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        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
```

I 14

```
**FILE**ID**STRMULTI
```

```
  SSSSSSSS  TTTTTTTTTT  RRRRRRRR    MM      MM  UU      UU  LL          TTTTTTTTTT    IIIIII
  SSSSSSSS  TTTTTTTTTT  RRRRRRRR    MM      MM  UU      UU  LL          TTTTTTTTTT    IIIIII
SS              TT      RR      RR  MMMM  MMMM  UU      UU  LL              TT          II
SS              TT      RR      RR  MMMM  MMMM  UU      UU  LL              TT          II
SS              TT      RR      RR  MM  MM  MM  UU      UU  LL              TT          II
SS              TT      RR      RR  MM  MM  MM  UU      UU  LL              TT          II
  SSSSSS        TT      RRRRRRRR    MM      MM  UU      UU  LL              TT          II
  SSSSSS        TT      RRRRRRRR    MM      MM  UU      UU  LL              TT          II
        SS      TT      RR  RR      MM      MM  UU      UU  LL              TT          II
        SS      TT      RR  RR      MM      MM  UU      UU  LL              TT          II
        SS      TT      RR    RR    MM      MM  UU      UU  LL              TT          II          ....
        SS      TT      RR    RR    MM      MM  UU      UU  LL              TT          II          ....
SSSSSSSS        TT      RR      RR  MM      MM  UUUUUUUUUU  LLLLLLLLLL      TT        IIIIII        ....
SSSSSSSS        TT      RR      RR  MM      MM  UUUUUUUUUU  LLLLLLLLLL      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
```

```
0 %TITLE 'STR$COMPARE_MULTI - Compare using Multinational Char Set'
0 MODULE STR$COMPARE_MULTI (               ! Compare using Multinational Char Set
0                 IDENT = '1-003'          ! File: STRMULTI.B32 Edit: DG1003
0                 ) =
1 BEGIN
1 !
1 !****************************************************************************
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1 !*                                                                          *
1 !****************************************************************************
1 !
1
1 !++
1 ! FACILITY:     String Support Library
1 !
1 ! ABSTRACT:
1 !
1 !       This module performs character comparisons of 2 input strings
1 !       using the DEC Multinational Character Set (or foreign language
1 !       variations thereof).
1 !
1 ! ENVIRONMENT:  User mode - AST reentrant
1 !
1 ! AUTHOR: Linda Baillie, CREATION DATE: 10-Sept-1982
1 !
1 ! MODIFIED BY:
1 !
1 ! 1-001 - Original.  LGB 10-Sept-1982
1 ! 1-002 - Modified to make changes decided on by Design Review Board
1 !         on March 9, 1983.  DG 13-Sept-1983
1 !         Design notes for the tables and usage of them can be found on
1 !         TURTLE::RTL$:[RTL.NOTE]STRABMUL.MEM.
1 ! 1-003 - Fix so that case-blind comparisons of strings with different
1 !         lengths work.  DG 7-May-1984
1 !--
1
```

```
;    56          0055  1 %SBTTL 'Declarations'
;    57          0056  1 !
;    58          0057  1 ! SWITCHES:
;    59          0058  1 !
;    60          0059  1
;    61          0060  1 SWITCHES ADDRESSING_MODE (EXTERNAL = GENERAL, NONEXTERNAL = WORD_RELATIVE);
;    62          0061  1
;    63          0062  1 !
;    64          0063  1 ! LINKAGES:
;    65          0064  1 !
;    66          0065  1 REQUIRE 'RTLIN:STRLNK';                               ! Linkage to LIB$ANALYZE_DESC_R3
;    67          0250  1 !                                                     ! for $str$get_len_addr
;    68          0251  1 !
;    69          0252  1 ! TABLE OF CONTENTS:
;    70          0253  1 !
;    71          0254  1
;    72          0255  1 FORWARD ROUTINE
;    73          0256  1     STR$COMPARE_MULTI;                                ! Compare two strings made up of
;    74          0257  1                                                       ! the DEC Multinat'l Char Set
;    75          0258  1 !
;    76          0259  1 ! INCLUDE FILES:
;    77          0260  1 !
;    78          0261  1 REQUIRE 'RTLIN:RTLPSECT';                             ! Define PSECT declarations macros
;    79          0356  1 REQUIRE 'RTLIN:STRMACROS';                            ! String macros
;    80          1272  1 LIBRARY 'RTLSTARLE';                                  ! System symbols, typically from SYS$LIBRARY:STARLET.L32
;    81          1273  1
;    82          1274  1 !
;    83          1275  1 ! EQUATED SYMBOLS:
;    84          1276  1 !
;    85          1277  1 LITERAL
;    86          1278  1     TRUE = 1,
;    87          1279  1     FALSE = 0;
;    88          1280  1
;    89          1281  1
;    90          1282  1 !
;    91          1283  1 ! MACROS:
;    92          1284  1 !
;    93          1285  1
;    94          1286  1 MACRO
;    95          1287  1 !+
;    96          1288  1 !   Convert lowercase letters to uppercase.
;    97          1289  1 !   When converting lowercase to uppercase it is necessary to subtract %x'20'
;    98          1290  1 !   from the lowercase table values to reach their uppercase equivalents.
;    99          1291  1 !-
;   100        M 1292  1     UPCASE ( IN_BYTE ) =
;   101        M 1293  1         BEGIN
;   102        M 1294  1
;   103        M 1295  1         LOCAL
;   104        M 1296  1             TEMP_BYTE : BYTE;
;   105        M 1297  1
;   106        M 1298  1         TEMP_BYTE = CH$RCHAR( IN_BYTE );
;   107        M 1299  1
;   108        M 1300  1         IF ( .TEMP_BYTE GEQ %C'a'  AND  .TEMP_BYTE LEQ %C'z' )  OR      ! lowercase letters
;   109        M 1301  1            ( .TEMP_BYTE GEQ %X'E0'  AND  .TEMP_BYTE LEQ %X'FD'  AND     ! lc letters w/ diacritical marks
;   110        M 1302  1                  .TEMP_BYTE NEQ %X'F0' )
;   111        M 1303  1         THEN
;   112        M 1304  1             CH$WCHAR( .TEMP_BYTE - %X'20', IN_BYTE );
;  113      M 1305  1
;  114      M 1306  1           END
;  115        1307  1       % ;
;  116        1308  1
;  117        1309  1 MACRO
;  118        1310  1 !+
;  119        1311  1 !  Set up generic names to reference STRING1.
;  120        1312  1 !-
;  121      M 1313  1     SETUP_STRING1 =
;  122      M 1314  1         BEGIN
;  123      M 1315  1
;  124      M 1316  1             STRX_ADDR = .STR1_ADDR;                       ! use generic names
;  125      M 1317  1             STRX_LEN  = .STR1_LEN;                        ! for common code
;  126      M 1318  1             MULTIX    = .MULTI1;
;  127      M 1319  1             CHARX     = .CHAR1;
;  128      M 1320  1             ARRAYX    = ARRAY1;
;  129      M 1321  1
;  130      M 1322  1         END
;  131        1323  1     % ;
;  132        1324  1
;  133        1325  1 MACRO
;  134        1326  1 !+
;  135        1327  1 !  Set up generic names to reference STRING2.
;  136        1328  1 !-
;  137      M 1329  1     SETUP_STRING2 =
;  138      M 1330  1         BEGIN
;  139      M 1331  1
;  140      M 1332  1             STRX_ADDR = .STR2_ADDR;                       ! use generic names
;  141      M 1333  1             STRX_LEN  = .STR2_LEN;                        ! for common code
;  142      M 1334  1             MULTIX    = .MULTI2;
;  143      M 1335  1             CHARX     = .CHAR2;
;  144      M 1336  1             ARRAYX    = ARRAY2;
;  145      M 1337  1
;  146      M 1338  1         END
;  147        1339  1     % ;
;  148        1340  1
;  149        1341  1 MACRO
;  150        1342  1 !+
;  151        1343  1 !  Search list of special chars.  This is the case where one char is
;  152        1344  1 !  represented by a two-letter sequence.  For example, the German small
;  153        1345  1 !  sharp 's' is represented by the sequence 'ss'.
;  154        1346  1 !  SPEC_CHAR holds the list of special chars.
;  155        1347  1 !  SPEC_SEQ holds the corresponding two-letter sequence.
;  156        1348  1 !-
;  157      M 1349  1     SEARCH_SPEC_LIST =
;  158      M 1350  1         BEGIN
;  159      M 1351  1
;  160      M 1352  1             LOCAL
;  161      M 1353  1                 FOUND : INITIAL (FALSE);!  = TRUE if a special character
;  162      M 1354  1                                         !  has been found in SPEC_CHAR table
;  163      M 1355  1
;  164      M 1356  1             INCR K FROM 0 TO 5 DO
;  165      M 1357  1                 BEGIN                               ! begin loop
;  166      M 1358  1
;  167      M 1359  1                 IF .CHARX EQL .SPEC_CHAR[.K]
;  168      M 1360  1                 THEN
;  169      M 1361  1                     BEGIN
```

```
                    !+
                    !   Special character found.
                    !   Put the two-letter sequence that represents the
                    !   special character in ARRAYX.
                    !   SPEC_SEQ [.K*2] points to the first letter of the
                    !   two-letter sequence.
                    !   SPEC_SEQ [(.K*2)+1] points to the second letter of
                    !   the two-letter sequence.
                    !   For every one entry in the SPEC_CHAR table, there
                    !   are two corresponding entries in the SPEC_SEQ table.
                    !-
                    ARRAYX[.COUNT]   = .SPEC_SEQ[.K*2 ];
                    ARRAYX[.COUNT+1] = .SPEC_SEQ[(.K*2)+1];
                    FOUND = TRUE;                           ! spec char found
                    EXITLOOP;

                    END;

                END;                                        !  end loop

            !+
            !   The special char is not in the list of special chars - Error
            !-
            IF .FOUND EQL FALSE
            THEN
                LIB$SIGNAL ( LIB$_INVARG );
        END                                                 ! end of macro
    % ;

MACRO
!+
!   Search list of pairs.  This is the case when two chars appear together
!   they are sorted in a 'special' way.  For example, the Spanish 'CH' pair
!   is sorted between 'CZ ' and 'DA'.
!   SPEC_PAIR holds the list of spec pairs and their ordering values when they
!   appear together.
!-
    SEARCH_SPEC_PAIR =
        BEGIN

            LOCAL
                FOUND_FIRST  : INITIAL (FALSE),  !  = TRUE if 1st letter of pair
                                                 !  is found in SPEC_PAIR table
                FOUND_SECOND : INITIAL (FALSE),  !  = TRUE if 2nd letter of pair
                                                 !  is found in SPEC_PAIR table
                INDEX,                           !  holds # of pairs
                SAVE_FIRST_LETTER;               !  holds 1st letter of pair for
                                                 !  comparison against all possible
                                                 !  2nd letter partners.

            !+
            !  Indices :
            !  SPEC_PAIR table is set up such that each pair has 4 entries -
            !    1 = first letter of pair    represented as .SPEC_PAIR[.R*4]
            !    2 - ordering value for 1st  represented as .SPEC_PAIR[(.R*4)+1]
!       3 - second letter of pair   represented as .SPEC_PAIR[(.R*4)+2]
!       4 - ordering value for 2nd  represented as .SPEC_PAIR[(.R*4)+3]
!
!   While R is incremented in loop below, these indices allow all 4
!   entries of the pair to be looked at in one pass through the loop.
!-

INDEX = .PAIR_LEN / 4;                          ! PAIR_LEN holds # of
                                                ! entries in SPEC_PAIR table
INCR R FROM 0 TO .INDEX - 1 DO
    BEGIN                                       ! begin search

    AGAIN_PAIR_MACRO = FALSE;
    CALL_SPEC_LIST = FALSE;

    !+
    !  Look for first letter of pair
    !-

    IF .CHARX EQL .SPEC_PAIR[.R*4]
    THEN
        BEGIN                                   ! 1st char of possible
                                                ! pair was found
        FOUND_FIRST = TRUE;
        SAVE_FIRST_LETTER = .CHARX;

        !+
        !  Store ordering value of 1st char in ARRAYX
        !-

        ARRAYX[.COUNT] = .SPEC_PAIR[(.R*4)+1];

        !+
        !  Read next character - look for second letter of pair.
        !  If the first letter of the possible pair is the last
        !  letter of the input string, NO_PAIR was set to TRUE in
        !  the routine.
        !-

        IF .NO_PAIR EQL FALSE
        THEN
            BEGIN                               ! begin no_pair = FALSE

            CHARX = CH$RCHAR_A( STRX_ADDR );
            L = .L + 1;                         ! increment loop counter
            IF .JJ EQL 1
            THEN
                UPCASE( CHARX );

            !+
            !  Look for 2nd letter of pair
            !  It is possible to have a choice of '2nd letters'.
            !  For example, CH and Ch.
            !  The following loop handles this situation.
            !  CHARX would hold the letter from the input string
            !  that followed the letter C - H or h.
            !  SPEC_PAIR[(.S*4)+2] would look at H the first time
!  through the loop, then h in the subsequent pass.
!  (always looking at the 2nd letters of the pairs in
!  the table)
!  SPEC_PAIR[.S*4] would look at C the first time
!  through the loop, then different C's in subsequent
!  passes. (always looking at the 1st letters of the
!  pairs in the table)
!  SAVE_FIRST_LETTER remembers what the first letter
!  of the pair in the input string was.
!-

INCR S FROM .R TO .INDEX - 1 DO
    BEGIN                               ! begin 2nd char loop

    IF ( .CHARX EQL ( .SPEC_PAIR[(.S*4)+2] ) )  AND
        ( ( .SPEC_PAIR[.S*4] ) EQL .SAVE_FIRST_LETTER )
    THEN
        BEGIN
        !+
        ! 2nd char found, store in ARRAYX
        !-
        FOUND_SECOND = TRUE;
        ARRAYX[.COUNT+1] = .SPEC_PAIR[(.S*4)+3];
        EXITLOOP;

        END;

    END;                                ! end 2nd char loop


!+
!  2nd letter not part of a pair - ok (not an error),
!  do THAT_TABLE lookup
!-

IF .FOUND_SECOND EQL FALSE
THEN
    BEGIN                               ! begin f_s = FALSE

    MULTIX = .THAT_TABLE[.CHARX];

    !+
    !  FC in THAT_TABLE indicates the first letter of
    !  a possible pair.  Here we have an FC case
    !  following an FC case.  This means the
    !  first FC was not the beginning of a pair, so
    !  check the 2nd FC for a possible pair.
    !  For example, if 'CH' were the only pair in
    !  SPEC_PAIR, the word ACCEPT would get you into
    !  this code.
    !-

    IF .MULTIX EQL %X'FC'
    THEN
        BEGIN
        !+
        !  Acknowledge the previous char being placed
```

```
                    !  in ARRAYX.  Set flag to call this macro again
                    !-
                    COUNT = .COUNT + 1;
                    AGAIN_PAIR_MACRO = TRUE;

                    END

                !+
                !  FD case following FC case.  This means the
                !  first FC was not the beginning of a pair,
                !  and the char following the FC char is a
                !  different kind of spec char.
                !  FD in THAT_TABLE indicates a special char that
                !  is represented by a two-letter sequence.
                !-

                FLSE
                    IF .MULTIX EQL %X'FD'
                    THEN
                        BEGIN
                        !+
                        !  Acknowledge the previous char being
                        !  placed in ARRAYX.  Set flag to call
                        !  the appropriate macro for the FD case
                        !-
                        COUNT = .COUNT + 1;
                        CALL_SPEC_LIST = TRUE;

                        END
                    ELSE
                        BEGIN
                        !+
                        !  2nd char is not part of pair, nor a
                        !  special char, store in ARRAYX
                        !-
                        ARRAYX[.COUNT+1] = .MULTIX;

                        END;

                END;                        ! end f_s = FALSE

            END                             ! end no_pair = FALSE
        ELSE
            !+
            !  There is no pair because the first letter of possible
            !  pair was the last letter of the input string.
            !  Offset count in routine.
            !-
            COUNT = .COUNT - 1;

        END;                                ! end 1st char of
                                            ! possible pair found
IF .FOUND_FIRST EQL TRUE
THEN
    EXITLOOP;

END;                                        ! end search
```

```
;  M  1
;  M  1            !+
;  M  1            !  Error - 1st letter of pair is not in pair table SPEC_PAIR
;  M  1            !-
;  M  1
;  M  1            IF .FOUND_FIRST EQL FALSE
;  M  1            THEN
;  M  1                LIB$SIGNAL ( LIB$_INVARG );
;  M  1
;  M  1        END
;     1    % ;
;     1
;     1 !
;     1 ! FIELDS:
;     1 !
;     1 !       NONE
;     1 !
;     1 ! PSECTS:
;     1 !
;     1 DECLARE_PSECTS (STR);                          ! Declare PSECTs for STR$ facility
;     1 !
;     1 ! OWN STORAGE:
;     1
;     1 !
;     1 ! EXTERNAL REFERENCES:
;     1 !
;     1 EXTERNAL ROUTINE
;     1         LIB$SIGNAL;
;     1
;     1 EXTERNAL LITERAL
;     1         LIB$_INVARG;
;     1
;     1 EXTERNAL
;     1         STR$AB_MULTI,
;     1         STR$AB_MULTI_SPEC_CHAR,
;     1         STR$AB_MULTI_SPEC_SEQ,
;     1         STR$AB_MULTI_CLASS,
;     1         STR$AB_MULTI_CLASS_SPEC_SEQ,
;     1         STR$AB_DAN_NOR,
;     1         STR$AB_DAN_NOR_CLASS,
;     1         STR$AB_FIN_SWED,
;     1         STR$AB_FIN_SWED_CLASS,
;     1         STR$AB_GERMAN,
;     1         STR$AB_GERMAN_CLASS,
;     1         STR$AB_SPANISH,
;     1         STR$AB_SPANISH_SPEC_PAIR,
;     1         STR$AB_SPANISH_CLASS,
;     1         STR$AB_SPANISH_CLASS_SPEC_PAIR;
```

```
1 %SBTTL 'STR$COMPARE_MULTI - Compare using Multinational Char Set'
1 GLOBAL ROUTINE STR$COMPARE_MULTI (
1         STRING1: REF $STR$DESCRIPTOR,    ! Pointer to first string descriptor
1         STRING2: REF $STR$DESCRIPTOR,    ! Pointer to second string descriptor
1         CASE_BLIND_FLAG,                 ! Case-blind flag
1         FOREIGN_LANG                     ! Choice of ordering table (language)
1     ) =
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This module performs character comparisons of 2 input strings
1 !       using the DEC Multinational Character Set (or foreign language
1 !       variations thereof).
1 !
1 ! CALLING SEQUENCE:
1 !
1 !       ret_status.wlc.v = STR$COMPARE_MULTI ( STRING1.rt.dx, STRING2.rt.dx.,
1 !               [CASE_BLIND_FLAG.rlu.v], [FOREIGN_LANG.rlu.v] )
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       STRING1.rt.dx                   ! Pointer to first string descriptor.
1 !       STRING2.rt.dx                   ! Pointer to second string descriptor.
1 !       [CASE_BLIND_FLAG.rlu.v]         ! Case-blind flag bit.
1 !                                       ! bit 0  -  caseblind (equivalence
1 !                                       !           uppercase to lowercase)
1 !       [FOREIGN_LANG.rlu.v]            ! Choice of ordering table (language).
1 !                                       !       1  -  Multinational table
1 !                                       !       2  -  Danish table
1 !                                       !       3  -  Finnish/Swedish table
1 !                                       !       4  -  German table
1 !                                       !       5  -  Norwegian table
1 !                                       !       6  -  Spanish table
1 !
1 ! IMPLICIT INPUTS:
1 !
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 !
1 !       COMPARE_STATUS.wl.v     -1  if string1  <  string2
1 !                                0  if both are the same with blank fill for shorter
1 !                                1  if string1  >  string2
1 !
1 ! SIDE EFFECTS:
1 !
1 !       May signal STR$_ILLSTRCLA on bad string class
1 !--
```

```
BEGIN

LOCAL
    CASE_BLIND: INITIAL (FALSE),    ! constant to hold case-blind decision
    SAME: INITIAL (FALSE),          ! if same = TRUE, strings are of = len
    STR1_LEN,                       ! Length of STRING1
    STR2_LEN,                       ! Length of STRING2
    STR1_ADDR_SAV,                  ! Address of 1st data byte of STRING1
    STR2_ADDR_SAV,                  ! Address of 2st data byte of STRING2
    STR_END,                        ! Length of smaller string
    CHAR1: BYTE,                    ! a character of STRING1
    CHAR2: BYTE,                    ! a character of STRING2
    MULTI1: BYTE,                   ! ordering value of a char of STRING1 (from table)
    MULTI2: BYTE,                   ! ordering value of a char of STRING2 (from table)
    NULL_STRING: BYTE INITIAL (%C' '),
                                    ! Null string will be changed to one space
    SPEC_CHAR: REF VECTOR[,BYTE],   ! generic name - special character tables
    SPEC_SEQ: REF VECTOR[,BYTE],    ! generic name - two-letter sequence tables
    SPEC_PAIR: REF VECTOR[,BYTE],   ! generic name - pair of letters tables
    PAIR_LEN,                       ! generic name - # of entries in SPEC_PAIR
                                    !                tables (not # of pairs)
    CLASS_SPEC_SEQ: REF VECTOR[,BYTE],
                                    ! generic name - two-letter sequence tables
    CLASS_SPEC_PAIR: REF VECTOR[,BYTE],
                                    ! generic name - pair of letters tables
    CLASS_TABLE:  REF VECTOR [256,BYTE],
                                    ! generic name for character
                                    !  ordering tables
    THAT_TABLE:  REF VECTOR [256,BYTE];
                                    ! generic name for character
                                    !  ordering tables

LITERAL
    V_CASE_BLIND = 1;               ! bit flag - equivalence uppercase to lowercase

LABEL
    DO_LOOP;

BUILTIN
    ACTUALCOUNT;

```

```
2      !+
2      ! Calculate length and starting address of both strings
2      !-
2      $STR$GET_LEN_ADDR ( STRING1, STR1_LEN, STR1_ADDR_SAV );
2      $STR$GET_LEN_ADDR ( STRING2, STR2_LEN, STR2_ADDR_SAV );
2
2      !+
2      ! Check for null strings.
2      ! If either is a null string, make it equal to a space.
2      !-
2      IF .STR1_LEN EQL 0
2      THEN
3          BEGIN
3
3          STR1_LEN = 1;
3          STR1_ADDR_SAV = NULL_STRING;
3
2          END;
2
2       IF .STR2_LEN EQL 0
2       THEN
3           BEGIN
3
3           STR2_LEN = 1;
3           STR2_ADDR_SAV = NULL_STRING;
3
2           END;
2
2      !+
2      ! Find string with smaller length to use for loop max value.
2      ! If strings are of equal length, set SAME to TRUE.
2      !-
2      IF .STR1_LEN  EQL  .STR2_LEN
2      THEN
2          SAME = TRUE;
2      STR_END = MINU ( .STR1_LEN, .STR2_LEN );
2
2      !+
2      ! Read Flag parameter ;  set CASE_BLIND appropriately.
2      !-
3      IF ( ACTUALCOUNT() GEQ 3 )
2      THEN
3          IF ( .CASE_BLIND_FLAG  AND  V_CASE_BLIND )
2          THEN
2              CASE_BLIND = TRUE;
2
2      !+
2      ! Set up appropiate ordering tables and special character information.
2      ! First set up defaults, then read Foreign_Lang parameter to find out
2      ! which ordering table (language) the user has requested (if any).
2      !
2      TRAT_TABLE = STR$AB_MULTI;                          ! Default - DEC Multi Char Set
2      SPEC_CHAR = STR$AB_MULTI_SPEC_CHAR;
2      SPEC_SEQ = STR$AB_MULTI_SPEC_SEQ;
2      CLASS_TABLE = STR$AB_MULTI_CLASS;
2      CLASS_SPEC_SEQ = STR$AB_MULTI_CLASS_SPEC_SEQ;
2
```

```
3      IF ( ACTUALCOUNT() EQL 4 )
2      THEN
2          CASE .FOREIGN_LANG FROM 1 TO 6 OF
2          SET
2
2          [1]:    ;
2
3          [2]:    BEGIN
3
3                  THAT_TABLE = STR$AB_DAN_NOR;            ! Danish Char Set
3                  CLASS_TABLE = STR$AB_DAN_NOR_CLASS;
3
2                  END;
2
3          [3]:    BEGIN
3
3                  THAT_TABLE = STR$AB_FIN_SWED;           ! Finnish and Swedish
3                  CLASS_TABLE = STR$AB_FIN_SWED_CLASS;
3
2                  END;
2
3          [4]:    BEGIN
3
3                  THAT_TABLE = STR$AB_GERMAN;             ! German Char Set
3                  CLASS_TABLE = STR$AB_GERMAN_CLASS;
3
2                  END;
2
3          [5]:    BEGIN
3
3                  THAT_TABLE = STR$AB_DAN_NOR;            ! Norwegian Char Set
3                  CLASS_TABLE = STR$AB_DAN_NOR_CLASS;
3
2                  END;
2
3          [6]:    BEGIN
3
3                  THAT_TABLE = STR$AB_SPANISH;            ! Spanish Char Set
3                  PAIR_LEN = 32;
3                  SPEC_PAIR = STR$AB_SPANISH_SPEC_PAIR;
3                  CLASS_TABLE = STR$AB_SPANISH_CLASS;
3                  CLASS_SPEC_PAIR = STR$AB_SPANISH_CLASS_SPEC_PAIR;
3
2                  END;
2
2          [OUTRANGE]:                                     ! error in Foreign_Lang
2                  LIB$SIGNAL ( LIB$_INVARG );             ! parameter
2
2          TES;                                            ! 1 =>.foreign_lang<= 6
2
2      !+
2      !  Compare strings.
2      !
2      !  This requires three passes over the strings:
2      !  1st - a diacritical-blind comparison is done (so that '<a^>a' comes
2      !        before 'ab').
2      !  2nd - a case-blind comparison is done (so that 'Aa' comes before 'ab')
```

```
2       !  3rd - a non-case-blind comparison is done (so that 'a' comes before 'A').
2       !
2       !  Loop until end of shorter string.  STR_END holds the length of the
2       !  shorter string.  (or length of both strings of string lengths are =).
2       !  After all characters of the shorter string are compared against the
2       !  first few characters of the longer string, and the strings are equal,
2       !  the constant SAME is checked.  If SAME = TRUE, the strings are of equal
2       !  length and a routine status of 0 is returned.  Otherwise, do some
2       !  further checking on the longer string before returning a routine
2       !  status of 0, -1, or 1.
2       !  As soon as the comparison shows that the strings are unequal, a
2       !  routine status of 1 or -1 is immediately returned.
2       !-
2       INCR JJ FROM 0 TO 2 DO
3           BEGIN                                               ! begin triple loop
3
3           LOCAL
3               ARRAY1: VECTOR[100,BYTE],       ! hold ordering values for STRING1 when a special
3                                               !  char is encountered
3               ARRAY2: VECTOR[100,BYTE],       ! hold ordering values for STRING2 when a special
3                                               !  char is encountered
3               ARR_MIN,                        ! indicates which array (ARRAY1 or ARRAY2) is smaller
3               ARR_SAME,                       ! = TRUE if ARRAY1 is same length as ARRAY2
3               USED_ARRAYS,                    ! = TRUE if ARRAY1/2 were used
3               AGAIN_PAIR_MACRO: INITIAL (FALSE),
3                                               ! = TRUE if macro SEARCH_SPEC_PAIR has
3                                               ! to be invoked a second time
3                                               ! immediately after the first time
3               CALL_SPEC_LIST: INITIAL (FALSE),
3                                               ! = TRUE if the macro SEARCH_SPEC_LIST
3                                               ! has to be invoked immediately after
3                                               ! the macro SEARCH_SPEC_PAIR
3               NO_PAIR: INITIAL (FALSE),       ! = TRUE if search for a possible pair
3                                               ! will prove futile
3               STRX_ADDR,                      !   \
3               STRX_LEN,                       !     \
3               MULTIX: BYTE,                   !       generic names for common code
3               CHARX: BYTE,                    !     /
3               ARRAYX: REF VECTOR[,BYTE],      !   /
3               COUNT,                          ! index to ARRAYX (used first for ARRAY1 then
3                                               !  for ARRAY2)
3               COUNT1,                         ! used to save length of ARRAY1 for later
3                                               !  comparison against COUNT of ARRAY2
3               CHARS_READ: INITIAL (0),        ! # of characters read in loop
3               STR1_ADDR,                      ! current ptr into STRING1
3               STR2_ADDR,                      ! current ptr into STRING2
3               SAVE_SPEC_SEQ : REF VECTOR [,BYTE], ! 3 SAVEs used to save info for
3               SAVE_SPEC_PAIR: REF VECTOR [,BYTE], !  1st time thru loop when
3               SAVE_TABLE: REF VECTOR [256,BYTE];  !  class-blind table is used.
3
3           ARR_SAME = FALSE;
3           USED_ARRAYS = FALSE;
3           STR1_ADDR = .STR1_ADDR_SAV;
3           STR2_ADDR = .STR2_ADDR_SAV;
3
3           CHAR1 = CH$RCHAR_A( STR1_ADDR );                    ! get char of STRING1
3           CHAR2 = CH$RCHAR_A( STR2_ADDR );                    ! get char of STRING2
```

```
3
3               IF .JJ EQL 0
3               THEN
4                   BEGIN
4                   !+
4                   ! Use class-blind table first time thru loop.
4                   !
4                   SAVE_TABLE = .THAT_TABLE;
4                   THAT_TABLE = .CLASS_TABLE;
4                   SAVE_SPEC_SEQ = .SPEC_SEQ;
4                   SPEC_SEQ = .CLASS_SPEC_SEQ;
4                   SAVE_SPEC_PAIR = .SPEC_PAIR;
4                   SPEC_PAIR = .CLASS_SPEC_PAIR;
4
3                   END;
3
3               IF .JJ EQL 1
3               THEN
4                   BEGIN
4                   !+
4                   ! Case-blind comparison done second time thru loop.
4                   !-
4                   UPCASE( CHAR1 );
4                   UPCASE( CHAR2 );
4
3                   END;
3
3 DO_LOOP:
4               BEGIN
4
4               INCR J FROM 1 TO .STR_END DO
5                   BEGIN                                           ! begin do
5
5                   !+
5                   !  Get ordering values from table
5                   !-
5                   MULTI1 = .THAT_TABLE [.CHAR1];
5                   MULTI2 = .THAT_TABLE [.CHAR2];
5                   CHARS_READ = .CHARS_READ + 1,                   ! # of characters read
5
5                   !+
5                   !     Does either string contain a special character ?
5                   !
5                   !     There are two kinds of special characters -
5                   !     1.  One char represented by a two-letter sequence, indicated in
5                   !         the ordering value table (THAT_TABLE) by the value %X'FD'.
5                   !         ex: German small sharp 's' is represented by the two-letter
5                   !         sequence 'ss'
5                   !     2.  A pair of chars with a "special" sorting order, indicated
5                   !         in the ordering value table (THAT_TABLE) by the value
5                   !         %X'FC'.
5                   !         ex: Spanish 'CH' pair is sorted between 'CZ' and 'DA'
5                   !
5                   !     When a special char is encountered, treat these special cases
5                   !     separately.  Store the special char and all remaining chars of
5                   !     the string in an array.
5                   !     Do this for both strings even if only one of the strings
```

```
5   !    contained a special char.  After all chars of both strings are
5   !    stored in an array, compare the arrays.
5   !-
5   IF .MULTI1 EQL %X'FD'  OR  .MULTI2 EQL %X'FD'  OR
5        .MULTI1 EQL %X'FC'  OR  .MULTI2 EQL %X'FC'
5   THEN
6       BEGIN                                   ! begin special case loop
6
6       USED_ARRAYS = TRUE;
6
6       INCR I FROM 1 TO 2 DO
7           BEGIN                               ! begin outer loop
7           !+
7           !  These macros allow generic nanes to be used for both
7           !  strings
7           !-
7           IF .I EQL 1
7           THEN
8               SETUP_STRING1
7           ELSE
7               SETUP_STRING2;
7
7           COUNT = 0;                          ! will hold length of ARRAYX
7           NO_PAIR = FALSE;
7
7           !+
7           !  Create two arrays (one at a time) holding the ordering
7           !  values of the remaining chars in both strings.  Start
7           !  at the position where the spec char was encountered,
7           !  and stop at the last position of the shorter string.
7           !  If the first character of one of the strings is a special
7           !  char then .CHARS_READ = 1.
7           !  If the fourth character of one of the strings is a
7           !  special char then .CHARS_READ = 4, etc.
7           !-
7           INCR L FROM .CHARS_READ TO .STRX_LEN DO
8               BEGIN                           ! begin inner loop
8
8               IF .MULTIX EQL %X'FD'
8               THEN
8                   !+
8                   !  *** TWO-LETTER SEQ CASE ***
8                   !  ***      FD CASE        ***
8                   !-
9                   BEGIN
9                   !+
9                   ! Macro to store the ordering values of the
9                   ! two-letter seq in ARRAYX
9                   !-
9                   SEARCH_SPEC_LIST;
9                   COUNT = .COUNT + 2;         ! two chars stored in ARRAYX
9
9                   END
8               ELSE
8                   !+
8                   !  *** PAIR CASE ***
8                   !  ***  FC CASE  ***
```

```
 8      !-
 9      BEGIN                           ! begin fc case
 9
 9      IF .MULTIX EQL %X'FC'
 9      THEN
 9          !+
 9          !  Char is possibly the first char of a pair
 9          !  (such as the Spanish 'CH' pair, where each
 9          !  time a 'C' is encountered a search will be
 9          !  made for the second letter of the special
 9          !  pair, here the 'H'.  However, not all Spanish
 9          !  'C's are followed by 'H's, therefore the
 9          !  search for the second letter of the pair may
 9          !  not result in success.
 9          !-
10          BEGIN                       ! begin call pair macro
10          !+
10          ! Macro to store the ordering values of the pair
10          ! of letters in ARRAYX.
10          ! If the first letter of a possible pair is the
10          ! last letter of the input string, there is no
10          ! pair.  The macro SEARCH_SPEC_PAIR is still
10          ! needed to store the ordering value of the
10          ! last character in ARRAYX.  Set NO_PAIR to TRUE
10          ! to flag macro SEARCH_SPEC_PAIR not to look
10          ! for the non existant second letter of the
10          ! possible pair.
10          !-
10          IF .L EQL .STRX_LEN
10          THEN
10              NO_PAIR = TRUE;
10          SEARCH_SPEC_PAIR;
10
10          !+
10          !  It is possible that a 'FD' case immediately
10          !  followed the first letter of a 'FC' case,
10          !  i.e. there was not a 'pair', but now the FD
10          !  case must be addressed.
10          !  Constant CALL_SPEC_LIST is set to TRUE in
10          !  macro SEARCH_SPEC_PAIR to indicate this
10          !  occurence.
10          !-
10          IF .CALL_SPEC LIST EQL TRUE
10          THEN
10              SEARCH_SPEC_LIST;
10
10          !+
10          !  It might be necessary to invoke the macro
10          !  SEARCH_SPEC_PAIR again - for example,
10          !  if 'C' were the first letter of
10          !  a possible pair but 'CC' was not a pair,
10          !  then the word 'ACCEPT' would cause this
10          !  macro to be called twice, the first time
10          !  looking at 'CC' as a possible pair, then
10          !  a second time looking at 'CE' as a possible
10          !  pair.  Constant AGAIN_PAIR_MACRO is set to
10          !  TRUE in macro SEARCH_SPEC_PAIR to indicate
```

```
        !_ this occurence.
        !-
        WHILE .AGAIN_PAIR_MACRO EQL TRUE DO
            BEGIN                   ! begin do while
            !+
            ! Increment loop counter (L) to point to
            ! the next FC Case (point to the second
            ! 'C' in ACCEPT)
            ! If the first letter of a possible pair is
            ! the last letter of the input ,
            ! there is no pair.  The macro
            ! SEARCH_SPEC_PAIR is still needed to store
            ! the ordering value of the last character
            ! in ARRAYX.  Set NO_PAIR to TRUE to flag
            ! macro SEARCH_SPEC_PAIR not to look for the
            ! non existant 2nd letter of the possible
            !_pair.
            !-
            L = .L + 1;
            IF .L EQL .STRX_LEN
            THEN
                NO_PAIR = TRUE;
            SEARCH_SPEC_PAIR;

            !+
            !_ Check for FD case following a FC case
            !-
            IF .CALL_SPEC_LIST EQL TRUE
            THEN
                SEARCH_SPEC_LIST;

            END;                    ! end do while
        !+
        ! Acknowledge the storing of two ordering
        !_ values in ARRAYX
        !-
        COUNT = .COUNT + 2;

        END                         ! end call pair macro
    ELSE
        !+
        ! *** CHAR IS NOT SPECIAL CHARACTER ***
        ! ***                               ***
        !
        ! Store ordering value in ARRAYX.
        !_ Only one char stored in ARRAYX.
        !-
        BEGIN                       ! begin regular char case

        ARRAYX[.COUNT] = .MULTIX;
        COUNT = .COUNT + 1;

        END;                        ! end regular char case

    END;                            ! end fc case

!+
8                         !  Get next char and do a table lookup.
8                         !  (L is the loop incr from above)
8                         !-
8                         IF .L NEQ .STRX_LEN
8                         THEN
9                             BEGIN
9
9                             CHARX = CH$RCHAR_A( STRX_ADDR );
9                             IF .JJ EQL 1
9                             THEN
9                                 UPCASE( CHARX ).
9
9                             MULTIX = .THAT_TABLE[.CHARX];
9
8                             END;
8
7                         END;                                ! end inner loop
7
7                     !+
7                     ! Save length of ARRAY1 for later comparison
7                     !-
7                     IF .I EQL 1
7                     THEN
7                         COUNT1 = .COUNT;
7
6                     END;                                    ! end outer loop
6
6                 !+
6                 !  Compare ARRAY1 against ARRAY2 and return status.
6                 !  COUNT1 holds the length of ARRAY1,
6                 !  COUNT holds the length of ARRAY2.
6                 !  If arrays are of equal length, set ARR_SAME to TRUE.
6                 !  ARR_MIN holds length of shorter array.
6                 !-
6                 IF .COUNT1 EQL .COUNT
6                 THEN
6                     ARR_SAME = TRUE;
6                 ARR_MIN = MINU ( .COUNT1, .COUNT );
6
6                 INCR M FROM 0 TO .ARR_MIN-1 DO
7                     BEGIN                                   ! begin array compare loop
7
7                     IF .ARRAY1[.M] NEQ .ARRAY2[.M]
7                     THEN
7                         !+
7                         !  If not equal, return appropriate status
7                         !-
7                         IF .ARRAY1[.M] LSS .ARRAY2[.M]
7                         THEN
7                             RETURN -1
7                         ELSE
7                             RETURN 1;
7
6                     END;                                    ! end array compare loop -
6                                                             ! end of at least one array.
6                 !+
6                 !  The smaller array holds the same values as the larger
```

```
6    !  array, but unequal array lengths indicate a mismatch -
6    !  if what remains of the longer array is blanks, then
6    !  they are equal, else compare remainder against blanks
6    !  and return appropriate status.
6    !  0 value is returned only on 3rd pass thru loop.
6    !-
6    IF .ARR_SAME EQL FALSE
6    THEN
7      BEGIN                                 ! begin compare
7
7      LOCAL
7          COMP_VAL;
7
7      IF .COUNT1 LSS .COUNT
7      THEN
8          BEGIN                             ! begin ARRAY1 is shorter
8
8          COMP_VAL = CH$COMPARE ( 0, 0, .COUNT - .ARR_MIN,
8                                  ARRAY2 + .COUNT1,
8                                  STR$K_FILL_CHAR );
8          IF .COMP_VAL EQL 0
8          THEN
9              BEGIN
9
9              IF .JJ EQL 2
9              THEN
9                  RETURN 0                  ! STRING1 (with blank fill) = STRING2
9              ELSE
9                  LEAVE DO_LOOP;
9
9              END
8          ELSE
8              RETURN .COMP_VAL;
8
8          END                               ! end ARRAY1 is shorter
7      ELSE
8          BEGIN                             ! begin ARRAY2 is shorter
8
8          COMP_VAL = CH$COMPARE ( 0, 0, .COUNT1 - .ARR_MIN,
8                                  ARRAY1 + .COUNT,
8                                  STR$K_FILL_CHAR );
8          IF .COMP_VAL EQL 0
8          THEN
9              BEGIN
9
9              IF .JJ EQL 2
9              THEN
9                  RETURN 0                  ! STRING1 = STRING2 (with blank fill)
9              ELSE
9                  LEAVE DO_LOOP;
9
9              END
8          ELSE
8              RETURN -.COMP_VAL;
8
7          END ;                             ! end ARRAY2 is shorter
7
```

```
6                       END;                                    ! end compare
6
6                   END                                         ! end special case loop
6
6
6
6
6
6               !+
6               ! Look at the 'regular' characters, are they = ?
6               !-
5               ELSE
6                   BEGIN                                       ! begin no special chars
6
6                   IF .MULTI1 NEQ .MULTI2
6                   THEN
6                       !+
6                       ! Not equal, return appropriate status
6                       !-
6                       IF .MULTI1 GTR .MULTI2
6                       THEN
6                           RETURN 1
6                       ELSE
6                           RETURN -1;
6
6                   !+
6                   ! Get next char in strings for next time thru do loop.
6                   !-
6                   CHAR1 = CH$RCHAR_A( STR1_ADDR );            ! get char of STRING1
6                   CHAR2 = CH$RCHAR_A( STR2_ADDR );            ! get char of STRING2
6                   IF .JJ EQL 1
6                   THEN
7                       BEGIN
7                       !+
7                       ! UPCASE case equivalences lowercase to uppercase
7                       !-
7                       UPCASE( CHAR1 );
7                       UPCASE( CHAR2 );
7
6                       END;
6
6
5                   END;                                        ! end of no special chars
5
4               END;                                            ! end of do
4
3           END;                                                ! end DO_LOOP
3
3       !+
3       ! If we get to this point the 2nd pass thru the loop, the strings are
3       ! equal up to the point of the shorter string's length.
3       ! The 2nd pass does a case-blind comparison, so if the CASE_BLIND flag
3       ! is set and the strings are of equal length, then return 0 now.
3       !-
4       IF ( .CASE_BLIND EQL TRUE )  AND  ( .JJ NEQ 0 )
3       THEN
3           IF .SAME EQL TRUE
```

```
3           THEN
3               RETURN 0;
3
3       !+
3       !  If we get to this point the 3nd pass thru the loop, the strings are
3       !  equal up to the point of the shorter string's length.
3       !  If the strings are of equal length, then return 0.
3       !-
4       IF ( .JJ EQL 2 )  AND  ( .SAME EQL TRUE )
3       THEN
3           RETJRN 0;
3
3       !+
3       ! If their lengths are not equal, and what remains of the longer
3       ! is blanks, then they are equal, else compare remainder against
3       ! blanks and return appropriate status.
3       !-
4       IF ( .SAME EQL FALSE )  AND  ( .USED_ARRAYS EQL FALSE )
3       THEN
4       BEGIN                                               ! begin compare
4
4       LOCAL
4           COMP_VAL;
4
4       IF .STR1_LEN LSSU .STR2_LEN
4       THEN
5           BEGIN                                           ! begin STRING1 is shorter
5
5           COMP_VAL = CH$COMPARE ( 0, 0, .STR2_LEN - .STR_END, .STR2_ADDR - 1,
5                           STR$K_FILL_CHAR );
5           IF .COMP_VAL EQL 0
5           THEN
6               BEGIN
6
7               IF ( .JJ EQL 2 )  OR  ( ( .CASE_BLIND EQL TRUE )  AND  ( .JJ NEQ 0 ) )
7
6               THEN
6                   RETURN 0;                               ! STRING1 (with blank fill) = STRING2
6               END
5           ELSE
5               RETURN .COMP_VAL;
5
5           END                                             ! end STRING1 is shorter
4       ELSE
5           BEGIN                                           ! begin STRING2 is shorter
5
5           COMP_VAL = CH$COMPARE ( 0, 0, .STR1_LEN - .STR_END, .STR1_ADDR - 1,
5                           STR$K_FILL_CHAR );
5           IF .COMP_VAL EQL 0
5           THEN
6               BEGIN
6
7               IF ( .JJ EQL 2 )  OR  ( ( .CASE_BLIND EQL TRUE )  AND  ( .JJ NEQ 0 ) )
6               THEN
6                   RETURN 0;                               ! STRING1 = STRING2 (with blank fill)
6
6               END
```

```
; 1170          2359 5          ELSE
; 1171          2360 5              RETURN -.COMP_VAL;
; 1172          2361 5
; 1173          2362 4          END ;                                   ! end STRING2 is shorter
; 1174          2363 4
; 1175          2364 3      END;                                        ! end compare
; 1176          2365 3
; 1177          2366 3      !+
; 1178          2367 3      !  Reset the tables for the 2nd and 3rd passes.
; 1179          2368 3      !-
; 1180          2369 3      IF .JJ EQL 0
; 1181          2370 3      THEN
; 1182          2371 4          BEGIN
; 1183          2372 4
; 1184          2373 4          THAT_TABLE = .SAVE_TABLE;
; 1185          2374 4          SPEC_SEQ = .SAVE_SPEC_SEQ;
; 1186          2375 4          SPEC_PAIR = .SAVE_SPEC_PAIR;
; 1187          2376 4
; 1188          2377 3          END;
; 1189          2378 3
; 1190          2379 2      END;                                        ! end of triple loop
; 1191          2380 2
; 1192          2381 2      RETURN 0;                                   ! Needed by BLISS
; 1193          2382 1      END;


                                                .TITLE  STR$COMPARE_MULTI STR$COMPARE_MULTI - Compare u
;                                                                         sing Multinational
                                                .IDENT  \1-003\

                                                .EXTRN  LIB$SIGNAL, LIB$_INVARG
                                                .EXTRN  STR$AB_MULTI, STR$AB_MULTI_SPEC_CHAR
                                                .EXTRN  STR$AB_MULTI_SPEC_SEQ
                                                .EXTRN  STR$AB_MULTI_CLASS
                                                .EXTRN  STR$AB_MULTI_CLASS_SPEC_SEQ
                                                .EXTRN  STR$AB_DAN_NOR, STR$AB_DAN_NOR_CLASS
                                                .EXTRN  STR$AB_FIN_SWED
                                                .EXTRN  STR$AB_FIN_SWED_CLASS
                                                .EXTRN  STR$AB_GERMAN, STR$AB_GERMAN_CLASS
                                                .EXTRN  STR$AB_SPANISH, STR$AB_SPANISH_SPEC_PAIR
                                                .EXTRN  STR$AB_SPANISH_CLASS
                                                .EXTRN  STR$AB_SPANISH_CLASS_SPEC_PAIR
                                                .EXTRN  STR$ANALYZE_SDESC_R1

                                                .PSECT  _STR$CODE,NOWRT,  SHR,  PIC,2

                            0FFC 00000          .ENTRY  STR$COMPARE_MULTI, Save R2,R3,R4,R5,R6,R7,- ; 1639
                                                        R8,R9,R10,R11                               ;
              5E     FE90   CE  9E 00002          MOVAB   -368(SP), SP                                ;
                            7E  7C 00007          CLRQ    SAME                                        ; 1691
      00AC    CE            20  90 00009          MOVB    #32, NULL_STRING                            ;
              50       04   AC  D0 0000E          MOVL    STRING1, R0                                 ; 1735
              02       03   A0  91 00012          CMPB    3(R0), #2                                   ;
                            0C  1A 00016          BGTRU   1$                                          ;
        30    AE            60  3C 00018          MOVZWL  (R0), STR1_LEN                              ;
      0088    CE       04   A0  D0 0001C          MOVL    4(R0), STRT_ADDR_SAV                        ;
                            0F  11 00022          BRB     2$                                          ;
```

```
                                            00000000G  00  16 00024 1$:     JSB      STR$ANALYZE_SDESC_R1                         :
                                    30  AE             50  D0 0002A         MOVL     R0, 48(SP)                                   :
                                  0088  CE             51  D0 0002E         MOVL     R1, 136(SP)                                  :
                                        50         08  AC  D0 00033 2$:     MOVL     STRING2, R0                                  : 1736
                                        02         03  A0  91 00037         CMPB     3(R0), #2                                    :
                                                       0C  1A 0003B         BGTRU    3$                                           :
                                    1C  AE             60  3C 0003D         MOVZWL   (R0), STR2_LEN                               :
                                  0084  CE         04  A0  D0 00041         MOVL     4(R0), STR2_ADDR_SAV                         :
                                                       0F  11 00047         BRB      4$                                           :
                                            00000000G  00  16 00049 3$:     JSB      STR$ANALYZE_SDESC_R1                         :
                                    1C  AE             50  D0 0004F         MOVL     R0, 28(SP)                                   :
                                  0084  CE             51  D0 00053         MOVL     R1, 132(SP)                                  :
                                                   30  AE  D5 00058 4$:     TSTL     STR1_LEN                                     : 1742
                                                       CB  12 0005B         BNEQ     5$                                           :
                                    30  AE             01  D0 0005D         MOVL     #1, STR1_LEN                                 : 1746
                                  0088  CE       00AC  CE  9E 00061         MOVAB    NULL_STRING, STR1_ADDR_SAV                   : 1747
                                                   1C  AE  D5 00068 5$:     TSTL     STR2_LEN                                     : 1751
                                                       0B  12 0006B         BNEQ     6$                                           :
                                    1C  AE             01  D0 0006D         MOVL     #1, STR2_LEN                                 : 1755
                                  0084  CE       00AC  CE  9E 00071         MOVAB    NULL_STRING, STR2_ADDR_SAV                   : 1756
                                    1C  AE         30  AE  D1 00078 6$:     CMPL     STR1_LEN, STR2_LEN                           : 1764
                                                       03  12 0007D         BNEQ     7$                                           :
                                        6E             01  D0 0007F         MOVL     #1, SAME                                     : 1766
                                        50         30  AE  D0 00082 7$:     MOVL     STR1_LEN, R0                                 : 1767
                                    1C  AE             50  D1 00086         CMPL     R0, STR2_LEN                                 :
                                                       04  1B 0008A         BLEQU    8$                                           :
                                        50         1C  AE  D0 0008C         MOVL     STR2_LEN, R0                                 :
                                    70  AE             50  D0 00090 8$:     MOVL     R0, STR_END                                  :
                                        03             6C  91 00094         CMPB     (AP), #3                                     : 1772
                                                       08  1F 00097         BLSSU    9$                                           :
                                        04         0C  AC  E9 00099         BLBC     CASE_BLIND_FLAG, 9$                          : 1774
                                    04  AE             01  D0 0009D         MOVL     #1, CASE_BLIND                               : 1776
                                        56  00000000G  00  9E 000A1 9$:     MOVAB    STR$AB_MULTI, THAT_TABLE                     : 1783
                                        5A  00000000G  00  9E 000A8         MOVAB    STR$AB_MULTI_SPEC_CHAR, SPEC_CHAR            : 1784
                                        59  00000000G  00  9E 000AF         MOVAB    STR$AB_MULTI_SPEC_SEQ, SPEC_SEQ              : 1785
                                    38  AE  00000000G  00  9E 000B6         MOVAB    STR$AB_MULTI_CLASS, CLASS_TABLE              : 1786
                                  00A4  CE  00000000G  00  9E 000BE         MOVAB    STR$AB_MULTI_CLASS_SPEC_SEQ, CLASS_SPEC_SEQ  : 1787
                                        04             6C  91 000C7         CMPB     (AP), #4                                     : 1789
                                                       77  12 000CA         BNEQ     15$                                          :
                          05            01         1C  AC  CF 000CC         CASEL    FOREIGN_LANG, #1, #5                         : 1791
         002C           001B          003D           0072     000D1 10$:    .WORD    15$-10$,-                                    :
                                      004E           003D     000D9                  13$-10$,-                                    :
                                                                                     11$-10$,-                                    :
                                                                                     12$-10$,-                                    :
                                                                                     13$-10$,-                                    :
                                                                                     14$-10$                                      :
                                            00000000G  8F  DD 000DD         PUSHL    #LIB$_INVARG                                 : 1835
                             00000000G  00             01  FB 000E3         CALLS    #1, LIB$SIGNAL                               :
                                                       57  11 000EA         BRB      15$                                          :
                                        56  00000000G  00  9E 000EC 11$:    MOVAB    STR$AB_FIN_SWED, THAT_TABLE                  : 1805
                                    38  AE  00000000G  00  9E 000F3         MOVAB    STR$AB_FIN_SWED_CLASS, CLASS_TABLE           : 1806
                                                       46  11 000FB         BRB      15$                                          : 1791
                                        56  00000000G  00  9E 000FD 12$:    MOVAB    STR$AB_GERMAN, THAT_TABLE                    : 1812
                                    38  AE  00000000G  00  9E 00104         MOVAB    STR$AB_GERMAN_CLASS, CLASS_TABLE             : 1813
                                                       35  11 0010C         BRB      15$                                          : 1791
                                        56  00000000G  00  9E 0010E 13$:    MOVAB    STR$AB_DAN_NOR, THAT_TABLE                   : 1819
                                    38  AE  00000000G  00  9E 00115         MOVAB    STR$AB_DAN_NOR_CLASS, CLASS_TABLE            : 1820
                                  24  11 0011D       BRB     15$                                                  ; 1791
             56 00000000G         00  9E 0011F 14$:  MOVAB   STR$AB_SPANISH, THAT_TABLE                           ; 1826
       00A8  CE                   20  D0 00126       MOVL    #32, PAIR_LEN                                        ; 1827
             57 00000000G         00  9E 0012B       MOVAB   STR$AB_SPANISH_SPEC_PAIR, SPEC_PAIR                  ; 1828
         38  AE 00000000G         00  9E 00132       MOVAB   STR$AB_SPANISH_CLASS, CLASS_TABLE                    ; 1829
       00A0  CE 00000000G         00  9E 0013A       MOVAB   STR$AB_SPANISH_CLASS_SPEC_PAIR, -                    ; 1830
                                                             CLASS_SPEC_PAIR
                            14    AE  D4 00143 15$:  CLRL    JJ                                                   ; 2319
                            34    AE  D4 00146 16$:  CLRL    CALL_SPEC_LIST                                       ; 1860
                            4C    AE  7C 00149       CLRQ    NO_PAIR                                              ;
                          0080    CE  D4 0014C       CLRL    ARR_SAME                                             ; 1896
                            78    AE  7C 00150       CLRQ    CHARS_READ                                           ; 1860
         28  AE           0084    CE  7D 00153       MOVQ    STR2_ADDR_SAV, STR2_ADDR                             ; 1899
         64  AE             2C    BE  90 00159       MOVB    @STR1_ADDR, CHAR1                                    ; 1901
                            2C    AE  D6 0015E       INCL    STR1_ADDR                                            ;
         60  AE             28    BE  90 00161       MOVB    @STR2_ADDR, CHAR2                                    ; 1902
                            28    AE  D6 00166       INCL    STR2_ADDR                                            ;
                          0090    CE  D4 00169       CLRL    144(SP)                                              ; 1904
                            14    AE  D5 0016D       TSTL    JJ                                                   ;
                            1C    12 00170           BNEQ    17$                                                  ;
                          0090    CE  D6 00172       INCL    144(SP)                                              ;
       0094  CE                   56  7D 00176       MOVQ    THAT_TABLE, SAVE_TABLE                               ; 1910
             56             38    AE  D0 0017B       MOVL    CLASS_TABLE, THAT_TABLE                              ; 1911
       009C  CE                   59  D0 0017F       MOVL    SPEC_SEQ, SAVE_SPEC_SEQ                              ; 1912
             59           00A4    CE  D0 00184       MOVL    CLASS_SPEC_SEQ, SPEC_SEQ                             ; 1913
             57           00A0    CE  D0 00189       MOVL    CLASS_SPEC_PAIR, SPEC_PAIR                           ; 1915
                          008C    CE  D4 0018E 17$:  CLRL    140(SP)                                              ; 1919
         01                 14    AE  D1 00192       CMPL    JJ, #1                                               ;
                                  52  12 00196       BNEQ    23$                                                  ;
                          008C    CE  D6 00198       INCL    140(SP)                                              ;
             50             64    AE  90 0019C       MOVB    CHAR1, TEMP_BYTE                                     ; 1925
         61  8F                   50  91 001A0       CMPB    TEMP_BYTE, #97                                       ;
                                  06  1F 001A4       BLSSU   18$                                                  ;
         7A  8F                   50  91 001A6       CMPB    TEMP_BYTE, #122                                      ;
                                  12  1B 001AA       BLEQU   19$                                                  ;
         E0  8F                   50  91 001AC 18$:  CMPB    TEMP_BYTE, #224                                      ;
                                  11  1F 001B0       BLSSU   20$                                                  ;
         FD  8F                   50  91 001B2       CMPB    TEMP_BYTE, #253                                      ;
                                  0B  1A 001B6       BGTRU   20$                                                  ;
         F0  8F                   50  91 001B8       CMPB    TEMP_BYTE, #240                                      ;
                                  05  13 001BC       BEQL    20$                                                  ;
  64  AE          50              20  83 001BE 19$:  SUBB3   #32, TEMP_BYTE, CHAR1                                ;
                  50        60    AE  90 001C3 20$:  MOVB    CHAR2, TEMP_BYTE                                     ; 1926
         61  8F                   50  91 001C7       CMPB    TEMP_BYTE, #97                                       ;
                                  06  1F 001CB       BLSSU   21$                                                  ;
         7A  8F                   50  91 001CD       CMPB    TEMP_BYTE, #122                                      ;
                                  12  1B 001D1       BLEQU   22$                                                  ;
         E0  8F                   50  91 001D3 21$:  CMPB    TEMP_BYTE, #224                                      ;
                                  11  1F 001D7       BLSSU   23$                                                  ;
         FD  8F                   50  91 001D9       CMPB    TEMP_BYTE, #253                                      ;
                                  0B  1A 001DD       BGTRU   23$                                                  ;
         F0  8F                   50  91 001DF       CMPB    TEMP_BYTE, #240                                      ;
                                  05  13 001E3       BEQL    23$                                                  ;
  60  AE          50              20  83 001E5 22$:  SUBB3   #32, TEMP_BYTE, CHAR2                                ;
                            74    AE  D4 001EA 23$:  CLRL    J                                                    ; 1939
                                0484  31 001ED       BRW     109$                                                 ;
         44  AE             64    AE  9A 001F0 24$:  MOVZBL  CHAR1, 68(SP)                                        ;
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                  58      AE        44 BE46  90 001F5        MOVB    @68(SP)[THAT_TABLE], MULTI1                    :
                  40      AE        60   AE  9A 001FB        MOVZBL  CHAR2, 64(SP)                                  : 1940
                  54      AE        40 BE46  90 00200        MOVB    @64(SP)[THAT_TABLE], MULTI2                    :
                                    78   AE  D6 00206        INCL    CHARS_READ                                     : 1941
                  FD      8F        58   AE  91 00209        CMPB    MULTI1, #253                                   : 1963
                                         18  13 0020E        BEQL    25$                                            :
                  FD      8F        54   AE  91 00210        CMPB    MULTI2, #253                                   :
                                         11  13 00215        BEQL    25$                                            :
                  FC      8F        58   AE  91 00217        CMPB    MULTI1, #252                                   : 1964
                                         0A  13 0021C        BEQL    25$                                            :
                  FC      8F        54   AE  91 0021E        CMPB    MULTI2, #252                                   :
                                         03  13 00223        BEQL    25$                                            :
                                       03D8  31 00225        BRW     101$                                           :
                  7C      AE             01  D0 00228 25$:   MOVL    #1, USED_ARRAYS                                : 1968
                  24      AE             01  D0 0022C        MOVL    #1, I                                          : 1995
                                    68   AE  D4 00230 26$:   CLRL    104(SP)                                        : 1976
                          01        24   AE  D1 00233        CMPL    I, #1                                          :
                                         1C  12 00237        BNEQ    27$                                            :
                                    68   AE  D6 00239        INCL    104(SP)                                        :
                  5C      AE        2C   AE  D0 0023C        MOVL    STR1 ADDR, STRX_ADDR                           : 1977
                  48      AE        30   AE  D0 00241        MOVL    STR1_LEN, STRX_LEN                             :
                  0C      AE        58   AE  90 00246        MOVB    MULTI1, MULTIX                                 :
                          5B        44   AE  90 0024B        MOVB    68(SP), CHARX                                  :
                          54        9C   AD  9E 0024F        MOVAB   ARRAY1, ARRAYX                                 :
                                         18  11 00253        BRB     28$                                            : 1976
                  5C      AE        28   AE  D0 00255 27$:   MOVL    STR2_ADDR, STRX_ADDR                           : 1979
                  48      AE        1C   AE  D0 0025A        MOVL    STR2_LEN, STRX_LEN                             :
                  0C      AE        54   AE  90 0025F        MOVB    MULTI2, MULTIX                                 :
                          5B        40   AE  90 00264        MOVB    64(SP), CHARX                                  :
                          54      00B0   CE  9E 00268        MOVAB   ARRAY2, ARRAYX                                 :
                                         55  D4 0026D 28$:   CLRL    COUNT                                          : 1982
                                    4C   AE  D4 0026F        CLRL    NO_PAIR                                        : 1983
        52        78      AE             01  C3 00272        SUBL3   #1, CHARS_READ, L                              : 1995
                                       02D4  31 00277        BRW     88$                                            :
                  FD      8F        0C   AE  91 0027A 29$:   CMPB    MULTIX, #253                                   : 1998
                                         31  12 0027F        BNEQ    34$                                            :
                                         50  7C 00281        CLRQ    K                                              : 2004
                        604A             5B  91 00283 30$:   CMPB    CHARX, (K)[SPEC_CHAR]                          :
                                         11  12 00287        BNEQ    31$                                            :
                        6544           6940  33 00289        CVTWB   (SPEC_SEQ)[K], (COUNT)[ARRAYX]                 :
                     01 A544        01 A940  33 0028E        CVTWB   1(SPEC_SEQ)[K], 1(COUNT)[ARRAYX]               :
                          51             01  D0 00295        MOVL    #1, FOUND                                      :
                                         04  11 00298        BRB     32$                                            :
        E5                50             05  F3 0029A 31$:   AOBLEQ  #5, K, 30$                                     :
                                         51  D5 0029E 32$:   TSTL    FOUND                                          :
                                         0D  12 002A0        BNEQ    33$                                            :
                                  00000000G  8F  DD 002A2        PUSHL   #LIB$_INVARG                                   :
            00000000G     00             01  FB 002A8        CALLS   #1, LIB$SIGNAL                                 :
                                       0253  31 002AF 33$:   BRW     82$                                            : 2010
                  FC      8F        0C   AE  91 002B2 34$:   CMPB    MULTIX, #252                                   : 2020
                                         03  13 002B7        BEQL    35$                                            :
                                       024E  31 002B9        BRW     83$                                            :
                  48      AE             52  D1 002BC 35$:   CMPL    L, STRX_LEN                                    : 2045
                                         04  12 002C0        BNEQ    36$                                            :
                  4C      AE             01  D0 002C2        MOVL    #1, NO_PAIR                                    : 2047
                                    10   AE  D4 002C6 36$:   CLRL    FOUND_FIRST                                    :
                                    18   AE  D4 002C9        CLRL    FOUND_SECOND                                   :
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                     3C   AE      00A8    CE          04  C7 002CC          DIVL3   #4, PAIR_LEN, 60(SP)
                                          58      3C  AE  D0 002D3          MOVL    60(SP), INDEX
                                          51          01  CE 002D7          MNEGL   #1, R
                                                    00BF  31 002DA          BRW     50$
                                                  50  AE  D4 002DD  37$:    CLRL    AGAIN_PAIR_MACRO
                                                  34  AE  D4 002E0          CLRL    CALL_SPEC_LIST
                                                    6741  DF 002E3          PUSHAL  (SPEC_PAIR)[R]
                                          9E          5B  91 002E6          CMPB    CHARX, @(SP)+
                                                      7C  12 002E9          BNEQ    45$
                                  10      AE          01  D0 002EB          MOVL    #1, FOUND_FIRST
                                  20      AE          5B  9A 002EF          MOVZBL  CHARX, SAVE_FIRST_LETTER
                                     6544        01 A741  F6 002F3          CVTLB   1(SPEC_PAIR)[R], 1(COUNT)[ARRAYX]
                                                  4C  AE  D5 002F9          TSTL    NO_PAIR
                                                      03  13 002FC          BEQL    38$
                                                    0093  31 002FE          BRW     48$
                                          5B      5C  BE  90 00301  38$:    MOVB    @STRX_ADDR, CHARX
                                                  5C  AE  D6 00305          INCL    STRX_ADDR
                                                      52  D6 00308          INCL    L
                                          25    008C  CE  E9 0030A          BLBC    140(SP), 41$
                                          50          5B  90 0030F          MOVB    CHARX, TEMP_BYTE
                                  61      8F          50  91 00312          CMPB    TEMP_BYTE, #97
                                                      06  1F 00316          BLSSU   39$
                                  7A      8F          50  91 00318          CMPB    TEMP_BYTE, #122
                                                      12  1B 0031C          BLEQU   40$
                                  E0      8F          50  91 0031E  39$:    CMPB    TEMP_BYTE, #224
                                                      10  1F 00322          BLSSU   41$
                                  FD      8F          50  91 00324          CMPB    TEMP_BYTE, #253
                                                      0A  1A 00328          BGTRU   41$
                                  F0      8F          50  91 0032A          CMPB    TEMP_BYTE, #240
                                                      04  13 0032E          BEQL    41$
                     5B                   50          20  83 00330  40$:    SUBB3   #32, TEMP_BYTE, CHARX
                                          53          5B  9A 00334  41$:    MOVZBL  CHARX, R3
                                          50      FF  A1  9E 00337          MOVAB   -1(R1), S
                                                      23  11 0033B          BRB     43$
                                                 02 A740  DF 0033D  42$:    PUSHAL  2(SPEC_PAIR)[S]
          53         9E                   08          00  ED 00341          CMPZV   #0, #8, @(SP)+, R3
                                                      18  12 00346          BNEQ    43$
                                                    6740  DF 00348          PUSHAL  (SPEC_PAIR)[S]
     20   AE         9E                   08          00  ED 0034B          CMPZV   #0, #8, @(SP)+, SAVE_FIRST_LETTER
                                                      0D  12 00351          BNEQ    43$
                                  18      AE          01  D0 00353          MOVL    #1, FOUND_SECOND
                                  01    A544     03 A740  F6 00357          CVTLB   3(SPEC_PAIR)[S], 1(COUNT)[ARRAYX]
                                                      04  11 0035E          BRB     44$
                     D9                   50          58  F2 00360  43$:    AOBLSS  INDEX, S, 42$
                                                  18  AE  D5 00364  44$:    TSTL    FOUND_SECOND
                                                      2D  12 00367  45$:    BNEQ    49$
                                  0C      AE        6346  90 00369          MOVB    (R3)[THAT_TABLE], MULTIX
                                  FC      8F      0C  AE  91 0036E          CMPB    MULTIX, #252
                                                      08  12 00373          BNEQ    46$
                                                      55  D6 00375          INCL    COUNT
                                  50      AE          01  D0 00377          MOVL    #1, AGAIN_PAIR_MACRO
                                                      19  11 0037B          BRB     49$
                                  FD      8F      0C  AE  91 0037D  46$:    CMPB    MULTIX, #253
                                                      08  12 00382          BNEQ    47$
                                                      55  D6 00384          INCL    COUNT
                                  34      AE          01  D0 00386          MOVL    #1, CALL_SPEC_LIST
                                                      0A  11 0038A          BRB     49$
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                01 A544        0C    AE  90 0038C 47$:    MOVB    MULTIX, 1(COUNT)[ARRAYX]                    ;
                                     02  11 00392         BRB     49$                                         ;
                                     55  D7 00394 48$:    DECL    COUNT                                       ;
                     01        10    AE  D1 00396 49$:    CMPL    FOUND_FIRST, #1                             ;
                                     09  13 0039A         BEQL    52$                                         ;
          02         51              58  F2 0039C 50$:    AOBLSS  INDEX, R, 51$                               ;
                                     03  11 003A0         BRB     52$                                         ;
                                   FF38  31 003A2 51$:    BRW     37$                                         ;
                               10    AE  D5 003A5 52$:    TSTL    FOUND_FIRST                                 ;
                                     0D  12 003A8         BNEQ    53$                                         ;
                             00000000G  8F  DD 003AA         PUSHL   #LIB$_INVARG                                ;
                  00000000G  00      01  FB 003B0         CALLS   #1, LIB$SIGNAL                              ;
                     01        34    AE  D1 003B7 53$:    CMPL    CALL_SPEC_LIST, #1                          ; 2059
                                     20  12 003BB         BNEQ    57$                                         ;
                                     50  7C 003BD         CLRQ    K                                           ; 2060
                   604A              5B  91 003BF 54$:    CMPB    CHARX, (K)[SPEC_CHAR]                       ;
                                     03  12 003C3         BNEQ    55$                                         ;
                                   0125  31 003C5         BRW     79$                                         ;
          F3         50              05  F3 003C8 55$:    AOBLEQ  #5, K, 54$                                  ;
                                     51  D5 003CC 56$:    TSTL    FOUND                                       ;
                                     0D  12 003CE         BNEQ    57$                                         ;
                             00000000G  8F  DD 003D0         PUSHL   #LIB$_INVARG                                ;
                  00000000G  00      01  FB 003D6         CALLS   #1, LIB$SIGNAL                              ;
                     01        50    AE  D1 003DD 57$:    CMPL    AGAIN_PAIR_MACRO, #1                        ; 2076
                                     03  13 003E1         BEQL    58$                                         ;
                                   011F  31 003E3         BRW     82$                                         ;
                                     52  D6 003E6 58$:    INCL    L                                           ; 2092
                48   AE              52  D1 003E8         CMPL    L, STRX_LEN                                 ; 2093
                                     04  12 003EC         BNEQ    59$                                         ;
                4C   AE              01  D0 003EE         MOVL    #1, NO_PAIR                                 ; 2095
                               10    AE  D4 003F2 59$:    CLRL    FOUND_FIRST                                 ;
                               18    AE  D4 003F5         CLRL    FOUND_SECOND                                ;
                     58        3C    AE  D0 003F8         MOVL    60(SP), INDEX                               ;
                     51              01  CE 003FC         MNEGL   #1, R                                       ;
                                   00BF  31 003FF         BRW     73$                                         ;
                               50    AE  D4 00402 60$:    CLRL    AGAIN_PAIR_MACRO                            ;
                               34    AE  D4 00405         CLRL    CALL_SPEC_LIST                              ;
                                   6741  DF 00408         PUSHAL  (SPEC_PAIR)[R]                              ;
                     9E              5B  91 0040B         CMPB    CHARX, @(SP)+                               ;
                                     7C  12 0040E         BNEQ    68$                                         ;
                10   AE              01  D0 00410         MOVL    #1, FOUND_FIRST                             ;
                20   AE              5B  9A 00414         MOVZBL  CHARX, SAVE_FIRST_LETTER                    ;
                   6544        01  A741  F6 00418         CVTLB   1(SPEC_PAIR)[R], (COUNT)[ARRAYX]            ;
                               4C    AE  D5 0041E         TSTL    NO_PAIR                                     ;
                                     03  13 00421         BEQL    61$                                         ;
                                   0093  31 00423         BRW     71$                                         ;
                     5B        5C    BE  90 00426 61$:    MOVB    @STRX_ADDR, CHARX                           ;
                               5C    AE  D6 0042A         INCL    STRX_ADDR                                   ;
                                     52  D6 0042D         INCL    L                                           ;
                     25      008C    CE  E9 0042F         BLBC    140(SP), 64$                                ;
                     50              5B  90 00434         MOVB    CHARX, TEMP_BYTE                            ;
                61   8F              50  91 00437         CMPB    TEMP_BYTE, #97                              ;
                                     06  1F 0043B         BLSSU   62$                                         ;
                7A   8F              50  91 0043D         CMPB    TEMP_BYTE, #122                             ;
                                     12  1B 00441         BLEQU   63$                                         ;
                E0   8F              50  91 00443 62$:    CMPB    TEMP_BYTE, #224                             ;
                                     10  1F 00447         BLSSU   64$                                         ;
                     FD    8F             50  91 00449       CMPB    TEMP_BYTE, #253                              :
                                          0A  1A 0044D       BGTRU   64$                                          :
                     F0    8F             50  91 0044F       CMPB    TEMP_BYTE, #240                              :
                                          04  13 00453       BEQL    64$                                          :
               5B          50             20  83 00455 63$:  SUBB3   #32, TEMP_BYTE, CHARX                        :
                           53             5B  9A 00459 64$:  MOVZBL  CHARX, R3                                    :
                           50        FF   A1  9E 0045C       MOVAB   -1(R1), S                                    :
                                          23  11 00460       BRB     66$                                          :
                                     02 A740  DF 00462 65$:  PUSHAL  2(SPEC_PAIR)[S]                              :
         53        9E          08         00  ED 00466       CMPZV   #0, #8, @(SP)+, R3                           :
                                          18  12 0046B       BNEQ    66$                                          :
                                        6740  DF 0046D       PUSHAL  (SPEC_PAIR)[S]                               :
    20   AE        9E          08         00  ED 00470       CMPZV   #0, #8, @(SP)+, SAVE_FIRST_LETTER            :
                                          0D  12 00476       BNEQ    66$                                          :
                     18    AE             01  D0 00478       MOVL    #1, FOUND_SECOND                             :
                     01 A544         03 A740  F6 0047C       CVTLB   3(SPEC_PAIR)[S], 1(COUNT)[ARRAYX]            :
                                          04  11 00483       BRB     67$                                          :
               D9          50             58  F2 00485 66$:  AOBLSS  INDEX, S, 65$                                :
                                     18   AE  D5 00489 67$:  TSTL    FOUND_SECOND                                 :
                                          2D  12 0048C 68$:  BNEQ    72$                                          :
                     0C    AE           6346  90 0048E       MOVB    (R3)[THAT_TABLE], MULTIX                     :
                     FC    8F        0C   AE  91 00493       CMPB    MULTIX, #252                                 :
                                          08  12 00498       BNEQ    69$                                          :
                                          55  D6 0049A       INCL    COUNT                                        :
                     50    AE             01  D0 0049C       MOVL    #1, AGAIN_PAIR_MACRO                         :
                                          19  11 004A0       BRB     72$                                          :
                     FD    8F        0C   AE  91 004A2 69$:  CMPB    MULTIX, #253                                 :
                                          08  12 004A7       BNEQ    70$                                          :
                                          55  D6 004A9       INCL    COUNT                                        :
                     34    AE             01  D0 004AB       MOVL    #1, CALL_SPEC_LIST                           :
                                          0A  11 004AF       BRB     72$                                          :
                     01 A544         0C   AE  90 004B1 70$:  MOVB    MULTIX, 1(COUNT)[ARRAYX]                     :
                                          02  11 004B7       BRB     72$                                          :
                                          55  D7 004B9 71$:  DECL    COUNT                                        :
                           01        10   AE  D1 004BB 72$:  CMPL    FOUND_FIRST, #1                              :
                                          09  13 004BF       BEQL    75$                                          :
               02          51             58  F2 004C1 73$:  AOBLSS  INDEX, R, 74$                                :
                                          03  11 004C5       BRB     75$                                          :
                                        FF38  31 004C7 74$:  BRW     60$                                          :
                                     10   AE  D5 004CA 75$:  TSTL    FOUND_FIRST                                  :
                                          0D  12 004CD       BNEQ    76$                                          :
                                 00000000G  8F  DD 004CF       PUSHL   #LIB$_INVARG                                 :
                  00000000G  00           01  FB 004D5       CALLS   #1, LIB$SIGNAL                               :
                           01        34   AE  D1 004DC 76$:  CMPL    CALL_SPEC_LIST, #1                           : 2101
                                          03  13 004E0       BEQL    77$                                          :
                                        FEF8  31 004E2       BRW     57$                                          :
                                          50  7C 004E5 77$:  CLRQ    K                                            : 2102
                         604A             5B  91 004E7 78$:  CMPB    CHARX, (K)[SPEC_CHAR]                        :
                                          11  12 004EB       BNEQ    80$                                          :
                         6544           6940  33 004ED 79$:  CVTWB   (SPEC_SEQ)[K], (COUNT)[ARRAYX]               :
                     01 A544         01 A940  33 004F2       CVTWB   1(SPEC_SEQ)[K], 1(COUNT)[ARRAYX]             :
                           51             01  D0 004F9       MOVL    #1, FOUND                                    :
                                          04  11 004FC       BRB     81$                                          :
               E5          50             05  F3 004FE 80$:  AOBLEQ  #5, K, 78$                                   :
                                        FEC7  31 00502 81$:  BRW     56$                                          :
                           55             02  C0 00505 82$:  ADDL2   #2, COUNT                                    : 2110
                                          05  11 00508       BRB     84$                                          : 2020
```

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                              8544          0C    AE   90 0050A 83$:     MOVB    MULTIX, (COUNT)+[ARRAYX]                          ; 2123
                         48     AE                52   D1 0050F 84$:     CMPL    L, STRX_LEN                                       ; 2134
                                                  39   13 00513          BEQL    88$                                               ;
                                5B          5C    BE   90 00515          MOVB    @STRX_ADDR, CHARX                                 ; 2138
                                            5C    AE   D6 00519          INCL    STRX_ADDR                                         ;
                                25        008C    CE   E9 0051C          BLBC    140(SP), 87$                                      ; 2139
                                50                5B   90 00521          MOVB    CHARX, TEMP_BYTE                                  ; 2141
                         61     8F                50   91 00524          CMPB    TEMP_BYTE, #97                                    ;
                                                  06   1F 00528          BLSSU   85$                                               ;
                         7A     8F                50   91 0052A          CMPB    TEMP_BYTE, #122                                   ;
                                                  12   1B 0052E          BLEQU   86$                                               ;
                         E0     8F                50   91 00530 85$:     CMPB    TEMP_BYTE, #224                                   ;
                                                  10   1F 00534          BLSSU   87$                                               ;
                         FD     8F                50   91 00536          CMPB    TEMP_BYTE, #253                                   ;
                                                  0A   1A 0053A          BGTRU   87$                                               ;
                         F0     8F                50   91 0053C          CMPB    TEMP_BYTE, #240                                   ;
                                                  04   13 00540          BEQL    87$                                               ;
                  5B            50                20   83 00542 86$:     SUBB3   #32, TEMP_BYTE, CHARX                             ;
                                50                5B   9A 00546 87$:     MOVZBL  CHARX, R0                                         ; 2143
                         0C     AE              6046   90 00549          MOVB    (R0)[THAT_TABLE], MULTIX                          ;
      FD25        52            01          48    AE   F1 0054E 88$:     ACBL    STRX_LEN, #1, L, 29$                              ; 1995
                                04          68    AE   E9 00555          BLBC    104(SP), 89$                                      ; 2152
                         08     AE                55   D0 00559          MOVL    COUNT, COUNT1                                     ; 2154
      FCCC        24     AE     01                02   F1 0055D 89$:     ACBL    #2, #1, I, 26$                                    ; 1970
                                55          08    AE   D1 00564          CMPL    COUNT1, COUNT                                     ; 2165
                                                  05   12 00568          BNEQ    90$                                               ;
                       0080     CE                01   D0 0056A          MOVL    #1, ARR_SAME                                      ; 2167
                                50          08    AE   D0 0056F 90$:     MOVL    COUNT1, R0                                        ; 2168
                                55                50   D1 00573          CMPL    R0, COUNT                                         ;
                                                  03   1B 00576          BLEQU   91$                                               ;
                                50                55   D0 00578          MOVL    COUNT, R0                                         ;
                         6C     AE                50   D0 0057B 91$:     MOVL    R0, ARR_MIN                                       ;
                                50                01   CE 0057F          MNEGL   #1, M                                             ; 2170
                                                  18   11 00582          BRB     95$                                               ;
                       00B0 CE40            9C  AD40   91 00584 92$:     CMPB    ARRAY1[M], ARRAY2[M]                              ; 2173
                                                  0E   13 0058C          BEQL    95$                                               ;
                                                  05   1E 0058E          BGEQU   93$                                               ; 2178
                                51                01   CE 00590          MNEGL   #1, R1                                            ; 2182
                                                  03   11 00593          BRB     94$                                               ;
                                51                01   D0 00595 93$:     MOVL    #1, R1                                            ;
                                50                51   D0 00598 94$:     MOVL    R1, R0                                            ;
                                                       04 0059B          RET                                                       ;
                  E3            50          6C    AE   F2 0059C 95$:     AOBLSS  ARR_MIN, M, 92$                                   ; 2170
                                          0080    CE   D5 005A1          TSTL    ARR_SAME                                          ; 2194
                                                  03   13 005A5          BEQL    96$                                               ;
                                                00CA   31 005A7          BRW     109$                                              ;
                                55          08    AE   D1 005AA 96$:     CMPL    COUNT1, COUNT                                     ; 2201
                                                  25   18 005AE          BGEQ    98$                                               ;
                  50            55          6C    AE   C3 005B0          SUBL3   ARR_MIN, COUNT, R0                                ; 2205
                                58                01   D0 005B5          MOVL    #1, R8                                            ;
                                          0080    CE   DF 005B8          PUSHAL  ARRAY2                                            ;
                                6E          0C    AE   C0 005BC          ADDL2   COUNT1, (SP)                                      ;
        50        20 00000000   9F                00   2D 005C0          CMPC5   #0, @#^X00000000, #32, R0, @(SP)+                 ;
                                                  9E      005C9                                                                    ;
                                                  03   1A 005CA          BGTRU   97$                                               ;
                                58                01   D9 005CC          SBWC    #1, R8                                            ;
                                50                58   D0 005CF 97$:     MOVL    R8, COMP_VAL                                      ;
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                                        23   13 005D2          BEQL    100$                                          ; 2208
                                             04 005D4          RET                                                   ; 2212
              50       08   AE     6C   AE   C3 005D5  98$:    SUBL3   ARR_MIN, COUNT1, R0                           ; 2226
                            58          01   D0 005DB          MOVL    #1, R8                                        ;
      50               20 00000000  9F  00   2D 005DE          CMPC5   #0, @#^X00000000, #32, R0, ARRAY1[COUNT]      ;
                                   9C AD45      005E7                                                                ;
                                        03   1A 005EA          BGTRU   99$                                           ;
                            58          01   D9 005EC          SBWC    #1, R8                                        ;
                            50          58   D0 005EF  99$:    MOVL    R8, COMP_VAL                                  ;
                                        03   13 005F2          BEQL    100$                                          ; 2229
                                      010A   31 005F4          BRW     118$                                          ;
                            02     14   AE   D1 005F7  100$:   CMPL    JJ, #2                                        ; 2233
                                        7F   12 005FB          BNEQ    110$                                          ;
                                      011B   31 005FD          BRW     121$                                          ; 2235
                       54   AE     58   AE   91 00600  101$:   CMPB    MULTI1, MULTI2                                ; 2259
                                        0A   13 00605          BEQL    103$                                          ;
                                        04   1B 00607          BLEQU   102$                                          ; 2264
                            50          01   D0 00609          MOVL    #1, R0                                        ; 2268
                                             04 0060C          RET                                                   ;
                            50          01   CE 0060D  102$:   MNEGL   #1, R0                                        ;
                                             04 00610          RET                                                   ;
                       64   AE     2C   BE   90 00611  103$:   MOVB    @STR1_ADDR, CHAR1                             ; 2273
                                   2C   AE   D6 00616          INCL    STR1_ADDR                                     ;
                       60   AE     28   BE   90 00619          MOVB    @STR2_ADDR, CHAR2                             ; 2274
                                   28   AE   D6 0061E          INCL    STR2_ADDR                                     ;
                                   4E 008C   CE   E9 00621     BLBC    140(SP), 109$                                 ; 2275
                                   50   64   AE   90 00626     MOVB    CHAR1, TEMP_BYTE                              ; 2281
                       61   8F          50   91 0062A          CMPB    TEMP_BYTE, #97                                ;
                                        06   1F 0062E          BLSSU   104$                                          ;
                       7A   8F          50   91 00630          CMPB    TEMP_BYTE, #122                               ;
                                        12   1B 00634          BLEQU   105$                                          ;
                       E0   8F          50   91 00636  104$:   CMPB    TEMP_BYTE, #224                               ;
                                        11   1F 0063A          BLSSU   106$                                          ;
                       FD   8F          50   91 0063C          CMPB    TEMP_BYTE, #253                               ;
                                        0B   1A 00640          BGTRU   106$                                          ;
                       F0   8F          50   91 00642          CMPB    TEMP_BYTE, #240                               ;
                                        05   13 00646          BEQL    106$                                          ;
                 64   AE            50  20   83 00648  105$:   SUBB3   #32, TEMP_BYTE, CHAR1                         ;
                                   50   60   AE   90 0064D  106$:  MOVB    CHAR2, TEMP_BYTE                          ; 2282
                       61   8F          50   91 00651          CMPB    TEMP_BYTE, #97                                ;
                                        06   1F 00655          BLSSU   107$                                          ;
                       7A   8F          50   91 00657          CMPB    TEMP_BYTE, #122                               ;
                                        12   1B 0065B          BLEQU   108$                                          ;
                       E0   8F          50   91 0065D  107$:   CMPB    TEMP_BYTE, #224                               ;
                                        11   1F 00661          BLSSU   109$                                          ;
                       FD   8F          50   91 00663          CMPB    TEMP_BYTE, #253                               ;
                                        0B   1A 00667          BGTRU   109$                                          ;
                       F0   8F          50   91 00669          CMPB    TEMP_BYTE, #240                               ;
                                        05   13 0066D          BEQL    109$                                          ;
                 60   AE            50  20   83 0066F  108$:   SUBB3   #32, TEMP_BYTE, CHAR2                         ;
      FB74       74   AE            01  70   AE   F1 00674  109$:  ACBL    STR_END, #1, J, 24$                       ; 1933
                                        55   D4 0067C  110$:   CLRL    R5                                            ; 2299
                            01     04   AE   D1 0067E          CMPL    CASE_BLIND, #1                                ;
                                        0C   12 00682          BNEQ    111$                                          ;
                                        55   D6 00684          INCL    R5                                            ;
                                   14   AE   D5 00686          TSTL    JJ                                            ;
                                        05   13 00689          BEQL    111$                                          ;
```

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                                    01          6E  D1 0068B        CMPL    SAME, #1                                     ; 2301
                                                6F  13 0068E        BEQL    117$                                         ;
                                                54  D4 00690 111$:  CLRL    R4                                           ; 2310
                                    02      14  AE  D1 00692        CMPL    JJ, #2                                       ;
                                                07  12 00696        BNEQ    112$                                         ;
                                                54  D6 00698        INCL    R4                                           ;
                                    01          6E  D1 0069A        CMPL    SAME, #1                                     ;
                                                7C  13 0069D        BEQL    121$                                         ;
                                                6E  D5 0069F 112$:  TSTL    SAME                                         ; 2319
                                                62  12 006A1        BNEQ    119$                                         ;
                                            7C  AE  D5 006A3        TSTL    USED_ARRAYS                                  ;
                                                5D  12 006A6        BNEQ    119$                                         ;
                              1C    AE      30  AE  D1 006A8        CMPL    STR1_LEN, STR2_LEN                           ; 2326
                                                23  1E 006AD        BGEQU   114$                                         ;
                    50        1C    AE      70  AE  C3 006AF        SUBL3   STR_END, STR2_LEN, R0                        ; 2330
                                    5B          01  D0 006B5        MOVL    #1, R11                                      ;
                    58        28    AE          01  C3 006B8        SUBL3   #1, STR2_ADDR, R8                            ;
          50        20 00000000     9F          00  2D 006BD        CMPC5   #0, @#^X00000000, #32, R0, (R8)              ;
                                                68     006C6                                                             ;
                                                03  1A 006C7        BGTRU   113$                                         ;
                                    5B          01  D9 006C9        SBWC    #1, R11                                      ;
                                    50          5B  D0 006CC 113$:  MOVL    R11, COMP_VAL                                ;
                                                23  13 006CF        BEQL    116$                                         ; 2332
                                                    04 006D1        RET                                                  ; 2336
                    50        30    AE      70  AE  C3 006D2 114$:  SUBL3   STR_END, STR1_LEN, R0                        ; 2348
                                    5B          01  D0 006D8        MOVL    #1, R11                                      ;
                    58        2C    AE          01  C3 006DB        SUBL3   #1, STR1_ADDR, R8                            ;
          50        20 00000000     9F          00  2D 006E0        CMPC5   #0, @#^X00000000, #32, R0, (R8)              ;
                                                68     006E9                                                             ;
                                                03  1A 006EA        BGTRU   115$                                         ;
                                    5B          01  D9 006EC        SBWC    #1, R11                                      ;
                                    50          5B  D0 006EF 115$:  MOVL    R11, COMP_VAL                                ;
                                                0D  12 006F2        BNEQ    118$                                         ; 2350
                                    24          54  E8 006F4 116$:  BLBS    R4, 121$                                     ; 2354
                                    0B          55  E9 006F7        BLBC    R5, 119$                                     ;
                                            14  AE  D5 006FA        TSTL    JJ                                           ;
                                                06  13 006FD        BEQL    119$                                         ;
                                                1A  11 006FF 117$:  BRB     121$                                         ; 2356
                                    50          50  CE 00701 118$:  MNEGL   COMP_VAL, R0                                 ; 2360
                                                    04 00704        RET                                                  ;
                                    0A    0090  CE  E9 00705 119$:  BLBC    144(SP), 120$                                ; 2369
                                    5^    009C  CE  D0 0070A        MOVL    SAVE_SPEC_SEQ, SPEC_SEQ                      ; 2374
                                    56    0094  CE  7D 0070F        MOVQ    SAVE_TABLE, THAT_TABLE                       ; 2373
         FA2B        14     AE      01          02  F1 00714 120$:  ACBL    #2, #1, JJ, 16$                              ; 1859
                                                50  D4 0071B 121$:  CLRL    R0                                           ; 2382
                                                    04 0071D        RET                                                  ;

; Routine Size:  1822 bytes,    Routine Base:  _STR$CODE + 0000


; 1194          2383  1
; 1195          2384  1      END                                              ! end of module
; 1196          2385  0      ELUDOM
;                                  PSECT SUMMARY
;
;       Name                   Bytes                         Attributes
;
;  _STR$CODE                       1822  NOVEC,NOWRT,  RD ,  EXE,  SHR,  LCL,  REL,  CON,  PIC,ALIGN(2)



;                           Library Statistics
;
;                                         -------- Symbols --------       Pages        Processing
;       File                              Total     Loaded   Percent      Mapped       Time
;
;  _$255$DUA28:[SYSLIB]STARLET.L32;1       9776          4         0       581           00:00.7




;                                   COMMAND QUALIFIERS

;       BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/NOTRACE/LIS=LIS$:STRMULTI/OBJ=OBJ$:STRMULTI MSRC$:STRMULTI/UPDATE=(ENH$:STRMULTI)

; Size:          1822 code + 0 data bytes
; Run Time:         00:33.6
; Elapsed Time:     02:09.7
; Lines/CPU Min:     4264
; Lexemes/CPU-Min: 15775
; Memory Used:  591 pages
; Compilation Complete
```

0214 AH-BT13A-SE
VAX/VMS V4.0

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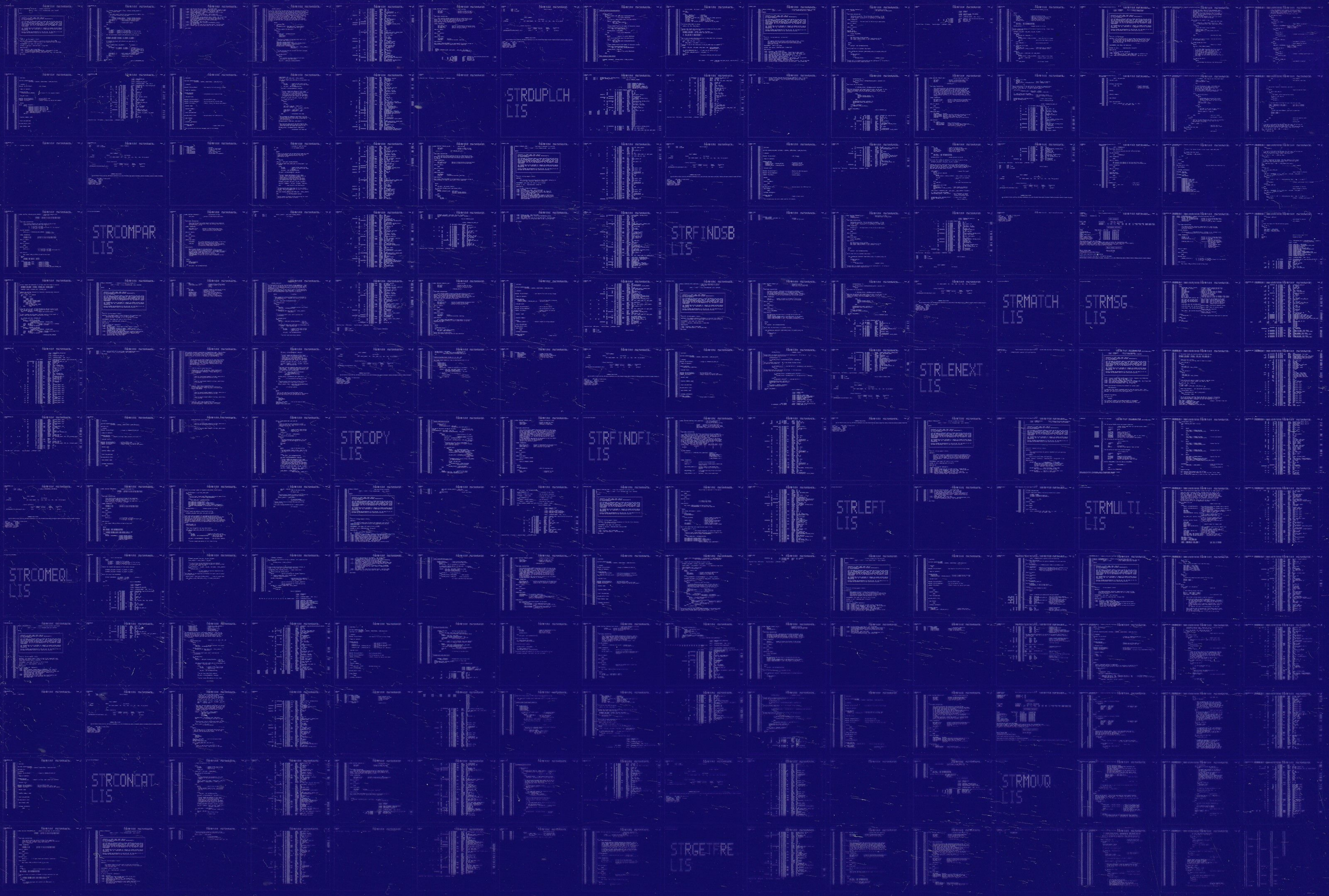

0215 AH-BT13A-SE DIGITAL EQUIPMENT CORPORATION
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LINKER

STRTRIM
LIS

LINK
MAP

PREFIX
REQ

ISDSORT
LIS

STRUPCASE
LIS

STRTRANSL
LIS

DATBAS
MDL

TIRAUX
REQ

ISGENC
REQ

STRPREFIX
LIS

DATBAS
LIS