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IDT and CERN openlab mark milestone for data acquisition and data center analytics applications

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USA - Integrated Device Technology (IDT; www.idt.com) announced today that CERN's data-processing framework has successfully been ported to a RapidIO®-enabled low-latency network that features multiple x86 CPU nodes, a world first in the high-performance computing market.

The development comes during the first phase of IDT's collaboration with CERN (the European Organization for Nuclear Research), part of a multi-year project announced last year that is designed to speed and improve data analytics at CERN's Large Hadron Collider (LHC) and data center.

During this groundbreaking work, standard x86 servers in the CERN data center were equipped with 20 Gbps RapidIO network interface controller (NIC) cards and connected with a 0.75 Tbps RapidIO top of rack switch appliance designed by Prodrive Technologies.

Leveraging this hardware architecture, CERN openlab researchers successfully ported CERN's ROOT framework for data processing and analytics, as well as the LHCb experiment's DAQPIPE event-building emulator, which is used to evaluate high-tech interconnects intended to be used in the collider event-building network.

Full hardware line rates were sustained, and link utilization rates were competitive relative to other industry options, which is a key to more efficient data center workload optimization.

CERN openlab is a unique public-private partnership that accelerates the development of cutting-edge solutions for the worldwide LHC community and wider scientific research. The collaboration with IDT is working to improve overall data acquisition and analysis for the massive volumes of data collected by the experiments on the LHC, the world's largest and most powerful particle accelerator.

The LHC produces millions of collisions every second in each detector, generating approximately one petabyte of data per second. This data is important to CERN's quest to answer fundamental questions about the universe.

In addition to high-performance computing, IDT's low-latency RapidIO products are widely used in 4G base stations. IDT has deployed over 110 million ports of 10-20 Gbps RapidIO technology and recently launched 50 Gbps silicon.

"This is an innovative achievement by CERN researchers in the HPC and analytics community," said Alberto Di Meglio, head of CERN openlab. "The CERN openlab research team demonstrated that near native line speed could be achieved in many cases, proving that the technology is able to function at a small scale and could constitute a compelling alternative in future architectures."

"With this CERN collaboration, IDT is able to showcase how well this low-latency technology is suited for mission-critical data analytics," said Sailesh Chittipeddi, IDT's vice president of Global Operations and chief technology officer.

"The successful port of the ROOT analytics and CERN's event building use cases on the RapidIO-enabled analytics platform is a key technical achievement that can benefit all of our customers doing HPC, accelerated hyperscale cloud analytics and telecom mobile edge computing."

Results from the successful port can be found in IDT's presentation from the CERN openlab Open Day on June 9, and will also be on display at the RapidIO.org booth #622 at the International Supercomputing Conference, Frankfurt, Germany, which runs through June 23.

For more information about the RapidIO technology, contact IDT at SRIO@idt.com. For larger scaleout of the analytics platform used at CERN openlab, 1U 19-inch rack scale solutions are available from Prodrive Technologies (www.prodrive-technologies.com). More information on related RapidIO analytics projects at IDT's Open HPAC Lab can be found at http://www.idt.com/landing/open-hpac-lab.

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