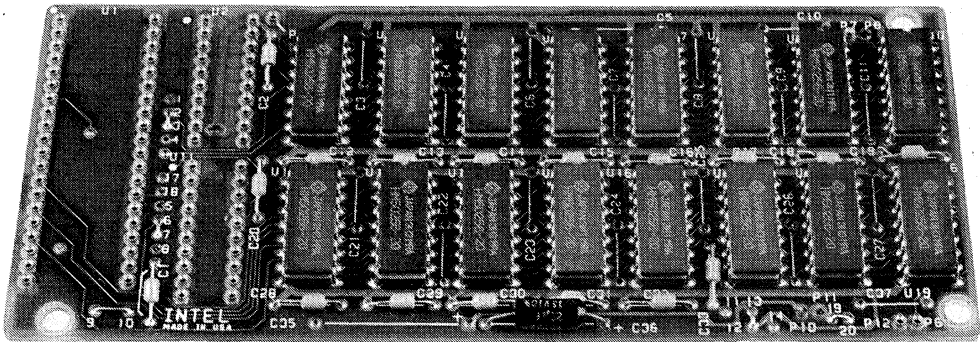




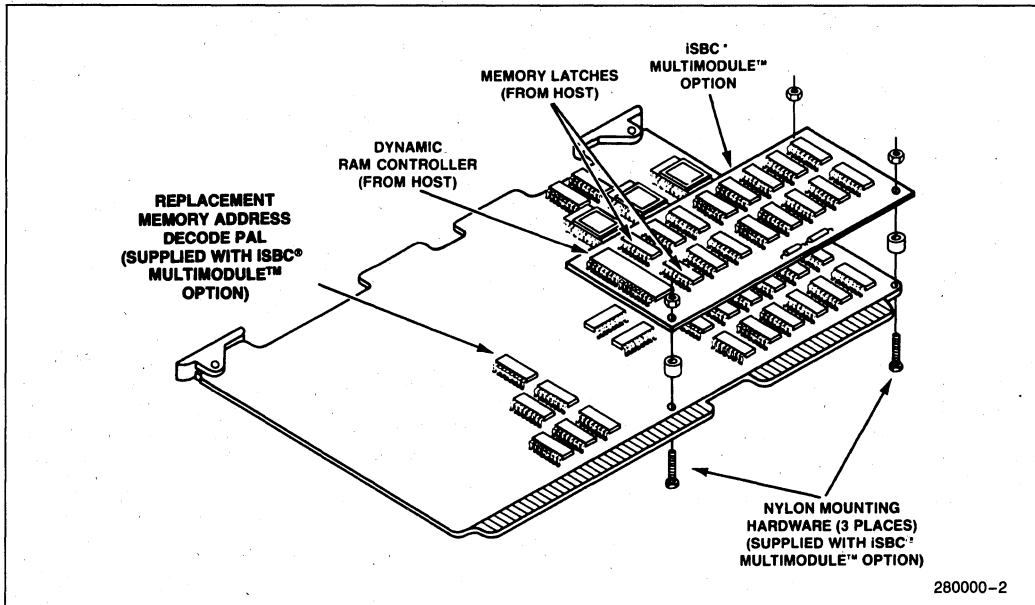
## iSBC® 314 512K BYTE RAM MULTIMODULE™ BOARD

- On-Board Memory Expansion for the iSBC 86/35 Single Board Computer
- iSBC 314 Module Provides 512K Bytes of Dual Port RAM Expansion for the iSBC 86/35 Board
- Reliable Mechanical and Electrical Interconnection
- Completes iSBC 86/35 Memory Array Providing a Full Megabyte Page of System Memory
- Increases System Throughput by Reducing Accesses to MULTIBUS® Global Memory
- Low Power Requirements
- Battery Backup Capability

The iSBC 314 512K byte RAM MULTIMODULE board provides simple, low cost expansion to double the on-board RAM capacity of the iSBC 86/35 Single Board Computer host to one megabyte. This RAM MULTIMODULE option offers system designers a simple, practical solution to expanding and improving the memory capability and performance of the iSBC 86/35 board. The iSBC 314 memory is configured on-board and can be accessed as quickly as the standard iSBC 86/35 memory, eliminating the need for accessing additional memory via the MULTIBUS system bus.



280000-1



**Figure 1. Installation of the MULTIMODULE™ RAM Module on the Host Single Board Computer**

## FUNCTIONAL DESCRIPTION

The iSBC 314 MULTIMODULE board measures 2.40" by 5.75" and mounts above the RAM array on the iSBC 86/35 Single Board Computer. The iSBC 314 board contains sixteen 256 Kbit x 1 dynamic RAM devices and three sockets; two for the memory latches and one for the Intel 8203 dynamic RAM controller. The addition of the iSBC 314 memory MULTIMODULE board to the iSBC 86/35 board makes possible a one megabyte single board solution; the full direct addressing capability of the iAPX 86 CPU.

To install the module, the latches and controller from the host iSBC 86/35 board, are removed and inserted into sockets on the iSBC 314 board. The module is then mounted onto the host board. Pins extending from the controller and latch sockets mate with device sockets underneath (see Figure 1). Additional pins mate to supply other signals to complete the electrical interface. The module is then secured at three additional points with nylon hardware to ensure the mechanical security of the assembly.

To complete the installation, one socketed PAL is replaced on the iSBC 86/35 board with the one supplied with the MULTIMODULE kit. This is the PAL which allows the host board logic to recognize its expanded on-board memory complement.

## SPECIFICATIONS

### Word Size

8 or 16 bits (16-bit data paths)

### Memory Size

512K bytes RAM

### System Cycle Time (8 MHz, 2 Wait States)

750 ns (read); 750 ns (write)

#### NOTE:

1 wait state achieved with jumper change on iSBC 86/35 board.

### Memory Addressing

iSBC 314 module with iSBC 86/35 board — 1M byte (total capacity); 0–FFFFFFH. (See Figure 2, Memory Allocation)

### Interface

The interface for the iSBC 314 MULTIMODULE board option is designed only for the iSBC 86/35 host board.

### Wait-State Performance

A significant performance advantage of 2 wait-states is achieved when accessing memory on-board the iSBC 86/35 versus the performance of 6 wait-states when accessing memory off-board over the MULTI-BUS. The iSBC 314 puts an additional 512K bytes of system memory on-board the iSBC 86/35 reducing the execution time by as much as 70%.

### Memory Allocation

Segments of the combined host/MULTIMODULE RAM may be configured to be accessed either from off-board or on-board resources. The amount of memory allocated as either public or private resource may be configured in a variety of sizes. The address range boundaries for the 1 megabyte of RAM array of the iSBC 314 and iSBC 86/35 board combination are shown in Figure 2 for accesses from both on-board and off-board resources.

### Auxiliary Power

The low power memory protection option included on the iSBC 86/35 board supports the iSBC 314 module.

### Physical Characteristics

Width: 2.4 in. (6.10 cm)  
 Length: 5.75 in. (14.61 cm)  
 Depth\*: 0.72 in. (1.83 cm)  
 Weight: 0.13 oz. (59g)

**NOTE:**

\*Combined depth including host board.

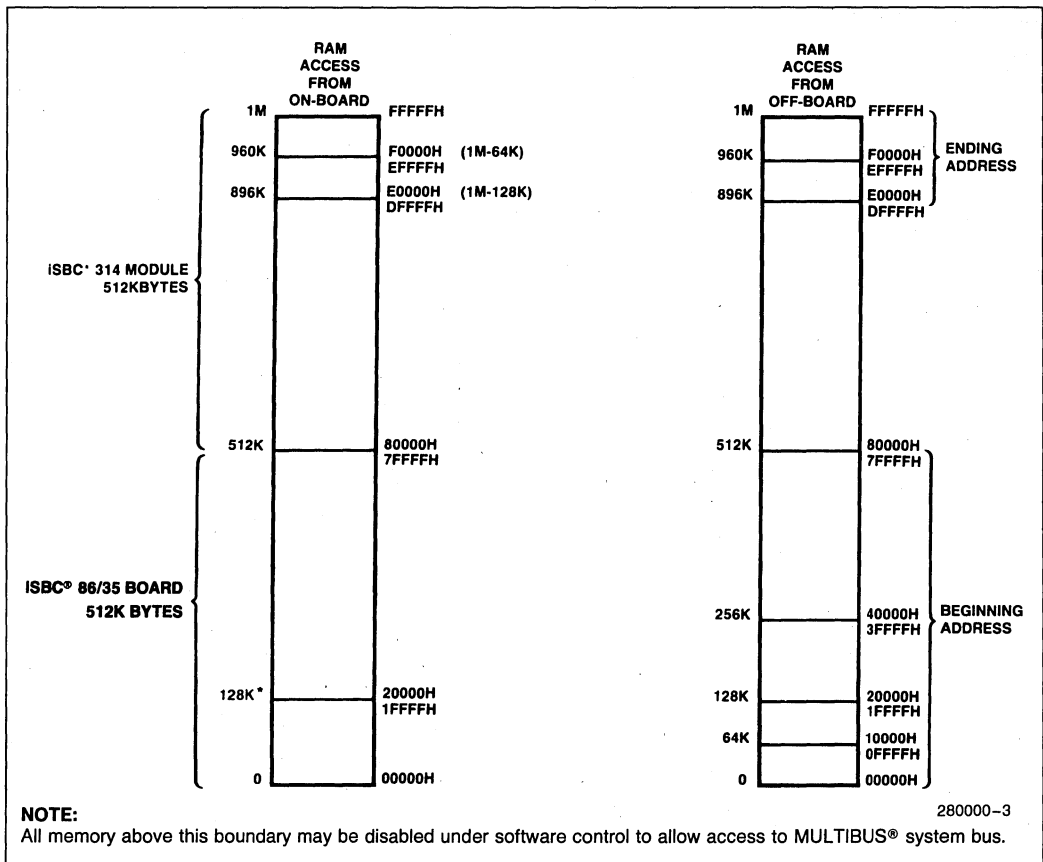


Figure 2. Address Range Selection



## Electrical Characteristics

### DC Power Requirements\*

\*Additional power required by the ISBC 314 MULTIMODULE is:

Typical: 60 mA @ +5V

Maximum: 140 mA @ +5V

## Environmental Characteristics

Operating Temperature: 0°C to +55°C

Relative Humidity: to 90% (without condensation)

## Reference Manual

All necessary documentation for the ISBC 314 MULTIMODULE board is included in the ISBC 86/35 Hardware Reference Manual (NOT SUPPLIED); Order Number: 146245-002.

Manuals may be ordered from any Intel sales representative, distributor office or from Intel Literature Department, 3065 Bowers Avenue, Santa Clara, CA 95051.

## ORDERING INFORMATION

### Part Number Description

ISBC® 314	512K byte Memory MULTIMODULE option for ISBC 86/35 board
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