Semicustom Products
UT90nHBD SerDes Intellectual Property (IP)
Fact Sheet
August 2016
www.aeroflex.com/RadHardASIC

COBHAM

The most important thing we build is trust

FEATURES

❑ Available in UT90nHBD ASIC library based upon an advanced 90nm silicon gate CMOS process in a commercial fab

❑ TID hardness > 1MRad (Si)

❑ SEU/Soft Error immune

❑ Quad channel transceiver with high speed CML outputs also available as Single and Dual channel transceivers in the UT90nHBD library

❑ 3.125Gbps maximum data rate per lane

❑ 10Gbps data throughput when 8b/10b encoding is used with this four lane macro

❑ Integrated low jitter PLL using external clock reference

❑ PLL reference: 156.25MHz or 312.5MHz

❑ Low 240mW per lane power consumption

❑ Dual supplies required: 1.8V and 1.0V

❑ On-chip 100Ω auto-adjustable, differential transmit terminations

❑ Adjustable transmit pre-emphasis with 2 tap transmit Feed Forward Equalization (FFE)

❑ Integrated 50Ω receiver termination resistors

❑ On chip receive equalization

❑ Testability (Scan, BIST, and loopback modes)

❑ Supports both backplanes and cables

APPLICATIONS

❑ 10G Base-X (XAUI)

❑ Proprietary lines and protocol
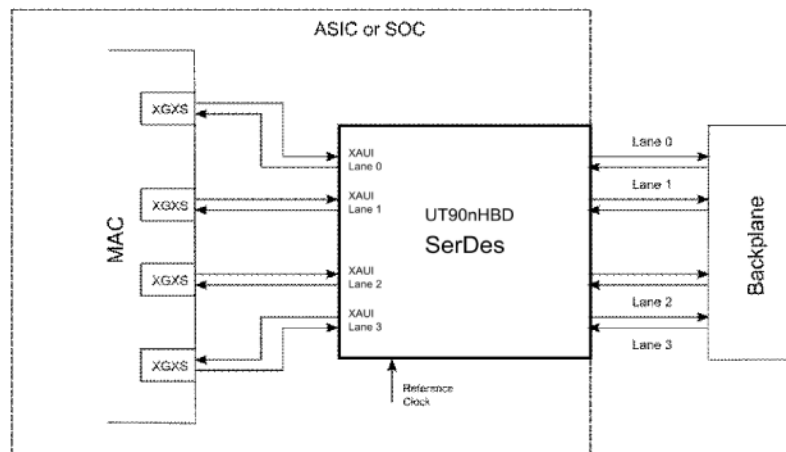
❑ Point-to-point data transmission

Figure 1: Quad Channel Functional Block Diagram

INTRODUCTION

The UT90nHBD SerDes is RadHard, quad channel, Serializer/Deserializer (SerDes) IP targeted for 10G XAUI applications in 90nm CMOS SoC ASIC designs. This SerDes macro block is a half-rate architecture providing a robust transmitter with 8/10/16/20:1 serialization, Feed Forward Equalization (FFE) and pre-emphasis, and a robust receiver with 1:8/10/16/20 deserialization. Included is a low jitter reference PLL which uses an external clock input to provide a common clock across 4 Tx/Rx lanes. With 8b/10b encoding, this UT90nHBD SerDes can also be used as a general purpose serializer/deserializer. Single and dual channel SerDes macro block are also available.
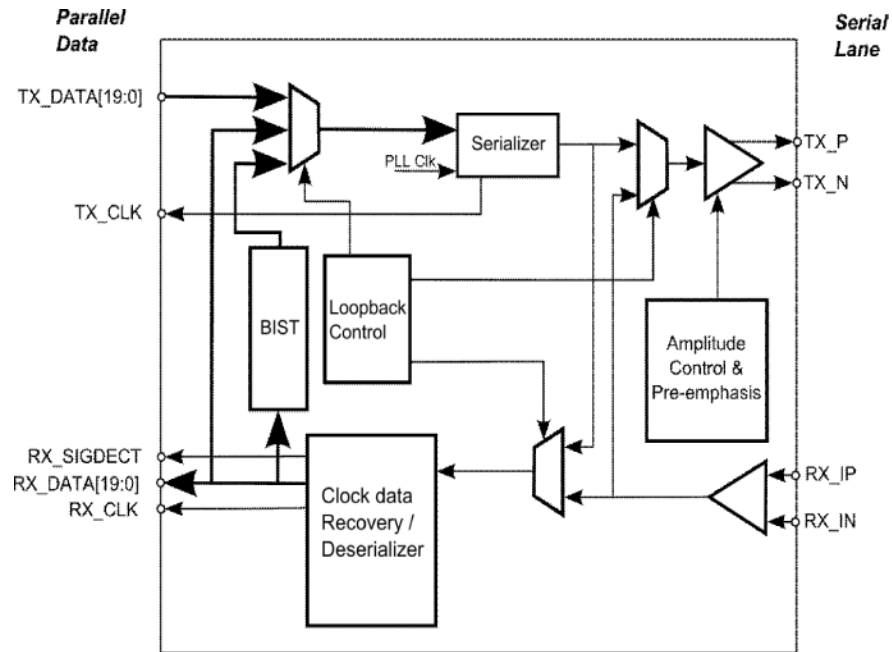

Figure 2: Single Channel Block Diagram

The following United States (U.S.) Department of Commerce statement shall be applicable if these commodities, technology, or software are exported from the U.S.: These commodities, technology, or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to U.S. law is prohibited.