

POINT 4'S LOTUS 710 DISK CONTROLLER: COST-EFFICIENT, HIGH-PERFORMANCE

POINT 4 Data Corporation's LOTUS 710 Disk Controller offers a cost-efficient, high-performance storage module disk interface for POINT 4 computers. The single board design uses low-power Schottky logic providing high-performance and reliability. The controller occupies one slot in the processor chassis and connections to up to four drives are made directly from the board.

FEATURES

- POINT 4 and similar computer I/O bus-compatible
- Interfaces up to four storage module drives in any combination
- Data transfer rate of 1.209 Megabytes/sec
- IRIS®-compatible I/O instructions
- Whole track transfer in a single operation
- Overlapped seek hardware support
- 32-bit ECC error detection and provision for software correction
- Bad and alternate sectoring flags

- Format routine included in controller logic
- Dual port capability (optional)
- Built-in reliability and maintenance features
- Disk utility and diagnostic programs
- Reads MARK 3 SMD/CMD format (read-regardless mode)
- Supports dual port drives interfacing to two computers

The LOTUS 710 Controller interfaces up to four storage module type drives, at transfer rates up to 1.2M bytes per second. Drives supported include: the CDC 9448, 9730, 9760 and LARK series as well as Ampex, Century Data, Okidata, Kennedy and Fujitsu. The four drives interfaced may be a mixture of any of the drives supported.

The LOTUS 710 Controller is software compatible with the IRIS (Interactive Real-time Information System) Operating System used on POINT 4 computers. Four "data-out" instructions supply the controller with information required to perform any operation. Sixteen operations (including read/write/verify, seek

and disk formatting) may be specified using controller commands. Seven "data-in" instructions obtain status information from the controller. Disk utility and diagnostic programs are provided, as well as extensive operations and maintenance documentation.

OPERATION

Data to or from computer memory is transferred in two-byte words using the DMA Data Channel. The 9.67MHz Controller/Drive transfer rate becomes 1.209 Megabytes/sec or 1.65 microseconds/DMA cycle transfer rate at the computer (a rate which the computer must be able to support). The 18-word FIFO buffer is used to prevent "data late" conditions.

Addressing capacity per drive is 1024 tracks, 32 surfaces and 32 sectors. Each sector contains 512K bytes of data. Up to 32 consecutive sectors may be transferred per operation with the cylinder boundary being crossed if necessary.

Hardware alternate sectoring and automatic re-try are jumper-selectable. Bad sector and alternate sector flags are provided to point out sectors known to be faulty. These flags are set during disk formatting. If the alternate sector flag is set, the alternate sector address is specified in the sector header. Alternate sectoring is performed with the necessity of program intervention. A "read-regardless" capability is included on the board which enables the LOTUS 710 in conjunction with a MARK 5 or 8 computer to read a disk that has been formatted and created on a MARK 3.

Overlapped seek allows simultaneous seek and data transfer on multi-drive systems. Once a seek



