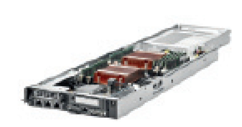
## Entry-level

| ProLiant series | MicroServer Gen8 | ML10 | DL160 Gen8 | ML310e Gen8 v2 | DL320e Gen8 v2 | ML350e Gen8 v2 | DL360e Gen8 | DL380e Gen8 |
|---|---|---|---|---|---|---|---|---|
| Typical applications | With a form factor that is easy to use and service, HP MicroServer Gen8 helps businesses get to a server that provides better and secured access to data, more efficiency in operations, while driving down their operating expenses. | Delivering excellent value in a large form factor that small businesses require to run a small network environment. It is outstanding for businesses looking for improved performance, ample available slots, and flexible storage options, while staying within a tight budget. | High-performance computing with enhanced management and networking. | The essential 1P tower server that provides an affordable and steadfast solution to small and medium business that are growing, are budget conscious, and have no in-house IT resources. | The HP ProLiant DL320e Gen8 v2 Server is an entry-level single processor 1U short-depth rack server specifically designed to give you the competitive edge you need. | The HP ProLiant ML350e Gen8 v2 is a dual processor tower platform, which is built on the latest Intel® Xeon® E5-2400 v2 processors to create a unique system architecture. This architecture, as well as flexible deployment options, allow businesses to scale as needed so they can optimise their IT spending dollars. | Enhanced management, sleek design, and exceptional serviceability—bundled with essential features—make the DL360e Gen8 the right choice for value enterprise and SMB customers alike. | With enhanced storage performance, serviceability, and management capabilities, the DL380e Gen8 is a perfect match for customers looking for great value and essential features. |
| Processors<br>Additional processor models are available on request. Please check the product QuickSpecs for more details. | Up to one Intel® Celeron® G1610T, Intel® Pentium® G2020T, or Intel® Xeon® E3-1220L v2 | Up to one Intel® Pentium® G2130 or Intel® Xeon® E3-1220 v2 | Up to two Intel® Xeon® E5-2600 series (2/4/6/8 core) processors; Models: E5-2603, E5-2620, E5-2640 | Intel® Xeon® E3-1200 v3 and Intel® Core™ i3-4100 series (2/4 core) processors; Models: i3-4130, E3-1220 v3, E3-1240 v3 | Intel® Xeon® E3-1200 v3 and Intel® Core™ i3-4100 series (2/4 core) processors; Models: i3-4130, E3-1220 v3, E3-1240 v3 | Up to two Intel® Xeon® E5-2400 series (4/6/8/10 core) processors; Models: E5-2403 v2, E5-2407 v2 | Up to two Intel® Xeon® E5-2400 v2 series (4/6/8/10 core) processors; Models: E5-2403 v2, E5-2407 v2, E5-2430 v2 | Up to two Intel® Xeon® E5-2400 v2 series (4/6/8/10 core) processors; Models: E5-2403 v2, E5-2407 v2 |
| Form factor | Ultra Micro Tower | Micro ATX Tower (4U) | Rack (1U) | Micro ATX Tower (4U) | Rack (1U) | Tower (5U) | Rack (1U) | Rack (2U) |
| Memory (standard/maximum) | 2 GB, 4 GB, or 8 GB DDR3 UDIMMs/max, 16 GB | 2 GB, 4 GB, or 8 GB DDR3 UDIMMs/max, 32 GB | 4 GB, 8 GB, or 16 GB DDR3 RDIMMs/max, 384 GB with RDIMMs, 768 GB with LRDIMMS, or 128 GB with UDIMMs | 2 GB, 4 GB, or 8 GB DDR3 UDIMMs/max, 32 GB | 2 GB, 4 GB, or 8 GB DDR3 UDIMMs/max, 32 GB | 4 GB, 8 GB, 16 GB, or 32 GB DDR3 RDIMMs/max, 192 GB with RDIMMs or 2 GB, 4 GB, and 8 GB/max, 96 GB with UDIMMs | 4 GB, 8 GB, 16 GB, or 32 GB DDR3 RDIMMs/max, 384 GB with LRDIMMs or 2 GB, 4 GB, and 8 GB/max, 96 GB with UDIMMs | 4 GB, 8 GB, 16 GB, or 32 GB DDR3 RDIMMs/max, 384 GB with RDIMMs or 2 GB, 4 GB, and 8 GB/max, 96 GB with UDIMMs |
| I/O slots | **One total:**<br>(1) PCI-e x (16) Gen2 low-profile | **Four total:**<br>(1) PCI-e x (16) Gen2 FH/HL<br>(2) PCI-e x (8) Gen2 FH/HL<br>(1) PCI-e x (4) Gen2 FH/HL | **Two total:**<br>(1) PCI-e x (16) Gen3 FH/FL<br>(1) low-profile PCI-e x (8) (internal) Gen3 | **Four total:**<br>(1) PCI-e 3.0 x (16) FL/FH<br>(1) PCI-e 3.0 x (8) FL/FH<br>(1) PCI-e 2.0 x (8) FL/FH<br>(1) PCI-e 2.0 x (4) HL/FH | **Two total:**<br>(1) PCI-e x (16) Gen3 FH/HL<br>(1) low-profile PCI-e x (8) (internal) Gen3 | **Six total:**<br>(3) PCI-e 3.0 x (16) FL/FH<br>(2) PCI-e 3.0 x (8) FL/FH<br>(1) PCI-e 2.0 x (4) HL/FH | **Two total:**<br>(1) PCI-e 3.0 x (16) FH/HL<br>(1) PCI-e 2.0 x (8) low-profile | **Up to six total PCI-e 3.0:**<br>- Riser 1:<br>(1) x (16) FL/FH<br>(1) x (8) HL/FH<br>(1) x (8) HL/FH<br>(1) PCI-e 2.0 x (4) low-profile<br>- Riser 2:<br>(1) x (16) FL/FH<br>(1) x (16) HL/FH |
| Storage controller | HP Dynamic Smart Array B120i controller (RAID 0, 1, 10) | HP Embedded Smart Array B110i controller (RAID 0, 1, 10) | HP Dynamic Smart Array B120i controller (RAID 0, 1, 10) Performance models: Smart Array P420/1 GB FBWC controller | HP Dynamic Smart Array B120i controller (RAID 0, 1, 10) with optional P420 performance array controller | HP Dynamic Smart Array B120i controller (RAID 0, 1, 10) with optional P420/P431performance array controller | HP Dynamic Smart Array B120i/512 MB FBWC SATA controller (RAID 0, 1, 5, 10) | HP Dynamic Smart Array B120i SATA controller (RAID 0, 1, 10), B320i or P420 (RAID 0, 1, 1+0, 5, 5+0) | HP Dynamic Smart Array B120i SATA controller (RAID 0, 1, 10), B320i or P420 (RAID 0, 1, 1+0, 5, 5+0) |
| Storage (maximum) | 12 TB LFF non-hot-plug SATA | 8 TB LFF non-hot-plug SATA | - 12 TB LFF hot-plug SAS/SATA<br>- 8 TB SFF hot-plug | - 12 TB (4 x 3 TB) 3.5-inch LFF<br>- 9.6 TB (8 x 1.2 TB) 2.5-inch SFF<br>Support for 6.4 TB SSD (8 x 800 GB) | - 8 TB (2 x 4 TB) 3.5-inch LFF<br>- 4.8 TB (4 x 1.2 TB) 2.5-inch SFF<br>Support for 3.2 TB SSD (4 x 800 GB) | 19.2 TB SAS 2.5-inch SFF (16 x 1.2 TB) with optional drive cages—8 drives standard; 32 TB SATA/SAS LFF (8 x 4 TB) with optional drive cages<br>Support for 1.6 TB SSD (16 x 100 GB) | 12 TB (8) SFF hot-plug bays (4) LFF hot-plug bays<br>Support for 6.4 TB SSD (8 x 800 GB) | - 27 TB SAS, 42 TB SATA, (8) SFF hot-plug bays (standard)<br>- Optional (25 + 2) SFF hot-plug bays<br>- Optional (8 or 12 + 4) LFF hot-plug bays<br>Support for 21.6 TB SSD (27 x 800 GB) |
| Optical drive support | Optional | Optional | Optional | Optional | Optional | Optional | Optional | Optional |
| Network interface controller | HP Ethernet 1 Gb 2-port 332i Adapter | HP NC112i Integrated 1-port Ethernet Server Adapter | HP NC361i Integrated Dual Port Gigabit Server Adapter, optional FlexLOM slot | HP Ethernet 1 Gb 2-port 332i Adapter | HP Ethernet 1 Gb 2-port 332i Adapter | HP Ethernet 1 Gb 2-port 361i Adapter | HP Ethernet 1 Gb 4-port 366i Adapter | HP Ethernet 1 Gb 4-port 366i Adapter |
| USB support | **Five total USB 2.0:**<br>two front, two rear, one internal<br>**Two total USB 3.0:**<br>two rear | **Seven total:**<br>four rear, two front panel, one internal<br>All USB 2.0 | **Seven total:**<br>two front, four rear, one internal | **Five total USB 2.0:**<br>four front, one internal (optional)<br>**Two total USB 3.0:**<br>two rear | **Five total USB 2.0:**<br>two rear, two front, one internal (optional)<br>**Two total USB 3.0:**<br>two rear | **Eight total:**<br>two front, four rear, two internal | **Seven total:**<br>two front, four rear, one internal + one internal SD slot | **Seven total:**<br>two front, four rear, one internal + one internal SD slot |
| Redundant power supply | No | No | No | No | No | Yes | Yes | Yes |
| Redundant fans | No | No | Yes | No | No | No | Yes | Yes |
| Infrastructure management | HP iLO Management Engine, HP Insight Control | HP iLO3, HP Insight Control | HP iLO Management Engine, HP Insight Control | HP iLO Management Engine, HP Insight Control | HP iLO Management Engine, HP Insight Control | HP iLO Management Engine, HP Insight Control | HP iLO Management Engine, HP Insight Control | HP iLO Management Engine, HP Insight Control |
| Warranty<br>(P: parts, L: labour, NBD: next-business-day on-site) | 1-yr P, 0-yr L, 0-yr NBD | 1-yr P, 1-yr L, 1-yr NBD | 3-yr P, 0-yr L, 0-yr NBD | 1-yr P, 1-yr L, 1-yr NBD | 1-yr P, 1-yr L, 1-yr NBD | 1-yr P, 1-yr L, 1-yr NBD | 3-yr P, 1-yr L, 1-yr NBD | 3-yr P, 1-yr L, 1-yr NBD |
| Recommended support | **Foundation Care 3-year Next-Business-Day** | **3-year 24 x 7, 4-hour Hardware Support** | **Foundation Care 3-year Next-Business-Day** | **Foundation Care 3-year Next-Business-Day** | **Foundation Care 3-year Next-Business-Day** | **Foundation Care 3-year 24 x 7, 4-hour response** | **Foundation Care 3-year 24 x 7, 4-hour response** | **Foundation Care 3-year 24 x 7, 4-hour response** |
| | U2EF7E | U7Z62E | U2GW1E | U2FR0E | U2GH2E | U2FU0E | U2GL2E | U2GN9E |
| | **Installation and Startup Service** | **Installation and Startup Service** | **Installation and Startup Service** | **Installation and Startup Service** | **Installation and Startup Service** | **Installation and Startup Service** | **Installation and Startup Service** | **Installation and Startup Service** |
| | UR508E | U4444E | U8K79E | U6G23E | U6F51E | U6D43E | U6E13E | U6E83E |

## Midrange

| ProLiant series | ML350p Gen8 | DL360p Gen8 | DL380p Gen8 | DL385p Gen8 |
|---|---|---|---|---|
| Typical applications | Maximum enterprise-class performance and expansion in a tower or rack form factor. | Performance-driven compute with storage density —ideal for enterprise applications. Industry-leading performance, efficiency, capacity, and reliability. Enterprise-enhanced design for all workloads with versatility for future requirements. A space-conscious two-processor server with industry-leading feature sets. | Setting the next generation standards of 2U two-socket rack servers for the industry. With enhanced configuration flexibility, unmatched performance, and leading energy-efficient design, the DL380p Gen8 offers the perfect solution for the dynamic compute requirements of today's demanding data centres. | The DL385p Gen8 is the price/performance choice for your virtualisation, database, and high-performance computing workloads. |
| Processors | Up to two Intel® Xeon® E5-2600 v2 series (6/8/10/12 core) processors; Models: E5-2650 v2, E5-2640 v2, E5-2620 v2, E5-2609 v2 | Up to two Intel® Xeon® E5-2600 v2 series (6/8/10/12 core) processors; Models: E5-2650 v2, E5-2640 v2, E5-2630 v2, E5-2603 v2 | Up to two Intel® Xeon® E5-2600 v2 series (6/8/10/12 core) processors; Models: E5-2690 v2, E5-2650 v2, E5-2640 v2, E5-2630 v2, E5-2609 v2 | Up to two AMD Opteron™ 6300 series (4/8/12/16 core) processors; Models: 6320, 6344, 6376 |
| Form factor | Tower and rack (5U) | Rack (1U) | Rack (2U) | Rack (2U) |
| Memory (standard/maximum) | 4 GB, 8 GB, 16 GB, or 32 GB DDR3 RDIMMs/ max, 768 GB with RDIMMs, or 2 GB, 4 GB, and 8 GB/max, 96 GB with UDIMMs | 8 GB, 16 GB, or 32 GB DDR3/max, 768 GB with LRDIMMs, or 96 GB with UDIMMs | 4 GB, 8 GB, 16 GB, or 32 GB DDR3/max, 768 GB with LRDIMMs, or 128 GB with UDIMMs | 4 GB, 8 GB, 16 GB, or 32 GB DDR3 RDIMMs, ULVDIMMs, or LRDIMM max, 768 GB with RDIMMs |
| I/O slots | **Nine total:**<br>(3) PCI-e 3.0 x (16) FL/FH<br>(1) PCI-e 3.0 x (8) FL/FH<br>(4) PCI-e 3.0 x (4) FL/FH<br>(1) PCI-e 2.0 x (4) HL/FH | **Two total PCI-e 3.0:**<br>(1) x (16) HL/FH<br>(1) x (8) low-profile | **Up to six total PCI-e 3.0:**<br>- Riser 1:<br>(1) x (16) FL/FH<br>(1) x (8) HL/FH<br>(1) PCI-e 2.0 x (4) HL/FH<br>- Riser 2:<br>(1) x (16) FL/FH<br>(2) x ( 8) HL/FH | **Up to six total PCI-e 2.0:**<br>- Riser 1:<br>(1) x (8) FL/FH<br>(1) x (8) HL/FH<br>(1) x (4) HL/FH<br>- Riser 2:<br>(1) x (16) FL/FH<br>(2) x (8) HL/FH |
| Storage controller | Smart Array P420i performance array controller with optional 2G FBWC | Smart Array P420i performance array controller with optional 2G FBWC | Smart Array P420i performance array controller with optional 2G FBWC | Smart Array P420i performance array controller with optional 2G FBWC |
| Storage (maximum) | - 24 TB SATA 2.5-inch SFF (24 x 1 TB) with optional drive cages—8 drives standard<br>- 54 TB SATA LFF (18 x 3 TB) with optional drive cages<br>Support for 19.2 TB SSD (24 x 400 GB) | - 8 TB (8) SFF hot-plug bays (standard)<br>- Optional (10) SFF hot-plug bays<br>- Optional (4) LFF hot-plug bays<br>Support for 6.4 TB SSD (8 x 800 GB) | - 25 TB SAS, 36 TB SATA, (8) SFF hot-plug bays (standard)<br>- Optional (25) SFF hot-plug bays, (8 or 12) LFF hot-plug bays<br>Support for 20 TB SSD (25 x 800 GB) | - 25 TB SAS, 36 TB SATA, (8) SFF hot-plug bays (standard)<br>- Optional (25) SFF hot-plug bays<br>- Optional (8 or 12) LFF hot-plug bays<br>Support for 20 TB SSD (25 x 800 GB) |
| Optical drive support | Optional | Optional | Optional | Optional (not available on some models—drive cage-dependent) |
| Network interface controller | HP Ethernet 1 Gb 4-port 331i Adapter (optional: dual-port 10GbE) | HP Ethernet 1 Gb 4-port Adapter (FlexLOM); Optional: FlexLOM available for 10GbE, CNA, SFP+, and IB | HP Ethernet 1 Gb 4-port Adapter (FlexLOM); Optional: FlexLOM available for 10GbE, CNA, SFP+, and IB | HP Ethernet 1 Gb 4-port Adapter (FlexLOM); Optional: FlexLOM available for 10GbE, CNA, SFP+, and IB, or NC331i quad Port 1 Gb Adaptor (depending on model) |
| USB support | **Ten total:**<br>four front, four rear, two internal + one internal SD slot | **Seven total:**<br>two front, four rear, one internal + one internal SD slot | **Seven total:**<br>two front, four rear, one internal + one internal SD slot | **Eight total:**<br>two front, four rear, two internal + one internal SD slot |
| Redundant power supply | Yes | Yes | Yes | Yes |
| Redundant fans | Yes | Yes | Yes | Yes |
| Infrastructure management | HP iLO Management Engine, HP Insight Control | HP iLO Management Engine, HP Insight Control | HP iLO Management Engine, HP Insight Control | HP iLO Management Engine, HP Insight Control |
| Warranty<br>(P: parts, L: labour, NBD: next-business-day on-site) | 3-yr P, 3-yr L, 3-yr NBD | 3-yr P, 3-yr L, 3-yr NBD | 3-yr P, 3-yr L, 3-yr NBD | 3-yr P, 3-yr L, 3-yr NBD |
| Recommended support | **Foundation Care 3-year 24 x 7, 4-hour response** | **Proactive Care 3-year 24 x 7, 4-hour response** | **Proactive Care 3-year 24 x 7, 4-hour response** | **Proactive Care 3-year 24 x 7, 4-hour response** |
| | U2GE8E | U2Z86E | U2Z50E | U2Z50E |
| | **Installation and Startup Service** | **Installation and Startup Service** | **Installation and Startup Service** | **Installation and Startup Service** |
| | U4523E | U4507E | U4555E | U4555E |



## Scale-out

| ProLiant series | SL4540 Gen8 | SL230s/250s/270s Gen8 | SL210t |
|---|---|---|---|
| Typical applications | A server component of the HP ProLiant SL4540 Server system. It's ideal for handing largely unstructured Big Data, cloud solutions, or messaging with data that's growing at an exponential rate. | The HP ProLiant SL230s, SL250s, and SL270s Gen8 SE Servers are purpose-built to increase density, saving on infrastructure costs and easing space constraints in the data center; enhance serviceability—access key components faster; provide greater configurability—choose from more options for accelerators, storage, and networking. | A server component of the HP Proliant SL2500 Scalable System. The Scalable System provides cloud computing service providers and other operators of hyperscale data centres 35% more performance density, for 35% less power in half the floor space for scale-out workloads. |
| Processors | Up to two processors per server tray. Intel® Xeon® E5-2400 series (4/6/8/10 core) processors, including low-power models; Models: E5-2470 v2, E5-2450L v2, E5-2450 v2, E5-2440 v2, E5-2430 v2, E5-2430L v2, E5-2420 v2, E5-2407 v2, E5-2450, E5-2470, E5-2420, E5-2430, E5-2430L, E5-2440, E5-2407 | One or two of Intel® Xeon® E5-2600 and E5-2600 v2 processors, including low-power models | Up to two processors per server tray. Intel® Xeon® E5-2600 v2 series (4/6/8/10/12 core) processors, including low-power models (per server tray); Models: E5-2609, E5-2640, E5-2630, E5-2620, E5-2650L, E5-2630L, E5-2697, E5-2695, E5-2690, E5-2680, E5-2660, E5-2650 |
| Form factor | One node x 60 drives or two nodes x 25 drives or three nodes x 15 drives | The SL6500 chassis can accommodate:<br>Up to eight SL230s Gen8 nodes<br>Up to four SL250s Gen8 nodes<br>Up to two SL270s Gen8 half-width nodes | Four 1U modules or two 2U modules in SL2500 enclosure |
| Memory (standard/maximum) | 12 DIMM slots available:<br>- Maximum per server tray: 192 GB RDIMM (12 x 16 GB) | 16 DIMM slots available:<br>- Maximum (RDIMM) per server tray: 256 GB (16 x 16 GB) registered memory configurations<br>- Maximum (UDIMM) per server tray: 128 GB (16 x 8 GB) unbuffered memory configurations | 16 DIMM slots available:<br>- Maximum (RDIMM) per server node: 256 GB (16 x 16 GB) PC3-14900R (DDR3-1866)<br>- Maximum (UDIMM) per server node: 128 GB (16 x 8 GB) PC3-14900E (DDR3-1866)<br>- Maximum (LRDIMM) per server node: 512 GB (16 x 32 GB) PC3-14900L (DDR3-1866) |
| I/O slots | **Option:**<br>HP SL454x Storage Mezzanine to PCI-e Enablement Kit needed to enable low-profile PCI-e slot in the I/O module. | **Expansion slots:**<br>- Model SL230S:<br>(1) PCI-e Gen3 x (16) LP<br>(1) PCI-e Gen3 x (16) FlexLOM<br>- Model SL250s:<br>(1) PCI-e Gen3 x (8) LP<br>(1) PCI-e Gen3 x (16) FlexLOM<br>- Model SL270s:<br>(8) PCI-e Gen2 x (16) accelerator<br>(1) PCI-e Gen3 x (8) LP<br>(1) PCI-e Gen3 x (8) FlexLOM | **1U node server (Gen3):**<br>(1) PCI-e x (16) LP<br>(1) PCI-e Gen3 x (16) FLexLOM<br>**2U mode server (Gen3):**<br>(1) PCI-e Gen3 x (16) FlexLOM<br>(1) PCI-e x (16) FH/FL, x (8) FH/HL, x (8) LP<br>(1) PCI-e x (8) FH/FL, x (8) FH/HL, x (8) LP<br>(1) PCI-e x (16) FH/FL, x (8) LP |
| Storage controller | HP Dynamic Smart Array B120i SATA RAID<br>- HP Ethernet 1 Gb 2-port 361i and HP Ethernet 10 Gb 2-Port 544i adapter<br>- HP Smart Array P420i controller | HP H220i Host Bus Adapter (B320i Dynamic Smart Array with FW update) | HP Dynamic Smart Array B120i controller (RAID 0, 1, 10) |
| Storage (maximum) | Supported disk types:<br>LFF SAS, LFF SATA, SFF SATA, LFF SATA SSD, SFF SATA SSD all with the hot-plug feature<br>- 1 x 60 Model—(60) LFF drives per node: from 1.6 TB to 240 TB depending on disk type<br>- 2 x 25 Model—(25) LFF drives per node: from 3.2 TB to 200 TB depending on disk type<br>- 3 x 15 Model—(15) LFF drives per node (45) LFF drives per chassis): from 4.8 TB to 180 TB depending on disk type | - Model SL230s (maximum): 800 GB to 8 TB depending on used disk type. Supported disk types: hot-plug 2.5-inch SAS/SATA/SSD, non-hot-plug SFF SAS/SATA/SSD, non-hot-plug 3.5-inch SAS/SATA<br>- Model SL250s (maximum): 1.6 TB to 4 TB depending on used disk type. Supported disk types: hot-plug 2.5-inch SAS/SATA/SSD, non-hot-plug SFF SAS/SATA/SSD<br>- Model SL270s (maximum): 6.4 TB to 8 TB depending on used disk type. Supported disk types: hot-plug SFF SAS, hot-plug SFF SSD, hot-plug SFF SATA | LFF 3.5-inch hot-plug SATA: 12 x 4 TB<br>LFF 3.5-inch hot-plug SAS: 12 x 4 TB<br>SFF 2.5-inch hot-plug SATA: 24 x 1 TB<br>SFF 2.5-inch hot-plug SAS: 24 x 1 TB |
| Optical drive support | No. Via USB port, external support only | External support only via USB through the SUV port | No. DVD drive via USB only (external support only) |
| Network interface controller | One of the following dedicated to each server node: HP Ethernet 1 Gb 2-port 361i or HP Ethernet 1 Gb 2-port 361i and HP Ethernet 10 Gb 2-Port 544i Adapter | Two 1GbE NC361i ports | HP NC361i Dual Port Gigabit Server Adapter (per node); FlexibleLOM as additional expansion |
| USB support | **Two total:**<br>two front external | **Two total:**<br>one USB internal, one MicroSD | **Two total:**<br>two rear |
| Redundant power supply | Yes | Yes | Yes |
| Redundant fans | Yes. (System ships standard with 5 dual fan modules) | Redundant and non-redundant fan options available | No. (System fans ship standard; non-hot-plug, non-redundant) |
| Infrastructure management | HP iLO (Firmware: HP iLO 4); optional HP Insight Control, HP iLO Advanced, HP iLO Scale-Out | HP iLO4 Standard and HP Systems Insight Manager (SIM), HP iLO Scale-Out or HP iLO Advanced (optional licensing) | 1 x HP ProLiant iLO4; HP Systems Insight Manager, optional HP Insight Control, HP iLO Advanced, HP iLO Scale-Out |
| Warranty<br>(P: parts, L: labour, NBD: next-business-day on-site) | 1-yr P, 1-yr L, 1-yr NBD | 1-yr P, 1-yr L, 1-yr NBD | 1-yr P, 1-yr L, 1-yr NBD |
| Recommended support | **Proactive Care 3-year 24 x 7, 4-hour response** | **Proactive Care 3-year 24 x 7, 4-hour response** | **Proactive Care 3-year 24 x 7, 4-hour response** |
| | U7J65E 1 x; U7W74E 2 x; U6Y33E 3 x | S6500 Chassis-based U3C72E | S2500 Chassis-based U0RH8E |
| | **Installation and Startup Service** | **Installation and Startup Service** | **Installation and Startup Service** |
| | UR285E | S6500 Chassis-based UR422E | S2500 Chassis-based UM866E |

## HP Moonshot System: the world's first software-defined server

HP Moonshot System is a revolutionary server design that addresses the speed, scale, and specialisation required for the New Style of IT that is emerging around the converging trends of mobility, cloud, social media, and Big Data. One of the most innovative characteristics of the system is the overall architecture. We took everything that is a common resource in a traditional server and moved it to the HP Moonshot 1500 Chassis. The power, cooling, and management, as well as the fabric, switches, and network uplinks are all shared across 45 hot-pluggable cartridges in a 4.3U chassis.

| | Workload | System on Chip (SOC) | RAM per node | Storage | Networking | Operating systems | Availability features |
|---|---|---|---|---|---|---|---|
| Moonshot S1260 | Static content delivery | Intel® Atom™ S1260 | 8 GB | 1 x 500 GB or 1 TB SFF SATA or 240 GB SSD | Integrated NIC: 2-port 1GbE per CPU; Downlink Switch: (45) 1GbE Downlinks; 10G Uplink Module: 6 SFP+ ports (6 x 10GbE) | Canonical Ubuntu; Red Hat Enterprise Linux (RHEL); SUSE Linux Enterprise Server (SLES) | Up to 2x of each: Moonshot-45G Switch Module, Moonshot-6SFP Uplink Module |
| m300 cartridge | Dynamic content delivery, Web services | Intel® Atom™ C2750 SOC | 32 GB | 1 x 500 GB or 1TB SFF SATA or 240 GB SSD | Integrated NIC: 2-port 1GbE per CPU; Downlink Switch: (45) 1GbE Downlinks; 10G Uplink Module: 6 SFP+ ports (6 x 10GbE) | Canonical Ubuntu; RHEL; SLES | Up to 2x of each: Moonshot-45G Switch Module, Moonshot-6SFP Uplink Module |
| m700 cartridge | Hosted desktop infrastructure | 4 x AMD Opteron™ X2150 APU | 4 x 8 GB | 32 GB iSSD per APU | Integrated NIC: (2) 1 Gb links per node (one to switch A, one to switch B), 8 per cartridge; Switch: (180) 1GbE Downlinks; 40G Uplink Module: (4) 40 GbE SFP+ ports | Microsoft® Windows® 7 | Up to 2x of each: Moonshot-180G Switch Module, Moonshot-4QSFP+ Uplink Module |

## Processor table

| | Intel® Core™ i3-4300 Processor Series | Intel® Pentium® Processor Series | | Intel® Xeon® E3 Processor Series | |
|---|---|---|---|---|---|
| Socket capability | Single socket | Single socket | | Single socket | |
| Processor models | **i3-4330** | **G3220** | **G3240** | **E3-1220 v3** | **E3-1240 v3** |
| Core Count | 2 | 2 | 2 | 4 | 4 |
| Clock speed (GHz) | 3.3 | 3.0 | 3.2 | 3.1 | 3.4 |
| QPI speed (GT/s ) | n/a | n/a | n/a | n/a | n/a |
| Cache L3 (MB) | 3 | 3 | 3 | 8 | 8 |

| | Intel® Xeon® E5 Processor Series | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Socket capability | Dual socket | | | | | | | | | | | | | | | | | | |
| Processor models | **E5-2403 v2** | **E5-2407 v2** | **E5-2420 v2** | **E5-2430 v2** | **E5-2450 v2** | **E5-2450L v2** | **E5-2603 v2** | **E5-2609 v2** | **E5-2620 v2** | **E5-2630 v2** | **E5-2630L v2** | **E5-2637 v2** | **E5-2640 v2** | **E5-2650 v2** | **E5-2650L v2** | **E5-2660 v2** | **E5-2667 v2** | **E5-2670 v2** | **E5-2680 v2** |
| Core Count | 4 | 4 | 6 | 6 | 8 | 10 | 4 | 4 | 6 | 6 | 6 | 4 | 8 | 10 | 10 | 10 | 8 | 10 | 10 |
| Clock speed (GHz) | 1.8 | 2.4 | 2.2 | 2.5 | 2.5 | 1.7 | 1.8 | 2.5 | 2.1 | 2.6 | 2.4 | 3.5 | 2.0 | 2.6 | 1.7 | 2.2 | 3.3 | 2.5 | 2.8 |
| QPI speed (GT/s ) | 6.4 | 6.4 | 7.2 | 7.2 | 8 | 8 | 6.4 | 6.4 | 7.2 | 7.2 | 7.2 | 8 | 7.2 | 8 | 8 | 8 | 8 | 8 | 8 |
| Cache L3 (MB) | 10 | 10 | 15 | 15 | 20 | 25 | 10 | 10 | 15 | 15 | 15 | 15 | 20 | 20 | 25 | 25 | 25 | 25 | 25 |

| | Intel® Xeon® E5 Processor Series (cont.) | | | | | | |
|---|---|---|---|---|---|---|---|
| Socket capability | Dual socket | Four socket | | | | | |
| Processor models | **E5-2690 v2** | **E5-4603** | **E5-4610** | **E5-4617** | **E5-4620** | **E5-4640** | **E5-4650** |
| Core Count | 10 | 4 | 6 | 6 | 8 | 8 | 8 |
| Clock speed (GHz) | 3.0 | 2 | 2.4 | 2.9 | 2.2 | 2.4 | 2.7 |
| QPI speed (GT/s ) | 8 | 6.4 | 7.2 | 7.2 | 7.2 | 8 | 8 |
| Cache L3 (MB) | 25 | 10 | 15 | 15 | 16 | 20 | 20 |

| | Intel® Xeon® E7 Processor Series | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Socket capability | Four socket | | | | | | | |
| Processor models | **E7-2830** | **E7-2850** | **E7-2860** | **E7-4807** | **E7-4830** | **E7-4850** | **E7-4860** | **E7-4870** |
| Core Count | 8 | 10 | 10 | 6 | 8 | 10 | 10 | 10 |
| Clock speed (GHz) | 2.13 | 2 | 2.26 | 1.86 | 2.13 | 2 | 2.26 | 2.4 |
| QPI speed (GT/s ) | 6.4 | 6.4 | 6.4 | 4.8 | 6.4 | 6.4 | 6.4 | 6.4 |
| Cache L3 (MB) | 24 | 24 | 24 | 18 | 24 | 24 | 24 | 30 |

| | AMD Opteron™ 6300 Processor Series | | | | | |
|---|---|---|---|---|---|---|
| Socket capability | Multi socket | | | | | |
| Processor models | **6320** | **6328** | **6344** | **6376** | **6380** | **6386SE** |
| Core Count | 8 | 8 | 12 | 16 | 16 | 16 |
| Clock speed (GHz) | 2.8 | 3.2 | 2.6 | 2.3 | 2.5 | 2.8 |
| QPI speed (GT/s ) | 6.4 | 6.4 | 6.4 | 6.4 | 6.4 | 6.4 |
| Cache L3 (MB) | 16 | 16 | 16 | 16 | 16 | 16 |

# More information

Use the following QR codes to find out more about HP Servers and solutions for your infrastructure.

- **ProLiant Servers** — www.hp.com/go/proliant
- **Integrity Servers** — www.hp.com/go/integrity
- **HP BladeSystem** — www.hp.com/go/bladesystem
- **HP CloudSystem** — www.hp.com/go/cloudsystem
- **HP Moonshot** — www.hp.com/go/moonshot
- **HP OneView** — www.hp.com/go/oneview
- **HP ConvergedSystem** — www.hp.com/go/convergedsystem
- **HP VirtualSystem** — www.hp.com/go/virtualsystem
- **HP SmartCache** — www.hp.com/go/smartcache
- **Virtual Connect** — www.hp.com/go/virtualconnect
- **HP Qualified Options** — www.hp.com/go/qualifiedoptions
- **Rack & Power** — www.hp.com/eur/rackandpower
- **ProLiant Networking** — www.hp.com/servers/networking
- **Just Right IT** — www.hp.com/go/justrightit
- **HP Services** — www8.hp.com/us/en/business-services
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**Poster guide**

# Manage and grow your business with HP Servers

**Get insight into the unparalleled portfolio of the world's most resilient and intelligent servers including ProLiant, BladeSystem, and Integrity Servers.**

| ProLiant series | c-Class workstation blades | c-Class server blades | Core | Integrity blades | Integrity rack server | Superdome |
|---|---|---|---|---|---|---|
| | WS460c Gen8 | BL420c Gen8 | BL460c Gen8 | BL465c Gen8 | DL560 Gen8 | DL580 Gen8 | DL585 G7 | DL980 G7 | rx2800 | BL620c G7 | BL660c Gen8 | BL680c G7 | BL685c G7 | BL860c/870c/890c i4 | Superdome |
| Typical applications | Multi-display hardware-accelerated graphics performance for 2D, 3D, and streaming video applications | BL420c Gen8 redefines the term "entry-level" in the blade market. It spans everything from single applications and small deployments to essential enterprise workloads, making it ideal for midmarket and cost-sensitive enterprise customers. | The BL460c Gen8 is designed for a wide variety of mainstream business to HPC scale-out apps for small, medium and enterprise data centres. Key workloads include virtualisation, IT infrastructure (file and print, networking, security, systems management), Web infrastructure (Web serving, streaming media) and collaborative (email, workgroup). | The first server blade to deliver over 2,000 cores per rack. With enhanced innovations in performance, flexibility in networking options, and robust management features, the BL465c Gen8 is the price/performance choice for virtualisation, database, and high-performance computing workloads. | The DL560 Gen8 is a new server that offers the ideal four-socket (4S) dense form factor without compromising on performance, scalability, and expandability. | Enterprise-grade 4S x86 server offering breakthrough performance, rock-solid reliability, and compelling consolidation and manageability efficiencies. It is ideal for mission-critical enterprise, business intelligence, and database applications. | Versatile workhorse for the evolving data centre 4P multi-core rackmount server. Ideal for server virtualisation, server consolidation, multi-tiered enterprise applications, and corporate infrastructure applications. | Delivers balanced scaling, self-healing resiliency, and breakthrough efficiency to handle the demands of x86 compute environments: data intensive workloads, decision support, in-memory database, OLTP, large-scale consolidation and virtualising many workloads. Mission-critical and industry-standard design principles suit RISC migration initiatives. | This is the smallest server capable of running HP-UX or OpenVMS. Ideal for distributed mission-critical workloads running in branch offices and rackmount server data centres. The i4 version supports up to 16 cores running HP-UX. The i2 version supports Up to eight cores running OpenVMS. In a 2U chassis, the rx2800 delivers high performance and balanced I/O. | The world's most scalable 2P, single-wide, full-height server in a single full-height blade provides virtualisation efficiency for larger consolidation projects and a variety of demanding data-intensive workloads. | Redefining density-optimised 4S blade technology, the BL660c Gen8 is a new server blade that offers the ideal 4-socket dense form factor without compromising on performance, scalability, and expandability. | Ideal for 4P rack to blade transition, large virtualisation, large databases, ERP, HRM and CRM, terminal services, large e-commerce, electronic design automation, and other very data-demanding applications. | Ideal for virtualisation, multi-tiered enterprise applications, such as SAP, PeopleSoft, Siebel, Oracle® and JDE; server consolidation; large database applications including ERP, CRM, mail and messaging; and business integration applications, such as EDA, petrochemical, life sciences, and material sciences. | HP-UX and OpenVMS enterprise applications can take advantage of the HP BladeSystem with scalable Integrity blades that grow in-box from 2-sockets/16-cores to 8-sockets/64-cores as more CPU or I/O capacity is required. Start small and never run out of headroom. When you need more power, connect up to four blades for perfect scale-up. | Integrity Superdome 2 consolidates and modernises UNIX® applications. It is also used for for mainframe replacement. Ideal workloads are: business processing (DB, ERP, CRM, batch); decision support (data warehouse, business intelligence); large-scale consolidation (including virtualisation and multi-tier). Superdome provides the highest levels of UNIX® application availability and scalability using a modern blade infrastructure. |
| Processors<br>*ES-2697 v2, ES-2695 v2, ES-2690 v2, ES-2680 v2, ES-2670 v2, ES-2660 v2, ES-2650 v2, ES-2650L v2, ES-2667 v2, ES-2643 v2, ES-2637 v2, ES-2640 v2, ES-2630 v2, ES-2630L v2, ES-2620 v2, ES-2609 v2, ES-2603 v2<br>**ES-2690, ES-2680, ES-2670, ES-2667, ES-2665, ES-2660, ES-2650, ES-2650L, ES-2643, ES-2640, ES-2637, ES-2630, ES-2630L, ES-2620, ES-2609, ES-2603<br>Additional processor models are available on request. Please check the product QuickSpecs for more details. | Up to two Intel® Xeon® E5-2600 series processors (4/6/8/10/12 core, including low-power models); Models: E5-2600 v2 series* and E5-2600 series** | Up to two Intel® Xeon® E5-2400 series processors (4/6/8/10 core, including low-power models); Models: E5-2470 v2, E5-2450 v2, E5-2440 v2, E5-2430 v2, E5-2420 v2, E5-2407 v2, E5-2403 v2, E5-2450L v2, E5-2430L v2, E5-2470, E5-2450, E5-2450L, E5-2440, E5-2430, E5-2430L, E5-2420, E5-2407, E5-2403 | Up to two Intel® Xeon® E5-2600 series processors (4/6/8/10/12 core, including low-power models); Models: E5-2600 v2 series* and E5-2600 series** | Up to two Intel® Xeon® E5-4600 series processors (4/6/8 core including low-power model); Models: E5-4650, E5-4650L, E5-4640, E5-4620, E5-4617, E5-4610, E5-4607, E5-4603 | One or more Intel® Xeon® (6/8/10/12/15 core) processors depending on model: E7-4890 v2, E7-4880 v2, E7-4870 v2, E7-8880L v2, E7-4860 v2, E7-4850 v2, E7-8857 v2, E7-4830 v2, E7-8891 v2, E7-4820 v2, E7-4809 v2, E7-8893 v2 | Two to four AMD Opteron™ 6200 or 6300 series processors (including low-power models); Models: 6385SE, 6380, 6378, 6376, 6366HE, 6284SE, 6278, 6282SE, 6276, 6274, 6262HE, 6348, 6344, 6238, 6234, 6176SE, 6174, 6172, 6168, 6164HE, 6166HE, 6176, 6180SE, 6328, 6320, 6220, 6212, 6128, 6132HE, 6136, 6140, 6308, 6204 | Up to four or eight Intel® Xeon® series processors; Models: E7-2850, E7-2860, E7-4870, E7-2830, E7-4807 | Up to two Intel® Itanium® 9500 series processors (i4 generation for HP-UX) or up to two 9300 series processors (i2 generation for OpenVMS) | One or two Intel® Xeon® series (6/8/10 core) processors; Models: E7-2870, E7-2860, E7-2850, E7-8867L, E7-2830, E7-2820, E7-2803 | Up to four Intel® Xeon® E5-4600 series (4/6/8 core) processors; Models: E5-4650, E5-4650, E5-4640, E5-4620, E5-4617, E5-4610, E5-4607, E5-4603 | Two, three, or four Intel® Xeon® series (6/8/10 core) processors; Models: E7-4870, E7-4860, E7-4850, E7-8867L, E7-4830, E7-4820, E7-4807 | Up to four AMD Opteron™ series (4/8/12/16 core) processors; Models: 6380, 6378, 6278, 6376, 6276, 6274, 6272, 6366HE, 6262HE, 6348, 6344, 6238, 6234, 6176, 6174, 6164HE, 6164HE, 6328, 6220, 6320, 6212, 6140, 6136, 6132HE, 6128HE, 6124HE, 6308, 6204 | i4 generation for HP-UX; i2 generation for OpenVMS. - i4: one to eight Intel® Itanium® processor 9500 series/8-core processors (4-64 cores) - i2: one to eight Intel® Itanium® processor 9300 series/4-core processors (2-32 cores) | Start small and grow, from two to 32 sockets containing Intel® Itanium® processor 8500 series/8-core processors. Up to 256 cores in a single system image, or virtualised in hard and soft partitions. |
| Form factor | 16 workstations blades or eight workstations paired with eight graphics expansion blades in a 10U c7000 enclosure; eight workstations blades or four workstations paired with four graphics expansion blades in a 6U c3000 enclosure | 16 server blades in 10U (c7000 enclosure) or eight blades in 6U (c3000 enclosure) | 16 server blades in 10U (c7000 enclosure) or eight blades in 6U (c3000 enclosure) | 16 server blades in 10U (c7000 enclosure) or eight blades in 6U (c3000 enclosure) | Rack (2U) | Rack (4U) | Rack (4U) | Rack (8U) | Rack (2U) | Eight blades in 10U (c7000) or four blades in 6U (c3000) | Eight blades in 10U (c7000) or four blades in 6U (c3000) | Four blades in 10U (c7000) or two blades in 6U (c3000) | Eight blades in 10U (c7000) or four blades in 6U (c3000) | Full-length blades for 10U (c7000) or 6U (c3000) enclosure. - BL860c i4 = one blade, eight blades in a c7000 - BL870c i4 = two blades, four blades in a c7000 - BL890c i4 = four blades, two blades in a c7000 | Available in a choice of up to: - Eight sockets in an 18U enclosure - 16 sockets in an 18U enclosure - 32 sockets, spanning two 18U enclosures. - (16) two-socket blades can be connected, scaling CPU, memory, and I/O as needed. Additional multiple 4U I/O extenders offer practically limitless I/O. |
| Memory (standard for pre-configured models/maximum) | 16 DIMM slots - Standard: 32 GB (4 x 8 GB) DDR3 1600 MHz RDIMMs at 1.5 V One of the following depending on model - Maximum (LRDIMM): 512 GB (16 x 32 GB) up to 1333 MHz at 1.35 V - Maximum (RDIMM): 256 GB (16 x 16 GB) up to 1600 MHz at 1.5 V or 384 GB (16 x 24 GB) up to 1333 MHz at 1.35 V - Maximum (UDIMM): 128 GB (16 x 8 GB) up to 1600 MHz at 1.5 V | 12 x DDR3 DIMM memory slots (six per processor) - Standard: 12 GB (3 x 4 GB) DDR3 1333 MHz RDIMMs at 1.35 V or 24 GB (6 x 4 GB) DDR3 1600 MHz RDIMMs at 1.5 V - Maximum (LRDIMM): 384 GB (12 x 32 GB) up to 1600 MHz at 1.5 V or 192 GB (12 x 16 GB) up to 1333 MHz at 1.35 V - Maximum (UDIMM): 96 GB (12 x 8 GB) up to 1600 MHz at 1.5 V or 96 GB (12 x 8 GB) up to 1333 MHz at 1.35 V | - Standard: variety of configurations from 16 GB (2 x 8 GB) 1333 MHz to 64 GB (8 x 8 GB) DDR3 1600 MHz RDIMMs 1.35 V or 1.5 V - Maximum (LRDIMM): 512 GB (16 x 32 GB) up to 1333 MHz at 1.35 V - Maximum (RDIMM): 256 GB (16 x 16 GB) up to 1600 MHz at 1.5 V or 384 GB (16 x 24 GB) up to 1333 MHz at 1.35 V - Maximum (UDIMM): 128 GB (16 x 8 GB) up to 1600 MHz at 1.5 V | - Standard: 16 GB (2 x 8 GB) DDR3 1333 MHz RDIMMs at 1.35 V - Maximum (LRDIMM): 512 GB (16 x 32 GB) at 1333 MHz - Maximum (RDIMM): 256 GB (16 x 16 GB) up to 1600 MHz | - Standard (entry model): 16 GB (1 x 4 GB) PC3L-10600R (DDR3-1333) RDIMMs - Standard (base models): 32 GB (4 x 4 GB) PC3L-10600R (DDR3-1333) RDIMMs - Standard (high-performance models): 64 GB (4 x 8 GB) PC3-12800R (DDR3-1600) RDIMMs - Maximum capacity (RDIMM): 1.5 TB (48 x 32 GB RDIMM @1600 MHz) | - Up to eight memory cartridges are supported for 96 DIMM slots - RDIMMs: HP 4 GB 1R x 4 PC3-14900R-13 Kit or HP 4 GB 1R x 4 PC3L-12800R-11 Kit or HP 8 GB 1R x 4 PC3-14900R-13 Kit or HP 8 GB 1R x 4 PC3L-12800R-11 Kit or HP 16 GB 2R x 4 PC3-14900R-13 Kit or HP 16 GB 2R x 4 PC3L-12800R-11 Kit - LRDIMMs: HP 32 GB 4R x 4 PC3-14900L-13 Kit - Memory expansion options: HP DL580 Gen8 12 DIMM memory cartridge | Performance models: - 128 GB (16 x 8 GB) of PC3-10600R (DDR3-1333) - 64 GB (8 x 8 GB) of PC3-10600R (DDR3-1333) - 64 GB (16 x 4 GB) of PC3-10600R (DDR3-1333) - 32 GB (8 x 4 GB) of PC3-10600R (DDR3-1333) - 32 GB (8 x 4 GB) of PC3L-10600R (DDR3-1333) Base models: - 32 GB (8 x 4 GB) of PC3-10600R (DDR3-1333) - Maximum: 1.5 TB | Up to 4 TB low-voltage RAM: - 2 GB (1 x 2 GB) dual rank x 8 PC3-10600 (DDR3-1333) - 4 GB (1 x 4 GB) single-rank x 4 PC3L-10600 (DDR3-1333) - 8 GB (1 x 8 GB) dual rank x 4 PC3L-10600 (DDR3-1333) - 16 GB (1 x 16 GB) dual rank x 4 PC3L-10600 (DDR3-1333) - 32 GB (1 x 32 GB) quad rank x 4 PC3L-8500R-7 (DDR3-1333) Registered CAS-9 LP Memory Kit | Up to 384 GB system memory with low-voltage (1.35 V) 16 GB DIMMs | - Type: DDR3-1333 and DDR3-1066 RDIMMs (operating up to 1066 MHz) - Standard: 32 GB (4 x 8 GB) - Maximum: 1.0 TB (32 x 32 GB RDIMMs) | - Standard (pre-configured models): 128 GB (8 x 16 GB) DDR3-1600 MHz RDIMMs at 1.5 V or 128 GB (8 x 16 GB) DDR3-1333 MHz RDIMMs at 1.35 V - Maximum (LRDIMM): 1.0 TB (32 x 32 GB) up to 1333 MHz at 1.35 V - Maximum (RDIMM): 512 GB (32 x 16 GB) up to 1600 MHz at 1.5 V or 768 GB (32 x 24 GB) up to 1333 MHz at 1.35 V | - Type: DDR3-1333 and DDR3-1066 RDIMMs (operating up to 1066 MHz) - Standard: 64 GB (8 x 8 GB) - Maximum: 2.0 TB (64 x 32 GB RDIMMs) | - Standard (depending on model): 64 GB (16 x 4 GB) - Maximum (RDIMM): 1 TB (32 x 32 GB) at 1066 MHz or at 800 MHz - Maximum (RDIMM): 1 TB (32 x 32 GB) at 1333 MHz | - BL860c i4: up to 384 GB DDR3 RDIMMs - BL870c i4: up to 768 GB in 48 RDIMMs - BL890c i4: up to 1.5 TB in 96 DIMMs | Up to 8 TB of DDR3 memory with double-chip spare |
| I/O slots | - Mezzanine I/O expansion slots: PCI-e 3.0 x (16) - Dual-port 10 Gb FlexFabric and 1G Gb Flex-10 - Dual-port 8 Gb Fibre Channel - HBA QDR and FDR InfiniBand - Graphics support: NVIDIA Quadro 500m (single or dual), Quadro 1000m (single, up to eight), Quadro 3000m (single, up to six) - With graphics exp. blade: - Multi GPU graphics Carrier NVIDIA Q4000, Q5000, Q6000, and M2070Q - ATI FS9350 | Two mezzanine I/O expansion slots: (1) PCI Gen3 x (16), (1) PCI Gen3 x (8); 1 GbE, 10 Gb Flex-10, 10 Gb FlexFabric, 8 Gb Fibre Channel, QDR and FDR InfiniBand, I/O accelerator | Two mezzanine I/O expansion slots: (2) PCI Gen 3 x (16); 1 GbE, 10 Gb Flex-10, 10 Gb FlexFabric, 8 Gb Fibre Channel, QDR and FDR InfiniBand, I/O accelerator | Two mezzanine I/O expansion slots: (1) PCI Gen2 x (16), (1) PCI Gen2 x (8); 1 GbE, 10 Gb Flex-10, 10 Gb FlexFabric, 8 Gb Fibre Channel, QDR and FDR InfiniBand, I/O accelerator | - Slot 1: (1) PCI-e 3.0 x (16) FL/FH (x 16 connector) - Slot 2: (1) PCI-e 3.0 x (8) HL/FH (x 8 connector) - Slot 3: (1) PCI-e 2.0 x (4) HL/FH (x 8 connector) - Optional: 3-slot riser x (16), x (8), x (8), or 2-slot x (16), x (16) | Up to nine slots supported; all full length/full height - Standard: (4) PCI-e 3.0 x (8) (5) PCI-e 3.0 x (16) | Up to 11 total slots (standard + optional card) and five embedded standard I/O slots: (3) PCI-e Gen2 x (8) FH/FL, (2) PCI-e Gen2 x (16) FH/FL, optional mezzanine cards (all FH/FL), PCI-e I/O 6-slot expansion, (4) PCI-e Gen2 x (8) + (2) PCI-e Gen2 x (16), or combo PCI-e/PCI-X expansion, (1) PCI-e Gen2 x (16) + (2) PCI-e Gen2 x (8) + (1) PCI-e Gen2 x (4) + (2) PCI-X | - Up to 16 slots supported: 11 full length/full height and five low-profile slots - Base I/O backplane configuration: (2) PCI-e 2.0 x (8), (3) PCI-e x (4) - Optional full-height/ full-length I/O backplanes (choose only one): (2) PCI-e 2.0 x (16), (1) PCI-e 2.0 x (4), (2) PCI-X, or (4) PCI-e 2.0 x (8), (1) PCI-e 2.0 x (4), (1) PCI-e 1, (1) x (4) - Optional low-profile I/O backplane: (4) PCI-e 2.0 x (8), (1) PCI-e 2.0 x (4) | Six I/O slots: - Two full-length PCI-e slots over - Two half-length PCI-e slots - Two low-profile PCI-e above P410i RAID controller | Three mezzanine I/O expansion slots for: 1GbE, 10GbE, 10GbE Flex-10, 10 Gb FlexFabric, 4 Gb and 8 Gb Fibre Channel, iSCSI initiator, QDR (40 Gb/s) InfiniBand, I/O accelerator Smart Array, and PCI-e Mezzanine Pass-Thru adapters | Three mezzanine I/O expansion slots for: 1GbE, 10GbE, 10 Gb Flex-10, 10 Gb FlexFabric, 8 Gb Fibre Channel adapters, QDR and FDR InfiniBand, I/O accelerator | Seven mezzanine I/O expansion slots: - One dedicated to a dual-port LAN adapter, including 1GbE, 10GbE, 10GbE Flex-10, and 10 Gb FlexFabric - The remaining six general purpose for 1GbE, 10GbE, 10GbE Flex-10, 10 Gb FlexFabric, 4 Gb and 8 Gb Fibre Channel, iSCSI initiator, QDR (40 Gb/s) InfiniBand, I/O accelerator, and Smart Array adapters | Three mezzanine I/O expansion slots for: 1 Gb, 10 Gb, and Flex-10/ FlexFabric FCoE-capable 10 Gb Ethernet adapters, iSCSI adapters, 4 Gb and 8 Gb Fibre Channel adapters, and 4 x QDR (40 Gb/s) InfiniBand adapters | Per blade: - x 2 for BL870c and x 4 for BL890c - Six I/O expansion slots via mezzanine cards - Eight integrated HP NC553i 10 Gb FlexFabric adapter ports supporting 10 Gb/ 1 Gb autosensing Ethernet, FCoE, Flex-10, and TCP/IP offload engine | **PCI-e 8x Gen2 slots:** - 48 external SD2-8s - 96 external SD2-16s - 96 external SD2-32s The I/O expansion enclosure (IOX) is used across the entire Superdome 2 product family. The IOX consists of a single board with two I/O hubs (IOHs). Each IOH supports up to six 8x PCI-express cards. **Supports up to:** - Four IOXs SD2-8s - Eight IOXs SD2-16s - Eight IOXs SD2-32s |
| Storage controller | 1 x HP Smart Array P220i controller with 512 MB FBWC, RAID 0 and 1 support, and upgradeable firmware with recovery ROM | 1 x HP Smart Array P220i controller with 512 MB FBWC, (RAID 0 and 1) or 1 x HP Dynamic Smart Array B320i controller (SATA RAID 0 and 1 standard; SAS RAID 0 and 1 standard on pre-configured models and optional with SAS) | 1 x HP Smart Array P220i controller with 512 MB FBWC, supporting RAID 0 and RAID 1 | 1 x HP Smart Array P220i controller with 512 MB FBWC, supporting RAID 0 and RAID 1 | - Entry model: HP Smart Array P420i/ZM (RAID 0, 1, 1+0) - Base model: HP Smart Array P420i/1 GB with FBWC (RAID 0, 1, 1+0, 5, 5+0, 6, 6+0) - Performance model: HP Smart Array P420i/2 GB with FBWC (RAID 0, 1, 1+0, 5, 5+0, 6, 6+0) | HP Smart Array P830i/2 GB FBWC 12 Gbps SAS controller | - Performance models: HP Smart Array P410i/1G FBWC controller - Base models: HP Smart Array P410i/ 512 MB FBWC or Zero Memory controller | HP Smart Array P410i controller with optional FBWC | Integrated HP Smart Array P410i 6 Gbps Serial-Attached SCSI (SAS) RAID controller | - Integrated SAS version 2.0 (6 Gb) HP Smart Array P410i controller with RAID 0 and 1 - P410i 512 MB and 1 GB FBWC options - Optional Smart Array RAID mezzanine controllers (with BBWC and FBWC) for connection to external storage | Embedded HP Smart Array P220i controller The HP Smart Array P220i supports RAID 0 and 1. It includes 512 MB FBWC on pre-configured models and is optional on factory integrated models. | - Integrated SAS version 2.0 (6 Gb) HP Smart Array - P410i controller with RAID 0, 1 and 1 + 0 - Optional Smart Array RAID mezzanine controllers (with BBWC and FBWC) for connection to external storage | HP Smart Array P410i controller; 1 GB memory module with FBWC. Supports RAID 0,1 | Per blade: (x 2 for BL870c and x 4 for BL890c) - 2 embedded HP Smart Array P410i SAS controllers RAID 1, RAID 0, and HBA mode configuration options - 2 embedded SAS read only 512 MB cache, one per Smart Array controller | Highly expandable via external I/O slots accommodate a choice of controllers |
| Internal storage (max.)<br>*One of the following depending on model | Hot-plug*: 2 x 1.2 TB SFF SAS 2 x 1.0 TB SFF SATA 2 x 800 GB SFF SAS SSD 2 x 800 GB SFF SATA SSD | Hot-plug: 2 x 1.0 TB SFF SAS 2 x 1.0 TB SFF SATA 2 x 800 GB SFF SAS SSD 2 x 800 GB SFF SATA SSD | Hot-plug*: 2 x 1.2 TB SFF SAS 2 x 1.0 TB SFF SATA 2 x 800 GB SFF SAS SSD 2 x 800 GB SFF SATA SSD | Hot-plug: 2 x 1.2 TB SFF SAS 2 x 1.0 TB SFF SATA 2 x 800 GB SFF SAS SSD 2 x 800 GB SFF SATA SSD | Hot-plug: 5 x 1.2 TB SFF SAS 5 x 800 GB SFF SAS SSD 5 x 400 GB SFF SATA SSD | Hot-plug: 10 x 1.2 TB SFF SAS 10 x 800 GB SFF SAS SSD 10 x 800 GB SFF SATA SSD | Hot-plug: 8 x 1.0 TB SFF SAS 8 x 1.0 TB SFF SATA 8 x 800 GB SFF SAS SSD 8 x 400 GB SFF SATA SSD | Hot-plug: 8 x 900 GB SFF SAS 8 x 400 GB SFF SAS SSD | - Up to eight SFF hot-plug disk drives or solid state drives - Up to 7.2 TB of internal storage with 900 GB disks | Hot-plug: 2 x 1.2 TB SAS 2 x 1.0 TB SATA 2 x 800 GB SAS SSD 2 x 800 GB SATA SSD | Hot-plug: 2 x 1.2 TB SAS 2 x 1.0 TB SATA 2 x 800 GB SFF SAS SSD | Hot-plug: 4 x 1.2 TB SAS 4 x 1.0 TB SATA 4 x 800 GB SAS SSD 4 x 800 GB SATA SSD | Hot-plug: 2 x 1.2 TB SAS 2 x 1.0 TB SATA 2 x 800 GB SAS SSD 2 x 800 GB SATA SSD | Per blade: x 2 for BL870c and x 4 for BL890c Up to four SFF SAS hot-plug hard drives | For HP Storage solutions please see: www.hp.com/storage/spock |
| Optical drive support | Enclosure-based DVD drive available with c3000 enclosure | Enclosure-based DVD drive available with c3000 enclosure | Enclosure-based DVD drive available with c3000 enclosure | Enclosure-based DVD drive available with c3000 enclosure | Optional: USB DVD-RW | None | Optional: HP Slim SATA DVD-ROM optical drive ejectable for security and serviceability | Slimline DVD-RW drive standard | Up to one HP Slimline DVD-RW or DVD-ROM optical drive | Enclosure-based DVD drive available with c3000 enclosure | Enclosure-based DVD drive available with c3000 enclosure | Enclosure-based DVD drive available with c3000 enclosure | Enclosure-based DVD drive available with c3000 enclosure | None internal to Integrity blade. External USB DVD drive with 7 ft USB extension cable is supported with c7000 enclosures. | Removable media built-in DVD-ROM, accessible from all partitions |
| Network interface controller<br>*Supports FCoE, Flex-10, TCP/IP offload engine, hardware-based accelerated iSCSI, iSCSI boot, and autosensing 10 Gb/1 Gb Ethernet<br>**Dedicated iLO network card | One of the following depending on model: - Pre-configured models: 1 x HP Flex-10 10 Gb 2-port 530FLB FlexLOM* - Configurable models: 1 x HP FlexFabric 10 Gb, 2-port 534FLB FlexibleLOM or HP FlexFabric 10 Gb 2-port 554FLB FlexibleLOM** | 1 x HP FlexFabric 10 Gb 2-port 554FLB FlexibleLOM* or 1 x HP Flex-10 10 Gb 2-port 530FLB FlexibleLOM or 1 x HP Ethernet 10 Gb 2-port 560FLB FlexibleLOM or 1 x HP Ethernet 1 Gb 2-port 361FLB FlexibleLOM** | 1 x HP FlexFabric 10 Gb 2-port 554FLB FlexibleLOM* or HP FlexFabric 10 Gb 2-port 554FLB FlexibleLOM** | 1 x HP FlexFabric 10 Gb 2-port 554FLB FlexibleLOM* 1x HP Flex-10 10 Gb 2-port 530FLB FlexibleLOM 1x HP Ethernet 10 Gb 2-port 560FLB FlexibleLOM** | Some models come standard with 4 x 1 Gb ports while others come with 2 x 10 Gb ports** | FlexibleLOMs choice of 1 Gb, 10 Gb, or 10 Gb Ethernet or converged networking in their embedded adapter. - HP Ethernet 1 Gb 4-port 331FLR FIO Adapter - HP FlexFabric 10 Gb 2-port 534FLR-SFP+ FIO Adapter - HP Ethernet 10 Gb 2-port 560FLR-SFP+ FIO Adapter** | - HP NC375i Integrated Quad Port Gigabit Server Adapter - Optional Dual Port 10GbE upgrade (replaces (2) 1G ports) - HP Ethernet 1 Gb 4-port 331i-SPI Adapter** | Network RJ-45 4 | (2) 2-port Intel® 82575 embedded 10/100/1000 Base-TX LAN (autosensing; RJ45 connector, Wake On LAN support) | Four embedded NC553i 10 Gb FlexFabric converged network adapter ports with FCoE/Ethernet/iSCSI/ Flex-10/TOE; dedicated iLO interface | Two dual-port FlexibleLOM for choice of 10 Gb FlexFabric, 10 Gb Flex-10, 10 Gb Ethernet dedicated iLO network interface | - Six embedded HP NC553i 10 Gb FlexFabric adapter ports supporting autosensing 10 Gb/1 Gb Ethernet, FCoE, Flex-10, TCP/IP offload engine, hardware-based accelerated iSCSI, and iSCSI boot - One Ethernet-specific slot (mezzanine slot 6) supporting a dual-port mezzanine card for a total of eight "embedded" Ethernet adapter ports; dedicated iLO network interface | Two integrated NC551i 2-port FlexFabric 10 Gb Converged Network Adapters supporting stateless TCP/IP offload, TCP offload engine (TOE), Fibre Channel over Ethernet (FCoE) and iSCSI protocol; dedicated iLO network interface | Per blade (x 2 for BL870c and x 4 for BL890c): 2 integrated NC553i 10 Gb FlexFabric adapter ports supporting 10 Gb/1 Gb autosensing Ethernet, FCoE, Flex-10, and TCP/IP offload engine; up to 12 additional Gigabit Ethernet ports via the NC364m, 4-port mezzanine adapter or six additional 10 Gb Ethernet ports via the NC552m or the NC532m 2-port mezzanine adapters | Built-in networking SD2-8s: 32 10GbE NIC ports max. (4 per blade) SD2-16s: 32 10GbE NIC ports max. (4 per blade) SD2-32s: 64 10GbE NIC ports max. (4 per blade) |
| USB support | **Three total:** One internal USB 2.0 connector One micro SD-HC card slot One TPM 1.2 connector | **Three total:** One internal USB 2.0 connector One micro SD-HC card slot One TPM 1.2 connector | **Three total:** One internal USB 2.0 connector One micro SD-HC card slot One TPM 1.2 connector | **Three total:** One internal USB 2.0 connector One micro SD-HC card slot One TPM 1.2 connector | **Seven total:** Two front, four rear, one internal + one internal Micro SD slot | **Eight total:** Two front, four rear, two internal + one internal Micro SD slot | **Six total:** Two front, two rear, two internal + one internal SD slot | **Six total:** Two front (video) Two rear (video, NIC) Two internal | **Four total:** Four USB 2.0 ports | **Three total:** One internal USB 2.0 connector One SD-HC card slot One TPM 1.2 connector | **Three total:** One internal USB 2.0 connector One micro SD-HC card slot One TPM 1.2 connector | **Three total:** One internal USB 2.0 connector One SD-HC card slot One TPM 1.2 connector | **Three total:** One internal USB 2.0 connector One internal micro SD card slot One TPM 1.2 module support | **Three total per blade:** (x 2 for BL870c and x 4 for BL890c) One internal USB port Two external USB ports via SUV cable | **Two total:** Two USB ports for local user interface |
| Redundant power supply | Enclosure-based redundant power (single-phase or three-phase), DC power option | Enclosure-based redundant power (single-phase or three-phase), DC power option | | | Yes | Four (performance model) or two (base models) HP 1500 W Common Slot Platinum Plus hot-plug Power Supplies | Two (base models) or four (performance models) 1200 W Platinum Power Supplies standard | Rear accessible hot-plug power supplies with option for redundancy | Up to two hot-swap power supplies for N+N redundancy | Enclosure-based redundant power (single-phase and three-phase) DC power option | | | | | Each Superdome 2 enclosure supports 12 power supplies (2N or N_N) and four HP Crossbar Fabric Modules (XFMs) |
| Redundant fans | Redundant cooling using multiple hot-pluggable c-Class Active Cool Fans | Redundant cooling using multiple hot-pluggable c-Class Active Cool Fans | | | Hot-plug redundant fans (standard) | Four hot-plug redundant fans | Hot-plug redundant fans (standard) | Eight hot-plug, redundant fans (standard) | Up to six hot-plug fans (N+1 redundancy) | Redundant cooling using multiple hot-pluggable c-Class active cool fans | | | | | Each Superdome 2 compute enclosure supports 15 fans N + 1 |
| Infrastructure management | HP iLO Management Engine, HP Insight Control, HP OneView (option) | HP iLO Management Engine, HP Insight Control, HP OneView (option) | | | HP iLO Management Engine HP Insight Control HP OneView (option) | HP iLO 4 HP Insight Control HP OneView (option) | HP iLO 3 HP Insight Control HP OneView (option) | HP iLO, HP Systems Insight Manager Insight Control Suites and Insight Dynamics for ProLiant, HP Insight Control, HP OneView (option) | HP iLO 3, HP Systems Insight Display LEDs enable diagnosis with the access panel installed | HP iLO 3 HP Insight Control HP OneView (option) | HP iLO Management Engine HP Insight Control HP OneView (option) | HP iLO 3 standard for BladeSystem HP Insight Foundation HP OneView (option) | HP iLO 3 standard for BladeSystem, HP Insight Foundation HP OneView (option) | HP iLO 3 standard for BladeSystem HP Insight Foundation | HP Integrity iLO 3 management |
| Warranty (P: parts, L: labour, OSS: on-site support, NBD: next-business-day on-site) | 3-yr P, 3-yr L, 3-yr OSS | 3-yr P, 3-yr L, 3-yr OSS | 3-yr P, 3-yr L, 3-yr OSS | 3-yr P, 3-yr L, 3-yr OSS | 3-yr P, 3-yr L, 3-yr OSS | 3-yr P, 3-yr L, 3-yr OSS | 3-yr P, 3-yr L, 3-yr OSS | 3-yr P, 3-yr L, 3-yr NBD | 3-yr P, 3-yr L, 3-yr on-site limited global warranty | 3-yr P, 3-yr L, 3-yr OSS | 3-yr P, 3-yr L, 3-yr OSS | 3-yr P, 3-yr L, 3-yr OSS | 3-yr P, 3-yr L, 3-yr OSS | 3-yr P, 3-yr L, 3-yr on-site limited global warranty | 1-year on-site hardware support |
| Recommended support | **Proactive Care 3-year 24 x 7, 4-hour response** U3C18E | **Proactive Care 3-year 24 x 7, 4-hour response** U3B14E | **Proactive Care 3-year 24 x 7, 4-hour response** U3B14E | **Proactive Care 3-year 24 x 7, 4-hour response** U3B14E | **Proactive Care 3-year 24 x 7, 4-hour response** U6H10E | **Proactive Care 3-year 24 x 7, 4-hour response** U2Z68E | **Proactive Care 3-year 24 x 7, 4-hour response** U2Z68E | **Proactive Care 3-year 24 x 7, 4-hour response** H1K92A3 | **Proactive Care 3-year 24 x 7, 4-hour response** H1K92A3 | **Proactive Care 3-year 24 x 7, 4-hour response** U3B32E | **Proactive Care 3-year 24 x 7, 4-hour response** U3B32E | **Proactive Care 3-year 24 x 7, 4-hour response** U3B32E | **Proactive Care 3-year 24 x 7, 4-hour response** U3B32E | **Proactive Care 3-year 24 x 7, 4-hour response** H1K92A3 | **Proactive Care 3-year 24 x 7, 4-hour response** H1K92A3 |
| | **Installation and Startup Service** UR362E | **Installation and Startup Service – c7000 infrastructure** UE602E | **Installation and Startup Service – c7000 infrastructure** UE602E | **Installation and Startup Service – c7000 infrastructure** UE602E | **Installation and Startup Service** U6H60E | **Installation and Startup Service** U4618E | **Installation and Startup Service** U4618E | **Installation and Startup Service** HA113A1 | **Installation and Startup Service** HA113A1 | **Installation and Startup Service – c7000 infrastructure** UE602E | **Installation and Startup Service – c7000 infrastructure** UE602E | **Installation and Startup Service – c7000 infrastructure** UE602E | **Installation and Startup Service – c7000 infrastructure** UE602E | **Installation and Startup Service – c7000 infrastructure** HA113A1 | **Installation and Startup Service** HA113A1 |

## HP Flexible Network Adapters for ProLiant Gen8 Servers

| | ProLiant BL | | | | | | | | | | | | | | ProLiant DL/SL/ML | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Adapter** | HP 530 | HP NC532 | HP NC542 | NC552 | HP 544 (FDR/QDR) | HP 630 (Baird and BrWood) | | | HP 534 | HP NC551 | HP NC553 | HP 554 | HP 560 | 361FLB | 366M | 544QSFP | HP InfiniBand 4 x QDR ConnectX-2 PCI-e G2 dual-port HCA | | HP NC523 | HP 526 | 530FLR/SFP/T | 531 | HP 533 | HP 534FLR | HP NC550SFP 10 Gb 2-port PCI-e x 8 Ethernet Adapter | 554 | 560 | 561 | 570 | HP 571 | 331FLR/T | HP 332T | 360 | 361T | HP NC364 | HP NC365 | 366FLR | HP NC112T PCI-e | |
| **Number of ports** | 2 | 2 | 2 | 2 | 2 | 2 | | | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | 2 | 4 | 4 | 4 | 1 | |
| **Transfer rate** | 10000 (10GbE) | | | | (10/40 Gb/s) | 20000 (20GbE) | | | 10000 (10GbE) | | | | 10000 (10GbE) | 10/100/1000 | 10000 | 10/40 Gb/s | 10000 | | 10000 | 10000 | 10000 | | | | | 10000 | | | | | | 10/100/1000TX | 1000 | | | | | 1000 | 1000 | |
| **VC Flex10, FlexFabric, CNA** | VC Flex-10 | | | | CNA (IB/Ethernet) | Flex10, FlexFabric, CNA (iSCSI/FCOE) | | | Flex10, FlexFabric, CNA (iSCSI/FCOE) | | | | NIC | | IB | IB | IB | | NIC | | NIC | | | | | NIC | | | | | | NIC | | | | | | NIC | NIC | |
| **PCI bus architecture** | PCI-e v 2.0 | | | | PCI-e Gen3 | PCI-e v 2.0 | | | PCI-e v 2.0 | | | | PCI-e v 2.0 | | | PCI-e Gen3 | PCI-e v 2.0 | | PCI-e v 2.0 | | PCI-e v 2.0 | | | | | PCI-e v 2.0 | | | | | | PC