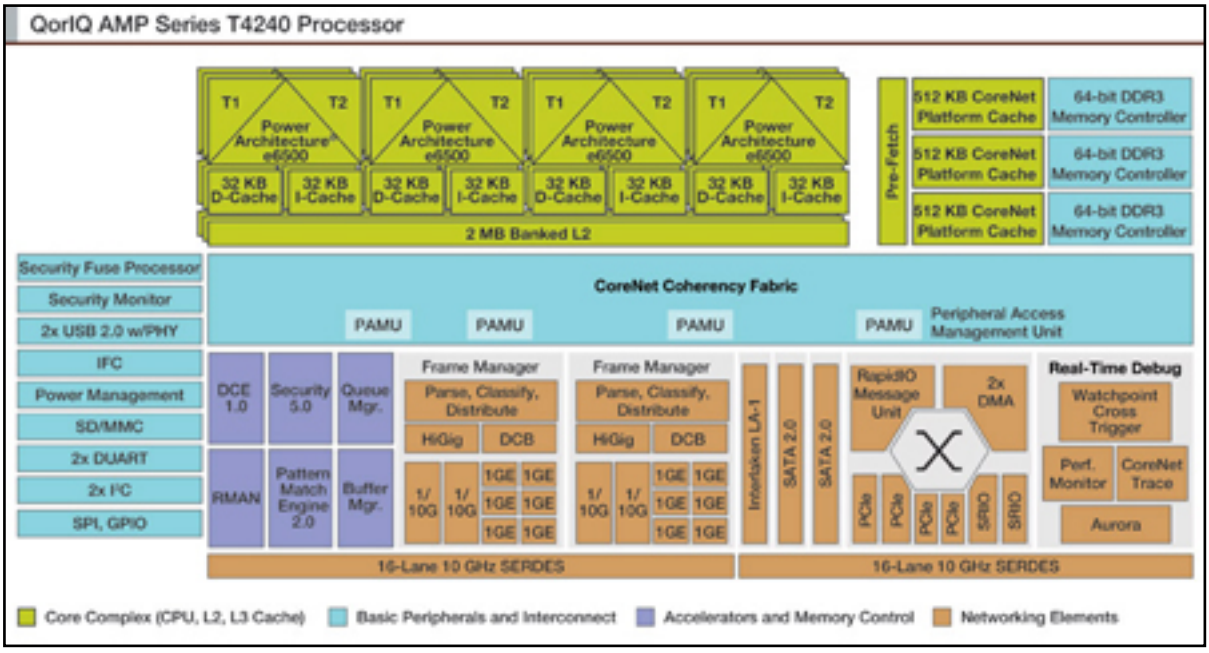
Embedded Multicore Processor Family for Datacenters Touts Highest CoreMark Score and Adds New Series

Freescale Semiconductor has added to its QorIQ Advanced Multiprocessing (AMP) of embedded multicore processors. Featuring 24 virtual cores and based on Freescale's dual threaded e6500 Power Architecture core, the previously announced T4240 processor has achieved the highest CoreMark benchmark performance score ever recorded for an embedded processor, according to the company. In addition, Freescale is introducing its new software- and pin-compatible QorIQ AMP series T4160 processor featuring 16 virtual cores achieving 1.8 GHz within a 25-W power envelope. The T4240 and T4160 products deliver a combination of hardware acceleration, fabric-based interconnect technology, high speed I/O, hardware-assisted virtualization and next-generation 64-bit Power Architecture cores for applications in the data center, as well as other networking and industrial segments.



Both products will be manufactured using 28nm process technology. The processors incorporate an array technologies suited for data center applications including dual threaded, 64-bit Power Architecture e6500 cores with 40-bit real address memory and one Terabyte of physical address memory; second generation hardware-based hypervisor technology designed to simplify development and enable the safe and autonomous operation of multiple individual operating systems, allowing them to share system resources, including processor cores, accelerators, memory, interconnects and other on-chip functions; 50 Gbps of packet parse, classify and distribute acceleration; and support for both 10G and 1G Ethernet, allowing the flexibility for multiple 10G and 1G Ethernet interfaces.

Additional features include:

• 20Gbps of IPSEC forwarding performance, including a crypto acceleration engine (SEC) with 40Gbps of performance for SSL and other security protocols;
• A new 20Gbps Data Compression Engine (DCE) as well as regular expression pattern matching engine for application recognition and data loss prevention;
• New functions supporting quality of service including Data Center Bridging (DCB) and egress traffic shaping, designed to eliminate loss due to queue overflow and accommodate efficient allocation of bandwidth on link;
• System interconnect technologies including PCIe rev 3.0 with SR-IOV to facilitate high speed peripheral expansion;
• Advanced, policy-based cascading power management technology designed to dynamically manage power consumption.

“Data center technology is evolving at remarkable speed and many of our customers are rapidly adding bandwidth while battling latency by flattening the data center network,” said Brett Butler, vice president of Freescale’s Networking Processor Division. “Interestingly, the data center of the future is beginning to mirror the architecture of our own embedded SoCs, driven by the same requirement to deliver the highest network and content processing performance at the lowest cost of ownership. The technology demands associated with this trend are squarely in the wheelhouse of Freescale’s traditional communications processing strengths.”

Availability
Sampling for the T4240 and T4160 is planned for mid-2012.

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[1] http://www.freescale.com