HP Integrity NonStop X NS3 X1

Redefining entry-class continuous availability for x86

Next-generation technology at affordable price points

HP Integrity NonStop X NS3 X1 delivers:

• Up to one-third more memory capacity[3] for improved application performance

• Industry-standard InfiniBand as the system interconnect for increased system capacity and lower latencies

• Fully-integrated solution stack and proven NonStop fundamentals for industry-leading fault tolerance

• Factory-integrated, fully-tested and verified hardware and software solution for out-of-the-box efficiency

[1] IDC, Worldwide and U.S. High-Availability Server 2014–2018 Forecast and Analysis, Doc #250565, September 2014

[2] Comparison of HP Integrity NonStop i ServerNet bandwidth with HP Integrity NonStop X 4X FDR InfiniBand bandwidth, HP internal testing, December 2014

[3] Compared to HP Integrity NonStop i NS2400 with 48 GB memory per CPU, HP NonStop Product Management, July 2015

Engineered for the highest availability level

For businesses that never stop

HP Integrity NonStop is designed specifically for the very highest availability level. The industry analyst firm, IDC defines the highest availability as Availability Level 4[1] (AL4), where business processes continue as before. That means no interruption of work and no degradation in performance. With the introduction of the HP Integrity NonStop X family, HP has extended the 100 percent fault-tolerant HP Integrity NonStop platform to include the x86 architecture, so that customers can leverage a proven solution for always-on business that delivers timeless value regardless of the underlying architecture.

When downtime is not an option

The HP Integrity NonStop X NS3 X1 (NS3 X1) system, running on the HP NonStop Operating System L-series, is the most recent addition to the HP Integrity NonStop entry-class systems. It shares the same unique NonStop platform attributes, such as low total cost of ownership (TCO), real-time database, integrated stack, end-to-end security, and massive scalability, while delivering the same high level of availability and data integrity as the high-end HP Integrity NonStop X NS7 X1 system.

Innovation to match growing business demand

As your business needs evolve and user demands grow, the NS3 X1 system will support your complex application requirements. The NS3 X1 with InfiniBand delivers more than a 25 times increase in system interconnect capacity[2] for responding to business growth and upgradable core software licensing for enhanced flexibility to handle intensive transaction volumes. The NS3 X1 is well-suited for smaller-enterprise businesses and emerging markets as well as distributed computing and test/development environments.

HP Integrity NonStop provides **deployment choices** on either the x86 architecture (Intel® Xeon® processors) of the HP Integrity **NonStop X** or the Intel® Itanium® architecture of the HP Integrity **NonStop i**. Mission-critical customers can continue to rely upon HP Integrity NonStop with either architecture to deliver a resilient business foundation **without compromise**.

A new entry class for HP Integrity NonStop X

Opening up a world of possibilities
Representing the first entry-class offering of the HP Integrity NonStop X family, the NS3 X1 is available with two or four NonStop CPUs. Offered for the first time in an entry-class NonStop system, the NS3 X1 provides the flexibility to choose either 1 or 2-core software licensing per NonStop CPU. The NS3 X1 combines the economies of newly-enhanced, standards-based, modular computing with the trusted 24x7 fault-tolerant availability and data integrity of the HP Integrity NonStop architecture. The enhanced availability, manageability, and development features of HP Integrity NonStop result in a low total-cost-of-ownership (TCO) for hosting mission-critical applications.

25 times increase in system interconnect capacity
At the heart of the NS3 X1 is a system interconnect based upon industry standard InfiniBand. The NS3 X1 leverages the modular efficiencies of the industry-leading HP BladeSystem c7000 Platinum Enclosure with 4X FDR (Fourteen Data Rate) InfiniBand double-wide switches to create the foundation for the NS3 X1 system interconnect. These switches, based on a dual fault-tolerant switched fabric, provide up to 56 Gbps bidirectional bandwidth to each NonStop CPU and throughout the system for extreme scalability, fabric flexibility, high throughput, and low latency.

Powered by Intel Xeon processors
The HP Integrity NonStop X NS3 X1, built on proven HP ProLiant BL460c server blades, is powered by Intel Xeon E5-2600 v2 series processors and supports up to 64 GB of memory per NonStop CPU, with single system (node) maximum memory capacity of 256 GB.

Providing uninterrupted access to information and services
The NS3 X1 system can be configured with two or four NonStop CPUs in a factory-integrated, fully-tested and verified configuration. Multiple systems can be connected together via Ethernet with Entry-class IP Cluster I/O Modules (CLIMs) or with Entry-class Telco CLIMs to support M3UA, Diameter, and Session Initiation Protocol (SIP) protocols. Disk storage is managed by Entry-class Storage CLIMs. Configured with up to eight powerful I/O adapters, these Entry-class CLIMs provide evenly matched performance for the NS3 X1 platform as they decrease the load on the host processor to balance overall performance, and shorten response times.

The advantage of the NonStop software stack
HP Integrity NonStop systems (including the NS3) have been designed from day one with an integrated software stack that supports fault tolerance. The NonStop software stack includes the NonStop OS and the OSS file system, security, system management, middleware, Java and Java-frameworks, a modern development environment, and one of the most scalable fault-tolerant databases in the world.

The HP Integrity NonStop X is offered with the L-series version of the NonStop Operating System. The NonStop X software stack has been optimized to take advantage of the x86 architecture and use InfiniBand technology to improve software performance throughout the system. Security and time synchronization software are included with the OS. HP NonStop SQL/MX and SQL/MP database products are available on NonStop X with all the latest features for massive scalability. Middleware products are available, as are Java and Java-related frameworks. The NonStop Development Environment for Eclipse (NSDEE) and compilers are enhanced with x86 architecture in mind. Customers that are new to NonStop will find the NonStop Eclipse development environment friendly and familiar to their application developers.

Existing NonStop applications running on NonStop X

• Most existing non-native TNS (Tandem NonStop CISC) applications will run on the NonStop X architecture without change.

• Non-native applications can be accelerated to take advantage of the new system's performance using the new NonStop X accelerator.

• Native Intel Itanium applications can take advantage of the new NonStop X compilers and with a simple recompilation, run on the new platform.

• Native applications require few, if any source code changes in order to run on the NonStop X architecture.

• In summary, NonStop X is a high performance environment that fits comfortably into your existing data center, is ready for your mission-critical applications, and is 100 percent NonStop.

HP Integrity NonStop X NS3 X1

Technical specifications

Processors	2 or 4 NonStop CPUs per system (node) Intel Xeon E5-2600 v2 series processors
Core licensing	1 or 2-core software license
RAM	Per CPU—Minimum: 32 GB, Maximum: 64 GB Per system—Minimum: 64 GB, Maximum: 256 GB
NonStop OS	L-Series, (L15.08 or later)
System interconnect	4X FDR InfiniBand, up to 56 Gbps bidirectional bandwidth to each NonStop CPU and throughout the system

Communication I/O adapters
    Entry-class IP CLIM
    Entry-class Telco CLIM
	5 Ethernet ports
	    Supports five 1GbE (1000BASE-T) ports
	    Supports five 1GbE (1000BASE-T) ports

Storage I/O adapters **Entry-class Storage CLIM**	 SAS, Fibre Channel

SAS Internal Storage enclosure
    Storage drives
	25 SAS SFF (2.5ʹʹ) drives per enclosure
	    SAS SFF Solid State Drive (SSD)
	    SAS SFF Hard Disk Drive (HDD)

Number of Entry-class CLIMs	IP CLIMs—minimum of two, maximum of four[4] Storage CLIMs—minimum of two, maximum of four
Enterprise SAN	Fibre Channel connectivity for SAN attached (e.g., HP XP7 Storage and HP XP P9500 Storage) and tape storage
Racks (H x D x W)	42U rack: 79.00 x 51.19 x 23.54 in. (200.66 x 130.02 x 59.79 cm) 36U rack: 68.84 x 51.19 x 23.54 in. (174.86 x 130.01 x 59.79 cm)
Standard features	Redundant power inputs Redundant cooling
Environmental specifications	
Altitude	Operating: 3,000 m (10,000 ft) maximum Non-operating: 12,192 m (40,000 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) up to 72-hour storage −29˚C to 55˚C (−20˚F to 131°F) up to 6-month storage
Humidity	Operating: 20% to 80% relative non-condensing maximum Non-operating: 10% to 80%, non-condensing
PDU input voltage (AC input power)	North America/Japan: 200–208 V, 24 A, single phase North America/Japan: 200–208 V, 24 A, 3-phase Delta International: 200–240 V, 32 A, single phase International: 380–415 V, 16 A, 3-phase Wye

[4] The first two communication I/O adapters must be Entry-class IP CLIMs. Additional I/O adapters can be Entry-class IP CLIMs and/or Entry-class Telco CLIMs

HP NonStop X—the platform for your continuous business

With the HP Integrity NonStop X NS3 X1 system, HP continues to deliver world-class systems using a collaborative approach to design and build an agile infrastructure. When you add up the scorecard, you will realize the NS3 X1 is offered at a price point that is favorable to those who may be considering open source alternatives. HP partners with the best-of-breed independent software vendors (ISVs) for mission-critical solutions in many vertical industries—and delivers a complete portfolio of enterprise solutions from leading HP partners, extending our joint capability and ultimately enhancing your value.

In a world that never stops, you must be there, continuously—because your customers won't wait. HP Integrity NonStop is your product family for continuous business.

Support when and how you need it

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 it.

HP recommends the following services for HP 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 the HP Global Mission Critical Solution Center, 24x7 hardware and software support, six-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 hardware support with four-hour onsite response, 24x7 software support with two-hour response and flexible call submittal.

- HP Installation and Start-up Services—Provide efficient and effective deployment of HP hardware components.

Training and education

Gain the skills you need with ExpertOne training and certification from HP. 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

Learn more at
hp.com/go/nonstop