

POINT 4'S LOTUS CACHE MEMORY: MORE RESPONSIVE MULTI-USER SYSTEMS

The LOTUS Cache Memory (LCM) is a solid-state memory device which provides auxiliary mass storage for frequently used data which normally resides on disk. Access to data in the LCM is over ten times faster than access to data on the disk itself. It provides economical, high-performance mass storage at run time for the MARK 5 and 8 computer systems. Use of the LCM can result in dramatically higher system performance and throughput and significantly faster interactive workstation response.

The LOTUS Cache Memory is designed for users of POINT 4's MARK 5, MARK 8, and NOVA*-type computers to improve system performance where large numbers of workstations and/or disk operations are employed.

Frequently used disk-resident information is allocated storage space in the LCM. Once retrieved from the disk and stored in the LCM, all future references to that data by the central processing unit (CPU) are directed to the LCM. Data transfer occurs

between the LCM and CPU at electronic speeds, completely bypassing the electro-mechanical seek and latency delays normally associated with disk processing. A single block transfer from the cache can occur 160 times faster than from disk. The LCM offers the user access to vital business information...fast.

LOTUS CACHE MEMORY FEATURES

- High-speed, solid-state intermediate mass storage for frequently used data
- Compatible with POINT 4's MARK 5, MARK 8 and NOVA-type computers
- Static allocation of storage space for known high-usage information
- Dynamic allocation for ease of use and on-line adaptation to user need
- Block size of 512K bytes matches disk sector
- Choice of two different board capacities per board (512K bytes and 1M byte)

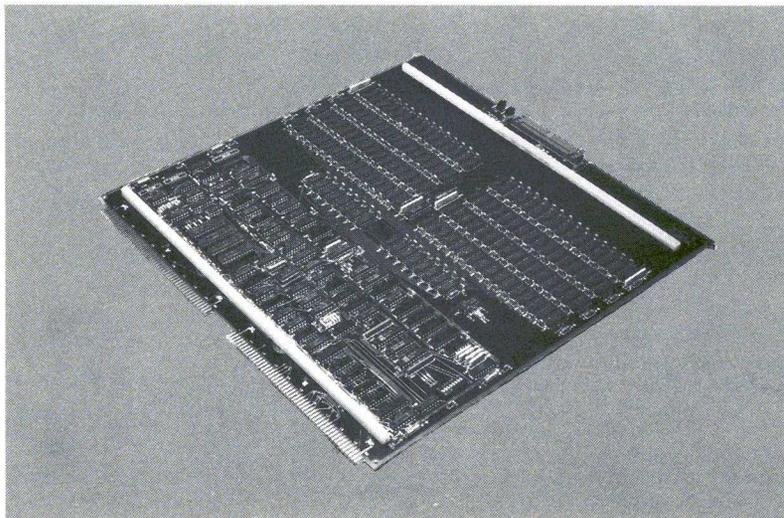
- 64 million byte maximum capacity per device code
- DMA transfer rates of 2.5M bytes per second
- Error detection and correction
- Battery back-up (optional)

OPTIMUM DATA MANAGEMENT

Space in the LCM may be statically allocated beforehand for storage of frequently used data such as disk directories, file indexes, high-usage programs, or entire data files. With items like indexes and directories in the LCM, access to the information they reference can occur in a single data transfer operation between disk and CPU. This can reduce the time required to complete a transaction to half or even a third of the time required without a cache.

DYNAMIC MANAGEMENT

Once a quantity of space in the LCM has been allocated to known high-usage items the remaining space is available for storage of individual data blocks. Studies have shown that, once accessed by the CPU, a given item of information has a high degree of probability of being accessed again almost immediately. The LCM dynamic management algorithm takes advantage of this phenomenon by storing data blocks in the LCM instead of returning them to disk in a time-consuming operation. Most frequently used data are therefore found in the LCM and available for high-speed transfer to the processing unit. As the dynamically managed portion of the LCM is filled, the least recently used data items are returned to the disk to free up



MULTI-USER SYSTEMS DESIGNED WITH YOUR NEEDS IN MIND

additional space. As the system workload changes the mixture of dynamically managed data blocks changes automatically. The combination of static and dynamic space management offers optimum throughput, automatic performance tuning, and dynamic workload leveling as the shifting demands of a contemporary business schedule dictate.

BROAD RANGE OF CAPACITIES

Each LOTUS Cache Memory is contained on a single 15-inch-square printed circuit board. Available in two capacity sizes, a single LCM board can accommodate either 524,288 bytes or 1,048,576 bytes of data. This corresponds to 1,024 and 2,048 512K byte blocks of disk-resident information respectively. Multiple LCM boards may be installed on a system, greatly increasing capacity of the cache and enhancing system performance.

ERROR DETECTION AND CORRECTION OPTION

This feature enables automatic Error Detection And Correction (EDAC) of all single-bit errors and detection of all two-bit errors. EDAC checks for errors within each 64-bit field during a data transfer between the LCM and CPU. An error caused by failure of a single integrated circuit chip is detectable and correctable and allows the user to continue operating unimpeded. Replacement of the faulty element can occur at the user's convenience or during his regularly scheduled maintenance periods.

FAIL-SAFE FEATURE

Like most solid-state memory devices the LCM is a volatile stor-

age medium. In the event of power interruption or failure, the information contained in the LCM and not yet written to the disk, is subject to loss. To guard against this eventuality, an optional battery-powered, fail-safe feature is available. The Battery Back-Up Unit provides up to 90 minutes of continuous power to ensure data integrity in case of power failure or interruption.

INDUSTRY-WIDE ACCEPTANCE

The LOTUS Cache Memory is widely employed on POINT 4 MARK 5 and MARK 8 computer systems and fully supported by the IRIS® operating system software. The LCM is also available for use with the NOVA and other NOVA-type systems and is also supported by BLIS/COBOL software.

SPECIFICATIONS

Processor Compatibility:

POINT 4 MARK 5, MARK 8 and NOVA-chassis compatible processor

DMA Interface:

DMA Rate—2.5M bytes
DMA Cycle—800 nanoseconds

Transfer Mode:

Block mode, 256 16-bit words

Device Code:

Jumper selectable
0-77₈—Defaults to 61₈

Storage Size:

Options:
(1024 blocks) 512K bytes
(2048 blocks) 1M byte
Maximum:
64M bytes
(131,072 blocks per device code)

LCM boards per system:

64 maximum per device code

Interrupt Handling:

None required

Instruction Set:

DOA-A register load (16-bit memory address)
DOB-B register load (block address)
DIA-read LCM status

POWER

Power Requirements:
+5 VAC, 5A

BATTERY BACK-UP

Support for up to 3 boards:

1 board (5A)—90 minutes
2 boards (10A)—45 minutes
3 boards (15A)—20 minutes

DIMENSIONS

Board Dimensions:

15 x 15 inches
(38 x 38 centimeters)

ENVIRONMENTAL

Temperature Range:

0 to 55 degrees Celsius

Relative Humidity:

10 to 90 percent noncondensing

POINT 4: RESPONSIVE TO OUR CUSTOMERS' NEEDS

At POINT 4 Data Corporation, our business is multi-user systems with a personal touch. We design and manufacture computer systems, distribute them through a worldwide network of value-added resellers and support those resellers with personal service.

POINT 4 computer systems are flexible, cost-efficient, expandable and upward compatible. And we're working for the future, developing new and better products and planning more and better ways to support our customers.

The materials contained herein are intended for general information. Details and specifications concerning the use and operation of POINT 4 Data Corporation's equipment and software are contained in the applicable technical manuals, available through local sales representatives.

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