

AQtion AQN-108 5 GbE/2.5 GbE Network Interface Adapter

Enabling New Levels of Multi-Gigabit Connectivity for High-Performance PCs and Professional Workstations

Product Overview

The Aquantia AQtion AQN-108 Network Interface Card (NIC) is based on the company's award-winning AQtion Ethernet controller. It delivers Multi-Gig connectivity for PCs and workstations that was previously only available for high-end servers. The AQtion AQN-108 is ideally suited for PCs and workstations used for Enterprise, gaming, and home networks requiring rates beyond 1 Gbps up to, 5 Gbps, and 2.5 Gbps.

This innovative Aquantia NIC supports 5Gbps and 2.5Gbps Ethernet speeds over standard Cat 5e copper cables. Compliant to the IEEE 802.3bz standard ratified in September 2016, The AQtion AQN-108 NIC is also backwards-compatible with legacy 1000BASE-T Ethernet.

The Aquantia AQN-108 is a single-chip, single-port, high-performance PCIe 3.0 multi-gigabit 5GBASE-T/2.5GBASE-T/1000BASE-T/100BASE-TX Ethernet adapter. It supports line-rate performance up to 5 GbE Ethernet links and incorporates Aquantia's AQRate technology to deliver 5 GbE and 2.5 GbE network connectivity speed through 100 meters of Cat 5e cabling and also enables higher data rates over legacy cabling.

The AQtion NIC's integrated AQRate PHY is compatible with both the IEEE 802.3an/bz standard and with the NBASE-T™ Alliance PHY specification to perform all the physical layer functions required to implement 5GBASE-T/2.5GBASE-T/1000BASE-T/100BASE-TX transmission over 100 meters of twisted pair cabling. The AQRate PHY family integrates Energy Efficient Ethernet (EEE) and Precision Time Protocol (PTP)/1588v2.



Applications

Aquantia's AQN-108 is a game changer that enables Enterprise, gaming, and home networking to evolve beyond 1 Gbps up to the 5 Gbps, and 2.5 Gbps rates. The AQN-108 is ideally suited for client PCs and workstations.

Drivers: Windows® 10, 8.1, 8, 7 (32/64 bit), Linux 3.2, 3.10, 3.12, 4.2, and 4.4

Utilities: Production test tool, ROM programming and Windows Installer

Boot Options: UEFI and PXE

Power Management: Wake-on-LAN (WoL)

Features	Benefits
Single chip solution	Integrated PCIe, MAC, and PHY minimizes board space and power utilization
PCI Express Gen3	Supports line rates of 8.0 GT/s
Bus width	Supports Gen3 x1
MSI, MSI-X, and legacy INTx PCIe interrupts	Improved CPU utilization and network performance
Two SMBus (Master/Slave + Slave)	Communication and management function

PHY Specific Features	Benefits
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Integrated Aquantia AQRate PHY featuring NBASE-T technology	100 meters over Cat 5e at 5 G/ 2.5 G / 1 G / 100 M
Advanced cable diagnostics	On-chip high resolution cable analyzer
Audio Video Bridging (AVB) and 1588v2	Management of time-sensitive traffic packets
EEE support	PHY power savings mode

MAC Specific Features	Benefits
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Large Send Offload (LSO), Receive-Side Scaling (RSS), Direct Cache Access (DCA) header checksum	Increased network performance and lower host CPU utilization
WoL power management	Supports lower power modes
On-chip CPU DASH	Desktop management
Quality of Service (QoS) support	Up to eight traffic classes and Data Center Bridging (DCB)
Jumbo frames (up to 9Kbytes) 16Kbytes	Improved network performance with reduced CPU utilization
IPv4, IPv6/TCP and IPv6/UDP checksum offload	Offloading calculations and improved CPU usage

Board Specifications

Ethernet Network Adapter	Aquantia AQtion PCIe x1 5 GbE/2.5 GbE NIC
Ethernet Controller	AQC108
External Connector Type	RJ45
Cable Type	100 meters with Cat 5e cabling
Supported Data Rates	5 G/2.5 G/1 G/100 Mbps
Bus Width	PCIe Gen3 x1
Typical Power Consumption	4W at 5 Gbps with full length 100 M Cat5e
Operating Temperature	0°C to 55°C with no air flow
Standard compliance	IEEE 802.3bz – NBASE-T IEEE 802.3x – flow control IEEE 802.1P – quality of service IEEE 802.1QAV – AVB
Safety standards	UL VDE CB
EMC standards	CE, FCC, ICES, ACA, BSMI, MIC/RRL, VCCI
OS Driver Support	Windows 10, 8.1, 8.0, and 7 (32-Bit/64-Bit), Linux 3.2, 3.10, 3.12, 4.2 and 4.4
Utilities Supported	Windows Diagnostics, Windows Installer Utilities
Management Supported	WOL, ACPI (Advanced Configuration and Power Interface)
Boot Options Supported	UEFI (Unified Extensible Firmware Interface) 2.3/2.5, PXE (Preboot Execution Environment) 2.0
Ordering Part number	AQN-108-101-SFA (Full-height bracket), AQN-108-101-SHA (Half-height bracket)
Board Dimensions	2.68 in. x 3.25 in. (without bracket)

