

Integrated Device Technology, Inc. (IDT)

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www.IDT.com**IDT70K2000 PPS**

As wireless infrastructures evolve toward higher performance 3G systems and beyond, designers must process more carriers and sectors per base station to deliver significant cost reductions to the consumer. As such, their designs must be flexible and scalable to quickly meet the growing needs of this market segment. Functions such as within-packet manipulation and summing, and muxing of channels can consume large amounts of system resources and add latency to the system. While many have turned to custom solutions, including FPGA and ASIC implementations, IDT has reduced or eliminated the risks and higher costs associated with these alternatives, with an innovative standards-based solution.

A first in the industry, the IDT IDT70K2000 serial RapidIO pre-processing switch (PPS) targeting digital signal processor (DSP) clusters accelerates wireless baseband processing applications, while supporting the serial RapidIO interconnect specifications. The product integrates a suite of byte- and packet-level manipulation capabilities designed to offload bandwidth intensive tasks from the DSPs, allowing wireless base station designers to create scalable, flexible, and cost-effective solutions. The result can be an acceleration of each DSP in a cluster by up to 20 percent, enabling the DSPs to focus on other compute-intensive functions in wireless base stations.

The IDT70K2000 is central to the DSP Farms' processing architecture. It performs a variety of data processing on the payload of sample packets to accelerate the subsequent algorithmic operations of a receiving processor (DSP, CRP, FPGA). It also supports serial RapidIO packet switching (unicast, multicast, or broadcast) from any input to any output port. Enabling acceleration of baseband processing in support of a variety of wireless standards, it may also be used for radio network controllers and media gateway applications, video imaging in medical equipment, high-end surveillance, or similar signal processing-intensive applications.

**FEATURES:**

- Optimized as board-level switching solution, supporting tailored distribution of data to multiple DSPs
- Enables reduction of DSP/CRP cycles by 20 percent or more by offloading low value or duplicated tasks, while enabling maximized efficiency
- Enables addition of more channels, more users at a fixed cost
- Features scalable serial RapidIO links to address a wide range of wireless and non-wireless applications
- Provides distribution of processed data via unicast, multicast, or broadcast operations
- Includes 40 bidirectional serial RapidIO lanes, configurable to support up to 22 1x ports, or 10 4x ports (or multiple combinations)
- Allows each port's speed, width, and reach to be independently configured
- Supports within sample processing operations, including endian conversions, and alignment of sample length
- Supports within-packet processing, including re-sequencing samples, placing them into separate specific locations in the memory (DMA)
- Provides summation across input ports of up to 22 packets and allows TDM-like synchronization of packets from multiple ports
- Package: 676-ball grid array, 27 mm x 27 mm, 1.0 mm ball pitch
- Available on AMC form-factor evaluation boards connecting four TI-6455 or -6482 DSP