Data sheet

HP Z820 Workstation

Ultimate performance for ultimate projects.

HP recommends Windows.

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Tackle your most demanding projects like never before. The dual-processor HP Z820 Workstation delivers outstanding performance, an award-winning industrial design, and tool-free serviceability in our most expandable chassis. With next-generation Intel® Xeon® processors, support for up to 24 processing cores, and the latest professional graphics, your best work is yet to come.

Unmatched design. Inside and out.

Easily access, customize and maintain system components with a tool-less and visually cable-free chassis—ideal for direct connections with drives and power supplies. Integrated side rails and front and back handles simplify movement. Maximize cooling and reduce acoustics with a highly streamlined form factor designed for optimized airflow.

Superb performance.

Expand your daily potential with the Intel® Xeon® processor E5-2600 v2 family.[1] The HP Z820 can operate up to 24 processing cores, delivering the ultimate performance to help you accomplish more every minute. Featuring the C600 series chipset, LSI SAS 2308 controller, and dual Quick Path Interconnects between the processors, the two work together to help you work more effectively than ever before. Stay a step ahead with increased memory bandwidth and support up to 512 GB of the latest generation of DDR3 memory.[2] Connect in a flash with 4X USB 3.0 bandwidth on an optional high-performance Thunderbolt™ 2.0 port[3] on the HP Z820.

Ultra-powerful visuals.

Built to support next generation PCIe Gen3 graphics from AMD and NVIDIA, the HP Z820 Workstation currently offers a wide range of cards from Pro 2D to ultra-high-end 3D graphics to get the job done.[4] Drive multiple displays and multitask like a pro.[5] Plus, get the highest performing GPU computing solutions available in the Z family, like NVIDIA's Maximus, on the HP Z820.[4] Access high-performance applications, including 2D and 3D video, on-site or from a remote location with HP Remote Graphics software.[6]

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1. 3 External 5.25" Bays
2. Power Button
3. Front I/O: 1 USB 2.0, 2 USB 3.0, 1 Headphone, 1 Microphone, 1 1394a

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Form Factor	Rackable minitower
Available Operating Systems	Windows 7 Professional 32-bit* Windows 7 Professional 64-bit* Windows 7 Ultimate 64-bit* Windows 8.1 64-bit** Windows 8.1 Pro 64-bit** Windows 8.1 Pro Downgrade to Windows 7 Professional 32-bit*** Windows 8.1 Pro Downgrade to Windows 7 Professional 64-bit*** HP Linux Installer Kit

Available Processors[1,7,8]

Processor	GHz	Cache	Memory	Cores	Hyper-Threading	Intel® vPro™ Technology	Intel® Turbo Boost Technology[9]
Intel Xeon Processor E5-2643	3.3	10 MB	1600 MHz	4	Y	Y	1, 2
Intel Xeon Processor E5-2620	2.0	15 MB	1333 MHz	6	Y	Y	3, 5
Intel Xeon Processor E5-2697 v2	2.7	30 MB	1866 MHz	12	Y	Y	3, 8
Intel Xeon Processor E5-2695 v2	2.4	30 MB	1866 MHz	12	Y	Y	4, 8
Intel Xeon Processor E5-2690 v2	3.0	25 MB	1866 MHz	10	Y	Y	3,6
Intel Xeon Processor E5-2687W v2	3.4	20 MB	1866 MHz	8	Y	Y	2, 6
Intel Xeon Processor E5-2680 v2	2.8	25 MB	1866 MHz	10	Y	Y	3, 8
Intel Xeon Processor E5-2670 v2	2.5	25 MB	1866 MHz	10	Y	Y	4, 8
Intel Xeon Processor E5-2667 v2	3.3	25 MB	1866 MHz	8	Y	Y	3, 7
Intel Xeon Processor E5-2660 v2	2.2	25 MB	1866 MHz	10	Y	Y	4, 8
Intel Xeon Processor E5-2650 v2	2.6	20 MB	1866 MHz	8	Y	Y	4, 8
Intel Xeon Processor E5-2643 v2	3.5	25 MB	1866 MHz	6	Y	Y	1, 3
Intel Xeon Processor E5-2640 v2	2.0	20 MB	1600 MHz	8	Y	Y	3, 5
Intel Xeon Processor E5-2637 v2	3.5	15 MB	1866 MHz	4	Y	Y	1, 3
Intel Xeon Processor E5-2630 v2	2.6	15 MB	1600 MHz	6	Y	Y	3, 5
Intel Xeon Processor E5-2620 v2	2.1	15 MB	1600 MHz	6	Y	Y	3, 5
Intel Xeon Processor E5-2609 v2	2.5	10 MB	1333 MHz	4	N	Y	N/A
Intel Xeon Processor E5-2603 v2	1.8	10 MB	1333 MHz	4	N	Y	N/A

Chipset	Intel® C602 Chipset
Memory[10]	16 DIMM slots, up to 512 GB, 8-channel ECC DDR3, up to 1866 MHz, 4 channels per CPU
Drive Controllers	Integrated 2-channel SATA 6 Gb/s controller, RAID 0, 1 capable; Integrated 4-channel SATA 3 Gb/s controller, RAID 0, 1, 5, 10 capable; Integrated 8-channel SAS 6 Gb/s controller, RAID 0, 1, 10 capable; Optional SAS controller: LSI 9270-8i SAS/SATA, 8-port 6 Gb/s HW RAID 0, 1, 5, 10 capable
Storage[11,12]	Up to (5) 3.5-inch 7200 rpm SATA drives: 500 GB, 1, 2, 3 TB, 15 TB max; Up to (5) 2.5-inch 10K rpm SATA drives: 300 GB SFF, 1.5 TB max; Up to (6) 2.5-inch 10K rpm SATA drives: 250, 500, 1000 GB SFF, 6 TB max; Up to (6) 2.5-inch 10K rpm SAS drives: 300, 600, 900 GB, 1.2 TB SFF, 7.2 TB max; Up to (5) 3.5-inch 15K rpm SAS drives: 300, 450, 600 GB, 3 TB max; Up to (6) 2.5-inch SATA solid state drives: 128, 180, 240, 256, 480, 512 GB, 1 TB, 3 TB max; Up to (1) 2.5-inch SATA solid state SED drives: 256 GB; Up to (1) 2.5-inch SATA self-encrypting hard drive (SED HDD): 500 GB; Up to (1) PCIe SSD Fusion ioFX 410 GB PCIe; Up to (2) PCIe SSD HP Z Turbo Drives 256 GB, 512 GB (1 TB max)****
Optical Storage[13,14]	DVD-ROM, DVD+/-RW Super-Multi and Slot-Load, Blu-ray Writer, 15-in-1 Media Card Reader
Drive Bays	3 external 5.25-inch bays, 4 internal 3.5-inch bays
Expansion Slots	2 PCI Express Gen3 x16; 1 PCI Express Gen3 x16 (Available only with 2nd CPU); 1 PCI Express Gen3 x16 mechanical/x8 electrical; 1 PCI Express Gen3 x8 mechanical/x4 electrical; 1 PCI Express Gen2 x8 mechanical/x4 electrical; 1 Legacy PCI
Available Graphics	Professional 2D: NVIDIA NVS 300, NVIDIA NVS 310, NVIDIA NVS 315, NVIDIA Quadro NVS 450, NVIDIA NVS 510 Entry 3D: NVIDIA Quadro 410, NVIDIA Quadro K600, AMD FirePro™ V3900 Mid-range 3D: NVIDIA Quadro K2000 High-end 3D: NVIDIA Quadro K4000, AMD FirePro™ W7000, NVIDIA Quadro 5000, NVIDIA Quadro K5000, NVIDIA Quadro K6000, NVIDIA Tesla C2075[15], NVIDIA Tesla K20c, NVIDIA Tesla K40
Audio	Integrated Intel/Realtek HD ALC262 Audio, optional HP Thin USB Powered Speakers
Network	Dual integrated Intel GbE LAN; Infineon TPM 1.2 Controller; Optional Broadcom NIC; Optional Intel NIC
Ports	Front: 2 USB 3.0, 1 USB 2.0, 1 IEEE 1394a standard, 1 microphone in, 1 headphone out, HP 14-in-1 Media Card Reader (optional), HP 15-in-1 Media Card Reader (optional) Rear: 2 USB 3.0, 4 USB 2.0, 1 IEEE 1394a, 1 audio in, 1 audio out, 1 microphone in, 2 PS/2, 2 RJ-45 to integrated Gigabit LAN, 1 serial, 1 Thunderbolt™ 2 port via optional add-in PCIe card[3,4] Internal: 6 USB 2.0 ports available by three 2x5 headers
Remote Technology	HP Remote Graphics Software (RGS)
Input Devices	HP PS/2 standard keyboard, HP USB standard keyboard, HP USB Smart Card Keyboard, HP PS/2 optical scroll mouse, HP USB 2-button optical scroll mouse, HP USB 3-button optical mouse, USB SpaceExplorer, USB SpacePilot, USB Laser Mouse
Dimensions (H x W x D)	17.5 x 8.0 x 20.7 in (44.4 x 20.3 x 52.5 cm)
Power Supply	850W 88% Efficient wide-ranging, active Power Factor Correction or 1125W 90% Efficient wide-ranging, active Power Factor Correction
Compatible Displays (screen size diagonally measured)	HP DreamColor LP2480zx Professional Display (24-inch diagonal widescreen), HP ZR30w 30-inch S-IPS LCD Monitor, HP ZR2740w 27-inch LED Backlit IPS Monitor, HP ZR2440w 24-inch LED Backlit IPS Monitor, HP LP2475w 24-inch Widescreen LCD Monitor, HP ZR2240w 21.5-inch LED Backlit IPS Monitor, HP ZR2040w 20-inch LED Backlit IPS Monitor, HP DreamColor LP2480zx Professional Display, HP Z Display Z30i 30-inch IPS Display, HP Z Display Z27i 27-inch IPS Display, HP Z Display Z24i 24-inch IPS Display, HP Z Display Z23i 23-inch IPS Display, HP Z Display Z22i 21.5-inch IPS Display
Warranty[16]	Limited three-year Mon-Fri 8-5 next business day, parts, labor and 24x7 phone support, terms and conditions may vary.

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Screen images courtesy of Autodesk.

* This system may require upgraded and/or separately purchased hardware to take full advantage of Windows 7 functionality. Not all features are available in all editions of Windows 7. See microsoft.com/windows/windows-7/ for details.

** Not all features are available in all editions of Windows 8 and 8.1. Systems may require upgraded and/or separately purchased hardware, drivers, and/or software to take full advantage of Windows 8 and 8.1 functionality.

*** This system is preinstalled with Windows 7 Pro software and also comes with a license and media for Windows 8.1 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

**** Each drive requires a PCIe x4 (minimum)

1. Multi-Core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. 64-bit computing on Intel® architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers, and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel® 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations.
2. Maximum memory capacities assume Windows 64-bit operating systems or Linux. With Windows 32-bit operating systems, memory above 3 GB may not all be available due to system resource requirements.
3. Thunderbolt™ 2 is available via an optional add-in card. Thunderbolt is new technology. Thunderbolt cable and Thunderbolt device (sold separately) must be compatible with Windows. To determine whether your device is Thunderbolt Certified for Windows, see thunderbolttechnology.net/products.
4. Sold as an optional or add on feature.
5. Support for external displays as a standard feature through integrated processor-based graphics is dependent upon the particular workstation configuration; the actual number of displays supported will vary. An optional graphics solution will be required for the support of additional displays. Additional cables required. HD (high-definition) content required to view HD images.
6. HP Remote Graphics Software requires Windows and an internet connection.
7. 64-bit computing on Intel® architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel® 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. See intel.com/info/em64t for more information.
8. Intel's numbering is not a measurement of higher performance.
9. The specifications shown in this column represent the following: (all core maximum turbo steps, one core maximum turbo steps). Turbo boost stepping occurs in 100MHz increments. Processors that do not have turbo functionality are denoted as N/A. Intel® Turbo Boost technology requires a PC with a processor with Intel® Turbo Boost capability. Intel® Turbo Boost performance varies depending on hardware, software, and overall system configuration. Please visit intel.com/technology/turboboost for more information.
10. Each processor supports up to 4 channels of DDR3 memory. To realize full performance at least 1 DIMM must be inserted into each channel.
11. SATA hardware RAID is not supported on Linux systems. The Linux kernel, with built-in software RAID, provides excellent functionality and performance. It is a good alternative to hardware-based RAID. Please visit h20000.www2.hp.com/bc/docs/support/SupportManual/c00060684/c00060684.pdf for RAID capabilities with Linux
12. For hard drives and solid state drives, GB=1 billion bytes. TB= 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB is reserved for system recovery software.
13. Actual speeds may vary. Does not permit copying of commercially available DVD movies or other copyright protected materials. Intended for creation and storage of your original material and other lawful uses. Note that DVD-RAM cannot read or write to 2.6 GB Single Sided/5.2 GB Double Sided – Version 1.0 media.
14. As Blu-ray contains new technologies, certain disc, digital connection, compatibility and/or performance issues may arise, and do not constitute defects in the product. Flawless playback on all systems is not guaranteed. In order for some Blu-ray titles to play, they may require a DVI or HDMI digital connection and your display may require HDCP support. HD DVD movies cannot be played on this workstation.
15. NVIDIA Tesla C2075 requires the 1125W power supply.
16. HP Care Pack Services extend service contracts beyond the standard warranties. Service starts from date of hardware purchase. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at hp.com/go/lookuptool. Additional HP Care Pack Services information by product is available at hp.com/go/carepack. Service levels and response times for HP Care Packs may vary depending on your geographic location.

Learn more at
hp.com/go/z820

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