REDUCE CPU OVERHEAD & EXPAND STORAGE!
The new Emulex UC04 Host Adapter brings greatly expanded storage and back-up capabilities to your Q-bus®-CPU—limited only by the size of available drives. The UC04 implements DEC's Mass Storage Control Protocol (MSCP) and connects your DEC® MicroVAX™ II/MicroVAX II™/MicroPOP-11™ and LSI-11™ to the versatile Small Computer System Interface (SCSI). Of course, it supports all standard DEC operating system software.

The UC04 supports all Emulex SCSI I and Enhanced Small Disk Interface (ESDI) disk and tape controllers. You can now choose from a wide variety of high-capacity 5½-inch Winchester disk drives and/or 1/4-inch cartridge tape drives to meet your storage needs.

MSCP OFFERS THESE ADVANTAGES

SELF-SIZING. The UC04 offers high-performance and flexibility through its implementation of DEC's powerful MSCP. MSCP supports virtually any drive capacity, providing limitless storage expansion possibilities on your Q-bus. Because MSCP treats connected drives as a class of devices rather than as separate units, a variety of drives can be mixed together without requiring operating system patches or modifications. The UC04 provides the CPU with the attached drives' characteristics; through MSCP the operating system adjusts accordingly, eliminating the need for software changes.

ERROR-FREE MEDIA. Error control is handled by the UC04 in conjunction with the Emulex controllers. Routine errors are detected and corrected so that an error-free media is simulated. When an error is encountered, an attempt to correct it is automatically made; only uncorrectable errors require intervention by the host.

SEEK OPTIMIZATION. The UC04 pools various seeks and determines the most efficient order in which to execute them. This time-saving feature is vital to heavily loaded systems.

PLUS THE EMULEX ADVANTAGES...

ADAPTIVE DMA. Multi-user systems requiring numerous DMA data transfers are very much enhanced by the UC04's use of adaptive DMA. Adaptive DMA releases the bus to other DMA devices with a lower priority based upon the bus requests, which facilitates multiple I/O operations and throughput.

BLOCK MODE DMA. By using Block Mode DMA, the UC04 increases throughput on your Q-bus for improved data transfer performance and decreased CPU overhead.

OPTICAL SUPPORT. The UC04 offers support for various SCSI-based optical disk drives, thereby providing greatly increased on-line data storage for archiving.

LARGE DATA BUFFER. A 20K byte data storage buffer enables the system to smoothly transfer data and from attached peripherals.

22-BIT ADDRESSING. Hardware permits direct access to the full 4M byte memory range on Q-bus-based microprocessors.

NOVRAM. This Nonvolatile static Random Access Memory (NOVRAM) device stores drive configurations. A user may alter the configuration as needed.

SCSI-PROTOCOL CONTROLLER. The UC04 contains a protocol controller which provides the SCSI interface and relieves the Q-bus CPU of the overhead required to implement the SCSI.

DISCONNECT/RECONNECT. The UC04 fully supports the disconnect/reconnect of devices. Using this feature, drives which are performing I/O-consuming tasks (i.e., seek) release the bus temporarily and reconnect when the seek has been completed. Support of this feature permits the UC04 to run commands simultaneously on several drives. Thus, several disk operations can be performed at once. The disconnect/reconnect feature ensures efficient use of the SCSI bus. It is extremely important when multiple hosts and/or devices are attached to the bus.

INTERNAL SELF-TEST. During power-up, the UC04 automatically performs internal firmware-based diagnostic tests and flags detected errors with LED fault indicators.
DIAGNOSTICS/UTILITIES. An extensive set of diagnostics developed and written by Emulex is available, including a disk formatter utility that also programs the NOVRAM.

PLUG-IN COMPATIBILITY. This single dual-wide printed circuit board plugs directly into any standard Q-bus slot.

FOR YOUR DISK & TAPE STORAGE NEEDS. Emulex also offers SCSI-compatible packaged subsystems for your Q-bus CPU. The SABRE™ is a cisk subsystem with an 8-inch removable cartridge cisk drive and a 5½-inch Winchester disk drive. The Javelin™ lets you choose two 5¼-inch Winchester cisk drives or a Winchester and a 1/4-inch streaming cartridge tape drive. The Decathlon™ is a 3-peripheral subsystem, housing one or two 5¼-inch Winchester disk drives and a 1/4-inch streaming cartridge tape drive. Emulex packaged subsystems are available in a wide variety of configurations; separate product data sheets provide detailed information.

MODEL UCO4 SPECIFICATIONS

FUNCTIONAL
Design:
High-speed microprocessor-based emulating host adapter that integrates mass storage devices to LSI-11, MicroPDP-11, MicroVAX I and MicroVAX II host computers.

CPUs:
- LSI-11
- MicroPDP-11
- MicroVAX I
- MicroVAX II

Implementation:
- DEC MSCP

Bus Interface:
- Standard Q-bus

Controller Interface:
- SCSI (ANSI X3T9.2 specification). A maximum of eight logical devices under MSCP.

Controllers Supported:
- Disk—Medalist™ MD01, Champion™ MD21 and Adaptec® 4000; Tape—Titleist™ MT01, MT02 and MT03.

Bus Address Range:
- 0~4M bytes (22 bits)

Bus Register:
- Two registers; two preprogrammed start locations (772150 for IP register, 772152 for SA register) and seven alternate pairs are provided.

Vector Address:
- Programmable (by host CPU)

Priority Level:
- Levels four and five

Status Display:
- Edge mounted LEDs for activity/error/status display under micro-program control.

Option Switches:
- On-board slide switches for selection of program-controlled operating/configuration options.

Command Buffer Memory:
- Buffers up to 13 MSCP commands.

Data Buffer Memory:
- Buffers 20K bytes of data.

Packaging:
- Single dual-size board, standard Q-bus interface.

ELECTRICAL
Computer Interface:
- Approved Q-bus line driver/receivers used exclusively; one load per bus signal line.

Disk Interface:
- SCSI (ANSI X3T9.2 specification); 6 meters (15 feet) maximum cable length.

Power:
- +5V (±5%), 2.6 amps

ENVIRONMENTAL
- Exceeds all environmental ranges and conditions specified for commercial LSI-11, MicroPDP-11 and MicroVAX I and II computers as well as for applicable disk drives.

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