

Freescale offers low-power option for networking applications with quad-core QorIQ P4040 device

Code and pin compatibility with flagship QorIQ P4080 processor further extends Freescale's advanced multicore architecture

SAN JOSE, Calif. (Linley Tech Processor Conference) – Sept. 16, 2009 – Freescale Semiconductor is expanding the range of power and performance options available for its QorIQ family of multicore platforms with the introduction of the QorIQ P4040 processor.

A four-core version of Freescale's flagship P4080 processor, the new device delivers low-power solutions for applications requiring optimal performance in a sub-15 watt typical power envelope. Pin and code compatibility with the eight-core P4080 device allows customers to easily migrate between processors, providing a scalable solution across Freescale's multicore offerings.

The new processor combines control, datapath and application layer processing, which lowers part counts, reduces system cost and shrinks product footprints. The P4040 is well-suited for wireless infrastructure, enterprise routing and switching and industrial applications.

"Market adoption for the QorIQ P4080 processor has been outstanding, and Freescale is now expanding the scalability of its QorIQ P4 platform via the new quad-core P4040 offering," said Brett Butler, vice president and general manager of Freescale's Networking Processor Products. "The P4040's exceptional performance and power profiles, together with the availability of an impressive range of enablement solutions makes the new device a compelling option for networking and communications equipment markets."

The P4040 is manufactured using 45-nm process technology and features dual memory controllers and the same advanced caching, interconnect acceleration and high-speed I/O technologies as the P4080 processor. The P4040 also leverages the P4080's embedded hypervisor and Datapath Acceleration Architecture technologies.

The new device integrates four industry-leading e500mc cores based on Power Architecture® technology, delivering frequencies of 1.5 GHz per core. Each core has a dedicated 128 KB L2 backside cache and access to 2MB of shared frontside L3 cache. Full processor independence, including the ability to boot and reset each individual e500mc core, is a defining characteristic of the P4040 device. In addition, the P4040 boasts dual memory controllers that support DDR2 or DDR3 memories allowing board designers to utilize the latest memory technologies.

The P4040 integrates I/O technologies including dual 10-Gbps Ethernet (XAUI) controllers and eight 1-Gbps Ethernet (SGMII) controllers for packetized data processing. For non-packetized processing, there are three PCI Express® v2.0 controllers/ports running at up to 5GHz and two Serial RapidIO® controllers/ports running up to 3.125GHz.

Extensive ecosystem of enablement technologies

The P4040 is supported by a deep ecosystem of enablement partners and technologies. Freescale has worked closely with its partners to assure availability of a wide range of development technologies including operating systems, development tools and application code. Customers can also leverage Virtutech's Simics™ hybrid simulation model for the P4040 device, which allows customers to begin development on the new processor even prior to first silicon.

QorIQ P4040 processor availability

The QorIQ P4040 device is scheduled to begin sampling in Q4 2009 and production is planned for 2H 2010.

For more information about Freescale's QorIQ P4040 processor please visit <http://www.freescale.com/files/pr/P4040.html>

About Freescale Semiconductor

Freescale Semiconductor is a global leader in the design and manufacture of embedded semiconductors for the automotive, consumer, industrial and networking markets. The privately held company is based in Austin, Texas, and has design, research and development, manufacturing or sales operations around the world. www.freescale.com.

Supporting comments from Freescale partners follow

CriticalBlue: "While many of our customers are already programming for multicore platforms using our Prism technology, others are using Prism to work out why, when and how to migrate and verify their sequential code," said David Stewart, CEO of CriticalBlue. "Part of that process is choosing the right multicore architecture, and we are pleased to be working with Freescale, whose P4040 platform enhances the already impressive range of devices in the QorIQ family."

Enea: "Multicore solutions are now being broadly adopted in telecom, mobile, medical, automotive and military/aerospace markets. Enea has taken a leading position with our advanced multicore technology to meet the demand," said Marcus Hjortsberg, vice president of product marketing for RTOS and Tools for Enea. "Enea looks forward to continuing the partnership with Freescale and delivering our Enea OSE® real-time operating system, Optima development tools and professional services for high-performance, high-availability and mission critical solutions in conjunction with Freescale's QorIQ products."

Green Hills Software: "With the new QorIQ P4040 product, Freescale has again delivered a winning multicore platform," said David Kleidermacher, chief technology officer, Green Hills Software. "The QorIQ P4040 simplifies multicore development in communications infrastructure and other markets. Freescale and Green Hills continue to build on a long history of helping customers create successful solutions using Freescale processors integrated with our Platform for Secure Networking."

MontaVista Software: "MontaVista has a long track record of enabling comprehensive solutions for customers using Freescale's PowerQUICC and QorIQ processors," said Dan Cauchy, vice president of marketing at MontaVista Software. "This includes Freescale's newest processors in the QorIQ family and their focus on delivering multicore solutions. With the recent release of MontaVista Linux 6, we look forward to continuing to help our joint customers deliver even greater performance and energy efficiency from Freescale processors in the future."

QNX Software Systems: "QNX and Freescale have a long and successful track record of serving the embedded market together," said Sebastien Marineau, vice president of Engineering at QNX Software Systems. "The combination of the high-performance, energy efficient QorIQ architecture combined with QNX's industry-leading multicore visualization tools and field-proven multicore support will enable our mutual customers to fully benefit from these new Freescale processors."

Virtutech: "For over two years, Virtutech Simics Virtual Platforms have played a key part in the development of the hypervisors, operating systems, applications and middleware that help make QorIQ processors a market ready, turn-key solution," said Michel Genard, vice president of Marketing for Virtutech, Inc. "Based on this unmatched position and leadership in virtualized systems development, Simics is clearly becoming the trusted and proven choice for pre- and post-hardware development of any QorIQ device."

Wind River Systems: "As long-time partners in delivering world-class multicore solutions, Wind River and Freescale are currently accelerating joint efforts to optimize the Freescale QorIQ P4080 and new P4040 systems-on-a-chip across Wind River's comprehensive multicore software portfolio," said Tomas Evensen, chief technology officer, Wind River. "The P4040 represents another compelling addition to the QorIQ product family, and by optimizing the P4040 with the industry's most comprehensive multicore software portfolio, we expect our shared customers will be able to realize the benefits of multicore processing while also leveraging years of existing investments."

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