

A special program called a device driver executes I/O instructions to actually effect the data transfers. Each different type of I/O device requires its own driver. DIGITAL supplies drivers for all devices supported by VAX/VMS, and users with special needs or nonstandard devices can write their own drivers. (The VAX/VMS documentation set includes the VAX/VMS Guide to Writing a Device Driver.) Additionally, the system provides services for programs to bypass the driver mechanism and handle device interrupts directly for certain UNIBUS devices.

DIGITAL supplies a set of programs called ancillary control processes (ACPs), which maintain standard structures associated with disk, tape, network, and remote terminal I/O. When a new file is created on a structured disk volume, for example, the disk ACP will update the volume's directory.

The I/O routines of the native mode, high-level languages and native-mode utilities are built on top of VAX RMS, which uses the QIO services; thus, all I/O within the system is standard, unless the user elects to bypass the DIGITAL-supplied mechanisms. Supported devices include disks, tapes, unit record equipment, terminals, networks, and mailboxes (virtual devices for interprocess communication). VAX RMS provides both record access to supported file organizations and an option to bypass record processing; thus, a program can address blocks within a file directly.

VAX RMS supports sequential, relative, stream, and multiple-key indexed disk files. Relative and indexed files can be shared for reading, writing, updating, and deleting records. The system automatically locks and releases records as they are processed. In addition, the programmer can lock and release records explicitly. VAX RMS will control the interlocking for shared, sequential files if the files are formatted as 512-byte, fixed-length records. For shared files, the user can optionally request that RMS allocate I/O buffers in a shared global section. Depending on the application, this could reduce the total amount of physical memory used for I/O buffers and/or reduce the amount of disk I/O necessary for processing a file. For other record formats, the user must assume responsibility for an interlocking mechanism. (Compatibility mode programs can also use RMS, but can not use record locking or file sharing.)