



The new face of sampling oscilloscopes
20 GHz bandwidth



Home » News » Full News

Business News

4G low-latency interconnect boosts data analytics at Large Hadron Collider

April 03, 2015 | Jean-Pierre Joosting | 222906012



Integrated Device Technology has entered a three-year collaboration with the European Organization for Nuclear Research (CERN) to use its RapidIO technology to help improve data acquisition and analysis in some of the most advanced fundamental physics research.

Page 1 of 2

Massive volumes of data are collected by the experiments on CERN's Large Hadron Collider (LHC), the largest and most powerful particle accelerator. Teams from IDT and CERN will use the IDT technology to improve the quality and timeliness of this data collection, as well as the initial analysis and reconstruction work at the experiments' data farms and the CERN Data Centre.

The LHC produces millions of collisions every second in each detector, generating approximately one petabyte of data per second. The RapidIO technology provides a low-latency connection between clusters of computer processors, dramatically speeding the movement of data. Widely used for 4G base stations, lthe company's low-latency RapidIO products can also enable real-time data analytics and data management for high-performance computing (HPC) and data centers.

As part of the mandate for the fifth phase of the CERN openlab partnership, several of the LHC experiments are exploring the possibility of moving from custom-built hardware and backplanes to fully programmable heterogeneous computing with low-latency interconnect between large clusters of processors. Current RapidIO 20 Gbps interconnect products will be used in the first stage of the collaboration with an upgrade path to RapidIO 10xN 40 Gbps technology in the future as research at CERN progresses.

"This CERN collaboration is about enabling programmable real-time mission critical data analytics," said Sailesh Chittipeddi, vice president of Global Operations and chief technology officer at IDT. "Since the job spans multiple processors, the interconnect between them has to be ultra-low latency, and our technology—already used across 4G wireless base station deployments worldwide—is ideally suited to CERN's real-time interconnect needs."

Because of the volume of real-time data CERN collects, current implementations are done in custom-built ASIC hardware. Using algorithms implemented in hardware, the data is sampled, and only 1 percent is selected for further analysis.

"The bottleneck for better data acquisition, selection and analytics is superior real-time interconnect," said Alberto Di Meglio, head of CERN openlab. "Our collaboration with IDT to develop a RapidIO-based computing architecture should help solve CERN's real-time data filtering problem, enabling us to select and utilize more meaningful events from the LHC and improve efficiency of analytics in our data center monitoring and operations."

1 | 2 | [Next page](#)

>> All news

0 comments (add yours?)



20 GHz bandwidth

The new face of sampling oscilloscopes
20 GHz bandwidth



monitoring for NFV, SDN and hybrid networks

- » IBM invests 3 billion USD to bring IoT to the enterprise
- » Ultra-low-jitter LVCMOS clock buffers
- » Patent boosts mobile upload speeds by tenfold
- » New class of magnetic materials could boost wireless data transmission
- » Development kit targets SmartMesh IP wireless sensor networks
- » IDT passes 10 million RFIC shipments in under 4 years
- » Data structures have an influence on the speed of quantum search
- » Small, high-efficiency TWT amplifiers target the 2-kW Ku-band and 1.5-kW DBS-band
- » Device management app protects children, pets and belongings
- » Lab achieves D-Band 44 Gbps transmission rate with Teledyne semiconductor process
- » Wireless power receiver shortens charging times
- » Processor breaks 100 Gbps IPsec throughput barrier
- » Gigabit modem IP targets mmWave communication

>> All news



IMS2015
International Microwave Symposium
17-22 May 2015
Phoenix, Arizona, USA
DISCOVER NEW TECHNOLOGIES



IMS2015
International Microwave Symposium
17-22 May 2015
Phoenix, Arizona, USA
CONNECT WITH COLLEAGUES



IMS2015
International Microwave Symposium
17-22 May 2015
Phoenix, Arizona, USA
CONNECT WITH COLLEAGUES

NXP to target all CMOS radar

Infrared light offers alternative for wireless charging

Tiny mobile brain-computer interface for smartphones

50 GHz Germanium waveguide electro-absorption modulator demonstrated

New class of magnetic materials could boost wireless data transmission

IBM invests 3 billion USD to bring IoT to the enterprise

Will a silicon sphere become the new kilogram standard?

Making drones safer and smarter

Modern car IT architecture software defined and open source

» Nanoscale IC technology may



Accelerate your productivity with
National Instruments



Accelerate your productivity with
National Instruments



Accelerate your productivity with
National Instruments



Accelerate your productivity with
National Instruments

Search

EET Search
Microwave EE|Times

TECHNICAL PAPERS

- » Doherty Power Amplifier using 2-stage asymmetrical IC designed for 1.8-2.2 GHz applications
- » Software-Defined Radio Handbook
- » Upgrading Analogue Radios with Digital Voice Encryption Easily and Cost Effectively
- » Top 5 Trends in Product Development and Test Engineering
- » RF/Microwave Instrumentation Â“SÂ” Series Amplifiers
- » Application Guide to RF Coaxial Connectors and Cables

>> See all papers

- double radio frequency data capacity
- » Patent boosts mobile upload speeds by tenfold
- » Future smartphones could offer 3D cameras
- » Microsemi to acquire Vitesse for carrier, enterprise and industrial-IoT markets
- » Fastest mobile Internet found in Denmark, Singapore and Switzerland
- » End-to-end encryption app for the masses

» All news

INTERVIEW

Laboratory test: Apps displace buttons, GPIB lives on

Technological change does not spare laboratory measurement equipment. The most striking and visible trend in this market is the transformation of the user interfaces: Increasingly, touch screens replace ...

» Read more

Smartphones Antenna
Bluetooth RFID Radio MEMS
Wireless NFC Qualcomm M2M
Smartphone MIMO Broadband
Test Agilent Technologies Radar WLAN
Mobile Wi-Fi Texas Instruments
Satellite ZigBee Android IoT WiFi
Internet Of Things Microwave LTE
ABI Research GPS



from the
electronics industry