


```
PPPPPPPP          AAAAAA          SSSSSSSS  EEEEEEEEEEE  XX      XX  PPPPPPPP          000000
PPPPPPPP          AAAAAA          SSSSSSSS  EEEEEEEEEEE  XX      XX  PPPPPPPP          000000
PP      PP  AA      AA  SS          EE          XX      XX  PP      PP  00      00
PP      PP  AA      AA  SS          EE          XX      XX  PP      PP  00      00
PP      PP  AA      AA  SS          EE          XX      XX  PP      PP  00      00
PP      PP  AA      AA  SS          EE          XX      XX  PP      PP  00      00
PPPPPPPP          AA      AA  SSSSSS  EEEEEEEEE  XX      XX  PPPPPPPP          00      00
PPPPPPPP          AA      AA  SSSSSS  EEEEEEEEE  XX      XX  PPPPPPPP          00      00
PP      AAAAAAAAAA          SS          EE          XX      XX  PP      00      00
PP      AAAAAAAAAA          SS          EE          XX      XX  PP      00      00
PP      AA      AA          SS          EE          XX      XX  PP      00      00
PP      AA      AA          SS          EE          XX      XX  PP      00      00
PP      AA      AA          SSSSSSSS  EEEEEEEEEEE  XX      XX  PP      000000
PP      AA      AA          SSSSSSSS  EEEEEEEEEEE  XX      XX  PP      000000
```

```
LL              IIIIIII  SSSSSSSS
LL              IIIIIII  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              II          SS
LLLLLLLLLLLL   IIIIIII  SSSSSSSS
LLLLLLLLLLLL   IIIIIII  SSSSSSSS
```




```
0000 1 .TITLE PASSEXPO - Return binary exponent of floating values
0000 2 .IDENT /1-001/ ; File: PASEXPO.MAR Edit: SBL1001
0000 3
0000 4
0000 5 :*****
0000 6 :*
0000 7 :* COPYRIGHT (c) 1978, 1980, 1982, 1984 BY
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0000 24 :*
0000 25 :*
0000 26 :*****
0000 27 :
0000 28 :
0000 29 :++
0000 30 : FACILITY: Pascal Language Support
0000 31 :
0000 32 : ABSTRACT:
0000 33 :
0000 34 : This module contains four routines which return the binary exponent
0000 35 : of a floating value for each of the four floating data types.
0000 36 :
0000 37 : ENVIRONMENT: Runs at any access mode, AST Reentrant
0000 38 :
0000 39 : AUTHOR: Steven B. Lionel, CREATION DATE: 4-Nov-1980
0000 40 :
0000 41 : MODIFIED BY:
0000 42 :
0000 43 : 1-001 - Original. SBL 4-Nov-1980
0000 44 :--
```

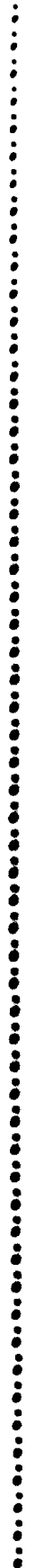
```
0000 46 .SBTTL DECLARATIONS
0000 47 :
0000 48 : LIBRARY MACRO CALLS:
0000 49 :
0000 50 : NONE
0000 51 :
0000 52 : EXTERNAL DECLARATIONS:
0000 53 :
0000 54 : .DSABL GBL ; Force all external symbols to be declared
0000 55 : NONE
0000 56 :
0000 57 : MACROS:
0000 58 :
0000 59 : NONE
0000 60 :
0000 61 : EQUATED SYMBOLS:
0000 62 :
0000 63 : NONE
0000 64 :
0000 65 : OWN STORAGE:
0000 66 :
0000 67 : NONE
0000 68 :
0000 69 : PSECT DECLARATIONS:
0000 70 :
00000000 71 : .PSECT _PASS$CODE PIC, USR, CON, REL, LCL, SHR, -
0000 72 : EXE, RD, NOWRT, LONG
0000 73 :
```

```

0000 75      .SBTTL  PAS$EXPO_F - Return binary exponent of F_floating
0000 76      :++
0000 77      : FUNCTIONAL DESCRIPTION:
0000 78      :
0000 79      :     This routine returns the unbiased binary exponent of an F_floating value.
0000 80      :
0000 81      : CALLING SEQUENCE:
0000 82      :
0000 83      :     Result.wl.v = PAS$EXPO_F (Single.rf.r)
0000 84      :
0000 85      : FORMAL PARAMETERS:
0000 86      :
0000 87      :     Single - F_floating argument
0000 88      :
0000 89      : IMPLICIT INPUTS:
0000 90      :
0000 91      :     NONE
0000 92      :
0000 93      : IMPLICIT OUTPUTS:
0000 94      :
0000 95      :     NONE
0000 96      :
0000 97      : ROUTINE VALUE:
0000 98      :
0000 99      :     The unbiased binary exponent of the argument
0000 100     :
0000 101     : SIDE EFFECTS:
0000 102     :
0000 103     :     $$$_ROPRAND - if the argument is a reserved operand
0000 104     :
0000 105     :--
0000 106     :
0000 107     .ENTRY  PAS$EXPO_F, ^M<>           ; Entry point
0002 108     :
50  04 BC    04 BC    53 0002 109     TSTF    @4(AP)           ; Test for reserved operand
50  04 BC    08 07    EF 0005 110     EXTZV  #7, #8, @4(AP), R0 ; Fetch exponent
50  00000080 8F    C2 000B 111     SUBL2  #128, R0          ; Unbias exponent
04  0012 112     RET                    ; End of routine PAS$EXPO_F
  
```

```

0013 114 .SBTTL PASSEXPO_D - Return binary exponent of D_floating
0013 115 :++
0013 116 : FUNCTIONAL DESCRIPTION:
0013 117 :
0013 118 : This routine returns the unbiased binary exponent of a D_floating value.
0013 119 :
0013 120 : CALLING SEQUENCE:
0013 121 :
0013 122 : Result.wl.v = PASSEXPO_D (Double.rd.r)
0013 123 :
0013 124 : FORMAL PARAMETERS:
0013 125 :
0013 126 : Double - D_floating argument
0013 127 :
0013 128 : IMPLICIT INPUTS:
0013 129 :
0013 130 : NONE
0013 131 :
0013 132 : IMPLICIT OUTPUTS:
0013 133 :
0013 134 : NONE
0013 135 :
0013 136 : ROUTINE VALUE:
0013 137 :
0013 138 : The unbiased binary exponent of the argument
0013 139 :
0013 140 : SIDE EFFECTS:
0013 141 :
0013 142 : $$$_ROPRAND - if the argument is a reserved operand
0013 143 :
0013 144 :--
0013 145 :
0000 0013 146 .ENTRY PASSEXPO_D, ^M<> : Entry point
0015 147 :
0015 148 TSTD @4(AP) : Test for reserved operand
50 04 BC 08 07 EF 0018 149 EXTZV #7, #8, @4(AP), R0 : Fetch exponent
50 00000080 8F C2 001E 150 SUBL2 #128, R0 : Unbias exponent
04 0025 151 RET : End of routine PASSEXPO_D
  
```



```

0026 153      .SBTTL  PAS$EXPO_G - Return binary exponent of G_floating
0026 154      :++
0026 155      : FUNCTIONAL DESCRIPTION:
0026 156      :
0026 157      :     This routine returns the unbiased binary exponent of a G_floating value.
0026 158      :
0026 159      : CALLING SEQUENCE:
0026 160      :
0026 161      :     Result.wl.v = PAS$EXPO_G (Double.rg.r)
0026 162      :
0026 163      : FORMAL PARAMETERS:
0026 164      :
0026 165      :     Double - G_floating argument
0026 166      :
0026 167      : IMPLICIT INPUTS:
0026 168      :
0026 169      :     NONE
0026 170      :
0026 171      : IMPLICIT OUTPUTS:
0026 172      :
0026 173      :     NONE
0026 174      :
0026 175      : ROUTINE VALUE:
0026 176      :
0026 177      :     The unbiased binary exponent of the argument
0026 178      :
0026 179      : SIDE EFFECTS:
0026 180      :
0026 181      :     $$$_ROPRAND - if the argument is a reserved operand
0026 182      :
0026 183      :--
0026 184
0000 0026 185      .ENTRY  PAS$EXPO_G, ^M<>      ; Entry point
0028 186
50   04 BC   04 BC 53FD 0028 187      TSTG   @4(AP)      ; Test for reserved operand
50   50 00000400 8F C2 002C 188      EXTZV  #4, #11, @4(AP), R0 ; Fetch exponent
0032 189      SUBL2  #1024, R0      ; Unbias exponent
04   0039 190      RET          ; End of routine PAS$EXPO_G
  
```



```

003A 192      .SBTTL PASSEXPO_H - Return binary exponent of H_floating
003A 193      :++
003A 194      : FUNCTIONAL DESCRIPTION:
003A 195      :
003A 196      :     This routine returns the unbiased binary exponent of an H_floating value.
003A 197      :
003A 198      : CALLING SEQUENCE:
003A 199      :
003A 200      :     Result.wl.v = PASSEXPO_H (Quad.rh.r)
003A 201      :
003A 202      : FORMAL PARAMETERS:
003A 203      :
003A 204      :     Quad    - H_floating argument
003A 205      :
003A 206      : IMPLICIT INPUTS:
003A 207      :
003A 208      :     NONE
003A 209      :
003A 210      : IMPLICIT OUTPUTS:
003A 211      :
003A 212      :     NONE
003A 213      :
003A 214      : ROUTINE VALUE:
003A 215      :
003A 216      :     The unbiased binary exponent of the argument
003A 217      :
003A 218      : SIDE EFFECTS:
003A 219      :
003A 220      :     $$$_ROPRAND - if the argument is a reserved operand
003A 221      :
003A 222      :--
003A 223      :
0000 003A 224      .ENTRY PASSEXPO_H, ^M<>      ; Entry point
003C 225      :
50   04 BC   04 BC 73FD 003C 226      TSTH    @4(AP)      ; Test for reserved operand
50   04 BC   0F 00 EF 0040 227      EXTZV   #0, #15, @4(AP), R0 ; Fetch exponent
50   50 00004000 8F C2 0046 228      SUBL2   #16384, R0      ; Unbias exponent
004D 229      RET      ; End of routine PASSEXPO_H
004E 230      :
004E 231      .END      ; End of module PASSEXPO
  
```

PASSEXPO
Symbol table

- Return binary exponent of floating val 16-SEP-1984 01:24:54 VAX/VMS Macro V04-00
6-SEP-1984 11:30:34 [PASRTL.SRC]PASEXPO.MAR;1

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(6)

PA
1-

PASSEXPO_D 00000013 RG 01
PASSEXPO_F 00000000 RG 01
PASSEXPO_G 00000026 RG 01
PASSEXPO_H 0000003A RG 01

! Psect synopsis !

| PSECT name | Allocation | PSECT No. | Attributes |
|------------|-----------------|-----------|---|
| ABS | 00000000 (0.) | 00 (0.) | NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE |
| PASSCODE | 0000004E (78.) | 01 (1.) | PIC USR CON REL LCL SHR EXE RD NOWRT NOVEC LONG |

Performance indicators

| Phase | Page faults | CPU Time | Elapsed Time |
|------------------------|-------------|-------------|--------------|
| Initialization | 10 | 00:00:00.09 | 00:00:00.70 |
| Command processing | 74 | 00:00:00.66 | 00:00:03.46 |
| Pass 1 | 64 | 00:00:00.50 | 00:00:01.97 |
| Symbol table sort | 0 | 00:00:00.00 | 00:00:00.00 |
| Pass 2 | 52 | 00:00:00.41 | 00:00:01.92 |
| Symbol table output | 2 | 00:00:00.01 | 00:00:00.01 |
| 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 | 206 | 00:00:01.70 | 00:00:08.09 |

The working set limit was 750 pages.
2491 bytes (5 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 4 non-local and 0 local symbols.
231 source lines were read in Pass 1, producing 19 object records in Pass 2.
0 pages of virtual memory were used to define 0 macros.

! Macro library statistics !

| Macro library name | Macros defined |
|-------------------------------------|----------------|
| _\$255\$DUA28:[SYSLIB]STARLET.MLB;2 | 0 |

0 GETS were required to define 0 macros.

There were no errors, warnings or information messages.

MACRO/ENABLE=SUPPRESSION/DISABLE=(GLOBAL,TRACEBACK)/LIS=LIS\$:PASEXPO/OBJ=OBJ\$:PASEXPO MSRC\$:PASEXPO/UPDATE=(ENH\$:PASEXPO)

