

NetEffect NE020BCH

10Gb Accelerated Ethernet Mezzanine Adapter for the IBM BladeCenter H

The NetEffect® NE020BCH is the industry's leading 10Gb accelerated Ethernet mezzanine adapter for IBM BladeCenter H systems. It gives IBM BladeCenter H blades simultaneous high-performance access to scale-out (clustering) networks, data networks, and storage networks. Its unmatched low power and cooling requirements enable support for more blades within a single chassis, increasing processing per square foot in the data center. This low-latency adapter allows businesses to perform more work in less time, providing immediate performance benefits to all applications. It leverages existing Ethernet infrastructures, knowledge and spares to significantly lower the total cost of ownership.

Lower power, higher blade densities

At less than 6.5 Watts (typical), the NetEffect NE020BCH has the lowest power requirements of any 10Gb accelerated Ethernet adapter available, half the power required by other 10Gb adapters. Critical in high-density blade environments, the power savings can be used to more fully populate the blade chassis, increasing processing power per square foot and speeding return on hardware investment.

Sustained performance under load

For all applications – scale-out (clustering), high-performance data networking or storage networking – the NE020BCH provides sustained low-latency connectivity facilitating shorter application processing times and faster response times. Its unique Virtual Pipeline Architecture enables the NE020BCH to outperform competitive solutions particularly in multiple connection environments such as multi-core processors, high-performance computing and virtualized server implementations.

Reduced complexity and connectivity requirements

The NE020BCH meets the tight space, power and cooling constraints of the IBM BladeCenter H without sacrificing high-performance network

access. A single NE020BCH connects to and provides simultaneous access to clustering, storage, and data networks, saving space, power and cost and eliminating fixed provisioning of applications to specific servers/blades. It supports all applications transparently through industry-standard APIs including sockets, Winsock Direct (WSD), uDAPL, Intel MPI, Scal MPI, MVAPICH2, iSCSI, NFS and CIFS.

Unleash CPU productivity

The NE020BCH delivers bi-directional bandwidth of over 18 Gbps per port, in part, through a full implementation of the IETF-approved iWARP extensions to the TCP/IP standard. Each adapter integrates a TCP/IP



NetEffect NE020BCH high-speed expansion card (HSEC) form factor



Highlights

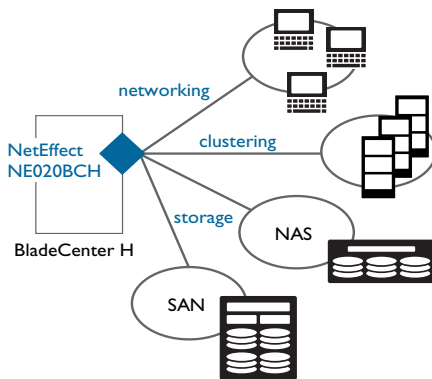
- > Industry-leading latency of less than 6 μ sec sustains high performance under load
- > Exceptional bandwidth over 18 Gbps per port (bi-directional) through full implementation of iWARP extensions
- > Low power requirements enable greater computing densities
- > Supports connectivity to all data center networks: scale-out (clustering), data networks, and storage
- > Available in HSEC and CFFh form factors
- > Ideal for virtualized environments including server, desktop and more

Applications

- > Financial services
- > Oil & Gas
- > CAD/CAE
- > Computational fluid dynamics
- > High-performance databases
- > Simulation
- > Research clusters
- > Web servers
- > Any data center application reliant on fast network access

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offload engine as well as remote direct memory access (RDMA) and user-level direct access (aka OS bypass) capabilities. Together, these features dramatically lower latency and remove nearly all overhead associated with moving data onto or off of the network. Blade CPUs are freed to handle more transactions and accomplish more work per blade than would otherwise be possible.



A single NE020BCH connects a server to all three data center subnets, simplifying deployment and infrastructure.

Specifications

Performance

- > Latency: less than 6 μ sec
- > Bandwidth: over 18 Gbps bi-directional

Ethernet interface

- > Full bandwidth dual-port 10Gb Ethernet
- > Multiple port support for active/active operation
- > Interface support for 10GBASE-KX4

Layer 2 network interface

- > Checksum offload (TCP, UDP, IP)
- > Large send offload
- > Jumbo frame (9000 B)
- > Receive side scaling (RSS)

TCP/IP offload

- > Pipeline accelerated TCP/IP
- > Accelerated receive window size of 512 KB
- > Jumbo frame (9000 B)
- > Up to 10,000 accelerated connections (standard configuration)

iWARP (RDMA over Ethernet)

- > RDMA v1.0 and IETF specification support
- > User-level and kernel-level direct access support
- > Direct placement of payloads into application memory
- > Up to 32 independent accelerated IP addresses
- > Up to 64,000 simultaneous iWARP connections (standard configuration)

Block and file storage

- > iSCSI connectivity using Linux Open-iSCSI initiator and Microsoft iSCSI initiator
- > iSCSI boot via option ROM
- > NFS, CIFS
- > Up to 10,000 accelerated iSCSI connections (standard configuration)

Virtualization support

- > Multiple virtual NICs
- > Multiple PCI functions and MAC addresses
- > VLAN support
- > Support for virtual operating environments

Memory

- > ECC protected industry-standard DDR2
- > Standard configuration: 256 MB on-board memory

Host interface

- > PCI Express x8 v1.1

Standards

- > IEEE 802.3-2005, notably, 10GbE, link aggregation, link pause, management
- > IEEE 802.3ap 10GBASE-KX4
- > IEEE 802.1P Priority Encoding
- > IEEE 802.1Q VLAN Tagging with support for 4096 VLANs
- > IPv4 (all connections), IPv6 (unaccelerated connections)
- > IETF TCP RFCs, notably, 793, 1323, 2581, 3782

Management

- > IETF MIBs supported (including required statistics hardware counters): Ethernet, Interfaces, IP, UDP, TCP, TCP MIB II
- > ACPI 2.0c and PCI Power Management 1.2 compliant
- > Configuration and diagnostic tools

APIs/Middleware

- > Sockets and standard NIC
- > Winsock Direct
- > OpenFabrics and NetEffect iWARP Verbs
- > uDAPL v1.2, v1.3
- > HP-MPI, Intel MPI, ScalI MPI, MVAPICH2

Operating systems

- > Microsoft Windows[®] Server 2003 (32 bit and 64 bit), Vista (32 bit and 64 bit) and XP Pro
- > Linux 64-bit and 32-bit support for v2.6-based kernels including: RHEL4, RHEL5, FC5, FC6, SLES10, SLES9, Suse10

Physical and Environmental

- > Power (typical): 6.5 Watts
- > Operating temperature: 0 to 65°C
- > Form factors: HSEC and CFFh
- > No fansink required (standard)

Dimensions

- > CFFh form factor: 3.96 in. x 7.92 in.
- > HSEC form factor: 4.92 in. x 6.26 in.

Certifications

- > UL certified
- > RoHS compliant

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