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LL      IIIIII  BBBB8888  RRRRRRRR  EEEEEEEEE  MM      MM      QQQQQQ  HH      HH      IIIIII
LL      IIIIII  BBBB8888  RRRRRRRR  EEEEEEEEE  MM      MM      QQQQQQ  HH      HH      IIIIII
LL      II      BB      BB  RR      RR  EE      MMMM  MMMM  QQ      QQ  HH      HH      II
LL      II      BB      BB  RR      RR  EE      MMMM  MMMM  QQ      QQ  HH      HH      II
LL      II      BB      BB  RR      RR  EE      MM      MM  QQ      QQ  HH      HH      II
LL      II      BBBB8888  RRRRRRRR  EEEEEEEE  MM      MM  QQ      QQ  HHHHHHHHHH  II
LL      II      BBBB8888  RRRRRRRR  EEEEEEEE  MM      MM  QQ      QQ  HHHHHHHHHH  II
LL      II      BB      BB  RR      RR  EE      MM      MM  QQ      QQ  HH      HH      II
LL      II      BB      BB  RR      RR  EE      MM      MM  QQ      QQ  HH      HH      II
LL      II      BB      BB  RR      RR  EE      MM      MM  QQ      QQ  HH      HH      II
LL      II      BB      BB  RR      RR  EE      MM      MM  QQ      QQ  HH      HH      II
LLLLLLLL  IIIIII  BBBB8888  RR      RR  EEEEEEEEE  MM      MM      QQQQ  QQ  HH      HH      IIIIII
LLLLLLLL  IIIIII  BBBB8888  RR      RR  EEEEEEEEE  MM      MM      QQQQ  QQ  HH      HH      IIIIII

LL      IIIIII  SSSSSSSS
LL      IIIIII  SSSSSSSS
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
LL      IIIIII  SSSSSSSS

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LIBS
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DECLARATIONS
LIB\$REMQHI - Remove Entry from Queue Head

```
0000 1 .TITLE LIB$REMQHI - Remove Entry from Queue at Head, Interlocked
0000 2 .IDENT 1-002/ ; File: LIBREMQHI.MAR Edit:DGP1002
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 One of four procedures which give higher level languages access
0000 35 to the interlocked, self-relative queue instructions on the
0000 36 VAX-11/780 and all future machines. This library procedure permits
0000 37 the high level language user to have access to the REMQHI instruction.
0000 38
0000 39 ENVIRONMENT: User Mode, AST Reentrant
0000 40
0000 41 --
0000 42 AUTHOR: R. E. Johnston, CREATION DATE: 03-Dec-79
0000 43
0000 44 MODIFIED BY:
0000 45
0000 46 1-001 - Original. REJ 03-Dec-79
0000 47 1-002 - Retry count is off by one. DGP 14-Aug-1981
0000 48 --
```

```
0000 50      .SBTTL  DECLARATIONS
0000 51      :
0000 52      : INCLUDE FILES:
0000 53      :
0000 54      :
0000 55      :
0000 56      : EXTERNAL DECLARATIONS:
0000 57      :
0000 58      .DSABL  GBL                ; Disable automatic generation
0000 59      :                               ; of .EXTRN
0000 60      .EXTRN  SSS$ NORMAL        ; Normal successful completion
0000 61      .EXTRN  LIB$_SECINTFAI    ; Secondary Interlock still
0000 62      :                               ; locked after retry-cnt retrys
0000 63      .EXTRN  LIB$_ONEENTQUE    ; Successful Completion but
0000 64      :                               ; queue is now empty
0000 65      .EXTRN  LIB$_QUEWASEMP    ; Queue was empty
0000 66      :                               ; Queue is not modified
0000 67      :                               ; Procedure is not successful
0000 68      :
0000 69      : MACROS:
0000 70      :
0000 71      :
0000 72      :
0000 73      : EQUATED SYMBOLS:
0000 74      :
0000000A 0000 75      DEF_RETRY_CNT = 10 ; Default retry count for
0000 76      :                               ; Secondary Interlock fails
0000 77      :
0000 78      : OWN STORAGE:
0000 79      :
0000 80      :
0000 81      :
0000 82      : PSECT DECLARATIONS:
0000 83      :
00000000 0000 84      .PSECT _LIB$CODE PIC, SHR, LONG, EXE, NOWRT
0000 85      :
0000 86      :
0000 87      :
```

```
0000 89 .SBTTL LIB$REMQHI - Remove Entry from Queue Head
0000 90 :++
0000 91 : FUNCTIONAL DESCRIPTION:
0000 92 :
0000 93 :
0000 94 : One of four procedures which give higher level languages access
0000 95 : to the interlocked, self-relative queue instructions on the
0000 96 : VAX-11/780 and all future machines. This library procedure permits
0000 97 : the high level language user to have access to the REMQHI instruction.
0000 98 : With this procedure the user may remove a queue entry from the head of
0000 99 : a user specified queue.
0000 100 :
0000 101 : If the entry is successfully removed from the head of the queue and the
0000 102 : queue now contains one or more entries, a successful completion status
0000 103 : is returned. If the entry is removed from the head of the queue and no
0000 104 : other entries are now in the queue, the execution is successful but a
0000 105 : unique status value is returned indicating that the queue now contains
0000 106 : no entries (LIB$_ONEENTQUE).
0000 107 :
0000 108 : These queue instructions are synchronized across all processors
0000 109 : through the use of a secondary interlock. The user may specify a
0000 110 : secondary interlock retry count. (The default retry count is 10.)
0000 111 : If the secondary interlock remains locked through retry-count retrys,
0000 112 : a secondary interlock status is returned to the user (LIB$_SECINTFAI)
0000 113 : and the entry is NOT successfully removed from the head of the queue.
0000 114 :
0000 115 : If an attempt is made to remove an entry from a queue which is already
0000 116 : empty, a unique unsuccessful completion status is returned to the
0000 117 : user (LIB$_QUEWASEMP).
0000 118 :
0000 119 : CALLING SEQUENCE:
0000 120 :
0000 121 : ret-status.wlc.v = LIB$REMQHI (header.mq.r, addr.wl.r[, retry-cnt.rlu.r])
0000 122 :
0000 123 :
0000 124 : INPUT PARAMETERS:
0000 125 :
00000004 0000 126 : HEADER = 4 ; Address of queue header
00000008 0000 127 : ADDR = 8 ; Address where queue entry address
0000000C 0000 128 : ; is to be returned to user
0000 129 : RETRY_CNT = 12 ; Address of retry count
0000 130 :
0000 131 : IMPLICIT INPUTS:
0000 132 :
0000 133 : NONE
0000 134 :
0000 135 : OUTPUT PARAMETERS:
0000 136 :
0000 137 : NONE
0000 138 :
0000 139 : IMPLICIT OUTPUTS:
0000 140 :
0000 141 : NONE
0000 142 :
0000 143 : FUNCTION VALUE:
0000 144 :
0000 145 : SSS_NORMAL - Entry removed from head of queue, queue still contains
```

```

0000 146 :
0000 147 : LIB$ONEENTQUE - one or more entries
0000 148 : LIB$ONEENTQUE - Successful completion of instruction (REMQHI). Entry
0000 149 : LIB$ONEENTQUE - removed from head of queue, but queue is now empty.
0000 150 : LIB$SECINTFAI - Secondary Interlock failed, queue is not modified.
0000 151 : LIB$QUEWASEMP - Unsuccessful completion of instruction (REMQHI).
0000 152 : LIB$QUEWASEMP - The queue was empty before the instruction was
0000 153 : LIB$QUEWASEMP - executed.
0000 154 : SIDE EFFECTS:
0000 155 :
0000 156 : SSS_ROPRAND - reserved operand fault for:
0000 157 : 1.) either the entry or the header is at an address
0000 158 : that is not quad word aligned.
0000 159 : 2.) address of header equals address of entry.
0000 160 :
0000 161 : --
0000 162 :
0000 163 : .ENTRY LIB$REMQHI , ^M< > ; Entry point
50 0A D0 0002 165 : MOVL #DEF_RETRY_CNT, R0 ; R0 = Default retry count of 10
03 6C 91 0005 166 : CMPB (AP), #<RETRY_CNT/4> ; Check for optional retry cnt operand
50 0C BC D0 0008 167 : BLSSU 20$ ; Branch if default count to be used
08 BC 04 BC D0 000A 168 : MOVL @RETRY_CNT(AP), R0 ; R0 = User specified retry count
000E 169 20$:
08 BC 04 BC 5E 000E 170 : REMQHI @HEADER(AP), @ADDR(AP) ; Do the instruction (REMQHI)
14 1F 0013 171 : BCS 40$ ; Branch if C = 1
08 13 0015 172 : ; (Secondary Interlock fail)
0017 173 : BEQL 30$ ; Branch if Z = 1
50 00000000'8F D0 0017 174 : ; (Queue is now empty)
001E 175 : MOVL #SS$_NORMAL, R0 ; Normal status - Entry removed from
001E 176 : ; head of queue and one or more entries
04 001E 177 : ; are still in queue
001F 178 : RET ; Successful return to user
13 1D 001F 179 30$:
50 00000000'8F D0 0021 180 : BVS 50$ ; Branch if V = 1
0021 181 : ; (There was nothing there to remove)
0028 182 : MOVL #LIB$ONEENTQUE, R0 ; Assume the queue is just now empty
04 0028 183 : RET ; Entry successfully removed from queue
0029 184 : ; Successful return to user
50 00000000'8F D0 0029 185 40$:
E2 50 F4 0029 186 : SOBGEQ R0, 20$ ; Loop until retry count is exhausted
002C 187 : MOVL #LIB$SECINTFAI, R0 ; Retry count is exhausted
04 0033 188 : RET ; Secondary Interlock fail status
0034 189 : ; Unsuccessful return to user
50 00000000'8F D0 0034 190 50$:
003B 191 : MOVL #LIB$QUEWASEMP, R0 ; Queue was already empty before
04 003B 192 : RET ; this queue instruction was executed
003C 193 : ; Unsuccessful return to user
003C 194 : .END

```

LIB\$REMQHI
Symbol table

- Remove Entry from Queue at Head, Inter 16-SEP-1984 00:17:29 VAX/VMS Macro V04-00 Page 5
6-SEP-1984 11:10:11 [LIBRTL.SRC]LIBREMQHI.MAR;1 (3)

ADDR = 00000008
DEF_RETRY_CNT = 0000000A
HEADER = 00000004
LIB\$REMQHI 00000000 RG 01
LIB\$ONEENTQUE ***** X 00
LIB\$QUEWASEMP ***** 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	0000003C (60.)	01 (1.)	PIC	USR	CON	REL	LCL	SHR	EXE	RD	NOWRT	NOVEC	LONG					

! Performance indicators !

Phase	Page faults	CPU Time	Elapsed Time
Initialization	29	00:00:00.05	00:00:00.61
Command processing	129	00:00:00.30	00:00:01.44
Pass 1	71	00:00:00.32	00:00:01.37
Symbol table sort	0	00:00:00.00	00:00:00.00
Pass 2	49	00:00:00.27	00:00:01.58
Symbol table output	2	00:00:00.00	00:00:00.58
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	284	00:00:00.95	00:00:05.61

The working set limit was 900 pages.
2033 bytes (4 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 9 non-local and 4 local symbols.
194 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\$:LIBREMQHI/OBJ=OBJ\$:LIBREMQHI MSRCS\$:LIBREMQHI/UPDATE=(ENH\$:LIBREMQHI)

LIBPOLYG
LIS

LIBREMOHT
LIS

LIBSIGSTO
LIS

LIBRENAME
LIS

LIBSCANC
LIS

LIBRDOBU
LIS

LIBRINPRO
LIS

LIBSIGNAL
LIS

LIBPUTOUT
LIS

LIBREMOTI
LIS

LIBSIGRET
LIS

LIBSIMTRA
LIS

LIBPOLYH
LIS

LIBREVERT
LIS

LIBSCOPY
LIS