```
LLL              IIIIIIIII    BBBBBBBBBBBB   RRRRRRRRRRR    TTTTTTTTTTTTTTT  LLL
LLL              IIIIIIIII    BBBBBBBBBBBB   RRRRRRRRRRR    TTTTTTTTTTTTTTT  LLL
LLL              IIIIIIIII    BBBBBBBBBBBB   RRRRRRRRRRR    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       BBBBBBBBBBBB   RRRRRRRRRRR         TTT         LLL
LLL                 III       BBBBBBBBBBBB   RRRRRRRRRRR         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
```

LIBMACROS

REQ

! Macros for the Run-Time Library LIB$ facility
! File: LIBMACROS.REQ, Edit: SBL1003
!
!***
!*   *
!
! Author: Steven B. Lionel, 16-August-1982
!
! 1-001 - Original. SBL 16-August-1982
! 1-002 - Add macros to read, write and copy with autoincrement.
!   SBL 12-Apr-1983
! 1-003 - Add LIBMOVQ. SBL 17-June-1983
!--
!
!+
! This file contains macros which are available to any BLISS module that
! REQUIREs LIB$ROLOG.REQ. Macros in this file are useful to any LIB$
! module written in BLISS. All macros defined MUST have names that begin
! with "LIB".
!-

```
!+
! $LIB$VALIDATE_ARGCOUNT
!
! Macro used to check that a LIB$ procedure was called with the correct
! number of arguments.  If the test fails, the procedure returns with the
! failure status LIB$_WRONUMARG.
!
! Format:
!       $LIB$VALIDATE_ARGCOUNT (lo, hi);
!
!       lo = Lowest number of arguments which are valid (0-255)
!       hi = Highest number of arguments which are valid (0-255)
!-

MACRO
    $LIB$VALIDATE_ARGCOUNT (lo, hi) =
        BEGIN
        BUILTIN
            ACTUALCOUNT;
        EXTERNAL LITERAL
            LIB$_WRONUMARG;

        %IF lo NEQ hi
        %THEN
            %IF lo NEQ 0
            %THEN
                LOCAL
                    DIFF: BYTE;
                DIFF = ACTUALCOUNT () - lo;
                IF .DIFF  GTRU (hi - lo)
                THEN
                    RETURN LIB$_WRONUMARG;
            %ELSE
                IF ACTUALCOUNT () GTRU hi
                THEN
                    RETURN LIB$_WRONUMARG;
            %FI

        %ELSE
            IF ACTUALCOUNT () NEQU lo
            THEN
                RETURN LIB$_WRONUMARG;
        %FI

        END %;
```

```
!+
! Macros to read, write and copy with autoincrement.
!-

MACRO
    $LIB$RBYTE_A(P) = (P = .P+1; .(.P-1)<0, 8>) %,
    $LIB$RWORD_A(P) = (P = .P+2; .(.P-2)<0,16>) %,
    $LIB$RLONG_A(P) = (P = .P+4; .(.P-4)<0,32>) %,

    $LIB$WBYTE_A(P) = (P=.P+1; .?-1)<0,8> %,
    $LIB$WWORD_A(P) = (P=.P+2; .P-2)<0,16> %,
    $LIB$WLONG_A(P) = (P=.P+4; .P-4)<0,32> %,

    $LIB$COPY_BYTE_A (S,D) = ($LIB$WBYTE_A(D)=$LIB$RBYTE_A(S)) %,
    $LIB$COPY_WORD_A (S,D) = ($LIB$WWORD_A(D)=$LIB$RWORD_A(S)) %,
    $LIB$COPY_LONG_A (S,D) = ($LIB$WLONG_A(D)=$LIB$RLONG_A(S)) %,
    $LIB$COPY_QUAD_A (S,D) = ((.D)<0,32>=.(.S)<0,32>;
        (.D+4)<0,32>=.(.S+4)<0,32>; D=.D+8; S=.S+8) %;

!+
! Macro to move a quadword with a MOVQ instruction.
!-

MACRO
    $LIB$MOVQ (S,D) =
        BEGIN
        (D) = .(S);
        ((D)+4) = .((S)+4);
        END %;

! End of file LIBMACROS.REQ
```

LBRARMSG
LIS

LIBRTL

LIBRTL
MAP

SUBS
LIS

LIBRTL2
MAP

LIBFMTDEF
SDL

LIBPROLOG
REQ

OTSISB
SDL

OTSECBREQ
REQ

OTSMAC
REQ

LISTLIB
LIS

LIBCLIDEF
SDL

LIBLNK
REQ

OTSLNK
REQ

LIBDCFDEF
SDL

RTLLIB
REQ

PROCMD
LIS

LIBMACROS
REQ

OTSLIB
SDL