

Family guide

HP Integrity servers



Achieve mission-critical results



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When you need continuous business

We all live and work in a new era of extreme business speed with heightened customer, partner, and employee expectations. To better compete and grow, businesses demand more innovation, speed, flexibility, and availability from their data centers. This puts the pressure squarely on IT to deliver new applications and services quickly, while also paving the way for future innovation.

Business environments keep changing because of technological improvements, shifts in customer expectations, and new market trends such as cloud, Big Data, and user mobility. What never changes is the need for resilient, reliable business technology platforms that enable enterprises to quickly adapt and, at the same time, keep their core-business processes and customer-facing interactions running without missing a beat.

The real-world impact of hardware or software failure can be significant. From financial transactions to supply-chain operations to 911 calls—if the job doesn't get done it can mean lost revenue, lost customers, or even lost lives. And if it makes the news, it can mean disastrous publicity and lost reputation.

That is the essence of the value HP Integrity servers deliver to customers—an unparalleled portfolio of resilient systems that ensure continuous business for mission-critical environments.

HP delivers a “Mission-Critical Continuum” which is defined by customer requirements that vary from one customer to the next. And the power of the HP Integrity portfolio is that customers can choose the best platform—from scale-up x86 systems to HP Integrity servers and HP Integrity NonStop servers powered by Intel® Itanium® processors.

Finally, the HP Integrity portfolio is designed for longevity—decoupling resources (people) and applications (software) from the inevitable business changes.

Clearly, the history of excellence for HP-UX, HP NonStop, and HP OpenVMS is unparalleled in the industry. Our customers are loyal because they value what our technology does for them. HP makes it matter.

HP Mission-Critical Converged Infrastructure

As the foundation of the HP Mission-Critical Converged Infrastructure, HP Integrity servers are:

- Dynamic—built-in integration of virtualization and management software to optimize IT infrastructure dynamically
- Always on—integrated by design for availability to ensure your mission-critical workloads are always-on and secure, without compromise
- Unified—a single management interface allows for seamless management within a common bladed infrastructure
- Enduring—robust and stable operating environments powering the core of mission-critical applications today, and for many years to come

Deliver mission-critical results with HP Integrity and HP-UX

Our lineup of HP Integrity servers blends HP BladeSystem efficiency with HP Integrity resiliency. To increase longevity and protect your investment, we have designed these servers to support the latest generation of Intel Itanium processors.

HP Integrity Superdome 2 is the ultimate mission-critical platform, scaling up, out, and within, to allow you to consolidate applications on a common platform. Engineered with trusted HP Integrity Superdome reliability, Superdome 2 has a modular bladed design, common components, and standard racks. Some of the unique innovations from HP are designed to boost infrastructure reliability with self-diagnosing, self-healing features built right into the heart of the system.

The HP Integrity BL860c i4 Server Blade, HP Integrity BL870c i4 Server Blade, and HP Integrity BL890c i4 Server Blade are flexible and versatile two-, four-, and eight-socket systems that are ideal for your mission-critical enterprise applications. With support for hard partitioning (HP nPars), HP-UX Virtual Partitions (HP-UX vPars), and HP Integrity Virtual Machines, these HP Integrity server blades give you mission-critical levels of virtualization, availability, and flexibility. Additionally, embedded HP Virtual Connect FlexFabric offers increased network scalability and configuration flexibility while reducing infrastructure costs by converging LAN and SAN traffic on the same connection. With wire-once connectivity, IT administrators can manage all subsequent “rewiring” virtually, significantly reducing cabling. These HP Integrity server blades feature the unique HP Blade Link technology, which combines multiple blades to create two-, four-, and eight-socket systems—providing greater scalability and flexibility.

HP Integrity rx2800 i4 Server, a reliable and secure 2U two-socket rack server, is a great fit for branch offices and data centers supporting a range of mission-critical workloads. With up to 3X performance,¹ 21 percent less energy consumption,² and 33 percent lower TCO,³ the rx2800 i4 Server does more with less. The HP Integrity rx2800 i4 offers exceptional flexibility, including tower configurations with improved acoustics for deployment in infrastructure-challenged office environments.

HP Integrity servers enable workload consolidation and software licensing cost savings through HP-UX Virtualization, while HP Insight software and HP Integrated Lights-Out 3 (iLO 3) increase staff productivity. HP-UX 11i v3 and HP Serviceguard Support provide always-on resiliency and disaster recovery capability.

¹Based on HP internal benchmark conducted by HP internal labs calculating the efficiency of the operating system and underlying server hardware. Compares HP Integrity server based on the Intel Itanium processors 9500 series vs. HP Integrity server based on the Intel Itanium processors 9300 series. The new server delivered a result of 3.29X the performance of the previous generation, rounded to 3X, Houston (Texas, USA), August 2012.

²Based on published ENERGY STAR® Qualification data, Shenzhen (China), June 2012.

³HP Integrity rx2800 i4 servers vs. HP Integrity rx2800 i2 servers, Alinean TCO-ROI Calculator Report, October 2012.

HP-UX 11i v3

Learn more at hp.com/go/hpux

Because your business is always on

When you need continuous computing for operational workloads that are vital to the enterprise, HP-UX is the answer. As a highly-resilient and integrated UNIX® system, HP-UX delivers mission-critical availability, stability, and predictable performance. The built-in resiliency and self-healing features of the hardware and OS maximize uptime of your critical applications. Combining proven UNIX functionality with innovations in availability, virtualization, security, workload management, and instant capacity on demand, HP-UX enables you to increase your flexibility while reducing your risk and TCO. HP-UX is ideal for data-driven, core enterprise workloads like ERP, CRM, BI, billing, and core databases.

- Mission-critical application availability for continuous operations
- Stability and investment protection with decades of support
- Highly-integrated UNIX for dynamic and scalable availability
- Proven resiliency for the 24x7 global enterprise
- Predictable, real-world performance for resource-intensive workloads and large databases
- Flexible virtualization and scalability to quickly and easily meet changing demands
- End-to-end security that protects IT and ensures compliance
- Cloud-ready UNIX for workload flexibility and agile provisioning

HP Integrity servers and OpenVMS

Learn more at hp.com/go/openvms

Because your confidence matters

Many of the world's most-successful businesses trust and depend on HP OpenVMS and HP Integrity servers. With its combination of price/performance leadership, low TCO, scalability, high availability, and rock-solid security, OpenVMS is hard to beat. After all, HP OpenVMS and HP Integrity servers are built to exceed your expectations.

HP OpenVMS is a mainstay in environments that require bulletproof computing. Its great scalability, extreme availability, proven disaster tolerance, virtually impenetrable security, and extensive performance have been the hallmarks of this operating environment for industries such as financial services, telecommunications, manufacturing, healthcare, and government. HP OpenVMS is the operating environment of choice for many of the world's most-demanding enterprises, because it delivers these no-compromise attributes every day, year after year.

- Nearly 100 percent application availability
- Unyielding security
- Robust disaster tolerance
- Scalability to millions of users
- Steadfast reliability
- "Gold standard" clustering
- Guest on HP Integrity Virtual Machine (v4.3)

HP Integrity NonStop servers

Learn more at hp.com/go/nonstop

Because your customers never wait

If you have applications that require 100 percent availability, real-time, high-volume transaction processing, and exceptional security, our top-of-the-line HP Integrity NonStop BladeSystem and entry-level HP Integrity NonStop servers provide 24x7 application availability, right out of the box.⁴

- Continuous availability—delivering instant, continuous access to secure, accurate data
- Lowest TCO in class⁵—reducing complexity and operating costs
- Real-time database—handling high-volume transaction processing and data warehouse environments
- Data integrity—ensuring transaction integrity and reliable handling of data
- Massive scalability—enabling linear scaling without degradation
- Standard and modern—leveraging the economies of standards-based modular computing, modern software, and management applications
- End-to-end security—providing sophisticated protection of resources and data

HP CloudSystem Matrix with HP-UX

Learn about specific solution details at hp.com/go/missioncriticalcloudsystem or visit hp.com/go/cloudsystem for general information.

Achieve greater flexibility and resiliency by managing your mission-critical workloads in a secure private cloud

HP CloudSystem Matrix with HP-UX is architected to handle the broad spectrum of data center workload needs and is the ideal platform for building a private cloud and delivering infrastructure-as-a-service (IaaS). And it is the industry's only converged infrastructure with that capability. HP CloudSystem Matrix with HP-UX combines HP Integrity system's modular design and open standards with the Matrix Operating Environment infrastructure management built into HP-UX 11i v3 Virtualization Server OE (VSE-OE) and HP-UX 11i v3 Data Center OE (DC-OE) to deliver a change-ready infrastructure that can support all applications—from infrastructure to mission-critical—on a single platform.

With proven innovations like HP Virtual Connect and HP Systems Insight Manager (HP SIM), HP CloudSystem Matrix with HP-UX and HP Integrity servers allow you to provision your infrastructure and applications for your private cloud in minutes rather than months. This unique solution is optimized with HP-UX virtualization to handle your most demanding workloads, and fortified with Serviceguard and HP-UX security to protect application continuity. And you can extend it further by adding HP Cloud Service Automation software, which includes a self-service infrastructure portal for auto-provisioning, as well as built-in lifecycle management to enhance infrastructure, monitor applications, and offer uptime for your cloud and traditional IT.

⁴ Worldwide and U.S. High-Availability Server 2012–2016, IDC, September 2012.

⁵ HP offers the lowest TCO in its class for mission-critical applications, Richard Buckle (CEO), Pyalla Technologies, July 2011.

HP Integrity server blades for HP-UX

Flexible mission-critical server blades combined with the efficiency of HP BladeSystem to accelerate IT effectiveness



Integrity server blades	HP Integrity BL860c i4 Server Blade	HP Integrity BL870c i4 Server Blade	HP Integrity BL890c i4 Server Blade
	Cost-effective mission-critical converged infrastructure—a versatile and expandable two-socket blade that is ideal for application-tier and transaction workloads, database, Java, and technical computing applications	Flexible mission-critical server blades, combined with the efficiency of HP BladeSystem—a four-socket server blade that is ideal for the database tier of multi-tiered enterprise applications such as SAP and Oracle enterprise applications	Scale up to meet the high demands of mission-critical computing with an 8-socket server blade—ideal for larger mission-critical workloads such as enterprise resource planning, customer relationship management, business intelligence, and large shared-memory applications
Processors supported	Intel Itanium processor 9500 series 2.53 GHz (8-core) with 32 MB shared last-level cache 2.13 GHz (8-core) with 24 MB shared last-level cache 2.40 GHz (4-core) with 32 MB shared last-level cache 1.73 GHz (4-core) with 20 MB shared last-level cache	Intel Itanium processor 9500 series 2.53 GHz (8-core) with 32 MB shared last-level cache 2.13 GHz (8-core) with 24 MB shared last-level cache 2.40 GHz (4-core) with 32 MB shared last-level cache 1.73 GHz (4-core) with 20 MB shared last-level cache	Intel Itanium processor 9500 series 2.53 GHz (8-core) with 32 MB shared last-level cache 2.13 GHz (8-core) with 24 MB shared last-level cache 2.40 GHz (4-core) with 32 MB shared last-level cache 1.73 GHz (4-core) with 20 MB shared last-level cache
Number of processors	1–2	2–4	4–8
Maximum number of cores	16	32	64
Operating systems supported Choice of Data Center, High Availability, Virtual Server, or Base OEs	HP-UX 11i v3	HP-UX 11i v3	HP-UX 11i v3
Maximum memory (cluster)	384 GB (24 x 16 GB)	768 GB (48 x 16 GB)	1.5 TB (96 x 16 GB)
I/O slots	3 mezzanine slots: 2 Type II and 1 Type I, PCI Express (PCIe) x8 Gen2	6 mezzanine slots: 4 Type II and 2 Type I, PCIe x8 Gen2	12 mezzanine slots: 8 Type II and 4 Type I, PCIe x8 Gen2
Internal hard disk drives	Up to 2	Up to 4	Up to 8
Management and virtualization	HP Systems Insight Manager (SIM) HP Integrity Integrated Lights-Out 3 (iLO 3) HP-UX Virtual Partitions (vPars)	HP SIM HP iLO 3 HP-UX vPars 1 or 2 HP nPartitions (nPars)	HP SIM HP iLO 3 HP-UX vPars 1–4 HP nPars
Form factor	8 blades in 10U; 4 blades in 6U	4 blades in 10U; 2 blades in 6U	2 blades in 10U; 1 blade in 6U

HP Integrity server blades for HP-UX (continued)

Flexible mission-critical server blades combined with the efficiency of HP BladeSystem to accelerate IT effectiveness

Storage	Disk	HP 3PAR StoreServ 10000, 7450 and 7000 Storage HP XP P9500 Storage HP EVA P6000 Storage HP StoreAll Storage HP StoreEasy Storage HP StoreVirtual 4000 Storage HP MSA P2000 Storage HP MDS600 Disk Enclosure	HP 3PAR StoreServ 10000, 7450 and 7000 Storage HP XP P9500 Storage HP EVA P6000 Storage HP StoreAll Storage HP StoreEasy Storage HP StoreVirtual 4000 Storage HP MSA P2000 Storage HP MDS600 Disk Enclosure	HP 3PAR StoreServ 10000, 7450 and 7000 Storage HP XP P9500 Storage HP EVA P6000 Storage HP StoreAll Storage HP StoreEasy Storage HP StoreVirtual 4000 Storage HP MSA P2000 Storage HP MDS600 Disk Enclosure
	Tape	HP StoreEver DAT Tape Drives HP StoreEver LTO Ultrium Tape Drives HP StoreEver Tape Autoloader HP StoreEver MSL Tape Libraries HP StoreEver ESL Tape Libraries	HP StoreEver DAT Tape Drives HP StoreEver LTO Ultrium Tape Drives HP StoreEver Tape Autoloader HP StoreEver MSL Tape Libraries HP StoreEver ESL Tape Libraries	HP StoreEver DAT Tape Drives HP StoreEver LTO Ultrium Tape Drives HP StoreEver Tape Autoloader HP StoreEver MSL Tape Libraries HP StoreEver ESL Tape Libraries
Software	HP Matrix OE for HP-UX HP Serviceguard Solutions	HP Matrix OE for HP-UX HP Serviceguard Solutions	HP Matrix OE for HP-UX HP Serviceguard Solutions	
Recommended services	Support	HP Critical Service HP Proactive 24 Service HP Support Plus 24 Service	HP Critical Service HP Proactive 24 Service HP Support Plus 24 Service	HP Critical Service HP Proactive 24 Service HP Support Plus 24 Service
	Installation	HP Installation and Startup	HP Installation and Startup	HP Installation and Startup
	Other services	HP Startup Integrity Blade Infrastructure Service HP Enhanced Network I&S for BladeSystem Switches HP Startup VSE Global Workload Manager (gWLM) w/VM Service HP Cluster Consistency 2–3 Node Cluster Service HP Serviceguard Implementation—HP-UX	HP Startup Integrity Blade Infrastructure Service HP Enhanced Network I&S for BladeSystem Switches HP Startup VSE Global Workload Manager (gWLM) w/VM Service HP Cluster Consistency 2–3 Node Cluster Service HP Serviceguard Implementation—HP-UX	HP Startup Integrity Blade Infrastructure Service HP Enhanced Network I&S for BladeSystem Switches HP Startup VSE Global Workload Manager (gWLM) w/VM Service HP Cluster Consistency 2–3 Node Cluster Service HP Serviceguard Implementation—HP-UX
Hardware options	HP Fibre Channel adapters InfiniBand adapters	HP Fibre Channel adapters InfiniBand adapters	HP Fibre Channel adapters InfiniBand adapters	

HP Integrity rack servers for HP-UX

Re-energize your branch office and rack server infrastructure



Integrity rack servers	HP Integrity rx2800 i4 Server Ideal for branch offices and data centers with UNIX workloads such as business processing, OLTP, system management, application tier, security, and industrial R&D	
Processors supported	Intel Itanium processor 9500 series 2.53 GHz (8-core) with 32 MB shared last-level cache 2.13 GHz (8-core) with 24 MB shared last-level cache 2.40 GHz (4-core) with 32 MB shared last-level cache 1.73 GHz (4-core) with 20 MB shared last-level cache	
Number of processors	1–2	
Maximum number of cores	16	
Operating systems supported	HP-UX 11i v3 Choice of Data Center, High Availability, Virtual Server, or Base OEs	
Maximum memory cluster	384 GB (24 x 16 GB), DDR3 Low-Voltage (1.35V) Memory	
I/O slots	Maximum support of 6 I/O slots with 2 three-slot PCIe riser cards; two-slot PCIe riser cards are also supported	
Internal hard disk drives	Up to 8	
Management and virtualization	HP Systems Insight Manager (SIM) HP Integrity Integrated Lights-Out 3 (iLO 3) HP-UX Virtual Partitions (vPars) HP Integrity Virtual Machines (VMs)	
Rack height (EIA unit)	2U rack, tower with pedestal kit or office-friendly server (desk side) with reduced acoustics	
Storage	Disk HP 3PAR StoreServ 10000, 7450, and 7000 Storage HP XP P9500 Storage HP EVA P6000 Storage HP StoreAll Storage HP StoreEasy Storage HP StoreVirtual 4000 Storage HP MSA P2000 Storage HP D2000 Disk Enclosures HP MDS600 Disk Enclosures	Tape HP StoreEver DAT Tape Drives HP StoreEver LTO Ultrium Tape Drives HP StoreEver MSL Tape Libraries HP StoreEver Tape Autoloader HP StoreEver ESL Tape Libraries
Software	HP Matrix OE for HP-UX HP Serviceguard Solutions	

HP Integrity rack servers for HP-UX (continued)

Re-energize your branch office and rack server infrastructure

Recommended services**Support**

HP Proactive 24 Service
HP Support Plus 24 Service

Installation

HP Installation and Startup

Other services

HP Proactive Select menu
HP Startup Virtual Machine Service
HP Serviceguard Implementation—HP-UX
HP Serviceguard Installation and Startup Service
HP Startup Integrity 2-socket server service

Hardware options

Ethernet and Fibre Channel multifunction (combo) adapters
10 Gb/s converged network adapters
1 Gb/s and 10 Gb/s network adapters
4 Gb/s and 8 Gb/s Fibre Channel host bus adapters
6 Gb/s Serial-Attached SCSI (SAS) Smart Array Controllers
Quad Data Rate (QDR) 4X InfiniBand host channel adapters
HP Integrity rx2800 i2 2D Graphics Adapter
6G SAS solid state drives and hard disk drives
Trusted platform module (TPM)

HP Integrity Superdome 2 for HP-UX

The flagship server in the HP Mission-Critical Converged Infrastructure—ideal for high-end consolidation, availability, and resiliency



Integrity Superdome 2	HP Superdome 2-8s	HP Superdome 2-16s	HP Superdome 2-32s
	Entry point for HP Superdome-class reliability and flexibility	Modular, flexible building block for HP Superdome 2, with expanded scalability for enterprise applications	Expanded scalability, performance, and ease of management, including the innovative HP Superdome 2 cabinet with programmable status display
Processors supported	Intel Itanium processor 9500 series 2.53 GHz (8-core) with 32 MB shared last-level cache 2.13 GHz (8-core) with 24 MB shared last-level cache	Intel Itanium processor 9500 series 2.53 GHz (8-core) with 32 MB shared last-level cache 2.13 GHz (8-core) with 24 MB shared last-level cache	Intel Itanium processor 9500 series 2.53 GHz (8-core) with 32 MB shared last-level cache 2.13 GHz (8-core) with 24 MB shared last-level cache
	Intel Itanium processor 9300 series 1.73 GHz (4-core) with 24 MB shared last-level cache 1.60 GHz (4-core) with 20 MB shared last-level cache	Intel Itanium processor 9300 series 1.73 GHz (4-core) with 24 MB shared last-level cache 1.60 GHz (4-core) with 20 MB shared last-level cache	Intel Itanium processor 9300 series 1.73 GHz (4-core) with 24 MB shared last-level cache 1.60 GHz (4-core) with 20 MB shared last-level cache
Number of processors	2–16	2–16	2–32
Maximum number of cores	128	128	256
Scalable processor chipset	sx3000	sx3000	sx3000
Operating systems supported Choice of Data Center, High Availability, Virtual Server, or Base OEs	HP-UX 11i v3	HP-UX 11i v3	HP-UX 11i v3
Maximum memory (cluster)	4 TB DDR3 (256 x 16 GB)	4 TB DDR3 (256 x 16 GB)	8 TB DDR3 (512 x 16 GB)
External I/O slots	48 external PCIe x8 Gen2	96 external PCIe x8 Gen2	96 external PCIe x8 Gen2
Built-in I/O	32 10GbE ports Pass-through or switch interconnect module	32 10GbE ports Pass-through or switch interconnect module	64 10GbE ports Pass-through or switch interconnect module
Form factor	18U enclosure 4U I/O expansion enclosure HP Intelligent Series Racks 600 mm wide in both 36U and 42U heights Standard rack door	18U enclosure 4U I/O expansion enclosure HP Intelligent Series Racks 600 mm wide in both 36U and 42U heights HP Superdome 2 door with active display	2 18U enclosures in single 19-inch rack 4U I/O expansion enclosure HP Intelligent Series Racks 600 mm wide in both 36U and 42U heights HP Superdome 2 door with active display

HP Integrity Superdome 2 for HP-UX (continued)

The flagship server in the HP Mission-Critical Converged Infrastructure—ideal for high-end consolidation, availability, and resiliency

Storage	Disk	HP 3PAR StoreServ 100000, 7450 and 7000 Storage HP XP P9500 Storage HP EVA P6000 Storage HP StoreAll Storage HP StoreEasy Storage HP StoreVirtual 4000 Storage HP MSA P2000 Storage HP D2000 Disk Enclosures HP MDS600 Disk Enclosures	HP 3PAR StoreServ 100000, 7450 and 7000 Storage HP XP P9500 Storage HP EVA P6000 Storage HP StoreAll Storage HP StoreEasy Storage HP StoreVirtual 4000 Storage HP MSA P2000 Storage HP D2000 Disk Enclosures HP MDS600 Disk Enclosures	HP 3PAR StoreServ 100000, 7450 and 7000 Storage HP XP P9500 Storage HP 10000/12000/20000/24000 Storage HP EVA P6000 Storage HP StoreAll Storage HP StoreEasy Storage HP StoreVirtual 4000 Storage HP MSA P2000 Storage HP D2000 Disk Enclosures HP MDS600 Disk Enclosures
	Tape	HP StoreEver DAT Tape Drives HP StoreEver LTO Ultrium Tape Drives HP StoreEver Tape Autoloader HP StoreEver MSL Tape Libraries HP StoreEver ESL Tape Libraries	HP StoreEver DAT Tape Drives HP StoreEver LTO Ultrium Tape Drives HP StoreEver Tape Autoloader HP StoreEver MSL Tape Libraries HP StoreEver ESL Tape Libraries	HP StoreEver DAT Tape Drives HP StoreEver LTO Ultrium Tape Drives HP StoreEver Tape Autoloader HP StoreEver MSL Tape Libraries HP StoreEver ESL Tape Libraries
Software	HP-UX OEs: Base OE, Virtual Server OE, High Availability OE, Data Center OE, including various levels of HP-UX HP Serviceguard high availability and disaster recovery solutions Virtualization System management Storage management Security Development and performance tools Networking and Internet services Utility pricing	HP-UX OEs: Base OE, Virtual Server OE, High Availability OE, Data Center OE, including various levels of HP-UX HP Serviceguard high availability and disaster recovery solutions Virtualization System management Storage management Security Development and performance tools Networking and Internet services Utility pricing	HP-UX OEs: Base OE, Virtual Server OE, High Availability OE, Data Center OE, including various levels of HP-UX HP Serviceguard high availability and disaster recovery solutions Virtualization System management Storage management Security Development and performance tools Networking and Internet services Utility pricing	
Recommended services	Support	HP Critical Service HP Proactive 24 Service	HP Critical Service HP Proactive 24 Service	HP Critical Service HP Proactive 24 Service
	Installation	HP Factory Express Services HP Installation and Startup	HP Factory Express Services HP Installation and Startup	HP Factory Express Services HP Installation and Startup
Hardware options	HP iCAP and TiCAP processors HP Lights Out Advanced KVM Card	HP iCAP and TiCAP processors HP Lights Out Advanced KVM Card	HP iCAP and TiCAP processors HP Lights Out Advanced KVM Card	

HP OpenVMS

“Because your confidence matters”

HP OpenVMS has successfully answered critical business challenges for more than 35 years—and the reasons to deploy it now have never been more compelling. Besides having the ability to manage massive volumes of information instantly, reliably, and securely, HP OpenVMS enables your environment to capitalize on innovations in business continuity, security, IT consolidation, and simplified management.

HP OpenVMS makes sound business sense. Running OpenVMS clusters on HP Integrity servers can offer a significantly lower TCO.



HP Integrity servers for OpenVMS	HP Integrity rx2800 i2 Server	HP Integrity BL860c i2 Server Blade	HP Integrity BL870c i2 Server Blade	HP Integrity BL890c i2 Server Blade
	Ideal for branch offices and data centers with HP OpenVMS workloads such as business processing, OLTP, system management, application tier, security, and industrial R&D	Cost-effective mission-critical converged infrastructure—a versatile and expandable two-socket blade that is ideal for application tier and database	Flexible mission-critical server blades, combined with the efficiency of HP BladeSystem—a four-socket server blade that is ideal for the database tier of multi-tiered enterprise applications	Scale up to meet the high demands of mission-critical computing with an 8-socket server blade—ideal for larger mission-critical workload
Processors supported	Intel Itanium processor 9300 series 1.60 GHz (4-core) with 20 MB cache 1.33 GHz (4-core) with 16 MB cache 1.60 GHz (2-core) with 10 MB cache	Intel Itanium processor 9300 series 1.73 GHz (4-core) with 24 MB cache 1.60 GHz (4-core) with 20 MB cache 1.33 GHz (4-core) with 16 MB cache 1.60 GHz (2-core) with 10 MB cache	Intel Itanium processor 9300 series 1.73 GHz (4-core) with 24 MB cache 1.60 GHz (4-core) with 20 MB cache 1.33 GHz (4-core) with 16 MB cache 1.60 GHz (2-core) with 10 MB cache	Intel Itanium processor 9300 series 1.73 GHz (4-core) with 24 MB cache 1.60 GHz (4-core) with 20 MB cache 1.33 GHz (4-core) with 16 MB cache 1.60 GHz (2-core) with 10 MB cache
Number of processors	1–2	1–2	2–4	4–8
Maximum number of cores	8	8	16	32
Operating systems supported	HP OpenVMS v8.4	HP OpenVMS v8.4	HP OpenVMS v8.4	HP OpenVMS v8.4
Maximum memory (cluster)	384 GB (24 x 16 GB)	384 GB (24 x 16 GB)	768 GB (48 x 16 GB)	1.5 TB (96 x 16 GB)
Internal hard disk drives	Up to 8	Up to 2	Up to 4	Up to 8
Form factor	2U	8 blades in 10U; 4 blades in 6U	4 blades in 10U; 2 blades in 6U	2 blades in 10U; 1 blade in 6U

HP NonStop

The continuous-availability platform for the HP Mission-Critical Converged Infrastructure

The availability of a fully-virtualized integrated stack—hardware, operating system, database, software, and applications—provides the foundation that HP NonStop mission-critical customers continue to rely on. The proven reliability and virtually unlimited scalability of HP NonStop is enabled by the HP NonStop Operating System, which combines the scalability of shared-nothing, massively-parallel processing with industry-leading application availability, uncompromising data integrity, and support for key industry-standard application programming interfaces (APIs) and services.

HP NonStop is designed around this tightly-integrated hardware and software architecture that combines hardware fault tolerance and software process-pair fault tolerance to deliver the very highest availability level.

Ultra-robust servers that deliver 24x7 continuous availability, unrivaled data integrity, and virtually unlimited scalability—ideal for demanding, transaction-intensive applications.



HP NonStop	HP Integrity NonStop NS2100 Entry-class, high level of availability and data integrity in a cost-effective commercial server	HP Integrity NonStop NS2200 Excellent price-performance, software fault-tolerant solution for small to mid-size enterprises	HP Integrity NonStop BladeSystem NB5400c Industry-leading 24x7 availability, scalability, and data integrity with a high level of performance
Processors supported	Intel Itanium processor 9300 series 1.33 GHz (4-core) with 16 MB shared last-level cache	Intel Itanium processor 9300 series 1.33 GHz (4-core) with 16 MB shared last-level cache	Intel Itanium processor 9300 series 1.60 GHz (4-core) with 20 MB shared last-level cache
Number of processors	2–4	2–4	2–16 per node
Licensable cores per processor	1 (fixed)	2 (fixed)	2 or 4 (user option)
Clustering	Expand-over-IP	Expand-over-IP	HP NonStop BladeCluster Solution HP NonStop ServerNet clustering
Maximum number of logical processors per cluster	1020	1020	4080
Maximum memory (cluster)	32 TB	32 TB	256 TB
ServerNet processor connectivity	Versatile I/O (VIO)	Versatile I/O (VIO)	BladeSystem ServerNet switches
Operating systems supported	HP NonStop OS (J-series)	HP NonStop OS (J-series)	HP NonStop OS (J-series)
I/O infrastructure	IP Cluster I/O Module (CLIM), Storage CLIM, Telco CLIM	IP Cluster I/O Module (CLIM), Storage CLIM, Telco CLIM	IP Cluster I/O Module (CLIM), Storage CLIM, Telco CLIM, I/O Adapter Module Enclosure (IOAME)
Maximum IP Cluster I/O Modules (CLIM)	6	6	8
Maximum I/O Adapter Module Enclosure (IOAME) adapters	0	0	60
Maximum disk drives	200	200	3248 FC disks with all IOAME-based storage and IP connectivity; no CLIMs 2300 SAS disks with all CLIM-based storage and IP connectivity; no IOAME
Management	OSM, HP SIM, HP Insight Control for NonStop, HP NonStop Essentials, Web ViewPoint, ASAP, HP IT Performance Suite	OSM, HP SIM, HP Insight Control for NonStop, HP NonStop Essentials, Web ViewPoint, ASAP, HP IT Performance Suite	OSM, HP SIM, HP Insight Control for NonStop, HP NonStop Essentials, Web ViewPoint, ASAP, HP IT Performance Suite

HP NonStop (continued)

Rack height (EIA Unit)	36U to 42U	36U to 42U	42U
Telco options	None	NS2200T: -48V DC (commercial rack) NS2200ST: -48V DC (seismic rack)	NB54000c-cg: -48V DC Carrier Grade (seismic rack) NEBS Level 3 Certified
Storage	Internal (SAS) Hard Disk Drives 146 GB @ 15k rpm, and 300 GB @ 10k rpm Solid State Drive Single Level Cell (SLC) 6 Gb SAS 2.0 200 GB SFF	Hard Disk Drives 146 GB @ 15k rpm, and 300 GB @ 10k rpm Solid State Drive Single Level Cell (SLC) 6 Gb SAS 2.0 200 GB SFF	Hard Disk Drives 146 GB @ 15k rpm, and 300 GB @ 10k rpm Solid State Drive Single Level Cell (SLC) 6 Gb SAS 2.0 200 GB SFF Internal FC hard disk drives (300 GB @ 15k rpm)
	External HP XP P9500 HP XP 10000/12000/20000/24000	HP XP P9500 HP XP 10000/12000/20000/24000	HP XP P9500 HP XP 10000/12000/20000/24000
	Tape HP StoreEver ESL G3 Tape Library HP StoreEver DAT Tape Drives	HP StoreEver ESL G3 Tape Library HP StoreEver DAT Tape Drives	HP StoreEver ESL G3 Tape Library HP StoreEver DAT Tape Drives
Software	HP NonStop OS (J-series)	HP NonStop OS (J-series)	HP NonStop OS (J-series)
	Security System Management and control HP NonStop SQL Database HP NonStop Transaction Management Facility (NonStop TMF) HP NonStop Remote Database Facility (NonStop RDF)	System Management and control HP NonStop SQL Database HP NonStop Transaction Management Facility (NonStop TMF) HP NonStop Remote Database Facility (NonStop RDF)	System Management and control HP NonStop SQL Database HP NonStop Transaction Management Facility (NonStop TMF) HP NonStop Remote Database Facility (NonStop RDF)
	Middleware HP iTP WebServer, HP NonStop SOAP, HP NonStop Servlets for JavaServer Pages (JSP), HP Pathway with NonStop TS/MP Integrated Development Environments Modern Frameworks and Application development tools	HP iTP WebServer, HP NonStop SOAP, HP NonStop Servlets for JavaServer Pages (JSP), HP Pathway with NonStop TS/MP Integrated Development Environments Modern Frameworks and Application development tools	HP iTP WebServer, HP NonStop SOAP, HP NonStop Servlets for JavaServer Pages (JSP), HP Pathway with NonStop TS/MP Integrated Development Environments Modern Frameworks and Application development tools
Recommended services	Support HP Critical Service HP Proactive 24 Service HP Support Plus 24 Service	HP Critical Service HP Proactive 24 Service HP Support Plus 24 Service	HP Critical Service HP Proactive 24 Service HP Support Plus 24 Service
	Installation HP Installation and Startup	HP Installation and Startup	HP Installation and Startup

Complement your HP Integrity servers with more software, storage, services, and system options

To gain the full value from your investments, you also need intelligent software, advanced storage devices, expert services across the IT lifecycle, and system-enhancing options.

Software

Comprehensive solutions for the HP Integrity servers

HP-UX virtualization	HP Integrity Virtual Machines	Improves utilization by allowing several virtual machines to share a single processor core and I/O resources. Each virtual machine runs its own guest OS instance (HP-UX 11i and OpenVMS) and offers complete software isolation. Online migration is also available, allowing a running VM and its guest OS and applications to be moved to a different VM host without service interruption, OS reboot, or application restart. Online guest migration is supported for OpenVMS guests as well, only if the guest is not part of a OpenVMS cluster.
	HP Virtual Partitions (vPars)	Improves utilization by allowing multiple HP-UX instances to share one server or hard partition. Each vPar runs its own copy of HP-UX and offers complete software isolation. Granularity is down to one processor core. Processor cores and memory can be dynamically migrated.
	HP-UX Containers	Consolidate multiple workloads within a single HP-UX 11i v3 operating system image with the dynamic, shared resourcing of HP-UX Containers. Dedicate or share processor core and memory resources. Configure this type of shared O/S virtualization with highly granular security properties. Choose the type of container required: <ul style="list-style-type: none"> • Workload containers (for easiest ongoing manageability) • System containers (for easiest setup and sharing of system resources) • HP 9000 containers (to consolidate older HP 9000 workloads onto HP Integrity servers)
	HP Matrix Operating Environment for HP-UX	Advanced infrastructure management software that allows you to plan power and capacity continuously, provision infrastructure in minutes, and balance physical and virtual resources. The HP Matrix OE is integrated by design with virtualization and includes the following capabilities: <ul style="list-style-type: none"> • Capacity planning (HP Capacity Advisor): Easy-to-use and energy-aware tool for capacity planning, continuous analysis, and optimized workload placement. HP Smart Solver technology shows the excellent fits for your workloads. You can test various scenarios before you make any changes to your critical applications to align to your business needs. • Configuration management: Reduces complexity by providing unified visualization and management of physical and virtual servers. It enables you to graphically visualize and configure how your virtual resources are being used and how they map to your physical infrastructure. • Workload management (HP Global Workload Manager): Allocates server resources automatically so that the highest-priority applications get the resources they need. Designed for multisystem HP Integrity server environments, it is ideal for large, centralized IT environments that host applications for many departments. • Infrastructure orchestration: Lets you provision infrastructure in minutes to automatically activate physical servers, storage, and networking from pools of shared resources.
HP-UX availability	HP Serviceguard	HP Serviceguard intelligently and dynamically moves IT services between servers in order to increase availability. These moves can be automatic, such as in response to a failure or threshold violation, or at your command, to avoid downtime when performing maintenance.
	HP Serviceguard Manager	Included with HP Serviceguard, HP Serviceguard Manager provides GUI-based management of HP Serviceguard products, including the creation, modification, administration, and monitoring of clusters and packages.
	HP Serviceguard Toolkits and Extensions	Developed with and recognized by our partners, HP Serviceguard Toolkits and Extensions provide plug-and-play integration for all your mission-critical applications, to increase availability, performance, and disaster recovery capabilities. There is no need to create custom code for each application, which saves both time and effort, while helping to combat both planned and unplanned downtime.
	HP Serviceguard Disaster Recovery Solutions	HP Extended Distance Cluster, Metrocluster, and Continentalclusters provide the highest level of availability and business continuity for enterprise data centers over local and up to unlimited distances.
	HP Serviceguard Storage Management Suite	HP Serviceguard Storage Management Suite delivers improved availability, performance, and manageability for Oracle Database and Oracle RAC environments on HP-UX 11i. It achieves these enhancements by integrating HP Serviceguard with Veritas Storage Foundation technologies by Symantec. This suite of products also includes features that can speed data recovery from hours to minutes, improve manageability, and reduce storage costs.

Software (continued)

Comprehensive solutions for the HP Integrity servers

	HP Serviceguard Installation and Startup Service	This service provides time-tested processes for a seamless and successful deployment of the HP Serviceguard solution on an HP-UX system. This is scalable per customer requirements and provides the basic start up service, packaged implementation services which includes analysis and planning, implementation, and customer orientation sessions.
	HP Event Monitoring Service and HP Monitors	HP facilitates real-time monitoring and error detection for HP products in the enterprise environment. This framework provides centralized management of hardware devices and system resources, and provides immediate notification of hardware failures and system status.
HP-UX management	HP Systems Insight Manager	The foundation of HP Unified Management Portfolio. It helps maximize system uptime, reduces TCO, and provides powerful monitoring and control of multiple HP Integrity servers.
	HP Ignite-UX	Enables fast deployment of HP-UX 11i for one or many servers. It provides the means for creating and reusing standard system configurations, enables replication of systems, permits post-installation customization, and is capable of operating in both interactive and unattended modes.
	HP GlancePlus Pak software	Combines real-time diagnostic and monitoring capabilities with the ability to perform historical data collection and analysis. An ideal solution to manage the availability and performance of a single system while retaining valuable historical information for use with enterprise management products.
	HP Operations software for UNIX	Discovers, monitors, controls, and reports on the availability and performance of heterogeneous, large-scale IT environments. It consolidates information for all IT components—network, systems, storage, databases, and applications.
	HP Integrity iLO 3	Comes with advanced remote management built into the system management processor.
HP NonStop integrated stack	Modern application development environment	Integrated Development Environments (IDEs) make it easier for developers to create and maintain application programs. With that in mind, HP NonStop has invested in bringing modern environments and supporting tools to the NonStop developer community. The HP NonStop Development Environment for Eclipse (NSDEE) is an Eclipse plug-in that brings the industry standard Eclipse development environment onto NonStop. The Eclipse based development environment has the added advantage of making available thousands of third-party plug-ins to the NonStop developers. The PC based cross compilers provides flexibility and cost advantage for organizations to build NonStop applications on commodity PCs instead of using NonStop hosts.
	Modern application development tools	The HP NonStop build tools and compilers have been integrated into both the Microsoft® Visual Studio with the Enterprise Toolkit (ETK) NonStop Edition and into Eclipse with HP NonStop Development Environment for Eclipse (NSDEE).
	Middleware	<ul style="list-style-type: none"> • The HP NonStop server SOA product technologies provide the necessary capabilities for service access, invocation, and implementation in a standardized manner. • HP iTP WebServer software provides the HTTP and HTTPS protocol service for all the other SOA components. Built on the HP NonStop Transaction Services/MP (NonStop TS/MP) infrastructure, iTP WebServer software provides a fault-tolerant and scalable container for Web service execution, hosting both HP NonStop SOAP and HP NonStop Servlets for JSP components. • HP NonStop SOAP software supports the standard SOAP 1.2 protocol. The combination of iTP WebServer and HP NonStop SOAP software provides the standard SOAP over HTTP protocol for invoking SOA services on the HP Integrity NonStop server. • HP NonStop Servlets for JavaServer Pages (JSP) software is a fortified version of the Apache Tomcat Web container that exhibits HP NonStop availability and scalability while supporting the standard Java Platform Enterprise Edition specifications for servlets and server pages. • Servlets and JSP programming models. • HP Pathway with HP NonStop TS/MP is a middleware product that helps provide scalable and continuously available business critical server applications on HP Integrity NonStop and HP Integrity NonStop BladeSystem servers.
	Database	<ul style="list-style-type: none"> • HP NonStop SQL is the mainstream database product for the HP Integrity NonStop servers. HP NonStop SQL has been fundamentally architected as a clustered database system. The ANSI SQL-compliant HP NonStop SQL database can be accessed using Open Database Connectivity (ODBC) 3.0 and Java Database Connectivity (JDBC) Type 4 interfaces from Microsoft Windows® and Linux platforms.

Software (continued)

Comprehensive solutions for the HP Integrity servers

Transaction management	To ensure database integrity, the HP NonStop Operating System integrates closely with HP NonStop Transaction Management Facility (NonStop TMF) software, which provides distributed two-phase commit protection for global database changes across all affected HP NonStop servers.
Disaster tolerance	HP NonStop Remote Database Facility (NonStop RDF) software extends the HP Integrity NonStop server's legendary fault tolerance to disaster tolerance. By geographically dispersing HP NonStop systems, HP NonStop RDF software allows critical applications to survive a total site failure without specialized programming. HP NonStop RDF/Zero Lost Transactions (ZLT) software offers high-speed, low-latency transaction replication between HP NonStop servers and enables total data integrity for every transaction.
Simplified management and control	HP offers a comprehensive selection of manageability products and solutions that provide self-management capabilities that can be adapted to customer-specific environments. HP NonStop is managed by HP Systems Insight Manager (SIM), HP NonStop Essentials, HP IT Performance Suite and other enterprise and open source management solutions (Nagios, etc.) in heterogeneous enterprise environments as well as Serviceability products—Onboard Administrator (OA), Integrated Lights Out (iLO), Open System Management (OSM), HP Web ViewPoint-based products and the Performance Management Bundle.
Security	HP Safeguard security software provides flexible authentication, authorization, and audit services. Optional XYGATE Access Control and XYGATE User Authentication products have been added to the HP NonStop portfolio to extend HP Safeguard's capabilities and enhance on-platform security. The HP NonStop server includes HP NonStop SSH and HP NonStop SSL bundled with the HP NonStop Operating System to deliver end-to-end communications security, strong authentication, and auditing for system administration, file transfer, and applications connectivity. Optionally, HP offers HP NonStop Volume Level Encryption, a fully-integrated encryption solution for data at rest on disk and tape media for HP NonStop multicore systems. In addition, integration with HP Enterprise Secure Key Manager provides high-availability encryption key generation and retrieval, and storage of millions of encryption keys. HP is committed to helping customers achieve and demonstrate security compliance on their HP Integrity NonStop servers. XYGATE Compliance PRO allows enterprises to analyze and establish appropriate security settings on their system in order to close security vulnerabilities and deploy best security practices on the system. XYGATE Merged Audit allows enterprises to consolidate event logs and enables real-time reporting and alerting about security events that have occurred. These security events can be integrated with HP ArcSight SIEM using XYGATE Merged Audit. Use of HP ArcSight SIEM allows businesses to view all security events across their entire enterprise from a single interface.

HP Storage

As a core element of the HP Mission-Critical Converged Infrastructure HP Storage solutions let you establish virtual pools of capacity that are built on a foundation of platform modularity, capacity optimization, and application integration.

Learn more at hp.com/storage

Comprehensive solutions for HP Integrity servers

		HP-UX	HP OpenVMS	HP NonStop	
Disk storage	HP XP Storage	X	X	X	Bullet-proof storage for the mission-critical converged infrastructure where constant access to data is required—even in the event of a disaster. <ul style="list-style-type: none"> HP XP P9500 Storage—scales up to 2 PB of internal and 255 PB of external capacity
	HP 3PAR StoreServ Storage	X			A family of next-generation, multitenant utility storage arrays built for cloud computing. <ul style="list-style-type: none"> HP 3PAR StoreServ 10000 Storage—scales up to 2.2 PB HP 3PAR StoreServ 7000 Storage—scales up to 864 TB HP 3PAR StoreServ 7450 Storage (All FLASH array)—scales up to 96 TB
	HP EVA Storage	X	X		An enhanced virtual storage array family for enterprises requiring an easy-to-use, high-performance midrange disk array with outstanding TCO to support business-critical processes. <ul style="list-style-type: none"> HP EVA P6500 Storage—scales to 480 TB HP EVA P6300 Storage—scales to 250 TB
	HP StoreAll Storage	X			Delivers enterprise scale-out NAS capability to efficiently manage explosive growth in unstructured data and significantly improve performance of file serving applications.
	HP StoreEasy Storage	X			HP Network Attach Storage solutions enable you to control explosive file growth while reducing costs and simplifying data management. HP NAS solutions cover a wide range of customer needs and IT environments.
	HP StoreVirtual 4000 Storage	X			Based on the LeftHand operating system is a scale-out storage platform that is designed to meet the fluctuating needs of virtualized environments.
	HP MSA Storage	X	X		Modular Smart Array enabling low-cost, scalable, high-performance storage consolidation to meet entry-level to midrange requirements.
	HP D2000 Disk Enclosures	X	X		Combining the simplicity and cost effectiveness of direct-attached storage without sacrificing flexibility or performance.
		HP-UX	HP OpenVMS	HP NonStop	
Tape storage	HP StoreEver DAT Tape Drives	X	X	X	DAT—data protection that balances price and performance.
	HP StoreEver LTO Ultrium Tape Drives	X	X	X	LTO—data protection that sets new standards for capacity, performance, manageability, and usability.
	HP StoreEver 1/8 G2 SAS Tape Autoloader	X	X	X	Automate backup with a tape autoloader that provides a choice of LTO Ultrium tape drives, remote management, data encryption, and proactive drive and media health monitoring.
	HP StoreEver MSL 2024/4048/8096/6480 SAS/FC Tape Libraries	X	X	X	Automate backup with a tape library that provides a choice of LTO Ultrium tape drives, remote management, data encryption, and investment protection with performance and capacity upgrades.
	HP StoreEver ESL G3 Tape Libraries	X	X	X	The HP StoreEver ESL G3 Tape Library offers a powerful combination of capabilities designed to help customers meet their data protection and archive challenges head on—flexible scalable capacity, enhanced data availability and reliability, simplified and powerful management, enterprise-class data security and regulatory compliance. All add up to make ESL G3 the ideal data protection and long-term archive solution for large, complex SAN environments.

HP Technology Services

Learn more at hp.com/services/bcs

Better business outcomes with our integrated service solutions

HP Technology Services support portfolio for HP Integrity servers helps you build an infrastructure that is reliable, highly available, responsive, and rooted in proven best practices. We offer a support experience that is proactive, personalized, and simplified—delivering support when you need and how you need. Our dedicated teams of experts monitor the environment for proactive problem prevention, understand risks, and provide technical skills, best practices, and recommendations for process improvement. With our wide range of services, expertise, people, and processes, we help you drive and deliver business value from IT. We offer flexible choices that span the entire technology lifecycle—so that you can rely on the precise level of assistance you need every step of the way.

Learn more at hp.com/services/foundationcare

Foundation Care Services includes a wide range of reactive hardware and software support services to keep your systems up and running with minimal downtime. These services are available with a targeted range of response times, coverage windows, and length of term options. This family of services includes **Support Plus** and **Support Plus 24** which offer comprehensive hardware and software support with HP technical resources to help increase availability of your IT infrastructure, improve system performance, reduce downtime, and resolve problems.

Learn more at hp.com/services/proactivecare

Proactive Care Services offers proactive and reactive support designed for converged and virtualized IT environments where many components need to work together effectively. This service brings together a superior call experience with end-to-end call management, advanced technical expertise for problem prevention, rapid problem awareness, and notification with expedited resolution. This family of services includes **Critical Service** and **Proactive 24** which provide a mission-critical experience with innovative, higher-value support leveraging high-performance reactive support, proactive support, remote and onsite support, and consultations with HP technology experts to provide 24x7 support.

Learn more at hp.com/services/datacentercare

Datacenter Care Services provides environmental level support customized for unique business needs. This is HP's most flexible support service, designed to help customers consistently meet service-level targets and other business objectives. This service offers core building blocks of relationship management, enhanced call handling, and proactive and reactive support for a discrete IT solution to an entire data center containing thousands of devices.

Learn more at hp.com/services/lifecycleevent

Lifecycle Event Services puts HP's business and technical talent at the customer's disposal at anytime and anywhere, to help with challenges ranging from IT strategy, system integration, data center operations, education, and optimization. These per-event services address resource constraints and increasing complexity in data center environments, and help customers focus on the core business issues, increase ROI, minimize risks, and deliver high customer satisfaction.

HP Factory Express is a unique service offering designed to help an enterprises get a better return on IT investment by enabling deployment of the HP Mission-Critical Converged Infrastructure. The process starts by having HP experts work with you to plan and design the best custom solutions for your business. It continues in our factory as we supervise manufacturing and testing. And it follows through with HP providing complete installation support and assistance. In short, HP Factory Express helps you reduce your deployment time with hardware built to your exact specifications, tested as a complete solution, shipped from the HP factory, and ready to run in your data center. The goal is to put our expertise to work for your business—saving you time, money, and resources while it frees your staff to focus on your core business.

The HP Installation and Startup Service for HP Integrity servers provides onsite hardware integration and racking, basic OS configuration, logical volume layout, and RAID setting of internal server storage, along with configuration of server network settings to establish connectivity with your network. If you desire more robust planning, design, and test services, HP Factory Express offers a more complete service solution.

Recommended support levels

HP Technology Services recommends three support levels, by product family, to help you optimize operations, reduce downtime, and drive better business outcomes.

Optimized Care: The recommended level of support for environments that cannot tolerate downtime and need 24x7 high-availability support. Installation and deployment services are also recommended.

Standard Care: The recommended level of support for environments that require minimal downtime and high-availability support. Installation and deployment services are also recommended.

Basic Care: The minimum level of recommended support. Installation and deployment services are also recommended.

HP Integrity rack servers	Optimized Care	HP Installation and Startup Service HP installs and configures your business-critical rack server hardware and OS software, including configuration.	3-Year HP Proactive 24 HP monitors your environment around the clock, 365 days a year, implementing improvement projects to mitigate risks and reduce incidents. If outages do occur, they are addressed immediately with access to all dedicated critical support escalation resources.
	Standard Care	HP Installation and Startup Service	3-Year HP Support Plus 24 HP helps manage your IT environment for improved performance, stability, and availability. Incidents are addressed 24x7, with a maximum 4-hour response 365 days a year.
	Basic Care	HP Installation and Startup Service	3-Year HP Support Plus 24 HP provides 24x7 hardware and software support onsite (including third party), plus software updates 365 days a year. HP also monitors ongoing operations through state-of-the-art remote tools. There is no assigned HP account manager or team.
HP Integrity server blades	Optimized Care	HP Installation and Startup Service HP provides onsite new hardware installation and software deployment of the server blade, as well as configuration and testing of HP BladeSystem Ethernet interconnect switches, facilitating proper implementation of network protocols and access to advanced features.	3-Year HP Critical Service High-performance reactive services and proactive components designed to reduce planned and unplanned downtime. The key feature of this service is an assigned support team including an account support manager (ASM), Remote Support Account Advocate, Mission-Critical Hardware Specialist, and access to the HP Global Mission-Critical Solution Center to help resolve complex issues faster. Reactive support components of this service include 24x7 hardware and software coverage, 6-hour Call-to-Repair commitment, enhanced parts inventory, and accelerated escalation management.
	Standard Care	HP Installation and Startup Service	3-Year HP Proactive 24 Provides improved stability, availability, and operational effectiveness through integrated hardware and software support services that combine industry-leading reactive technical assistance with proactive account services delivered by an ASM, offering IT management support with a team of service specialists.
	Basic Care	HP Installation and Startup Service	3-Year HP Support Plus 24 HP provides 24x7 hardware and software support onsite (including third party), plus software updates 365 days a year. HP also monitors ongoing operations through state-of-the-art remote tools. There is no assigned HP account manager or team.

HP Integrity Superdome 2	Optimized Care	<p>HP Startup Superdome 2 Service HP experts provide consulting for solution configuration, racking, and onsite installation of the HP Integrity Superdome 2 Server.</p> <p>HP Factory Express Level 5 HP experts provide consulting for solution configuration, racking, and onsite installation of a solution. HP and the customer collaborate on the design.</p>	<p>3-Year HP Critical Service High-performance reactive services and proactive components designed to reduce planned and unplanned downtime. The key feature of this service is an assigned support team including an account support manager (ASM), Remote Support Account Advocate, Mission-Critical Hardware Specialist, and access to the HP Global Mission-Critical Solution Center to help resolve complex issues faster. Reactive support components of this service include 24x7 hardware and software coverage, 6-hour Call-to-Repair commitment, enhanced parts inventory, and accelerated escalation management.</p>
	Standard Care	<p>HP Startup Superdome 2 Service HP experts provide consulting for solution configuration, racking, and onsite installation of the HP Integrity Superdome 2 Server.</p> <p>HP Factory Express Level 5 HP experts provide consulting for solution configuration, racking, and onsite installation of a solution. HP and the customer collaborate on the design.</p>	<p>3-Year HP Proactive 24 Provides improved stability, availability, and operational effectiveness through integrated hardware and software support services that combine industry-leading reactive technical assistance with proactive account services delivered by an ASM, offering IT management support with a team of service specialists.</p>
	Basic Care	<p>HP Startup Superdome 2 Service HP experts provide consulting for solution configuration, racking, and onsite installation of the HP Integrity Superdome 2 Server.</p> <p>HP Factory Express Level 4 HP experts provide consulting for solution configuration, complex configuration, racking, onsite installation of a solution, and a handover session. The customer provides the design.</p>	<p>3-Year HP Proactive 24 Provides improved stability, availability, and operational effectiveness through integrated hardware and software support services that combine industry-leading reactive technical assistance with proactive account services delivered by an ASM, offering IT management support with a team of service specialists.</p>
HP Integrity NonStop	Optimized Care	<p>HP Installation and Startup Service An HP solution consultant works with the customer to understand, design, and document the solution that best meets the customer's business requirements. Once the system has been configured at the factory and delivered to the customer site, the HP team arrives onsite to get the HP NonStop server solution up and running quickly and to the customer's expectations.</p>	<p>HP Critical Service High-performance reactive services and proactive components designed to reduce planned and unplanned downtime. The key feature of this service is an assigned support team including an account support manager (ASM), Remote Support Account Advocate, Mission-Critical Hardware Specialist, and access to the HP Global Mission-Critical Solution Center to help resolve complex issues faster. Reactive support components of this service include 24x7 hardware and software coverage, 6-hour Call-to-Repair commitment, enhanced parts inventory, and accelerated escalation management.</p>
	Standard Care	<p>HP Installation and Startup Service</p>	<p>HP Proactive 24 Provides improved stability, availability, and operational effectiveness through integrated hardware and software support services that combine industry-leading reactive technical assistance with proactive account services delivered by an ASM, offering IT management support with a team of service specialists.</p>
	Basic Care	<p>HP Installation and Startup Service</p>	<p>HP Support Plus 24 Provides improved stability, availability, and operational effectiveness through integrated hardware and software support services that combine industry-leading reactive technical assistance with proactive account services delivered by an ASM, offering IT management support with a team of service specialists.</p>

Learn more at hp.com/education/

HP Education Services for HP Integrity servers

In today's fast-paced business environment, your employees need to quickly assimilate new IT skills. HP can help you achieve this goal with a variety of training services, including instructor-led courses, customized onsite training, and instructor-led online courses using the innovative HP Virtual Classroom technology.

Virtual Classroom technology offerings cover the entire HP Integrity product line:

- HP Integrity rack server training
- HP Integrity server blade training
- HP Integrity Superdome 2 training
- HP Integrity NonStop server training
- HP-UX training
- HP OpenVMS training
- HP NonStop OS training

Capitalize on your IT environment capabilities with a service partner who thoroughly understands server, storage, and network technology in a multivendor environment. Working in partnership with HP Authorized Channel Partners, HP has this expertise. Whether your company is a medium-sized organization or a large global corporation, HP Services can help.

HP options

Comprehensive solutions for the HP Integrity servers

HP Instant Capacity (iCAP) (cells, processors, memory)	Reduces overprovisioning and helps link IT costs to revenue by deferring these costs until they are actually needed. iCAP hardware is purchased at a fraction of the price of active hardware and does not require software or support. When additional capacity is needed, the remaining portion is paid with no premium, and the component is activated with a simple command, typically requiring no downtime.
HP Temporary Instant Capacity (TiCAP)	Like a prepaid phone card that provides 30 days of activation for iCAP processor cores, TiCAP is consumed at your own pace, and includes OS and HP Matrix OE licenses and support. TiCAP allows you to meet short-term peaks in application demands when they occur.
HP Global Instant Capacity (GiCAP)	Allows you to move the usage rights for hardware and software licenses within a group of servers, effectively deactivating components in one server in order to activate them in another. GiCAP, combined with the HP Matrix OE, is a unique differentiator that offers automatic load balancing for cost-effective high availability.
HP Intelligent Series Rack	The HP Intelligent Series Racks, with optional Location Discovery Services, sends the rack identification number and precise U location to the servers. This provides important location information to iLO and HP Insight Control software, along with server power and temperature data, allowing you to place workloads more efficiently. Manual, error-prone asset management is removed because servers can now self-identify and inventory themselves.
HP Fibre Channel and Gigabit Ethernet multifunction adapters	Delivers the performance, flexibility, and high availability you need to support the connectivity requirements for server consolidation in your adaptive enterprise. Both single and dual channels for both Fibre Channel and Gigabit Ethernet are available to help maximize utility from a single I/O slot.
HP Fibre Channel adapters	The highest level of availability and support when used in conjunction with HP storage arrays, tape storage systems, and Fibre Channel switches. The dual-channel and single-channel Fibre Channel adapters effectively double performance over previous-generation Fibre Channel adapters. In addition, the Fibre Channel adapters auto-negotiate 1 Gb, 2 Gb, 4 Gb, or 8 Gb transfer rates allowing full legacy support for existing SAN infrastructures to protect your current SAN investment.
HP 4X InfiniBand adapters	Provides high-speed, low-latency switched fabric solutions enhanced for server clusters. HP 4X Fabric products provide a leading-edge interconnect for both high-performance computing (HPC) customers who want to deploy clusters for scientific and engineering applications, and for commercial customers who want to deploy highly-available and scalable database clusters.
HP Lights Out (iLO) Advanced KVM Card	Makes it simpler, faster, and less costly to remotely manage your HP Integrity servers. The HP Integrity iLO Advanced KVM card is an optional accessory that combines a physical graphics/USB card with additional logic to enable the Lights Out Advanced Virtual Media and Integrated Remote Console.
HP memory upgrades	HP branded memory is the easiest way to quickly enhance and improve overall system performance for demanding database and application workloads. HP memory modules are qualified and tested to strict HP standards to help facilitate consistently high levels of performance and reliability in HP servers. Memory upgrade options differ by server. Most HP Integrity servers offer Double Chip Spare technology.

Drive your infrastructure forward with HP Project Odyssey

Learn more at hp.com/go/odyssey

You need the availability and resiliency you expect from UNIX-based solutions for your mission-critical applications. You may also be considering how and when to leverage the cost efficiency of industry-standard platforms. HP Project Odyssey innovations advance mission-critical computing and unify UNIX and x86 server architectures to a single platform. You can be confident that continued enhancements to the HP Integrity platform running HP-UX, HP NonStop, and HP OpenVMS can deliver the resiliency and performance you expect. For those applications that you may plan to deploy in Windows and Linux environments, HP Project Odyssey includes a development roadmap to fortify x86 server architectures.

HP—the right choice for your enterprise

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

We are here to help you build an infrastructure that's designed for your business needs. HP is investing to unify across the data center infrastructure so that customers can standardize on management tools, enclosures, power monitoring, and the like while leveraging their investments. Are spiraling power and cooling costs draining your budget? Our energy-saving tools and technologies can help you significantly cut costs by regulating and monitoring power usage across your infrastructure. Are you trying to get the greatest utilization from your data center floor space? We offer a complete portfolio of solutions, including small-footprint options. Do you need help scaling up or out, or designing a data center that can change along with your business needs? Look to HP. Do you want the broadest range of choice from proven IT providers? Our hardware, software, and service partners deliver thousands of solutions designed specifically for HP products.

The bottom line? HP is the right partner to help you use technology for better business outcomes.

Learn more at
hp.com/go/integrity

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