





(1)	68	EXESSETPRA - SET POWER FAIL AST ROUTINE ADDRESS
(1)	124	EXESPOWERAST - INITIATE POWER FAIL AST FOR ALL INTERESTED PROCESSES
(1)	158	PROCAST - SPECIAL KERNEL AST FOR POWERFAIL

```

0000 1 .TITLE SYSSETPRA - SET POWER FAIL AST SYSTEM SERVICE
0000 2 .IDENT 'V04-000'
0000 3
0000 4 *****
0000 5
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0000 23
0000 24 *****
0000 25 *****
0000 26
0000 27 :++
0000 28
0000 29 : Facility:
0000 30
0000 31 : Abstract: SYSSETPRA IMPLEMENTS THE $SETPRA SYSTEM SERVICE WHICH ENABLES
0000 32 : A PROCESS TO RECEIVE AN AST WHEN POWER IS RESTORED AFTER A
0000 33 : SUCCESSFUL POWER RECOVERY.
0000 34
0000 35 : Environment:
0000 36
0000 37 : Author: RICHARD I. HUSTVEDT, Creation date: 18-JUN-1978
0000 38
0000 39 : Modified by:
0000 40
0000 41 : of Version .
0000 42 : of -
0000 43 : --
0000 44
0000 45
0000 46 : Include files:
0000 47
0000 48 : $ACBDEF : DEFINE ACB OFFSETS
0000 49 : $PCBDEF : DEFINE PCB OFFSETS
0000 50 : $SSDEF : DEFINE SYSTEM SERVICE STATUS CODES
0000 51
0000 52
0000 53 : MACROS:
0000 54
0000 55
0000 56
0000 57 : Equated Symbols:

```

SYS  
Syn  
ACC  
EVT  
EXE  
EXE  
EXI  
IPU  
LOC  
PCE  
PCE  
PCE  
PCE  
PCE  
PCE  
PIC  
PRI  
PRI  
PRI  
PRI  
PRV  
PRV  
SCH  
SCH  
SCH  
SCH  
SSB  
SSB  
PSE  
---  
: E  
\$AE  
Pha  
---  
Int  
Com  
Pas  
Syn  
Pas  
Syn  
Pse  
Crc  
Ass  
The

```
00000004 0000 58 ;  
00000008 0000 59 ; ASTADR = 4 ; ARGUMENT LIST OFFSET TO AST ADDRESS  
00000000 0000 60 ; ACMODE = 8 ; ARGUMENT LIST OFFSET TO ACCESS MODE  
00000000 0000 61 ;  
00000000 0000 62 ;  
00000000 0000 63 ;  
00000000 0000 64 ; Own Storage:  
00000000 0000 65 ;  
00000000 0000 66 ; .PSECT Y$EXEPAGED ; PAGED CODE
```

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0000 68      .SBTTL EXE$SETPRA - SET POWER FAIL AST ROUTINE ADDRESS
0000 69      :++
0000 70      : Functional Description:
0000 71      : EXE$SETPRA IMPLEMENTS THE SYSTEM SERVICE $SETPRA WHICH ENABLES A
0000 72      : PROCESS TO REQUEST AN AST AFTER THE RESTORATION OF POWER FOLLOWING
0000 73      : A POWER FAILURE. THE AST ROUTINE IS ENTERED WITH A PARAMETER
0000 74      : GIVING THE DURATION OF THE POWER OUTAGE IN .01 SECOND UNITS.
0000 75      : THIS IS A SINGLE SHOT AST AND MUST BE RE-ENABLED EACH TIME IT OCCURS.
0000 76      : IT IS AUTOMATICALLY CANCELED AT IMAGE RUNDOWN.
0000 77      :
0000 78      : Calling Sequence:
0000 79      : CALLG  ARGLIST,EXE$SETPRA
0000 80      :
0000 81      : Input Parameters:
0000 82      :   ASTADR(AP) - ADDRESS OF AST ROUTINE
0000 83      :   ACMODE(AP) - ACCESS MODE, MAXIMIZED WITH THAT OF CALLER
0000 84      :
0000 85      : Implicit Inputs:
0000 86      :   PCB OF CURRENT PROCESS LOCATED VIA SCH$GL_CURPCB
0000 87      :
0000 88      : Output Parameters:
0000 89      :   R0 - COMPLETION STATUS CODE
0000 90      :
0000 91      : Implicit Outputs:
0000 92      :   NONE
0000 93      :
0000 94      : Side Effects:
0000 95      :   NONE
0000 96      :
0000 97      : Status Codes:
0000 98      :   SSS_NORMAL - NORMAL, SUCCESSFUL COMPLETION
0000 99      :   SSS_EXQUOTA - AST QUOTA EXCEEDED
0000 100     :
0000 101     :--
0000 102     .LIST  MEB                      ; Show macro expansions
0000 103     :
50 08 AC 02 00 003C 0000 104     .ENTRY  EXE$SETPRA,*M<R2,R3,R4,R5>
0000 105     EXTZV  #0,#2,ACMODE(AP),R0      ; GET ACCESS MODE ARGUMENT
51 00000000'EF 9E 0008 106     BSBW    EXE$MAXACMODE                    ; MAXIMIZE WITH THAT OF CALLER
0000 107     MOVAB  CTL$GL_POWERAST,R1        ; GET ADDRESS OF POWER FAIL AST POINTER
0000 108     TSTL   (R1)                       ; IS THERE ONE CURRENTLY?
0000 109     BNEQ   10$                        ; YES, SKIP QUOTA BUSINESS
0000 110     TSTW   PCB$W_ASTCNT(R4)          ; CHECK FOR AST QUOTA
0000 111     BLEQ   EXQUOTA                    ; ERROR EXIT IF NO QUOTA
0000 112     DECV  PCB$W_ASTCNT(R4)          ; ONE LESS FOR AST QUOTA
0000 113 10$:  MOVL  ASTADR(AP),(R1)         ; SET ADDRESS OF AST ROUTINE
0000 114     MOVB  R0,<CTL$GB_PWRMODE-CTL$GL POWERAST>(R1) ; AND ACCESS MODE FOR AST
0000 115     BBSS  #PCB$V_PWRAST,PCB$S_STS(R4),20$ ; SET POWER AS1 FLAG FOR PROCESS
0000 116 20$:  MOVZWL #SS$_NORMAL,R0        ; RETURN NORMAL SUCCESSFUL COMPLETION
0000 117     RET
0000 118     :
0000 119 EXQUOTA: ; EXCEEDED AST QUOTA
0000 120     MOVZWL #SS$_EXQUOTA,R0           ; SET STATUS CODE FOR QUOTA EXCEEDED
0000 121     RET                             ; AND RETURN
0000 122

```



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008A 158 .SBTTL PROCAST - SPECIAL KERNEL AST FOR POWERFAIL
008A 159 :++
008A 160 : Functional Description:
008A 161 : PROCAST RUNS AS A SPECIAL KERNEL AST IN THE CONTEXT OF THE PROCESS
008A 162 : WHERE IT CAN ACCESS THE ADDRESS OF THE POWER FAIL AST ROUTINE AND
008A 163 : REQUEUE THE AST AT THE PROPER ACCESS MODE.
008A 164 :
008A 165 :--
008A 166 PROCAST:
51 00000000'EF 9E 008A 167 MOVAB CTL$GL_POWERAST,R1 ; GET ADDRESS OF POWER FAIL AST POINTER
   10 A5 61 D0 0091 168 MOVL (R1),ACB$AST(R5) ; SET CORRECT AST ROUTINE ADDRESS
OB A5 0000'C1 88 0095 169 BISB <CTL$GB_PWRMODE-CTL$GL_POWERAST>(R1),ACB$B_RMOD(R5) ;
   61 D4 009B 170 ; SET CORRECT ACCESS MODE
   52 D4 009B 171 CLRL (R1) ; ZAP AST POINTER
00000000'EF 17 009D 172 CLRL R2 ; SET NULL PRIORITY INCREMENT
   009F 173 JMP SCH$QAST ; QUEUE NORMAL AST
   00A5 174
   00A5 175 .END ;

```



SYSSETPRA  
Symbol table

- SET POWER FAIL AST SYSTEM SERVICE <sup>1</sup> 7

16-SEP-1984 02:32:49 VAX/VMS Macro V04-00  
5-SEP-1984 03:57:15 [SYS.SRC]SYSSETPRA.MAR;1

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(1)

SYS  
V04

```

ACBSB_RMOD      = 0000000B
ACBSL_AST       = 00000010
ACBSL_ASTPRM    = 00000014
ACBSL_KAST      = 00000018
ACBSL_PID       = 0000000C
ACBSV_KAST      = 00000007
ACBSV_QUOTA     = 00000006
ACMODE         = 00000008
ASTADR          = 00000004
CTL$GB_PWRMODE ***** X 02
CTL$GL_POWERAST ***** X 02
EXESALCOCIRP   ***** X 02
EXESGL_PFATIM  ***** X 02
EXESMAXACMODE ***** X 02
EXESPOWERAST   00000034 RG 02
EXESSETPRA     00000000 RG 02
EXQUOTA        00000030 R 02
NEXTPCB        0000007C R 02
PCBSL_PID      = 00000060
PCBSL_STS      = 00000024
PCBSV_PWRAST   = 00000016
PCBSW_ASTCNT   = 00000038
PCBLOOP        0000003F R 02
PROCAST        0000008A R 02
SCH$GL_MAXPIX ***** X 02
SCH$GL_PCBVEC ***** X 02
SCH$QAST       ***** X 02
SS$_EXQUOTA    = 0000001C
SS$_NORMAL     = 00000001
    
```

-----  
! 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
YSEXEPAGED	000000A5 ( 165.)	02 ( 2.)	NOPIC USR CON REL LCL NOSHR EXE RD WRT NOVEC BYTE

-----  
! Performance indicators !  
-----

Phase	Page faults	CPU Time	Elapsed Time
Initialization	29	00:00:00.07	00:00:00.33
Command processing	106	00:00:00.57	00:00:02.05
Pass 1	227	00:00:05.23	00:00:12.15
Symbol table sort	0	00:00:00.85	00:00:02.28
Pass 2	50	00:00:01.02	00:00:02.13
Symbol table output	5	00:00:00.04	00:00:00.05
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	421	00:00:07.80	00:00:19.01

The working set limit was 1200 pages.

28491 bytes (56 pages) of virtual memory were used to buffer the intermediate code.  
There were 30 pages of symbol table space allocated to hold 577 non-local and 3 local symbols.  
175 source lines were read in Pass 1, producing 16 object records in Pass 2.  
10 pages of virtual memory were used to define 9 macros.

-----  
! Macro library statistics !  
-----

Macro library name	Macros defined
-----	-----
.\$255\$DUA28:[SYS.OBJ]LIB.MLB;1	2
-\$255\$DUA28:[SYS.LIB]STARLET.MLB;2	4
TOTALS (all libraries)	6

631 GETS were required to define 6 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS\$:SYSSETPRA/OBJ=OBJ\$:SYSSETPRA MSRC\$:SYSSETPRA/UPDATE=(ENH\$:SYSSETPRA)+EXECMLS/LIB

