SiberCAM Ultra-9M

SCT9020

The SCT9020 offers the fastest ternary Content Addressable Memory (CAM) based Packet Forwarding Engine (PFE) with density suitable for multi-Gigabit/Terabit routers and multi-layer enterprise switches. Featuring full search rate support for 36, 72 and 144-bit look-ups, the SiberCAM Ultra-9M is fully backward compatible with its predecessor, the SiberCAM Ultra-2M. The Ultra-9M enables networking gear to satisfy present and future network bandwidth and table size requirements, alleviating the equipment bottlenecks in the Internet core and enterprise networks.

Based on a proprietary advanced ternary CAM architecture, the Ultra-9M improves the speed and efficiency of classification and routing table look-up functions in switching and routing equipment, performing up to 100 million multi-layer, multi-protocol look-ups per second. With the ability to forward packets at wire speed, the Ultra-9M is capable of handling OC-768 (40 Gbit/s) and multiple OC-192 (10 Gbit/s) look-ups.

Key Features

- 9,437,184 bits true ternary Content Addressable Memory (CAM) storage
- Register Configurable as 32K x 288, 64K x 144, 128K x 72 , 256K x 36 or dynamically configurable 36-bit, 72-bit, 144-bit, and 288-bit entries
- 3-port interface for independent search and table management (2-port interface option)
- Up to 100 million look-ups per second throughput
- Glueless cascade support for up to 16 devices allowing scaling up to one million IP packet classification entries
- Compatible with all SiberCAM family members

The Ultra-9M scales to meet connectivity demands by supporting full speed 36-bit look-ups for 256K Layer 3 (IPv4) addresses. Four Ultra-9Ms can be cascaded to support over 1 million 36-bit IPv4 addresses in a single routing sub-system. Similarly, up to 16 Ultra-9Ms can be cascaded to support over 1 million 144-bit classification entries. Cascading the Ultra-9M to create larger tables does not introduce any search throughput performance penalty.

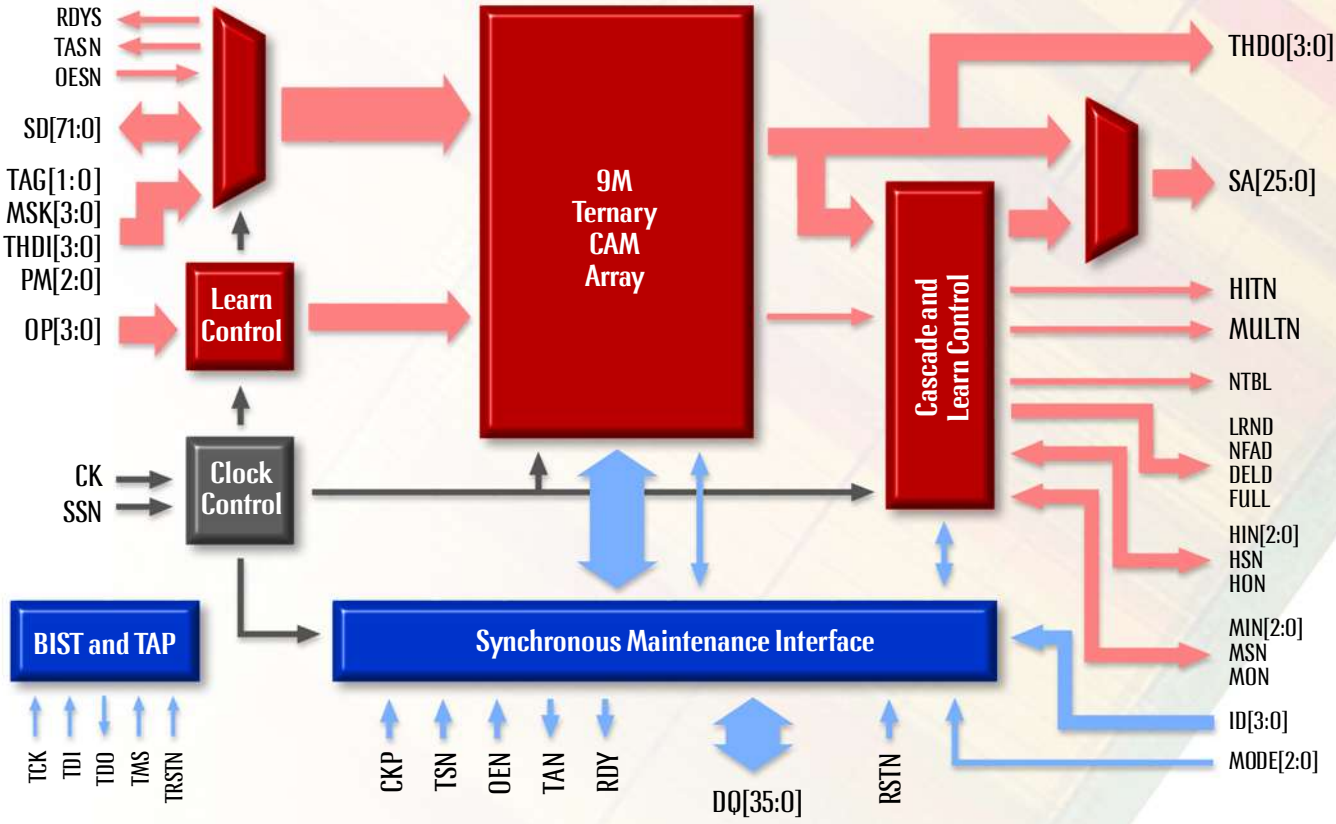
SiberCore is pleased to introduce new power management features in the Ultra-9M family. If the power management features are fully utilized, a cascade of four Ultra-9Ms can be configured to consume up to an order of magnitude less power than competing solutions.

The SCT9020 CAM-based PFE supports fully configurable multi-layer forwarding through a unique memory architecture that accommodates varying entry widths. From 36 to 288 bits can be dynamically and individually configured, enabling vendors to support both IPv4 and IPv6 address look-ups in a single chip.

The SCT9020 provides a unique third-port that uses a non-intrusive interleaving technique to allow routing table address updates to proceed without interrupting or suspending the search path. For applications where pin count is paramount, a pin efficient 2-port mode is also available.

SiberCore TECHNOLOGIES

SILICON SOLUTIONS FOR CYBERSPACE



Part Number

- SCT9020

Features

- 9,437,184 bits of ternary CAM storage
- Register configurable as 256K x 36, 128K x 72, 64K x 144, 32K x 288 or dynamically configurable 36-bit, 72-bit, 144-bit, and 288-bit entries
- High-speed synchronous search port – 18-bit, 36-bit and 72-bit bus support
- Search input can be configured to use either Single Data Rate (SDR) or Double Data Rate (DDR) signaling
- 100 Million look-ups per second sustained search throughput
- Independent maintenance port for non-intrusive table update operations
- 16 programmable global search masks
- 16 programmable entry mask registers
- Automatic learning – entry learned, next free address, entry deleted and full flags
- Flexible 4-bit programmable thread pipeline for search context identification and glueless connection to context memories
- Glueless cascade support for up to 16 chips
- Simple synchronous maintenance port – 36-bit and 18-bit bus support
- Built-in burst move operation
- IEEE 1149.1 JTAG TAP with BIST
- 1.5 V core supply (VDD); 3.3 or 2.5 V I/O (VCC)
- Compatible with all SiberCAM family members

Applications

- WAN & Internet Core
  - Multi-Gigabit/Terabit Routers
  - Edge Routers
  - ATM, POS, IP
- MAN/LAN/Enterprise
  - Backbone Switch/Routers
  - Aggregation Routers
  - 10Mb/100Mb/1Gb/10Gb Ethernet
- Layer 4 Flow Classification and Filtering
- Classless Inter-Domain Routing (CIDR)
- Longest Prefix Match (LPM)
- Network Address Translation (NAT)
- Class of Service (CoS)
- Quality of Service (QoS)
- Virtual Private Networks (VPN)
- Policy-based Networking
- Server Load Balancing

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