```
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**LIBBBSSI

```
LL              IIIIII    BBBBBBBB    BBBBBBBB    BBBBBBBB      SSSSSSSS    SSSSSSSS    IIIIII
LL              IIIIII    BBBBBBBB    BBBBBBBB    BBBBBBBB      SSSSSSSS    SSSSSSSS    IIIIII
LL                II      BB      BB  BB      BB  BB      BB  SS          SS              II
LL                II      BB      BB  BB      BB  BB      BB  SS          SS              II
LL                II      BB      BB  BB      BB  BB      BB  SS          SS              II
LL                II      BB      BB  BB      BB  BB      BB  SS          SS              II
LL                II      BBBBBBBB    BBBBBBBB    BBBBBBBB      SSSSSS      SSSSSS      II
LL                II      BBBBBBBB    BBBBBBBB    BBBBBBBB      SSSSSS      SSSSSS      II
LL                II      BB      BB  BB      BB  BB      BB          SS          SS      II
LL                II      BB      BB  BB      BB  BB      BB          SS          SS      II
LL                II      BB      BB  BB      BB  BB      BB          SS          SS      II          ....
LL                II      BB      BB  BB      BB  BB      BB          SS          SS      II          ....
LLLLLLLLLL      IIIIII    BBBBBBBB    BBBBBBBB    BBBBBBBB    SSSSSSSS    SSSSSSSS    IIIIII        ....
LLLLLLLLLL      IIIIII    BBBBBBBB    BBBBBBBB    BBBBBBBB    SSSSSSSS    SSSSSSSS    IIIIII        ....
```

```
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$BBSSI - Test and set bit interlocked
0000     2         .IDENT  /1-001/                 ; File: LIBBBSSI.MAR Edit: SBL1001
0000     3
0000     4 ;
0000     5 ;*****************************************************************************
0000     6 ;*                                                                           *
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0000    24 ;*                                                                           *
0000    25 ;*                                                                           *
0000    26 ;*****************************************************************************
0000    27 ;
0000    28
0000    29 ;++
0000    30 ; FACILITY: General Utility Library
0000    31 ;
0000    32 ; ABSTRACT:
0000    33 ;
0000    34 ;       LIB$BBSSI tests and sets a bit with interlock.
0000    35 ;
0000    36 ; ENVIRONMENT: Runs at any access mode, AST Reentrant
0000    37 ;
0000    38 ; AUTHOR: Steven B. Lionel, CREATION DATE: 16-AUG-1982
0000    39 ;
0000    40 ; MODIFIED BY:
0000    41 ;
0000    42 ; 1-001 - Original. SBL 16-AUG-1982
0000    43 ;--
```

```
                        .sbttl  DECLARATIONS
                ;
                ; LIBRARY MACRO CALLS:
                ;
                ;       NONE
                ;
                ; EXTERNAL DECLARATIONS:
                ;
                        .DSABL  GBL             ; Force all external symbols to be declared
                ;       NONE
                ;
                ; MACROS:
                ;
                ;       NONE
                ;
                ; EQUATED SYMBOLS:
                ;
                ;       NONE
                ;
                ; OWN STORAGE:
                ;
                ;       NONE
                ;
                ; PSECT DECLARATIONS:
                ;
00000000        ;
                        .PSECT _LIB$CODE PIC, USR, CON, REL, LCL, SHR, -
                                        EXE, RD, NOWRT, LONG
```

```
                     0000     74          .SBTTL  LIB$BBSSI - Test and set a bit with interlock
                     0000     75 ;++
                     0000     76 ; FUNCTIONAL DESCRIPTION:
                     0000     77 ;
                     0000     78 ;       LIB$BBSSI tests and sets a selected bit under memory interlock.
                     0000     79 ;       LIB$BBSSI makes the VAX-11 BBSSI instruction available as a
                     0000     80 ;       callable procedure.
                     0000     81 ;
                     0000     82 ;       The single bit specified by the "position" and "base" arguments
                     0000     83 ;       is tested, the previous state of the bit remembered, and the bit set.
                     0000     84 ;       The reading of the state of the bit and the setting of it constitute
                     0000     85 ;       an interlocked operation, interlocked against similar operations by
                     0000     86 ;       other processors or devices in the system.  The remembered previous
                     0000     87 ;       state of the bit is then returned as the function value of LIB$BBSSI.
                     0000     88 ;
                     0000     89 ;       For more information, see the VAX-11 Architecture Reference Manual.
                     0000     90 ;
                     0000     91 ; CALLING SEQUENCE:
                     0000     92 ;
                     0000     93 ;       previous-state.wv.v = LIB$BBSSI (position.rl.r, base.rz.r)
                     0000     94 ;
                     0000     95 ; FORMAL PARAMETERS:
                     0000     96 ;
00000004             0000     97          position = 4    ; The signed longword bit position, relative to "base",
                     0000     98                          ; of the bit being tested and set.  Passed by reference.
                     0000     99
00000008             0000    100          base = 8        ; The byte which contains bit zero of the object
                     0000    101                          ; being tested and set.  Passed by reference.
                     0000    102 ;
                     0000    103 ; IMPLICIT INPUTS:
                     0000    104 ;
                     0000    105 ;       NONE
                     0000    106 ;
                     0000    107 ; IMPLICIT OUTPUTS:
                     0000    108 ;
                     0000    109 ;       NONE
                     0000    110 ;
                     0000    111 ; ROUTINE VALUE:
                     0000    112 ;
                     0000    113 ;       The previous value of the bit which was tested and set.
                     0000    114 ;
                     0000    115 ; SIDE EFFECTS:
                     0000    116 ;
                     0000    117 ;       Sets the specified bit.
                     0000    118 ;
                     0000    119 ;--
                     0000    120
                0000 0000    121          .ENTRY  LIB$BBSSI, ^M<>
           50    01   D0 0002    122          MOVL    #1, R0                          ; Initially, assume bit set
02 08 BC     04 BC   E6 0005    123          BBSSI   @position(AP), @base(AP), 10$   ; Skip if bit set
                50   D4 000B    124          CLRL    R0                              ; Bit was clear
                     04 000D    125 10$:     RET                                     ; Return previous state
                        000E    126
                        000E    127          .END                                    ; End of module LIB$BBSSI
```

```
BASE            = 00000008
LIB$BBSSI         00000000 RG    01
POSITION        = 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                       0000000E  (   14.)  01 (  1.)    PIC   USR   CON   REL   LCL   SHR   EXE   RD  NOWRT NOVEC LONG
```

Performance indicators

Phase	Page faults	CPU Time	Elapsed Time
Initialization	29	00:00:00.07	00:00:00.65
Command processing	109	00:00:00.32	00:00:02.22
Pass 1	71	00:00:00.25	00:00:01.85
Symbol table sort	0	00:00:00.00	00:00:00.00
Pass 2	37	00:00:00.18	00:00:00.99
Symbol table output	2	00:00:00.00	00:00:00.00
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	252	00:00:00.84	00:00:05.83

```
The working set limit was 750 pages.
1229 bytes (3 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 3 non-local and 1 local symbols.
127 source lines were read in Pass 1, producing 10 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$:LIBBBSSI/OBJ=OBJ$:LIBBBSSI MSRC$:LIBBBSSI/UPDATE=(ENH$:LIBBBSSI)
```

RTLMACMAR
MAR

LIBASCEBC
LIS

LIBASTINP
LIS

RTLMACB32
REQ

STRMACROS
REQ

LIBBINTRE
LIS

RTLODBG
REQ

LIBDEF
FOR

LIBANASTR
LIS

LIBASNMBX
LIS

LIBBBCCI
LIS

LIBCHAR
LIS

LIBABUPCA
LIS

LIBADDX
LIS

RTLPSECT
REQ

SIGDEF
FOR

LIBASCTIM
LIS

LIBTABMAC
MAR

LIBATTACH
LIS

STRLNK
REQ

LIBA2EREV
LIS

LIBBBSSI
LIS

LIBCALLG
LIS

LIBCLICAL
LIS

LIBADDP
LIS