

Solution guide

Made for the most critical missions in the universe

NASA is sending 120 HP ZBook Workstations to the International Space Station to help push the boundaries of science and discovery.



Florida Keys, shot from the International Space Station

True pioneers need access to cutting-edge technology like HP Z Workstations when the stakes are highest. HP is proud that NASA has chosen ZBooks to help provide mission command, control, and life support to the International Space Station as they journey into the unknown.



keep reinventing



HP ZBook Mobile Workstations are designed for the demands of users who work with professional and technical applications, large and complex datasets or intricate 3D models.

HP Z Workstation technology allows visionary thinkers to redefine the current parameters of their field, whether it's space exploration, medicine, art, entertainment, or even government, forging discoveries and unlocking potential formerly thought impossible.

Our ZBook Mobile Workstations deliver super performance, outstanding reliability and wide-ranging scalability as well as a range of screen sizes to fit various needs.

HP ZBook Mobile Workstations*

Form factors

- 15.6-inch diagonal
- 17.0-inch diagonal

Operating systems^{1,2}

- Windows 10 Pro 64
- Windows 10 Home 64
- Windows 7 Professional 64 (available through downgrade rights from Windows 10 Pro)
- Windows 7 Professional 64
- FreeDOS 2.0

Performance

- Intel® Core™ i3, i5, i7 processors
- Intel® Xeon® quad-core processor⁵
- Up to 64 GB ECC memory³
- Up to 4 TB storage⁴
- Two Thunderbolt™ 3¹⁵ (supporting DP 1.2, USB 3.1 Gen 2, PCIe)
- Up to dual HP Z Turbo Drive G2 (NVMe PCIe SSD) for accelerated storage performance
- Support for up to UHD display options
- HP DreamColor¹² panel option

Reliability

- MIL-STD-810G testing⁶
- Rigorous ISV testing and certifications
- Productivity-boosting software tools such as HP Performance Advisor and HP Remote
- Graphics Software preloaded
- Precision stamped full magnesium alloy chassis
- Chemically strengthened glass touchpad
- Cast titanium alloy display latch

Graphics

ISV-certified, workstation-caliber AMD FirePro™ or NVIDIA® Quadro® professional graphics

Warranty

3/3/3 or 3/3/0 support**

* Many workstation technologies are selectable options. Specifications can vary by workstation platform.

** Varies by region



HP ZBooks help you spend less time waiting and more time creating with industry-leading processing, graphics and innovative technologies.

Take performance to new extremes

Leave the performance bottleneck behind with HP ZBooks. With industry-leading processing, storage, graphics, and system management components HP has engineered a total system approach to define new levels of overall performance.

Intel Processor Technology

High-performance Intel® Xeon® processors are validated and tested by Intel and HP for demanding workstation applications. Besides supporting greater reliability with ECC memory, Intel® Xeon® processors offer up to 29% performance gains over equivalent Intel® Core™ processors on the HP Entry Workstations.⁷

Storage solutions to meet your needs

High-performance storage solutions are required for demanding workflows. HP ZBooks offer high reliability and performance with storage capacities up to 4 TB. With 2.5" and M.2 storage bay options, you can choose from SATA HDD, SATA SSD, and NVMe PCIe SSD options.

The HP Z Turbo Drive G2 is a remarkably affordable and innovative NVMe PCIe-based SSD storage solution. It revolutionizes how your HP ZBook handles large files—significantly reducing boot up, calculation and graphics response times (even with 4K video). To learn more, see hp.com/go/zturbo.

Leading-edge professional graphics

Extensive HP testing over a wide range of graphics cards, simulating real-world customer workloads and stress tests that far exceed typical usage, translate into higher quality drivers that customers trust. Strong relationships with NVIDIA® and AMD help us quickly resolve any issues. That's how we give your HP ZBook graphics solutions that feature optimized thermal and power design, wide-ranging application certification and a three-year limited warranty.

HP Performance Advisor

Get the most out of your ZBook from day one. With HP Performance Advisor pre-installed on every HP ZBook, you can spend more time working, processing and designing and less time troubleshooting IT. This exclusive HP software wizard helps configure, customize and optimize your system for each new application and driver you install. To learn more, see hp.com/go/performanceadvisor.

HP Remote Graphics Software

Work like you're local with transfer speeds up to 60 fps for your most demanding applications. HP Remote Graphics Software (RGS) takes the mobility of your workstation to a whole new level¹³. Now you can leave your HP ZBook docked at the office and connect from home while still getting that high end workstation performance you need and expect. Not only can you view the session, but you can collaborate with multiple remote users by streaming your local workstation screen across the cloud to your team's individual devices or pulling multiple remote feeds to a single PC. Every HP Z Workstation includes an HP RGS sender license ready to activate and an HP RGS receiver can be downloaded for any PC, Mac®, MacBook®, Windows tablet or thin client. And with advanced touch recognition features on HP RGS 7 you can easily do real work with workstation-class applications on an HP ZBook or tablet. To learn more, see hp.com/go/rgs.

Thunderbolt™ 3

Connect to a multitude of devices through a single port with the versatile Thunderbolt™ 3. You can connect via Thunderbolt, DisplayPort 1.2, USB 3.1, and PCIe. Power two 4K displays @ 60 Hz, daisy chain up to 6 devices, and transfer data at speeds up to 40 Gb/s—double that of previous generation Thunderbolt. The possibilities are endless. HP ZBook Studio, ZBook 15 G3 and ZBook 17 G3 offer dual Thunderbolt™ 3 ports.

Performance on display

HP ZBooks come with a variety of display choices from FHD up to UHD/4K resolutions. UHD/4K panels offer extremely high resolution (3840 x 2160) for maximum screen real estate and vibrant, clear pictures. The HP ZBook 15u offers a touch option.

HP DreamColor Technology

Take color accuracy to the next level and achieve maximum impact with the HP DreamColor Display. Designed by color professionals and digital content creators, HP DreamColor is the power tool they use to produce trusted results. Featuring a palette of over one billion colors, you'll get precise color accuracy and predictable color across your entire digital workflow.



Ultimately, our intense focus on reliability gives you greater peace of mind when running professional applications on the HP ZBook. You know that you have a system that is designed, tested, and proven for the work you do.

115,000
hours of testing

Mission-critical reliability

We understand your work is critical and system down time or failure is not an option. HP ZBooks are designed and tested to comprehensively address reliability in all its forms, so you can rest assured your workstation will keep up in the most demanding environments.

Business-rugged design

HP ZBooks are designed to stand up to the rigors of users who are constantly on the go. HP uses third party vendors to test the ZBooks to military standards for drop, vibration, dust, temperature, and altitude.⁶

Tested beyond industry standards

HP knows you challenge your workstations every day, so HP does too. HP Z Workstation engineers conduct 115,000 hours of rigorous testing to ensure world-class reliability. In brutal three-axis testing—where frequency, voltage, and temperature are varied—our engineers push the limits of processors, memory, and other system parts. This three-axis testing uses proprietary tools and techniques, and stresses components in ways that help detect potential design or component weaknesses that would otherwise go unnoticed. In some cases, rigorous qualification enables us to find issues that have been previously overlooked by our component vendors. We have strong relationships and influence with these vendors, which enable us to obtain and integrate improved components into our systems, many of which are unique to HP Z Workstations.

ECC memory for data integrity

Memory errors can happen anywhere, anytime—with consequences as disastrous as a system crash in the middle of a critical operation.

Error Correction Code (ECC) memory detects and corrects soft errors in the memory system on the fly, preserving the integrity of your data. HP offers ECC memory on our workstations so your mission-critical applications can run smoothly with minimized memory errors.

Safe and secure

HP offers a variety of scalable hardware, software, and BIOS-based security features to help you defend your organization against viruses and other threats. These integrated security features safeguard what matters to you the most—your data, device and identity.

- An optional fingerprint reader and integrated Smart Card Reader help keep your identity secure.
- HP SureStart goes to work at startup—making sure your ZBook is protected from malicious or unanticipated malware attacks. It's designed to automatically restore the BIOS within 30 seconds if it is ever attacked or corrupted.
- Secure Erase enables you to permanently destroy data on your hard drive in preparation for your system disposal or redeployment.

Engineered BIOS

HP BIOS helps hardware compatibility and increases workstation reliability by reducing power consumption through preset sleep states, adjustable fan speeds that maximize operating efficiency, and power management features.

Independent Software Vendor (ISV) certification

HP supports an extensive list of application partners and works closely with many software vendors to ensure that these applications work smoothly and flawlessly on HP ZBooks in all possible configurations. HP also provides a test suite to graphics vendors, to help increase the reliability and stability of industry-standard graphics products. [Learn more about how HP's relationships power you.](#)

30+

years in the industry

Why choose an HP ZBook?

HP Z Workstations have been on the market for over 30 years. Designed from the inside out to fulfill the needs of our customers, HP Z Workstations deliver high performance and reliability with the latest innovation and industry-leading technologies.

HP ZBook 15u Thin. Powerful. Affordable.

Enjoy workstation performance in a low cost, compact package. HP created the world's first workstation Ultrabook™⁸ and we improve it with each generation. This 15.6" diagonal form factor is the perfect combination of mobility and cost.

HP ZBook Studio World's first quad core workstation Ultrabook™⁹

We put desktop workstation performance in a sleek new body to unleash the ultimate mobile workstation. At just 18mm thin, 4.4 lbs.¹⁰ and an optional 4K DreamColor display,¹² you can take your studio on the road with you.

HP ZBook 15 Portable Powerhouse

Creativity knows no limits on HP's thin and light next generation ZBook 15, the world's best-selling mobile workstation.¹¹ Offering a powerful blend of mobility and robust configurability, it's the perfect mix of style, features, and portability.

HP ZBook 17 HP's ultimate in mobile performance

The HP ZBook 17 offers HP's ultimate in power plus portability with a 17.3-inch diagonal screen, massive scalability and configurability, and all the latest power-packed features.

Memory, storage and graphics that meet your needs

	Available operating systems ^{1,2}	Maximum memory ³	Maximum storage ⁴	Maximum graphics
ZBook 15u G3	Windows 10 Professional Windows 7 Professional FreeDOS	32 GB	1.5 TB	AMD FirePro™ W4190M
ZBook Studio	Windows 10 Professional Windows 7 Professional FreeDOS	32 GB	2 TB	HP ZBook Studio special edition: NVIDIA® Quadro® M1000M with 4 GB dedicated GDDR5 graphics memory (Extra 2 GB of graphics memory provides enhanced application performance with larger graphics datasets).
ZBook 15 G3	Windows 10 Professional Windows 7 Professional FreeDOS	64 GB	3 TB	NVIDIA® Quadro® M2000M AMD FirePro™ W5170M
ZBook 17 G3	Windows 10 Professional Windows 7 Professional FreeDOS	64 GB	4 TB	NVIDIA® Quadro® M5000M AMD FirePro™ W6150M



1. Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. See microsoft.com
2. This system is preinstalled with Windows 7 Professional software and also comes with a license and media for Windows 10 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.
3. Maximum memory capacities assume Windows 64-bit operating systems. With Windows 32-bit operating systems, memory above 3 GB may not all be available due to system resource requirements.
4. For hard drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) of system and up to 30 GB (for Windows 8) disk is reserved for system recovery software.
5. 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. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering is not a measurement of higher performance.
6. Testing was not intended to demonstrate fitness for Department of Defense contracts requirements or for military use. Test results are not a guarantee of future performance under these test conditions.
7. Results based on the SPECcap benchmarks for DS SolidWorks 2015 CPU Composite and the Cinebench CPU benchmark test; comparing an HP Z240 Tower Workstation with an Intel® Core™ i5-6600 processor to an HP Z240 Tower Workstation with an Intel® Xeon® E3-1240 v5 Processor. All other system configurations were selected to be as equal as possible.
8. Not all configurations qualify as an Ultrabook™.
9. Based on HP's internal analysis of all mobile workstation models from any vendors with >200 thousand unit annual sales as of October 29, 2015, having Quad-core CPU's, with Intel's Ultrabook Certification.
10. Weight will vary by configuration.
11. Source: IDC WW WS Historical Tracker 2015Q1 – 05.06.15
12. FHD Touch and UHD DreamColor displays planned to be available in 1H16.
13. HP RGS requires a Windows, Linux®, or Mac® OS X 10.10 and newer operating system and network access.

For more information visit
hp.com/go/zbooks



Share with colleagues



Rate this document

© 2016 HP Development Company, L.P. 120 HP ZBook 15 Mobile Workstations are being sent to the International Space Station. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Intel, Core, Xeon, Thunderbolt, and Ultrabook are trademarks of Intel Corporation in the U.S. and other countries. AMD and FirePro are trademarks of Advanced Micro Devices, Inc. Microsoft and Windows are U.S. registered trademarks of the Microsoft group of companies. NVIDIA and Quadro are trademarks and/or registered trademarks of NVIDIA Corporation in the U.S. and other countries. Linux® is the registered trademark of Linus Torvalds in the U.S. and other countries. Apple, Mac, and MacBook are registered trademarks of Apple Inc. 120 HP ZBook 15 Mobile Workstations are being sent to the International Space Station. NASA/courtesy of nasaimages.org.

