


```
SSSSSSSS  CCCCCCCC  HH      HH  EEEEEEEEE  DDDDDDDD
SSSSSSSS  CCCCCCCC  HH      HH  EEEEEEEEE  DDDDDDDD
SS        CC        HH      HH  EE          DD      DD
SS        CC        HH      HH  EE          DD      DD
SS        CC        HH      HH  EE          DD      DD
SS        CC        HH      HH  EE          DD      DD
SSSSSS    CC        HHHHHHHHHH EEEEEEEEE  DD      DD
SSSSSS    CC        HHHHHHHHHH EEEEEEEEE  DD      DD
          SS        HH      HH  EE          DD      DD
          SS        HH      HH  EE          DD      DD
          SS        HH      HH  EE          DD      DD
          SS        HH      HH  EE          DD      DD
          CC        HH      HH  EE          DD      DD
SSSSSSSS  CCCCCCCC  HH      HH  EEEEEEEEE  DDDDDDDD
SSSSSSSS  CCCCCCCC  HH      HH  EEEEEEEEE  DDDDDDDD
          .....
```

```
LL        IIIIII  SSSSSSSS
LL        IIIIII  SSSSSSSS
LL        II      SS
LL        II      SS
LL        II      SS
LL        II      SS
LL        II      SSSSSS
LL        II      SSSSSS
LL        II      SS
LL        II      SS
LL        II      SS
LL        IIIIII  SSSSSSSS
LLLLLLLLLL IIIIII  SSSSSSSS
LLLLLLLLLL IIIIII  SSSSSSSS
```

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SCH\$RESCHED RESCHEDULING INTERRUPT HANDLER

```

0000 1      .TITLE  SCHED RESCHEDULING INTERRUPT HANDLER
0000 2      .IDENT  'V04-000'
0000 3      *-----*
0000 4      *
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0000 22     *
0000 23     *
0000 24     *-----*
0000 25     *
0000 26     *  MODIFIED BY:
0000 27     *
0000 28     *    V03-006 KPL0001      Peter Lieberwirth      15-Jan-1984
0000 29     *                   Fix some broken work displacements, in fact, fix them all.
0000 30     *
0000 31     *    V03-005 TMK0001      Todd M. Katz        20-Dec-1983
0000 32     *                   Fix some broken word displacements.
0000 33     *
0000 34     *    V03-004 WMC0004      Wayne Cardoza       10-Jan-1982
0000 35     *                   Fix some broken word displacements.
0000 36     *
0000 37     *    V03-003 JWH0143      Jeffrey W. Horn    30-Nov-1982
0000 38     *                   Back-out JWH0136, code that broke references is now in
0000 39     *                   another PSECT.
0000 40     *
0000 41     *    V03-002 JWH0136      Jeffrey W. Horn    24-Nov-1982
0000 42     *                   Fix broken references.
0000 43     *
0000 44     *    V03-001 KDM0083      Kathleen D. Morse  31-Mar-1982
0000 45     *                   Add multi-processing hooks for replacement scheduling routines.
0000 46     *
0000 47     *

```



```

0000 59 .SBTTL SCH$RESCHED RESCHEDULING INTERRUPT HANDLER
0000 60 :++
0000 61 : SCH$RESCHED - RESCHEDULING INTERRUPT HANDLER
0000 62 :
0000 63 : THIS ROUTINE IS ENTERED VIA THE IPL 3 RESCHEDULING INTERRUPT.
0000 64 : THE VECTOR FOR THIS INTERRUPT IS CODED TO CAUSE EXECUTION
0000 65 : ON THE KERNEL STACK.
0000 66 :
0000 67 : ENVIRONMENT:
0000 68 :     IPL=3 MODE=KERNEL IS=0
0000 69 : INPUT:
0000 70 :     00(SP)=PC AT RESCHEDULE INTERRUPT
0000 71 :     04(SP)=PSL AT INTERRUPT.
0000 72 :--
0000 73 .ALIGN LONG
0000 74 MPH$RESCHED:: ;MULTI-PROCESSING CODE HOOKS IN HERE
0000 75 SCH$RESCHED:: ;RESCHEDULE INTERRUPT HANDLER
0000 76 SETIPL #IPL$ SYNCH ;SYNCHRONIZE SCHEDULER WITH EVENT REPORTING
07 0003 77 SVPCTX ;SAVE CONTEXT OF PROCESS
51 0000000'EF D0 0004 78 MOVL L^SCH$GL_CURPCB,R1 ;GET ADDRESS OF CURRENT PCB
52 0B A1 9A 000B 79 MOVZBL PCBSB_PRI(R1),R2 ;CURRENT PRIORITY
00 0000000'EF 52 E2 000F 80 BBSS R2,L^SCH$GL_COMQS,10$ ;MARK QUEUE NON-EMPTY
2C A1 0C B0 0017 81 10$: MOVW #SCH$C_COM,PCBSW_STATE(R1) ;SET STATE TO RES COMPUTE
53 0000000'EF 42 7E 001B 82 MOVAQ SCH$AQ_COMT[R2],R3 ;COMPUTE ADDRESS OF QUEUE
93 61 0E 0023 83 INSQUE (R1),@R3)+ ;INSERT AT TAIL OF QUEUE
0026 84
0026 85 :+
0026 86 : SCH$SCHED - SCHEDULE NEW PROCESS FOR EXECUTION
0026 87 :
0026 88 : THIS ROUTINE SELECTS THE HIGHEST PRIORITY EXECUTABLE PROCESS
0026 89 : AND PLACES IT IN EXECUTION.
0026 90 :--
0026 91 MPH$SCHED:: ;MULTI-PROCESSING CODE HOOKS IN HERE
0026 92 SCH$SCHED:: ;SCHEDULE FOR EXECUTION
0026 93 SETIPL #IPL$ SYNCH ;SYNCHRONIZE SCHEDULER WITH EVENT REPORTING
52 0000000'EF 20 00 EA 0029 94 FFS #0,#32,L^SCH$GL_COMQS,R2 ;FIND FIRST FULL STATE
45 13 0032 95 BEQL SCH$IDLE ;NO EXECUTABLE PROCESS??
53 0000000'EF 42 7E 0034 96 MOVAQ SCH$AQ_COMH[R2],R3 ;COMPUTE QUEUE HEAD ADDRESS
54 93 0F 003C 97 REMQUE @R3)+,R4 ;GET HEAD OF QUEUE
44 1D 003F 98 BVS QEMPTY ;BR IF QUEUE WAS EMPTY (BUG CHECK)
08 12 0041 99 BNEQ 20$ ;QUEUE NOT EMPTY
00 0000000'EF 52 E5 0043 100 BBCC R2,L^SCH$GL_COMQS,20$ ;SET QUEUE EMPTY
004B 101 20$:
0A A4 0C 91 004B 102 CMPB #DYN$C_PCB,PCBSB_TYPE(R4) ;MUST BE A PROCESS CONTROL BLOCK
34 12 004F 103 BNEQ QEMPTY ;OTHERWISE FATAL ERROR
2C A4 0E B0 0051 104 MOVW #SCH$C_CUR,PCBSW_STATE(R4) ;SET STATE TO CURRENT
0000000'EF 54 D0 0055 105 MOVL R4,L^SCH$GL_CURPCB ;NOTE CURRENT PCB LOC
0B A4 2F A4 91 005C 106 CMPB PCBSB_PRI(R4),PCBSB_PRI(R4) ;CHECK FOR BASE
0061 107 ;PRIORITY=CURRENT
08 13 0061 108 BEQL 30$ ;YES, DONT FLOAT PRIORITY
03 0B A4 04 E1 0063 109 BBC #4,PCBSB_PRI(R4),30$ ;DONT FLOAT REAL TIME PRIORITY
0B A4 96 0068 110 INCB PCBSB_PRI(R4) ;MOVE TOWARD BASE PRIO
0000000'EF 0B A4 90 006B 111 30$: MOVB PCBSB_PRI(R4),L^SCH$GB_PRI ;SET GLOBAL PRIORITY
10 18 A4 DA 0073 112 MTPR PCBSL_PHYPCB(R4),#PR$PCBB ;SET PCB BASE PHYS ADDR
06 0077 113 LDPCTX ;RESTORE CONTEXT
02 0078 114 REI ;NORMAL RETURN
0079 115

```

SC
VA

Ph
--
In
Co
Pa
Sy
Pa
Sy
Ps
Cr
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Th
23
Th
29
12

Ma
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-S
-S
TO

14
Th
MA

SCHED
V04-000

RESCHEDULING INTERRUPT HANDLER E 5 16-SEP-1984 01:09:22 VAX/VMS Macro V04-00
SCH\$RESCHED RESCHEDULING INTERRUPT HANDL 5-SEP-1984 03:47:19 [SYS.SRC]SCHED.MAR;1

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```
00000000'EF 20 90 0079 116 SCH$IDLE: ;NO ACTIVE, EXECUTABLE PROCESS
A1 11 0079 117 SETIPL #IPL$ SCHED ;DROP IPL TO SCHEDULING LEVEL
007C 118 MOVB #32,L* SCH$GB_PRI ;SET PRIORITY TO -1(32) TO SIGNAL IDLE
0083 119 BRB SCH$SCHED ;AND TRY AGAIN
0085 120
0085 121 QEMPTY: BUG_CHECK QUEUEMPTY,FATAL ;SCHEDULING QUEUE EMPTY
0089 122
0089 123 .END
```

SCHED
Symbol table

RESCHEDULING INTERRUPT HANDLER

F 5

16-SEP-1984 01:09:22 VAX/VMS Macro V04-00
5-SEP-1984 03:47:19 [SYS.SRC]SCHED.MAR;

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SD
VO

```

BUGS_QUEUEEMPTY      ***** X 02
DYN$PCB              = 0000000C
IPL$SCHED            = 00000003
IPL$SYNCH            = 00000008
MPH$RESCHED          00000000 RG 02
MPH$SCHED            00000026 RG 02
PCBSB_PRI            = 0000000B
PCBSB_PRI$B          = 0000002F
PCBSB_TYPE           = 0000000A
PCBSL_PHYPCB         = 00000018
PCBSW_STATE          = 0000002C
PR$ IPL              = 00000012
PR$PCBB              = 00000010
QEMPTY              00000085 R 02
SCH$AQ_COMH          ***** X 02
SCH$AQ_COMT          ***** X 02
SCH$C_COM            = 0000000C
SCH$C_CUR            = 0000000E
SCH$GB_PRI           ***** X 02
SCH$GL_COMQS         ***** X 02
SCH$GL_CURPCB        ***** X 02
SCH$IDLE             00000079 R 02
SCH$RESCHED          00000000 RG 02
SCH$SCHED            00000026 RG 02
  
```

! Psect synopsis !

| PSECT name | Allocation | PSECT No. | Attributes |
|--------------|------------------|-----------|---|
| . ABS | 00000000 (0.) | 00 (0.) | NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE |
| \$ABSS | 00000000 (0.) | 01 (1.) | NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE |
| AEXENONPAGED | 00000089 (137.) | 02 (2.) | NOPIC USR CON REL LCL NOSHR EXE RD WRT NOVEC LONG |

! Performance indicators !

| Phase | Page faults | CPU Time | Elapsed Time |
|------------------------|-------------|-------------|--------------|
| Initialization | 35 | 00:00:00.04 | 00:00:01.80 |
| Command processing | 121 | 00:00:00.49 | 00:00:04.83 |
| Pass 1 | 204 | 00:00:04.83 | 00:00:16.79 |
| Symbol table sort | 0 | 00:00:00.72 | 00:00:02.12 |
| Pass 2 | 42 | 00:00:00.88 | 00:00:02.62 |
| Symbol table output | 4 | 00:00:00.04 | 00:00:00.04 |
| Psect synopsis output | 2 | 00:00:00.02 | 00:00:00.02 |
| Cross-reference output | 0 | 00:00:00.00 | 00:00:00.00 |
| Assembler run totals | 410 | 00:00:07.02 | 00:00:28.23 |

The working set limit was 1200 pages.
26594 bytes (52 pages) of virtual memory were used to buffer the intermediate code.
There were 30 pages of symbol table space allocated to hold 515 non-local and 3 local symbols.
123 source lines were read in Pass 1, producing 13 object records in Pass 2.
15 pages of virtual memory were used to define 14 macros.

! Macro library statistics !

| Macro library name | Macros defined |
|------------------------------------|----------------|
| ----- | ----- |
| \$255\$DUA28:[SYS.OBJ]LIB.MLB;1 | 7 |
| \$255\$DUA28:[SYSLIB]STARLET.MLB;2 | 4 |
| TOTALS (all libraries) | 11 |

594 GETS were required to define 11 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LISS:SCHED/OBJ=OBJ\$:SCHED MSRCS:SCHED/UPDATE=(ENH\$:SCHED)+EXECMLS/LIB

