```
LLL                 IIIIIIIII     BBBBBBBBBBBB     RRRRRRRRRRRR     TTTTTTTTTTTTTTT  LLL
LLL                 IIIIIIIII     BBBBBBBBBBBB     RRRRRRRRRRRR     TTTTTTTTTTTTTTT  LLL
LLL                 IIIIIIIII     BBBBBBBBBBBB     RRRRRRRRRRRR     TTTTTTTTTTTTTTT  LLL
LLL                    III        BBB         BBB  RRR         RRR        TTT        LLL
LLL                    III        BBB         BBB  RRR         RRR        TTT        LLL
LLL                    III        BBB         BBB  RRR         RRR        TTT        LLL
LLL                    III        BBB         BBB  RRR         RRR        TTT        LLL
LLL                    III        BBB         BBB  RRR         RRR        TTT        LLL
LLL                    III        BBB         BBB  RRR         RRR        TTT        LLL
LLL                    III        BBBBBBBBBBBB     RRRRRRRRRRRR           TTT        LLL
LLL                    III        BBBBBBBBBBBB     RRRRRRRRRRRR           TTT        LLL
LLL                    III        BBBBBBBBBBBB     RRRRRRRRRRRR           TTT        LLL
LLL                    III        BBB         BBB  RRR   RRR              TTT        LLL
LLL                    III        BBB         BBB  RRR   RRR              TTT        LLL
LLL                    III        BBB         BBB  RRR   RRR              TTT        LLL
LLL                    III        BBB         BBB  RRR      RRR           TTT        LLL
LLL                    III        BBB         BBB  RRR      RRR           TTT        LLL
LLL                    III        BBB         BBB  RRR      RRR           TTT        LLL
LLLLLLLLLLLLLLL     IIIIIIIII     BBBBBBBBBBBB     RRR         RRR        TTT        LLLLLLLLLLLLLLL
LLLLLLLLLLLLLLL     IIIIIIIII     BBBBBBBBBBBB     RRR         RRR        TTT        LLLLLLLLLLLLLLL
LLLLLLLLLLLLLLL     IIIIIIIII     BBBBBBBBBBBB     RRR         RRR        TTT        LLLLLLLLLLLLLLL
```

FILEID**LIBFFS

```
LL              IIIIII    BBBBBBBB    FFFFFFFFFF  FFFFFFFFFF    SSSSSSSS
LL              IIIIII    BBBBBBBB    FFFFFFFFFF  FFFFFFFFFF    SSSSSSSS
LL                II      BB      BB  FF          FF          SS
LL                II      BB      BB  FF          FF          SS
LL                II      BB      BB  FF          FF          SS
LL                II      BB      BB  FF          FF          SS
LL                II      BBBBBBBB    FFFFFFFF    FFFFFFFF      SSSSSS
LL                II      BBBBBBBB    FFFFFFFF    FFFFFFFF      SSSSSS
LL                II      BB      BB  FF          FF                  SS
LL                II      BB      BB  FF          FF                  SS
LL                II      BB      BB  FF          FF                  SS      ....
LL                II      BB      BB  FF          FF                  SS      ....
LLLLLLLLLL      IIIIII    BBBBBBBB    FF          FF          SSSSSSSS        ....
LLLLLLLLLL      IIIIII    BBBBBBBB    FF          FF          SSSSSSSS        ....

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                II              SS
LLLLLLLLLL      IIIIII    SSSSSSSS
LLLLLLLLLL      IIIIII    SSSSSSSS
```

Table of contents

```
0000     1          .TITLE  LIB$FFS - find first set bit
0000     2          .IDENT  /1-002/                 ; File: LIBFFS.MAR
0000     3
0000     4 ;
0000     5 ;*****************************************************************************
0000     6 ;*                                                                           *
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0000    24 ;*                                                                           *
0000    25 ;*                                                                           *
0000    26 ;*****************************************************************************
0000    27 ;
0000    28
0000    29 ;++
0000    30 ; FACILITY: General Utility Library
0000    31 ;
0000    32 ; ABSTRACT:
0000    33 ;
0000    34 ;       A bit string is scanned for the first bit set.  If one is found before
0000    35 ;       the string is exhausted then a success status is returned.  Otherwise a
0000    36 ;       failure status is returned.
0000    37 ;
0000    38 ; ENVIRONMENT: User Mode, AST Reentrant
0000    39 ;
0000    40 ;--
0000    41 ; AUTHOR: Donald G. Petersen, CREATION DATE: 03-Jan-78
0000    42 ;
0000    43 ; MODIFIED BY:
0000    44 ;
0000    45 ;       DGP, 03-Jan-78 : VERSION 00
0000    46 ; 01    - Original
0000    47 ; 00-02 - DGP 06-Jan-78 - change LIB$NOTFOU to literal
0000    48 ;                        change BEQL to BNEQ following FFS
0000    49 ; 00-03 - Return SS$_NORMAL instead of SS$_NORMAL.  TNH 15-July-78
0000    50 ; 1-001 - Update version number and copyright notice.  JBS 16-NOV-78
0000    51 ; 1-002 - Add "_" to PSECT directive.  JBS 21-DEC-78
```

```
                        .SBTTL  DECLARATIONS
                ;
                ; INCLUDE FILES:
                ;

                ;
                ; EXTERNAL DECLARATIONS:
                ;
                        .DSABL  GBL                             ; Disable automatic generation of
                                                                ; .EXTRN
                        .EXTRN  SS$_NORMAL                      ; Normal successful completion
                        .EXTRN  LIB$_NOTFOU                     ; SEVERE error condition
                                                                ; Value not found

                ;
                ; MACROS:
                ;

                ;
                ; EQUATED SYMBOLS:
                ;

                ;
                ; OWN STORAGE:
                ;

                ;
                ; PSECT DECLARATIONS:
                ;
00000000                .PSECT _LIB$CODE PIC, SHR, LONG, EXE, NOWRT
```

```
                                85          .SBTTL  LIB$FFS  - find first set bit
                                86 ;++
                                87 ; FUNCTIONAL DESCRIPTION:
                                88 ;
                                89 ;       The field specified by the start position, size, and base is searched
                                90 ;       for the first set bit.  If one is found, a success status is returned as
                                91 ;       well as the bit position (relative to the base) in the find position.
                                92 ;       If a set bit is not found, a failure status is returned.  If the size specif
                                93 ;       is zero then a failure status is returned.
                                94 ;
                                95 ; CALLING SEQUENCE:
                                96 ;
                                97 ;       status.wlc.v = LIB$FFS (startpos.rl.r, size.rbu.r, base.rl.r, findpos.wl.r)
                                98 ;
00000004                        99          STARTPOS = 4                            ; Adr of start position
00000008                       100          SIZE = 8                                ; Adr of size
0000000C                       101          BASE = 12                               ; Adr of base
00000010                       102          FINDPOS = 16                            ; Adr of field for set bit position
                               103
                               104 ; INPUT PARAMETERS:
                               105 ;
                               106 ;       NONE
                               107 ;
                               108 ; IMPLICIT INPUTS:
                               109 ;
                               110 ;       NONE
                               111 ;
                               112 ; OUTPUT PARAMETERS:
                               113 ;
                               114 ;       NONE
                               115 ;
                               116 ; IMPLICIT OUTPUTS:
                               117 ;
                               118 ;       NONE
                               119 ;
                               120 ; FUNCTION VALUE:
                               121 ;
                               122 ;       SS$_NORMAL - if a set bit is found
                               123 ;       LIB$_NOTFOU - if a set bit is not found
                               124 ;
                               125 ; SIDE EFFECTS:
                               126 ;
                               127 ;       SS$_ROPRAND - reserved operand fault occurs if:
                               128 ;                     1.) size greater than 32 is specified
                               129 ;                     2.) start position is greater than 31 and field is in registers
                               130 ;
                               131 ;--
                               132
                      0000     133          .ENTRY LIB$FFS , ^M< >                  ; Entry point
                               134
10 BC   0C BC   08 BC   04 BC  135          FFS     @STARTPOS(AP), @SIZE(AP), -     ; find first set bit
                               136                  @BASE(AP), @FINDPOS(AP)
                         08    137          BNEQ    10$                             ; branch if bit found
          50  00000C00'8F  D0  138          MOVL    #LIB$_NOTFOU, R0                ; return failure status
                         04    139          RET
          50  00000000'8F  D0  140 10$:     MOVL    #SS$_NORMAL, R0                 ; return success status
                         04    141          RET
```

```
001D   142          .END
```

```
BASE            = 0000000C
FINDPOS         = 00000010
LIBSFFS           00000000 RG    01
LIB$_NOTFOU       ******** X     00
SIZE            = 00000008
SS$_NORMAL        ******** X     00
STARTPOS        = 00000004
```

Psect synopsis

PSECT name	Allocation	PSECT No.	Attributes
. ABS .	00000000 (0.)	00 (0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
_LIB$CODE	0000001D (29.)	01 (1.)	PIC USR CON REL LCL SHR EXE RD NOWRT NOVEC LONG

Performance indicators

Phase	Page faults	CPU Time	Elapsed Time
Initialization	29	00:00:00.04	00:00:01.17
Command processing	111	00:00:00.28	00:00:03.23
Pass 1	66	00:00:00.21	00:00:02.06
Symbol table sort	0	00:00:00.01	00:00:00.01
Pass 2	40	00:00:00.17	00:00:01.58
Symbol table output	2	00:00:00.01	00:00:00.01
Psect synopsis output	2	00:00:00.01	00:00:00.01
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	252	00:00:00.73	00:00:08.07

The working set limit was 900 pages.
1407 bytes (3 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 7 non-local and 1 local symbols.
142 source lines were read in Pass 1, producing 11 object records in Pass 2.
0 pages of virtual memory were used to define 0 macros.

Macro library statistics

Macro library name	Macros defined
_255DUA28:[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$:LIBFFS/OBJ=OBJ$:LIBFFS MSRC$:LIBFFS/UPDATE=(ENH$:LIBFFS)
```

LIBEMODH
LIS

LIBEMODD
LIS

LIBESTEMU
LIS

LIBEF
LIS

LIBEMULAT
LIS

LIBFFS
LIS

LIBFINCVT
LIS

LIBE2AREV
LIS

LIBFAO
LIS

LIBEMODG
LIS

LIBEXTV
LIS

LIBEDIV
LIS

LIBESTABL
LIS

LIBFFC
LIS

LIBEMODF
LIS

LIBEMUL
LIS

LIBFILSCA
LIS

LIBEXTZV
LIS

LIBEBCASC
LIS

LIBFAOL
LIS