

Technical Memo 4

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### FILSYS Calling Sequences

This describes a new version of FILSYS which contains support for block-level transfers. It is completely compatible with the existing system; all existing code and disks will continue to work correctly. In addition, the new block-level routines can be used with existing files.

#### ROUTINES

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- FREAD      Read an entire file into memory
- FWRITE     (or FWRITD) Write an entire (new) file from memory
- ✓ FDELET    Delete a file
- ✓ FRENAM   Rename a file
- ✓ FALLO    Allocate a (new) file
- FOPEN     Open a file for block-level transfers
- FBLKRD    Read block(s)
- FBLKWR    Write block(s)
- ✓ FDLIST   List the directory

## PARAMETERS

<u>Name</u>	<u>Length</u>	<u>Usual Meaning</u>
DRIVE	1	Disk drive number (1 or 2)
FNAME	DENAML	File name
FTYPE	1	File type (e.g. \$A0)
MEMSIZ	3 or 2	Size of file, in bytes (3 bytes for FALLO, 2 for FREAD/FWRITE)
MEMAD	2	Memory address (usual)
CMEMAD	2	Current memory address
RCODE	1	Return code
REPFLG	1	"Replace" flags
LSTFLG	1	"List" flags
FBADR	2	Memory addr to read/write block(s)
FBSIZ	2	Byte count of block(s) to read/write
FBLKNO	2	Starting block number to read/write
FCB	FCBL	File control block (the state to be saved and restored for FBLKRD/FBLKWR)
FNAME2	DENAML	Same as FNAME
FTYPE2	1	Same as FTYPE

### Notes:

1. No assumptions should be made about physical ordering. All parameters are currently on page zero.
2. Do not assume that values are preserved by FILSYS routines.
3. Some parameters overlay each other and/or other page zero variables.

## FILSYS Routines

### FREAD - Read an entire file

Input: DRIVE, FNAME, FTYPE, MEMAD  
Output: FNAME, FTYPE, MEMSIZ, RCODE

The entire file is read into memory. The name and type supplied may have used wild characters, so the full name and type, along with the size in bytes, is returned. If MEMAD=0, the original address is used.

### FWRITE - Write an entire file

Input: DRIVE, FNAME, FTYPE, MEMAD, MEMSIZ, REPFLG  
Output: RCODE

A new file is allocated and written in its entirety from memory. If REPFLG=0, an existing file with the same name and type will cause an error. If REPFLG=1, an existing file will be replaced.

### FWRITD - Write an entire file, displaced

Input: DRIVE, FNAME, FTYPE, MEMAD, CMEMAD, MEMSIZ, REPFLG  
Output: RCODE

This is identical to FWRITE, except that the current location of the file in memory is CMEMAD. The address written into the directory (to be used for subsequent reads) is MEMAD.

### FDELET - Delete a file

Input: DRIVE, FNAME, FTYPE  
Output: FNAME, FTYPE, RCODE

The full name and type are returned.

FRENAM - Rename a file

Input: DRIVE, FNAME, FTYPE, FNAME2, FTYPE2

Output: FNAME2, FTYPE2, RCODE

The old name is supplied in FNAME2/FTYPE2, and the new name in FNAME/FTYPE. The full old name is returned in FNAME2/FTYPE2.

FDLIST - List the directory

Input: DRIVE, FTYPE, FNAME, LSTFLG

Output: RCODE

Directory information for all files which match the FNAME/FTYPE supplied is printed via the PRCHAR routine. If LSTFLG=0 a complete listing of each entry is given; if LSTFLG=1, a shortened list suitable for the Drone is given. In both cases the volume name of the disk is printed. If LSTFLG=0 and the disk was just changed, it will say "NEW".

FALLO - Allocate a new file

Input: DRIVE, FNAME, FTYPE, MEMSIZ, REPFLG, MEMAD

Output: RCODE

This allocates the file by creating a directory entry, but does not write any data. The input parameters are as described for FWRITE, except that MEMSIZ is now a 3-byte variable. The MEMAD field is optional; what you specify will go into the directory entry but is used only by FREAD.

FOPEN - Open a file for block-level transfer

Input: DRIVE, FNAME, FTYPE

Output: FNAME, FTYPE, MEMSIZ, FCB, RCODE

This finds an existing file and prepares to do block-level transfers to it with FBLKRD/FBLKWR. FNAME and FTYPE will contain the full name and type of the file. MEMSIZ (3 bytes) will be the allocated size in bytes. FCB ("File control block") is a collection of variables that need to be saved and restored if any disk I/O is done between the call to FOPEN and the call(s) to FBLKRD/FBLKWR.

FBLKRD/RBLKWR - Read/Write block(s)

Input: FCB, FBADR, FBSIZ, FBLKNO

Output: RCODE

This reads/writes FBSIZ bytes from memory address FBADR starting at relative block FBLKNO of the file whose current status is in FCB. If the "disk change" flag is on, an implicit FOPEN is executed using information in FCB; this causes the directory entry to be reread. (Note that "Disk change" can be forced by setting the DSIDES entry for the disk to -1.)

## RETURN CODE VALUES

- 0      Sucessful operation
- 1      Hardware disk error (code saved in DSKERR)
- 2      File not there
- 3      File already there
- 4      Directory full
- 5      Disk full
- 6      Directory inconsistent
- 7      Illegal characters in file name
- 8      2-sided disk in 1-sided drive
- 9      Block number out of range