

DGEAP2X-PCIE8XG302

Highlights

- Upstream: PCIe x8 Gen 3 (8.0 GT/s)
 - Compliant with PCI Express Base Specification Revision 3.0
- Downstream:
 - One PCIe Expansion Port (PCIe1)
 - One SFF-8654 4x 38pin connector
 - Two PCIe x2 --- PORT1 (x2) & PORT2 (x2)
 - Two independent 10Gbps/ 5Gbps/ 2.5Gbps/ 1Gbps/ 100Mbps Gigabit Ethernet (POE+) ports
 - Support IEEE 802.3at for PoE+ (Power over Ethernet Plus)
 - IEEE 802.3an 10G, 5G, 2.5G,1G and 100M over up to 100m of Cat6a (or better) cables
 - Typical Power Consumption: 6 W at 10 Gbps, 4W at 5 Gbps full length 100 m Cat6a
 - Standard compliance: IEEE 802.3bz – NBASE-T, IEEE 802.3x – flow control, IEEE 802.1P – quality of service, IEEE 802.1QAV – AVB
 - Jumbo frame support up to 16 KB
- Form Factor: Standard Height PCIe Half-Length Add-in Card Form Factor (100mm x 167.64mm)

Introduction

DGEAP2X-PCIE8XG302 is Dual 10G/ 5G/ 2.5G/ 1000BASE-T/ 100BASE-TX Ethernet (POE+) & Two PCIe x2 to PCI Express x8 Gen 3 Host Card.

DGEAP2X-PCIE8XG302 provides a PCIe Gen 3 expansion connector (PCIe1) to support more PCIe Add-in cards installation.

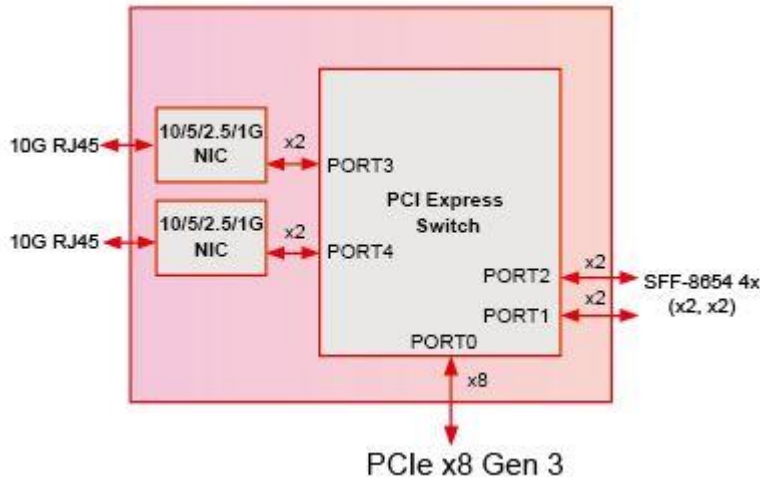
PCIe1 connector supports two PCIe x2 ports (PORT1 & PORT2).

DGEAP2X-PCIE8XG302 supports 10GBASE-T Ethernet in compliance with the IEEE 802.3an standard, as well as 5 Gbps and 2.5 Gbps Ethernet speeds over standard Cat 5e and Cat 6 copper cables. Compliant to the IEEE 802.3bz standard ratified in September 2016, the DGEAP2X-PCIE8XG302 is also backwards-compatible with legacy 1000BASE-T Ethernet.

The DGEAP2X-PCIE8XG302 is dual-chip, dual-port, high-performance PCIe 3.0 Multi-Gig 10GBASE-T/ 5GBASE-T/ 2.5GBASE-T/ 1000BASE-T/ 100BASE-TX Ethernet adapter. It incorporates Aquantia's AQRATE PHY technology to deliver 1 GbE and 2.5 GbE network connectivity speeds over 100 m with zero change required for legacy cabling. Speeds ranging from 5 GbE to 100 M are supported by Cat 5e cabling while 10GbE requires a minimum of Cat6 with Cat 6a running up to 100 m.

DGEAP2X-PCIE8XG302 is designed with Two key components.

- 16-Lane, 5-Port PCI Express Gen 3 Switch.
- PCI Express to 10G/ 5G/ 2.5G/ 1000BASE-T/ 100BASE-TX Single Chip Host Controller



Technical Specifications

<p>PCI Express</p>	<ul style="list-style-type: none"> • Standards Compliant <ul style="list-style-type: none"> ○ PCI Express Base Specification, r3.0 (compatible w/ PCIe r1.0a/1.1 & 2.0) ○ PCI Power Management Spec r1.2 ○ Microsoft Windows Logo Compliant ○ Supports Access Control Services ○ Dynamic link-width control ○ Dynamic SerDes Speed Control • High Performance <ul style="list-style-type: none"> ○ performancePAK <ul style="list-style-type: none"> ▪ Multicast ▪ Dynamic Buffer/FC Credit Pool ○ Non-blocking switch fabric ○ Full line rate on all ports ○ Cut-Thru packet latency of less than 100ns between symmetric (x4 to x4) ingress and egress Ports ○ 2KB Max Payload Size • Quality of Service (QoS) <ul style="list-style-type: none"> ○ Traffic Class Queuing ○ Eight Traffic Classes per port ○ Weighted round-robin source port arbitration
<p>MAC</p>	<ul style="list-style-type: none"> • Large Send Offload (LSO), Receive-Side Scaling (RSS), Direct Cache Access (DCA) header checksum <ul style="list-style-type: none"> ○ Increased network performance and lower host CPU utilization • WoL power management <ul style="list-style-type: none"> ○ Supports low power modes • On-chip CPU DASH <ul style="list-style-type: none"> ○ Desktop management • MACsec

	<ul style="list-style-type: none"> ○ Secured traffic over Ethernet links ● Quality of Service (QOS) support <ul style="list-style-type: none"> ○ Up to eight traffic classes and Data Center Bridging (DCB) ● Jumbo frames (up to 16Kbytes) <ul style="list-style-type: none"> ○ Improves network performance with reduced CPU utilization ● IPv4, IPv6/TCP and IPv6/UDP checksum offload <ul style="list-style-type: none"> ○ Offloading calculations and improved CPU usage
PHY	<ul style="list-style-type: none"> ● Integrated Aquantia AQRate PHY featuring NBASE-T technology <ul style="list-style-type: none"> ○ 100 meters over Cat 6a at 10Gbps ○ 100 meters over Cat 5e (or better) at 5Gbps/ 2.5Gbps/ 1Gbps/ 100Mbps (Does not require any change in the existing infrastructure or cabling) ● Advanced cable diagnostics <ul style="list-style-type: none"> ○ On-chip high resolution cable analyzer ● Audio Video Bridging (AVB) and 1588v2 <ul style="list-style-type: none"> ○ Management of time-sensitive traffic packets ● EEE support <ul style="list-style-type: none"> ○ PHY power savings mode ● Supported Data Rates <ul style="list-style-type: none"> ○ 10G/ 5G/ 2.5 G/ 1G/ 100 Mbps ● Standard compliance <ul style="list-style-type: none"> ○ IEEE 802.3bz – NBASE-T, IEEE 802.3x – flow control, IEEE 802.1P – quality of service, IEEE 802.1QAV – AVB
POE+ Feature	<ul style="list-style-type: none"> ● Supports IEEE 802.3at Power Sourcing Equipment (PSE) ● Operates from a 54 V supply ● Provides PD real-time protection through the following mechanisms: overload, under-load, over-voltage, over-temperature, and short-circuit. ● Auto mode – allows turning PDs on and off automatically.
Power Input for POE+	<p>Step-Up 12V from the following source (A, B, C)</p> <ul style="list-style-type: none"> ● A. From PCIe Slot (25 W or 75 W depends on mainboard design) ● B. From IDE Big 4 pin Power Connector or/and SATA 15pin Power Connector ● C. From Mini-Fit Jr. Dual Row 6pin Power Connector
Ethernet port status LEDs	<ul style="list-style-type: none"> ● Left LEDs (Green & Orange) <ul style="list-style-type: none"> ○ Orange: 5G/2.5G/1G/100M Link ○ Green: 10G Link ● Right LED (Green)

	<ul style="list-style-type: none"> ○ On: with POE ○ Off: without POE
<p>PCIe Lane Status LEDs</p> <ul style="list-style-type: none"> ● OFF: Link is Down ● Slow Blink: Gen 1 (2.5GT/s) ● Fast Blink: Gen 2 (5.0GT/s) ● Solid: Gen 3 (8.0GT/s) 	<ul style="list-style-type: none"> ● Upstream Lane Status LED <ul style="list-style-type: none"> ○ PORT0 LED ● Downstream Lane Status LEDs (PORT1 & PORT2 & PORT3 & PORT4 LED) <ul style="list-style-type: none"> ○ PORT3 LED (CON2) & PORT4 LED (CON1) ○ PORT1 LED & PORT2 LED (PCIE1)
<p>Number of Port</p>	<ul style="list-style-type: none"> ● Two 10GBASE-T RJ45 Ethernet (POE+) ports with Screw Holes for thumbscrew locking Type Ethernet Cable ● One SFF-8654 4x 38pin connector (PCIe x2, PCIe x2) ● One JST Compatible 2pin Wafer (Supply 3.3Vaux Power)

Computer Platform

- Computer with PCI Express slot (x8, x16)

Operating System Requirements

- This driver supports in the following operating systems
 - Windows 7, 8, 8.1, 10, Server 2012/2016
 - Linux kernels 3.10 and later, includes support for x86_64 and ARM Linux system

Physical Dimensions

- 100mm(H) x 167.64mm(L)
- NW: 238.3 g

Certifications

- CE Test: Pass
- UKCA Test: Pass
- FCC Test : Pass
- VCCI Test: Pass
- RCM Test: Pass



Kit includes

- DGEAP2X-PCIE8XG302

- Driver CD

Related Products

- [GE10P-PCIE4XG301](#)---Multi-Gigabit (10G/ 5G/ 2.5G/ 1000BASE-T/ 100BASE-TX) Ethernet (POE+) to PCI Express x4 Gen 3 Host Card
- [U31-PCIE2XG321](#) --- 2-port (Type-C w/Power Delivery & Std-A) USB 3.1 to PCI Express x4 (x2 mode) Gen 3 Host Card w/PD 2.0
- [DIPCI2XD01](#) ---SFF-8654 4x (38pin) to two PCIe x4 (x2 mode) Slots Expansion Board
- [SlimSAS 4i \(SFF-8654\) Cable](#) ---SlimSAS 4i (SFF-8654) plug to SlimSAS 4i (SFF-8654) plug 85ohm Cable
- CB-00645---JST Wafer 2pin Cable

