Product Bulletin

SLK2504 Quad OC-48 SONET/SDH Transceiver

Demonstrating its commitment to the SONET/SDH market, Texas Instruments (TI) introduces the SLK2504. The SLK2504 is a quad OC-48 transceiver that offers designers a powerful way of addressing today's high band-width needs while taking advantage of the most advanced power- and size-reduction techniques. Lower power and smaller size allow the SLK2504 to economically enable OC-192 very short-reach (VSR) and quad SONET OC-48 applications.

System at a Glance
Integration is an important concern in today's systems, and the SLK2504 is a good example of TI's proven ability to integrate. Functionally, the system on-chip integrates all the necessary system blocks, including clock and data recovery, serial-to-parallel and parallel-to serial conversion, and frame detection functions conforming to the SONET/SDH specification.

Multi-Function Applications
The device enables both OC-192 and OC-48 applications through the use of an SFI4 interface supporting either 4x4-bit or 1x16-bit LVDS lines. In OC-48 mode, designers can take advantage of four parallel OC-48 data streams. While in OC-192 mode, the device transmits OC-192 frames over four OC-48 links synchronized to one reference clock. The OC-192 mode conforms to the OIF VSR-3 specification. Both modes are capable of using either the 622- or 155-MHz reference clock.

Increased Signal Integrity
As data speed increases, so too does the need for a more stable data eye. Jitter performance, signal output and clock performance all contribute to the overall quality of the data. With the SLK2504, users can depend on an advanced and proven architecture for ensuring a clean and stable data eye. The device meets or exceeds the SONET jitter performance specifications, and designers can use pre-emphasis to find the optimal combination of signal amplitude vs. power for their specific needs. TI's architecture also employs an external reference clock "jitter cleaner" to provide a stable clock source in the absence of serial data transmission.

SLK2504 Single-Channel Diagram
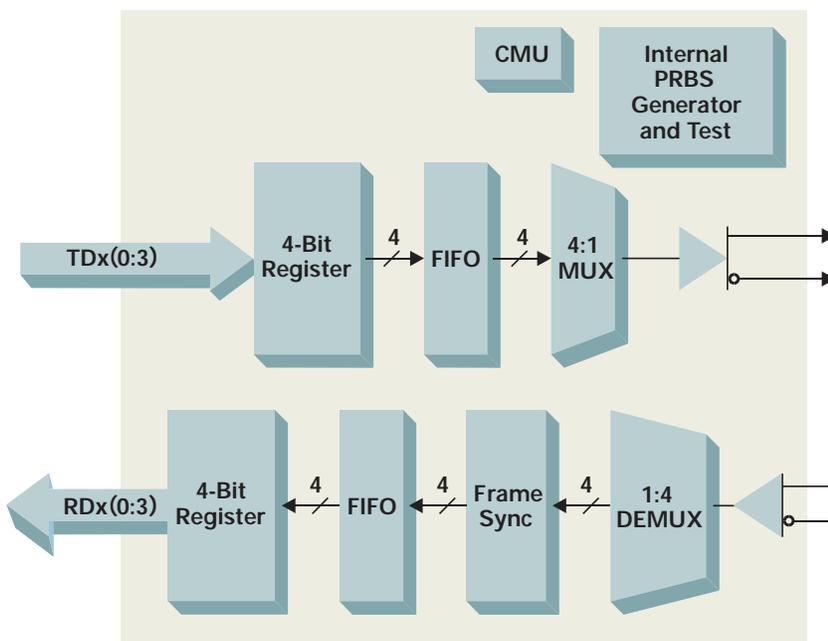
Greater Port Density and Low-Power Solution

Small size and low power are powerful design elements. The SLK2504 comes in a very small 289-pin PBGA with a footprint of 368.6 mm^2 and the complete device dissipates less than 1.5 W at OC-48 speeds. This amounts to less than 0.4 W/channel at 2.488 Gbps, the SONET OC-48 data rate.

Economical Solution for Short-Reach Applications

Performance and cost are two trade-offs that need to be optimized for the best possible solution. While having superb performance, the SLK2504 also provides economic solutions. Consider, for example, two 10-Gbps implementations—one using a serial 10-Gbps solution and the other using a parallel quad 2.5-Gbps solution like the SLK2504. The serial solution would use one serializer chip and one deserializer chip, both very costly because of the process employed in building the chips. The parallel SLK2504 solution combines serializer and deserializer functions on the same chip and enables the same-speed nodes. The SLK2504 has clear economic advantages in this example.

In addition to the SLK2504 device, TI offers a complete signal-chain solution for telecom 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.

300-Pin MSA EVM Diagram
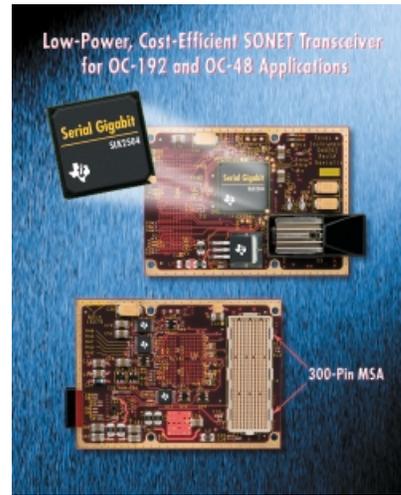
For More Information

To learn more about using the SLK2504 quad OC-48 SONET/SDH transceiver in your system, contact the nearest TI Product Information Center listed below or visit

www.ti.com/sc/serialgigabit

TI Worldwide Technical Support

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