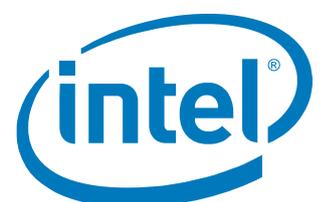# HP Integrity NonStop BladeSystem NB56000c

For businesses that never stop

February 2014

Designed for enterprise workloads that require continuous application availability and extreme scalability, the HP Integrity NonStop BladeSystem NB56000c is a highly flexible and scalable high-end mission-critical server in the HP Integrity NonStop systems family. The NonStop NB56000c allows you to perform and scale up without incurring downtime or bottlenecks.

Businesses that run the world's most demanding computing environments—from retail, banks, point-of-sale networks, mobile operators, manufacturing execution systems to critical public sector processes—can't afford to be unavailable. They must keep pace with changing business priorities, while seeking methods to improve their data center efficiency. Such mission-critical applications are transaction intensive; they experience unpredictable growth and demand the highest levels of availability, scalability, and security.

Consequently, forward-thinking organizations like yours seek a flexible, high-performance server platform that offers the scalability to grow with the business. Also, they require the flexibility to develop and deploy new services rapidly, while keeping businesses running uninterrupted 24x7—with industry-leading data integrity and zero downtime.

Leverage a new height in scalability and capacity

Representing the top of the line offering of the HP Integrity NonStop systems family, the NonStop NB56000c is 4-core capable with up to 1.5X[1] the performance capacity as compared to the NonStop NB54000c. The NB56000c can also be licensed as a 2-core system at a lower software price point. A 2-core licensed NB56000c can be upgraded to a 4-core licensed NB56000c to increase system performance capacity at anytime during the life of the platform. You can perform core upgrades online without taking the system or applications out of service. The NonStop NB56000c combines the economies of newly enhanced standards-based, modular computing with the trusted 24x7 fault-tolerant availability and data integrity of the HP NonStop architecture. Its enhanced availability, manageability, and development features create a total solutions approach, offering a low total cost of ownership (TCO) for complex mission-critical applications.

The HP Integrity NonStop BladeSystem NB56000c is built on the proven HP Integrity BL860c i4 server blade and leverages the modular efficiencies of the industry-leading HP BladeSystem c7000 Platinum Enclosure (R3) with fault-tolerant BladeSystem ServerNet double-wide switches. The NonStop NB56000c is powered by Intel® Itanium® 9500 series processors, as the processing engine. The HP NonStop OS leverages powerful multicore processing to achieve a significant boost in performance. J-series NonStop OS multi-core processor support greatly improves the computing capacity of the platform and extends the acknowledged linear scalability of NonStop systems to a new level.

The NonStop NB56000c with the Cluster I/O Modules (CLIMs) provides significant I/O configuration flexibility with IP and Telco CLIMs for communications support. For additional choices, the G16SE is available for communications connectivity. What's more, the NB56000c with the storage CLIMs supports both serial-attached SCSI (SAS) internal storage and Fibre Channel (FC) for tape and SAN storage. Support for previous generations of CLIMs and SAS storage subsystems is an additional step toward safeguarding your investments. Additionally, it supports the existing modular I/O subsystems (IOAME and G4SA) and legacy FC storage subsystems (FCDM, FCSA)—thereby protecting your existing investments.

Multicore processing allows for both scale up and scale out. Compared to the NonStop NB54000c, the NB56000c provides up to a 50 percent increase in performance capacity per logical processor at a lower cost per-transaction. As is typical with other NonStop systems, the NB56000c scales out through built-in clustering of up to 4,080 logical processors (16,320 cores).

What's new?

- Delivers up to 50 percent more performance capacity in the same data center footprint as compared to a similarly configured NB54000c

- Provides scalability up to 16,320 cores, up to 192,000 program processes per node, and an incredible 48,960,000 program processes in an Expand network

- Offers easy in-rack hardware upgrade when migrating from any previous HP Integrity NonStop BladeSystem to an HP Integrity NonStop BladeSystem NB56000c

- Saves you money as the NB56000c licensed for two cores per CPU comes at a lower software price point; activate remaining cores at any time during the life of the platform; increase performance capacity in the same footprint, without any hardware changes or application downtime

- Provides ready-to-use modern data-in-motion security capabilities (such as secure shell [SSH] and secure sockets layer [SSL] functions) and proven security audit reporting and alerts

- Comes configured with redundant CLIM OS disks in a RAID 1 configuration

Key features and benefits

Improve your virtualization work load efficiency
- Automatically balance workloads with a fully virtualized system that optimizes resources at the application level

- Extend availability protection: provide continuous availability with the intelligent, fault-tolerant capabilities of ServerNet for HP NonStop

- Deliver the lowest TCO[2] in its class with a fully integrated stack of hardware, OS, database, and software

Achieve outstanding performance and reliability
- Enables fault tolerance and 24x7 availability using continuously available software

  – Patented NonStop process-pair technology provides instant software takeover in the event of a software or hardware fault

  – Online self-management features offer ease of management and reduced staffing costs

  – Created for continuous availability

  – A highly integrated software stack of OS, database software, and application services provides simplified operations and outstanding reliability

  – CLIMs with RAID 1 configured CLIM OS disks

- Provides near-linear scalability of up to 16,320 cores (4,080 logical processors)

  – Up to 192,000 program processes per node, and an incredible 48,960,000 program processes in an Expand network

  – Built on the proven HP Integrity BL860c i4 server blade

  – 6G SAS storage subsystem that is aligned with the latest industry advancements in storage technology including Solid State Drives (SSDs) and Hard Disk Drives (HDDs)

Provide complete investment protection and reduced risk
- Enables easy in-rack hardware upgrade and comprehensive application portability

- Facilitates a simple hardware upgrade with a quick blade swap, when migrating from any previous NonStop BladeSystem to an NonStop BladeSystem NB56000c

- Migrate from up to three previous generations of HP NonStop systems without any recompilation

- Support for IOAME ServerNet Adapter (G4SA) and the legacy FC storage subsystem (FCDM, FCSA)[3]

- Enables support for previous generations of CLIMs and SAS storage subsystems

[2] "NonStop TCO comparison," research note,
  – Richard Buckle, Pyalla Technologies, May 2012
[3] IOAME: I/O Adapter Modular Enclosure
  FCDM: Fibre Channel Disk Module
  FCSA: Fibre Channel ServerNet Adapter
  G4SA: Gigabit Ethernet 4-Port ServerNet Adapter

Enable simplified integration into the data center through significant software ecosystem improvement

• Advanced HP NonStop OS unlocks the power of 4-core technology for business services

  – Improved logical processor performance capacity for larger workloads through enhanced NonStop OS lock design and finer granularity

  – Higher application throughput with NonStop OS Scheduler improvements

• NonStop modern, open software ecosystem improves productivity, enhances security, and reduces development and support costs

  – NonStop Development Environment for Eclipse helps develop NonStop applications on Microsoft® Windows® workstations, thereby improving productivity of developers

  – Modern programming models based on widely adopted open source application servers and application frameworks such as Spring, Apache Axis2, Apache MyFaces, Hibernate, Apache Tomcat, and JBoss reduce development costs

  – Standard interfaces based on SOA, SOAP, and Web Services technology modernize application assets

  – Support for programming and scripting languages (e.g., Java, C, C++, Perl, etc.)

• Improved security offerings protect your applications, systems, and data

  – Modern ready-to-use data-in-motion security capabilities (such as SSH and SSL functions)

  – Proven security audit reporting and alerts allow easy integration of NonStop events with HP ArcSight and other Security Information and Event Manager (SIEMs)

  – Built-in data sanitization capability to clear disk data prior to retirement or transfer to another system

  – Security products integrate NonStop into LDAP environments and extend Safeguard capabilities for managing users and the actions they can perform on the system

  – Fully integrated Volume Level Encryption (VLE) capability to encrypt data on disk and tapes available as an option on the system with the addition of an HP Enterprise Secure Key Manager

  – Secure archiving enabled through Secure Virtual Tape Subsystem and LTO tape encryption

• Built-in fault diagnosis and reporting reduce TCO

  – All hardware, firmware, and environmental faults in the system are automatically analyzed and reported in OSM Service Connection

  – Support for managing the NonStop system in a data center environment, using HP Systems Insight Manager (SIM) and its plug-ins

  – Power and thermal monitoring and regulation through HP Insight Control Power Management

  – Support automation through HP Insight Remote Support Advanced

HP Integrity NonStop BladeSystem NB56000c

Technical specifications

Processors	2–16 logical processors per node Intel Itanium 9500 series 2.4 GHz processor, 32 MB L3 cache
Core licensing	2-core and 4-core
RAM per logical processor	Minimum: 16 GB Maximum: 96 GB
NonStop OS	J06.16 or later
Number of CLIMs in a NonStop BladeSystem with two c7000 enclosures	Maximum of 48 CLIMs (Storage, IP, or Telco) Minimum CLIMs for fault-tolerance • Two Networking CLIMs—IP, Telco (no IOAME or G16SE) • Two Storage CLIMs (no IOAME) • Zero CLIMs (with IOAME)
Communication I/O adapters **• IP CLIM** **• Telco CLIM**	Ethernet Supports up to five 1GbE copper ports or three copper and two fiber ports
Storage I/O adapters **• Storage CLIM**	6G SAS 8G Fibre Channel
SAS storage enclosure	25 SAS SFF drives per enclosure
Storage drives	6G SAS SFF (2.5") Solid State Drive (SSD) 6G SAS SFF (2.5") Hard Disk Drive (HDD)
Enterprise SAN	HP SAN Disk Arrays (e.g., HP XP P9500)
Gigabit Ethernet 16-Port ServerNet Enclosure (G16SE)	Supports 16 Ethernet ports* with all copper ports or up to eight fiber ports Supports eight 1GbE and eight 10/100 Ethernet ports Minimum: 0 Maximum: 6
Standard features	Redundant power inputs Redundant cooling
IOAME	Minimum: 0 Maximum: 6
Hot-swap ServerNet I/O Adapters based on IOAME	Minimum: 0 per node Maximum: 60 per node
IOAME ServerNet Adapters	Gigabit Ethernet 4-Port ServerNet Adapter (G4SA)
IOAME legacy FC storage subsystem support	Fibre Channel ServerNet Adapter (FCSA) Fibre Channel Disk Modules (FCDM) 14 disks per module—FC LFF (3.5") HDDs

*Under most configurations, two Ethernet ports on the first G16SE are required for system maintenance communications and are unavailable for customer use.

HP Integrity NonStop BladeSystem NB56000c (continued)

Environmental specifications

Altitude	Operating: 3,000 m (10,000 ft) maximum Non-operating: 9,144 m (30,000 ft) maximum
Temperature	Operating: 10˚C to 35°C (50˚F to 95°F) Non-operating: −40˚C to 66°C (−40˚F to 150°F) Maximum rate of temperature change: 10°C (18°F) per hour
Humidity	Operating: 20% to 80% relative noncondensing maximum Non-operating: 95% maximum at 66°C (150°F)
Dimensions (H x D x W)	200.66 x 130.02 x 59.78 cm (79.00 x 51.19 x 23.54 in.) (per 42U rack)
Input voltage	AC input power: 200–240 V, 50–60 Hz

System configurations

Minimum configuration (single system/node)	Maximum configuration (single system/node)	Maximum configuration (with Expand)
2 processors	16 processors	255 nodes
32 GB memory	1536 GB memory	384 TB memory

Customer technical training

Unleash the potential of your HP NonStop system with in-depth training from HP Education Services. With HP NonStop training, you will accelerate your technology transition, improve operational performance, and get the best return on your HP investment. Our training is available when and where you need it, through flexible delivery options and a global training capability. hp.com/learn/nonstop.

HP Technology Services

Customize your IT lifecycle management, from acquisition of new IT, management of existing assets, and removal of unneeded equipment. **hp.com/go/hpfinancialservices**

HP Technology Services help build an infrastructure that is reliable, highly available and rooted in best practices. We offer a support experience that is proactive, personalized and simplified—delivering support when and how you need. HP recommends the following services for NonStop servers:

HP Critical Service: High performance reactive and proactive support designed to minimize downtime. It offers an assigned support team which includes an Account Support Manager (ASM). This service offers access to HP's Global Mission Critical Solution Center, 24x7 HW and SW support, 6-hour Call-to-Repair commitment, enhanced parts inventory and accelerated escalation management.

HP Proactive 24: Provides proactive and reactive support delivered under the direction of an ASM. It offers 24x7 HW support with 4 hour onsite response, 24x7 SW support with 2 hour response and flexible call submittal.

HP Installation and Start-up Services: This service provides efficient and effective deployment of HP hardware components.

For more information on Support Services for NonStop servers, click here.

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