



REPEATER FEATURES

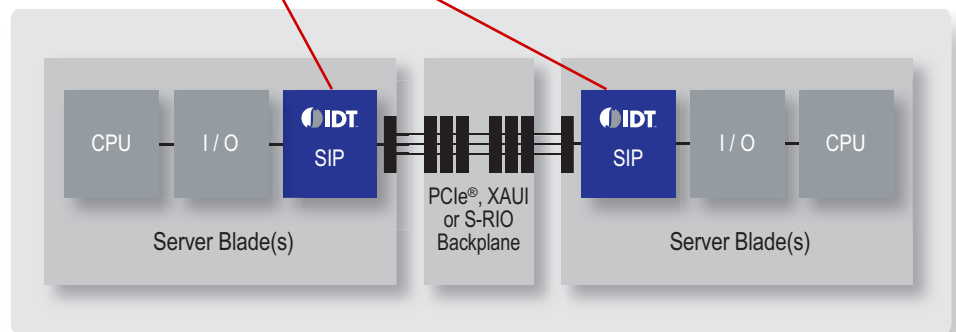
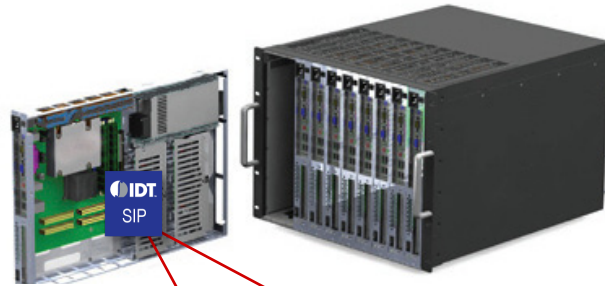
- Operation to 6.25 Gbps
- Receive equalization to 30 dB
- Adjustable transmitter swing
- Adjustable transmitter emphasis to 8.5 dB
- Adjustable I/O termination impedance
- Protocol specific optimizations
 - PCIe Gen2
 - SAS, SATA
 - USB 3.0
 - XAUI, Serial RapidIO
- Loss-of-signal indication
- Multiple configuration modes
 - I²C / SMBus
 - Pin strapped configuration
 - EEPROM auto loading
- Low power consumption
 - Stand-by mode
- Varied package options

RETIMER FEATURES

- Operation to 8.0 Gbps
- PCI Express 3.0 protocol
- Auto-negotiation of Rx and Tx settings for optimum operation
- Receiver DFE equalization and transmit FIR wave shaping
- On-die pattern generator checking and On-die Rx eye scope capture
- Power-on automatic calibration
- All repeater function modes

BENEFITS

- Extends trace over 60 inches, and cable over 10 meter
- Repeaters eliminate Deterministic Jitter (DJ)
- Retimers reset both DJ and Random Jitter (RJ)
- Optimizes system performance from reduced lost packets
- Better system reliability with increased signal voltage and timing margins
- Simplifies system design and time-to-market



Signal Integrity products from IDT provide signal conditioning to alleviate physical constraints and improve performance and reliability in computing, storage and communications applications.

Introduction

With the increase of signal speeds in the computing, storage and communications applications, system designers increasingly face signal integrity challenges. Signal Integrity Product (SIP) components from Integrated Device Technology® provide signal conditioning for popular multi-gigabit per second IO protocols delivering signal quality over extended distances while offering simplified design by alleviating board layout constraints.

Description

The IDT SIP family of repeater devices include support for 5Gbps PCI Express® 2.1 and USB3, 6Gbps SAS and SATA, 6.25Gbps for Serial RapidIO® 2.1 and XAUI standards. The IDT SIP family of retimers supports PCI Express 3.0 protocol. IDT Retimers provide advanced features like automatic negotiation of optimum receiver equalization and transmitter parameters.

SIP devices incorporate advanced receive equalization and transmit de-emphasis capabilities, as well as diagnostic features that help IDT customers achieve a simplified design with faster time to market. Specifically, the devices drive long on-board traces, backplane traces and cables to external devices to ensure optimum system performance. In addition, they include loss of signal (LOS) detection and individual channel loopback diagnostic capabilities as well as 2:1 mux/demux functions. Available in different package options, devices support differential signaling in 2, 4, 8, and 16-channel configurations with I²C, pin selected or EEPROM downloaded configuration data. The devices all offer power savings modes for the lowest possible power consumption.

APPLICATIONS

- Blade servers
- Rack servers
- Storage arrays
- Ethernet switch and router
- Telecom systems
- ATCA systems
- Wireless base station
- Desktop PC motherboard
- Notebook PCs and docks
- Industrial computers
- Medical instrumentation
- Electronic test equipment
- Disk drive systems
- Active cables
- Cable interface modules

Applications

The IDT family of signal conditioners is well suited for applications in computing, storage, telecommunications, industrial and active cables; or in any environment where the transmission of high speed signals over long distances without sacrificing signal integrity is required. As shown in the preceding diagram, SIP devices enhance data communication across blade server backplanes. Another common application is in helping data signals cross mid-plane cards and multiple connectors in a storage server. Having extensive configuration and performance tuning features, IDT SIP devices can deliver optimum performance in challenging environments.

Ordering Information

IDT Part Number	Protocol	Data Rate, Max, Gbps	Channels	Package
Repeaters				
89HP0504P	PCIeG2	5.0	4	100-BGA, 36-QFN
89HP0504PB	PCIeG2	5.0	4	36-QFN
89HP0508P	PCIeG2	5.0	8	100-BGA
89HP0504U	USB3	5.0	4	36-QFN
89HP0604S	SAS/SATA	6.0	4	100-BGA, 36-QFN
89HP0604SB	SAS/SATA	6.0	4	36-QFN
89HP0608S	SAS/SATA	6.0	8	100-BGA
89HP0604R	S-RIO	6.25	4	100-BGA
89HP0608R	S-RIO	6.25	8	100-BGA
89HP0604X	XAUI	6.25	4	100-BGA
89HP0608X	XAUI	6.25	8	100-BGA
89HP0602Q	Multi	6.25	2	20-QFN
89HP0604Q	Multi	6.25	4	36-QFN
89HP0604QB	Multi	6.25	4	36-QFN
Retimers				
89HT0808P	PCIeG3	8.0	8	100-BGA
89HT0816P	PCIeG3	8.0	16	196-BGA

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Three decades of inventing the technology our markets demand gives IDT the knowledge base to supply our customers with low power, mixed signal semiconductor solutions that enhance the digital media experience. Our diverse and extensive product line, including timing, switching, interconnect, signal integrity devices, audio and display products empowers leading OEMs to pursue technological advances in communications, computing and consumer market applications with IDT engineers at their side. Service, support and innovation: that's IDT.

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