The ECLIPSE MV/4000 SC (Small Cluster) provides ECLIPSE MV/Family 32-bit power, performance, and flexibility at low cost. Featuring advanced microprogrammed 32-bit architecture on a two-board central processing unit, the ECLIPSE MV/4000 SC can accommodate up to four megabytes of main memory, and supports up to 77 megabytes of online storage via two 5¼" Winchester discs. All software and files are protected by a unique, eight-ring hierarchical security structure.

An attractive 13" by 21" by 25" earthtone cabinet mounted on rollers for easy movement and the ability to plug into any 110-volt power outlet make the ECLIPSE MV/4000 SC ideal for the office environment.

F E A T U R E S

- Packaged for the small office environment
- Four gigabyte logical address space
- Eight intelligent asynchronous terminal or serial printer ports
- Two intelligent synchronous communication ports
- One parallel line printer interface
- Optional ECLIPSE® MV/4000 floating point unit
- Fully compatible with other 32-bit ECLIPSE MV/Family and 16-bit ECLIPSE systems
- Extensive commercial, technical, and communications software support
- Available in two models:
  - —Model 90347 ECLIPSE MV/4000 SC (for local backup):
    - —CPU with two megabytes of main memory
    - —Multi-communications processor
    - —One 15 megabyte cartridge tape drive
    - —One 38.6 megabyte Winchester disc drive
    - —One 96 TPI floppy disc drive
    - —Choice of any Data General asynchronous terminal
    - —Advanced Operating System/Virtual Storage (AOS/VS) RTU
    - —Nine software entitlements

(continued)

F E A T U R E S (continued)

—Model 90346 ECLIPSE MV/4000 SC (for remote backup):
  —CPU with two megabytes of main memory
  —Multi-communications processor
  —One 38.6 megabyte Winchester disc drive
  —One 96 TPI floppy disc drive
  —IEEE 802-compatible transceiver and cable
  —Choice of any Data General asynchronous terminal
  —AOS/VS RTU
  —Nine software entitlements
  —XODIAC™, X.25, and X.25 Interlan Driver RTU

- Options:
  —Up to four megabytes of memory
  —Cartridge tape for Model 90346
  —IEEE 802-compliant transceiver and cable with communications software for Model 90347
  —Additional floppy disc
  —Additional Winchester disc
  —Additional software
  —Additional peripherals

APPLICATIONS

The low-cost ECLIPSE MV/4000 SC computer can function as a general-purpose, information system that brings the power and performance of the ECLIPSE MV/4000 to the four to eight user system within small businesses, offices, or individual departments, or as a dedicated engineering workstation.

ECLIPSE MV/4000 SC systems support smaller configurations than larger, more powerful ECLIPSE MV/Family computers, but retain the ease-of-use and many of the reliability features of the larger systems. Compatibility with the ECLIPSE product line lets ECLIPSE MV/4000 SC computers quickly phase in applications that may currently be running on other ECLIPSE systems.

ECLIPSE MV/4000 SC systems are ideally suited to the support of Data General's CEO® Comprehensive Electronic Office products. Combined with CEO software, they provide a low-cost entry into high-performance office automation for single departments or small businesses. They can also serve as nodes within a larger office automation system or information system network.

SOFTWARE

ECLIPSE MV/4000 SC systems are supported by the Advanced Operating System/Virtual Storage (AOS/VS), MV/UX and DG/UX UNIX operating system environments, as well as the comprehensive range of software products offered by Data General. These include a wide range of commercial, technical, and decision-support application packages, the CEO Comprehensive Electronic Office, a full line of programming aids and languages, real-time data acquisition, transaction processing and database management software, and networking products for local and remote communication and connection to IBM environments.

ECLIPSE MV/4000 SC computers are compatible with other ECLIPSE MV/Family systems and all 16-bit ECLIPSE models. Programs developed under the Advanced Operating System (AOS) on ECLIPSE systems can be transported to run under AOS/VS on ECLIPSE MV/4000 systems. In addition, programs can be developed and tested under AOS/VS for execution in real-time applications under AOS/RT32 on ECLIPSE MV/4000 SC systems.

ADVANCED MICROPROGRAMMED 32-BIT ARCHITECTURE

Data General's 32-bit architecture provides a logical address space of four gigabytes, segmented with a ring protection mechanism, an extensive and versatile instruction set with 32-bit data manipulation, and full compatibility with other 16- and 32-bit Data General products.

Microcode is loaded into a RAM-based control store, facilitating field updates to the microcode and allowing periodic performance enhancements. Data General also provides support for a writable control store that lets users define their own microcoded instructions.

Performance is enhanced by overlapping instruction fetches with instruction executions, and by pipelining the instruction stream.

ECLIPSE MV/4000 SC computers can address up to four megabytes of main memory, and perform error checking and correction procedures on all memory accesses—correcting all single-bit errors and detecting all double-bit errors. ECLIPSE MV/4000 SC systems also feature a unique "sniffing" mechanism that checks and, if needed, corrects the entire contents of main memory at a rate of one megabyte every two seconds.

Integral diagnostic capabilities include confidence tests run automatically upon power-up. Additional diagnostic programs provide extensive fault isolation and system exercising capabilities.

MULTI-COMMUNICATIONS PROCESSOR

The Multi-Communications Processor (MCP1) is a general purpose intelligent communications board specifically designed for office automation and distributed data processing applications on the ECLIPSE MV/4000 SC system. The MCP1 combines asynchronous terminal/modem control, high-speed communications, and line printer control on a single circuit board for slot-limited systems.

The MCP1 consists of an eight-line intelligent asynchronous controller with two modem control lines and six terminal-only lines; a two-line intelligent synchronous controller with modem control on both lines; and a data channel parallel line printer interface.

All eight channels support the long distance RS422 interface in terminal-only mode. The RS422 interface is capable of driving terminals at 4000 feet at 9600 baud. The controller can support asynchronous lines at up to 38.4K bytes per second. Two of the eight lines can support the RS232 modem interface.

The intelligent synchronous controller consists of two full duplex communications lines controlled by a microECLIPSE® processor and 128K bytes of random access memory.

The controller interfaces with the standard ECLIPSE MV/Family data channel. The standard RS232-C electrical interface is supported for I/O, with modem control on both lines.

Both the asynchronous and synchronous communications lines interface to the outside via a TCB box specifically designed for the ECLIPSE MV/4000 SC system. The TCB box is a free-standing device which connects to the MCP1 through two 50-pin connectors.

The line printer controller consists of a Motorola 6802 microprocessor and 2K bytes of programmable read-only memory. It features power-up/self-test diagnostic facilities to ensure efficient fault isolation.

INSTRUCTION SETS

The ECLIPSE MV/4000 SC instruction set is fully upward-compatible with other ECLIPSE computers at the binary opcode level. The instruction set includes fixed-point instructions, floating-point instructions, commercial instructions, I/O instructions, privileged instructions, queue management instructions, stack instructions, and program flow instructions.

ECLIPSE MV/4000 SC instruction sets ensure fast, efficient machine response in multi-programming environments. They are implemented in microcode and can operate with 64K bytes or 512 megabyte addressing ranges.

DEMAND-PAGED MEMORY MANAGEMENT

Sophisticated demand-paged memory management techniques support the systems' four-gigabyte virtual addressability. Demand paging moves memory pages into physical memory when needed, and out of physical memory when not needed.

ECLIPSE MV/4000 SC systems provide the operating system with a "page-referenced" bit and a "page-modified" bit for each page in a program's working set. Page-referenced bits are set when a memory location on that page is read. Both the page-referenced and the page-modified bits are set when a memory location belonging to that page is written.

When a page needs to be read in, and there is no available memory for it, the operating system searches for relatively unused pages in its working set by checking their tallies of page-referenced bits. Once this has been done, the page-modified bits are checked. If the program hasn't modified that page, its copy on disc is still valid. If it has been modified, the system writes it out to disc before overwriting it in physical memory with a new page.

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