

10GigE, NBASE-T, PoE+ Ethernet Card

Single 10G/ 5G/ 2.5G/ 1000BASE-T/
100BASE-TX Ethernet (POE+) PCIe x4 Gen 3
(8.0 GT/s), Low-Profile PCI Form Factor



PCIe-POE1-MG2 supports a single 10GBASE-T Ethernet channels in compliance with the IEEE 802.3an and 802.3bz standard, as well as 5.0 Gbps and 2.5 Gbps Ethernet speeds over standard Cat 5e and Cat 6 copper cables. This card is a 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.

Overview

Manufacturer #	<ul style="list-style-type: none"> ioi GE10P-PCIE4XG301
LUCID #	<ul style="list-style-type: none"> PCIE-POE1-MG2
Number of Ports	<ul style="list-style-type: none"> One 10GBASE-T RJ45 Ethernet (POE+) port with Screw Holes for thumbscrew locking Type Ethernet Cable
PCI Express	<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
MAC	<ul style="list-style-type: none"> Large Send Offload (LSO), Receive-Side Scaling (RSS), Direct Cache Access (DCA) header checksum WoL power management, On-chip CPU DASH, MACsec, Quality of Service (QoS) support, Jumbo frames (up to 16Kbytes), IPv4, IPv6/TCP and IPv6/UDP checksum offload
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 and Cat 6a at 5Gbps/ 2.5Gbps/ 1Gbps/ 100Mbps Advanced cable diagnostics with On-chip high resolution cable analyzer Audio Video Bridging (AVB) and I588v2 EEE support Supported Data Rates: 10G/ 5G/ 2.5G/ 1G/ 100 Mbps Standard compliance: 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+	<ul style="list-style-type: none"> Step-Up 12V from either PCIe Slot or auxiliary SATA power connector From PCIe Slot: 25 W Slot (Max. 25W), 75 W Slot (Max. 30W) From SATA Power Connector: SATA Power (Max. 30 W)

PCI Express

Standards Compliant

- o PCI Express Base Specification, r3.0 (compatible w/ PCIe r1.0a/1.1 & 2.0)
- o PCI Power Management Spec r1.2
- o Microsoft Windows Logo Compliant
- o Supports Access Control Services
- o Dynamic link-width control

Dynamic SerDes Speed Control

High Performance

- o performancePAK
 - Multicast
 - Dynamic Buffer/FC Credit Pool
- o Non-blocking switch fabric
- o Full line rate on all ports
- o Cut-Thru packet latency of less than 100ns between symmetric (x4 to x4) ingress and egress Ports
- o 2KB Max Payload Size
- o Quality of Service (QoS)
 - o Traffic Class Queuing
 - o Eight Traffic Classes per port
 - o Weighted round-robin source port arbitration

MAC

- o Large Send Offload (LSO), Receive-Side Scaling (RSS), Direct Cache Access (DCA) header checksum
 - o Increased network performance and lower host CPU utilization

WoL power management

- o Supports low power modes

On-chip CPU DASH

- o Desktop management

MACsec

- o Secured traffic over Ethernet links

Quality of Service (QoS) support

- o Up to eight traffic classes and Data Center Bridging (DCB)

Jumbo frames (up to 16Kbytes)

- o Improves network performance with reduced CPU utilization

IPv4, IPv6/TCP and IPv6/UDP checksum offload

- o Offloading calculations and improved CPU usage

PHY

Integrated Aquantia AQRate PHY featuring NBASE-T technology

- o 100 meters over Cat 6a at 10Gbps
- o 100 meters over Cat 5e and Cat 6a at 5Gbps/2.5Gbps/1Gbps/100Mbps

Advanced cable diagnostics

- o On-chip high resolution cable analyzer

Audio Video Bridging (AVB) and 1588v2

- o Management of time-sensitive traffic packets

EEE support

- o PHY power savings mode

Supported Data Rates

- o 10G/5 G/2.5 G/1G/100 Mbps

Standard compliance

- o IEEE 802.3bz – NBASE-T, IEEE 802.3x – flow control, IEEE 802.1P – quality of service, IEEE 802.1QAV – AVB

POE+ Feature

- o Supports IEEE 802.3at Power Sourcing Equipment (PSE)
- o Operates from a 54 V supply
- o Provides PD real-time protection through the following mechanisms: overload, under-load, over-voltage, over-temperature, and short-circuit.
- o Auto mode – allows turning PDs on and off automatically.

Power Input for POE+

Step-Up 12V from the following source (A, B, C)

- A. From PCIe Slot (25 W or 75 W depends on mainboard design)
- B. From IDE Big 4 pin Power Connector or/and SATA 15 pin Power Connector
- C. From Mini-Fit Jr. Dual Row 6pin Power Connector

Ethernet port status LEDs

POE LED (Green)

Link LED

- o Yellow: 5G/ 2.5G/ 1G/ 100M
- o Green: 10G

PCIe Lane Status LEDs

- o OFF: Link is Down
- o Slow Blink: Gen 1 (2.5GT/s)
- o Fast Blink: Gen 2 (5.0GT/s)
- o Solid: Gen 3 (8.0GT/s)

Upstream Lane Status LED

- o PORT0 LED

Downstream Lane Status LEDs (PORT1 & PORT2 & PORT3 & PORT4 LED)

- o PORT3 LED (CON2) & PORT4 LED (CON1)
 - o Solid: Gen 3 (8.0GT/s)
- o PORT1 LED & PORT2 LED

Number of Ports

One SFF-8654 4x 38pin connector (PCIe x4)

- o One JST Compatible 2pin Wafer (Supply 3.3Vaux Power)

One 10GBASE-T RJ45 Ethernet (POE+) ports with

Screw Holes for thumbscrew locking Type Ethernet Cable

Computer Platform

Computer with PCI Express slot (x8, x16)

Operating System Requirements

This driver supports in the following operating systems

- o Windows 7, 8, 8.1, 10, Server 2012/2016
- o Linux kernels 3.10 and later, includes support for x86_64 and ARM Linux system