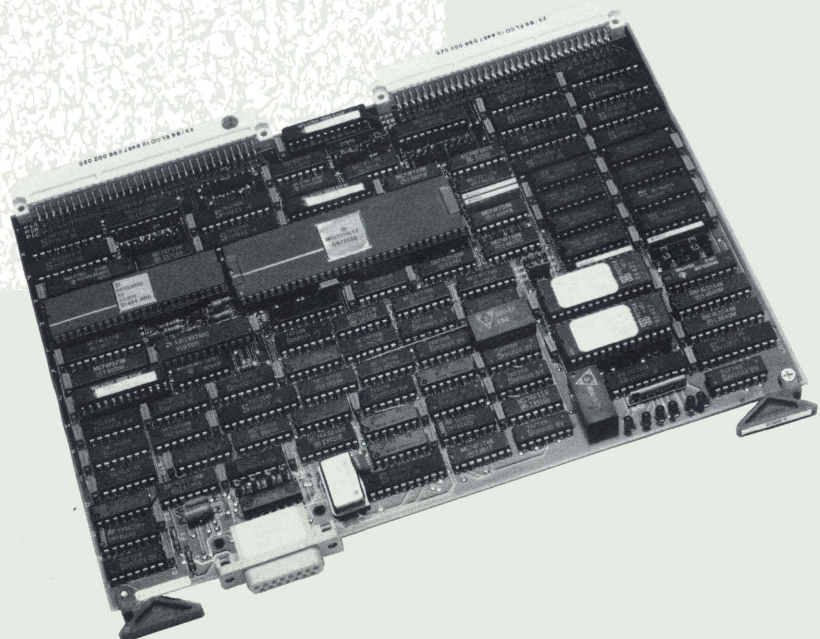## Features

- 10 MHz MC68000 processor
- Am7990 LANCE Ethernet controller
- Am7992 serial interface adapter
- A32/D32 extended addressing and data transfer capability
- Extended architecture support
- 256 KBytes dual-port RAM
- Comprehensive self test

The Integrated Solutions VME-EC/X is a high-performance device that combines an extended addressing capability with an advanced architecture to enhance performance across the network. At the heart of the VME-EC/X is the Motorola MC68000 processor which frees the host processor to manage other important tasks. Integral to the VME-EC/X board is the Advanced Micro Devices Am7990 LANCE controller which manages the reception and transmission of data on the Ethernet. UNIX 4.2/4.3BSD drivers are available for the VME-EC/X which facilitate system integration of the controller.

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Architecture

The VME-EC/X is a VME double-wide printed circuit board composed of the following functional elements:

10 MHz MC68000 Processor. This processor controls the Local Area Network Controller for Ethernet (AMD LANCE) which offloads the host processor.

Am7990 LANCE Ethernet Controller. The Advanced Micro Devices Am7990 LANCE Ethernet Controller performs DMA to the dual-port RAM while it manages the reception and transmission of packets on the Ethernet.

Dual-Port RAM. The 256 KByte dual-port RAM can be accessed by the LANCE and the CPU. The LANCE sends data directly to the dual-port RAM by a DMA operation where the host processor then accesses it. This single step data transfer maximizes the performance of the controller. The local bus masters (on-board CPU and LANCE) also access this memory. The dual-port RAM supports 32-bit transfers over the VME interface. The RAM is seen from the VME side as a contiguous 256 KByte block of memory. The RAM access time averages less than 500 nanoseconds (ns) from DSn* to DTACK*. Access from both sides occurs transparently with delays occuring only when simultaneous accesses are attempted.

VMEbus Interface. The VME-EC/X interfaces with the VMEbus as a A24/A32, D16/D32 slave. Seven levels of interrupt are provided (jumper selectable). The VME-EC/X bus interface logic is consistent with the VME specifications for the following module:

    Interrupter
        One of IR(1-7) (STAT)

Extended Architecture. An important feature of the VME-EC/X is its extended addressing capability. The board can interface with the VMEbus as an A32/D32 slave processor. The 32-bit addressing allows the board to grow with the customer's system to up to four gigabytes. And the 32-bit data transfer capability allows transfer of 32 bits with each memory access which further enhances the controller's performance.

Form Factor

The form factor for the Ethernet Controller is a standard double-wide VME board, 160mm by 233.33mm.

Diagnostic Indicators

The VME-EC/X board contains power-on self-test diagnostics which respond intelligently to a failed test. It informs the host processor of the address of failure, the expected data, and data read from the location, and then continously blinks the two-digit code of the failed test on easily visible LED displays.

The VME-EC/X has four status LEDs on the board which are under software control, a reset LED and a halt LED, which indicate the state of the on-board processor.

Electrical Requirements

The typical power requirements for the VME-EC/X are +5 volts, 4.39 amps, and +12 volts, 0.5 amp. The maximum power requirements are +5 volts, 6.64 amps, and +12 volts, 1.0 amp.

Environmental Requirements

Temperature:
    0 to 50 degrees centigrade (operating)
    -40 to 65 degrees centigrade (non-operating)
Humidity:
    10 to 90 percent (non-condensing)