



## 4-CHANNEL 1/2/4G FIBRE CHANNEL INTELLIGENT LOOP CIRCUIT/ DUAL RETIMER/REPEATER WITH EYEOPENER®

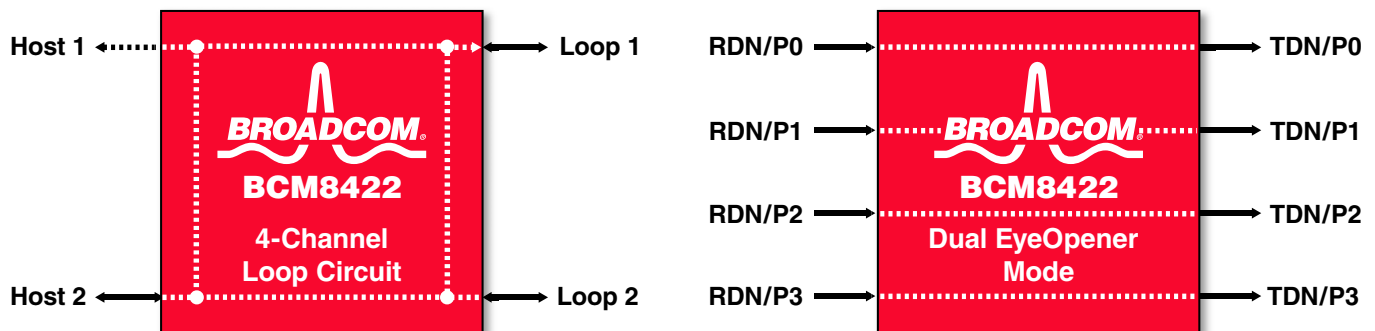
### FEATURES

- Four-channel loop circuit to configure Fibre Channel hard disk drives in FC-AL configurations
- Dual-channel retimer/repeater with EyeOpener® exceeding Fibre Channel signalling specifications
- Multirate 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 0.13µ CMOS process technology

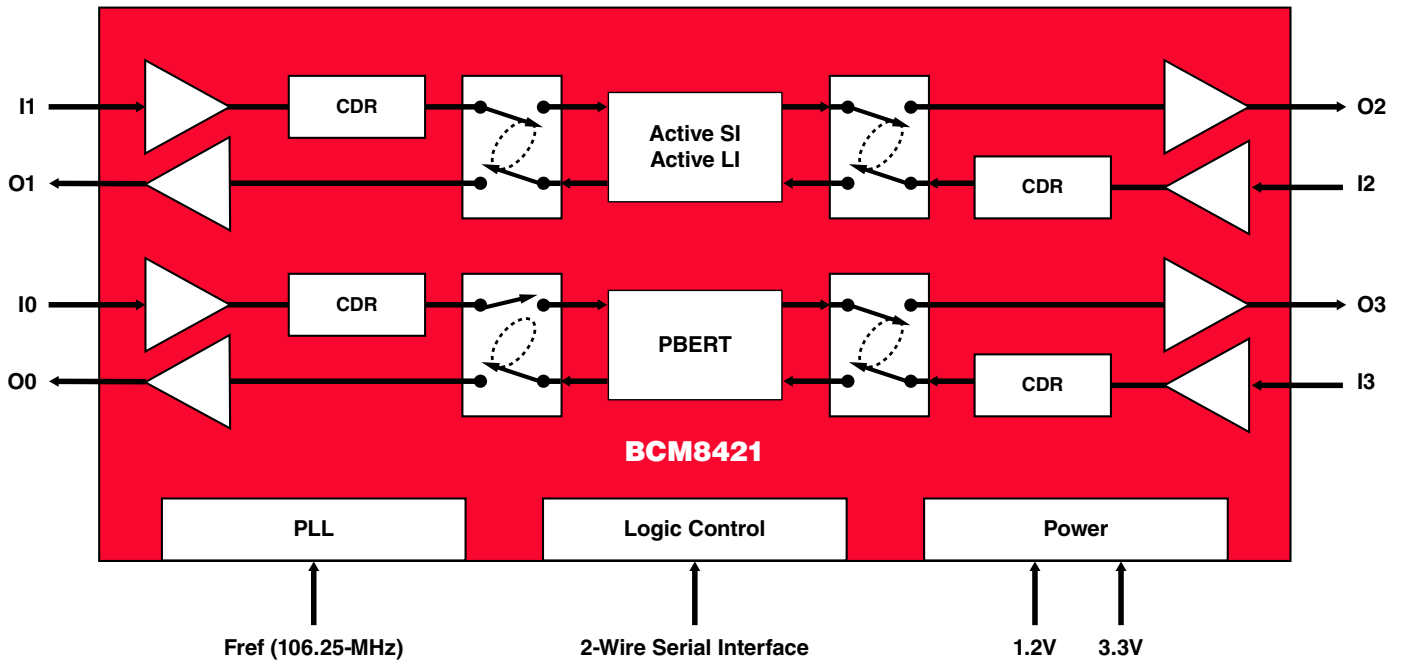
### SUMMARY OF BENEFITS

- Low-cost backend solution for Fibre Channel disk drive arrays
- Guarantees jitter and bit-error-rate performance on optical and fiber links
- Supports legacy 1.0625G and 2.125G applications and new 4.25G 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 an 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 1.0625G, 2.125G, or 4.25G data rate transmissions
- Low power design of ~1.5W with small footprint package in a 13-mm x 13-mm BGA, with 1-mm ball pitch

### 4-Channel/EyeOpener® Functionality



# OVERVIEW



**BCM8422 Block Diagram**

The BCM8422 is an intelligent backend Fibre Channel loop circuit that facilitates the implementation of an intelligent bunch of disks (IBOD) on Fibre Channel storage array systems. The BCM8422 can also be configured as a dual retimer/repeater with EyeOpener® device designed to drive optical and copper ports in Fibre Channel applications.

Each port of the BCM8422 can be independently configured as a retimer or 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 BCM8422 exceeds Fibre Channel signal quality specifications.

The BCM8422 features 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 BCM8422 also features Active-LI, which is a set of advanced link integrity functions performing data generation and checking 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 using an elastic FIFO and local crystal reference clock, eliminating jitter transfer. The BCM8422 can also be configured to operate in repeater mode for low latency.

The BCM8422 is available in a 13-mm x 13-mm BGA package.

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8422-PB01-R 04/14/06

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