



Top News from Leading HPC Solution Providers



(http://tci.taborcommunications.com/sponsor/nvidia)



(http://tci.taborcommunications.com/sponsor/hp-2)



(http://tci.taborcommunications.com/sponsor/sgi)



(http://tci.taborcommunications.com/sponsor/intel)



(http://tci.taborcommunications.com/sponsor/fujitsu-2)



(http://tci.taborcommunications.com/21812/2014-04-25/5j3mh)



(http://tci.taborcommunications.com/sponsor/boston)



(http://tci.taborcommunications.com/sponsor/eurotech)



(http://tci.taborcommunications.com/sponsor/atipa)



(http://tci.taborcommunications.com/sponsor/Seagate-2)



(http://tci.taborcommunications.com/sponsor/cyclecomputing)



(http://tci.taborcommunications.com/sponsor/chelsio)

NEW ORLEANS, La., Nov. 17 — Altera Corporation and IBM today unveiled the industry first FPGA-based acceleration platform that coherently connects an FPGA to a POWER CPU leveraging IBM's Coherent Accelerator Processor Interface (CAPI). The reconfigurable hardware accelerator features shared virtual memory between the FPGA and processor which significantly improves system performance, efficiency and flexibility in high-performance computing (HPC) and data center applications. Altera and IBM are presenting several POWER8 systems that are coherently accelerated using FPGAs at SuperComputing 2014.

Working together through the OpenPOWER Foundation, Altera and IBM are developing highly flexible heterogeneous compute solutions that bring new levels of performance and efficiency to POWER8 systems. FPGA-accelerated POWER8 systems are optimized to enable compute- and processing-intensive tasks required in next-generation HPC and data center applications, including data compression, encryption, image processing and search. Using CAPI to coherently attach FPGA accelerators to the fabric of a POWER8 processor and main system memory make the FPGA appear as simply another core on the POWER8 processor. This results in shortened development time by greatly reducing lines of software code and reduced processor cycles versus conventional IO attached accelerators. A single FPGA-accelerated POWER8 server is able to operate at industry-leading levels of efficiency, allowing system architects to cut their data center footprint in half.

"As today's high-performance computing applications evolve with rapidly changing workloads, it is imperative we build in flexible accelerators to make IBM POWER processors more efficient in IBM POWER Systems and all OpenPOWER compatible systems," said Brad McCredie, vice president of IBM Power development and OpenPOWER president. "The work Altera has done to provide FPGA-based reconfigurable hardware acceleration to our POWER processors enabled through CAPI allows software developers to build highly efficient, highly flexible, performance optimized systems."

Altera and IBM have worked with board partner Nallatech to develop an OpenPOWER CAPI Development Kit (http://www.nallatech.com/capi) for POWER8 that features Nallatech's FPGA-based 385 card, the industry's first CAPI FPGA accelerator card. This off-the-shelf development platform allows designers to start using FPGA accelerators with POWER8 systems.

The Altera SDK for OpenCL provides developers the resources they need to develop their own custom FPGA-based accelerators and gain a time to market, power and performance advantage. The release of the OpenCL 2.0 specification supports shared virtual memory capabilities which enable programmers to address memory shared by the host and accelerator using CAPI.

"Our work with the OpenPOWER Foundation has enabled us to deliver highly flexible heterogeneous compute platforms that target POWER-based systems," said David Gamba, senior director of the computer and storage business unit at Altera. "Altera is at the forefront of supplying POWER users reconfigurable hardware accelerators based on CAPI that are supported with an OpenCL programming model. The result is highly optimized accelerators that deliver optimal FLOPs/Watt/dollar."

Live SuperComputing 2014 Demonstrations

Altera and IBM will be formally presenting POWER8 systems being accelerated by FPGA at SuperComputing 2014, including:

- IBM Data Engine for NoSQL: This solution enables a significantly lower cost basis for deploying NoSQL data stores. The solution features Altera's FPGAs and IBM's FlashSystem 840 - enabled POWER System S822L with IBM's FlashSystem 840 - demonstrating server consolidation by enabling one POWER8 server to be used instead of 24 X86 servers for a well-sized NoSQL store.
IBM Data Engine for Analytics: This solution is a customizable infrastructure solution with integrated software optimized for big data and analytics workloads. The IBM Data Engine features POWER8 CPU and Altera FPGAs working together to manage efficient workloads and provide flexible and adjustable storage and compute resources.
OpenPOWER CAPI Developer Kit for POWER8: This demonstration uses a Nallatech OpenPOWER CAPI Development Kit to show how developers can get started using FPGA-accelerated POWER8 systems.

About The OpenPOWER Foundation

OpenPOWER Foundation members include Altera, IBM, Google, Mellanox, NVIDIA and Tyan. These companies are working together to build advanced server, networking, storage and hardware-acceleration technologies aimed at delivering more choices, content and flexibility to developers of next-generation hyperscale and cloud data centers. For more information on the OpenPOWER Foundation visit www.openpowerfoundation.org (http://www.openpowerfoundation.org/)

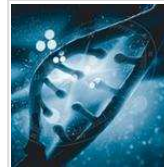
About Altera

Altera programmable solutions enable designers of electronic systems to rapidly and cost effectively innovate, differentiate and win in their markets. Altera offers FPGAs (http://www.altera.com/devices/fpga/fpga-index.html?utm_source=altera&utm_medium=press_release&utm_campaign=hybrid_memory_cube) (http://www.altera.com/devices/processor/soc-fpga/proc-soc-fpga.html?utm_source=altera&utm_medium=press_release&utm_campaign=hybrid_memory_cube) (http://www.altera.com/products/devices/cpld/max2/mx2-index.jsp?utm_source=altera&utm_medium=press_release&utm_campaign=hybrid_memory_cube) and other programmable technologies, such as power management, to provide high-value solutions to customers worldwide. Visit http://www.altera.com (http://www.altera.com/).

reveals-winners-2014-readers-editors-choice-



Along These Lines



Big Data Compels HPC Adoption in Life Sciences (http://www.hpcwire.com/2014/11/13/big-data-compels-hpc-adoption-life-sciences/)



UK Project Tackles Bike Helmet Safety (http://www.hpcwire.com/2014/11/13/uk-project-tackles-bike-helmet-safety/)



Intel Lends Custom Lift to the AWS Cloud (http://www.hpcwire.com/2014/11/13/intel-lends-custom-lift-aws-cloud/)



Weekly Twitter Roundup (http://www.hpcwire.com/2014/11/13/weekly-roundup-4/)

HPC Tweets

Twitter feed containing tweets from @ibmhpc, @kehoste, @lshubwales, and @HPCWales regarding SC14 events and HPC news.

Feature Articles

NASA Pushes Long-Range Climate Model Limits with SGI (http://www.hpcwire.com/2014/11/17/nasa-pushes-long-range-climate-model-limits-sgi/) The Discover system at NASA's Center for Climate Simulation was designed with