

AQtion™ Multi-Gigabit Ethernet Controller

Multi-Gigabit Enterprise Client Connectivity

Following its success in pioneering and deploying AQrate, a new class of Ethernet PHY connectivity solution capable of delivering Multi-Gigabit Ethernet over copper cables such as Cat5e typically used for Gigabit, Aquantia has developed AQtion™, an Enterprise-class client controller technology supporting Multi-Gigabit speeds.

Aquantia's AQtion devices, the AQC107 and AQC108 support 5 and 2.5 Gigabit Ethernet over copper, or 2.5/5GBASE-T, and are compliant with the NBASE-T specification and the new IEEE 802.3bz standard that was formally ratified in September 2016. In addition, both devices also support backward compatibility with 100MbE and Gigabit Ethernet. The AQC107 has the extra feature of supporting up to 10 Gigabit Ethernet, or 10GBASE-T, on Cat6A copper cables, complying with the IEEE standard 802.3an. The AQtion controller is designed with a PCI Express Gen2/3 x1, x2, x4 for optimal line rate performance connecting to the CPU on the system side.

The AQtion software includes drivers for Windows (10, 8.x, and 7), Mac OS X, and Linux. Aquantia also provides UEFI and PXE boot code, as well as ROM programming and Windows Installer utilities.

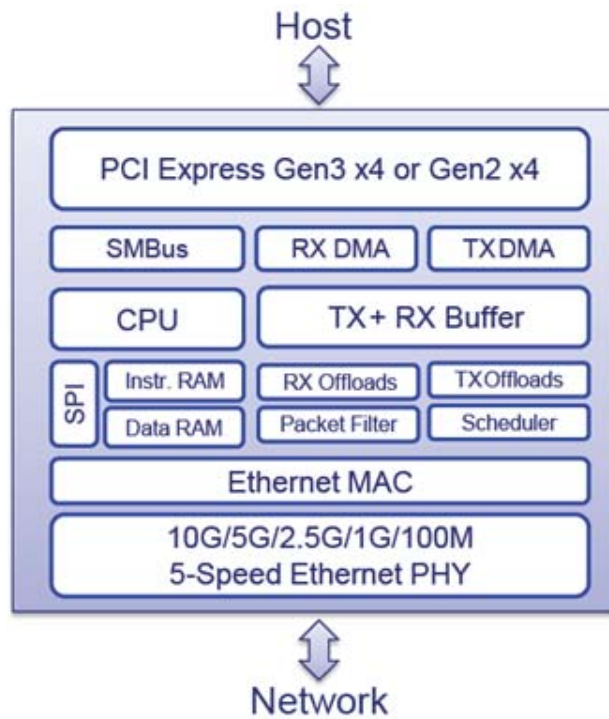
DEVICE NAME	SPEEDS	PACKAGE
AQC107	5-speed	12 mm x 14 mm
AQC108	4-speed	12 mm x 14 mm

The AQtion devices are packaged in a 12 mm x 14 mm, 0.8 mm pitch flip-chip BGA.



FEATURES	SUMMARY OF BENEFITS
<ul style="list-style-type: none"> • Single-chip solution • PCI Express Gen3 or Gen2 • Bus width • MSI, MSI-X, and legacy INTx PCIe interrupts • Two SMBus (Master/Slave + Slave) 	<ul style="list-style-type: none"> • Integrated PCIe, MAC, and PHY minimizes board space and power utilization • Supports line rates of 8.0 GT/s and 5.0 GT/s per lane • Supports Gen3 x4 or Gen2 x4 • Improved CPU utilization and network performance • Communication and management function
PHY	
<ul style="list-style-type: none"> • Integrated AQrate PHY featuring IEEE 802.3an/bz and NBASE-T technology • Advanced cable diagnostics • Audio Video Bridging (AVB) and 1588v2 • EEE support 	<ul style="list-style-type: none"> • 100 meters over Cat 6a at 10 Gbps • 100 meters over Cat 5e and Cat 6a at 5 Gbps/2.5Gbps/1 Gbps/100 Mbps <ul style="list-style-type: none"> - Requires no change to existing infrastructure or cabling • On-chip high resolution cable analyzer • Management of time-sensitive traffic packets

FEATURES	MAC	SUMMARY OF BENEFITS
<ul style="list-style-type: none"> • LSO, RSS, Direct Cache Access (DCA) header checksum • Wake-on-LAN (WoL) power management • On-chip CPU DASH • MACsec • Quality of Service (QoS) support • Jumbo frames (up to 16 Kbytes) • IPv4, IPv6/TCP and IPv6/UDP checksum offload 		<ul style="list-style-type: none"> • Increased network performance and lower host CPU utilization • Supports low-power modes • Desktop management • Secured traffic over Ethernet links • Up to eight traffic classes and Data Center Bridging (DCB) • Improves network performance with reduced CPU utilization • Offloading calculations and improved CPU usage



APPLICATIONS

Aquantia’s AQtion Ethernet controller product family is a game changer that enables diverse environments ranging from Enterprise and SMB networks to gaming connectivity to evolve beyond 1 Gbps to 10 Gbps, 5 Gbps, and 2.5 Gbps data rates. Aquantia’s AQtion Ethernet controllers are ideally suited to provide a wide variety of Enterprise clients with the ability to more easily perform more data-intensive applications such as video editing, image rendering, database transfers, artistic simulations, and Enterprise-class backups involving big data stored in local Network-Attached Storage (NAS).

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