

TERNARY CAM FAMILIES: HARMONY™ AND CHORUS™

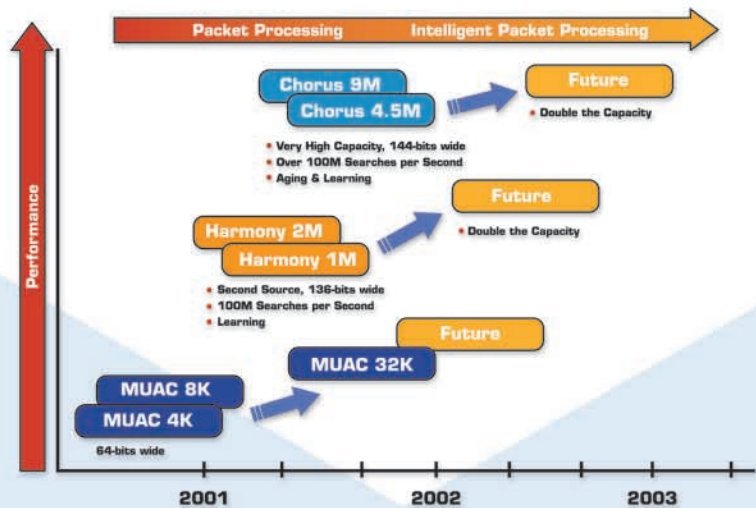


www.musicsemi.com

MUSIC continues over a decade of CAM (Content Addressable Memory) innovation with the addition of the Chorus and Harmony Ternary CAM product families. These fast look-up table devices support wide ternary packet header searches necessary for advanced networking and communications applications. As packet classification becomes more important to network performance, the ability to quickly organize and route packets grows in importance. Ternary CAMs provide maximum search performance and the flexibility for packet header processing at multiple layers. As packets are more thoroughly examined for content, deep packet analysis and classification are critical to maintain QoS and manage bandwidth.

To address the different packet processing requirements by layer, MUSIC has bracketed functionality by product family. Harmony's word width and speed are targeted to Ethernet, IPv4, IPv6 and packet classification. In addition to those capabilities, Chorus' density and depth also permit Layer 7 URL processing making it appropriate for multi-layer searches in next generation network equipment.

Ternary CAM Roadmap



Harmony performs 68- and 136-bit word searches at over 100 million searches per second, and 272-bit words at over 50 million searches per second. The devices contain 1.1 or 2.2 million ternary data elements. Handling of associated data is simplified by a glueless interface to industry standard synchronous SRAMs. Up to 31 Harmony devices can be cascaded with no loss of throughput.

Chorus is the highest density ternary CAM. Chorus devices contain 9.4 million or 4.7 million ternary elements. They can execute over 100 million, 36- or 144-bit word searches per second, and support a maximum lookup width of 294,912 bits. Up to 64 devices can be cascaded to store up to 604M ternary data elements without performance loss.



Applications

- Switches, Routers and Firewalls
- Ethernet, IPv4 and IPv6 Address Search
- Layer 4 Packet Classification
- Layer 7 URL Search

MUSIC CAMCore™ Functionality					MUSIC PEP™ Architecture Features		
Size	I/O Width	Ternary Elements	Search Speed Per Second	Cascadable without Add'l Logic	Aging	Learning	Multiple Tables
HARMONY							
8Kx136	68 Bit	1.1M	100M	31		✓	✓
16Kx136	68 Bit	2.2M	100M	31		✓	✓
CHORUS							
32Kx144	36/72 Bit	4.7M	over 100M	8 64 with	✓	✓	✓
64Kx144	36/72 Bit	9.4M	over 100M	8 64 with	✓	✓	✓

Part	Package	Power Supply
Harmony		
MUAD8K136	272 BGA	1.8V
MUAD16K136	272 BGA	1.8V
Chorus		
MUAE32K144	416 BGA	1.5V
MUAE64K144	416 BGA	1.5V

Available Tools:

SWIFT simulation and IBIS Models, BSDL
FPGA Verilog code interface for Harmony

Pricing/Availability:

Harmony 2M is priced at \$80 in thousand quantities and will sample Q2, 2001. 1M is priced at \$50 in thousand quantities, sampling Q3, 2001. Chorus 9M is priced at \$275 and 4.5M at \$160, both in thousand quantities and sampling Q3, 2001.

Additional product documentation available at www.musicsemi.com

About MUSIC Semiconductors

MUSIC Semiconductors, Inc. develops and markets ICs that improve Internet and wireless network performance. Within hubs, routers, bridges or switches, wherever an address or routing decision is made, MUSIC devices minimize the time necessary to redirect data and multimedia to the next destination. Best known for their signature Content Addressable Memory (CAM) technology, MUSIC's CAM products accelerate packet transmission by making a direct address match instead of searching for destination information. After an innovative decade, MUSIC's product line also includes accessory devices that achieve QoS prioritization and enable traffic shaping by performing packet scheduling, filtering and switching. Only MUSIC's product breadth makes such functionality available to a wide range of network equipment manufacturers.

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