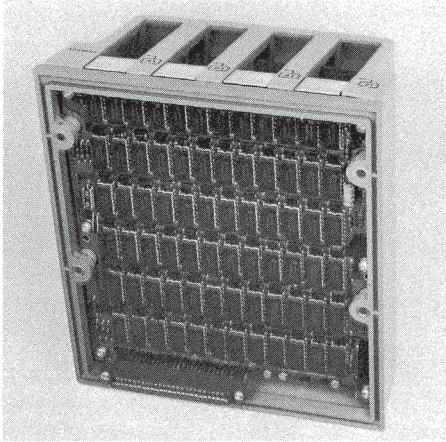# Extended Memory File Manager Expands High Speed Memory in the 4052/54 Series

by Mark Mehall
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If you require fast access to data files or fast access to program and overlay storage, consider the new TEKTRONIX Extended Memory File Manager. Complementing 4050 main memory, the Extended Memory File Manager adds either 256K bytes (Option 27) or 512K bytes (Option 28) of random access memory.

Data can travel at speeds of up to 400K bytes per second between Extended Memory and the 4052A/54A,* and at speeds of up to 50K bytes per second to and from the 4052/54. Program loading and storing time is significantly decreased.

The Extended Memory File Manager is packaged in a special version of the Option 3 Data Communications Interface backpack so it doesn't require backpack slot space. Because special ROMs contain its operating system, no 4050 memory is taken up.

A built-in battery backup power supply means the Extended Memory File Manager retains information indefinitely when the 4050 is plugged in, or for a minimum of four hours after the unit is unplugged. Thus, frequently used programs or data are instantly accessible upon power up without searching and reloading from tape or disk.

The Extended Memory File Manager is compatible with the 4907 File Manager. In fact, its command set is a subset of the 4907 File Manager commands with some of the restrictions removed, plus diagnostic test commands (see sidebar).

File organization is uncomplicated and similar to the 4907 (a proper subset). You store a file by name (up to 10 characters), plus an optional extension (up to four characters); the file may be random or sequential. Multi-file access is convenient for data comparison or file sorting.

Utility functions include a directory that maintains user files and available space, and internal diagnostic routines.

Whether you are upgrading your present 4052/54 with the Extended Memory field kit, or ordering a new 4050 system with the Extended Memory option, you automatically receive the four slot backpack and the data communications interface. For more details, call your local Tektronix Sales Engineer. 📱

* An overview of the new 4052A/54A is contained in a separate article in this issue.

Built-In Diagnostics Enhance Extended Memory File Manager

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Although the Extended Memory File Manager doesn't require routine maintenance or adjustment, and Tektronix makes every effort to prevent equipment failure, malfunctions can occur (Murphy's famous law). When that happens, it's nice to know where the breakdown occurred, get it fixed and get going again. To aid in troubleshooting the 4050 Extended Memory if the need arises, a power-up test, a unique diagnostic test and several helpful utilities have been included in the Extended Memory's operating system.

Power-Up Test

When the 4050 equipped with Extended Memory is powered up, the Extended Memory operating system determines whether the Extended Memory unit is working correctly. It checks the data register, the operation of its main memory, the parity generator and checker, and the volume label. If any of the first three fails, or it finds the volume label corrupted, an error message will be displayed on the 4050 screen.

Extended Memory Test

For a more thorough checkout, the Extended Memory firmware also contains a diagnostic routine called "TESTEM" (Test Extended Memory) which will run a variety of memory tests which can isolate circuit failure to the functional block level and a

RAM failure to the chip level. The test command is:

CALL "TESTEM", TYPE$, LEVEL$, STATUS$
    where:
    TYPE$ is a string variable input
        parameter that defines the
        type of test to run
    LEVEL$ is a string variable input
        parameter that defines the
        severity of the test
    STATUS$ is a string variable output
        parameter that accepts the
        results of the test

TYPE$ may have the following values:
    "D" (Destructive test)
    "N" or "" (Nondestructive test)

LEVEL$ may have the following values:
    "A" Parity Test on current files
    "B" Level A plus Pattern Test
    "C" Level B plus Address Test
    "D" Level C with additional diagnostic information output to the status string and I/O display.

STATUS$ will contain a message depending on the results of the tests:

By building in diagnostic test functions and access utilities, the Extended Memory File Manager's dependability is enhanced by its serviceability. That's an important plus when Murphy's law takes over. 📱