iSBC 094
4K-BYTE CMOS RAM MEMORY
BATTERY BACKUP BOARD

iSBC 80 nonvolatile RAM memory expansion through direct bus interface

Base address selectable to start on any 4K memory address boundary

4K bytes of low power static CMOS RAM memory

On-board rechargeable batteries and charging circuitry for 96-hour data retention

On-board power-fail interface logic

Single +5V power requirement

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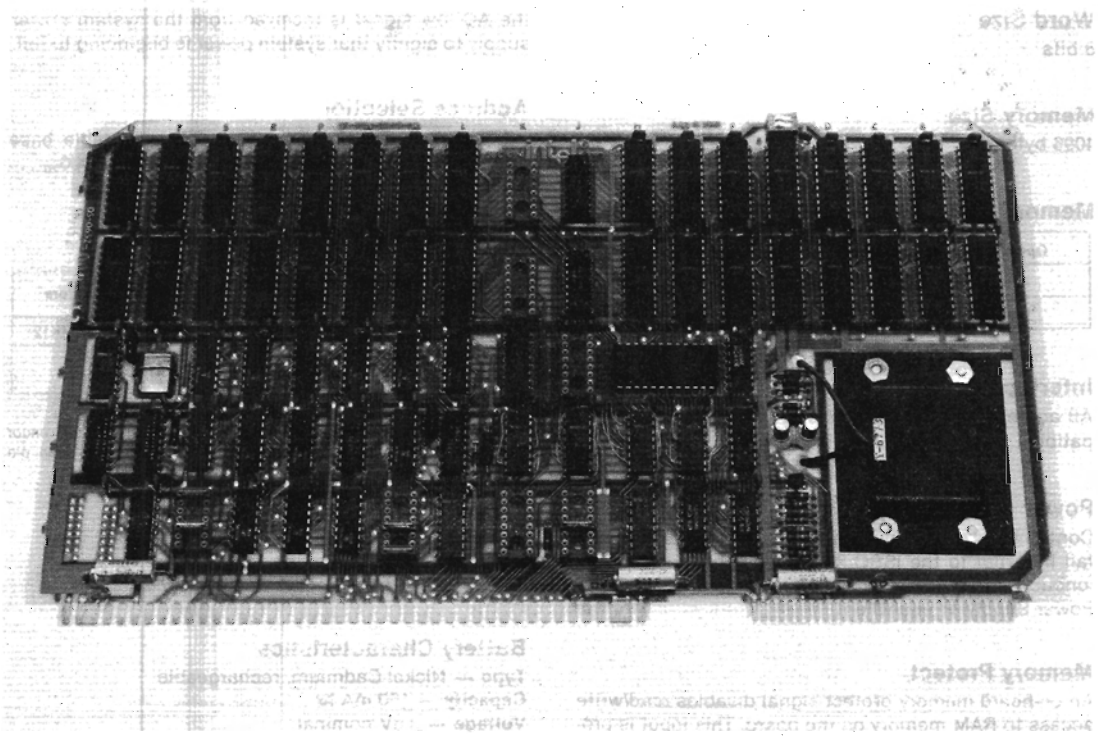
The iSBC 094 4K-Byte CMOS RAM Memory/Battery Backup Board is a member of Intel's complete line of iSBC 80 memory and I/O expansion boards. The iSBC 094 interfaces directly to iSBC 80 single board computer via the system bus to expand RAM memory capacity. The board contains 4K bytes of read/write memory, implemented using 32 Intel 5101 CMOS RAM memory components. On-board rechargeable batteries and charging circuitry insure that data contained in RAM will be retained for at least 96 hours after system bus power (+5V) is removed. Critical system parameters stored in the iSBC 094 RAM will thus be saved during temporary system power failures. Full power-fail interface logic is provided on the board to generate a CPU interrupt when system power fails. Orderly system shutdown procedures may then be executed and critical system parameters may be retrieved and stored. The use of CMOS RAM on the iSBC 094 also reduces power dissipation during normal system operation. The iSBC 094 contains jumpers for use in selecting a contiguous 4K-byte address segment beginning on any 4K memory address boundary (0000H, 1000H, 2000H, etc). Read/write buffers reside on the board to buffer all data written into or read from the memory array. All address, data, and command signals on the bus interface are TTL compatible.



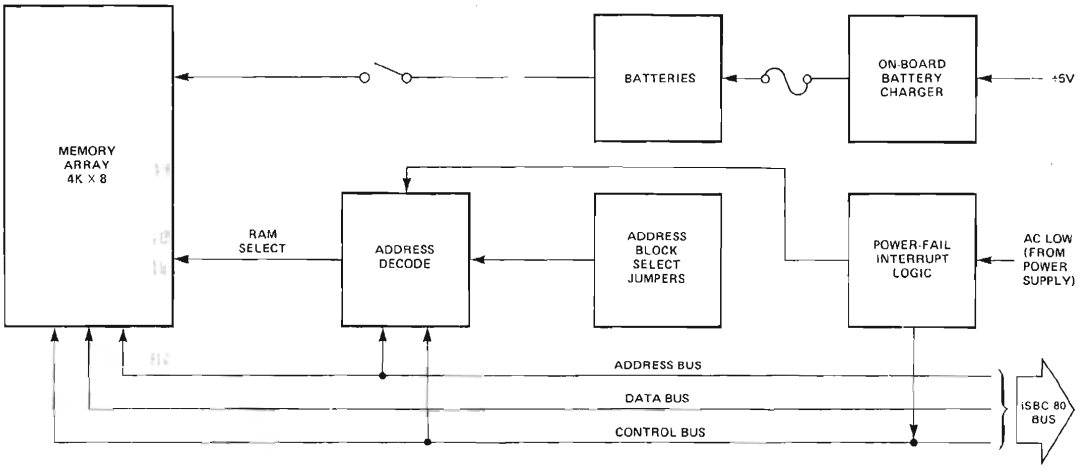


Figure 1. iSBC 094 Memory Backup Board Block Diagram

SPECIFICATIONS

Word Size
8 bits

Memory Size
4096 bytes

Memory Response Time

Operation	Access (ns, max)	Cycle (ns, max)
Read	750	900
Write	—	900

Interface
All address, data, and command signals are TTL compatible.

Power Fail Interrupt
Control logic is also included for generation of a power-fail interrupt to the iSBC 80 bus, which works in conjunction with the AC low signal from the Intel iSBC 635 Power Supply or equivalent.

Memory Protect
An on-board memory protect signal disables read/write access to RAM memory on the board. This input is provided for the protection of RAM contents during system power-down sequences. This signal is automatically asserted by the power-fail interface logic 3.6 ms after the AC low signal is received from the system power supply to signify that system power is beginning to fail.

Address Selection
4K segments starting at any jumper selectable base address on a 4K byte boundary (e.g., 0000_H, 1000_H, . . . $F000_H$).

Mating Connectors

Interface	Pins (qty)	Centers (in.)	Mating Connectors
Bus	86	0.156	Viking 3KH43/9AMK12
Auxiliary[1]	60	0.1	AMP PE5-14559 or TI H311130

Note
1. Connector Dimensions vary from vendor to vendor. Review vendor specifications to ensure that connector heights and wire-wrap pin lengths to conform to your system packaging requirements.

Data Retention
96 hours minimum after +5V bus power is removed.

Battery Characteristics
Type — Nickel-Cadmium, rechargeable
Capacity — 150 mA hr
Voltage — 3.6V nominal

Battery Charger Characteristics

Charge Time
14 hours for full charge (150 mA hr)
Full overcharge protection
Full short-circuit protection

Physical Characteristics

Width — 12.00 in. (30.48 cm)
Height — 6.75 in. (17.15 cm)
Depth — 0.60 in. (1.27 cm)
Weight — 12 oz (340.5 gm)

Electrical Characteristics

Average DC Current
V_{CC} = +5V DC ±5%
I_{CC} = 0.8A typ, 1.7A max

Environmental Characteristics

Operating Temperature — 0°C to 55°C

Reference Manual

9800449B — iSBC 094 Hardware Reference Manual (NOT SUPPLIED)

Reference manuals are shipped with each product only if designated SUPPLIED (see above). Manuals may be ordered from any Intel sales representative, distributor office or from Intel Literature Department, 3065 Bowers Avenue, Santa Clara, California 95051.

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ORDERING INFORMATION

Part Number	Description
SBC 094	4K-Byte CMOS RAM Memory Battery Backup Board