NetEffect™ NE020 Family Overview

10 Gb Accelerated Ethernet PCI Express* Adapters and Blade Adapters

Data center networks are being pushed to their limits. Applications are becoming more complex; multi-processor server architectures are adding connections; cluster and grid configurations are becoming more prevalent; virtualized server environments are increasing the already heavy loads on networking infrastructures. Helping data centers overcome their most demanding networking challenges, the NetEffect™ NE020 family of 10 Gb accelerated Ethernet PCI Express (PCIe*) adapters and blade adapters is setting new standards in networking performance, power efficiency, and operational simplicity.

Meeting the needs of all data center networks

Whether 'business-critical' means moving more data faster, handling more transactions or users, or reducing wall-clock times, NetEffect adapters give companies the networking performance they need to remove the data center obstacles to success. With industry-leading latencies, wire-saturating bandwidths, and the industry's highest CPU productivity, NE020 solutions deliver predictable, sustained performance in the dense multiple-connection environments common in multi-core, multi-processor configurations, high-performance computing, and virtualized server implementations. They achieve time-to-completion equal to or better than InfiniBand*.

Lower power, more processing per square foot

NE020 adapters consume less than seven watts, half the power required by competitive 10 Gb products. Conserved watts can be put to use increasing rack density (processing per square foot) or lowering energy costs.

Simplified deployment and infrastructure

Through a unique single adapter/single firmware design, only one NE020 adapter is needed to support simultaneous connectivity to scale-out (clustering), data and storage networks. This eliminates the need to spare three dissimilar interfaces and the need for fixed application/ resource provisioning to specific servers/blades.

A single firmware image supports all protocols, speeds, media and ports, dramatically simplifying deployment and reducing ongoing maintenance. Applications using the broad range of NE020-supported industry-standard APIs require no modification or recompilation; the performance benefits of lower latency and higher bandwidth are realized instantly.

Fully accelerated performance by design

NE020 adapters leverage an elegant Virtual Pipeline Architecture to implement all the IETF-approved iWARP extensions to TCP/IP. Every adapter integrates a TCP/IP offload engine (TOE), RDMA over Ethernet, and user level direct access features that work together to improve both performance and overall power efficiency.

The economies of Ethernet ubiquity

By giving data centers a way to standardize on Ethernet, NE020 adapters eliminate the need to deploy multiple, disparate interconnect technologies and maintain separate management tools and personnel to support them. Leveraging existing Ethernet economies, expertise and tools reduces operational and capital equipment costs.
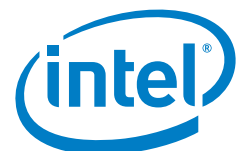
Highlights
> 10 Gb accelerated Ethernet solutions
  – PCIe low-profile adapters
  – mezzanine cards for IBM* BladeCenter* H and HP* BladeSystem* c-Class
> Ultra-low power consumption for higher computing densities
> One adapter handles simultaneous data, storage, and scale-out (clustering) networking
> Single firmware image for all media, speeds, protocols, and ports
> Support for Linux* and Windows* platforms

Performance
> Industry-leading latency: under 6 μsec sustained under load
> Exceptional bandwidth: over 18 Gbps per port, bi-directional

Applications
> Demanding applications in financial services, Oil and Gas, CAD/CAE and other industries
  – market data streaming
  – computational fluid dynamics
  – finite element analysis and simulation
  – reservoir simulation and visualization
> High-performance database, web servers, research clusters, and more
> Applications reliant on fast network access or low latency

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10GbE standard servers	product code	form factor	connector/media/distance	ports	power (typ)
NetEffect Ethernet Server Cluster Adapter CX4 [1]	E10G81GTCX4	PCIe low profile	CX4/twinax copper/15 m	1	6.2 W
NetEffect Ethernet Server Cluster Adapter SFP+ SR	E10G81GFSR	PCIe low profile	LC/MMF-850nm/300 m	1	9 W
NetEffect Ethernet Server Cluster Adapter DA (SFP+ pluggable)	E10G81GP	PCIe low profile	SFP+/connector	1	8.5 W
10GbE blade servers					
NetEffect Ethernet Mezzanine Adapter for the IBM BladeCenter H	K10G82GTKX4I	CFFh mezzanine card	KX4/backplane/40 in.	2	6.5 W
NetEffect Ethernet Mezzanine Adapter for the HP BladeSystem c-Class	K10G82GTKX4H	Type I mezzanine card	KX4/backplane/40 in.	2	6.5 W

[1] Supports powered CX4 with active optical cable up to distance of 100 m.

10GbE PCIe low-profile adapters

NetEffect Ethernet Server Cluster Adapter CX4
(E10G81GTCX4)
Single port
CX4 or Powered CX4

NetEffect Ethernet Server Cluster Adapter SFP+
SFP+ SR (E10G81GFSR), DA (E10G81GP)
Single port
SR optical media or pluggable

10GbE blade adapters

NetEffect Ethernet Mezzanine Adapter for the
IBM BladeCenter H (K10G82GTKX4I)
Dual port
CFFh form factor

NetEffect Ethernet Mezzanine Adapter for the
HP BladeSystem c-Class (K10G82GTKX4H)
Dual port
Type I form factor

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