



```

FFFFFFFFF 000000 RRRRRRRR 000000 PPPPPPPP NN NN
FFFFFFFFF 000000 RRRRRRRR 000000 PPPPPPPP NN NN
FF 00 00 RR RR 00 00 PP PP NN NN
FF 00 00 RR RR 00 00 PP PP NN NN
FF 00 00 RR RR 00 00 PP PP NNNN NN
FF 00 00 RR RR 00 00 PP PP NNNN NN
FFFFFFFFF 00 00 RRRRRRRR 00 00 PPPPPPPP NN NN NN
FFFFFFFFF 00 00 RRRRRRRR 00 00 PPPPPPPP NN NN NN
FF 00 00 RR RR 00 00 PP NN NNNN
FF 00 00 RR RR 00 00 PP NN NNNN
FF 00 00 RR RR 00 00 PP NN NN
FF 00 00 RR RR 00 00 PP NN NN
FF 000000 RR RR 000000 PP NN NN
FF 000000 RR RR 000000 PP NN NN

```

```

RRRRRRRR EEEEEEEEE QQQQQQ
RRRRRRRR EEEEEEEEE QQQQQQ
RR RR EE QQ QQ
RR RR EE QQ QQ
RR RR EE QQ QQ
RRRRRRRR EEEEEEEEE QQ QQ
RRRRRRRR EEEEEEEEE QQ QQ
RR RR EE QQ QQ QQ
RR RR EE QQ QQ QQ
RR RR EE QQ QQ
RR RR EE QQ QQ
RR RR EEEEEEEEE QQQQ QQ
RR RR EEEEEEEEE QQQQ QQ

```

```

....
....
....
....

```



This file, FOROPN.REQ, defines the VAX-11 FORTRAN OPEN,  
CLOSE and INQUIRE keywords and literal values. Edit: SBL1023

```
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```

- ```
0-21 - Move parameter encoding symbols for FOR$$IOBEG to FPAR. TNH 30-May-78
0-22 - Add symbol for statement types. TNH 30-May-78
0-23 - Change name to FOROPN.REQ JBS 14-NOV-78
1-001 - Increment version number and add copyright notice JBS 16-NOV-78
1-002 - Add Some symbolics to define the special LUN numbers for Basic
PRINT, INPUT, READ. DGP 05-Dec-78
1-003 - Add necessary symbolics for ISAM. SBL 06-Dec-78
1-004 - Change file name from FOROPN.REQ to OTSOPN.REQ. JBS 06-DEC-78
1-005 - Remove the statement type constants. Moved to LUB. DGP 06-Dec-78
1-006 - Change back to FOROPN. Move more constants to LUB. DGP 08-Dec-78
1-007 - Fix some comments to reflect the change back to FOROPN. JBS 12-DEC-78
1-008 - Add DISP='SUBMIT'. SBL 09-Feb-1979
1-009 - Change ORG IND to ORG IDX. Add new arg type. SBL 03-Apr-79
1-010 - Add new definitions for ISAM. SBL 6-Apr-79
1-011 - Give BLANK= literal values. SBL 12-Apr-79
1-012 - Add OPEN$K_DIS SUDE and OPEN$K_DIS PRDE. SBL 19-Apr-79
1-013 - Add OPEN$K_IOSTAT_L. SBL 27-Apr-79
1-014 - Add INQUIRE keywords. SBL 27-Apr-79
1-015 - Because OPEN and CLOSE use the IOSTAT keywords, make the
symbols that control the size of their keyword arrays
cover them. JBS 01-MAY-1979
1-016 - Reassign INQUIRE keywords. SBL 01-May-1979
1-017 - Add INQUIRE keyword values for ORGANIZATION, RECORDTYPE
and KEYED. SBL 2-Aug-1979
1-018 - Add OPEN$K_ARG_B_R. SBL 7-August-1979
1-019 - Remove PRINT statement, for new BLISS compiler. JBS 02-OCT-1979
```

- 1-020 - Add CARRIAGECONTROL for INQUIRE. SBL 4-Dec-1979
- 1-021 - ISAM KEY positions in the OPEN arg list are signed longwords,  
not words. The key length should be an unsigned byte. SBL 12-Mar-1980
- 1-022 - Add OPEN\$K\_DEFAULTF and INQ\$K\_DEFAULTF. JAW 30-Jun-1981
- 1-023 - Add STREAM, STREAM\_CR and STREAM\_LF values for RECORDTYPE. SBL 1-Mar-1983

--  
+  
Define symbols for FORTRAN OPEN keywords of form: OPEN\$K\_symbol  
Define literal values of form: OPEN\$K\_abc\_xyz where abc is  
first three letters of keyword and xyz are the first three  
letters of the literal.  
Define symbols in alphabetical order.  
--

## LITERAL

|                        |                                                                                                                                                                                             |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OPEN\$K_ACCESS = 4,    | ACCESS                                                                                                                                                                                      |
| OPEN\$K_ACC_DIR = 1,   | = 'DIRECT'                                                                                                                                                                                  |
| OPEN\$K_ACC_SEQ = 2,   | = 'SEQUENTIAL'                                                                                                                                                                              |
| OPEN\$K_ACC_APP = 3,   | = 'APPEND'                                                                                                                                                                                  |
| OPEN\$K_ACC_KEY = 4,   | = 'KEYED'                                                                                                                                                                                   |
| OPEN\$K_ASSOCIAT = 17, | ASSOCIATEDVARIABLE                                                                                                                                                                          |
| OPEN\$K_ASSOC_L = 0,   | 1 if associated variable is a longword<br>0 if just a word. Note: this parameter<br>is not generated by the compiler!<br>It is needed after all keywords are converted to<br>32-bit values. |
| <br>                   | <br>                                                                                                                                                                                        |
| OPEN\$K_BLANK = 24,    | BLANK                                                                                                                                                                                       |
| OPEN\$K_BLK_ZER = 1,   | = 'ZERO'                                                                                                                                                                                    |
| OPEN\$K_BLK_NUL = 2,   | = 'NULL'                                                                                                                                                                                    |
| OPEN\$K_BLOCKSIZ = 18, | BLOCKSIZE                                                                                                                                                                                   |
| OPEN\$K_BUFFERCO = 9,  | BUFFERCOUNT                                                                                                                                                                                 |
| OPEN\$K_CARRIAGE = 7,  | CARRIAGE CONTROL                                                                                                                                                                            |
| OPEN\$K_CAR_FOR = 1,   | = 'FORTRAN'                                                                                                                                                                                 |
| OPEN\$K_CAR_LIS = 2,   | = 'LIST'                                                                                                                                                                                    |
| OPEN\$K_CAR_NON = 3,   | = 'NONE'                                                                                                                                                                                    |
| OPEN\$K_DEFAULTF = 26, | DEFAULTFILE                                                                                                                                                                                 |
| OPEN\$K_DISPOSE = 2,   | DISPOSE                                                                                                                                                                                     |
| OPEN\$K_DIS_SAV = 1,   | = 'SAVE'                                                                                                                                                                                    |
| OPEN\$K_DIS_DEL = 2,   | = 'DELETE'                                                                                                                                                                                  |
| OPEN\$K_DIS_PRI = 3,   | = 'PRINT'                                                                                                                                                                                   |
| OPEN\$K_DIS_SUB = 4,   | = 'SUBMIT'                                                                                                                                                                                  |
| OPEN\$K_DIS_PRDE = 5,  | = 'PRINT/DELETE'                                                                                                                                                                            |
| OPEN\$K_DIS_SUDE = 6,  | = 'SUBMIT/DELETE'                                                                                                                                                                           |
| OPEN\$K_ERR = 3,       | ERR                                                                                                                                                                                         |
| OPEN\$K_EXTENDSI = 11, | EXTENDSIZE                                                                                                                                                                                  |
| OPEN\$K_FORM = 5,      | ! FORM                                                                                                                                                                                      |
| OPEN\$K_FOR_FOR = 1,   | = 'FORMATTED'                                                                                                                                                                               |
| OPEN\$K_FOR_UNF = 2,   | = 'UNFORMATTED'                                                                                                                                                                             |
| OPEN\$K_FOR_UNF = -1,  | = 'UNSPECIFIED'                                                                                                                                                                             |
| <br>                   | Note: this is not generated by compiler.<br>It is used by default OPEN only.                                                                                                                |
| OPEN\$K_INITIALS = 10, | INITIALSIZE                                                                                                                                                                                 |
| OPEN\$K_IOSTAT = 22,   | IOSTAT                                                                                                                                                                                      |
| OPEN\$K_IOSTAT_L = 25, | 1 If IOSTAT is a longword,<br>0 if a word. This is not generated                                                                                                                            |



```

OPENS$ KEY = 23,
OPENS$ MAXREC = 16,
OPENS$ NAME = 14,
OPENS$ NOSPANBL = 12,
OPENS$ USEROPEN = 21,
OPENS$ ORGANIZA = 19,
    OPENS$ ORG_SEQ = 1,
    OPENS$ ORG_REL = 2,
    OPENS$ ORG_IDX = 3,
    OPENS$ ORG_HAS = 4,
    OPENS$ ORG_STR = 5,
OPENS$ READONLY = 8,
OPENS$ RECDTY = 20,
    OPENS$ REC_FIX = 1,
    OPENS$ REC_VAR = 2,
    OPENS$ REC_SEGM = 3,
    OPENS$ REC_STM = 4,
    OPENS$ REC_STMCR = 5,
    OPENS$ REC_STMLF = 6,
OPENS$ RECORDSI = 8,
OPENS$ SHARED = 13,
OPENS$ TYPE = 15,
    OPENS$ TYP_OLD = 1,
    OPENS$ TYP_NEW = 2,
    OPENS$ TYP_SCR = 3,
    OPENS$ TYP_UNK = 4,
OPENS$ UNIT = T,

```

```

! by the compiler.
KEY
MAXREC
NAME
NOSPANBLOCKS
USEROPEN
ORGANIZATION
    = 'SEQUENTIAL'
    = 'RELATIVE'
    = 'INDEXED'
    = 'HASHED'
    = 'STREAM'
READONLY
RECORDTYPE
    = 'FIXED'
    = 'VARIABLE'
    = 'SEGMENTED'
    = 'STREAM'
    = 'STREAM_CR'
    = 'STREAM_LF'
RECORDSIZE
SHARED
TYPE
    = 'OLD'
    = 'NEW'
    = 'SCRATCH'
    = 'UNKNOWN'
UNIT

```

```

OPENS$ KEY_MAX = OPENS$ DEFAULTF, ! Max. open parameter
CLOSE$ KEY_MAX = OPENS$ DEFAULTF; ! Max. CLOSE parameter

```

Key numbers 27-29 are reserved for future OPEN/CLOSE use.

INQUIRE keyword definitions

#### LITERAL

```

INQ$ FILE = OPENS$ NAME, ! Input file name
INQ$ DEFAULTF = OPENS$ DEFAULTF, ! Defaultfile
INQ$ UNIT = OPENS$ UNIT, ! Input unit number
INQ$ IOSTAT = OPENS$ IOSTAT, ! IOSTAT
INQ$ IOSTAT_L = OPENS$ IOSTAT_L, ! 1 if IOSTAT is a longword
                                ! 0 if a word
INQ$ ERR = OPENS$ ERR, ! 1 if ERR= present
INQ$ EXIST = 30, ! File exists?
INQ$ OPENED = 31, ! File opened?
INQ$ NUMBER = 32, ! Open on what unit?
INQ$ NAMED = 33, ! Does it have a name?
INQ$ NAME = 34, ! What's its name?
INQ$ ACCESS = 35, ! Access mode?
INQ$ SEQUENTIA = 36, ! Is it sequential?
INQ$ DIRECT = 37, ! Is it direct?

```

```

INQSK_FORM = 38,      | What's the form?
INQSK_FORMATTED = 39, | Formatted?
INQSK_UNFORMAT = 40, | Unformatted?
INQSK_RECL = 41,     | What's the recordsize?
INQSK_NEXTREC = 42,  | What's the next record
INQSK_BLANK = 43,    | What are blanks?
INQSK_ORGANIZAT = 44, | What's the organization?
INQSK_RECORDTYP = 45, | What's the recordtype?
INQSK_KEYED = 46,    | KEYED allowed?
INQSK_CARRIAGE = 47, | What's the carriage control?

INQSK_KEY_MAX = INQSK_CARRIAGE;

```

```

!+
! Define FORTRAN OPEN argument type codes.
! Used in field OPENS$B_ARG_TYPE
!-

```

## LITERAL

```

OPENS$K_ARG_NULL = 0, | keyword with no value
OPENS$K_ARG_LIT = 1, | literal value in W INFO WORD
OPENS$K_ARG_W_V = 2, | expression in W_INFO_WORD
OPENS$K_ARG_W_R = 3, | next actual is adr. of word
OPENS$K_ARG_L_V = 4, | next actual is longword value
OPENS$K_ARG_L_R = 5, | next actual is adr. of longword value
OPENS$K_ARG_TZ_R = 6, | next actual is adr. of ASCIIZ string
                       | (needed for compatibility- descriptor
                       | is the preferred form)
OPENS$K_ARG_T_DS = 7, | next actual is adr. of string descriptor
OPENS$K_ARG_ZI = 8,   | next actual is proc. adr.
OPENS$K_ARG_INLN = 9, | next INFO_WORD longwords are arg.
OPENS$K_ARG_B_R = 10, | next actual is address of byte

OPENS$K_ARG_MAX = OPENS$K_ARG_B_R; | max. arg type code

```

```

!+
! Define fields within FORTRAN OPEN parameters
!-

```

## MACRO

```

OPENS$B_KEY = 0,0,8,0 %, | keyword code. Codes are of form:
                       | OPENS$K_keyname
OPENS$B_ARG_TYPE = 0,8,8,0 %, | arg type code. Codes are
                       | of form: OPENS$K_ARG_type
OPENS$W_INFO = 0,16,16,1 %, | 16-bit information.
                       | sign extend to 32-bits.
OPENS$A_VALUE = 0,0,%BPADDR,0 %, | Address of value - in next
                       | position in parameter list
OPENS$G_VALUE = 0,0,%BPVAL,0 %, | General value - in next
                       | position in parameter list

```

```

!+
! Macros and literals for KEY= keyword and for ISAM
!-

```



LITERAL

OPENS<sub>K</sub>\_XAB\_SIZE = XABSC\_KEYLEN + 4;

MACRO

```
OPENSB_DTYPE = 0,0,8,0%,      ! Key datatype in OPEN list
OPENSL_KEY_LO = 4,0,32,1%,    ! Low key position in OPEN list
OPENSL_KEY_HI = 8,0,32,1%,    ! High key position in OPEN list
OPENSB_KTYPE = XABSC_KEYLEN,0,8,0%, ! Saved datatype
OPENSB_SIZE = XABSC_KEYLEN,8,8,0%, ! Saved key size
OPENSW_POS0 = XABSC_KEYLEN,16,16,0%; ! Saved low position
```

```
!+
! Max. length of ASCII string for FORTRAN OPEN file name array
!-
```

LITERAL

```
OPENSK_STR_MAX = 100; ! Max. length of an ASCII string
! (arg type TZ_R only). No limit
! for string descriptor strings
```

```
!+
! Constants used in parameter encoding between the I/O statement routines
! and routine FOR$$IO_BEG. The codes are
! both bit positions in the flag word and an index into
! a table used for sorting out the parameters.
! All are optional for some I/O statement.
!-
```

LITERAL

```
K_UNIT = 0, ! user supplied unit number
K_CHAR_COUNT = 1, ! size of user supplied record for EN/DECODE
K_REC_NO = 2, ! user supplied record number
K_FMT_ADR = 3, ! user supplied format address
K_USR_BUF_ADR = 4, ! user supplied buffer for EN/DECODE
K_OBJ_TIME_FMT = 7; ! bit says object time format
```

```
! End of file FOROPN.REQ
```



