M7341 - Processor Module

The Processor Module (PM) is a standard DEC quad module containing the basic processing elements of the system. The processing capability is supplied by the standard Intel 8008-1 microprocessor chip, a complete computer system central processor unit which can be interfaced with memories of capacities up to 16K bytes. The processor communicates over an 8-bit data and memory bus, and makes 14 bits of address available for memory selection. The CPU contains an 8-bit parallel arithmetic unit, seven 8-bit data registers, and an 8 x 14 stack--all implemented by a dynamic RAM, and full control logic and instruction decoding.

Features

- 8-bit parallel CPU on a single chip
- 48 data-oriented instructions
- Instruction cycle time -- 12.5 μs (single cycle instruction)
- Complete instruction decoding and control
- Inputs, outputs, and clock lines, TTL-compatible
- Directly addresses up to 16K x 8 bits of memory
- Address stack contains eight 14-bit registers, including the Program Counter which allows nesting of subroutines up to seven levels
- Contains seven 8-bit registers
- Multiplexing of
  - 8 bits of I/O data
  - 8 bits of memory data
  - 8 bits STOP/EXTERNAL EVENT address
  - 8 bits initial START/BRANCH address
- 14 bits buffered, latched MEMORY address

- Control lines consisting of
  - Memory Read
  - Memory Write
  - I/O in
  - I/O out
  - STOP/EXTERNAL EVENT detection
  - I/O START/BRANCH interrupt
- Full-duplex serial-line interface implemented by UART (Universal Asynchronous Receiver/Transmitter)
- Data, address, and control lines made available at a Berg connector for easy interconnection with the Monitor and Control Module for maintenance and program debug purposes only

M7342 Monitor/Control Module

The Monitor/Control Module is primarily intended for general monitoring operations on the MPS10 system. These operations would typically include monitoring of data paths, memory, addresses, etc., during program debug and checkout, general system operational checks, diagnostic checks, etc.

Module Features

- Hex
- Facility for placing on bench, desk top, etc.
- Will interface with PM via standard cable
- Will allow interrogation of 8008 timing signals through a LED array
- Address data can be loaded into PM via 14-bit switch register
- Address and memory will be displayed via a 14-LED array
- Following controls supplied:
  - Address Load
  - Start
  - Halt
  - Deposit
  - Continue
  - Examine
  - Single cycle
  - Display Data
  - Display Address
- Integral scratch pad and ROM bootstrap memories
- Labeled face plate for switch and LED identification

M7344YA, M7344YB, M7344YC - Read-Write Memory Module

The M7344 Read-Write Memory Module (RAM) is a semiconductor read-write memory with a maximum storage capacity of 4096 x 8 bits on a quad module. The memory storage is implemented by the Intel 2102 1024 x 1 static random access memory element using normally off N-channel silicon-gate MOS technology. The chip uses static circuitry and, therefore, requires no clocks or refreshing to operate.

The module will be available in three versions:

M7344YA - 1K x 8
M7344YB - 2K x 8
M7344YC - 4K x 8

Module Features

- Quad
- Available in three configurations
  - 1K x 8
  - 2K x 8
  - 4K x 8
- Address decoding on module (16 lines)
- Memory-Read line
- Memory-Write line
- Address expansion line
- Data Ready line during Read operations
- Data Accepted line during Write operations
- Single +5-volt dc power

M7345 - Programmable Read-Only Memory (PROM)

The M7345 is a programmable Read-Only semiconductor memory module with a maximum storage capacity of 4096 8-bit bytes. The memory storage is implemented by the Intel 1702A 256 x 8 silicon gate erasable and electrically programmable static MOS memory. A transparent quartz lid allows the user to erase the internal bit pattern by exposing the chip to ultraviolet light. A new program can then be written into the memory. The entire process may be repeated as many times as required.

A total of 16 of these chips can be socket-mounted on the module to yield the maximum capacity of 4K x 8.

The board may be depopulated in any combination of single 1702A devices to the minimum capacity of 256 x 8.

The board will be made available with 24-pin DIP sockets to accommodate up to 16 1702A units. The user may buy the 1702A chips from an outside vendor or from DIGITAL.

Module Features

- Quad
- Contains 16 24-pin DIP sockets
- Any multiple of 256 x 8 is selectable on the module
- Address decoding performed on board
- Address expansion input
- Data Ready line for use during Read cycle
- Power requirements: +5 V dc; -15 V dc

M7346 - External Event Detection Module

The External Event Detection Module (EEDM) is a dual-purpose MPS10 module designed to implement priority interrupt schemes or provide a power failure detection capability. The module is contained on a single-height, extended-length PC board.

Module Features

- Interrupt priority scheme arranged in ascending order of priority; (AC LOW is highest priority)
- Eight interrupt lines available to user
- Ac voltage continuously monitored for LOW condition
- Eight dedicated memory locations for implementation of interrupt routine

Foundation Module

The facility to allow a user to develop his own customer interface circuitry will be supplied by a "Foundation Module."

No special module will be developed for this purpose, per se; instead, the full line of available Logic Products wire wrappable modules is recommended for this purpose. The most appropriate module for the customer's particular application may be chosen from a list of 17 W Series modules, typical of which are the W966 and W967 modules.