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Connecting everything®
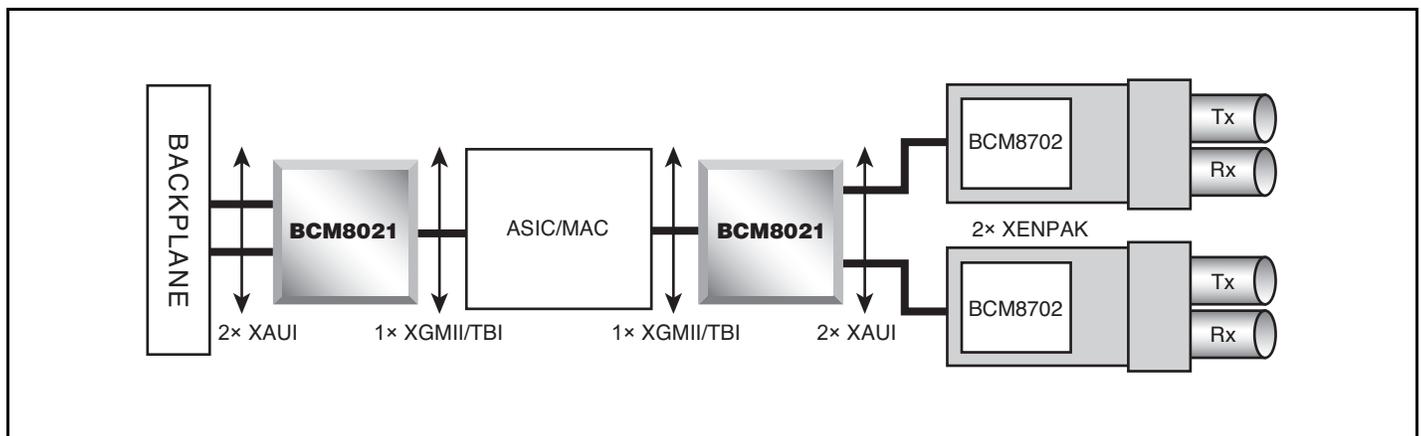
BCM8021
PRODUCT Brief

4-CHANNEL MULTIRATE 1.0–3.2-GBPS TRANSCEIVER WITH HIGH-SPEED REDUNDANCY

FEATURES

- **4 independent transceivers supporting multiple data rates from 1.0 Gbps to 3.2 Gbps including 1.06 Gbps, 1.25 Gbps, 2.12 Gbps, 2.488 Gbps, 2.667 Gbps, 3.125 Gbps, and 3.1875 Gbps**
- **Multiconfigurable to support various operating modes**
  - 4 Independent 1.0 to 3.2-Gbps SerDes transceivers
  - IEEE 802.3ae compliant XAUI to XGMII transceiver
  - XAUI-to-XAUI retiming
- **Low power dissipation**
  - Less than 300 mW per transceiver channel including I/O
- **SONET/SDH-quality jitter performance**
  - Less than 3 picoseconds rms jitter generation
  - Exceeds SONET jitter tolerance mask
- **High performance programmable Rx equalization and Tx pre-emphasis**
  - Tx pre-emphasis for interoperability with CML SerDes
  - Rx equalization for copper interconnects
- **Enhanced test capability**
  - Full loopback and on-chip PRBS generator/checker
  - IEEE (1149.1) JTAG
- **Compact 21-mm × 21-mm BGA package**
  - No requirement for heat sink or airflow

SUMMARY OF BENEFITS

- One device supports a variety of applications including Gigabit Ethernet, 1× and 2× Fibre Channel, OC-48 SONET (with/without FEC), Infiniband, 10-Gigabit Ethernet, 10-Gigabit Fibre Channel, or others.
- Advanced 0.13-µ CMOS process technology provides unparalleled performance while achieving the lowest possible power consumption.
- IEEE 802.3ae 10-Gigabit Ethernet physical coding sublayer (PCS) has a selectable 8B/10B encoding/decoding block on-chip that can be configured to support the 10-Gbps Attachment Unit Interface (XAUI).
- Superior jitter characteristics enable the serializing/deserializing (SerDes) of data signals transmitted through front panel or backplane networking equipment supporting both primary and protection circuits.
- Drive PMD devices or backplane directly with no external clean-up circuit required.
- Simplifies manufacturability with itegrated Built-in self-test (BIST), high-speed and low-speed loopbacks, and programmable PRBS generator/checker.
- Decreases complexity and reduces board space on multichannel linecard designs.

Independent Quad SerDes Application Diagram

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