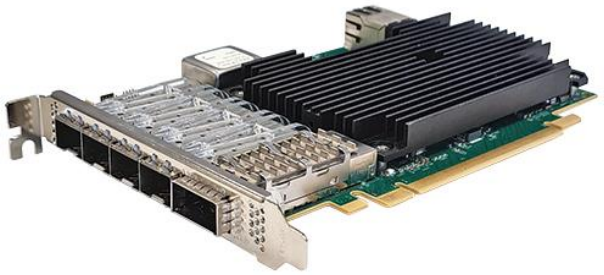
Silicom Connectivity Solutions

P410G8TS81 TimeSync Server Adapter

8 Port Fiber QSFP 10/1 Gigabit Ethernet TimeSync PCI Express Server Adapter

Product Description



Silicom's Time Sync (STS2) P410G8TS81 is a 1/10 Gigabit Ethernet PCI Express Gen4 TimeSync server adapter, designed for X86 Servers and high-end appliances.

The 1/10 Gigabit Ethernet TimeSync PCIe server adapter is based on Intel E810 chipset and best in the industry timing solution targeting 5G Class C wireless base station and carrier-grade systems.

Silicom's STS2 Support 8 port of 1G/10G capabilities to synchronize host system with external clock source using 1PPS and 10MHz. The STS2 TimeSync server adapter support both 1588v2/PTP and SyncE for high clock accuracy in Master and Slave mode. STS1 design is meeting O-RAN requirements for LLS-C1, LLS-C2 and LLS-C3, modes of operations with both Boundary and Transparent clocks.

Silicom STS line card for 4G and 5G NIC enable real-time data transmission with high timing accuracy at the lowest cost to power 5G DRAN and CRAN edge deployments:

- Support 1588/PTP over IPv4 / IPV6, IEEE1588v2
- Support SyncE /ITU-T G.8262
- T-BC/T-TSC Boundary Clock and TSC Slave Clock /G.8273.2
- T-GM Grand Master /G.8273.1 per G.8275.1 PTP Profile
- PRTC Primary Reference Time Clock Class B/G.8272
- T-TC Transparent Clock /G.8273.3
- 1588 Software Stack and Servo Software in x86

Key Features

TimeSync:

- Supports PTP Transparent Clock (TC) Boundary Clock (BC) OC (Master / Slave)
- Supports Grand Master clock per G.8275.1 Class-A PRTC/T-GM
- PTP over IPv4 / IPV6 (IEEE-1588v2) / SyncE
- One step and two step clock modes operation for PTP Master
- 10Mhz and 1PPS programmable output
- Full HW and SW TimeSync solution based on industry leading DPLL, Servo stack and PTP1588
- Incorporated accurate OCXO
- Global Navigation Satellite System (GNSS) receiver include Indians NAVIC (IRNSS) satellites support
- Packet and physical-layer frequency, phase and time synchronization
- Enable 5G/Class C wireless application

LAN and Virtualization Features:

- SR-IOV (Single Root I/O Virtualization): up to 256 Virtual Functions
- Partially Programmable Pipeline and Advanced Traffic Steering
- Intel® Ethernet Flow Director – 8000 On-Die perfect match filters
- 1536 queues/Physical Function (PF), >64 RSS/PF and 256 VMDq/PF

Technical Information

Silicom Time Sync	
Profile: IEEE-1588 (2008) (Annex-J.3 Delay Request-Respond Default Profile	Ordinary Clock – Server Ordinary Clock- Client (including slave only OC) Boundary Clock
Profile: IEEE-1588 (2008) (Annex-J.4 Peer-to-Peer	Ordinary Clock – Server Ordinary Clock- Client (including slave only OC) Boundary Clock
Profile: ITU-T G.8265.1 Telecom Profile for Frequency Synchronization	Telecom Grandmaster Telecom Slave
Profile: ITU-T G.8275.1 PTP Telecom Profile for Phase with Full timing Support	Telecom Grandmaster (T-GM) Telecom Boundary Clock (T-BC) Telecom Time Slave Clock (T-TSC)
Profile: ITU-T G.8275.2 PTP Telecom Profile for Phase with Partial timing Support	Telecom Grandmaster (T-GM) Assisted / Partial Telecom Boundary Clock (T-BC) Assisted / Partial Telecom Time Slave Clock (T-TSC)
Device Types:	Ordinary Clock Boundary Clock Transparent Clock (peer-delay-message exchange)
References Selection:	Default BMCA (Best Master Clock Algorithm) Alternate BMCA based on ITU G.781 – Synchronization layer functions for frequency synchronization based on the physical layer
Transport Mappings:	PTP/UDP/IPv4 Annex D PTP/UDP/IPv6 Annex E PTP/Ethernet Annex F
NIC TS (Time Stamp) granularity:	1ns

General Technical Specifications: 8 Ports P410G8TS81-XR	
Interface Standard:	PCI-Express Base Specification Revision 4.0 (16 GTs)
Board Size:	Single slot Standard height add-in card: 167.64mm X 111,15 mm(6.6”X 4.376”) single slot
PCI Express Card Type:	x16 Lane, bifurcation
Voltage:	+12V +/-8% +3.3+/- 8% +3V3VAUX/ +12VAUX
PCI Connector:	Gold Finger: x16 Lane
Controllers:	Intel E810-CAM2
1588/ SyncE PHY:	(8x10G/1G)
DPLL:	1588 / SyncE
Network ports:	1xQSFP+, 4xSFP+
Management port:	RJ45 on daughter card
Holder:	Metal Bracket
Power Consumption:	25[w]
Operating Temperature:	0°C – 45°C (32°F – 113°F)
Storage:	-40°C–65°C (-40°F–149°F)
Regulation:	CE, FCC Class B, ROHS requirements.
QSFP+ 10Gigabit Ethernet Technical Specifications Adapters:	
QSFP (Small Form Factor Pluggable) supports:	(x4) SFI interfaces supports 10GBase-R PCS and 10 Gigabit PMA in order to connect with QSFP to 10GBase-SR/ LR (MPO)
10GBase-SR QSFP: **IEEE Standard / Network topology:**	Fiber 10Gigabit Ethernet
10GBase-LR QSFP: **IEEE Standard / Network topology:**	Fiber 10Gigabit Ethernet, 10GBASE-LR (1310nM LAN PHY)
10GBase-LR QSFP: **Cables and Operating distance Up to:**	Single-Mode: 10000m at 9um

Order Information

P/N	Description	Notes
P410G8TS81-XR	8 Port QSFP 10 Gigabit Ethernet PCI Express Server Adapter	x8 Gen 4, x16 mechanical form factor, FHHL Single Slot