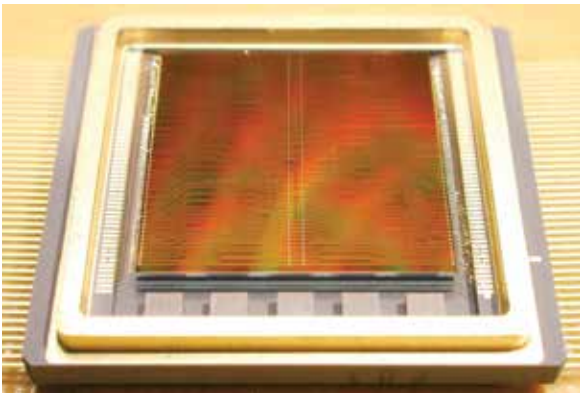


Millennium 4 Mb radiation-hardened SRAM



High-speed memory product

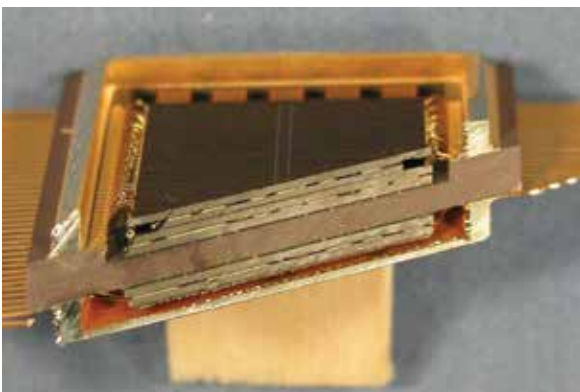
The Millennium SRAM is our next-generation high-speed memory product for users in the space community.

Description

Capable of withstanding the effects of natural space, Millennium has total dose tolerance of greater than 200 Krads and an upset rate of less than $1E-10$ upsets per bit-day. Prompt dose levels are $>1E9$ rad/sec. Flight hardware being delivered now.

Key features

- Read/write access times of 15-17 ns
- Operation from -55 degrees Celsius to +125 degrees Celsius
- Supply voltage of 2.5V
- I/O voltage of 2.5V or 3.3V
- Standby current 20-50 mA
- Asynchronous operation
- Prototype and flight flows
- Latch-up immune
- Operating power <13 mW per MHz



System definitions

A:0-18 Address input pins that select a particular 8-bit word within the memory array.

DQ:0-7 Bi-directional data pins that serve as data outputs during a read operation and as data inputs during a write operation.

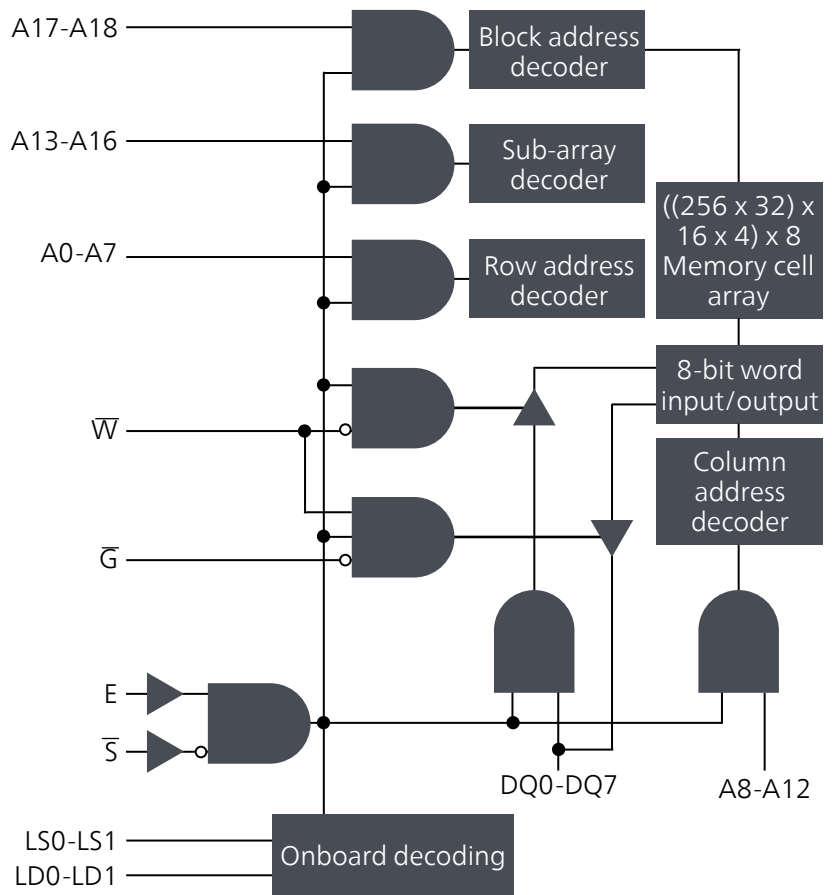
S Negative chip select at a low level allows normal read or write operation. At a high level, **S** forces the SRAM to a precharge condition, holds the data output drivers in a high-impedance state, and disables only the data input buffers. If this signal is not used, it must be connected to GND.

LS/LD LS0, LS1 selects and **LD0, LD1** decode inputs provide externally programmable bankselect decode capability.

W Negative write enable at a low level activates a write operation and holds the data output drivers in a high-impedance state. At a high-level **W** allows normal read operation.

G Negative output enable at a high level holds the data output drivers in a high-impedance state. At a low level, the data output driver state is defined by **S**, **W**, and **E**. If this signal is not used, it must be connected to GND.

E Chip enable at a high level allows normal operation. At a low level, **E** forces the SRAM to a precharge condition, holds the data output drivers in a high-impedance state, and disables all the input buffers except the **S** input buffer. If this signal is not used, it must be connected to VDD.



Specifications

Millennium 4 Mb family of products	4 Mb single chip, up to 20 Mb multi-chip modules available
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512K x 8 SRAM
-40-lead flatpack
-36-lead flatpack

512K x 32 SRAM
-84-lead flatpack

512K x 40 SRAM
-84-lead flatpack

1M x 8 and 2M x 8 configurations available
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