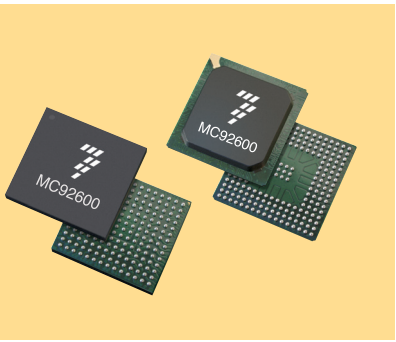
Quad Transceivers

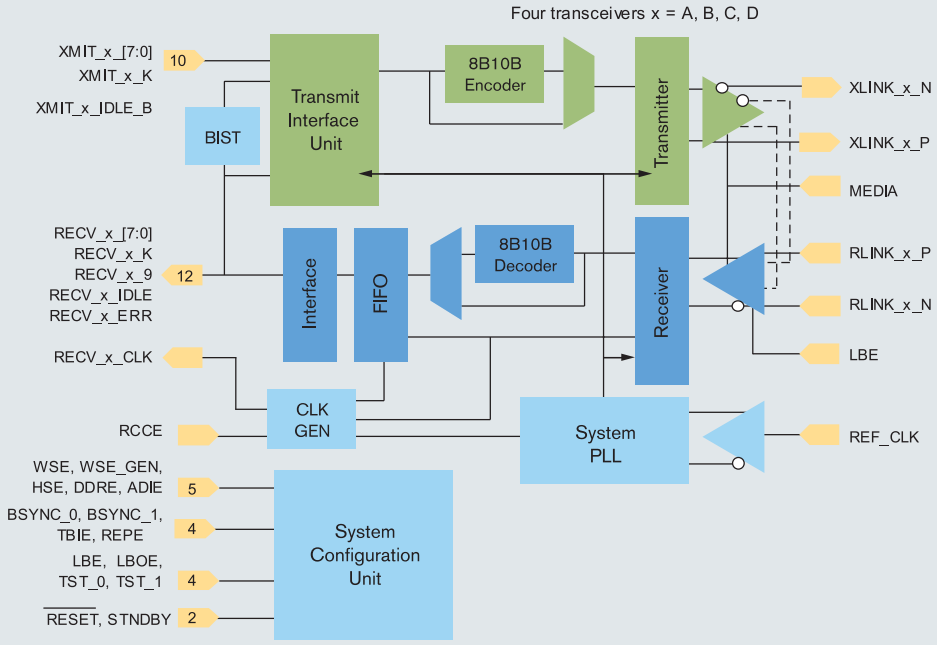
MC92600



Overview

Freescale Semiconductor's MC92600 quad transceiver is a high-speed, full-duplex, serializer/deserializer (SerDes) data interface that can be used to transmit data between chips across a board, through a backplane, or through cabling. Four transceivers transmit and receive coded data at a rate of 1.0 gigabits per second (Gbps) through each 1.25 gigabaud link. A rich feature set makes it easily adaptable to many broadband applications. The MC92600 transceiver is specifically designed for low power consumption—even with all links operating at full speed, its high-performance design is engineered to consume less than 800 mW.

MC92600 QUAD SERDES BLOCK DIAGRAM



Typical Applications

Applications for high-speed data transfer in high-bandwidth backplane and chassis-to-chassis networking environments include:

> High-end router systems

> Backbone switches

> Storage area network equipment

> High-speed automatic test equipment

Launched by Motorola

freescale semiconductor

Product Highlights

> Four full-duplex differential data links

> Selectable speed range: 1.25 Gbaud or 0.625 Gbaud

> Low power, approximately at 800 mW, while operating all transceivers at full speed under typical conditions

> Internal Fibre Channel 8B/10B encoder/decoder that may be bypassed when in 10-bit interface mode

> Single and double data rate, 8-bit and 10-bit low-voltage transistor-transistor logic (LVTTL) parallel data interface levels

> On-chip 50-ohm series source termination of transistor-transistor logic (TTL) parallel output levels

> Link-to-link synchronization supports aligned, 32-bit word transfers

> Synchronization mechanism tolerates up to 40-bit times of link-to-link media delay

> Receivers have three alignment modes of operation:

- Byte alignment with idle realignment
- Disparity word alignment
- Not aligned

> Received data may be clocked at recovered clock or reference clock frequencies

> Selectable serial link impedance: 50-ohm or 75-ohm media (100-ohm or 150-ohm differential)

> Link inputs have on-chip receiver link termination and are hot-swap compatible

> Repeater mode configures the MC92600 transceiver into a four-link, receive-transmit repeater

> Full-speed built-in self-test (BIST) mode for test and on-board diagnostics

Parametrics

> Power supply

- Core power supply: 1.8V ± 0.15 Vdc
- TTL I/O power supply: 3.3V ± 0.3 Vdc or 2.5V ± 0.2 Vdc
- Link I/O power supply: 1.8V ± 0.15 Vdc

> Power dissipation

- Typical operation: <200 mW per channel at maximum speed

Packages

> 196-pin MAPBGA (15 mm x 15 mm body size, 1.0 mm ball pitch)

> 217-pin PBGA (23 mm x 23 mm body size, 1.27 mm ball pitch)

Technical Specifications

> All channels feature:

- 8B/10B encoder/decoder that can be enabled or bypassed
- Clock generation/recovery
- Idle/control character generation/detection

> Transceiver links operate over 50-ohm or 75-ohm media (100-ohm or 150-ohm differential) for lengths of up to 1.5 meters of FR-4 board/backplane, or 10 meters of coaxial cable

> No external loop filter or termination components required

> System BIST modes with error counters

> Loopback BIST isolated from link inputs and outputs

> TTL single-ended reference clock input (125 MHz maximum)

> Frequency offset tolerance between transmitter and receiver in excess of ± 250 parts per million (ppm)

Learn More: For more information about Freescale products, please visit **www.freescale.com**.

Document Number: MC92600FACT
REV 3

Launched by Motorola
freescale™ semiconductor