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Qualcomm Datacenter Technologies Announces Commercial Shipment of Qualcomm Centriq 2400 - The World's First 10nm Server Processor and Highest Performance Arm-based Server Processor Family Ever Designed

-World's Only 10nm Server Processor Family Delivers Exceptional Throughput Performance, Performance-Per-Watt and Performance-Per-Dollar-

SAN DIEGO, Nov. 8, 2017 /PRNewswire/ -- At a press conference held today in San Jose, Calif., Qualcomm Datacenter Technologies, Inc., a subsidiary of Qualcomm Incorporated (NASDAQ: QCOM), officially announced commercial shipment of the world's first and only 10 nanometer server processor series: the Qualcomm Centriq™ 2400 processor family. The Qualcomm Centriq 2400 processor family is the first high-performance Arm-based processor series designed to offer groundbreaking throughput performance for cloud workloads running in today's datacenters. Purpose built for cloud, the Qualcomm Centriq 2400 server processor family delivers exceptional performance-per-watt and performance-per dollar.

"Today's announcement is an important achievement and the culmination of more than four years of intense design, development and ecosystem enablement effort," said Anand Chandrasekher, senior vice president and general manager, Qualcomm Datacenter Technologies, Inc. "We have designed the most advanced Arm-based server processor in the world that delivers high performance coupled with the highest energy efficiency, enabling our customers to realize significant cost savings."

Qualcomm Centriq 2400 Processor Family Technical Specs
The Qualcomm Centriq 2400 processor family is a single chip platform-level solution built using Samsung's 10 nanometer FinFET process with 18 billion transistors on only 398mm^2. It contains up to 48 high-performance, 64-bit, single-thread cores, running at up to 2.6 GHz frequency. The cores are connected with a bi-directional segmented ring bus with 250GBps of aggregate bandwidth to avoid performance bottlenecks under full load. To maximize performance under various use cases, the design has 512KB of shared L2 cache for every two cores, and 60MB of unified L3 cache distributed on the die. It has 6 channels of DDR4 memory and can support up to 768 GB of total DRAM capacity with 32 PCIe Gen3 lanes and 6 PCIe controllers. The Qualcomm Centriq 2400 processor family also supports Arm's TrustZone secure operating environment, and supports hypervisors for virtualization. The Qualcomm Centriq 2400 is able to achieve exceptional performance, while consuming less than 120 watts.

With a list price of $1,995, the 48 core Qualcomm Centriq 2460 processor offers greater than 4X better performance per dollar and up to 45% better performance per watt versus Intel's highest-performance Skylake processor, the Intel Xeon Platinum 8180[1].

A number of cloud service providers and technology companies participated in the launch event and demonstrated applications of an Arm-based datacenter running on the Qualcomm Centriq 2400 series. These included Alibaba, American Megatrends Inc., Arm, Cadence Design Systems, Canonical, Chelsio Communications, Cloudflare, Excelero, Hewlett Packard Enterprise, Illumina, LinkedIn, MariaDB, Mellanox, Microsoft Azure, MongoDB, Netronome, Packet, Red Hat, ScyllaDB, 6WIND, Samsung, Solarflare, Smartcore, SUSE, Uber, and Xilinx.

Optimized for common cloud workloads, the Qualcomm Centriq 2400 processor family has been designed to deliver throughput performance for highly threaded cloud native applications that are developed as micro-services and deployed for scale-out. Some of the key applications and use cases demonstrated today include:

- Web front end with HipHop Virtual Machine
- NoSQL databases including MongoDB, Varnish, Scylladb
- Cloud orchestration and automation including Kubernetes, Docker, metal-as-a-service
- Data analytics including Apache Spark
- Deep learning inference
- Network function virtualization
- Video and image processing acceleration
- Multi-core electronic design automation
- High throughput compute bioinformatics
- Neural class networks
- OpenStack Platform
- Scaleout Server SAN with NVMe
- Server-based network offload

Quotes from Leading Cloud Service Providers and Technology Innovators
"Alibaba has been collaborating with Qualcomm Datacenter Technologies for several years on our need for a high performance and power-efficient server chip for our cloud solutions," said Weifeng Zhang, senior director, Alibaba Infrastructure Services, Alibaba Group. "We see great growth opportunities for the Qualcomm Centriq 2400 processor family in the burgeoning Arm-based server ecosystem in China. We are excited to work with Qualcomm Datacenter Technologies to drive datacenter innovation in China."

"Google is excited to see Qualcomm Datacenter Technologies launch the Qualcomm Centriq 2400 processor," said Bart Sano, vice president, platforms, Google. "We welcome choice in the processor design space for data centers. Choice leads to innovation which ultimately benefits our users. The 64-bit Armv8-A architecture and ecosystem is now a viable alternative for scale-out data center designs."

"With its highly efficient performance profile, HPE's new Qualcomm Centriq 2400-based servers will meet and exceed our customers' needs across a wide range of workloads from web front-end and data analytics, to NoSQL databases and telco cloud," said Antonio Neri, president, Hewlett Packard Enterprise. "We will ship these new server systems to early access customers in early 2018."

"Microsoft and Qualcomm Datacenter Technologies have made tremendous progress since our announcement at the Open Compute Project U.S. Summit earlier this year," said Mike Neil, corporate vice president, Azure Infrastructure and Management, Microsoft Corp. "Qualcomm Centriq 2400 is well suited for highly parallelized workloads like those found in hyper-scale clouds. We believe that Qualcomm Datacenter Technologies has the ability to deliver extremely compelling performance per watt and total cost of ownership."

"Samsung and Qualcomm Datacenter Technologies have expanded a decade-long strategic foundry collaboration to manufacture the Qualcomm Centriq 2400, the world's first server processor built on industry's first 10-nanometer (nm) FinFET process technology," said ES Jung, president and general manager, Foundry Business, Samsung Electronics. "Samsung's 10-nm process technology with specific optimizations for high performance, combined with Qualcomm Datacenter Technologies' leading-edge custom SoC design, allow us to deliver a world-class server processor that will disrupt the datacenter market."

More information on the Qualcomm Centriq 2400 processor family as well as materials presented at the launch event can be found at https://www.qualcomm.com/news/media-center/press-kits/qualcomm-centriq-2400-launch-event.

About Qualcomm
Qualcomm's technologies powered the smartphone revolution and connected billions of people. We pioneered 3G and 4G – and now we are leading the way to 5G and a new era of intelligent, connected devices. Our products are revolutionizing industries, including automotive, computing, IoT, healthcare and data center, and are allowing millions of devices to connect with each other in ways never before imagined. Qualcomm Incorporated includes our licensing business, QTL, and the vast majority of our patent portfolio. Qualcomm Technologies, Inc., a subsidiary of Qualcomm Incorporated, operates, along with its subsidiaries, all of our engineering, research and development functions, and all of our products and services businesses, including, our QCT semiconductor business. For more information, visit Qualcomm's website, OnQ blog, Twitter and Facebook pages.

Qualcomm Centriq is a product of Qualcomm Datacenter Technologies, Inc.

[1] Details on performance measurements are in the end notes section of presentation posted here: https://www.qualcomm.com/media/documents/qualcomm-centriq-2400-media-deck.

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