

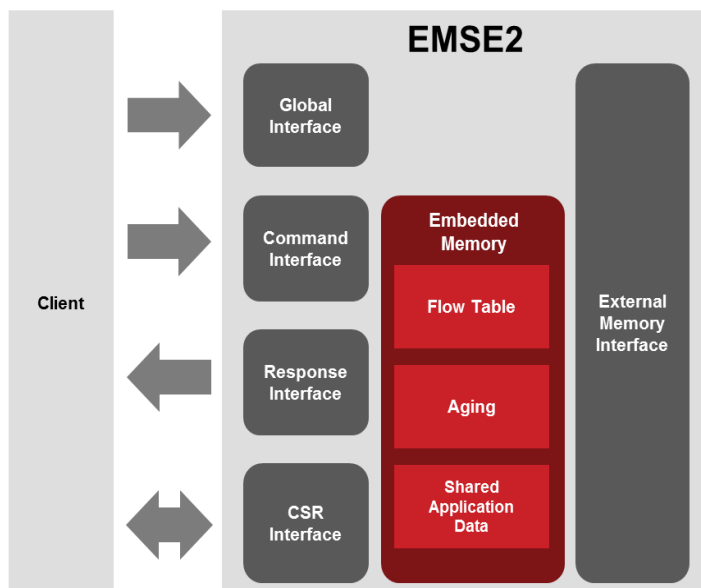
Second Generation Exact Match Search Engine

Description

The Exact Match Search Engine (EMSE2) IP tracks network flows in 100 Gigabit/second networks using a combination of on-chip memory and off-chip DRAM.

The EMSE2 tracks up to 12M flows simultaneously. It matches N-tuple header fields of widths between 80 to 640 bits, allowing a smooth transition from IPv4 to IPv6. It also supports an aging mechanism to keep track of and delete inactive flows.

The Algo-Logic's EMSE2 core has the unique ability to store an item along with each entry/key whereas a typical TCAM based system requires an additional memory lookup after a match address has been found. This item is returned along with the match, without an extra memory lookup, thus reducing the cost of the system.



Applications

- Software Defined Networking (SDN)
- IPv4 and IPv6 flow monitoring
- Network security
- Voice over IP
- IPv4 and IPv6 packet classification
- 100 Gigabit/second networks

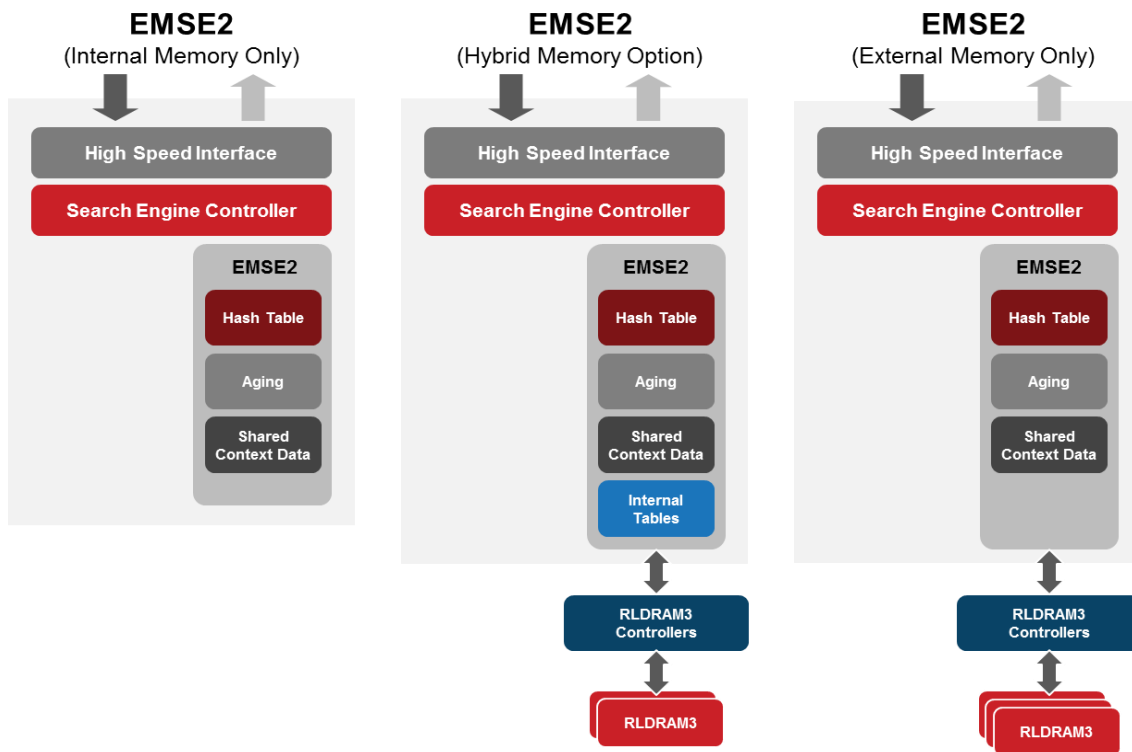
Key Benefits

- Max large table capacity
 - Up to 120 Mbit combined on-chip TCAM bits
 - Up to 960 Mbit combined hybrid TCAM bits
 - Up to 7.5 Gbit combined off-chip TCAM bits
- High search-rate
 - On-chip memory and hybrid
 - Up to 150 Million Searches Per Second (MSPS) per engine
 - 300 MSPS with two engines on one logic device
 - Up to 600 MSPS with four engines on one device
 - Off-chip memory
 - 75 MSPS per DDR3 group (4 x18 DDR3 devices with ECC)
- Highly configurable cores
 - Width of key between 80 to 640 bits
 - Table sizes from 768 to 12M entries
- Flexible interface to software
 - Packet interface to read statistic registers and write configuration
- Auto invalidation of aged out entries
 - Provides notification for aged out entries

EMSE2 Key Features

Key size	80, 160, 320, or 640 bit
Search rate	150 MSPS using on-chip memory or hybrid 75 MSPS using off-chip DDR3
Table sizes	192K to 1.5M using hybrid 192K to 12M using off-chip DDR3
Lookup latency	Under 256ns using on-chip Memory Under 450ns using hybrid Under 600ns using off-chip DDR3
Item size	Up to 96 bits
Operations	{ Insert, Search, Modify, Delete Key, Delete RuleID, Read Rule ID }

EMSE2 Variations



Ordering Codes

On-chip memory:

EMSE2-150M – (Table size) – (Key size)

Hybrid DDR3:

EMSE2-150M – (Table size) – (Key size)

External DDR3

EMSE2-75M – (Table size) – (Key size) – (#DDR3)