D 8

```
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
```

```
**FILE**ID**LIBINSQTI                                   G  1
```

```
LL            IIIIII    BBBBBBBB      IIIIII    NN      NN    SSSSSSSS    QQQQQQ    TTTTTTTTTT    IIIIII
LL            IIIIII    BBBBBBBB      IIIIII    NN      NN    SSSSSSSS    QQQQQQ    TTTTTTTTTT    IIIIII
LL              II      BB      BB      II      NN      NN  SS          QQ      QQ      TT          II
LL              II      BB      BB      II      NN      NN  SS          QQ      QQ      TT          II
LL              II      BB      BB      II      NNNN    NN  SS          QQ      QQ      TT          II
LL              II      BB      BB      II      NNNN    NN  SS          QQ      QQ      TT          II
LL              II      BBBBBBBB        II      NN  NN  NN    SSSSSS    QQ      QQ      TT          II
LL              II      BBBBBBBB        II      NN  NN  NN    SSSSSS    QQ      QQ      TT          II
LL              II      BB      BB      II      NN    NNNN          SS  QQ  QQ  QQ      TT          II
LL              II      BB      BB      II      NN    NNNN          SS  QQ  QQ  QQ      TT          II
LL              II      BB      BB      II      NN      NN          SS  QQ    QQ        TT          II          ....
LL              II      BB      BB      II      NN      NN          SS  QQ    QQ        TT          II          ....
LLLLLLLLLL    IIIIII    BBBBBBBB      IIIIII    NN      NN  SSSSSSSS      QQQQ  QQ      TT        IIIIII        ....
LLLLLLLLLL    IIIIII    BBBBBBBB      IIIIII    NN      NN  SSSSSSSS      QQQQ  QQ      TT        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            .TITLE  LIB$INSQTI - Insert Entry into Queue at Tail, Interlocked
0000            .IDENT  /1-002/                 ; File: LIBINSQTI.MAR Edit:DGP1002
0000
0000    ;
0000    ;****************************************************************************
0000    ;*                                                                          *
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0000    ;*                                                                          *
0000    ;*                                                                          *
0000    ;****************************************************************************
0000    ;
0000
0000    ;++
0000    ; FACILITY: General Utility Library
0000    ;
0000    ; ABSTRACT:
0000    ;
0000    ;       One of four procedures which give higher level languages access
0000    ;       to the interlocked, self-relative queue instructions on the
0000    ;       VAX-11/780 and all future machines. This library procedure permits
0000    ;       the high level language user to have access to the INSQTI instruction.
0000    ;
0000    ; ENVIRONMENT: User Mode, AST Reentrant
0000    ;
0000    ;--
0000    ; AUTHOR: R. E. Johnston, CREATION DATE: 03-Dec-79
0000    ;
0000    ; MODIFIED BY:
0000    ;
0000    ;  1-001 - Original.  REJ 03-Dec-79
0000    ; 1-002 - Retry count is off by one.  DGP 14-AUG-1981
0000    ;--
```

```
                 0000          .SBTTL  DECLARATIONS
                 0000     ;
                 0000     ; INCLUDE FILES:
                 0000     ;
                 0000
                 0000     ;
                 0000     ; EXTERNAL DECLARATIONS:
                 0000     ;
                 0000          .DSABL  GBL                      ; Disable automatic generation
                 0000                                           ; of .EXTRN
                 0000          .EXTRN  SS$_NORMAL               ; Normal successful completion
                 0000          .EXTRN  LIB$_SECINTFAI           ; Secondary Interlock still
                 0000                                           ; locked after retry-cnt retrys
                 0000          .EXTRN  LIB$_ONEENTQUE           ; Successful Completion but
                 0000                                           ; only one entry is now
                 0000                                           ; contained in queue
                 0000     ;
                 0000     ; MACROS:
                 0000     ;
                 0000
                 0000     ;
                 0000     ; EQUATED SYMBOLS:
                 0000     ;
        0000000A 0000          DEF_RETRY_CNT = 10               ; Default retry count for
                 0000                                           ; Secondary Interlock fails
                 0000     ;
                 0000     ; OWN STORAGE:
                 0000     ;
                 0000
                 0000     ;
                 0000     ; PSECT DECLARATIONS:
                 0000     ;
             00000000          .PSECT _LIB$CODE PIC, SHR, LONG, EXE, NOWRT
                 0000
                 0000
                 0000
                 0000     87         .SBTTL LIB$INSQTI - Insert Entry into Queue Tail
                 0000     88  ;++
                 0000     89  ; FUNCTIONAL DESCRIPTION:
                 0000     90  ;
                 0000     91  ;
                 0000     92  ;       One of four procedures which give higher level languages access
                 0000     93  ;       to the interlocked, self-relative queue instructions on the
                 0000     94  ;       VAX-11/780 and all future machines. This library procedure permits
                 0000     95  ;       the high level language user to have access to the INSQTI instruction.
                 0000     96  ;       With this procedure the user may insert a queue entry at the tail of a
                 0000     97  ;       user specified queue.
                 0000     98  ;
                 0000     99  ;       If the entry is successfully added to the tail of the queue and the
                 0000    100  ;       queue contains more than one entry, a successful completion status is
                 0000    101  ;       returned. If the entry is added to the tail of the queue and no other
                 0000    102  ;       entries are in the queue, the execution is successful but a unique
                 0000    103  ;       status value is returned indicating that the queue now contains one
                 0000    104  ;       entry (LIB$_ONEENTQUE).
                 0000    105  ;
                 0000    106  ;       These queue instructions are synchronized across all processors
                 0000    107  ;       through the use of a secondary interlock. The user may specify a
                 0000    108  ;       secondary interlock retry count. (The default retry count is 10.)
                 0000    109  ;       If the secondary interlock remains locked through retry-count retrys,
                 0000    110  ;       a secondary interlock status is returned to the user (LIB$_SECINTFAI)
                 0000    111  ;       and the entry is NOT successfully added to the head of the queue.
                 0000    112  ;
                 0000    113  ; CALLING SEQUENCE:
                 0000    114  ;
                 0000    115  ;   ret-status.wlc.v = LIB$INSQTI (entry.ml.ra, header.mq.r[, retry-cnt.rlu.r])
                 0000    116  ;
                 0000    117  ;
                 0000    118  ; INPUT PARAMETERS:
                 0000    119  ;
00000004         0000    120         ENTRY = 4                               ; Address of queue entry to be inserted
00000008         0000    121         HEADER = 8                              ; Address of queue header
0000000C         0000    122         RETRY_CNT = 12                          ; Address of retry count
                 0000    123  ;
                 0000    124  ; IMPLICIT INPUTS:
                 0000    125  ;
                 0000    126  ;       NONE
                 0000    127  ;
                 0000    128  ; OUTPUT PARAMETERS:
                 0000    129  ;
                 0000    130  ;       NONE
                 0000    131  ;
                 0000    132  ; IMPLICIT OUTPUTS:
                 0000    133  ;
                 0000    134  ;       NONE
                 0000    135  ;
                 0000    136  ; FUNCTION VALUE:
                 0000    137  ;
                 0000    138  ;       SS$_NORMAL      - Entry added to head of queue, queue contains more
                 0000    139  ;                         than one entry.
                 0000    140  ;       LIB$_ONEENTQUE - Successful completion of instruction (INSQTI).
                 0000    141  ;                         Entry added to tail of queue, but queue was empty.
                 0000    142  ;       LIB$_SECINTFAI - Secondary Interlock failed, queue is not modified.
                 0000    143  ;
```

```
                               0000      ; SIDE EFFECTS:
                               0000      ;
                               0000      ;          SS$_ROPRAND - reserved operand fault for:
                               0000      ;                      1.) either the entry or the header is at an address
                               0000      ;                          that is not quad word aligned.
                               0000      ;                      2.) address of header equals address of entry.
                               0000      ;
                               0000      ;--
                               0000
                         0000  0000                .ENTRY  LIB$INSQTI , ^M< >       ; Entry point
                               0002
             50      0A    D0  0002                MOVL    #DEF_RETRY_CNT, R0       ; R0 = Default retry count of 10
             03      6C    91  0005                CMPB    (AP), #<RETRY_CNT/4>     ; Check for optional retry cnt operand
                     04    1F  0008                BLSSU   20$                      ; Branch if default count to be used
         50       0C BC    D0  000A                MOVL    @RETRY_CNT(AP), R0       ; R0 = User specified retry count
                               000E      20$:
      08 BC       04 BC    5D  000E                INSQTI  @ENTRY(AP), @HEADER(AP)  ; Do the instruction (INSQTI)
                     08    1B  0013                BLEQU   30$                      ; Branch if Z = 1 (One entry in queue)
                               0015                                                 ; or C = 1 (Secondary Interlock fail)
   50      00000000'8F     D0  0015                MOVL    #SS$_NORMAL, R0          ; Normal status - Entry added to tail
                               001C                                                 ; of queue and more than one entry is
                               001C                                                 ; now is queue
                           04  001C                RET                              ; Successful return to user
                               001D      30$:
                     08    1F  001D                BCS     40$                      ; Branch if Secondary Interlock fail
   50      00000000'8F     D0  001F                MOVL    #LIB$_ONEENTQUE, R0      ; Assume exactly one entry now in queue
                               0026                                                 ; Entry successfully entered into queue
                           04  0026                RET                              ; Successful return to user
                               0027      40$:
                  E4 50    F4  0027                SOBGEQ  R0, 20$                  ; Loop until retry count is exhausted
   50      00000000'8F     D0  002A                MOVL    #LIB$_SECINTFAI, R0      ; Retry count is exhausted
                               0031                                                 ; Secondary Interlock fail status
                           04  0031                RET                              ; Unsuccessful return to user
                               0032                .END
```

```
DEF_RETRY_CNT   = 0000000A
ENTRY           = 00000004
HEADER          = 00000008
LIB$INSQTI        00000000 RG      01
LIB$_ONEENTQUE    ********    X    00
LIB$_SECINTFAI    ********    X    00
RETRY_CNT       = 0000000C
SS$_NORMAL        ********    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
_LIB$CODE                  00000032  (    50.)  01 (  1.)    PIC   USR    CON    REL    LCL   SHR   EXE   RD   NOWRT NOVEC LONG

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

Phase                     Page faults    CPU Time       Elapsed Time
-----                     -----------    --------       ------------
Initialization                    30    00:00:00.06    00:00:01.69
Command processing               104    00:00:00.28    00:00:02.76
Pass 1                            67    00:00:00.29    00:00:03.07
Symbol table sort                  0    00:00:00.00    00:00:00.01
Pass 2                            47    00:00:00.20    00:00:02.30
Symbol table output                2    00:00:00.01    00:00:00.01
Psect synopsis output              2    00:00:00.01    00:00:00.24
Cross-reference output             0    00:00:00.00    00:00:00.00
Assembler run totals             254    00:00:00.86    00:00:10.08

The working set limit was 900 pages.
1848 bytes (4 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 3 local symbols.
177 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
------------------                       --------------
_$255$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$:LIBINSQTI/OBJ=OBJ$:LIBINSQTI MSRC$:LIBINSQTI/UPDATE=(ENH$:LIBINSQTI)
```

0208 AH-BT13A-SE
VAX/VMS V4.0

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