

Product Bulletin

TLK2208 8-Port Gigabit Ethernet Transceiver

The TLK2208 from Texas Instruments (TI) enables designers to develop low-power, high-density solutions for tomorrow's Gigabit Ethernet applications. This IEEE 802.3z-compliant transceiver leverages TI's previous generations of Gigabit Ethernet Transceivers, yet redefines integration and performance. The TLK2208 provides eight high-speed 1.0- to 1.3-Gbps channels that offer designers of switches, routers and backplanes a superb combination of industry-leading integration and low overall system power.

High-Integration, Low-Power Solution

With only one chip incorporating the functionality of eight single-channel or two quad-channel

Gigabit Ethernet transceivers, the TLK2208 features a substantial footprint advantage over competitive solutions. Eight singles can take up an area of greater than 140 mm²/channel, while 2 quads can also take up an area greater than 130 mm²/channel. The TLK2208 offers a much smaller footprint of approximately 47 mm²/channel, which offers designers a space savings of more than 70%. The TLK2208 also delivers ultra-low-power consumption of 1 W at 1.25 Gbps, a 25% power advantage over the most competitive solutions in the industry today!

Flexible, Designer-Friendly Features

Signal integrity is paramount in overall system design. The TLK2208 offers programmable

Key Features

- Low power consumption of less than 1 W at 1.25 Gbps
- Eight 1.0- to 1.3-Gbps synchronizable transceivers
- Programmable high-speed output pre-emphasis levels and rise/fall time control
- Two selectable parallel I/F modes: nibble-wide DDR and multiplexed-channel DDR
- ASIC-friendly timing
- IEEE 802.3z Gigabit Ethernet compliant and 1-Gb fiber channel compliant in independent channel mode
- Footprint compatible with other vendors

high-speed output pre-emphasis levels, which allows designers to tailor the output power levels to the optimal combination of power vs. data eye opening for end applications. The TLK2208 also enables simple ASIC design by relieving the ASIC of complex timing functionality, i.e., "ASIC-friendly timing." Source-synchronous and source-centered clocking alleviates the timing requirements of the ASIC.

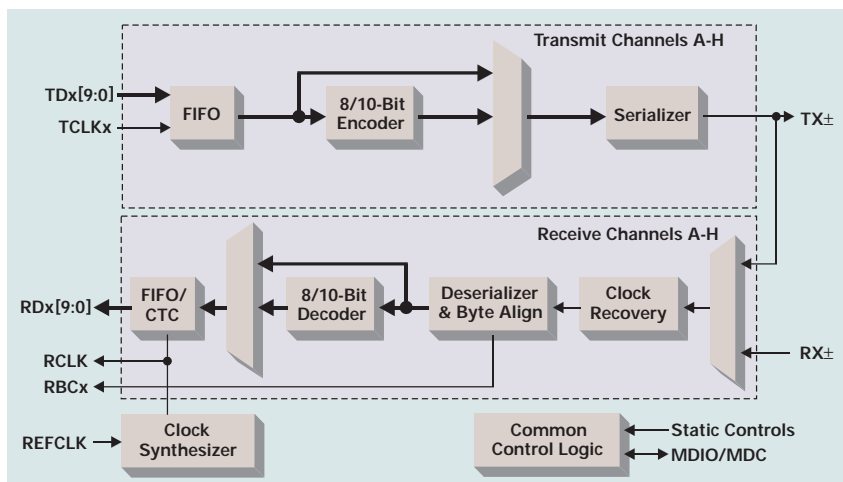
The TLK2208 also has an 8-/10-bit encoder/decoder with bypass capability.

Cost Savings With Fewer Board Traces and Layers

The TLK2208 is optimized for board space savings that translate to cost reduction for TI customers. These cost savings are realized through a "smart" channel interface employed in two different parallel data-transfer modes. In the first, nibble mode, each parallel channel uses 4/5 bits that are clocked into the device on both the rising and falling edges of the reference clock. This channel mode provides the same data throughput as if each parallel channel used all 8/10 bits.

In the second mode, multiplexed channel mode, each parallel

TLK2208 Single-Channel Diagram



channel uses all 8/10 bits with four channels clocking in data on the rising edge of the reference clock and the remaining four channels clocking in data on the falling edge. This mode enables designers to leverage the existing 8-/10-bit interfaces without sacrificing data throughput.

These mode enhancements have an obvious advantage over competitive solutions because the TLK2208 uses fewer traces between the Serdes and media-access controller (MAC). This advantage equates to cost savings on number of traces, board complexity, board space and board layers.

In addition to the TLK2208 device, TI offers a complete signal-chain solution for line cards, Ethernet applications, enterprise/metro data networking, optical

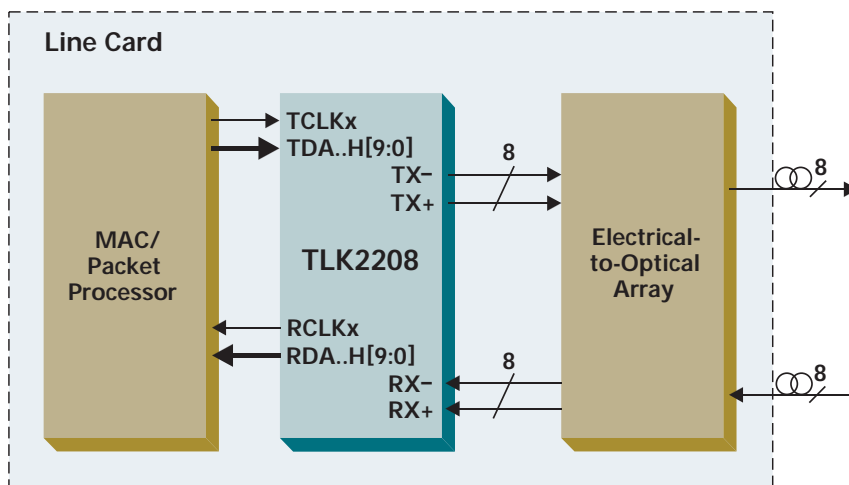
networking, wireless infrastructure and storage area networks. These solutions include digital signal processing, clock distribution, power management and laser-optic electronics.

For More Information

To learn more about using the TLK2208 8-port Gigabit Ethernet transceiver in your system, contact the nearest TI Product Information Center listed below or visit

www.ti.com/sc/serialgigabit

Optics Interface Application



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