTS/E timesharing system, WPS-8 allows data entry and verification to take place off-line. The WPS-8 editor makes file modifications easy. Once in final form, files can be sent to the remote system for processing. Files can also be sent from TOPS-10 or RSTS/E systems to a WPS-8 system for off-line editing, printing, and review.

When used to send documents to another WPS-8 system, printer control information is sent with each file. The document received at the remote system contains all margin, spacing, hyphenation and justification information found in the original. A special error correction protocol is used to insure accurate document transmission.

Features:

- Asynchronous serial transmission — RS232-C compatible
- Speeds to 9600 baud using XON/XOFF protocol
- Flexible control of keyboard, printer, and floppy
  1. input from keyboard, document, or remote host
  2. output to screen, printer, document, or remote host
  3. multiple combinations possible
- Special transmission mode between WPS-8 systems
  1. error correcting protocol
  2. format control information sent with documents

- Buffered operation
- Automatic document send and receive

MINIMUM HARDWARE REQUIRED:

One of the following systems:

- WS100 Word Processing System with WP102 upgrade
- DS310-K or DS310-L COS-310 system with WP310 and WP102 upgrades

OPTIONAL HARDWARE:

One of the following:

- KL8-JA Communications Interface
- LE8 line printer or
- LA8 draft printer

PREREQUISITE SOFTWARE:

None

OPTIONAL SOFTWARE:

None

TRAINING CREDITS:

None

SUPPORT CATEGORY:

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

Included in on-site installation is an explanation and demonstration of the system. Installation will be deemed complete when the Digital Sample Procedure included with the software has been successfully executed.

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.

The following key (A) represents the form of power source for the product and must be specified at the end of the "WS" or "WP" code, i.e., WS100-AA = system power provided in United States.

A = United States (60 Hz)

Standard Options

Distribution for the WPS-8 software is on floppy diskette.

For a WS100-A or WS100-B Word Processing System:

WP102 -B— MTS system upgrade, single-use license, binaries, documentation, support services (power: A)

For a DS310-K or a DS310-L COS-310 system both of the following are required:

WP310 -A— Word Processing System, single-use license, binaries, documentation, support services (power: A)

WP102 -B— MTS system upgrade, single-use license, binaries, documentation, support services (power: A)

The following key (Y) represents the distribution media for the product and must be specified at the end of the "Q" number, i.e., QF 702-HY = binaries on floppy disk.

Y = Floppy Disk

Update Options

Users of WPS-8/MTS, Version 2.7, whose specified Support Category warranty has expired or whose standard program update services 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 installation or other services unless specifically stated otherwise.

QF702 -H— Binaries, documentation (media: Y)

Users of WPS-8/MTS, Version 2.7, 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 source or binary form on the appropriate medium and includes no installation or other services unless specifically stated otherwise.

QF702 -W— Binaries, documentation (media: Y)

ADDITIONAL SERVICES:

None

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.
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CATEGORY B

During the one (*) 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.

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Software Product Description

PRODUCT NAME: COS-310/2780, Version 7.0, Remote Data Communication Package (RDCP) **SPD 6.11.3**

SECTION A: COS-310/2780 SPECIFIC INFORMATION

DESCRIPTION:

COS-310/2780 Remote Data Communications Package (RDCP) enables a DS310 system running COS-310 to act as a remote job entry (RJE) terminal. COS-310/2780 users can transmit data and/or job control files to another COS-310/2780 system, to a DIGITAL system running a 2780 emulator, or to an IBM 360/370 system running OS/RJE, DOS/POWER, HASP/RJE, or ASP/RJE. COS-310/2780 operates at line speeds of up to 9600 bits per second over switched or private facilities using Bell System series 201, 208, or 209 modems.

COS-310/2780 appears as an IBM 2780 Model 2 (with data routed to a disk file instead of a card punch) data transmission terminal in a point-to-point synchronous data link operating in a standard 2780 format. It transmits logical records of 80 or fewer characters and receives logical records of up to 132-characters. COS-310/2780 can also transmit a non-standard 132 character length record. Blocks can be up to 400 characters long. Data can be transmitted from disk or card reader. Received data can be stored on disk or printed on the line printer.

Features:

- 400-character buffer
- multiple record transmission and reception
- short record (EM) detection for card reader transmission
- vertical and horizontal print format control
- automatic retransmission and retry feature
- conversion of COS-310 file format to EBCDIC for transmission
- full text transparency available for transmission
- use of the DS310 for business applications when COS-310/2780 is not running
- maximum line speeds of 9600 bits per second with disk pack based DS310 systems, 4800 bits per second with floppy disk based DS310 systems
- unattended batch operation
- automatic restart capability for interrupted dial-up data links

In addition to providing 2780 emulation, COS-310/2780 can transmit and receive program files stored on disk to and from another COS-310/2780.

MINIMUM HARDWARE REQUIRED:

Any valid DEC Datasystem 310 configuration which includes a DS3CB COS-310/2780 RDCP hardware/software communications option and 32K bytes of memory.

OPTIONAL HARDWARE:

- A line printer supported by COS-310. If an LA180 is used as the printer, it must be connected to the DS310 system with an LA8 parallel printer interface.
- CR8-E card reader
- RK8-E DECpack disk cartridge system

PREREQUISITE SOFTWARE:

COS-310 operating system, Version 3 or later.

OPTIONAL SOFTWARE:

None

TRAINING CREDITS:

None

SUPPORT CATEGORY:

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

Included in on-site installation is an explanation and demonstration of the system. Installation will be deemed complete when the DIGITAL Sample Procedure included with the software has been successfully executed.

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.

Standard options with no support services are only available after the purchase of one supported license. When a software license is ordered without support services, the category of support applicable to such software is Category C.

The following key (E, Y, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., DS3CB-AE = binaries on RK05 disk.

E = RK05 Disk Cartridge
Y = RX01 Floppy Diskette
Z = No hardware dependency

Standard Options

DS3CB -A— Single-use license, binaries, documentation, support services (DP8E line unit and BG8E CRC unit) (media: E, Y)

DS3CB -D— Single-use license only, no binaries, no documentation, no support services, (DP8E line unit and KB8E CRC unit included) (media: Z)

Update Options

Users of COS-310/2780, Version 6.05, 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 source or binary form on the appropriate medium and includes no installation or other services unless specifically stated otherwise.

QF311 -H— Binaries, documentation (media: E, Y)

Users of COS-310/2780, Version 6.05, 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 source or binary form on the appropriate medium and includes no installation or other services unless specifically stated otherwise.

QF311 -W— Binaries, documentation (media: E, Y)

ADDITIONAL SERVICES:

None

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

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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.

SECTION B: COS-310/2780, Version 7.0 GENERAL DESCRIPTION

2780 Emulator is the collective name for the set of software products that allows various DIGITAL operating systems to emulate the operation of an IBM 2780 Model 1 or 2 Data Transmission Terminal with the multiple record option. Emulation of the 2780 permits communication between such DIGITAL 2780 emulators and the following IBM Remote Job Entry programs supporting the device: OS/HASP, OS/ASP, DOS-POWER and OS/RJE. The 2780 Emulator can also be used to implement communications between DIGITAL systems, each with the appropriate emulator.

The following DIGITAL operating systems support the emulator for the 2780 Model 2: RSTS/E (CTS-500), RSX-11D, RSX-11M, RT-11, DECsystem-10 , and COS-310 (with data routed to the disk file instead of a card punch). In addition, a COS-310 based emulator and a LSI-11 based RT-11 (CTS-300) 2780 are available (Model 1 2780 only). Section A gives the distinguishing features of the particular 2780 emulator described by this SPD. The remainder of this section describes items common to all PDP-11 2780 emulators.

OPERATION:

After the system operator starts the 2780 Emulator, it solicits and responds to console command input.

Transmission: All 2780 emulators can transmit data from card readers, if they are present in the system, and transmit data files from disk storage devices. The RSTS/E 2780 Emulator has the added capability of spooling or queuing transmission requests from timesharing users.

All 2780 emulators transmit EBCDIC and binary data. Since the host systems use the ASCII character set, however, they accept ASCII characters for transmission and then perform automatic character conversion. No conversion is performed on binary data.

The physical units of data that are transmitted are called blocks. Blocks are divided into logical units called records. Maximum block size is 400 characters; maximum record size when transmitting to IBM operating systems is 80 characters. When communicating with other 2780's or 2780 emulators, the record size is variable up to 132 characters. Records that are less than the maximum allowable are either extended to the maximum by blank filling, or transmitted as is, at the user's option. Up to seven (7) records can be transmitted per block.

NOTE:

Limited to 2780 mode only for PDP-11 communication.

Reception: All 2780 emulators can print received character data on a line printer if one is present in the system. In most cases, the software simulates limited-function vertical format control (VFC) by providing Top of Form (Skip to Channel 1), Print-and-Space-1, -2, or -3 line(s) functions, and Skip to Channels 2 through 8, all of which cause modulo 8 line space operation—i.e., skip to the next line which is an even multiple of 8 from top-of-form. Both 64- and 96-character line printers are supported. However, support of line printers which are too slow to keep up with the speed of the communications link (i.e., LS11 and LV11) is limited to "off-line" or DIGITAL-to-DIGITAL usage, because their speed can cause timeout errors in an IBM system.

All emulators write files onto disk storage devices. In such cases, a separate file is created for each received file.

All 2780 emulators receive EBCDIC or binary data. They can automatically convert EBCDIC data to ASCII upon reception, or EBCDIC data can be written to a file by use of the binary mode.

Maximum receive block size is 400 characters. The maximum receive record size is a two-character escape code, plus 132 data characters. Up to seven (7) records can be received per block.

All emulators provide automatic answer to dial-in rings.

Modems and Data Links: All 2780 emulators support operation over synchronous data links, in point-to-point contention mode only, at speeds up to 4800 bits per second (except the LSI-11 based RT-11 2780, which runs up to 2400 bits per second). Bell 201 or 208 modems or equivalent are specified. Operation with other modems is not precluded, but warranted support does not apply in these cases.

Data link control characters are supplied automatically by the emulators. On transmission error, the emulators will re-try up to seven (7) times before declaring the link dead.

Configuring PDP-11 2780 Emulator Systems: Configuration requirements for each emulator are defined in Section A. Briefly, the PDP-11 2780 Emulators require the following hardware beyond the standard operating system configurations:

- DP11, DU11, DUP11, or DUV11 Synchronous Line Interface
- KG11-A Communications Arithmetic Element (except the LSI-11 based RT-11 2780)
- KW11-L or KW11-P clock (except the LSI-11 based RT-11 2780)
- 8K words of additional memory beyond the minimum may be required. (Refer to Section A.)

TRAINING CREDITS:

No training credits are included in the 2780 Emulator Software License charges. Training courses are not required in order to operate the product.

SUPPORT CATEGORY:

The initial binary package carries Category A support. Sources have Category C support.

Installation will be deemed complete in the case of connection with IBM when:

- The customer's 360/370 configuration includes a 2701 Data Adapter, a 2703 Transmission Control Unit, a 3704 or 3705 Transmission Controller, or a System/370 Model 135 Integrated Communications Adapter.
- A DIGITAL sample procedure included with the software has been successfully executed.

Installation in DIGITAL-to-DIGITAL operation will be deemed complete when DIGITAL supplied files can be successfully transmitted in both directions.

CUSTOMER RESPONSIBILITIES:

Before installation of the software, the customer must:

1. Obtain, install, and demonstrate operational to DIGITAL's satisfaction any modems and other equipment and facilities necessary to interface to DIGITAL's communications line interfaces and terminals.
2. Install or have installed all hardware, including terminals, to be used on the system.
3. Generate for terminal support any and all IBM systems that will be communicating with the Emulator, to DIGITAL's satisfaction.
4. Make available to DIGITAL personnel all hardware, including communications facilities and terminals, to be used during installation and acceptance testing for a reasonable period of time each day as mutually agreed upon by DIGITAL and customer, until acceptance criteria are satisfied.
5. Provide access privileges and machine time on any and all IBM systems on which the installation is to be performed.
6. When communicating with IBM, make available to DIGITAL personnel an IBM 360/370 job stream with data, to run via the 2780 Emulator on-line to a 360/370 in accordance with the configuration specifications outlined above.

Delays caused by any failure to meet these responsibilites will be charged at the then prevailing rate for time and materials.

The following table summarizes some of the features of the PDP-11 2780 Emulators.

CHARACTERISTIC EMULATOR NAME	MINIMUM CONFIGURATION SUMMARY (see Section A)	HOST OPERATING SYSTEM	MAXIMUM SPEED	OUTPUT DEVICES SUPPORTED	INPUT DEVICES SUPPORTED	FORMS CONTROL SUPPORTED	SPOOLING SUPPORTED	MODEMS AND IBM OPERATING SYSTEMS SUPPORTED
RSX-11D 2780 RSX-11M 2780 IAS	Any standard RSX-11D or RSX-11M configuration with the following memory 11M - 16KW 11D - 56KW IAS - 72KW DU11 DP11 or DUP11 KG11	RSX-11D or RSX-11M	4800 bps	Line printer or any Fdqs-11 device except DECtape and paper tape punch	Card reader or any other Fdqs-11 device except DECtape	Top of Form, Skip 1, 2, or 3 lines, Skip modulo 8, Horizontal forms control	Yes on reception No on transmission	Bell 208 or 201 or equivalent; OS/RJE OS/HASP, DOS/POWER, OS/ASP
RSTS-2780 (CTS-500 2780)	Minimal RSTS/E or CTS-500 system consistent with number of users and expected application plus 8K words of memory DU11 DUP11 or DP11 KG11	RSTS/E (CTS-500)	4800 bps	Line printer or any disk except flexible diskette magnetic tape (limited)	Card reader or any disk magnetic tape (limited)	Top of Form, Skip 1, 2 or 3 lines Horizontal forms control	Yes	Same as above
RT-11 2780 (COS-350 2780)	Disk-based Foreground Background RT-11 or COS-350 system with 16K words of memory, DU11 or DP11 or DUP11 KW11-L KG11-A	RT-11 (COS-350)	4800 bps	Line printer or any disk supported by RT-11 (COS-350)	Card reader paper tape reader or any disk supported by RT-11 (COS-350)	Top of Form, Skip 1, 2, or 3 lines, Skip modulo 8 Horizontal forms control	No	Same as above
RT-11 CTS 300-2780	Disk-based Foreground Background RT-11 system with 16K words of memory DUV11 REV-11 (AORC)	RT-11 (CTS-300)	2400 bps	Line printer or any disk supported by RT-11 (CTS-300)	Any disk supported by RT11 (CTS-300)	Top of Form, Skip 1, 2, or 3 lines Skip modulo 8, horizontal forms control	No	Same as above

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Software Product Description

PRODUCT NAME: CORAL 66, Version 3 **SPD 14.56.5**

DESCRIPTION:

CORAL 66 is a high-level block-structured programming language. It is the standard general purpose language prescribed by the British Government for real time and process control applications. It is defined in the "Official Definition of CORAL 66" (OD) published in 1973 by Her Majesty's Stationery Office (ISBN 0 11 470221 7).

The language is designed to replace assembly level programming in modern industrial and commercial applications. It is used for long life products where easy maintenance and flexibility are required.

The PDP-11 CORAL 66 compiler is implemented in accordance with the OD. It operates under the RSX-11M, RSX-11D, and IAS operating systems. In addition, the compiler provides the following features:

- BYTE, LONG (32-bit integer) and DOUBLE (64-bit floating point) numeric types.
- Generation of re-entrant code at the procedure level.
- Generated code executable on any valid RSX-11S operating system that includes the Extended Instruction Set (EIS).
- Switchable option to select target PDP-11 computer instruction sets.
- Switchable option to optimize generated code.
- Switchable option to check the bounds of array type variables.
- Conditional compilation of defined parts of source code.
- English language error messages at compile and (optionally) run-time.
- Switchable option to control listing output.
- INCLUDE keyword to incorporate CORAL 66 source code from user-defined files.
- Switchable option to read card format.

Floating Point Processor (FPP) Support

The CORAL 66 with FPP support generates code that supports the FP11 Floating Point Processor Option of the PDP-11 computer system. The FP11 is available on several PDP-11 series computers to provide special support for floating point and integer arithmetic.

Object Time System

The PDP-11 CORAL 66 Object Time System (OTS) is a set of object modules selectively linked with compiler-produced object modules by the operating system's Task Builder to produce a task (program) ready for execution. The OTS is re-entrant and part or all of the OTS can be made into a shared library for concurrent use by the multiple tasks.

The PDP-11 CORAL 66 OTS provides the following capabilities:

- control of task execution
- control of task status
- system information functions
- event processing
- trap processing
- handler interface processing through QIO
- intertask communication processing
- stream, record and block INPUT/OUTPUT using FCP
- terminal interface handling
- mathematical functions

The OTS permits the user to generate an executable task to run under the RSX-11M, RSX-11S, or IAS operating systems, or a free-standing program to run on any PDP-11 without an operating system. The OTS free-standing programs provide the following capabilities:

- Bootable device module support for
  1. PC11 Paper tape reader
  2. RX11 Floppy disk
  3. RK11 Disk driver
  4. PC11 DECtape
- DL11 Downline load support
- Terminal interface handlers
- Stream input/output

MINIMUM HARDWARE REQUIRED:

Any valid RSX-11M, RSX-11D, or IAS operating system configuration which includes:

- KT11 Memory Management Unit (or equivalent)
- KE11-E Extended Instruction Set (or equivalent)
- A 9-track magnetic tape system, an RK11 disk cartridge system, or an RK611 disk cartridge system
- A 24K-word (RSX-11M, RSX-11D and IAS) main memory partition

OPTIONAL HARDWARE:

Supports any mass storage, unit record or terminal device supported by the prerequisite software.

PREREQUISITE SOFTWARE:

One of the following operating systems:

- RSX-11M, Version 3 or Version 3.1
- RSX-11D, Version 6B or Version 6.2
- IAS, Version 2

OPTIONAL SOFTWARE:

None

TRAINING CREDITS:

None

SUPPORT CATEGORY:

A — 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 without additional 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.

Standard options with no support services are only available after the purchase of one supported license. When a software license is ordered without support services, the category of support applicable to such software is Category C.

A single-use license only option is a license to copy the software previously obtained under license, and use such software in accordance with DIGITAL's Standard Terms and Conditions of Sale. The category of support applicable to such copied software is Category C.

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

The following key (D, E, T, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QP066-AD = binaries on 9-track magnetic tape.

D = 9-track Magnetic Tape
E = RK05 Disk Cartridge
T = RK06 Disk Cartridge
Z = No hardware dependency

Standard Options

CORAL 66 COMPILER

QP066 -A— Single-use license, binaries, documentation, support services (media: D, E, T)

QP066 -C— Single-use license, binaries, documentation, no support services (media: D, E, T)

QP066 -D— Single-use license only, no binaries, no documentation, no support services (media: Z)

CORAL 66 OBJECT TIME SYSTEM

QP069 -C— Single-use license, binaries, documentation, no support services (media: D)

QP069 -D— Single-use license only, no binaries, no documentation, no support services (media: Z)

Source/Listing Options

CORAL 66 OBJECT TIME SYSTEM SOURCES

QP069 -E— All sources (media: D)

CORAL 66 COMPILER SOURCES

QP071 -E— All sources (media: D)

Update Options

Users of CORAL 66, Version 2.0, whose specified Support Category warranty has expired may order the following software update at the then current charge for such update, for use under the existing license. Except where the media is designated as Z, the update is distributed in source or binary form on the appropriate medium. A software update where the media is designated as Z grants the user of CORAL 66, Version 2.0, the right to copy the previously ordered QP066-H (D, E, T) or QP066-W (D, E, T) software update for use on an additional single CPU for which a CORAL 66 license has been obtained.

QP066 -H— Binaries, documentation (media: D, E, T)

QP066 -H— Right to copy for single-use (under existing license), no binaries, no documentation, no support services (media: Z)

Users of CORAL 66, Version 2.0, whose specified Support Category warranty has not expired may order the following software update for the then current media charge for use under the existing license. The update is distributed in binary form on the appropriate medium and includes no installation or other services unless specifically stated otherwise.

QP066 -W— Binaries, documentation (media: D, E, T)

ADDITIONAL SERVICES:

None

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.

8 DIGITAL SOFTWARE NEWS
CUMULATIVE INDEX
AUGUST/SEPTEMBER 1978

This is a complete listing of all articles for current products supported in the 8 Digital Software News. Missing sequence numbers may pertain to problems unique to other versions of the same product.

IMPORTANT!

The following numerical system has been grouped in logical order.

Retracted articles are indicated: RETRACTION.

Flags are currently being installed for all articles. The flags and definitions are as follows.

M = Mandatory patch. These are critical patches which each customer is required to install.

O = Optional patch. These articles are applicable only if the reported problems have occurred at the customer site or if they are unique to his operation.

R = Restriction. These problems are not patchable in released software. Restrictions are reviewed and corrected when possible as part of the normal release cycle.

N = NOTE. This information may be helpful to the user.

Component	Sequence	Mon/Yr
DECNET/8 V1		
NSP		
DISCONNECT BUG	01 M	Feb 78
MACREL/LINKER V1		
NOTES/PROGRAMMING HINTS		
HARDWARE RESTRICTIONS	01 N	Dec 77
OS/8 V3C		
BUILD		
CORRECTION FOR OS/8 HANDBOOK	06	Jul 76
CAMP		
CAMP FAILS TO UNLOAD MULTIPLE RK8E DRIVERS	01	Jan 77
CCL		
DEFAULT EXTENSIONS FOR TECO	03	Sep 76
ADDING A NEW CCL COMMAND	06	May 76
CREF		
FIXING PROBLEMS: /M, FIXMRI, DOLLAR SIGN BUG, AND JSW	10	Sep 76
FIXTAB	11	Sep 76
DIRECT		
DIRECT /B DOES NOT PRINT A SPACE	04	Sep 76
DOCUMENTATION		
OS/8 HANDBOOK		
DOCUMENTATION CHANGE	11	May 76
CHANGE TO CASSETTE BUILD PROCEDURE	12	Oct 76
FAULTY DESCRIPTION FOR ERROR PERFORMANCE	13	Nov 76
FORTRAN II		
FORTRAN II LIBRARY	10	Jan 77
HANDLERS		
MAGNETIC TAPE	07a	Sep 76
OPTIONAL PATCH TO NULL HANDLER	10	Sep 76
RK8 SYSTEM HANDLER DOES NOT ALWAYS RETRY ERRORS	13	May 76
MONITOR		
JSW BIT II AFFECTS SAVE	01 N	Feb 78
PROPER SETTING OF JSW BEFORE CHAINING	02 N	Feb 78
PAPER TAPE KIT		
OS/8 V3C PAPER TAPE KIT	01	Jan 77
TDINIT		
PROBLEM WITH TD8E SYSTEMS	01	Aug 76
UTILITIES		
HOW TO COPY LARGE FILES WITH PIP10	02	Apr 77
UNDEFINED PASS1 ARGUMENTS IN ZBLOCK	12	Apr 77
OS/8 EXTENSION KIT V3C		
BASIC		
USE OF DUMMY ARGUMENTS IN BASIC	05	Sep 76
RETRACTION	20	XXX XX
BRTS GETS LOST	24	Jun 76
RESTRICTION ON EXTENDED RANGE FOR-NEXT LOOPS	25	Sep 76
BLOAD NOT RESTORING LOCATION 7600 PROPERLY	26	Jul 76
BAD LOCATION IN BASIC.FF	28	Sep 76
BRTS DOES REPETITIVE MULTIPLIES	31	Nov 76

Component	Sequence	Mon/Yr
ERROR IN BASIC EDITOR	32	Nov 76
RETRACTION	33	XXX XX
BASIC HALTS THE SYSTEM	35	Mar 77
LIMITATION OF RND	36	Oct 77
BATCH		
CANNOT MOVE BATCH INPUT FILE	05	Mar 76
RESTARTING BATCH	06	Sep 76
"MANUAL HELP MESSAGE" PRINTED ERRONEOUSLY	08	Jul 76
RUNNING BATCH IN 32K	09	Sep 76
GENIOX (formerly indexed under OS/8 V3C)		
GENIOX QUESTIONS	01	Nov 76
MARK SENSE BATCH		
MARK SENSE BATCH FORTRAN II READS THROUGH DOLLAR SIGNS	02	Jun 76
TECO		
CONDITIONS INSIDE ITERATIONS	04	Jul 76
OS/8 FORTRAN IV V3C		
POSSIBLE ERRONEOUS STATEMENT NUMBER IF ERROR TRACEBACK	02	Sep 76
USE OF EAE MODE A UNDER FRTS	15	Sep 76
PASSING ARGUMENTS	16	Sep 76
ERROR IN SINH FUNCTION	23	Sep 76
RETRACTION	25	XXX XX
FPP-8A	27	Aug 76
VERSION AND OUTPUT FILE ERRORS	28	Oct 76
RUNTIME SYSTEM PROBLEM	29	Oct 76
Q OPTION	31	Nov 76
FORMATTED INPUT RECORDS LONGER THAN 132 CHARACTERS	33	Nov 76
FRTS DOES NOT FLAG FIELD OVERFLOW PROPERLY ON OUTPUT	34	Feb 77
PLOT, ADC, AND REALTM MODULES	35	Jan 77
RUNNING FORTRAN IV UNDER BATCH IN 32K	36	Apr 77
RETRACTION	37	XXX XX
FORTRAN IV V3C CRASHES	38	Jun 77
B AND D FORMAT CONVERSION	39	Aug 77
EQUIVALENCE STATEMENT IN FORTRAN IV V3C	40	Oct 77
QUESTIONS CONCERNING ARRAY SIZES	41	Oct 77
COMPILER GENERATES WRONG LENGTH	42	Oct 77
OS/8 FORTRAN IV PLOTTER V3C		
FORTRAN IV PLOTTER ROUTINE, PSCALE, HANGS IN ENDLESS LOOP	01	Apr 77
PLOTTER OUTPUT PROBLEM	02	Aug 77
OS/8 INDUSTRIAL BASIC V3		
INCORRECT SOFTWARE CORE SIZE	03	May 76
RESTRICTION ON EXTENDED RANGE FOR-NEXT LOOPS (See BASIC, Seq 25)	05	Sep 76
.SV FILES CANNOT BE CHAINED	06	Oct 76
NONEXISTENT CHARACTERS ERRONEOUSLY MATCHED	07	Mar 76
INDUSTRIAL BASIC EDITOR GARBAGE	08	Jun 77
OS/78 V1		
NOTES/PROGRAMMING HINTS		
FUNCTIONALITY	01 N	Dec 77
RESTARTING OS/78	02 N	Jan 78
UTILITIES		
CANNOT MOVE BATCH INPUT FILE	01 R	Sep 77
SUGGESTED PATCH	02 O	Jan 78

Component	Sequence	Mon/Yr
OS/78 BASIC V1		
RESTRICTION ON EXTENDED RANGE FOR-NEXT LOOPS	01 R	Sep 77
OS/78 FORTRAN IV V1		
FRTS.SV V5		
FORMATTED INPUT RECORDS LONGER THAN 132 CHARACTERS	01 O	Sep 77
F4.SV V4		
PASSING ARGUMENTS	01 R	Sep 77
THE "EQUIVALENCE" STATEMENT	02 M	Sep 77
COMPILER VERSION NUMBER	03 N	Sep 77
QUESTIONS CONCERNING ARRAY SIZES	04	Oct 77
COMPILER GENERATES WRONG LENGTH	05 O	Oct 77
RTS/8 V2/V2B		
EXECUTIVE		
CANNOT FREE PARTITION WITH WAITM	01	Mar 76
RTS-EXEC NON RESIDENT TASK PROBLEM	02	Jun 77
MCR		
SOME TIME-OF-DAY REQUESTS RUN 24 HOURS LATE	01	Mar 76
DATE PROBLEM	02 M	Feb 78
OS/8 SUPPORT TASK		
SOURCE CHANGE FOR EXECUTING BATCH	01	Feb 76
USING OS/I SUPPORT	02	Mar 76
COMMUNICATING BETWEEN OS/8 AND RTS-8	03	Mar 76
EMPTY KEYBOARD INPUT RING BUFFER	04 M	Feb 78
PWRF		
RTS/8 POWER FAIL PROBLEM ON PDP8-A	01	Jun 77
TTY TASK		
DEFICIENCY IN TTY TASK	01	Mar 76
UDCICS		
UDCICS ERROR	01	Feb 78
OS/8 V3D		
DOCUMENTATION		
FAULTY DESCRIPTION FOR ERROR PERFORMANCE	01 N*	Oct 77
HANDLER		
CTRL/Z AND NULL	01 O*	Oct 77
NOTES/PROGRAMMING HINTS		
DATE ALGORITHM	01 N	Dec 77
UTILITIES		
ADDING A NEW CCL COMMAND	01 N*	Oct 77
DEFAULT EXTENSIONS FOR TECO	02 O*	Oct 77
HOW TO COPY LARGE FILES	03 O*	Oct 77
OS/8 EXTENSION KIT V3D		
BASIC		
RESTRICTION ON EXTENDED RANGE FOR-NEXT LOOPS	01 R	Oct 77
BATCH		
CANNOT MOVE BATCH INPUT FILE	01 R	Oct 77
RESTARTING BATCH	02 N	Oct 77
RUNNING BATCH IN 32K	03 O	Oct 77

*Articles dated October 1977 appeared in OS/8 V3D Software Review, October 1977.

Component	Sequence	Mon/Yr
MSBAT		
MARK SENSE BATCH FORTRAN II READS THROUGH DOLLAR SIGNS	01 O	Oct 77
GENIOX		
GENIOX QUESTIONS	01 N	Oct 77

OS/8 FORTRAN IV V3D

FORLIB.RL V5A		
PLOT, ADC, AND REALTM MODULES	01 N	Oct 77
F4.SV V4A		
PASSING ARGUMENTS	01 R	Oct 77
EQUIVALENCE STATEMENT	02 M	Oct 77
COMPILER VERSION NUMBERS	03 N	Oct 77
COMPILER GENERATES WRONG LENGTH	04 O	Oct 77
QUESTIONS CONCERNING ARRAY SIZES	05	Oct 77
FRTS V5A		
USE OF EAE MODE A	01 R	Oct 77
FORMATTED INPUT RECORDS LONGER THAN 132 CHARACTERS	02 O	Oct 77
RUNNING FORTRAN IV UNDER BATCH IN 32K	03 O	Oct 77
FPP-8A	04 O	Oct 77

IMPORTANT!

Flags are currently being installed for all articles. The flags and definitions are as follows.

M = Mandatory patch. These are critical patches which each customer is required to install.

O = Optional patch. These articles are applicable only if the reported problems have occurred at the customer site or if they are unique to his operation.

R = Restriction. These problems are not patchable in released software. Restrictions are reviewed and corrected when possible as part of the normal release cycle.

N = NOTE. This information may be helpful to the user.

Component	Sequence	Mon/Yr
DECNET-8 V1		
DOCUMENTATION		
ERROR IN DECNET MANUAL	10.0.1 N	May 78
NSP		
BYTES LOST IN INTERRUPT MESSAGE	10.2.1 M	Sep 78
OS/8 V3C		
MONITOR		
CCL		
ERROR IN CCL (VERSION G) SOURCE PAPERTAPE	20.3.1 O	May 78
OS/8 V3D		
MONITOR		
NOTES & DOCUMENTATION		
USING THE PDP-8/A PARALLEL PORT FOR A LINEPRINTER	21.1.1 N	Mar 78
SOFTWARE REVIEW CORRECTION	21.1.2 N	May 78
PROBLEM WHEN YOU DESTROY BATCH	21.1.3 N	Aug/Sep 78
CCL		
DEFAULT EXTENSIONS TO TECO	21.3.1 O	May 78
UTILITIES		
CREF		
BUG WITH FIXTAB	21.15.1 M	May 78
EDIT		
EDIT PROBLEM WITH NO FORMFEED AT END OF THE INPUT FILE	21.17.1 M	Mar 78
FOTP		
INCORRECT DIRECTORY VALIDATION	21.19.1 M	Aug/Sep 78
MCPIP		
DATE-78 PATCH FOR MCPIP	21.21.1 M	Mar 78
PAL8		
INCORRECT CORE SIZE ROUTINE	21.22.1 M	Aug/Sep 78
ERRONEOUS LINK GENERATION NOTED ON PAGE DIRECTIVE	21.22.2 M	Aug/Sep 78
PIP		
PIP /Y OPTION DOES NOT WORK PROPERLY WHEN TRANSFERRING A SYSTEM HEAD FROM A DEVICE WHICH IS NOT CO-RESIDENT WITH SYS.	21.23.1 M	Aug/Sep 78
SET		
USING SET WITH 2-PAGE SYSTEM HANDLERS	21.26.1 M	May 78
SCOPE RUBOUTS FAIL IN SET	21.26.2 M	May 78
PARSING OF = IN TTY WIDTH OPTION	21.26.3 M	Aug/Sep 78

Component	Sequence	Mon/Yr
HANDLERS		
ASR33		
HOW TO WRITE TWO-PAGE SYSTEM HANDLERS	21.40.1 N	May 78
LPQ		
LPQ01 HANDLER FAILS TO RECOGNIZE TABS	21.49.1 M	Mar 78
OS/8 EXTENSION KIT V3C		
BASIC		
BRTS		
BASIC FAILS TO OUTPUT 132 CHARACTERS TO LA-36	30.11.1 O	Mar 78
OS/8 EXTENSION KIT V3D		
BASIC		
BASIC		
GOOD RANDOM NUMBERS FOR OS/8 BASIC	31.1.1 N	May 78
BASIC.UF		
BASIC.UF INCOMPATIBLE FROM OS/8 V3C	31.5.1 M	Aug/Sep 78
BRTS		
IOTABLE OVERFLOW	31.11.1 M	Mar 78
BASIC PNT FUNCTION	31.11.2 M	Jul 78
LINE SIZE ON OUTPUT OF BASIC	31.11.3 O	Jul 78
BASIC		
BASIC EDITOR HAS A FIELD BOUNDARY BUG	31.12.1 M	Aug/Sep 78
TECO		
CHANGING THE DEFAULT EU VALUE	31.20.1 O	Mar 78
CHANGING THE DEFAULT EH VALUE	31.20.2 O	Mar 78
REMOVING YANK PROTECTION	31.20.3 O	Mar 78
SCOPE SUPPORT FOR VT05 USERS	31.20.4 O	Mar 78
PROBLEM WITH AY COMMAND	31.20.5 M	Mar 78
CONDITIONALS INSIDE ITERATIONS	31.20.6 M	Mar 78
ECHOING OF WARNING BELLS	31.20.7 M	Mar 78
CTRL/U SOMETIMES FAILS AFTER *	31.20.8 M	May 78
MULTIPLYING BY 0 IN TECO	31.20.10 M	May 78
Q-REGISTERS DON'T WORK IN 8K	31.20.11 M	MAY 78
CAN'T SKIP OVER A "W"	31.20.12 M	May 78
UNSPECIFIED ITERATIONS AFTER INSERTS	31.20.13 M	Jul 78
NEW FEATURES IN TECO V5	31.20.14 N	Aug/Sep 78
FUTIL		
FUTIL PATCH	31.21.1 M	May 78
PATCH TO FIX 'SHOW CCB' AND MAPPING OF 'CD' MODULES	31.21.2 M	Aug/Sep 78
-237 PATCH	31.21.3 O	Aug/Sep 78
BATCH		
MANUAL INTERVENTION REQUIRED ERRONEOUSLY	31.23.1 M	Aug/Sep 78
OS/8 V3D MACREL/LINKER V1A		
USING FUTIL TO DEBUG OVERLAYS	40.0.1 N	May 78
LINK		
PATCH V1D TO LINK	40.2.1 M	May 78
PATCH V1E TO LINK	40.2.2 M	May 78
LINK CORRECTIONS	40.2.3 M	May 78
MACREL		
PATCH V1D TO MACREL	40.5.1 M	May 78
PATCH V1E TO MACREL	40.5.2 M	May 78
OVRDRV		
PATCH V1B TO OVRDRV.MA	40.6.1 M	May 78

Component	Sequence	Mon/Yr
OS/8 FORTRAN IV V3C		
F4		
FORTRAN COMPILER FAILS TO RECOGNIZE " AS AN ERROR	50.3.1 M	Mar 78
OS/8 FORTRAN IV V3D		
F4		
FORTRAN COMPILER FAILS TO RECOGNIZE " AS AN ERROR	51.3.1 M	Jul 78
FORTRAN COMPILER NOT RECOGNIZING SYNTAX ERROR	51.3.2 M	Jul 78
FORTRAN RUNTIME SYSTEM 2 PAGE HANDLER	51.3.3 O	Aug/Sep 78
RTS/8 V2B		
PARAM		
INCORRECT CLOCK VALUE IN PARAM FILE	61.2.1 N	Aug/Sep 78
OS8SUP		
OS/8 TASKS HANGS WITH TIME SHARE NOT ENABLED	61.3.2 O	Aug/Sep 78
CLOCK		
PROBLEM WITH DOUBLE PRECISION CLOCK REQUESTS	61.16.1 M	Aug/Sep 78
OS/78 V1		
HANDLERS		
LPQ		
LPQ01 HANDLER FAILS TO RECOGNIZE TABS	70.49.1 M	May 78
BASIC		
GOOD RANDOM NUMBERS FOR OS/8 BASIC	70.70.1 N	Aug/Sep 78
F4.SV		
FORTRAN COMPILER FAILS TO RECOGNIZE " AS AN ERROR	70.93.1 M	Aug/Sep 78
OS/78 V2		
UTILITIES		
BITMAP FAILS WITH SPOOLER RUNNING	71.12.1 M	Aug/Sep 78
BASIC		
BCOMP		
STRING ARRAY CONCATENATION	71.71.1 N	Aug/Sep 78
BLOAD.SV		
LARGE CORE IMAGE SAVE PROBLEM	71.72.1 M	Aug/Sep 78

DECUS SPECIAL INTEREST GROUPS

A DECUS Special Interest Group (SIG) is an activity whereby members of the DIGITAL Equipment Computer Users Society who share common interests in a particular field, join together to promote the interchange of information. Specialization may be in application areas such as education or industry, specific software systems such as OS/8 and RSX-11, or a specific mainframe such as the DECsystem-10/20.

SIG members derive numerous benefits from communicating with others who share specialized interests and who may wish to share their experiences. SIG s sponsor business meetings, tutorials, and workshops at the various chapter symposia which fulfill the two-fold purpose of fostering communication among users and between users and DIGITAL. Channeled communication provides DIGITAL and the users with insight into the direction of future developments. SIG s provide direct feedback to DIGITAL's in-house activities and have thereby made substantial contributions to OS/8, RSX-11, RSTS and TOPS-10.

User submitted articles, minutes of local meetings, and letters comprise the major portion of the individual SIG newsletters. Suggestions, hints, bug fixes, program plans, or questions of a non-commercial nature are suitable material for SIG newsletters.

SIG members are encouraged to make presentations at the SIG sessions held during DECUS Symposia.

The semi-annual U.S. Symposia sessions are organized by special interest areas. Submissions received from the user community are reviewed by symposia committee members from the special interest groups for appropriate placement on the agenda.

Special Interest Group participation in the review of programs submitted to the DECUS Program Library provides an opportunity to improve the quality and utility of programs available to you and to fellow users.

DIGITAL standards are issued to DECUS members for review and on the theory and philosophy of the standards. DECUS is a voting member of ANSI X3. Users are encouraged to register their areas of expertise with DECUS and assist with reviewing standards. SIG s often play a role in this process.

Below is a list of U.S. based Special Interest Groups within DECUS.

If you would like information regarding membership in any of the Special Interest Groups, contact DECUS U.S. Chapter, 129 Parker Street, PK3-1/E55, Maynard, Massachusetts 01754 or one of the other DECUS Chapter offices in Kanata, Sidney or Geneva.

NETSIG—Networks Special Interest Group
RSTS SIG—RSTS and RSTS/E Special Interest Group
SIGIG—Special Interest Group on Interactive Graphics
ESIG—Engineering Applications Special Interest Group
SIG-18—18-Bit Users Special Interest Group
12-Bit SIG—12-Bit User Special Interest Group
RSX-11/IAS SIG
RT-11 SIG
EDUSIG—Educational Users Special Interest Group
DEBUG—Digital Equipment Business Users Group
MUSIG—Mumps Special Interest Group
PASCAL SIG
DBMS SIG
TECO SIG
LSI-11 SIG
FOCAL SIG
STANDARDS SIG

DIGITAL EQUIPMENT COMPUTER USERS SOCIETY

12-BIT Special Interest Group

The 12-Bit Special Interest Group is an informal group of users interested in 12-Bit software and related subjects. The principle activities of the group are a newsletter and panel-workshop sessions at the DECUS Symposium. The only requirement for membership in the 12-Bit SIG is an interest in its goals and activities.

The goals of the 12-Bit SIG are:

1. Provide an informal means for quick dissemination of information and ideas about software developments and related topics.
2. Encourage users to write and make available useful programs.
3. Act as a forum for the development and communication of needs and ideas for future developments.
4. Serve as a communication channel between DEC and the user community.
5. Coordinate Special Interest Group sessions at the DECUS Symposia with the DECUS meetings committee and assist the DECUS librarian with 12-Bit submissions.

User generated software that the 12-Bit SIG has been involved with includes:

1. Extended and improved versions of the monitor systems.
2. Extensions to system programs such as the compilers, assemblers and loaders.
3. Many special device handlers.
4. New compilers and other language processors.
5. Routines to support special requirements such as a laboratory environment.
6. Adaption of many existing programs to the 12-Bit environment.

Correspondence or submissions to the newsletter should be sent to:

12-Bit Special Interest Group
c/o DECUS Office
One Iron Way - MR2-3/E55
Marlboro, MA 01752

If you wish to become a member of the 12-Bit SIG, please fill out the form below.

Are you a DECUS Member? _____ DECUS Membership Number _____

NAME _____

AFFILIATION _____

CITY _____ STATE _____ ZIP CODE _____

TELEPHONE NUMBER _____

**Please note one must be a member of DECUS prior to requesting 12-Bit SIG involvement. For general membership information, contact the* DECUS Office, *One Iron Way - MR2-3/E55, Marlboro, MA 01752*

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).

AREAS COVERED	SPR CENTER
United States, remainder of Far East, Middle East, Africa Latin America	Administrative Services Group, SWS P.O.Box F Maynard MA 01754
Canada	Digital Equipment Canada P.O.Box 11500 Kanata Canada K2H 8K8 Ontario
United Kingdom	Digital Equipment Corp., LTD Fountain House Butts Centre RG1 7QN Reading England
Australia-Melbourne	Digital Equipment Aust. Pty., LTD 60 Park Street South Melbourne Victoria Australia 3205
Australia-Sydney	Digital Equipment Aust. Pty., LTD 123 125 Willoughby Road P.O.Box 491 Crows Nest NSW Australia 2065
Brazil	Digital Equipment Comercio Ind Rua Batatais 429 Esq AL Campin 01423 Jardim Paulista Sao Paulo 0100 Brazil
Caribbean	De Latin America P.O.Box 11038 Fernando Juncos Sta. Santurce PR 00910
France	Digital Equipment Corp., LTD. Centre Silic Cidex L225 18 Rue Saarinen 94533 Rungis France

AREAS COVERED	SPR CENTER
Italy	Digital Equipment SPA Viale Fulvio Testi 117 20092 Cinisillo Balsamo Italy
Japan	Digital Equipment Corp., INTL 3rd Floor Kowa Building 8-7 Sanban Cho Chiyoda Ku Tokyo 102 Japan
New Zealand	Digital Equipment Corp., LTD Challenge House 3 Wolfe Street P.O.Box 2471 Auckland New Zealand 10010
Belgium, Holland	Digital Equipment BV Kaap Horndreef 38 3563 AV Utrecht Netherlands
Denmark, Finland, Norway, Sweden	Digital Equipment Corp., AB Englundavaegen 73 TR 171 41 Solna Sweden
Switzerland, Spain, Greece, Romania, Portugal, Bulgaria Yugoslavia	Digital Equipment Corp., SA 20 Quai Ernest Ansermet Boite Postale 23 CH 1211 Geneva Switzerland
Austria, Poland Hungary, Rumania East Germany, West Germany, Russia, Czechslovakia	Digital Equipment Corp., GMBH Wallsteinplatz 2 8000 Munchen 40 Germany 8000
Israel	DECSYS Computers, LTD 7 Habakuk Street Il-Tel Aviv 63505 Israel

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