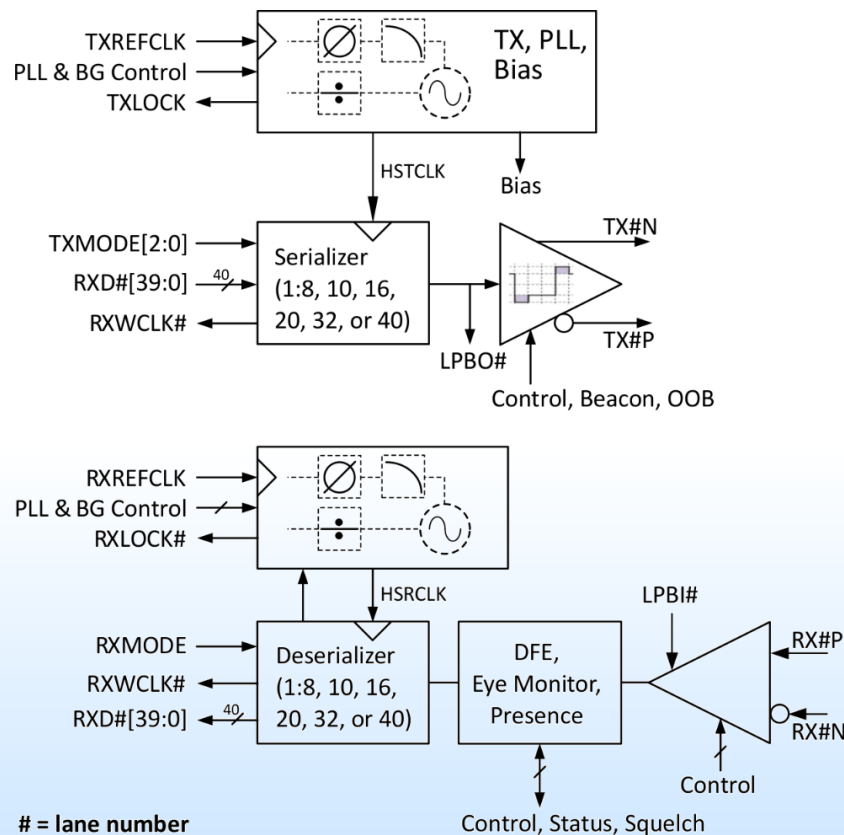


## Overview

Silicon Creations has a range of Serializer-Deserializer IP built upon proven ring PLLs and high-speed line drivers and receivers. Our PMA architecture is in production in over 30 SerDes, from 180nm to 28nm and at speeds up to 25Gbps. Our IP has been used to support a broad range of protocols including xSGMII, SMPTE SDI, JESD204A/B/C, V-by-One HS, PCIe1/2/3/4, XAUI, Display Port, Fiber Channel, CPRI, 10G-KR, Interlaken and SRIO. Our models and development methodology enable rapid and safe development of semi-custom SerDes to meet specific requirements.



## Features

- Robust ring-PLL based architecture
  - Low Area & Low power
  - Extremely wide range >20:1 CDR capture range possible
  - Tx PLL can use a Xtal reference (clock chip not needed) and work as a Jitter Cleaner
  - Fast burst mode CDR
  - >7Gbps in 180nm CMOS, 12.7Gbps in 28LP & 40LP, 25Gbps Rx in 28HPC+ with 1.3pJ/bit
- Rich digital Verilog models with loop dynamics allow whole-system modeling
- 10b, 20b and 40b interfaces allow SP&R of PCS even at higher rates
- RTL for PIPE 4.3 & generic PCS (Link Layer) available including low-latency 40b/32b encoder/decoder
- Leverages foundry IOs for pain-free ESD integration

## Availability

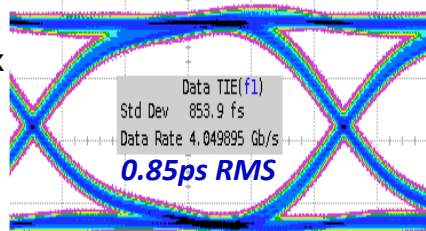
Silicon proven or mass production in 28n, 40n, 55n, 65n, 90n, and 180n and at GLOBALFOUNDRIES, TSMC, UMC, SMIC, Jazz. GDS2 in TSMC 12FFC/16FFC

## Deliverables

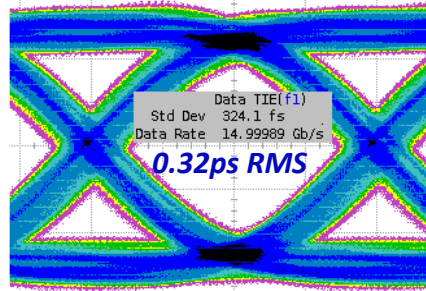
- GDSII, CDL Netlist
- Verilog behavioral model with jitter and loop dynamics
- Verilog testbench incorporating BIST
- RTL for PCS
- Liberty timing models (.lib)
- LEF layout abstract
- Comprehensive Application Note
- Industry leading support by IP designers
- IBIS-AMI model
- Support for package design, Signal Integrity modeling and production test development

## Predictable and excellent performance

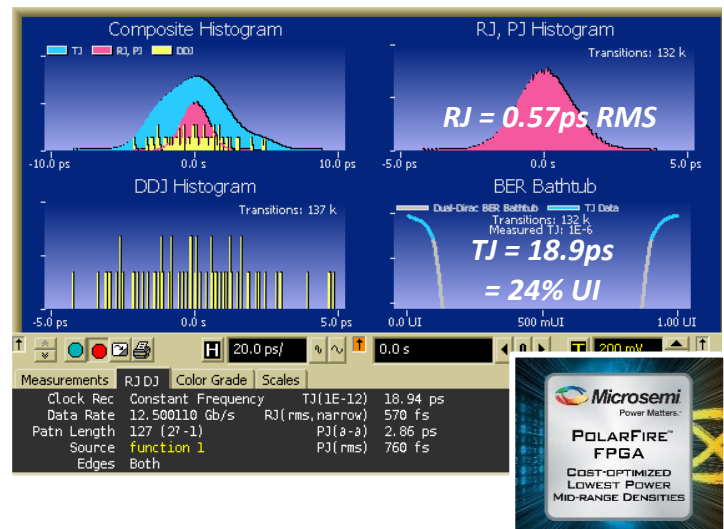
Eye diagram  
V-by-One HS Tx  
TSMC 40 LP  
4.0Gbps  
25MHz Crystal



Eye diagram  
Multiprotocol Tx  
(Ring PLL)  
UMC 28 HLP  
15.0Gbps on  
12GHz scope



Jitter decomposition, 12.5Gbps Multiprotocol  
PMA UMC 28 HLP with 100MHz reference



## About Silicon Creations

Silicon Creations is focused on providing world class silicon IP for precision and general purpose timing (PLLs), Chip-chip SerDes and high-speed differential IOs.

Our IP is in production from 7n to 180n. Our complete commitment to our customer success and our support will delight you. Our IP has an excellent record of first silicon to mass production in customers' designs. Our key designs have been comprehensively verified in our labs as well as in mass production with multiple customers.

Silicon Creations was founded in 2006, is self-funded and growing. We have development centers in Atlanta, USA and Krakow, Poland and world-wide sales representation.

## Contact us

- Website: [www.siliconcr.com](http://www.siliconcr.com)
- Phone/fax: +1-678-259-9301
- Email: [sales@siliconcr.com](mailto:sales@siliconcr.com)



## Related Information

- [www.siliconcr.com](http://www.siliconcr.com)  
→ Products → SerDes Interfaces