```
FFFFFFFFFFFFFFF     000000000     RRRRRRRRRRRR     RRRRRRRRRRRR     TTTTTTTTTTTTTTT  LLL
FFFFFFFFFFFFFFF     000000000     RRRRRRRRRRRR     RRRRRRRRRRRR     TTTTTTTTTTTTTTT  LLL
FFFFFFFFFFFFFFF     000000000     RRRRRRRRRRRR     RRRRRRRRRRRR     TTTTTTTTTTTTTTT  LLL
FFF               000         000 RRR         RRR RRR         RRR       TTT        LLL
FFF               000         000 RRR         RRR RRR         RRR       TTT        LLL
FFF               000         000 RRR         RRR RRR         RRR       TTT        LLL
FFF               000         000 RRR         RRR RRR         RRR       TTT        LLL
FFF               000         000 RRR         RRR RRR         RRR       TTT        LLL
FFF               000         000 RRR         RRR RRR         RRR       TTT        LLL
FFFFFFFFFFF       000         000 RRRRRRRRRRRR    RRRRRRRRRRRR          TTT        LLL
FFFFFFFFFFF       000         000 RRRRRRRRRRRR    RRRRRRRRRRRR          TTT        LLL
FFFFFFFFFFF       000         000 RRRRRRRRRRRR    RRRRRRRRRRRR          TTT        LLL
FFF               000         000 RRR   RRR       RRR   RRR             TTT        LLL
FFF               000         000 RRR   RRR       RRR   RRR             TTT        LLL
FFF               000         000 RRR   RRR       RRR   RRR             TTT        LLL
FFF               000         000 RRR     RRR     RRR     RRR           TTT        LLL
FFF               000         000 RRR     RRR     RRR     RRR           TTT        LLL
FFF               000         000 RRR     RRR     RRR     RRR           TTT        LLL
FFF                 000000000     RRR         RRR RRR         RRR       TTT        LLLLLLLLLLLLLLL
FFF                 000000000     RRR         RRR RRR         RRR       TTT        LLLLLLLLLLLLLLL
FFF                 000000000     RRR         RRR RRR         RRR       TTT        LLLLLLLLLLLLLLL
```

FILEID**FOROPEN

```
FFFFFFFFFF    000000    RRRRRRRR      000000    PPPPPPPP    EEEEEEEEEE  NN      NN
FFFFFFFFFF    000000    RRRRRRRR      000000    PPPPPPPP    EEEEEEEEEE  NN      NN
FF          00      00  RR      RR  00      00  PP      PP  EE          NN      NN
FF          00      00  RR      RR  00      00  PP      PP  EE          NN      NN
FF          00      00  RR      RR  00      00  PP      PP  EE          NNNN    NN
FF          00      00  RR      RR  00      00  PP      PP  EE          NNNN    NN
FFFFFFFF    00      00  RRRRRRRR    00      00  PPPPPPPP    EEEEEEEE    NN  NN  NN
FFFFFFFF    00      00  RRRRRRRR    00      00  PPPPPPPP    EEEEEEEE    NN  NN  NN
FF          00      00  RR  RR      00      00  PP          EE          NN    NNNN
FF          00      00  RR  RR      00      00  PP          EE          NN    NNNN
FF          00      00  RR    RR    00      00  PP          EE          NN      NN      ....
FF          00      00  RR    RR    00      00  PP          EE          NN      NN      ....
FF            000000    RR      RR    000000    PP          EEEEEEEEEE  NN      NN      ....
FF            000000    RR      RR    000000    PP          EEEEEEEEEE  NN      NN      ....

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
```

```
;     1          0001  0 MODULE FOR$OPEN (%TITLE 'FORTRAN OPEN'
;     2          0002  0                   IDENT = '1-065'          . File: FOROPEN.B32  Edit: SBL1065
;     3          0003  0                   ) =
;     4          0004  1 BEGIN
;     5          0005  1 !
;     6          0006  1 !*****************************************************************************
;     7          0007  1 !*                                                                           *
;     8          0008  1 !*  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY                                 *
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;    18          0018  1 !*                                                                           *
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;    20          0020  1 !*  AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY DIGITAL EQUIPMENT         *
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;    22          0022  1 !*                                                                           *
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;    24          0024  1 !*  SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.                  *
;    25          0025  1 !*                                                                           *
;    26          0026  1 !*                                                                           *
;    27          0027  1 !*****************************************************************************
;    28          0028  1
;    29          0029  1 !++
;    30          0030  1 ! FACILITY: FORTRAN Support Library - user callable
;    31          0031  1 !
;    32          0032  1 ! ABSTRACT:
;    33          0033  1 !
;    34          0034  1 !       This module opens a file on a specified logical unit
;    35          0035  1 !       (LUN) and allocates 3 c ntrol blocks for use by subsequent
;    36          0036  1 !       I/O statement calls for this LUN. The 3 control blocks
;    37          0037  1 !       are: Logical Unit Block (LUB), I/O statement Block (ISB),
;    38          0038  1 !       and an RMS Record Access Block (RAB).
;    39          0039  1 !
;    40          0040  1 ! ENVIRONMENT: User access mode; mixture of AST level or not.
;    41          0041  1 !
;    42          0042  1 ! AUTHOR:       Thomas N. Hastings, CREATION DATE: 6-Mar-77; Version 0
;    43          0043  1 !
;    44          0044  1 ! MODIFIED BY:
;    45          0045  1 !
;    46          0046  1 !       Thomas N. Hastings, 15-Mar-77: Version 0
;    47          0047  1 ! [Previous edit history removed.  SBL 5-Oct-1982]
;    48          0048  1 ! 1-062 - Move the BUILTIN ACTUALCOUNT into the routine that needs it, in
;    49          0049  1 !         anticipation of the next BLISS compiler, which will require it
;    50          0050  1 !         to be there.  While we are here, improve the source text layout.
;    51          0051  1 !         Note that this edit changes no code.  JBS 27-Aug-1980
;    52          0052  1 ! 1-063 - Add support for DEFAULTFILE keyword.  JAW 30-Jun-1981
;    53          0053  1 ! 1-064 - Allow DEFAULTFILE value to be ASCIZ.  JAW 30-Jun-1981
;    54          0054  1 ! 1-065 - Reflect separation of FOR$$ data structures from FOR$$.  SBL 5-Oct-1982
;    55          0055  1 !--
;    56          0056  1
```

```
;    58          0057  1 !
;    59          0058  1 ! PROLOGUE FILE:
;    60          0059  1 !
;    61          0060  1
;    62          0061  1 REQUIRE 'RTLIN:FORPROLOG';                      ! FORTRAN Declarations
;    63          0127  1
;    64          0128  1 !
;    65          0129  1 ! TABLE OF CONTENTS:
;    66          0130  1 !
;    67          0131  1
;    68          0132  1 FORWARD ROUTINE
;    69          0133  1     FOR$OPEN,                                   ! FORTRAN OPEN statement
;    70          0134  1     FOR$$OPECLO_ARG : NOVALUE,                  ! Get OPEN/CLOSE arguments
;    71          0135  1     OPEN_ON_CONNECTED : CALL_CCB;               ! open on a connected unit
;    72          0136  1
;    73          0137  1 !
;    74          0138  1 ! MACROS:
;    75          0139  1 !
;    76          0140  1 !       NONE
;    77          0141  1 !
;    78          0142  1 ! EQUATED SYMBOLS:
;    79          0143  1 !
;    80          0144  1 !       NONE
;    81          0145  1 !
;    82          0146  1 ! OWN STORAGE:
;    83          0147  1 !
;    84          0148  1 !       NONE
;    85          0149  1 !
;    86          0150  1 ! EXTERNAL REFERENCES:
;    87          0151  1 !
;    88          0152  1
;    89          0153  1 EXTERNAL ROUTINE
;    90          0154  1     FOR$$ERR_OPECLO,                            ! OPEN/CLOSE condition handler
;    91          0155  1     FOR$$OPEN_PROC : CALL_CCB NOVALUE,          ! Does the actual OPEN
;    92          0156  1     FOR$$SIGNAL_STO : NOVALUE,                  ! Convert small FORTRAN err #
;    93          0157  1                                                 ! to 32-bit VAX error # and SIGNAL_STOP
;    94          0158  1     FOR$$SIG_NO_LUB : NOVALUE,                  ! same as FOR$$SIGNAL_STO except no LUB setup
;    95          0159  1                                                 ! so must pass LUN explicitly.
;    96          0160  1     FOR$$CB_PUSH : JSB_CB_PUSH NOVALUE,         ! push current LUB/ISB/RAB, if any, and allocate LUB/ISB/RAB
;    97          0161  1                                                 ! for this logical unit
;    98          0162  1     FOR$$CB_POP : JSB_CB_POP NOVALUE,           ! Pop I/O system back to previous LUB or indicate
;    99          0163  1                                                 ! no I/O statement is currently being processed.
;   100          0164  1     FOR$$OPEN_KEYWD,                            ! Look up keywords for literal values
;   101          0165  1     FOR$$SIG_FATINT : NOVALUE,                  ! Signal_stop internal error
;   102          0166  1     FOR$$CLOSE_FILE : CALL_CCB;                 ! Close a file
;   103          0167  1
```

```
;  105     0168  1 GLOBAL ROUTINE FOR$OPEN (                      ! FORTRAN OPEN statement
;  106     0169  1         KEYWD,                                 ! keyword code - repeated arguments
;  107     0170  1         INFO                                   ! value of keyword (optional)
;  108     0171  1     ) =                                        ! value is TRUE iff successful, FALSE if error and ERR=
;  109     0172  1
;  110     0173  1 !++
;  111     0174  1 ! ABSTRACT:
;  112     0175  1 !
;  113     0176  1 !       Open file on the specified logical unit (LUN) with
;  114     0177  1 !       attributes specified in the keyword parameters and allocate
;  115     0178  1 !       3 control blocks for use by subsequent I/O statement calls
;  116     0179  1 !       for this LUN.  The 3 control blocks are: Logical Unit
;  117     0180  1 !       Block (LUB), I/O statement block (ISB), and one RMS
;  118     0181  1 !       control block: the RAB.  If a previous CALL ASSIGN
;  119     0182  1 !       or CALL FDBSET has been done all of these control blocks
;  120     0183  1 !       have already been allocated, and a FAB has been
;  121     0184  1 !       allocated to hold the information passed to CALL ASSIGN or
;  122     0185  1 !       CALL FDBSET.
;  123     0186  1 !       An RMS $OPEN or $CONNECT is performed.
;  124     0187  1 !       Then a record buffer is allocated for the LUN.
;  125     0188  1 !
;  126     0189  1 ! FORMAL PARAMETERS:
;  127     0190  1 !
;  128     0191  1 !    The following pair is repeated for each user specified keyword:
;  129     0192  1 !       KEYWD.rlu.v             Contains KEY<7:0>, ARGTYPE<15:8>, and possibly
;  130     0193  1 !                               INFO<31:16>
;  131     0194  1 !       INFO.rlu.v              optional information if need more than
;  132     0195  1 !                               16-bits
;  133     0196  1 !
;  134     0197  1 ! IMPLICIT INPUTS:
;  135     0198  1 !
;  136     0199  1 !       FOR$$A_CUR_LUB          Current active LUB to be pushed
;  137     0200  1 !                               down or 0 if no LUB has an I/O
;  138     0201  1 !                               statement in progress (usual).
;  139     0202  1 !                               Restored on return from FOR$OPEN
;  140     0203  1 !       LUB$V_FAB               1 if FAB allocated by FDBSET, CALL ASSIGN
;  141     0204  1 !       LUB$V_DIRECT            1 if DEFINE FILE done
;  142     0205  1 !       LUB$V_OPENED            1 if unit already opened
;  143     0206  1 !
;  144     0207  1 ! IMPLICIT OUTPUTS:
;  145     0208  1 !
;  146     0209  1 !       LUB$V_READ_ONLY         1 if 'READONLY' present
;  147     0210  1 !       LUB$V_DIRECT            1 if ACCESS = 'DIRECT'
;  148     0211  1 !       LUB$V_APPEND            1 if ACCESS = 'APPEND'
;  149     0212  1 !       LUB$V_OLD_FILE          1 if TYPE = 'OLD'
;  150     0213  1 !       LUB$V_SCRATCH           1 if TYPE = 'SCRATCH'
;  151     0214  1 !       LUB$V_PRINT             1 if DISPOSE = 'PRINT'
;  152     0215  1 !       LUB$V_FIXED             1 if RECORDTYPE = 'FIXED'
;  153     0216  1 !       LUB$V_FORMATTED         1 if FORM = 'FORMATTED' or ommitted
;  154     0217  1 !       LUB$V_UNFORMAT          1 if FORM = 'UNFORMATTED'
;  155     0218  1 !       LUB$A_ASSOC_VAR         adr. of n if ASSOCIATEVARIABLE = n is present
;  156     0219  1 !       LUB$V_ASS_VAR_L         1 if n is longword
;  157     0220  1 !       LUB$W_IFI               RMS internal file id. Needed in case
;  158     0221  1 !                               FORTRAN CLOSE done.
;  159     0222  1 !       LUB$W_RBUF_SIZE         Size in bytes of record buffer allocated.
;  160     0223  1 !
;  161     0224  1 ! COMPLETTION STATUS:
```

```
;  162     0225  1 !
;  163     0226  1 !       TRUE if success, FALSE if failure and ERR= keyword present
;  164     0227  1 !
;  165     0228  1 ! SIDE EFFECTS:
;  166     0229  1 !
;  167     0230  1 !       Allocates LUB/ISB/RAB if not already allocated
;  168     0231  1 !       by CALL ASSIGN, DEFINE FILE, OR CALL FDBSET.
;  169     0232  1 !       SIGNALs or SIGNAL_STOPs the following errors unless ERR=
;  170     0233  1 !       keyword is present: SIGNAL_STOPs FOR$_INCOPECLO (46 =
;  171     0234  1 !       'INCONSISTENT OPEN/CLOSE STATEMENT SPECIFICATIONS')
;  172     0235  1 !       SIGNAL_STOPS FOR$RECIO_OPE (40='RECURSIVE I/O OPERATION')
;  173     0236  1 !       SIGNAL_STOPS FOR$_INVLOGUNI (32='INVALID LOGICAL UNIT NUMBER')
;  174     0237  1 !       See FOR$$OPEN_PROC for other SIGNAL_STOPS.
;  175     0238  1 !
;  176     0239  1 !--
;  177     0240  1
;  178     0241  2     BEGIN
;  179     0242  2
;  180     0243  2     GLOBAL REGISTER
;  181     0244  2         CCB = K_CCB_REG : REF $FOR$CCB_DECL;
;  182     0245  2
;  183     0246  2 !+
;  184     0247  2 ! Use the formal arg list as a VECTOR of blocks; each block = 1 longword.
;  185     0248  2 !-
;  186     0249  2
;  187     0250  2     MAP
;  188     0251  2         KEYWD : BLOCKVECTOR [255, 1];
;  189     0252  2
;  190     0253  2     BUILTIN
;  191     0254  2         ACTUALCOUNT;
;  192     0255  2
;  193     0256  2     LOCAL
;  194     0257  2         NAM_DSC : DSC$DESCRIPTOR,               ! String descriptor for ASCIZ filename
;  195     0258  2         DEF_DSC : DSC$DESCRIPTOR,               ! String descriptor for ASCIZ default file name
;  196     0259  2         L_UNWIND_ACTION : VOLATILE,             ! UNWIND action code for handler
;  197     0260  2         OPEN : VOLATILE VECTOR [OPEN$K_KEY_MAX + 1];    ! open parameter array
;  198     0261  2
;  199     0262  2 !+
;  200     0263  2 ! Establish handler to RESIGNAL or UNWIND if ERR= present
;  201     0264  2 ! depending on OPEN[OPEN$K_ERR].  Pass UNWIND action code.
;  202     0265  2 !-
;  203     0266  2
;  204     0267  2     ENABLE
;  205     0268  2         FOR$$ERR_OPECLO (L_UNWIND_ACTION, OPEN);
;  206     0269  2
;  207     0270  2 !+
;  208     0271  2 ! Set UNWIND cleanup to be a no-operation since LUB/ISB/RAB
;  209     0272  2 ! has not been pushed yet.
;  210     0273  2 !-
;  211     0274  2     L_UNWIND_ACTION = FOR$K_UNWINDNOP;
;  212     0275  2 !+
;  213     0276  2 ! Copy user keyword arglist into array OPEN
;  214     0277  2 ! in cannonical order, so that args may be processed in order
;  215     0278  2 ! If ASCIZ name string, setup NAM_DSC as its descriptor
;  216     0279  2 ! If ASCIZ default name string, setup DEF_DSC as its descriptor
;  217     0280  2 ! SIGNAL_STOP FOR$_INVARGFOR (48='INVALID ARGUMENT TO FORTRAN I/O SYSTEM'),
;  218     0281  2 ! after scanning all parameters and setting up ERR= in OPEN array.
```

```
;  219     0282  2 !-
;  220     0283  2     FOR$$OPECLO_ARG (KEYWD, ACTUALCOUNT (), OPEN, OPEN$K_KEY_MAX, NAM_DSC, DEF_DSC, 1);
;  221     0284  2 !+
;  222     0285  2 ! Allocate LUB/ISB/RAB if not already allocated for this
;  223     0286  2 ! logical unit. Push down if an I/O statement already in progress
;  224     0287  2 ! on another unit. Store new current LUB address in OTS
;  225     0288  2 ! GLOBAL OWN OTS$A_CUR_LUB. SIGNAL_STOP FOR$_RECIO_OPE
;  226     0289  2 ! (40='RECURSIVE I7O OPERATION'). If ar I/O statement already
;  227     0290  2 ! in progress for this logical unit. SIGNAL_STOP FOR$_INVLOGUNI
;  228     0291  2 ! (32='INVALID LOGICAL UNIT NUMBER') if logical unit
;  229     0292  2 ! number outside of the allowed range of 0:99 for explicit OPEN.
;  230     0293  2 ! Finally change UNWIND cleanup action to be to pop current LUB/ISB/RAB
;  231     0294  2 ! since it has now been successfully pushed.
;  232     0295  2 ! On return, CCB points to the current control block.
;  233     0296  2 !-
;  234     0297  2     FOR$$CB_PUSH (.OPEN [OPEN$K_UNIT], LUB$K_LUN_MIN);
;  235     0298  2     L_UNWIND_ACTION = FOR$K_UNWINDPOP;
;  236     0299  2 !+
;  237     0300  2 ! If the unit is currently open, call special routine which
;  238     0301  2 ! implements open on a connected unit.
;  239     0302  2 !-
;  240     0303  2
;  241     0304  3     IF (.CCB [LUB$V_OPENED] OR .CCB [LUB$V_DEALLOC])
;  242     0305  2     THEN
;  243     0306  2
;  244     0307  2         IF OPEN_ON_CONNECTED (OPEN, L_UNWIND_ACTION)
;  245     0308  2         THEN
;  246     0309  3             BEGIN
;  247     0310  3 !+
;  248     0311  3 ! No more OPEN processing needed, set IOSTAT and exit.
;  249     0312  3 !-
;  250     0313  3
;  251     0314  4             IF (.OPEN [OPEN$K_IOSTAT] NEQ 0)
;  252     0315  3             THEN
;  253     0316  4                 BEGIN                                                          ; I
;  254     0317  4
;  255     0318  5                 IF (.OPEN [OPEN$K_IOSTAT_L])
;  256     0319  4                 THEN                                                           ;
;  257     0320  4                     .OPEN [OPEN$K_IOSTAT] = 0
;  258     0321  4                 ELSE
;  259     0322  5                     BEGIN
;  260     0323  5
;  261     0324  5                     LOCAL
;  262     0325  5                         IOSTAT : REF BLOCK [, BYTE];
;  263     0326  5
;  264     0327  5                     IOSTAT = .OPEN [OPEN$K_IOSTAT];
;  265     0328  5                     IOSTAT [0, 0, 16, 0] = 0;   ! Store one word
;  266     0329  4                     END;
;  267     0330  4
;  268     0331  3                 END;
;  269     0332  3
;  270     0333  3             RETURN 1;                               ! Exit OPEN successfully
;  271     0334  2             END;
;  272     0335  2
;  273     0336  2 !+
;  274     0337  2 ! If DEFINE FILE, CALL FDBSET, or CALL ASSIGN have already been
;  275     0338  2 ! done for this logical unit, SIGNAL_STOP FOR$DUPFILSPE
```

```
;  276     0339  2 ! (21='DUPLICATE FILE SPECIFICATION').
;  277     0340  2 !-
;  278     0341  2
;  279     0342  2     IF ((.CCB [LUB$A_FAB] NEQA 0) OR (.CCB [LUB$V_DIRECT])) THEN FOR$$SIGNAL_STO (FOR$K_DUPFILSPE);
;  280     0343  2
;  281     0344  2 !+
;  282     0345  2 ! Set unwind condition to RET so if an error occurs the file will
;  283     0346  2 ! be closed and the LUB returned (thus freeing up the LUN).
;  284     0347  2 !-
;  285     0348  2     L_UNWIND_ACTION = FOR$K_UNWINDRET;
;  286     0349  2 !+
;  287     0350  2 ! Perform the OPEN - call common procedure with a pointer
;  288     0351  2 ! to the OPEN parameter VECTOR of longword values.
;  289     0352  2 !-
;  290     0353  2     FOR$$OPEN_PROC (OPEN);
;  291     0354  2 !+
;  292     0355  2 ! Pop back previous LUB or indicate that no I/O statement
;  293     0356  2 ! is currently active (OTS$$A_CUR_LUB = 0).
;  294     0357  2 !-
;  295     0358  2     FOR$$CB_POP ();
;  296     0359  2 !+
;  297     0360  2 !  Store success IOSTAT.  If there was an error, the handler would
;  298     0361  2 !  do the store.
;  299     0362  2 !-
;  300     0363  2
;  301     0364  3     IF (.OPEN [OPEN$K_IOSTAT] NEQ 0)
;  302     0365  2     THEN
;  303     0366  2
;  304     0367  3         IF (.OPEN [OPEN$K_IOSTAT_L])
;  305     0368  2         THEN
;  306     0369  2             .OPEN [OPEN$K_IOSTAT] = 0
;  307     0370  2         ELSE
;  308     0371  3             BEGIN
;  309     0372  3
;  310     0373  3             LOCAL
;  311     0374  3                 IOSTAT : REF BLOCK [, BYTE];
;  312     0375  3
;  313     0376  3             IOSTAT = .OPEN [OPEN$K_IOSTAT];
;  314     0377  3             IOSTAT [0, 0, 16, 0] = 0;          ! Store one word
;  315     0378  2             END;
;  316     0379  2
;  317     0380  2 !+
;  318     0381  2 ! Return success
;  319     0382  2 !-
;  320     0383  2     RETURN 1;
;  321     0384  1     END;                                       ! End of FOR$OPEN routine


                                                               .TITLE  FOR$OPEN FORTRAN OPEN
                                                               .IDENT  \1-065\

                                                               .EXTRN  FOR$$ERR_OPECLO
                                                               .EXTRN  FOR$$OPEN_PROC, FOR$$SIGNAL_STO
                                                               .EXTRN  FOR$$SIG_NO_LUB
                                                               .EXTRN  FOR$$CB_PUSH, FOR$$CB_POP
                                                               .EXTRN  FOR$$OPEN_KEYWD
                                                               .EXTRN  FOR$$SIG_FATINT
```

```
                                                        .EXTRN  FOR$$CLOSE_FILE

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

                                                 0804 00000     .ENTRY  FOR$OPEN, Save R2,R11                   ; 0168
                                          5E      88   AE  9E 00002     MOVAB   -120(SP), SP
                                                  7E   7C 00006     CLRQ    OPEN                            ; 0241
                                                  08   AE 7C 00008     CLRQ    OPEN
                                                  10   AE 7C 0000B     CLRQ    OPEN
                                                  18   AE 7C 0000E     CLRQ    OPEN
                                                  20   AE 7C 00011     CLRQ    OPEN
                                                  28   AE 7C 00014     CLRQ    OPEN
                                                  30   AE 7C 00017     CLRQ    OPEN
                                                  38   AE 7C 0001A     CLRQ    OPEN
                                                  40   AE 7C 0001D     CLRQ    OPEN
                                                  48   AE 7C 00020     CLRQ    OPEN
                                                  50   AE 7C 00023     CLRQ    OPEN
                                                  58   AE 7C 00026     CLRQ    OPEN
                                                  60   AE 7C 00029     CLRQ    OPEN
                                                  68   AE 7C 0002C     CLRQ    OPEN
                                          6D    0081   CF DE 0002F     MOVAL   8$, (FP)
                                    6C    AE          01 D0 00034     MOVL    #1, L_UNWIND_ACTION             ; 0274
                                                      01 DD 00038     PUSHL   #1                              ; 0283
                                                  74   AE 9F 0003A     PUSHAB  DEF_DSC
                                                  F8   AD 9F 0003D     PUSHAB  NAM_DSC
                                                  1A   DD 00040     PUSHL   #26
                                                  10   AE 9F 00042     PUSHAB  OPEN
                                          7E          6C 9A 00045     MOVZBL  (AP), -(SP)
                                                  04   AC 9F 00048     PUSHAB  KEYWD
                                  0000V   CF          07 FB 0004B     CALLS   #7, FOR$$OPECLO_ARG
                                                      50 D4 00050     CLRL    R0                              ; 0297
                                                  52   04   AE D0 00052     MOVL    OPEN+4, R2
                                               00000000G   00 16 00056     JSB     FOR$$CB_PUSH
                                                      6C   AE D4 0005C     CLRL    L_UNWIND_ACTION             ; 0298
                                          05          FC   AB E8 0005F     BLBS    -4(CCB), 1$                 ; 0304
                                    0E        FF    AB      04 E1 00063     BBC     #4, -1(CCB), 2$
                                                      6C   AE 9F 00068 1$: PUSHAB  L_UNWIND_ACTION             ; 0307
                                                      04   AE 9F 0006B     PUSHAB  OPEN
                                  0000V   CF          02 FB 0006E     CALLS   #2, OPEN_ON_CONNECTED
                                          26          50 E8 00073     BLBS    R0, 5$
                                                      E8   AB D5 00076 2$: TSTL    -24(CCB)                    ; 0342
                                                      05 12 00079     BNEQ    3$
                                    09        FC    AB      04 E1 0007B     BBC     #4, -4(CCB), 4$
                                                      15 DD 00080 3$: PUSHL   #21
                                 00000000G    00          01 FB 00082     CALLS   #1, FOR$$SIGNAL_STO
                                       6C     AE          02 D0 00089 4$: MOVL    #2, L_UNWIND_ACTION         ; 0348
                                                      5E   DD 0008D     PUSHL   SP                              ; 0353
                                 00000000G    00          01 FB 0008F     CALLS   #1, FOR$$OPEN_PROC
                                               00000000G  00 16 00096     JSB     FOR$$CB_POP                 ; 0358
                                                      58   AE D5 0009C 5$: TSTL    OPEN+88                     ; 0364
                                                      0F 13 0009F     BEQL    7$
                                          05          64   AE E9 000A1     BLBC    OPEN+100, 6$                ; 0367
                                                      58   BE D4 000A5     CLRL    @OPEN+88                    ; 0369
                                                      06 11 000A8     BRB     7$
                                          50          58   AE D0 000AA 6$: MOVL    OPEN+88, IOSTAT             ; 0376
                                                      60   B4 000AE     CLRW    (IOSTAT)                    ; 0377
                                          50              01 D0 000B0 7$: MOVL    #1, R0                      ; 0383
```

```
                                        04 000B3          RET                                                  ; 0384
                                      0000 000B4 8$:      .WORD   Save nothing                                 ; 0241
                          50      08  AC  D0 000B6        MOVL    8(AP), R0                                    ;
                          50      04  A0  D0 000BA        MOVL    4(R0), R0                                    ;
                                  80  A0  9F 000BE        PUSHAB  OPEN                                         ;
                                  EC  A0  9F 000C1        PUSHAB  L_UNWIND_ACTION                              ;
                                      02  DD 000C4        PUSHL   #2                                           ;
                                      5E  DD 000C6        PUSHL   SP                                           ;
                          7E      04  AC  7D 000C8        MOVQ    4(AP), -(SP)                                 ;
                00000000G 00          03  FB 000CC        CALLS   #3, FOR$$ERR_OPECLO                          ;
                                        04 000D3          RET                                                  ;

; Routine Size:  212 bytes,    Routine Base:  _FOR$CODE + 0000

;  322          0385  1
```

```
;  324     0386  1 GLOBAL ROUTINE FOR$$OPECLO_ARG (                      ! FORTRAN copy OPEN/CLOSE args
;  325     0387  1         KEYWD_ADR,                                     ! Adr. of first keyword arg
;  326     0388  1         ACTUAL_COUNT,                                  ! No. of actual parameters in arg list
;  327     0389  1         OPEN_ADR,                                      ! Adr. of array to store keyword values
;  328     0390  1         KEY_MAX,                                       ! Max. value of keyword parameter
;  329     0391  1         NAM_DSC_ADR,                                   ! Adr. of descriptor for name string
;  330     0392  1         DEF_DSC_ADR,                                   ! Adr. of descriptor for default name string
;  331     0393  1         OPEN_FLAG,                                     ! True if OPEN (not CLOSE)
;  332     0394  1         VAR_LENGTHS                                    ! lengths in bits of keyword variables
;  333     0395  1     ) : NOVALUE =
;  334     0396  1
;  335     0397  1 !++
;  336     0398  1 ! ABSTRACT:
;  337     0399  1 !
;  338     0400  1 !       Routine to copy keyword OPEN/CLOSE parameters
;  339     0401  1 !       into an array for sequential processing in cannonical order.
;  340     0402  1 !       Note: LUB cannot be located until all OPEN arguments are scanned and UNIT=n found.
;  341     0403  1 !
;  342     0404  1 ! FORMAL PARAMETERS:
;  343     0405  1 !
;  344     0406  1 !       KEYWD_ADR.rlu.ra        Address of first keyword
;  345     0407  1 !                               in user arg list
;  346     0408  1 !       ACTUAL_COUNT.rlu.v      Count of no. of users args
;  347     0409  1 !       OPEN_ADR.wlu.ra         Adr. of array to write keyword values
;  348     0410  1 !       KEY_MAX.rlu.v   Max. OPEN/CLOSE keyword value
;  349     0411  1 !       NAM_DSC_ADR     Adr. of a descriptor if ASCIZ name string given by user
;  350     0412  1 !       DEF_DSC_ADR     Adr. of a descriptor if ASCIZ default name string given by user
;  351     0413  1 !                       Descriptors must be allocated by caller
;  352     0414  1 !                       not called procedure.
;  353     0415  1 !       OPEN_FLAG       = 1 if this call is from OPEN, 0 from CLOSE.
;  354     0416  1 !                       Only allocate a LUN if from OPEN.
;  355     0417  1 !       VAR_LENGTHS     A byte vector into which are inserted the lengths
;  356     0418  1 !                       in bits of the keyword variables.  This is used
;  357     0419  1 !                       by FOR$INQUIRE only.
;  358     0420  1 !
;  359     0421  1 ! IMPLICIT INPUTS:
;  360     0422  1 !
;  361     0423  1 !       NONE
;  362     0424  1 !
;  363     0425  1 ! IMPLICIT OUTPUTS:
;  364     0426  1 !
;  365     0427  1 !       NONE
;  366     0428  1 !
;  367     0429  1 ! COMPLETITION STATUS:
;  368     0430  1 !
;  369     0431  1 !       NONE
;  370     0432  1 !
;  371     0433  1 ! SIDE EFFECTS:
;  372     0434  1 !
;  373     0435  1 !       SIGNAL_STOPs FOR$_INVARGFOR (48='INVALID ARGUMENT TO FORTRAN I/O SYSTEM')
;  374     0436  1 !       if keyword parameter is out of range, but only after all parameters
;  375     0437  1 !       are scanned so that ERR= parameter, if present, has been setup in array OPEN_ADR.
;  376     0438  1 !       Uses FOR$$SIG_NO_LUB to signal, since no LUB setup yet
;  377     0439  1 !       so logical unit number must be passed explicitly on errors.
;  378     0440  1 !--
;  379     0441  1
;  380     0442  2     BEGIN
```

```
;  381     0443  2
;  382     0444  2      MAP
;  383     0445  2          KEYWD_ADR : REF BLOCKVECTOR [100, 1],    ! Vector of blocks, each block
;  384     0446  2                                                   ! is one longword.
;  385     0447  2          OPEN_ADR : REF VECTOR [OPEN$K_KEY_MAX + 1, LONG],       ! Vector to receive cannonical ordering
;  386     0448  2                                                   ! of users parameter values.
;  387     0449  2          NAM_DSC_ADR : REF DSC$DESCRIPTOR,        ! string descriptor to use in case ASCIZ file name
;  388     0450  2          DEF_DSC_ADR : REF DSC$DESCRIPTOR,        ! string descriptor to use in case ASCIZ default file name
;  389     0451  2          VAR_LENGTHS : REF VECTOR [INQ$K_KEY_MAX + 1, BYTE];     ! Variable lengths
;  390     0452  2
;  391     0453  2      LOCAL
;  392     0454  2          V_ARG_KEY_ERR,                           ! error flag, 1 if ARG or KEY out of range
;  393     0455  2          V_KEY_VAL_ERR,                           ! error flag, 1 if keyword incorrect
;  394     0456  2          UNIT_ADDR,                               ! Address of UNIT variable
;  395     0457  2          UNIT_TYPE;                               ! Type of varaible: w or L
;  396     0458  2
;  397     0459  2  !+
;  398     0460  2  ! Clear OPEN or CLOSE parameter array and clear flag
;  399     0461  2  !-
;  400     0462  2      FILL_VAL (0, .KEY_MAX + 1, .OPEN_ADR);
;  401     0463  2      V_ARG_KEY_ERR = 0;
;  402     0464  2      V_KEY_VAL_ERR = 0;
;  403     0465  2      UNIT_TYPE = 0;
;  404     0466  2      UNIT_ADDR = 0;
;  405     0467  2  !+
;  406     0468  2  ! Scan actual keyword parameter list (KEYWD_ADR) and copy (sign extend)
;  407     0469  2  ! associated information to formal array OPEN_ADR of longwords ordered
;  408     0470  2  ! by parameter dependencies, i. e., sort by KEY.
;  409     0471  2  !-
;  410     0472  2
;  411     0473  2      INCR I FROM 0 TO .ACTUAL_COUNT - 1 DO
;  412     0474  2  !+
;  413     0475  2  ! Set longword value to sign extension of each type of OPEN/CLOSE
;  414     0476  2  ! parameter present to: Bits 31:16 of this actual, next
;  415     0477  2  ! actual, or location specified by next actual depending
;  416     0478  2  ! on the type of OPEN argument (OPEN$B_ARG_TYPE).
;  417     0479  2  ! If ARGTYPE or KEY code is not one of defined values, set error flag and keep scanning
;  418     0480  2  ! to see if ERR= is present so error handler will handle properly.
;  419     0481  2  ! error FOR$_INVARGFOR (48='INVALID ARGUMENT TO FORTRAN I/O SYSTEM')
;  420     0482  2  !-
;  421     0483  3          BEGIN
;  422     0484  3
;  423     0485  3          LOCAL
;  424     0486  3              K,                                   ! temp value of KEY
;  425     0487  3              V;                                   ! temp value of value to be stored
;  426     0488  3
;  427     0489  3          K = .KEYWD_ADR [.I, OPEN$B_KEY];
;  428     0490  3          V =
;  429     0491  4          BEGIN
;  430     0492  4
;  431     0493  4          CASE .KEYWD_ADR [.I, OPEN$B_ARG_TYPE] FROM 0 TO OPEN$K_ARG_MAX OF
;  432     0494  4              SET
;  433     0495  4
;  434     0496  4              [OPEN$K_ARG_NULL] :
;  435     0497  4  !+
;  436     0498  4  ! keyword with no value - make value be 1
;  437     0499  4  ! to distinguish from not present.
```

```
;  438     0500  4 !-
;  439     0501  4                     1;
;  440     0502  4
;  441     0503  4                 [OPEN$K_ARG_LIT, OPEN$K_ARG_W_V] :
;  442     0504  4 !+
;  443     0505  4 ! literal or word-by-value - bits <31:16> is value
;  444     0506  4 ! sign extend to full machine value
;  445     0507  4 !-
;  446     0508  4                     .KEYWD_ADR [.I, OPEN$W_INFO];
;  447     0509  4
;  448     0510  4                 [OPEN$K_ARG_W_R] :
;  449     0511  4 !+
;  450     0512  4 ! Word by reference - use adr. in next longword
;  451     0513  4 ! sign extend word to longword
;  452     0514  4 !-
;  453     0515  5                     BEGIN
;  454     0516  5
;  455     0517  6                     IF (.K EQLU OPEN$K_UNIT)
;  456     0518  5                     THEN
;  457     0519  5 !+
;  458     0520  5 ! Remember UNIT's address and type in case we must provide it
;  459     0521  5 !-
;  460     0522  5
;  461     0523  6                         IF (.UNIT_TYPE NEQ 0)
;  462     0524  5                         THEN
;  463     0525  5                             V_ARG_KEY_ERR = 1
;  464     0526  5                         ELSE
;  465     0527  6                             BEGIN
;  466     0528  6 !+
;  467     0529  6 ! This is the first time through here
;  468     0530  6 !-
;  469     0531  6                             UNIT_TYPE = DSC$K_DTYPE_W;
;  470     0532  6                             UNIT_ADDR = .KEYWD_ADR [.I + 1, OPEN$A_VALUE];
;  471     0533  5                             END;
;  472     0534  5
;  473     0535  6                     IF ((.K EQLU OPEN$K_ASSOCIAT) OR (.K EQLU OPEN$K_IOSTAT))
;  474     0536  5                     THEN
;  475     0537  5 !+
;  476     0538  5 ! For the associated variable or IOSTAT we want the address of the value, not the
;  477     0539  5 ! value itself.
;  478     0540  5 !-
;  479     0541  5                         .KEYWD_ADR [(I = .I + 1), OPEN$A_VALUE]     !
;  480     0542  5                     ELSE
;  481     0543  5
;  482     0544  6                         IF (.K GTR OPEN$K_KEY_MAX)
;  483     0545  5                         THEN
;  484     0546  6                             BEGIN
;  485     0547  6                             VAR_LENGTHS [.K] = 16;  ! Signify word
;  486     0548  6                             .KEYWD_ADR [(I = .I + 1), OPEN$A_VALUE]
;  487     0549  6                             END
;  488     0550  5                         ELSE
;  489     0551  5                             .(.KEYWD_ADR [(I = .I + 1), OPEN$A_VALUE])<0, %BPVAL/2, 1>
;  490     0552  5
;  491     0553  4                     END;
;  492     0554  4
;  493     0555  4                 [OPEN$K_ARG_L_R] :
;  494     0556  4 !+
```

```
;  495     0557  4 ! Longword by-reference-next parameter slot contains adr. of value
;  496     0558  4 !-
;  497     0559  5                 BEGIN
;  498     0560  5
;  499     0561  6                 IF (.K EQLU OPEN$K_UNIT)
;  500     0562  5                 THEN
;  501     0563  5 !+
;  502     0564  5 ! Remember the address and type of the variable which holds the UNIT
;  503     0565  5 ! in case we must compute the LUN value.
;  504     0566  5 !-
;  505     0567  5
;  506     0568  6                     IF (.UNIT_TYPE NEQ 0)
;  507     0569  5                     THEN
;  508     0570  5                         V_ARG_KEY_ERR = 1
;  509     0571  5                     ELSE
;  510     0572  6                         BEGIN
;  511     0573  6 !+
;  512     0574  6 ! This is the first time through here.
;  513     0575  6 !-
;  514     0576  6                         UNIT_TYPE = DSC$K_DTYPE_L;
;  515     0577  6                         UNIT_ADDR = .KEYWD_ADR [.I + 1, OPEN$A_VALUE];
;  516     0578  5                         END;
;  517     0579  5
;  518     0580  6                 IF ((.K EQLU OPEN$K_ASSOCIAT) OR (.K EQLU OPEN$K_IOSTAT))
;  519     0581  5                 THEN
;  520     0582  5 !+
;  521     0583  5 ! For the associated variable or IOSTAT we want the address of the variable, not
;  522     0584  5 ! its value.  Also, we must mark that it occupies a longword.
;  523     0585  5 !-
;  524     0586  6                     BEGIN
;  525     0587  6
;  526     0588  7                     IF (.K EQLU OPEN$K_ASSOCIAT)
;  527     0589  6                     THEN
;  528     0590  6                         OPEN_ADR [OPEN$K_ASSOC_L] = 1
;  529     0591  6                     ELSE
;  530     0592  6                         OPEN_ADR [OPEN$K_IOSTAT_L] = 1;
;  531     0593  6
;  532     0594  6                     .KEYWD_ADR [(I = .I + 1), OPEN$A_VALUE]
;  533     0595  6                     END
;  534     0596  5                 ELSE
;  535     0597  5
;  536     0598  6                     IF (.K GTR OPEN$K_KEY_MAX)
;  537     0599  5                     THEN
;  538     0600  6                         BEGIN
;  539     0601  6                         VAR_LENGTHS [.K] = 32;  ! Signify longword
;  540     0602  6                         .KEYWD_ADR [(I = .I + 1), OPEN$A_VALUE] ! Address for INQUIRE
;  541     0603  6                         END
;  542     0604  5                     ELSE
;  543     0605  5                         ..KEYWD_ADR [(I = .I + 1), OPEN$A_VALUE]
;  544     0606  5
;  545     0607  4                 END;
;  546     0608  4
;  547     0609  4             [OPEN$K_ARG_L_V, OPEN$K_ARG_ZI] :
;  548     0610  4 !+
;  549     0611  4 ! Longword by value or procedure adr.
;  550     0612  4 !-
;  551     0613  4                 .KEYWD_ADR [(I = .I + 1), OPEN$G_VALUE];
```

```
;  552     0614  4
;  553     0615  4                [OPEN$K_ARG_T_DS] :
;  554     0616  4 !+
;  555     0617  4 ! Address of string descriptor.
;  556     0618  4 !-
;  557     0619  4
;  558     0620  4                    IF .K EQLU OPEN$K_NAME OR .K EQLU OPEN$K_DEFAULTF
;  559     0621  4                    THEN
;  560     0622  4                        .KEYWD_ADR [(I = .I + 1), OPEN$G_VALUE]
;  561     0623  4                    ELSE
;  562     0624  5                        BEGIN
;  563     0625  5
;  564     0626  5                        LOCAL
;  565     0627  5                            V;                          ! Returned value
;  566     0628  5
;  567     0629  5                        V = FOR$$OPEN_KEYWD (.K, .KEYWD_ADR [.I + 1, OPEN$G_VALUE]);
;  568     0630  5                        I = .I + 1;
;  569     0631  5
;  570     0632  5                        CASE .V FROM -1 TO 0 OF
;  571     0633  5                            SET
;  572     0634  5
;  573     0635  5                            [-1] :                      ! Invalid keyword for this type
;  574     0636  6                                BEGIN
;  575     0637  6                                V_ARG_KEY_ERR = 1;
;  576     0638  6                                0
;  577     0639  5                                END;
;  578     0640  5
;  579     0641  5                            [0] :                       ! Keyword value error
;  580     0642  6                                BEGIN
;  581     0643  6                                V_KEY_VAL_ERR = 1;
;  582     0644  6                                0
;  583     0645  5                                END;
;  584     0646  5
;  585     0647  5                            [OUTRANGE] :                ! Ok
;  586     0648  5                                .V;
;  587     0649  5                            TES
;  588     0650  5
;  589     0651  4                        END;
;  590     0652  4
;  591     0653  4                [OPEN$K_ARG_TZ_R] :
;  592     0654  4 !+
;  593     0655  4 ! Address of array of ASCIZ characters.
;  594     0656  4 ! Next parameter slot contains address of first byte of string
;  595     0657  4 ! If this is FILE or DEFAULTFILE, store length and address of string in
;  596     0658  4 ! its respective descriptor.
;  597     0659  4 ! Else SIGNAL_STOP FOR$_INVARGFOR (48='INVALID ARGUMENT TO FORTRAN I/O SYSTEM')
;  598     0660  4 !-
;  599     0661  4
;  600     0662  5                    IF (.K EQLU OPEN$K_NAME)
;  601     0663  4                    THEN
;  602     0664  5                        BEGIN
;  603     0665  5
;  604     0666  5                        LOCAL
;  605     0667  5                            P;                          ! char. pointer to null char or 0
;  606     0668  5
;  607     0669  5                        NAM_DSC_ADR [DSC$A_POINTER] = .KEYWD_ADR [(I = .I + 1), OPEN$A_VALUE];
;  608     0670  5                        P = CH$FIND_CH (OPEN$K_STR_MAX, .NAM_DSC_ADR [DSC$A_POINTER], 0);
```

```
;  609     0671  6                    NAM_DSC_ADR [DSC$W_LENGTH] = (IF .P NEQ 0 THEN CH$DIFF (.P, .NAM_DSC_ADR [DSC$A_POINTER]
;  610     0672  5                    ELSE OPEN$K_STR_MAX);
;  611     0673  5                    .NAM_DSC_ADR                    ! value of the CASE-expr is adr. of descr.
;  612     0674  5                    END
;  613     0675  5                ELSE IF (.K EQLU OPEN$K_DEFAULTF)
;  614     0676  4                THEN
;  615     0677  5                    BEGIN
;  616     0678  5
;  617     0679  5                    LOCAL
;  618     0680  5                        P;                          ! char. pointer to null char or 0
;  619     0681  5
;  620     0682  5                    DEF_DSC_ADR [DSC$A_POINTER] = .KEYWD_ADR [(I = .I + 1), OPEN$A_VALUE];
;  621     0683  5                    P = CH$FIND_CH (OPEN$K_STR_MAX, .DEF_DSC_ADR [DSC$A_POINTER], 0);
;  622     0684  6                    DEF_DSC_ADR [DSC$W_LENGTH] = (IF .P NEQ 0 THEN CH$DIFF (.P, .DEF_DSC_ADR [DSC$A_POINTER]
;  623     0685  5                    ELSE OPEN$K_STR_MAX);
;  624     0686  5                    .DEF_DSC_ADR                    ! value of the CASE-expr is adr. of descr.
;  625     0687  5                    END
;  626     0688  4                ELSE
;  627     0689  4            !+
;  628     0690  4            ! ASCIZ string not file name or default file name, just skip next
;  629     0691  4            ! longword and flag error
;  630     0692  4            !-
;  631     0693  5                    BEGIN
;  632     0694  5                    I = .I + 1;
;  633     0695  5                    V_ARG_KEY_ERR = 1;
;  634     0696  5                    0                               ! value of the CASE-expr is 0 if error
;  635     0697  4                    END;
;  636     0698  4
;  637     0699  4            [OPEN$K_ARG_INLN] :
;  638     0700  4            !+
;  639     0701  4            ! Sublist in-line with argument list
;  640     0702  4            !-
;  641     0703  5                BEGIN
;  642     0704  5
;  643     0705  5                LOCAL
;  644     0706  5                    ADDR,
;  645     0707  5                    COUNT;
;  646     0708  5
;  647     0709  5                COUNT = .KEYWD_ADR [.I, OPEN$W_INFO];
;  648     0710  5                ADDR = KEYWD_ADR [.I, OPEN$B_KEY];
;  649     0711  5                I = .I + .COUNT;
;  650     0712  5                .ADDR
;  651     0713  4                END;
;  652     0714  4
;  653     0715  4            [OPEN$K_ARG_B_R] :
;  654     0716  4            !+
;  655     0717  4            ! Byte variable by reference
;  656     0718  4            ! Used only by FOR$INQUIRE
;  657     0719  4            !-
;  658     0720  5                BEGIN
;  659     0721  5
;  660     0722  6                IF (.K GTR OPEN$K_KEY_MAX)
;  661     0723  5                THEN
;  662     0724  6                    BEGIN
;  663     0725  6                    VAR_LENGTHS [.K] = 8;           ! Signify byte
;  664     0726  6                    .KEYWD_ADR [(I = .I + 1), OPEN$A_VALUE]
;  665     0727  6                    END
```

```
;  666     0728  5                 ELSE
;  667     0729  5                     ..KEYWD_ADR [(I = .I + 1), OPEN$A_VALUE]
;  668     0730  5
;  669     0731  4                 END;
;  670     0732  4
;  671     0733  4             [INRANGE, OUTRANGE] :
;  672     0734  4 !+
;  673     0735  4 ! If KEY is out of range, set error flag (V_ARG_KEY_ERR) and
;  674     0736  4 ! keep scanning to see if ERR= is present or not.
;  675     0737  4 !-
;  676     0738  5                 BEGIN
;  677     0739  5                 V_ARG_KEY_ERR = 1;
;  678     0740  5                 0                                   ! Store 0
;  679     0741  4                 END;
;  680     0742  4             TES
;  681     0743  4
;  682     0744  3         END;                                        ! End of CASE on ARG_TYPE.
;  683     0745  3 !+
;  684     0746  3 ! If KEY value is in range, store in cannonical array OPEN_ADR,
;  685     0747  3 ! else set error flag and keep scanning to see if ERR= is present
;  686     0748  3 ! so error handler will handle properly when signaled.
;  687     0749  3 ! Note: I advanced correctly (by 1 or 2) depending on ARGTYPE
;  688     0750  3 ! even though KEY is not one of the defined ones.
;  689     0751  3 !-
;  690     0752  3
;  691     0753  3         IF ((.K LEQU .KEY_MAX) OR (.K EQLU OPEN$K_IOSTAT)) THEN OPEN_ADR [.K] = .V ELSE V_ARG_KEY_ERR = 1;
;  692     0754  3
;  693     0755  2         END;                                        ! End of loop
;  694     0756  2
;  695     0757  2 !+
;  696     0758  2 ! Check for any errors during scan.
;  697     0759  2 ! If yes, SIGNAL_STOP FOR$_INVARGFOR (48='INVALID ARGUMENT TO FORTRAN I/O SYSTEM')
;  698     0760  2 !-
;  699     0761  2
;  700     0762  2     IF .V_ARG_KEY_ERR THEN FOR$$SIG_NO_LUB (FOR$K_INVARGFOR, .OPEN_ADR [OPEN$K_UNIT]);
;  701     0763  2
;  702     0764  2     IF .V_KEY_VAL_ERR THEN FOR$$SIG_NO_LUB (FOR$K_KEYVALERR, .OPEN_ADR [OPEN$K_UNIT]);
;  703     0765  2
;  704     0766  2
;  705     0767  2     RETURN;                                         ! Return from FOR$$OPECLO_ARG routine
;  706     0768  1     END;                                            ! End of FOR$$OPECLO_ARG routine


                                        0FFC 00000          .ENTRY  FOR$$OPECLO_ARG, Save R2,R3,R4,R5,R6,R7,R8,-; 0386
                                                                    R9,R10,R11
                                5E      04   C2 00002          SUBL2   #4, SP
                                5B  10  AC   D0 00005          MOVL    KEY_MAX, R11                                ; 0462
                          50    5B      02   78 00009          ASHL    #2, R11, R0
                                50      04   C0 0000D          ADDL2   #4, R0
                                57  0C  AC   D0 00010          MOVL    OPEN_ADR, R7
                    50          00      6E   00 2C 00014       MOVC5   #0, (SP), #0, R0, (R7)
                                                   67   00019
                                                   6E   D4 0001A  CLRL    V_KEY_VAL_ERR                               ; 0464
                                                   58   7C 0001C  CLRQ    UNIT_TYPE                                   ; 0465
```

```
                                    5A  D4 0001E              CLRL    UNIT_ADDR                                       ; 0466
                              55    04  AC  D0 00020          MOVL    KEYWD_ADR, R5                                   ; 0489
                              52        01  CE 00024          MNEGL   #1, I
                                    0175  31 00027          BRW     42$
                              50    6542  DE 0002A 1$:       MOVAL   (R5)[I], R0
                              53      60  9A 0002E          MOVZBL  (R0), K
                        0A    00    01  AF  8F 00031          CASEB   1(R0), #0, #10                                  ; 0493
                0025  001E  001E    0019     00036 2$:       .WORD   3$-2$,-
                00AE  00DA  005C    0145     0003E                   4$-2$,-
                      013B  012F    0145     00046                   4$-2$,-
                                                                     6$-2$,-
                                                                     37$-2$,-
                                                                     10$-2$,-
                                                                     25$-2$,-
                                                                     20$-2$,-
                                                                     37$-2$,-
                                                                     34$-2$,-
                                                                     36$-2$
                                    010F  31 0004C          BRW     32$                                             ; 0739
                              54      01  D0 0004F 3$:       MOVL    #1, V                                           ; 0493
                                      04  11 00052          BRB     5$
                              54    02  A0  32 00054 4$:       CVTWL   2(R0), V                                        ; 0508
                                    0131  31 00058 5$:       BRW     39$
                              01        53  D1 0005B 6$:       CMPL    K, #1                                           ; 0517
                                        11  12 0005E          BNEQ    8$
                                        58  D5 00060          TSTL    UNIT_TYPE                                       ; 0523
                                        05  13 00062          BEQL    7$
                              59        01  D0 00064          MOVL    #1, V_ARG_KEY_ERR                               ; 0525
                                        08  11 00067          BRB     8$
                              58        07  D0 00069 7$:       MOVL    #7, UNIT_TYPE                                   ; 0531
                              5A  04  A542  D0 0006C          MOVL    4(R5)[I], UNIT_ADDR                             ; 0532
                              11        53  D1 00071 8$:       CMPL    K, #17                                          ; 0535
                                        76  13 00074          BEQL    21$
                              16        53  D1 00076          CMPL    K, #22
                                        71  13 00079          BEQL    21$
                              1A        53  D1 0007B          CMPL    K, #26                                          ; 0544
                                        07  15 0007E          BLEQ    9$
                        20 BC43         10  90 00080          MOVB    #16, @VAR_LENGTHS[K]                            ; 0547
                                        4A  11 00085          BRB     18$                                             ; 0548
                                        52  D6 00087 9$:       INCL    I                                               ; 0551
                              50      6542  D0 00089          MOVL    (R5)[I], R0
                              50        60  32 0008D          CVTWL   (R0), R0
                                        77  11 00090          BRB     23$                                             ; 0544
                              01        53  D1 00092 10$:      CMPL    K, #1                                           ; 0561
                                        11  12 00095          BNEQ    12$
                                        58  D5 00097          TSTL    UNIT_TYPE                                       ; 0568
                                        05  13 00099          BEQL    11$
                              59        01  D0 0009B          MOVL    #1, V_ARG_KEY_ERR                               ; 0570
                                        08  11 0009E          BRB     12$
                              58        08  D0 000A0 11$:      MOVL    #8, UNIT_TYPE                                   ; 0576
                              5A  04  A542  D0 000A3          MOVL    4(R5)[I], UNIT_ADDR                             ; 0577
                                        50  D4 000A8 12$:      CLRL    R0                                              ; 0580
                              11        53  D1 000AA          CMPL    K, #17
                                        04  12 000AD          BNEQ    13$
                                        50  D6 000AF          INCL    R0
                                        05  11 000B1          BRB     14$
                              16        53  D1 000B3 13$:      CMPL    K, #22
```

```
                                   0F  12 000B6        BNEQ    17$                            ;
                          05       50  E9 000B8  14$:  BLBC    R0, 15$                        ; 0588
                          67       01  D0 000BB        MOVL    #1, (R7)                       ; 0590
                                   04  11 000BE        BRB     16$                            ;
                    64    A7       01  D0 000C0  15$:  MOVL    #1, 100(R7)                    ; 0592
                                 00B4  31 000C4  16$:  BRW     37$                            ; 0594
                          1A       53  D1 000C7  17$:  CMPL    K, #26                         ; 0598
                                   0D  15 000CA        BLEQ    19$                            ;
                    20 BC43        20  90 000CC        MOVB    #32, @VAR_LENGTHS[K]           ; 0601
                                   52  D6 000D1  18$:  INCL    I                              ; 0602
                          50     6542  D0 000D3        MOVL    (R5)[I], R0                    ;
                                   30  11 000D7        BRB     23$                            ;
                                   52  D6 000D9  19$:  INCL    I                              ; 0605
                          50     6542  D0 000DB        MOVL    (R5)[I], R0                    ;
                          50       60  D0 000DF        MOVL    (R0), R0                       ;
                                   25  11 000E2        BRB     23$                            ; 0598
                          0E       53  D1 000E4  20$:  CMPL    K, #14                         ; 0620
                                   DB  13 000E7        BEQL    16$                            ;
                          1A       53  D1 000E9        CMPL    K, #26                         ;
                                   D6  13 000EC  21$:  BEQL    16$                            ;
                              04 A542  DD 000EE        PUSHL   4(R5)[I]                       ; 0629
                                   53  DD 000F2        PUSHL   K                              ;
             00000000G    00       02  FB 000F4        CALLS   #2, FOR$$OPEN_KEYWD            ;
                                   52  D6 000F8        INCL    I                              ; 0630
        01 FFFFFFFF       8F       50  CF 000FD        CASEL   V, #-1, #1                     ; 0632
                        0006     0059     00105  22$:  .WORD   32$-22$,-                      ;
                                                               24$-22$                        ;
                                   61  11 00109  23$:  BRB     35$                            ; 0648
                          6E       01  D0 0010B  24$:  MOVL    #1, V_KEY_VAL_ERR              ; 0643
                                   51  11 0010E        BRB     33$                            ; 0642
                          0E       53  D1 00110  25$:  CMPL    K, #14                         ; 0662
                                   16  12 00113        BNEQ    26$                            ;
                          56    14 AC  D0 00115        MOVL    NAM_DSC_ADR, R6                ; 0669
                                   52  D6 00119        INCL    I                              ;
                    04    A6     6542  D0 0011B        MOVL    (R5)[I], 4(R6)                 ;
        04   B6   0064    8F       00  3A 00120        LOCC    #0, #100, @4(R6)               ; 0670
                                   1B  13 00127        BEQL    27$                            ;
                                   1B  11 00129        BRB     28$                            ; 0671
                          1A       53  D1 0012B  26$:  CMPL    K, #26                         ; 0675
                                   2C  12 0012E        BNEQ    31$                            ;
                          56    18 AC  D0 00130        MOVL    DEF_DSC_ADR, R6                ; 0682
                                   52  D6 00134        INCL    I                              ;
                    04    A6     6542  D0 00136        MOVL    (R5)[I], 4(R6)                 ;
        04   B6   0064    8F       00  3A 0013B        LOCC    #0, #100, @4(R6)               ; 0683
                                   02  12 00142        BNEQ    28$                            ;
                                   51  D4 00144  27$:  CLRL    R1                             ;
                                   51  D5 00146  28$:  TSTL    P                              ; 0684
                                   06  13 00148        BEQL    29$                            ;
                          51    04 A6  C2 0014A        SUBL2   4(R6), R1                      ;
                                   04  11 0014E        BRB     30$                            ;
                          51    64 8F  9A 00150  29$:  MOVZBL  #100, R1                       ;
                          66       51  B0 00154  30$:  MOVW    R1, (R6)                       ;
                          54       56  D0 00157        MOVL    R6, V                          ; 0686
                                   30  11 0015A        BRB     39$                            ;
                                   52  D6 0015C  31$:  INCL    I                              ; 0694
                          59       01  D0 0015E  32$:  MOVL    #1, V_ARG_KEY_ERR              ; 0695
                                   54  D4 00161  33$:  CLRL    V                              ; 0693
```

```
                              27  11 00163       BRB     39$                                 ; 0662
          51             02   A0  32 00165 34$:  CVTWL   2(R0), COUNT                        ; 0709
          52                  51  C0 00169       ADDL2   COUNT, I                            ; 0711
          54                  50  D0 0016C 35$:  MOVL    ADDR, V                             ; 0712
                              1B  11 0016F       BRB     39$
          1A                  53  D1 00171 36$:  CMPL    K, #26                              ; 0722
                              0D  15 00174       BLEQ    38$
     20 BC43                  08  90 00176       MOVB    #8, @VAR_LENGTHS[K]                 ; 0725
                              52  D6 0017B 37$:  INCL    I                                   ; 0726
          54                6542  D0 0017D       MOVL    (R5)[I], V
                              09  11 00181       BRB     39$
                              52  D6 00183 38$:  INCL    I                                   ; 0729
          50                6542  D0 00185       MOVL    (R5)[I], R0
          54                  60  D0 00189       MOVL    (R0), V
          5B                  53  D1 0018C 39$:  CMPL    K, R11                              ; 0753
                              05  1B 0018F       BLEQU   40$
          16                  53  D1 00191       CMPL    K, #22
                              06  12 00194       BNEQ    41$
        6743                  54  D0 00196 40$:  MOVL    V, (R7)[K]
                              03  11 0019A       BRB     42$
          59                  01  D0 0019C 41$:  MOVL    #1, V_ARG_KEY_ERR
  02      52             08   AC  F2 0019F 42$:  AOBLSS  ACTUAL_COUNT, I, 43$                ; 0473
                              03  11 001A4       BRB     44$
                            FE81  31 001A6 43$:  BRW     1$
          0C                  59  E9 001A9 44$:  BLBC    V_ARG_KEY_ERR, 45$                  ; 0762
                         04   A7  DD 001AC       PUSHL   4(R7)
                              30  DD 001AF       PUSHL   #48
   00000000G  00              02  FB 001B1       CALLS   #2, FOR$$SIG_NO_LUB
          0C                  6E  E9 001B8 45$:  BLBC    V_KEY_VAL_ERR, 46$                  ; 0764
                         04   A7  DD 001BB       PUSHL   4(R7)
                              2D  DD 001BE       PUSHL   #45
   00000000G  00              02  FB 001C0       CALLS   #2, FOR$$SIG_NO_LUB
                                  04 001C7 46$:  RET                                         ; 0768

; Routine Size:  456 bytes,    Routine Base:  _FOR$CODE + 00D4

;  707          0769  1
```

```
;  709     0770  1 ROUTINE OPEN_ON_CONNECTED (                    ! Open on a connected unit
;  710     0771  1         OPEN,                                   ! Keyword vector
;  711     0772  1         L_UNWIND_ACTION                         . Unwind action
;  712     0773  1     ) : CALL_CCB =
;  713     0774  1
;  714     0775  1 !++
;  715     0776  1 ! FUNCTIONAL DESCRIPTION:
;  716     0777  1 !
;  717     0778  1 !       This routine implements the FORTRAN-77 concept of open on
;  718     0779  1 !       a connected unit.
;  719     0780  1 !
;  720     0781  1 !       If an OPEN is done for a unit which is already open, one of two
;  721     0782  1 !       things happen:
;  722     0783  1 !           1.  If the filename specification in the OPEN is the same as
;  723     0784  1 !               the same as the file currently open, or if the filename
;  724     0785  1 !               is omitted but the unit is already open, then the value
;  725     0786  1 !               of BLANK= is set according to the keyword list.
;  726     0787  1 !           2.  If the filename specification in the OPEN is not the same
;  727     0788  1 !               as the file currently open, the old file is closed and
;  728     0789  1 !               the new one is opened.
;  729     0790  1 !
;  730     0791  1 ! FORMAL PARAMETERS:
;  731     0792  1 !
;  732     0793  1 !       OPEN.rl.ra              Sorted keyword list from OPEN
;  733     0794  1 !       L_UNWIND_ACTION.ml.r    Unwind action in case of an error
;  734     0795  1 !
;  735     0796  1 ! IMPLICIT INPUTS:
;  736     0797  1 !
;  737     0798  1 !       CCB                     Global I/O database register
;  738     0799  1 !
;  739     0800  1 ! IMPLICIT OUTPUTS:
;  740     0801  1 !
;  741     0802  1 !       LUB$V_NULLBLNK
;  742     0803  1 !
;  743     0804  1 ! ROUTINE VALUE:
;  744     0805  1 !
;  745     0806  1 !       True (1) if no further OPEN processing is needed (case 1)
;  746     0807  1 !       False (0) otherwise (case 2)
;  747     0808  1 !
;  748     0809  1 ! SIDE EFFECTS:
;  749     0810  1 !
;  750     0811  1 !       Possibly closes the currently open file
;  751     0812  1 !--
;  752     0813  1
;  753     0814  2     BEGIN
;  754     0815  2
;  755     0816  2     EXTERNAL REGISTER
;  756     0817  2         CCB : REF $FOR$CCB_DECL;
;  757     0818  2
;  758     0819  2     MAP
;  759     0820  2         OPEN : REF VECTOR [OPEN$K_KEY_MAX + 1];
;  760     0821  2
;  761     0822  2     LOCAL
;  762     0823  2         FAB : BLOCK [FAB$C_BLN, BYTE],          ! FAB block
;  763     0824  2         NAM : BLOCK [NAM$C_BLN, BYTE],          ! NAM block
;  764     0825  2         RES_NAME : VECTOR [NAM$C_MAXRSS, BYTE], ! Resultant name string
;  765     0826  2         RES_LEN,                                ! Resultant string length
```

```
;  766     0827  2          DEF_NAME : VECTOR [10, BYTE],           ! Default name string
;  767     0828  2          NAM_DSC : REF DSC$DESCRIPTOR,           ! FILE/DEFAULTFILE descriptor
;  768     0829  2          UNIT,                                   ! Logical unit number
;  769     0830  2          RMS_STATUS;                             ! RMS condition status
;  770     0831  2
;  771     0832  2      !+
;  772     0833  2      ! Set up FAB and NAM blocks
;  773     0834  2      !-
;  774     0835  2          CH$FILL (0, FAB$C_BLN, FAB);
;  775     0836  2          CH$FILL (0, NAM$C_BLN, NAM);
;  776     0837  2          FAB [FAB$B_BID] = FAB$C_BID;
;  777     0838  2          FAB [FAB$B_BLN] = FAB$C_BLN;
;  778     0839  2          NAM [NAM$B_BID] = NAM$C_BID;
;  779     0840  2          NAM [NAM$B_BLN] = NAM$C_BLN;
;  780     0841  2          FAB [FAB$L_NAM] = NAM;
;  781     0842  2      !+
;  782     0843  2      ! Set up common default value for FILE and DEFAULTFILE if needed
;  783     0844  2      !-
;  784     0845  2          UNIT = .OPEN [OPEN$K_UNIT];
;  785     0846  2          IF .OPEN [OPEN$K_NAME] EQLA 0 OR
;  786     0847  2             .OPEN [OPEN$K_DEFAULTF] EQLA 0
;  787     0848  2          THEN
;  788     0849  3              BEGIN
;  789     0850  3              DEF_NAME [0] = %C'F';
;  790     0851  3              DEF_NAME [1] = %C'O';
;  791     0852  3              DEF_NAME [2] = %C'R';
;  792     0853  3              DEF_NAME [3] = ((.UNIT/100) MOD 10) + %C'0';
;  793     0854  3              DEF_NAME [4] = ((.UNIT/10) MOD 10) + %C'0';
;  794     0855  3              DEF_NAME [5] = ((.UNIT) MOD 10) + %C'0';
;  795     0856  3              DEF_NAME [6] = %C'.';
;  796     0857  3              DEF_NAME [7] = %C'D';
;  797     0858  3              DEF_NAME [8] = %C'A';
;  798     0859  3              DEF_NAME [9] = %C'T';
;  799     0860  2              END;
;  800     0861  2
;  801     0862  2      !+
;  802     0863  2      ! Set up DEFAULTFILE name
;  803     0864  2      !-
;  804     0865  2
;  805     0866  2          NAM_DSC = .OPEN [OPEN$K_DEFAULTF];
;  806     0867  2
;  807     0868  3          IF (.NAM_DSC NEQ 0)
;  808     0869  2          THEN
;  809     0870  3              BEGIN
;  810     0871  3      !+
;  811     0872  3      ! Default file name was specified.  Check for proper length then
;  812     0873  3      ! use it.
;  813     0874  3      !-
;  814     0875  4              IF ((.NAM_DSC [DSC$W_LENGTH] GTRU 255) OR (.NAM_DSC [DSC$W_LENGTH] EQL 0))
;  815     0876  3              THEN
;  816     0877  3                  FOR$$SIG_NO_LUB (FOR$K_FILNAMSPE, .UNIT);
;  817     0878  3
;  818     0879  3              FAB [FAB$B_DNS] = .NAM_DSC [DSC$W_LENGTH];
;  819     0880  3              FAB [FAB$L_DNA] = .NAM_DSC [DSC$A_POINTER];
;  820     0881  3              END
;  821     0882  2          ELSE
;  822     0883  3              BEGIN
```

```
;  823     0884  3 !+
;  824     0885  3 ! DEFAULTFILE not specified, use name of FORnnn.DAT
;  825     0886  3 !-
;  826     0887  3         FAB [FAB$B_DNS] = %CHARCOUNT ('FORnnn.DAT');
;  827     0888  3         FAB [FAB$L_DNA] = DEF_NAME;
;  828     0889  2         END;
;  829     0890  2
;  830     0891  2 !+
;  831     0892  2 ! Set up file name
;  832     0893  2 !-
;  833     0894  2     NAM_DSC = .OPEN [OPEN$K_NAME];
;  834     0895  2
;  835     0896  3     IF (.NAM_DSC NEQ 0)
;  836     0897  2     THEN
;  837     0898  3         BEGIN
;  838     0899  3 !+
;  839     0900  3 ! File name was specified.  Check for proper length then
;  840     0901  3 ! use it.
;  841     0902  3 !-
;  842     0903  3
;  843     0904  4         IF ((.NAM_DSC [DSC$W_LENGTH] GTRU 255) OR (.NAM_DSC [DSC$W_LENGTH] EQL 0))
;  844     0905  3         THEN
;  845     0906  3             FOR$$SIG_NO_LUB (FOR$K_FILNAMSPE, .UNIT);
;  846     0907  3
;  847     0908  3         FAB [FAB$B_FNS] = .NAM_DSC [DSC$W_LENGTH];
;  848     0909  3         FAB [FAB$L_FNA] = .NAM_DSC [DSC$A_POINTER];
;  849     0910  3         END
;  850     0911  2     ELSE
;  851     0912  3         BEGIN
;  852     0913  3 !+
;  853     0914  3 ! File name not specified, use name of FORnnn which may be
;  854     0915  3 ! a logical name.
;  855     0916  3 !-
;  856     0917  3         FAB [FAB$B_FNS] = %CHARCOUNT ('FORnnn');
;  857     0918  3         FAB [FAB$L_FNA] = DEF_NAME;
;  858     0919  2         END;
;  859     0920  2
;  860     0921  2 !+
;  861     0922  2 ! Set up resultant name string
;  862     0923  2 !-
;  863     0924  2     NAM [NAM$B_ESS] = NAM [NAM$B_RSS] = NAM$C_MAXRSS;
;  864     0925  2     NAM [NAM$L_ESA] = NAM [NAM$L_RSA] = RES_NAME;
;  865     0926  2 !+
;  866     0927  2 ! Parse and search for the file to get the resultant name
;  867     0928  2 !-
;  868     0929  2     RMS_STATUS = $PARSE (FAB = FAB);
;  869     0930  2
;  870     0931  2     IF (.RMS_STATUS) THEN $SEARCH (FAB = FAB) ELSE FOR$$SIG_NO_LUB (FOR$K_FILNAMSPE, .UNIT, FAB);
;  871     0932  2
;  872     0933  2 !+
;  873     0934  2 ! Specifically forbid wildcards in file name.
;  874     0935  2 !-
;  875     0936  2
;  876     0937  3     IF (.NAM [NAM$V_WILDCARD])
;  877     0938  2     THEN
;  878     0939  3         BEGIN
;  879     0940  3         NAM [NAM$L_ESA] = 0;                    ! Invalidate result string
```

```
;  880          0941  3          NAM [NAM$L_RSA] = 0;
;  881          0942  3          FAB [FAB$L_STS] = 0;                    ! Invalidate statuses
;  882          0943  3          FAB [FAB$L_STV] = 0;
;  883          0944  3          FOR$$SIG_NO_LUB (FOR$K_FILNAMSPE, .UNIT, FAB);
;  884          0945  2          END;
;  885          0946  2
;  886          0947  2      !+
;  887          0948  2      ! See if the resultant name matches that stored in the LUB
;  888          0949  2      ! or if the name was not given and the unit is open.
;  889          0950  2      !-
;  890          0951  2          RES_LEN = MAX (.NAM [NAM$B_RSL], .NAM [NAM$B_ESL]);
;  891          0952  2
;  892          0953  4          IF ((CH$EQL (.RES_LEN, RES_NAME, .CCB [LUB$B_RSL], .CCB [LUB$A_RSN], %C' '))        !
;  893          0954  3              OR ((.OPEN [OPEN$K_NAME] EQL 0) AND .CCB [LUB$V_OPENED]))
;  894          0955  2          THEN
;  895          0956  3              BEGIN
;  896          0957  3      !+
;  897          0958  3      ! Names match, change BLANK= value only.
;  898          0959  3      !-
;  899          0960  3
;  900          0961  3              CASE .OPEN [OPEN$K_BLANK] FROM 0 TO OPEN$K_BLK_NUL OF
;  901          0962  3                  SET
;  902          0963  3
;  903          0964  3                  [0] :
;  904          0965  3                  ;                               ! Make no changes
;  905          0966  3
;  906          0967  3                  [OPEN$K_BLK_ZER] :              ! BLANK='ZERO'
;  907          0968  3                      CCB [LUB$V_NULLBLNK] = 0;
;  908          0969  3
;  909          0970  3                  [OPEN$K_BLK_NUL] :              ! BLANK='NULL'
;  910          0971  3                      CCB [LUB$V_NULLBLNK] = 1;
;  911          0972  3
;  912          0973  3                  [OUTRANGE] :
;  913          0974  3                      FOR$$SIG_NO_LUB (FOR$K_INVARGFOR, .UNIT, FAB);
;  914          0975  3                  TES;
;  915          0976  3
;  916          0977  3      !+
;  917          0978  3      ! BLANK= set, now pop the LUB/RAB/ISB and return to FOR$OPEN
;  918          0979  3      !-
;  919          0980  3              FOR$$CB_POP ();
;  920          0981  3              .L_UNWIND_ACTION = FOR$K_UNWINDNOP;
;  921          0982  3              RETURN 1;                               ! No more OPEN processing needed
;  922          0983  3              END
;  923          0984  2          ELSE
;  924          0985  3              BEGIN
;  925          0986  3      !+
;  926          0987  3      ! File names do not match; close current file, open new one.
;  927          0988  3      !-
;  928          0989  3
;  929          0990  3              IF NOT FOR$$CLOSE_FILE () THEN FOR$$SIG_NO_LUB (FOR$K_CLOERR, .UNIT, FAB);
;  930          0991  3
;  931          0992  3              FOR$$CB_POP ();
;  932          0993  3              .L_UNWIND_ACTION = FOR$K_UNWINDNOP;
;  933          0994  3      !+
;  934          0995  3      ! Now, try to initiate re-opening of this unit
;  935          0996  3      !-
;  936          0997  3      }
```

```
;   3        FOR$$CB_PUSH (.UNIT, LUB$K_LUN_MIN);
;   3        .L_UNWIND_ACTION = FOR$K_UNWINDPOP;
;   3
;   4        IF ((.CCB [LUB$V_OPENED]) OR (.CCB [LUB$V_DEALLOC]))
;   3        THEN
;   3            FOR$$SIGNAL_STO (FOR$K_RECIO_OPE);
;   3
;   2        END;
;   2
;   2    RETURN 0;                                     ! Continue OPEN processing
;   1    END;                                          ! of routine OPEN_ON_CONNECTED


                                                        .EXTRN  SYS$PARSE, SYS$SEARCH

                                      01FC 00000 OPEN_ON_CONNECTED:
                                                        .WORD   Save R2,R3,R4,R5,R6,R7,R8              ; 0770
                       58 00000000G   00   9E 00002     MOVAB   FOR$$CB_POP, R8                        ;
                       57 00000000G   00   9E 00009     MOVAB   FOR$$SIG_NO_LUB, R7                    ;
                       5E      FE44   CE   9E 00010     MOVAB   -444(SP), SP                           ;
 0050  8F        00    6E             00   2C 00015     MOVC5   #0, (SP), #0, #80, FAB                 ; 0835
                                B0    AD      0001C
 0060  8F        00    6E             00   2C 0001E     MOVC5   #0, (SP), #0, #96, NAM                 ; 0836
                              FF50    CD      00025
                  B0   AD      5003   8F   B0 00028     MOVW    #20483, FAB                            ; 0837
                FF50   CD      6002   8F   B0 0002E     MOVW    #24578, NAM                            ; 0839
                  D8   AD      FF50   CD   9E 00035     MOVAB   NAM, FAB+40                            ; 0841
                       54        04   AC   D0 0003B     MOVL    OPEN, R4                               ; 0845
                       55        04   A4   D0 0003F     MOVL    4(R4), UNIT                            ;
                                      56   D4 00043     CLRL    R6                                     ; 0846
                                 38   A4   D5 00045     TSTL    56(R4)                                 ;
                                      04   12 00048     BNEQ    1$                                     ;
                                      56   D6 0004A     INCL    R6                                     ;
                                      05   11 0004C     BRB     2$                                     ;
                                 68   A4   D5 0004E 1$: TSTL    104(R4)                                ; 0847
                                      4B   12 00051     BNEQ    3$                                     ;
                       6E      4F46   8F   B0 00053 2$: MOVW    #20294, DEF_NAME                       ; 0850
                  02   AE        52   8F   90 00058     MOVB    #82, DEF_NAME+2                        ; 0852
             52        55  00000064   8F   C7 0005D     DIVL3   #100, UNIT, R2                         ; 0853
       7E    00        52             01   7A 00065     EMUL    #1, R2, #0, -(SP)                      ;
       52    52        8E             0A   7B 0006A     EDIV    #10, (SP)+, R2, R2                     ;
          03 AE        52             30   81 0006F     ADDB3   #48, R2, DEF_NAME+3                    ;
             52        55             0A   C7 00074     DIVL3   #10, UNIT, R2                          ; 0854
       7E    00        52             01   7A 00078     EMUL    #1, R2, #0, -(SP)                      ;
       52    52        8E             0A   7B 0007D     EDIV    #10, (SP)+, R2, R2                     ;
          04 AE        52             30   81 00082     ADDB3   #48, R2, DEF_NAME+4                    ;
       7E    00        55             01   7A 00087     EMUL    #1, UNIT, #0, -(SP)                    ; 0855
       50    50        8E             0A   7B 0008C     EDIV    #10, (SP)+, R0, R0                     ;
          05 AE        50             30   81 00091     ADDB3   #48, R0, DEF_NAME+5                    ;
                  06   AE  5441442E   8F   D0 00096     MOVL    #1413563438, DEF_NAME+6                ; 0856
                       52        68   A4   D0 0009E 3$: MOVL    104(R4), NAM_DSC                       ; 0866
                                      1D   13 000A2     BEQL    6$                                     ; 0868
                OOFF   8F             62   B1 000A4     CMPW    (NAM_DSC), #255                        ; 0875
                                      04   1A 000A9     BGTRU   4$                                     ;
                                      62   B5 000AB     TSTW    (NAM_DSC)                              ;
                                      07   12 000AD     BNEQ    5$                                     ;
```

```
                                                55 DD 000AF 4$:     PUSHL   UNIT                            ; 0877
                                                2B DD 000B1         PUSHL   #43
                                             67 02 FB 00CB3         CALLS   #2, FOR$$SIG_NO_LUB
                                          E5 AD 62 90 000B6 5$:     MOVB    (NAM_DSC), FAB+53               ; 0879
                                          E0 AD    04 A2 D0 000BA   MOVL    4(NAM_DSC), FAB+48              ; 0880
                                                08 11 000BF         BRB     7$                              ; 0868
                                          E5 AD 0A 90 000C1 6$:     MOVB    #10, FAB+53                     ; 0887
                                          E0 AD 6E 9E 000C5         MOVAB   DEF_NAME, FAB+48                ; 0888
                                             52    38 A4 D0 000C9 7$:     MOVL    56(R4), NAM_DSC         ; 0894
                                                1D 13 000CD         BEQL    10$                             ; 0896
                                       00FF 8F 62 B1 000CF          CMPW    (NAM_DSC), #255                 ; 0904
                                                04 1A 000D4         BGTRU   8$
                                                62 B5 000D6         TSTW    (NAM_DSC)
                                                07 12 000D8         BNEQ    9$
                                                55 DD 000DA 8$:     PUSHL   UNIT                            ; 0906
                                                2B DD 000DC         PUSHL   #43
                                             67 02 FB 000DE         CALLS   #2, FOR$$SIG_NO_LUB
                                          E4 AD 62 90 000E1 9$:     MOVB    (NAM_DSC), FAB+52               ; 0908
                                          DC AD    04 A2 D0 000E5   MOVL    4(NAM_DSC), FAB+44              ; 0909
                                                08 11 000EA         BRB     11$                             ; 0896
                                          E4 AD 06 90 000EC 10$:    MOVB    #6, FAB+52                      ; 0917
                                          DC AD 6E 9E 000F0         MOVAB   DEF_NAME, FAB+44                ; 0918
                                       FF52 CD 01 8E 000F4 11$:     MNEGB   #1, NAM+2                       ; 0924
                                       FF5A CD 01 8E 000F9          MNEGB   #1, NAM+10
                                             50    0C AE 9E 000FE   MOVAB   RES_NAME, R0                    ; 0925
                                       FF54 CD 50 D0 00102          MOVL    R0, NAM+4
                                       FF5C CD 50 D0 00107          MOVL    R0, NAM+12
                                                B0 AD 9F 0010C      PUSHAB  FAB                             ; 0929
                                00000000G   00    01 FB 0010F       CALLS   #1, SYS$PARSE
                                                0C 50 E9 00116      BLBC    RMS_STATUS, 12$                 ; 0931
                                                B0 AD 9F 00119      PUSHAB  FAB
                                00000000G   00    01 FB 0011C       CALLS   #1, SYS$SEARCH
                                                0A 11 00123         BRB     13$
                                                   B0 AD 9F 00125 12$:  PUSHAB  FAB
                                                   55 DD 00128      PUSHL   UNIT
                                                   2B DD 0012A      PUSHL   #43
                                                67 03 FB 0012C      CALLS   #3, FOR$$SIG_NO_LUB
                                                15    85 AD E9 0012F 13$:  BLBC    NAM+53, 14$             ; 0937
                                                   FF5C CD D4 00133 CLRL    NAM+12                          ; 0940
                                                   FF54 CD D4 00137 CLRL    NAM+4                           ; 0941
                                                   B8 AD 7C 0013B   CLRQ    FAB+8                           ; 0942
                                                   B0 AD 9F 0013E   PUSHAB  FAB                             ; 0944
                                                   55 DD 00141      PUSHL   UNIT
                                                   2B DD 00143      PUSHL   #43
                                                67 03 FB 00145      CALLS   #3, FOR$$SIG_NO_LUB
                                                50 FF53 CD 9A 00148 14$:  MOVZBL  NAM+3, R0                 ; 0951
                                                50 FF5B CD 91 0014D      CMPB    NAM+11, R0
                                                05 1B 00152      BLEQU   15$
                                                50 FF5B CD 9A 00154      MOVZBL  NAM+11, R0
                                                51 50 D0 00159 15$:      MOVL    R0, RES_LEN
                                                50    F7 AB 9A 0015C     MOVZBL  -9(CCB), R0             ; 0953
                                    50 20 0C AE 51 2D 00160      CMPC5   RES_LEN, RES_NAME, #32, R0, @-8(CCB)
                                                F8 BB 00166
                                                07 13 00168      BEQL    16$
                                                31 56 E9 0016A   BLBC    R6, 21$                         ; 0954
                                                2D    FC AB E9 0016D     BLBC    -4(CCB), 21$
                                    02          00    60 A4 CF 00171 16$:  CASEL   96(R4), #0, #2          ; 0961
```

```
                0019        0012        001E    00176 17$:    .WORD   20$-17$,-
                                                              18$-17$,-
                                                              19$-17$
                                    B0  AD  9F 0017C          PUSHAB  FAB                                     ; 0974
                                        55  DD 0017F          PUSHL   UNIT
                                        30  DD 00181          PUSHL   #48
                                    67      03  FB 00183      CALLS   #3, FOR$$SIG_NO_LUB
                                            0C  11 00186      BRB     20$
                                FF  AB  40  8F  8A 00188 18$: BICB2   #64, -1(CCB)                          ; 0968
                                            05  11 0018D      BRB     20$
                                FF  AB  40  8F  88 0018F 19$: BISB2   #64, -1(CCB)                          ; 0971
                                            68  16 00194 20$: JSB     FOR$$CB_POP                           ; 0980
                                08  BC          01  D0 00196      MOVL    #1, @L_ONWIND_ACTION              ; 0981
                                50              01  D0 0019A      MOVL    #1, R0                            ; 0982
                                                04  00197      RET
                    000000000G  00              00  FB 0019E 21$: CALLS   #0, FOR$$CLOSE_FILE               ; 0990
                                0A              50  E8 001A5      BLBS    R0, 22$
                                    B0      AD  9F 001A8      PUSHAB  FAB
                                            55  DD 001AB      PUSHL   UNIT
                                            1C  DD 001AD      PUSHL   #28
                                    67      03  FB 001AF      CALLS   #3, FOR$$SIG_NO_LUB
                                            68  16 001B2 22$: JSB     FOR$$CB_POP                           ; 0992
                                08  BC          01  D0 001B4      MOVL    #1, @L_ONWIND_ACTION              ; 0993
                                            50  D4 001B8      CLRL    R0                                ; 0998
                                    52      55  D0 001BA      MOVL    UNIT, R2
                                        000000000G  00  16 001BD      JSB     FOR$$CB_PUSH
                                            08  BC  D4 001C3      CLRL    @L_UNWIND_ACTION                  ; 0999
                                    05      FC  AB  E8 001C6      BLBS    -4(CCB), 23$                      ; 1001
                09          FF  AB              04  E1 001CA      BBC     #4, -1(CCB), 24$
                                            28  DD 001CF 23$: PUSHL   #40                                  ; 1003
                    00000000G   00              01  FB 001D1      CALLS   #1, FOR$$SIGNAL_STO
                                            50  D4 001D8 24$: CLRL    R0                                ; 1007
                                                04  001DA      RET                                       ; 1008

; Routine Size:  475 bytes,    Routine Base:  _FOR$CODE + 029C

;  948          1009  1 END                                    ! End of FOR$OPEN module
;  949          1010  1
;  950          1011  0 ELUDOM


;                                PSECT SUMMARY
;
;      Name                    Bytes                           Attributes
;
;  _FOR$CODE                      1143  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         32          0         581      00:01.1
;  _$255$DUA28:[FORRTL.OBJ]FORLIB.L32;1    711        223         31          52      00:00.5
;  _$255$DUA28:[FORRTL.OBJ]RTLLIB.L32;1     36          0          0           8      00:00.1
```

```
;                                  COMMAND QUALIFIERS

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

; Size:         1143 code + 0 data bytes
; Run Time:       00:25.4
; Elapsed Time:   01:10.9
; Lines/CPU Min:   2392
; Lexemes/CPU-Min: 15555
; Memory Used:  233 pages
; Compilation Complete
```

FORRAB
LIS

FORREADDF
LIS

FOROPNKEY
LIS

FORPAUSE
LIS

FORRANDOM
LIS

FOROPEN
LIS

FOROPENDE
LIS

FORREADDO
LIS