

```

BBBBBBBBBBBBBB      AAAAAAAAAA      SSSSSSSSSSSS      RRRRRRRRRRRR      TTTTTTTTTTTTTT      LLL
BBBBBBBBBBBBBB      AAAAAAAAAA      SSSSSSSSSSSS      RRRRRRRRRRRR      TTTTTTTTTTTTTT      LLL
BBBBBBBBBBBBBB      AAAAAAAAAA      SSSSSSSSSSSS      RRRRRRRRRRRR      TTTTTTTTTTTTTT      LLL
BBB          BBB      AAA          AAA      SSS          SSS          RRR          RRR          TTT          TTT          LLL
BBB          BBB      AAA          AAA      SSS          SSS          RRR          RRR          TTT          TTT          LLL
BBB          BBB      AAA          AAA      SSS          SSS          RRR          RRR          TTT          TTT          LLL
BBB          BBB      AAA          AAA      SSS          SSS          RRR          RRR          TTT          TTT          LLL
BBB          BBB      AAA          AAA      SSS          SSS          RRR          RRR          TTT          TTT          LLL
BBB          BBB      AAA          AAA      SSS          SSS          RRR          RRR          TTT          TTT          LLL
BBBBBBBBBBBBBB      AAA          AAA      SSS          SSS          RRR          RRR          TTT          TTT          LLL
BBBBBBBBBBBBBB      AAA          AAA      SSS          SSS          RRR          RRR          TTT          TTT          LLL
BBBBBBBBBBBBBB      AAA          AAA      SSS          SSS          RRR          RRR          TTT          TTT          LLL
BBB          BBB      AAAAAAAAAAAAAAAAAA      SSS          SSS          RRR          RRR          TTT          TTT          LLL
BBB          BBB      AAAAAAAAAAAAAAAAAA      SSS          SSS          RRR          RRR          TTT          TTT          LLL
BBB          BBB      AAAAAAAAAAAAAAAAAA      SSS          SSS          RRR          RRR          TTT          TTT          LLL
BBB          BBB      AAA          AAA      SSS          SSS          RRR          RRR          TTT          TTT          LLL
BBB          BBB      AAA          AAA      SSS          SSS          RRR          RRR          TTT          TTT          LLL
BBB          BBB      AAA          AAA      SSS          SSS          RRR          RRR          TTT          TTT          LLL
BBBBBBBBBBBBBB      AAA          AAA      SSSSSSSSSSSS      RRR          RRR          TTT          TTT          LLLLLLLLLLLLLLLL
BBBBBBBBBBBBBB      AAA          AAA      SSSSSSSSSSSS      RRR          RRR          TTT          TTT          LLLLLLLLLLLLLLLL
BBBBBBBBBBBBBB      AAA          AAA      SSSSSSSSSSSS      RRR          RRR          TTT          TTT          LLLLLLLLLLLLLLLL

```

```
BBBBBBBBB  AAAAAA  SSSSSSSS  PPPPPPPP  000000  WW  WW  GGGGGGGG  GGGGGGGG
BBBBBBBBB  AAAAAA  SSSSSSSS  PPPPPPPP  000000  WW  WW  GGGGGGGG  GGGGGGGG
BB  BB  AA  AA  SS  SS  PP  PP  00  00  WW  WW  GG  GG  GG  GG
BB  BB  AA  AA  SS  SS  PP  PP  00  00  WW  WW  GG  GG  GG  GG
BB  BB  AA  AA  SS  SS  PP  PP  00  00  WW  WW  GG  GG  GG  GG
BB  BB  AA  AA  SS  SS  PP  PP  00  00  WW  WW  GG  GG  GG  GG
BBBBBBBBB  AA  AA  SSSSSS  PPPPPPPP  00  00  WW  WW  GG  GG  GG  GG
BBBBBBBBB  AA  AA  SSSSSS  PPPPPPPP  00  00  WW  WW  GG  GG  GG  GG
BB  BB  AAAAAAAAAA  SS  PP  00  00  WW  WW  WW  GG  GGGGGG  GG  GGGGGG
BB  BB  AAAAAAAAAA  SS  PP  00  00  WW  WW  WW  GG  GGGGGG  GG  GGGGGG
BB  BB  AA  AA  SS  SS  PP  00  00  WWW  WWW  GG  GG  GG  GG
BB  BB  AA  AA  SS  SS  PP  00  00  WWW  WWW  GG  GG  GG  GG
BBBBBBBBB  AA  AA  SSSSSSSS  PP  00  00  WW  WW  GGGGGG  GG  GGGGGG
BBBBBBBBB  AA  AA  SSSSSSSS  PP  00  00  WW  WW  GGGGGG  GG  GGGGGG
.....
.....
.....
.....
```

```
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
```


(2) 46
(3) 83

DECLARATIONS
BASSPOWGG - BASIC gfloat ** gfloat

```
0000 1 .TITLE BAS$POWGG ; BASIC gfloat ** gfloat routine
0000 2 .IDENT /1-001/ ; File: BASPOWGG.MAR Edit:PLL1001
0000 3
0000 4
0000 5 *****
0000 6 *
0000 7 * COPYRIGHT (c) 1978, 1980, 1982, 1984 BY *
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0000 20 * CORPORATION. *
0000 21 *
0000 22 * DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE OR RELIABILITY OF ITS *
0000 23 * SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL. *
0000 24 *
0000 25 *
0000 26 *****
0000 27
0000 28
0000 29 ++
0000 30 : FACILITY: Basic Support Library
0000 31
0000 32 : ABSTRACT:
0000 33
0000 34 : This module contains entry points to support exponentiation
0000 35 : (** or ^) in BASIC-PLUS-2 for DOUBLE ** DOUBLE.
0000 36
0000 37 : ENVIRONMENT: User Mode, AST Reentrant
0000 38
0000 39 --
0000 40 : AUTHOR: P. Levesque , CREATION DATE: 5-Oct-81
0000 41
0000 42 : MODIFIED BY:
0000 43
0000 44 : 1-001 - Original
```



```
0000 46      .SBTTL  DECLARATIONS
0000 47      :
0000 48      : INCLUDE FILES:
0000 49      :
0000 50      :
0000 51      :
0000 52      : EXTERNAL DECLARATIONS:
0000 53      :
0000 54      .DSABL  GBL                : Prevent undeclared
0000 55      :                               : symbols from being
0000 56      :                               : automatically global.
0000 57      :
0000 58      .EXTRN  OTSSPOWGG          : OTSS gfloat ** gfloat exponentiation
0000 59      .EXTRN  OTSSPOWGJ          : OTSS gfloat ** int exponentiation
0000 60      .EXTRN  BASSK_DIVBY_ZER    : Divide by Zero
0000 61      .EXTRN  BASSK_ILLARGLOG    : Illegal argument in LOG
0000 62      .EXTRN  BASS$STOP          : Error reporting routine
0000 63      :
0000 64      :
0000 65      : MACROS:
0000 66      :
0000 67      :
0000 68      :
0000 69      : EQUATED SYMBOLS:
0000 70      :
0000 71      :
0000 72      :
0000 73      : OWN STORAGE:
0000 74      :
0000 75      :
0000 76      :
0000 77      : PSECT DECLARATIONS:
0000 78      :
00000000 79      .PSECT _BAS$CODE PIC,  USR,  CON,  REL,  LCL,  SHR,  -
0000 80      EXE,  RD,  NOWRT,  LONG
0000 81
```

```

0000 83      .SBTTL BASS$POWGG - BASIC gfloat ** gfloat
0000 84      :++
0000 85      : FUNCTIONAL DESCRIPTION:
0000 86      :
0000 87      : This routine takes BASE ** EXP, using the following table
0000 88      : for unusual cases:
0000 89      :
0000 90      : BASE > 0                      Call OTSS$POWGG, normal case.
0000 91      : BASE = 0, EXP > 0          Return 0.0.
0000 92      : BASE = 0, EXP = 0          Return 1.0.
0000 93      : BASE = 0, EXP < 0        Error: divide by zero
0000 94      : BASE < 0, EXP even integer Call OTSS$POWGGJ with -BASE
0000 95      : BASE < 0, EXP odd integer  Call OTSS$POWGGJ with -BASE, negate result
0000 96      : BASE < 0, EXP not integer Error: illegal argument in LOG.
0000 97      :
0000 98      : CALLING SEQUENCE:
0000 99      :
0000 100     : CALL result.wg.v = BASS$POWGG (base.rg.v, exponent.rg.v)
0000 101     :
0000 102     : INPUT PARAMETERS:
0000 103     :
0000 104     : base = 4
0000 105     : exponent = 12
0000 106     :
0000 107     : IMPLICIT INPUTS:
0000 108     :
0000 109     : NONE
0000 110     :
0000 111     : OUTPUT PARAMETERS:
0000 112     :
0000 113     : NONE
0000 114     :
0000 115     : IMPLICIT OUTPUTS:
0000 116     :
0000 117     : NONE
0000 118     :
0000 119     : FUNCTION VALUE:
0000 120     : COMPLETION CODES:
0000 121     :
0000 122     : gfloat result of exponentiation
0000 123     :
0000 124     : SIDE EFFECTS:
0000 125     :
0000 126     : Will signal Divide By Zero or Illegal argument in LOG if its
0000 127     : arguments are bad, and OTSS$POWGG and OTSS$POWGGJ may also signal.
0000 128     :
0000 129     :--
0000 130     :
0000 131     BASS$POWGG:: .MASK OTSS$POWGG ; Entry point
0002 132     ; Since this routine uses no
0002 133     ; registers and usually transfers
0002 134     ; control to OTSS$POWGG, we copy
0002 135     ; its register save mask and then
0002 136     ; JMP past its save mask and only
0002 137     ; save the registers once
04 AC 53FD 0002 138     TSTG base(AP) ; Test base relationship to zero
06 15 0006 139     BLEQ 1$ ; If base leq 0, do case analysis

```


BAS\$POWGG ; BASIC gfloat ** gfloat routine K 11
 Symbol table

```

BAS$$STOP      ***** X 00
BAS$K_DIVBY_ZER ***** X 00
BAS$K_ILLARGLOG ***** X 00
BAS$POWGG      00000000 RG 01
BASE           = 00000004
EXPONENT       = 0000000C
OT$$POWGG     ***** X 00
OT$$POWGGJ    ***** X 00
  
```

 ! Psect synopsis !

PSECT name	Allocation	PSECT No.	Attributes														
ABS	00000000 (0.)	00 (0.)	NOPIC	USR	CON	ABS	LCL	NOSHR	NOEXE	NORD	NOWRT	NOVEC	BYTE				
_BAS\$CODE	0000005D (93.)	01 (1.)	PIC	USR	CON	REL	LCL	SHR	EXE	RD	NOWRT	NOVEC	LONG				

 ! Performance indicators !

Phase	Page faults	CPU Time	Elapsed Time
Initialization	33	00:00:00.09	00:00:00.61
Command processing	119	00:00:00.53	00:00:02.84
Pass 1	73	00:00:00.54	00:00:01.40
Symbol table sort	0	00:00:00.00	00:00:00.00
Pass 2	48	00:00:00.40	00:00:01.07
Symbol table output	3	00:00:00.02	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	280	00:00:01.60	00:00:05.96

The working set limit was 900 pages.
 2217 bytes (5 pages) of virtual memory were used to buffer the intermediate code.
 There were 10 pages of symbol table space allocated to hold 8 non-local and 6 local symbols.
 195 source lines were read in Pass 1, producing 8 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\$:BASPOWGG/OBJ=OBJ\$:BASPOWGG MSRC\$:BASPOWGG/UPDATE=(ENH\$:BASPOWGG)

