

MOTOROLA CONTENT-ADDRESSABLE MEMORIES

High-Speed Look-Up Engines for Networking Applications

The MCM69C232/233 and the MCM69C432/433 are flexible content-addressable memories (CAMs) that can contain 4096 and 16,384 entries of 64 bits, respectively. They are implemented with standard 4-transistor SRAM cells that provide a CAM solution at a fraction of the cost of existing CAMs. The widths of the match field and the output field are programmable, and the match time is designed to be ≤ 180 nanoseconds for MCM69C232/432. As a result, the MCM69C232/233 and the MCM69C432/433 are well suited for datacom applications such as Virtual Path Identifier/ Virtual Circuit Identifier (VPI/VCI) translation in ATM switches up to OC12 (622Mbps) data rates and Media Access Control (MAC) address lookup in Ethernet/Fast Ethernet bridges. CAMs are also well suited for fully associative disk drive cache and RAID applications. The match duty cycle of the MCM69C232/233 and the MCM69C432/433 is user defined, with a trade-off between the time between matches and the number of new entries added to the CAM per second.

MCM69C232/233 Features

- MCM69C232 – 50 MHz
MCM69C233 – 66 MHz
- 4096 Entries
- Programmable 12- to 64-Bit Wide Match Field
- MCM69C232 – 160 ns Match Time
MCM69C233 – 210 ns Match Time
- MCM69C232 – 200 ns Insertion Time
- MCM69C233 – 300 ns Insertion Time
(if 1 of 12 entry queue locations is empty)
- MCM69C232 – 12 ms Initialization Time
MCM69C233 – 18 ms Initialization Time,
after Fast Insertion (at Power-up only)



MCM69C432/433 Features

- MCM69C432 – 50 MHz
MCM69C433 – 66 MHz
- 16,384 Entries
- Programmable 14- to 64-Bit Wide Match Field
- MCM69C432 – 180 ns Match Time
MCM69C433 – 240 ns Match Time
- MCM69C432 – 300 ns Insertion Time
MCM69C433 – 450 ns Insertion Time
(if 1 of 14 Entry Queue Locations is Empty)
- MCM69C432 – 80 ms Initialization Time
MCM69C433 – 120 ms Initialization Time,
after Fast Insertion (at Power-up only)

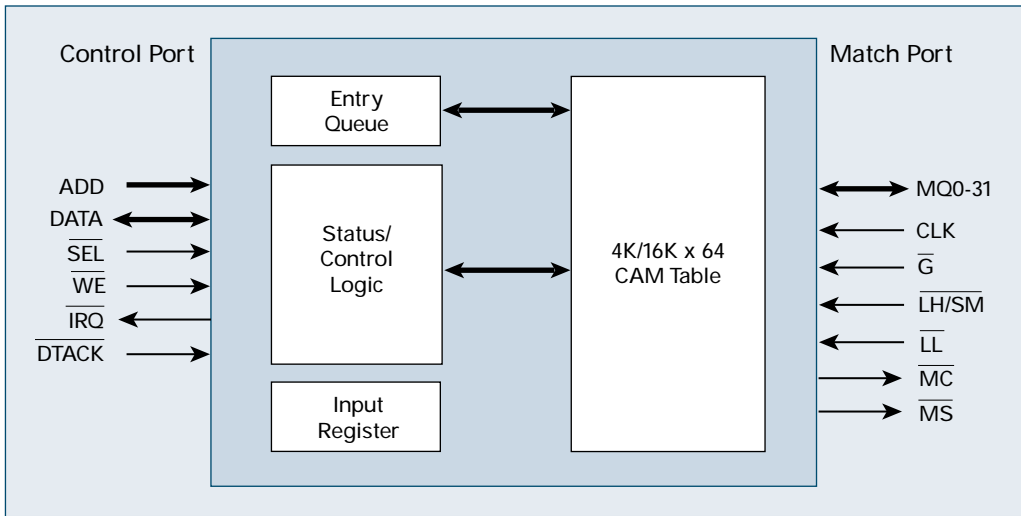
Common Features

- Mask Register to "Don't Care" Selected Bits
- Depth Expansion by Cascading Multiple Devices
- Programmable 0- to 32-Bit Output Value
- Separate Ports for Control and Match Operations
- Single 3.3 V \pm 5% Supply
- IEEE Standard 1149.1 Test Port (JTAG)
- Industrial Temperature Versions Available

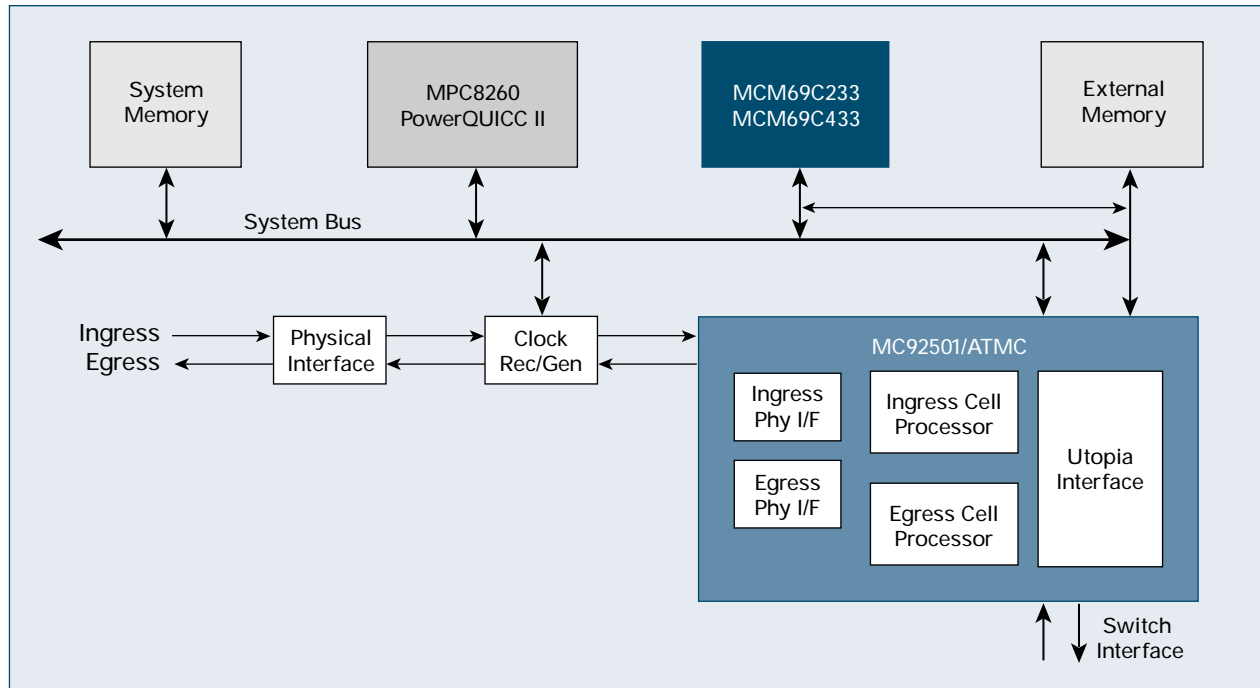
Available Products and Specifications

Part Number	Configuration	V _{DD}	Speed	Package
MCM69C232TQ	4K x 64	3.3 V	160 ns match time	100-Pin TQFP
MCM69C233TQ	4K x 64	3.3V	210 ns match time	100-Pin TQFP
MCM69C432TQ	16K x 64	3.3V	180 ns match time	100-Pin TQFP
MCM69C433TQ	16K x 64	3.3V	240 ns match time	100-Pin TQFP

MCM69C232/233 and MCM69C432/433 Block Diagram



Line Card Block Diagram



Contact Information

Motorola offers data sheets, application notes and models for memory products. More information is provided for all memory products at:

<http://mot-sps.com/products>

For all other inquiries about Motorola products, please contact the Motorola Customer Response Center at: phone: 800-521-6274 or

<http://www.motorola.com/semiconductors>