

INTELLIGENT 1/2/4G FIBRE CHANNEL RETIMER/REPEATER WITH EYEOPENER[®]

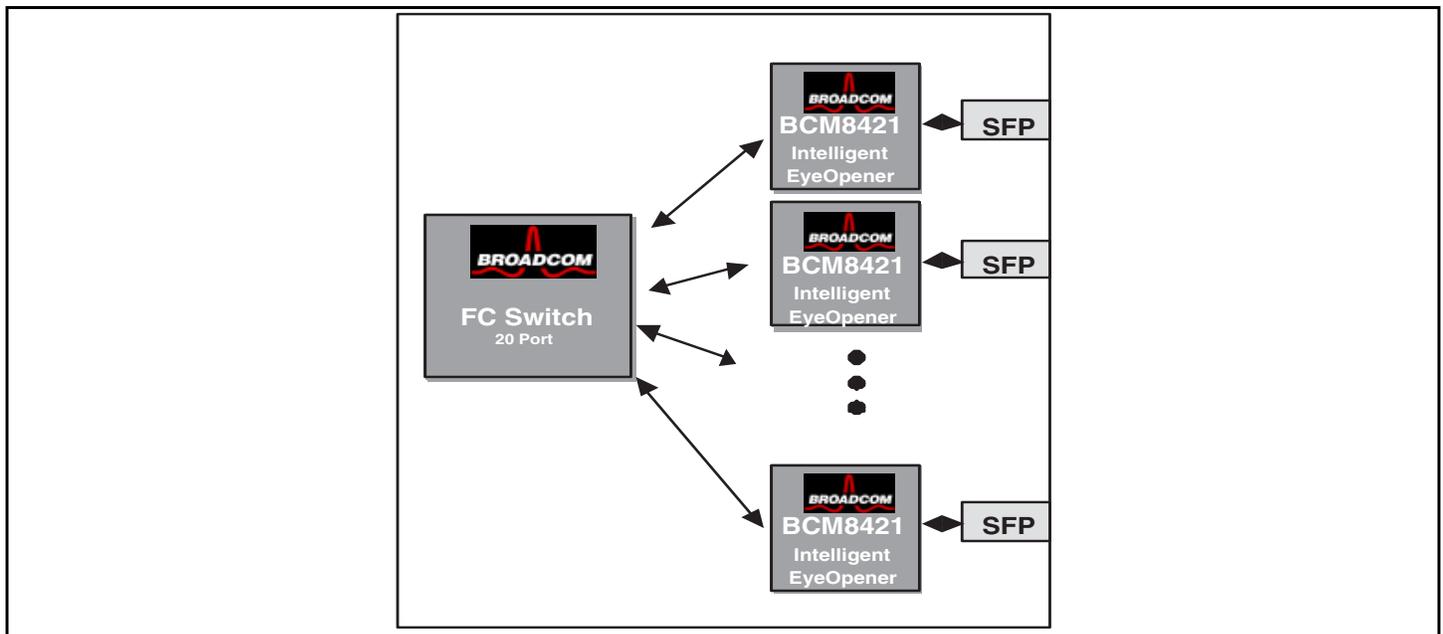
FEATURES

- Dual EyeOpener exceeding fibre channel optical and inter-cabinet jitter specifications
- Multi-rate support for new and legacy systems
- Active-Signal Integrity (Active-SI) monitors physical layer and Active-Link Integrity (Active-LI) monitors link-layer performance
- Programmable transmit output levels and receive LOS detection
- High-performance receive equalization and programmable transmit pre-emphasis
- Per channel link LED drivers for valid fibre channel frames and speed detection
- Developed using advanced 0.13u CMOS process technology

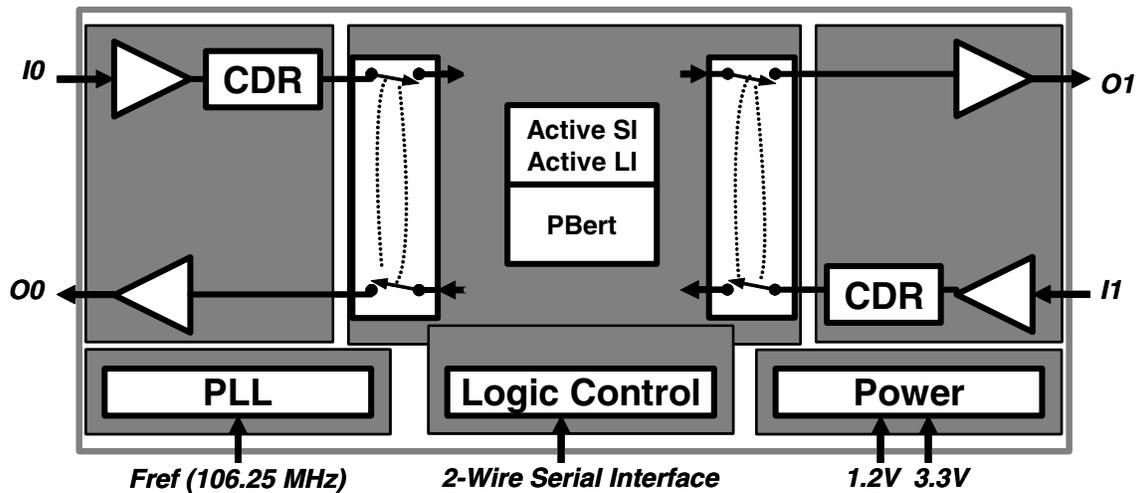
SUMMARY OF BENEFITS

- Guarantees jitter and bit-error-rate performance on optical and fiber links
- Supports legacy 1.0625 Gb and 2.125 Gb applications and new 4.25 Gb data rates off a single reference clock frequency
- On-chip intelligent diagnostics provides insight to the signal quality with detection and recovery mechanisms on each high-speed link
- Optimizes channel performance for lower power and signal detection through on-chip 2-wire control interface
- Transmits and receives over long distances of copper cables or backplanes with 16 levels of programmable pre-emphasis
- Provides visual indications on PCBs for link status and 1.0625 Gb, 2.125 Gb, or 4.25 Gb data rate transmissions
- Low power design of ~1W with small footprint package in a 13 mm x 13 mm BGA, with 1 mm ball pitch

BCM8421 Functional Block Diagram



OVERVIEW



The **BCM8421** is a high-performance and low-jitter intelligent retimer/repeater EyeOpener[®] device designed to drive optical and copper ports in fibre channel applications. Each port of the **BCM8421** can be independently configured as a retimer or a repeater operating at the fibre channel data rates of 1.0625 Gbps, 2.125 Gbps, and 4.25 Gbps. With an on-chip low-jitter phase-locked loop (PLL), the **BCM8421** exceeds fibre channel optical and inter-cabinet jitter specifications.

The **BCM8421** features Active Signal Integrity (Active-SI), which allows monitoring of the received signal at each high-speed port to determine signal eye quality and bit error rate (BER) for system diagnostics, fault isolation, optics aging, and maintenance. An on-chip pattern generator/checker is provided with internal loopback capability on each I/O port.

The **BCM8421** also features Active Link Integrity (Active-LI), which is a set of advance link integrity functions performing data generation and checking on transmitted fibre channel data. The combination of Active-SI and Active-LI improves storage system's Reliability, Availability, and Serviceability (RAS) with the ability to monitor and diagnose system integrity.

Data from each port can be optionally retimed utilizing an elastic FIFO and local crystal reference clock eliminating jitter transfer. The **BCM8421** can also be configured to operate in repeater mode for low latency.

The **BCM8421** is available in a 13 mm x 13 mm BGA package.

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