

HP Integrity NonStop NS5000T and NS5000CG Servers

Data sheet



The HP Integrity NonStop NS5000T and NS5000CG Servers are high-performance servers in the Integrity NonStop product family tailored for the telecommunications industry. Integrity NonStop NS5000 servers are powered by Intel® Itanium® 2 processors that deliver almost twice the performance level of the HP NonStop S88000SE Server.

The Integrity NonStop NS5000T and NS5000CG Servers are based on the HP NonStop Value Architecture (NSVA) and add a new option in price/performance levels while maintaining high levels of availability and providing industry-standard data integrity. These new servers also exploit the traditional advantage of NonStop servers with fully integrated hardware and software, which provide application availability and fault tolerance right out of the box.

Both Integrity NonStop NS5000T and NS5000CG Servers are identical in architecture, scalability, availability, and data integrity. The difference between the two models is based on the system cabinet.

The HP Integrity NS5000T Server provides a scalable system for the -48 VDC environment, while the Integrity NonStop NS5000CG Server is designed to meet the rigorous standards set for equipment used in telecommunications central office environments, with features such as a rugged design, -48 VDC power and a three-stage alarm interface. It complies with Bellcore's Network Equipment Building System (NEBS) generic equipment requirements and can withstand extremes in operating conditions such as power outages, fluctuations in ambient temperatures, and earthquakes.

HP Integrity NonStop servers offer the highest levels of service of any platform, while extending the framework of the HP Adaptive Enterprise and complex business applications.

Easy expansion

As your business needs increase, you can easily expand either the Integrity NS5000T or the NS5000CG Server: A single server can be scaled from 2 to 16 processors, and as many as 4,080 processors can be linked in a worldwide network. Integrity NonStop servers are leaders in scalability. The integrated hardware, operating system, and database stack not only provide for the ultimate in scalability but also contribute to a server platform with the highest built-in reliability, availability, and serviceability (RAS) levels in the industry.

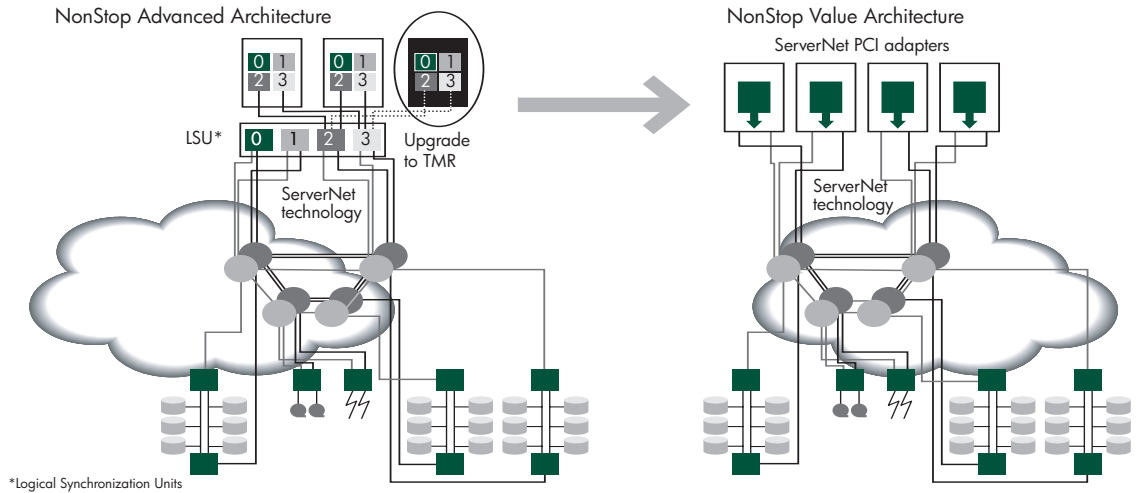
In situations where there is an increased need for availability and a more stringent data integrity requirement, applications developed and deployed on Integrity NonStop NS5000 servers can be moved to the Integrity NonStop NS16000CG Server with no modification.

The Integrity NonStop NS5000CG Server is designed to meet the requirements of telecommunications central office environments, but is also appropriate for other industries or applications that depend on exceptionally high system availability. It is ideal for use in geographic regions where power fluctuations, elevated temperatures, or earthquakes are common occurrences.

Key features of Integrity NonStop NS5000T and NS5000CG Servers

- Standards-based architecture utilizing the latest Itanium processor technology, the Itanium 2 processors at 1.6 GHz
- Integrated hardware and software enables application fault tolerance out of the box, delivering the highest built-in RAS levels in the industry
- The HP NonStop Value Architecture (NSVA) offers NonStop system availability (at a five 9s level)
- A flexible platform for either –48 VDC power or carrier-grade environments, with a choice of application architectures and management tools
- Ease of upgrade to future generations of Intel Itanium processors
- Designed and built to last, extending the tradition of offering systems with average system uptimes measured in years, with no unscheduled downtime
- Complete application compatibility with previous generations of the NonStop server platform

NonStop Advanced Architecture (NSAA) compared to NonStop Value Architecture (NSVA)



Key benefits of Integrity NonStop servers

- Support telecommunication business interactions with the highest levels of service
- Provide leading integrated virtual application environment, allowing for ease of resource enhancement
- Offer lowest TCO for complex mission-critical applications
- Provide a solid foundation to leverage and capitalize on change
- Supply a flexible platform tailored for dynamic business environments
- Offer one-stop accountability and a complete portfolio for the best solution
- Provide flexible financing options and services enhanced for 100 percent application availability
- Provide unmatched expertise through HP Services
- Supply a complete range of support offerings from e-support through mission-critical support, plus education services
- Provide a trusted platform for world-class partnerships to meet your complete solution requirements
- Enable investment protection in previous generations of NonStop server-based applications

Additional choice

With the Integrity NonStop NS5000T and NS5000CG Servers, HP introduces a new option for the telecommunications industry in NonStop Value Architecture (NSVA) servers that provide high levels of application availability and industry-standard data integrity. This new server also exploits the traditional advantage of NonStop servers with fully integrated hardware and software, which provide application availability and fault tolerance right out of the box.

The NSVA offers fault tolerance and availability similar to existing NonStop S-series servers but with better price/performance. The Integrity NonStop NS5000 servers use industry standards by incorporating Intel Itanium 2 processor technology into the NonStop architecture.

Customers not only have the advantage of the world's most available system—now with even greater levels of resilience—they also have an innovative microprocessor technology that can target multiple levels of the demands of complex business applications with improved price/performance.

As business needs evolve and demand grows, Integrity NonStop NS5000 servers are designed to support complex application requirements. Systems can start out with as few as 2 Itanium processors, and grow to 16 processors.

The NSVA of the Integrity NonStop NS5000 servers does not use the NSAA hardware elements such as the Logical Synchronization Unit (LSU), and there is no Dual Modular Redundancy (DMR) or Triple Modular Redundancy (TMR) option. There is a single logical processor in the NSVA architecture, as opposed to two or three logical processors in the NSAA architecture. However, NSVA is still an N + 1 architecture, meaning that the other processors in the cluster can take over when one processor fails using NonStop operating system software. HP ServerNet fabric connectivity from the processors is provided by a ServerNet from PCI adapter.

The NonStop software architecture remains the same in the Integrity NonStop NS5000 server as in other Integrity NonStop servers, providing support for fault tolerance. Therefore, the NSVA provides the same software fault tolerance as the other servers in the product family.

Manageability is designed into Integrity NonStop servers, not added later. Advanced manageability features are delivered right out of the box, even for the most demanding workloads. You can manage large applications with a single system image. Availability features are built in and automatically configured. No complex reconfiguring is required.

Ultimately, with Integrity NonStop servers, HP is delivering an architecture with value-added innovation by using industry-standard servers and NonStop software fault tolerance.

Support of the Signaling System 7 protocol

For Intelligent Network (IN) applications, HP provides via the HP OpenCall Intelligent Network Server software several interfaces between the Integrity NonStop NS5000T and NS5000CG Servers and Signaling System 7 (SS7) networks. The available SS7 protocols all offered on the Tigereye III controller include:

- Channelized T1/E1 low-speed links
- SS7 over ATM (SAAL) on T1/E1 high-speed links (HSLs)
- Unchannelized T1/E1 HSLs (also called clear-channel)
- SS7 over IP/M3UA (SIGTRAN)

Compliance for MTP, SCCP, TCAP, and ISUP protocol layers is per ITU-T White Book and the ANSI Issue 3 standards. Support for China and Japan TTC SS7 standards is also provided.

HP Services

HP's end-to-end Service Solutions built on the Solution Lifecycle (SLC) process, offers consistent quality and service levels for the Integrity NonStop servers. The SLC process helps achieve rapid productivity and maximum availability by examining specific needs at each of five distinct phases (Plan, Design, Integrate, Install and Manage) and then designing solutions around those needs. We offer three different Service Solutions designed to meet customer needs. They are:

HP Critical Service Solution

- Startup and Deployment Services—build the solution to your exact specifications, complete the installation, and make the solution application-ready.
- Assessment and Design services—define requirements and translate your business and technical needs into a solution that melds the necessary hardware and software
- Deployment Management—upfront project coordination from HP
- Education Services—training curriculums relevant to needs and existing expertise based upon a needs analysis
- HP Critical Service—comprehensive ongoing support designed to help minimize the business impact of downtime for mission-critical applications

HP Proactive Service Solution

- Startup and Deployment Services
- HP Proactive 24 Service—integrated hardware and software support, including proactive and reactive services to improve stability and availability across your IT environment

HP Foundation Service Solution

- Startup and Deployment Services
- HP Support Plus 24 Service—integrated hardware and software support services designed specifically for your technology.

For more information: www.hp.com/services/nonstop

Technical specifications HP Integrity NonStop NS5000T and NS5000CG Servers

Processors	2–16 processors per node Intel Itanium 2 processors, 1.6 GHz
Cache	3 MB L3
RAM	
Minimum	4 GB
Maximum	8 GB
NonStop S-series I/O enclosure	4 adapter slots per enclosure 16 disk slots per enclosure Up to 24 NonStop S-series I/O enclosures per node

Specifications HP Integrity NonStop NS5000T Server

Physical dimensions for Integrity NonStop NS5000T Server 42U cabinet with front door

Weight	
Cabinet maximum payload	907.2 kg (2,000 lb)
Cabinet weight (empty)	137.44 kg (303 lb)
Shipping pallet and package	40.8 kg (90 lb)
Height (cabinet)	199.9 cm (78.7 in)
Width (cabinet)	60.96 cm (24 in)
Depth (cabinet)	111.76 cm (44 in)
Floor space requirements	
Front (appearance side)	91.4 cm (36 in) minimum; 130 cm (51.2 in) recommended
Rear (service side)	91.4 cm (36 in) minimum; 130 cm (51.2 in) recommended
Aisles	182.9 cm (72 in) minimum; 260 cm (102.4 in) recommended
Height (palletized)	219.0 cm (86.22 in)
Width (palletized)	81.28 cm (32.0 in)
Depth (palletized)	132.08 cm (52.0 in)

Environment

Temperature	
Operating range	5°C to 35°C (41°F to 95°F)
Nonoperating (72 hrs)	-40°C to 66°C (-40°F to 150°F)
Nonoperating (6 mo.)	-29°C to 55°C (-20°F to 131°F)

Relative humidity	
Operating	15% to 80%, noncondensing
Nonoperating	0% to 80%, noncondensing

Power dissipation (power on both lines)	
1.6 GHz processor, 4 GB memory	1,058 Btu/hr (310 W)
1.6 GHz processor, 8 GB memory	1,090 Btu/hr (319 W)
2 processor 4 GB server (1 cabinet)	10,284 Btu/hr (2,144 W)
4 processor 4 GB server (2 cabinets)	13,526 Btu/hr (2,764 W)

Altitude	
Maximum operating	3,048 m (10,000 ft)
Temperature derating factor	1°C per 305 m above 1,800 m (1.8°F per 1,000 ft above 5,900 ft)
Acoustic noise	70 dBA (maximum operation)
System cabling	Designed to accommodate top-down cabling using either cable grid work or cable trays installed on tops of cabinets. Design will also accommodate underfloor cabling system if cabinets are installed on a conventional computer room raised floor.

DC input voltage	
Nominal value: server cabinet	-48 VDC
Operating range: server cabinet	-40 to -72 VDC

Circuit breaker rating (system)¹	
Integrity NonStop NS5000T Server cabinet	No cabinet circuit breaker is included. Instead, there is a single fuse panel per cabinet. Each Integrity NonStop NS5000T Server fuse panel requires a customer-provided 100 A magnetic circuit breaker with slow trip curve.
NonStop S-series CO I/O enclosure	NonStop S-series I/O enclosure has one 80 A magnetic circuit breaker with medium trip curve. Each NonStop S-series I/O enclosure in the Integrity NonStop NS5000T Server cabinet requires a customer-provided 100 A magnetic circuit breaker with slow trip curve.

Note: The Integrity NonStop NS5000T Server does not comply with Bellcore NEBS requirements for seismic Zone 4 standards.

¹ Electrical rating of protection provided by the system.

Specifications

HP Integrity NonStop NS5000CG Server

Physical dimensions for Integrity NonStop NS5000CG Server 43U cabinet with front door

Weight

Cabinet maximum payload	907.2 kg (2,000 lb)
Cabinet weight (empty)	272.2 kg (600 lb)
Shipping pallet and package	38.6 kg (85 lb)

Height (cabinet) 213.4 cm (84 in)

Width (cabinet) 68.6 cm (27 in)

Depth (cabinet) 91.44 cm (36 in)

Floor space requirements

Front (appearance side)	91.4 cm (36 in) minimum; 130 cm (51.2 in) recommended
Rear (service side)	91.4 cm (36 in) minimum; 130 cm (51.2 in) recommended
Aisles	182.9 cm (72 in) minimum; 260 cm (102.4 in) recommended

Height (palletized) 231.1 cm (91 in)

Width (palletized) 92.7 cm (36.5 in)

Depth (palletized) 109.22 cm (43.0 in)

Environment

Temperature

Operating range	5°C to 35°C (41°F to 95°F)
Nonoperating (72 hrs)	-40°C to 66°C (-40°F to 150°F)
Nonoperating (6 mo.)	-29°C to 55°C (-20°F to 131°F)

Physical dimensions for Integrity NonStop NS5000CG Server 36U cabinet with front door

Weight

Cabinet maximum payload	907.2 kg (2,000 lb)
Cabinet weight (empty)	254.1 kg (560 lb)
Shipping pallet and package	38.6 kg (85 lb)

Height (cabinet) 182.9 cm (72 in)

Width (cabinet) 68.6 cm (27 in)

Depth (cabinet) 91.44 cm (36 in)

Floor space requirements

Front (appearance side)	91.4 cm (36 in) minimum; 130 cm (51.2 in) recommended
Rear (service side)	91.4 cm (36 in) minimum; 130 cm (51.2 in) recommended
Aisles	182.9 cm (72 in) minimum; 260 cm (102.4 in) recommended

Height (palletized) 200.7 cm (79 in)

Width (palletized) 92.7 cm (36.5 in)

Depth (palletized) 109.22 cm (43.0 in)

Environment

Temperature

Operating range	5°C to 35°C (41°F to 95°F)
Nonoperating (72 hrs)	-40°C to 66°C (-40°F to 150°F)
Nonoperating (6 mo.)	-29°C to 55°C (-20°F to 131°F)

Specifications (continued) HP Integrity NonStop NS5000CG Server

Relative humidity

Operating	15% to 80%, noncondensing
Nonoperating	10% to 80%, noncondensing

Power dissipation (power on both lines)

1.6 GHz processor, 4 GB memory	1,058 Btu/hr (310 W)
1.6 GHz processor, 8 GB memory	1,090 Btu/hr (319 W)
2 processor 4 GB server (1 cabinet)	10,284 Btu/hr (2,144 W)
4 processor 4 GB server (2 cabinets)	13,526 Btu/hr (2,764 W)

Altitude

Maximum operating	0 to 3,048 m (10,000 ft)
Temperature derating factor	1°C per 305 m above 1,800 m (1.8°F per 1,000 ft above 5,900 ft) derating factor
Acoustic noise	70 dBA (maximum operation)
System cabling	Designed to accommodate top-down cabling using either cable grid work or cable trays installed on tops of cabinets. Design will also accommodate underfloor cabling system if cabinets are installed on a conventional computer room raised floor.

DC input voltage

Nominal value: server cabinet	-48 VDC
Operating range: server cabinet	-40 to -72 VDC

Circuit breaker rating (system)¹

Integrity NonStop NS5000CG Server cabinet	No cabinet circuit breaker is included. Instead, there is a single fuse panel per cabinet. Each Integrity NonStop NS5000CG Server fuse panel requires a customer-provided 100 A magnetic circuit breaker with slow trip curve.
NonStop S-series CO I/O enclosure	NonStop S-series I/O enclosure has one 80 A magnetic circuit breaker with medium trip curve. Each NonStop S-series I/O enclosure in the Integrity NonStop NS5000T Server cabinet requires a customer-provided 100 A magnetic circuit breaker with slow trip curve.

Note: The Integrity NonStop NS5000CG Server complies with Bellcore NEBS requirements for seismic Zone 4 upper-floor standards when bolted to concrete floor.

¹ Electrical rating of protection provided by the system.

For more information

For more information about HP Integrity NonStop NS5000T and NS5000CG Servers, visit www.hp.com/go/integritynonstop.

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