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
```

FILEID**OTSMAC

```
  OOOOOO    TTTTTTTTTT    SSSSSSSS  MM      MM    AAAAAA        CCCCCCCC
  OOOOOO    TTTTTTTTTT    SSSSSSSS  MM      MM    AAAAAA        CCCCCCCC
OO      OO      TT      SS          MMMM  MMMM  AA      AA  CC
OO      OO      TT      SS          MMMM  MMMM  AA      AA  CC
OO      OO      TT      SS          MM  MM  MM  AA      AA  CC
OO      OO      TT      SS          MM  MM  MM  AA      AA  CC
OO      OO      TT        SSSSSS    MM      MM  AA      AA  CC
OO      OO      TT        SSSSSS    MM      MM  AA      AA  CC
OO      OO      TT              SS  MM      MM  AAAAAAAAAA  CC
OO      OO      TT              SS  MM      MM  AAAAAAAAAA  CC
OO      OO      TT              SS  MM      MM  AA      AA  CC              ....
OO      OO      TT              SS  MM      MM  AA      AA  CC              ....
  OOOOOO        TT      SSSSSSSS    MM      MM  AA      AA    CCCCCCCC      ....
  OOOOOO        TT      SSSSSSSS    MM      MM  AA      AA    CCCCCCCC      ....

RRRRRRRR    EEEEEEEEEE    QQQQQQ
RRRRRRRR    EEEEEEEEEE    QQQQQQ
RR      RR  EE          QQ      QQ
RR      RR  EE          QQ      QQ
RR      RR  EE          QQ      QQ
RR      RR  EE          QQ      QQ
RRRRRRRR    EEEEEEEE    QQ      QQ
RRRRRRRR    EEEEEEEE    QQ      QQ
RR  RR      EE          QQ  QQ  QQ
RR  RR      EE          QQ  QQ  QQ
RR    RR    EE          QQ    QQ
RR    RR    EE          QQ    QQ
RR      RR  EEEEEEEEEE    QQQQ  QQ
RR      RR  EEEEEEEEEE    QQQQ  QQ
```

```
!+
! This file, OTSMAC.REQ, defines OTS macros.
! Edit: SBL1039
!-
!
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!****************************************************************************
!
!
! Author: T. Hastings

! 1-25   - REQUIRE LPSECT.  TNH 19-Dec-77
! 1-26   - Remove _SET_CB_BASE().  JMT 12-Apr-78
! 1-27   - Use RTLIN: logical name in REQUIRE.  TNH 28-Apr-78
! 1-28   - Define ADR_VECTOR.  TNH 7-June-78
! 1-30   - Change name to FORMAC.REQ (with apologies to Dick Gruen)
!            and change name of LPSECT to RTLPSECT  JBS 14-NOV-78
! 1-031 - Add a copyright notice  JBS 16-NOV-78
! 1-032 - Change file name to OTSMAC.REQ and remove REQUIRE of RTLPSECT.
!           (Let users of OTSMAC.REQ also REQUIRE RTLPSECT.)  JBS 06-DEC-78
! 1-033 - Add offsets and lengths of the dispatch tables.  JBS 25-JUN-1979
! 1-034 - Make them weak globals so they can be used by macro routines.
!            JBS 26-JUN-1979
! 1-035 - Remove FORTRAN offsets and lengths (moved to ISB).  JBS for SBL
!            12-JUL-1979
! 1-036 - Remove BASIC offsets and lengths (moved to ISB).  JBS 12-JUL-1979
! 1-037 - Remove PRINT statement, for new BLISS compiler.  JBS 02-OCT-1979
! 1-038 - Add COPY_BYTE_A, COPY_WORD_A, COPY_LONG_A, COPY_QUAD_A
!          macros.  SBL 18-Dec-1979
! 1-039 - Add ONE_OF macro.  SBL 18-Dec-1981
!--
!
!
!+
! Macro for writing a character string and then advancing pointer
! Designed so that it is placed on the left side of a substitution
! statement.  Anticpates feature being added to BLISS as a form
! for CH$WCHAR_A (DESPA) if looks good.
!
! Call: CH_WCHAR_A (CS_POINTER_ADR.ma.r) = ... ;
!-

MACRO
    CH_WCHAR_A (CS_POINTER_ADR) =

    (LOCAL T;
    T = .CS_POINTER_ADR;
    CS_POINTER_ADR = CH$PLUS (.CS_POINTER_ADR, 1);
    .T)<0,8>  %;


!+
! Macro for writing a character without advancing the pointer.
! Desinged so that is placed on the left of a substitution statement.
! Anticipates feature being added to BLISS as a form
! for CH$WCHAR (DSTPV) if looks good.
!
! Call: CH_WCHAR (CS_POINTER.ra.v) = ... ;
!-

MACRO
    CH_WCHAR (CS_POINTER_VAL) =

    (CS_POINTER_VAL)<0,8>  %;

!+
! Macros for processing the compiled format text byte strings.
! -

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

    CALL_VFE(P)=
        ( (LOCAL T; T = .(.P)<0,32>; P = .P+4; .T+.P) () ) %;

!+
! Macros for copying values referenced by pointers.
!-

MACRO
    COPY_BYTE_A (S,D) = (D=.D+1; (.D-1)<0,8>=RBYTE_A(S)) %,
    COPY_WORD_A (S,D) = (D=.D+2; (.D-2)<0,16>=RWORD_A(S)) %,
    COPY_LONG_A (S,D) = (D=.D+4; (.D-4)<0,32>=RLONG_A(S)) %,
    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 complete the transportable character pointer notion.
! Everywhere that an address (A) can be specified in BLISS,
! allow a character pointer with mnemonic P (rather than CP to keep one letter)
!-
```

```
%BLISS32 (
    MACRO
        LSSP = LSSA %,
        LEQP = LEQA %,
        EQLP = EQLA %,
        NEQP = NEQA %,
        GEQP = GEQA %,
        GTRP = GTRA %,
        MAXP = MAXA %,
        MINP = MINA %;);

!+
! Clear a vector of BLISS values (transportable)
!-

MACRO
    FILL_VAL (VALUE, LENGTH, ADDRESS) =
        %BLISS32 (CH$FILL (VALUE, (LENGTH) * %UPVAL, ADDRESS)) %;


!+
! Allocate string descriptor
! Rest of descriptor symbols are defined in SRMDEF.MDL
! But currently no way in MDL to define a macro
!
! To declare and allocate a descriptor:
!
!       LOCAL
!           name: DSC$DESCRIPTOR;
!-

MACRO
        DSC$DESCRIPTOR = BLOCK[8, BYTE] %;      ! MDL requires BYTE
```

```
!                       T H E  " O N E O F "   M A C R O
!
MACRO
        ! Macros to determine if the value of an expression is one of a set of
        ! specified small-integer values.  These macros can be used only if the
        ! following conditions are met:
        !
        !       The value to be tested is in the range 0 through 127.
        !
        !       The values to be tested for are all in the range 0 through 31.
        !
        ! Example:
        !
        !       IF ONE_OF (.X, 1,3,5) ...
        !
        ! The code generated is much more efficient than a series of comparisons
        ! (provided that the values being tested are all compile-time constants).
        !

        XBMSK_[A]=
            %IF NOT %CTCE(A) %THEN %ERRORMACRO('ONE_OF argument not a CTCE') %FI
            %IF (A GTRU 31) %THEN %ERRORMACRO('ONE_OF constant greater than 31') %FI
            (1 ^ (31 - (A))) %,


        BMSK_[]=
            (0 OR XBMSK_(%REMAINING)) %,

        XCMP_[A,B,C]=
            %IF %LENGTH EQL 3
            %THEN
                ((A EQLU B) OR (A EQLU C))
            %ELSE
                (A EQLU B)
            %FI %,

        ONE_OF(A)=
            %IF %LENGTH LEQ 1 %THEN %ERRORMACRO('Too few arguments to ONE_OF') %FI
            %IF %LENGTH LEQ 3
            %THEN
                XCMP_(A,%REMAINING)
            %ELSE
                (( ( BMSK_(%REMAINING) ) ^ (A)) LSS 0)
            %FI %;

!
!
!       End of file OTSMAC.REQ
```

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