

A Single-Chip 12.5Gbaud Transceiver for Serial Data Communication

Daniel Friedman, Mounir Meghelli, Ben Parker, Jungwook Yang, Herschel Ainspan, and Mehmet Soyuer

IBM T.J. Watson Research Center, Route 134/P.O. Box 218
Yorktown Heights, NY 10598

Abstract

A fully integrated single-chip SiGe BiCMOS 12.5Gbaud serializer/deserializer operates with sub-picosecond PLL jitter and error rates below $5e-14$ with both transmit and receive channels active. The chip includes a 12.5GHz clock multiplier, a 12.5Gbaud clock and data recovery circuit, a 16:1 multiplexer, 1:16 demultiplexer, and integrated test features. The die area is 6.1mm x 6.1mm and the chip consumes 3.3W from a 3.3V supply in normal operating mode.