

Maintenance processor in easy to use large computer system enables both local and remote diagnostics

Although both hardware and software offer sophisticated capabilities compared to previously announced 32-bit computer systems according to Microdata Corp officials, the SEQUEL™ system is "the first fast, powerful large system that's as easy to use as a small system." It is not intended to be a number cruncher for scientific applications; rather, it is described as an advanced information processor aimed at the commercial market—for people who are not computer professionals. One specific use might likely be in a standalone special purpose interactive application such as manufacturing control where process automation can now be handled on the plant floor.

One design objective when SEQUEL (then code-named "Sequoia") was being developed as the big brother to the
(continued on page 52)

company's REALTY® series of small computers was to enable execution of machine instructions at least 8 times faster than REALITY. Benchmarks to date indicate that some applications run 50 times faster, and others, which require high levels of disc activity, run just barely 2 times faster. On the average, and again dependent on application mix, the company claims performance up to 10 times faster than that of small business systems. To meet another objective, that of enabling many more users to operate the machine, system designers increased processor bandwidth. Now as many as 127 interactive terminals can be operated simultaneously.

Basic processor technology is based on 2901 bit slice architecture with numerous Z80 type microprocessors as special task controllers. Storage capacity of the system is up to 2M bytes of main memory (16k chips) and 1G byte of disc capacity. Special function independent processors handle I/O and local and remote diagnostics, with single-bit architecture, intelligent controllers functioning through a DMA multiplexer, and 16 DMA channels. An I/O processor interfaces with disc controllers and communications controllers through the data bus. In addition, according to Microdata senior scientist Richard Vahlstrom, a diagnostic maintenance processor (DMP) enables remote control of the CPU and also serves as a local controller. One CRT terminal acts as an interface to the DMP, performing all initialization and setup of the system.

The company, it is said, has made an effort to include more diagnostics in this machine than it had in the past—firmware and software level diagnostic capabilities built into SEQUEL are much improved compared with earlier, similar

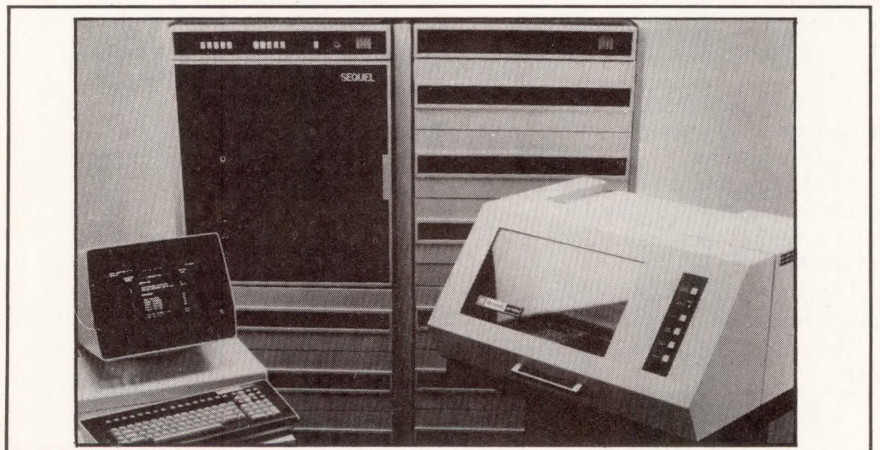
products. For example, using modems and a telephone line, software on a system located in New York can be debugged to the PCB level remotely from the home office in California.

To obtain the necessary high power of the CPU, a separate processor, running independent from the CPU, fetches, parses, and places instructions into proper locations. It runs with a simple program and sets up all software instructions used by the CPU. Microdata software engineer Terry Johnson has stated that whereas instruction decoding on previous computers required as much as 40% of the CPU's time, the separate processor reduces that time to about 5% by decoding in parallel to the CPU. He also stressed that a significant difference between SEQUEL and other 32-bit systems is its software architecture, which allows users to share data without being aware that they are sharing.

SEQUEL hardware is designed to handle frames, each consisting of 512 bytes of data, that could be either in main memory or on disc. Firmware automatically brings data into memory whenever they are accessed. When a software instruction is executed, hardware determines the location of referenced data. If in main memory, there is immediate access.

Standard program languages include DATA/BASIC and English®, a database language that permits programmers to enter commonly used words rather than codes to generate reports. An additional option, ALL™ (application language liberator), is claimed to reduce development, testing, and debugging time, virtually eliminating programming. ALL is not designed to replace analysts responsible for system design, but it does save

(continued on page 56)



32-bit SEQUEL large business system. Features include up to 2M bytes main memory and 1G-byte disc capacity. System supports simultaneous access by up to 127 users via CRT terminals. Ease of use is augmented by ALL, an application development tool that virtually eliminates programming

time by eliminating the need to develop documentations. Every application is developed and documented the same way, and therefore can be easily changed. ALL is self-documenting—upon completion of the application, the operator's instructions and application specifications are automatically printed out.

In essence, according to Gerald Fleming, vice president of corporate marketing, SEQUEL is a "super REALITY" that runs much faster and offers both improved performance and larger memory. The design target of

being an easy system to use was given equal importance by the company and has been met.

A basic SEQUEL system—including four CRT terminals, 1M byte of main memory, 256M bytes of disc memory, one magnetic tape drive, and one 300-line/min printer—is priced at \$155,500. ALL is available optionally for a one-time licensing fee of \$22,700. **Microdata Corp**, 17481 Red Hill Ave, Irvine, CA 92714.

—*Sydney F. Shapiro, Managing Editor*

Circle 245 on Inquiry Card
