

## MULTI-RATE 10 Gbps 16:1 MULTIPLEXER WITH CLOCK GENERATION

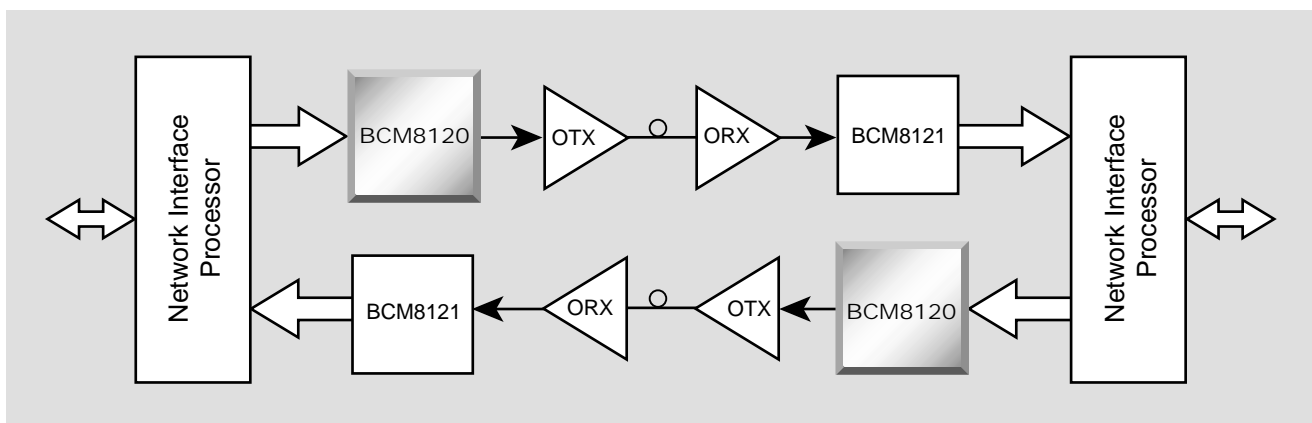
### BCM8120 FEATURES

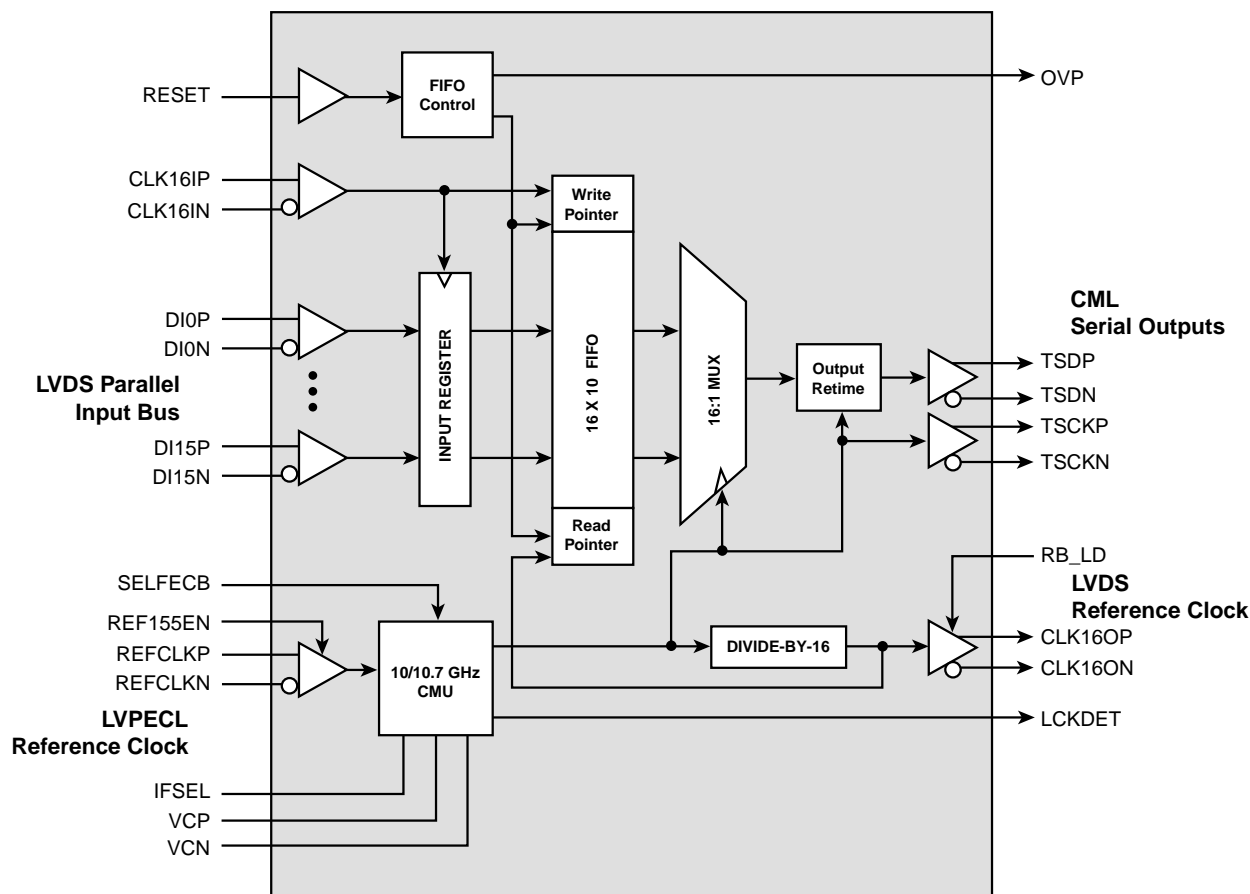
- Fully integrated multi-rate clock multiplication unit (CMU) and multiplexer (MUX)
- Multi-rate serial output data and clock
- 16:1 multiplexer with LVDS parallel data and clock inputs
- User-selectable reference clock frequency
- On-chip 16 x 10 FIFO eliminates system timing issues
- Lock detect
- Core power supply: 1.8V
- I/O power supply: CML, LVDS, and LVPECL at 1.8V and CMOS at 1.8 or 3.3V
- Power consumption: 580 mW typical @ 1.8V
- Standard CMOS fabrication process
- 15 x 15 mm, 120-pin BGA package

### SUMMARY OF BENEFITS

- Provides compliance with Optical Internetworking Forum (OIF), IEEE 802.3ae, Telcordia, and ITU-T industry standards.
- Reduces design cycle and time to market.
- High level of integration allows for higher port density solutions.
- CMOS-based device uses the most effective silicon economy of scale.
- Low power consumption eliminates the need for external cooling sources.
- Target applications:
  - Transmission equipment
  - Optical modules
  - ADD/DROP multiplexers
  - Digital cross-connects
  - ATM switch backbone
  - Test equipment
  - Terabit routers
  - Edge routers
  - Network Interface Cards (NIC)
  - Hubs and repeaters

Application Block Diagram





The **BCM8120** is a fully integrated multi-rate SONET/SDH transmitter operating at OC-192/STM-64 (9.953 Gbps) and two FEC (Forward Error Correction) data rates (10.664 and 10.709 Gbps) with serializer, and CMU. The low-jitter LVDS interface and the onboard low-jitter PLL meets Optical Internetworking Forum (OIF), IEEE 802.3ae, Telcordia, ANSI, and ITU-T jitter standards.

The **BCM8120** reference clock input frequency is user-selectable to the line rate divided by either 16 or 64. A 10-word FIFO serves to decouple the parallel input timing domain from the serial output timing domain. The **BCM8120** provides a CML serial output clock to retime the data at the optical interface.

The **BCM8120** can be powered with a single 1.8V supply or dual 1.8/3.3V supply without any special power supply sequencing requirements.

The major transmitter functions are:

- Configurable multi-rate CMU and data rates
- CML transmit serial data output
- 16-bit parallel LVDS input
- Selectable reference clock frequencies
- Parallel-to-serial conversion
- Elastic buffering FIFO with overflow indicator
- Lock detect

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