The 128K x 72 radiation-hardened, synchronous SRAM (SSRAM) is a high-performance, multi-mode, synchronous, static random access memory that is versatile, has wide I/O, and achieves 7.5 ns cycle times.

**Description**

It is fabricated with BAE Systems’ radiation-hardened technology and is designed for use in systems operating in extreme environments. The SSRAM operates over the full military temperature range and requires a dual 3.3V and 1.8V ±10 percent power supply. The SSRAM is available with CMOS-compatible I/O. Power consumption is typically less than 10 mW/MHz in operation.

BAE Systems’ enhanced bulk CMOS technology is radiation hardened through the use of advanced and proprietary design, layout, and process-hardening techniques.
Key features

• 128K x 72 synchronous SRAM multi-mode operation
  – Flow-through mode
  – Register-latch mode
  – Pipeline mode
  – Pipeline late-write mode
  – Burst mode with pipeline late-write
  – DQM mode
  – ZZ mode

• Access times
  – Read and write cycle times ≥166 MHz

• Technology
  – 0.15 μm bulk CMOS process

• Radiation levels
  – Total dose hardness through 1 x 10^6 rad(Si)
  – Single event hardness
  – Neutron hardness through 1 x 10^{14} N/cm^2
  – Dynamic and static transient upset hardness through 1 x 10^9 rad(Si)/s
  – Soft error rate of <1 x 10^{-11} upsets/bit-day dose rate survivability through 1 x 10^{12} rad(Si)/s
  – Latchup immune

• Packaging
  – 340-pin CCGA — ceramic column grid array (26 mm x 28 mm)
  – Two 128K x 36 die per package

• Compatible with commercial cache designs

• Operating temperatures
  – -55 degrees Celsius to 125 degrees Celsius

• Dual power supply
  – 3.3V ±10 percent I/O
  – 1.8V ±10 percent core

• CMOS compatible I/O

• Low operating power
  – 10 mW/MHz active current (typical)
  – ≤50 mW standby (maximum)

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CS-16-H73