```
   SSSSSSSSSSS     000000000     RRRRRRRRRRR     TTTTTTTTTTTTTTT     333333333       222222222
   SSSSSSSSSSS     000000000     RRRRRRRRRRRR    TTTTTTTTTTTTTTT     333333333       222222222
   SSSSSSSSSSS     000000000     RRRRRRRRRRRR    TTTTTTTTTTTTTTT     333333333       222222222
SSS              000          000  RRR         RRR        TTT        333          333  222          222
SSS              000          000  RRR         RRR        TTT        333          333  222          222
SSS              000          000  RRR         RRR        TTT        333          333  222          222
SSS              000          000  RRR         RRR        TTT                     333                222
SSS              000          000  RRR         RRR        TTT                     333                222
SSS              000          000  RRR         RRR        TTT                     333                222
   SSSSSSSSS     000          000  RRRRRRRRRRR            TTT                333                   222
   SSSSSSSSS     000          000  RRRRRRRRRRRR           TTT                333                   222
   SSSSSSSSS     000          000  RRRRRRRRRRRR           TTT                333                   222
            SSS  000          000  RRR   RRR              TTT                   333             222
            SSS  000          000  RRR   RRR              TTT                   333             222
            SSS  000          000  RRR   RRR              TTT                   333             222
            SSS  000          000  RRR      RRR           TTT        333        333          222
            SSS  000          000  RRR      RRR           TTT        333        333          222
            SSS  000          000  RRR      RRR           TTT        333        333          222
            SSS  000          000  RRR      RRR           TTT        333        333          222
SSSSSSSSSSS          000000000     RRR         RRR        TTT           333333333       222222222222222
SSSSSSSSSSS          000000000     RRR         RRR        TTT           333333333       222222222222222
SSSSSSSSSSS          000000000     RRR         RRR        TTT           333333333       222222222222222
```

FILEID**DKS

```
DDDDDDDD    KK       KK    SSSSSSSS
DDDDDDDD    KK       KK    SSSSSSSS
DD      DD  KK       KK  SS
DD      DD  KK       KK  SS
DD      DD  KK    KK     SS
DD      DD  KK    KK     SS
DD      DD  KKKKKK          SSSSSS
DD      DD  KKKKKK          SSSSSS
DD      DD  KK    KK              SS
DD      DD  KK    KK              SS
DD      DD  KK       KK           SS      ....
DD      DD  KK       KK           SS      ....
DDDDDDDD    KK       KK  SSSSSSSS         ....
DDDDDDDD    KK       KK  SSSSSSSS         ....


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
```

```
OPC

'PU
'BB
'BB
'BB
'BB
'BB
'BB
'BB
'BB
'BB
'BL
'BL
'FF
'FF
'CM
'CM
'EX
'EX
'IN
'AC
'AO
'AO
'SO
'SO
'CV
'CV
'AS
'CV
'CA
'CA
'XF
'ES
'ES
'ES
```

```
!
! Version:      'V04-000'
!
!****************************************************************************
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!****************************************************************************

%IF %SWITCHES(DEBUG)
%THEN
    GLOBAL D:   INITIAL(%BLISS(BLISS16));
    %IF %BLISS(BLISS16) %THEN
        REQUIRE 'SYS$LIBRARY:TUTIO';
        MACRO OUTPUT_(X)[] =
            (IF .D THEN (TTY_PUT_QUO(X); TTY_PUT_CRLF())) %;
    %FI
    %IF %BLISS(BLISS32) %THEN
        EXTERNAL ROUTINE SOR$$OUTPUT;
        MACRO OUTPUT_(X)[] =
            (IF .D THEN SOR$$OUTPUT(UPLIT(%CHARCOUNT(X),UPLIT BYTE(X))
                %IF %LENGTH GTR 1 %THEN , %REMAINING %FI )) %;
    %FI
%ELSE
    MACRO
        OUTPUT_(X) = %;
%FI

%IF %BLISS(BLISS32) %THEN
    REQUIRE 'SRC$:COM';             ! Common definitions for VAX-11 SORT/MERGE
    LIBRARY 'SRC$:SRTSPC';          ! Common definitions needed for this module
    LIBRARY 'SRC$:SFKEYWRD';        ! Spec file keyword definitions
%ELSE
    LIBRARY 'S11V3SRC:SMCOM';       ! Common definitions for PDP-11 SORT/MERGE
    LIBRARY 'S11V3SRC:SRTSPC';      ! Common definitions needed for this module
    LIBRARY 'S11V3SRC:SFKEYWRD';            ! Spec file keyword definitions
%FI

MACRO
```



```
MAC
'CV
'CV
'AD
'AD
'SU
'SU
'MU
'MU
'DI
'DI
'CV
'CV
'CV
'CV
'CV
'CV
'CV
'CV
'AC
'MO
'CM
'MN
'TS
'EM
'PO
'CV
'AD
'AD
'SU
'SU
'MU
'MU
'DI
'DI
'CV
'CV
'CV
'CV
'CV
'CV
'CV
'CV
'AC
'MO
'CM
'MN
'TS
'EM
'PO
'CV
'CL
'MO
'MO
'PU
'CV
'CV
'CV
```

```
    IF_ERROR_( X ) = %IF %BLISS( BLISS16 ) %THEN IF X NEQ SS$_NORMAL
                                                 %ELSE IF NOT X %FI %;
MACRO
    WRN_(MSG) =
        BEGIN
        IF ERR_CNTL( %IF %DECLARED(KYW_LINE) %THEN .KYW_LINE %ELSE 0 %FI,
                     MSG )
            NEQ SUCCESS THEN RETURN FAIL;
        END %,
    ERR_(LINE, MSG) =
        BEGIN
        IF ERR_CNTL( LINE,
                     %IF %BLISS( BLISS16 ) %THEN -ABS( MSG ) %ELSE MSG  %FI)
            NEQ SUCCESS THEN RETURN FAIL;
        END %;

MACRO
        ERR_CNTL =      EC$ERR_CNTL %,
        SPC_HEAP =      SH$SPC_HEAP %,
        SPC_ALLOC =     SA$SPC_ALLOC %,
        SKIP_IGNORED =  SI$SKIP_IGNORED %,
        SKIP_COMMA =    SC$SKIP_COMMA %,
        GET_KYW_TYPE =  GKT$GET_KYW_TYPE %,
        GET_CHAR_CLAUSE =       GCC$GET_CHAR_CLAUSE %,
        GET_ONE_CHAR =  GOC$GET_ONE_CHAR %,
        GET_NEXT_SPEC = GNS$GET_NEXT_SPEC %,
        GET_SUB_SPEC =  GSS$GET_SUB_SPEC %,
        GET_FILE_SPEC = GFS$GET_FILE_SPEC %,
        GET_STRING =    GS$GET_STRING %,
        PARSE_COLL =    PC$PARSE_COLL %,
        PARSE_MOD =     PM$PARSE_MOD %,
        PARSE_IGN =     PI$PARSE_IGN %,
        PARSE_TEST =    PT$PARSE_TEST %,
        PARSE_KEY =     PK$PARSE_KEY %,
        CONV_CONSTANTS = CC$CONV_CONSTANTS %,
        SEARCH_TABLE =  ST$SEARCH_TABLE %,
        INIT_CS_TAB =   ICT$INIT_CS_TAB %,
        DO_FOLD =       DF$DO_FOLD %,
        CVT_ATB =       CA$CVT_ATB %;
%IF %BLISS(BLISS16) %THEN
MACRO
        SOR$$SFPRS =
            %IF VAR_IS_SORT_(%VARIANT) %THEN
                $SSFPR
            %ELSE
                $MSFPR
            %FI                         %;      ! Use a shorter routine name
%FI

!EXTERNAL ROUTINE
!    ERR_CNTL    : CA_LINKAGE; ! Error control routine

%IF NOT %DECLARED(SOR$_WKAREA) %THEN
LITERAL SOR$_WKAREA = SOR$_SRTIWA;
%FI
```

```
! Define the keyword literals (KW_xxx)
!
MACRO   NAM_[A, B] = %NAME('KW_',A) = %COUNT %;
LITERAL NAM_( KEYWORDS );
```

```
%IF NOT %DECLARED(FAIL   ) %THEN LITERAL FAIL    = 0; %FI
%IF NOT %DECLARED(SUCCESS) %THEN LITERAL SUCCESS = 1; %FI
%IF NOT %DECLARED(FALSE  ) %THEN LITERAL FALSE   = 0; %FI
%IF NOT %DECLARED(TRUE   ) %THEN LITERAL TRUE    = 1; %FI

MACRO
        GC_(X,O,Y) =
            %IF %IDENTICAL(X,S)  %THEN 1 %ELSE
            %IF %IDENTICAL(X,D)  %THEN 2 %ELSE X %FI %FI ^ 4 +
            %IF %IDENTICAL(O,LT) %THEN %B'11' %ELSE
            %IF %IDENTICAL(O,EQ) %THEN %B'00' %ELSE
            %IF %IDENTICAL(O,GT) %THEN %B'01' %ELSE 0 %FI %FI %FI ^ 2 +
            %IF %IDENTICAL(Y,S)  %THEN 1 %ELSE
            %IF %IDENTICAL(Y,D)  %THEN 2 %ELSE Y %FI %FI ^ 0 %,
        GC_L1_(X) = X<4,2,0> %,
        GC_OP_(O) = O<2,2,1> %,
        GC_L2_(Y) = Y<0,2,0> %;

LITERAL                                 ! return from get_char_clause
        GC_SINGLE=      1,              ! single char
        GC_DOUBLE=      2,              ! double char
        GC_S_TO_S=      3;              ! single - single

LITERAL
    MAX_CONDX  = TDT_MAX,               ! Max conditions in omit/incls
    MAX_CONST  = CFT_MAX,               ! Max constants in omit/incls
    MAX_FIELDS = FDT_MAX;               ! Max fields definitions

LITERAL
    %UPADDR = ( %BPADDR + %BPUNIT -1 ) / %BPUNIT;       ! Units per address

! Definitions of fields in SYM_TAB
!
MACRO
    SYM_NAM_ADR =       0, 0, %BPADDR, 0 %,     ! Address of name in spec buffer
    SYM_NAM_LEN =       1, 0,  8, 0 %,          ! Length of name in spec buffer
    SYM_INDEX   =       1, 8,  8, 0 %;          ! Index into FDT or TDT

STRUCTURE                                       ! Local symbol table
    SYM_TAB[ O,B,P,S,E; BS ] =
        [ BS*(%UPADDR+2) ]
        ( SYM_TAB + O*(%UPADDR+2) + B*%UPADDR )<P,S,E>;

! Definitions of fields in COM_SYM_TAB
!
MACRO
    CON_NAM_ADR =       0, 0, %BPADDR, 0 %,     ! Address of name in spec buffer
    CON_NAM_LEN =       1, 0,  8, 0 %,          ! Length of name in spec buffer
    CON_INDEX =         1, 8,  8, 0 %;          ! Index into appropriate table
%IF %BLISS(BLISS32) %THEN
MACRO
    CON_LENGTH =        1, 16, 8, 0 %;          ! Result length, for condx key/data only
%ELSE
MACRO
    CON_LENGTH =        2,  0, 8, 0 %;          ! Result length, for condx key/data only
%FI
```

```
STRUCTURE                                       ! Local constant symbol table
    CON_SYM_TAB[ O,B,P,S,E; BS ] =
        [ BS*(%UPADDR+4) ]
        ( CON_SYM_TAB + O*(%UPADDR+4) + B*%UPADDR )<P,S,E>;

MACRO
    LOWER_(X) = ((X) OR %X'20') %,
    UPPER_(X) = ((X) AND NOT %X'20') %;

LITERAL
    _LEN = 0,
    _PTR = 1,
    _LINE = 2;

!MACRO
!    ALLOC_(X) =
!        %IF %CTCE(X) %THEN %IF X EQL 0
!        %THEN .CA[CA_WRK_ADR]
!        %ELSE SPC_ALLOC(X) %FI
!        %ELSE SPC_ALLOC(X) %FI %;

MACRO
    ALLOC_(X) =
        %IF %CTCE(X) AND (X) EQL 0
        %THEN .CA[CA_WRK_ADR]
        %ELSE %IF %BLISS(BLISS32) %THEN SPC_ALLOC(X)
             %ELSE BEGIN
                   LOCAL S;
                   IF (S = SPC_ALLOC(X)) EQL 0 THEN RETURN FAIL;
                   .S
                   END
             %FI
        %FI %;

MACRO
    HEAP_(X) =
        %IF %BLISS(BLISS32) %THEN SPC_HEAP(X)
        %ELSE   BEGIN
                LOCAL S;
                IF (S = SPC_HEAP(X)) EQL 0 THEN RETURN FAIL;
                .S
                END
        %FI %;

LITERAL
    TRDT_UNIT = 3;              ! Temporary RDT, first three bytes of RDT

STRUCTURE
    TRDT_TAB[ O,B,P,S,E; BS ] =
        [ BS*TRDT_UNIT ]
        ( TRDT_TAB + O*TRDT_UNIT + B )<P,S,E>;
MACRO
    TRDT_INCLUDE        =  0, 0,  1, 0 %,       ! Include/omit, Include = 1
    TRDT_CONDX          =  0, 1,  1, 0 %,       ! Conditional = 1
    TRDT_TDT_IDX        =  1, 0,  8, 0 %,       ! Index into TDT
```

```
    TRDT_KFT_IDX        = 2, 0,  8, 0 %;            ! Index into KFT
```

COM
REQ

SMGUSRTRM
LIS

SORLIB
REQ

SORTSHR
MAP

DEFS0
REQ

DKS
REQ

SORT32

SRTSPC
REQ

CDDTYPE
R32

SORTMERGE
MAP

SMGVECTOR
LIS

CHKPNT
REQ

CDDMAC
R32

SFKEYWRD
REQ

RECSYM
R32

SRTTRN
MAR

OPCODES
REQ