

# HP ZBook G4 Mobile Workstations



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## General

### What are HP ZBook Mobile Workstations?

HP ZBook Mobile Workstations are HP's family of revolutionary mobile workstation solutions designed for the most demanding technical and creative professionals to let you create anytime, anywhere, without limits. Combining a world class industrial design and engineering, robust tools, and visual collaboration solutions, the fourth generation of the HP ZBook Mobile Workstation family—the new HP ZBook 14u G4, HP ZBook 15u G4, HP ZBook Studio G4, HP ZBook 15 G4, HP ZBook 17 G4, and HP ZBook Dock with Thunderbolt 3—takes performance, innovation, and reliability to the next level to help give you and your business a competitive edge.

The HP ZBook Mobile Workstations build on the strength and success of the HP Z Workstation family. Work confidently and accomplish more with HP Mobile Workstations designed around 30 years of HP Z DNA with extensive ISV certification, expanded MIL-STD 810G testing covering 14 individual tests<sup>7</sup>, and 120,000 hours of testing in HP's Total Test Process.

### HP ZBook 14u G4: Thin, Powerful, Affordable

- Enjoy workstation performance in a low cost, compact package. The HP ZBook 14u with its 14" diagonal display is a superb combination of mobility and cost.
- Ready to work and budget friendly—be ready for anything with this thin and light mobile workstation that starts at 4.18 lb<sup>2</sup> and only 19.9 mm.
- Experience performance at your fingertips with the latest 7<sup>th</sup> generation Intel® Core™ i5 or i7 processors<sup>3</sup>, up to 32 GB of memory, AMD FirePro™ professional graphics, 2 TB<sup>4</sup> of storage including the optional HP Z Turbo Drive G2<sup>5</sup>, and an FHD touch or UHD display<sup>5</sup>.

### HP ZBook 15u G4: Capture your inspiration wherever you go

- Take workstation class power with you wherever you go with extraordinary compute and graphics capability in a remarkably compact design on our 15.6" diagonal thin and light mobile workstation that starts at 4.18 lb<sup>2</sup> and only 19.9 mm.
- Step-up to workstation power with 7<sup>th</sup> generation Intel® Core™ i5 or i7 processors<sup>3</sup>, professional AMD graphics, multiple display options including 4K UHD or FHD touch, and certification with leading software partners for fast performance across multiple applications.
- Confidently take on your workday knowing that HP's standard for mobile workstation durability and reliability is in effect: 120,000 hours of testing under HP's Total Test Process and a pass rating on 14 MIL-STD tests<sup>1</sup>.

### HP ZBook Studio G4: Meet our thinnest, lightest full-performance workstation

- Built for creative visionaries like engineers, architects, and film editors the HP ZBook Studio offers the exhilarating power you only thought possible with a workstation desktop, in a sleek, light mobile design.
- Meticulously crafted with a fully-machined aluminum and die-cast magnesium body, diamond-cut edges, offering a stunning HP DreamColor display<sup>5</sup>, and crafted to be just 18 mm thin and 4.4 lb<sup>2</sup> you'll be prepared wherever inspiration strikes.
- Experience the power of the world's first quad-core workstation Ultrabook™<sup>6,7</sup>. Engineered with powerful server-grade 7<sup>th</sup> generation Intel® Xeon® processors, NVIDIA® Quadro® professional graphics, and dual HP Z Turbo Drives<sup>5</sup> for fast storage.

### HP ZBook 15 G4: Portable powerhouse

- Creativity knows no limits with HP's thin and light next generation HP ZBook 15, HP's best-selling mobile workstation. Offering a powerful blend of mobility and robust configurability, it's the perfect mix of style, features, and portability.
- Power through your day with the latest Intel® Xeon® processors, professional NVIDIA® Quadro® or AMD Radeon™ Pro graphics, 3 TB of storage<sup>4</sup> including HP Z Turbo Drive G2<sup>5</sup> and dual Thunderbolt™ 3 ports.
- Made for the most demanding workloads, the HP ZBook 15 is used by NASA to help push the boundaries of science and discovery on the International Space Station. Imagine what it could do for you.

### HP ZBook 17 G3: The ultimate in mobile performance

- We've built desktop workstation power, performance and expandability into a device designed for the road. Made for mobile creative and design professionals with the most demanding projects, where compromise is simply not an option.
- HP's largest screen size and most powerful mobile workstation boasts configuration options including 7<sup>th</sup> generation Intel® quad-core processors<sup>3</sup>, a choice of graphics options including HP VR Ready configurations, up to 64 GB of memory, and up to 4 TB of storage<sup>4</sup> allowing you to address your most demanding needs.
- Sporting a new tool-less access chassis and passing 14 MIL-STD tests<sup>1</sup> and 120,000 hours of testing in HP's Total Test

Process, our HP ZBook 17 lets you confidently take on your workday with a system where the fusion of innovation, performance, and reliability meet.

**HP ZBook Dock with Thunderbolt 3: Portable, clutter-free docking for your HP ZBook**

- Create a remarkably powerful and streamlined mobile workstation workspace without the clutter with the HP ZBook Dock with Thunderbolt 3. Get expansive device, display, and network connectivity plus simultaneous power & charging of your system through one simple cable from the dock to your HP ZBook.
- Have a lot to connect? No problem! Link up to 10 devices at once through ports that include Thunderbolt™ 3 (which also supports DisplayPort™ 1.2 and USB 3.1 Gen 2), four USB 3.0, RJ-45, VGA, combo audio, and two additional DisplayPort™ ports.
- Rapidly replenish your HP ZBook's power after a demanding day with an impressive charging station that passes power directly through a Thunderbolt™ 3 power cable to your HP ZBook.

**Will HP ZBook Mobile Workstations continue to have HP Elite Premium support?**

- Yes, HP ZBooks will have the same support as the HP EliteBooks. This includes our 3-year (3-3-3) limited warranty and service offering which includes 3 years of parts, labor and on-site repair. Terms and conditions vary by country. Certain restrictions and exclusions apply.

**What products are being replaced by the HP ZBook G4 Mobile Workstations?**

- The HP ZBook 14u G4 or 15u G4 replace the HP ZBook 15u G3.
- The HP ZBook 15 G4 and HP ZBook 17 G4 replace the HP ZBook 15 G3 and HP ZBook 17 G3, respectively.
- The HP ZBook Studio G4 replaces the HP ZBook Studio G3.

**When will the HP ZBook G3 Mobile Workstations be discontinued?**

- The HP ZBook G3 models will be discontinued at the end of July 2018. The extended discontinuation date has been set to support customers who are still on Windows 7.

**Will the HP ZBook Mobile Workstations be available worldwide?**

- Yes. All of the HP ZBook G4 models will be available worldwide and will be added to the HP Global Series offerings.

**What is the starting price of the HP ZBook G4 Mobile Workstations?**

- Pricing will vary by region/country and configurations.

**If you are looking for the following, an HP ZBook Mobile Workstation may be right for you:**

- Highest-performing mobile CPU for best possible workstation application performance
- Highest-performing workstation-class graphics with hardware accelerated OpenGL graphics support
- ISV certifications for reliable application performance
- Optimized mobile workstation form factor
- True 64-bit computing environment
- High-quality display panel technology
- Reliability and durability
- Appealing industrial design
- Common commercial accessories & docks

**What type of users are the HP ZBook Mobile Workstations designed for?**

Creative or design specialists, travelers, mobile financial professionals, and knowledge workers that need high-performance mobile workstations designed for reliable performance with demanding applications.

**Where do HP ZBook Mobile Workstations fit in the overall HP family of Business Notebook PCs?**

The HP ZBook Mobile Workstations are HP's best combination of high-performance features and ISV-certified graphics in a business-rugged design. They uniquely provide full performance quad-core processors<sup>8</sup>, professional 3D graphics solutions from NVIDIA<sup>®</sup> and AMD, Thunderbolt™ 3 ports for high-speed connectivity, tremendous expandability for large memory and/or large storage configurations, HP DreamColor<sup>5</sup> panel choices for color-critical workflows, HP Remote Graphics Software<sup>9</sup>, HP Performance Advisor, and ISV certifications from a broad selection of workstation-class applications.

**What are the key differences between the HP ZBook Mobile Workstations and the HP EliteBook Business Notebooks?**  
Differences between the HP EliteBook Business Notebooks and the HP ZBook Mobile Workstations can be seen in areas of industrial design, memory and storage, reliability, graphics, and warranty. See the detailed table below.



	HP EliteBook 800 G4 series Notebook PC	HP ZBook G4 Mobile Workstations*
Form factors	14.0-inch diagonal 15.6-inch diagonal	14.0-inch diagonal 15.6-inch diagonal 17.3-inch diagonal
Expandability	Up to 32 GB memory Up to 2 storage bays (1) USB Type-C™ ports (supporting Thunderbolt™ 3, DisplayPort™ 1.2, USB 3.1) Up to 512 GB M.2 PCIe NVMe SSD 7th generation quad-core Intel® Core™ i3, i5, i7 processors Display support for up to FHD Touch UWVA, UHD HP DreamColor displays	Up to 64 GB memory Up to 4 storage bays (2) USB Type-C™ ports (supporting Thunderbolt™ 3, DisplayPort™ 1.2, USB 3.1) ports Up to 1 TB <sup>4</sup> dual HP Z Turbo Drive G2 (M.2 NVMe PCIe SSD or SED SSD) 7th generation quad-core Intel® Xeon® or Core™ i5, i7 processors <sup>3,8</sup> Display support for up to FHD Touch UWVA, UHD HP DreamColor displays Easy access tool-less design
Reliability	Business-rugged, MIL-STD-810G testing <sup>1</sup> HP DuraCase HP DuraKeys HP Premium Keyboard Audio by Bang & Olufsen Magnesium and aluminum chassis Chemically strengthened glass touchpad Cast titanium alloy display latch	All the reliability features in the HP EliteBook 800 series notebook plus: <ul style="list-style-type: none"> <li>• Rigorous ISV testing and certifications</li> <li>• Expanded Mil-STD 810G testing<sup>1</sup></li> <li>• Support for RAID (0, 1,)<sup>10</sup></li> <li>• Productivity-boosting software tools such as HP Performance Advisor, HP Velocity, and HP Remote Graphics Software<sup>9</sup> preloaded</li> </ul>
Graphics	Intel® HD Graphics AMD Radeon™	Intel® HD Graphics AMD Radeon™ Pro NVIDIA® Quadro® professional graphics HP VR Ready configurations
Warranty	1/1/0 or 3/3/0 support, on-site service is extra	3/3/0 or 3/3/3 support**

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

\*\* Varies by region.

## Brand and industrial design

### What are the key industrial design elements of the HP ZBook Mobile Workstations?

- Precision engineering
- Premium materials/finishes
- Business-rugged/designed to pass 14 MIL-STD tests<sup>1</sup>
- Thinner/lighter completely redesigned chassis
- High-end processing (Intel® Xeon®, Core™ i5/i7, and next generation graphics options)
- Choice of performance in a thin and light package with the HP ZBook 14u G4 and 15u G4, quad core full performance workstation Ultrabook™<sup>6</sup> HP ZBook Studio G4 or fully featured mobile performance on the HP ZBook 15 G4 and 17 G4
- Superior display panel technology with outstanding resolution and color accuracy
- Precise dual fan cooling and acoustics

**What is the logic behind the HP ZBook Mobile Workstation industrial design for the HP ZBook 14u G4, HP ZBook 15u G4, HP ZBook 15 G4, and HP ZBook 17 G4?**

The HP Mobile Workstation's Space Silver and Gravity Black color combination represents power, performance, and high-end aesthetics. This color combination will be unique to the HP ZBook family.

One example of HP ZBook uniqueness is the soft-touch paint border around the top cover of the unit. This soft-touch paint provides added aesthetics and is applied to "high traffic" areas that might otherwise be exposed to excessive fingerprint smudging.

The keyboard deck uses anodized stamped aluminum for added durability. An HP Spill Resistant Keyboard with Durakeys and touchpad buttons featuring a Duracoat finish ensure an overall business rugged experience. Finally, a diamond cut process has been applied around the keyboard deck providing an enhanced visual appeal.

Back by popular demand on our HP ZBook 17 G4 is a easy access tool-less chassis design.

**What is the logic behind the HP ZBook Mobile Workstation industrial design for the HP ZBook Studio G4?**

The HP ZBook Studio features uniform Space Silver throughout the industrial design with Black Licorice color for the bottom cover—representing premium design, performance, and high-end beautiful aesthetics.

The HP ZBook Studio uses a manufacturing process called CNC machining (computer numeric controlled machining) for the top cover and keyboard deck. This technique allows us to create a very fine detailed design out of a single sheet of premium lightweight aluminum—providing overall added durability, an overall thinner and lighter design, and an anodized finish throughout.

The bottom cover is constructed of magnesium for solid rigidity and durability with a 2-piece aluminum bottom, which serves as an air intake that dramatically improves air flow for an overall optimized system thermal profile.

Finally, a meticulous diamond cut process is applied around the keyboard deck and around the clickpad which showcases the overall style.

**What materials are used in the new HP ZBook Mobile Workstation platforms?**

The HP ZBook Mobile Workstations are constructed from aluminum and magnesium with other metal alloys and rubber elements. These materials create the best possible combination of durability, light weight, and low flexibility.

## HP ZBook 14u G4 Mobile Workstation

### What is special about the HP ZBook 14u G4 Mobile Workstation?

The HP ZBook 14u G4 introduces the 14.0" diagonal screen size back into HP's Mobile Workstation line-up. This thin and light Ultrabook™ workstation delivers an extraordinary level of power and graphics capability in a remarkably compact design to let you take workstation-class power anywhere you go. At 22 mm thin, as little as 3.61 lb<sup>2</sup>, you'll always be ready to innovate. And work confidently with a 3-year limited warranty, 120,000 hours of testing, and 35 years of HP Z DNA. This is where the fusion of innovation, performance & reliability meet.

### How does the HP ZBook 14u G4 compare to the HP ZBook 15u G4?

		HP ZBook 14u G4	HP ZBook 15u G4
<b>Dimensions</b>	<b>Depth</b>	237 mm/9.3"	257.7 mm/10.1"
	<b>Width</b>	338 mm/13.3"	383.3 mm/15.09"
	<b>Height (front)</b>	22.1 mm/.87"	19.9 mm/.78"
<b>Weight<sup>2</sup></b>		1.65 kg/3.61 lb	1.9 kg/4.18 lb
<b>Display</b>		HD SVA/AG, FHD SVA/AG, FHD UWVA/AG, Touch FHD SVA/AG	FHD SVA/AG, FHD UWVA/AG, Touch FHD SVA/AG, UHD UWVA/AG
<b>Chipset</b>		Chipset integrated within processor	Chipset integrated within processor
<b>Processor<sup>3,8</sup></b>		7th generation dual-core Intel® Core™ i7 and i5 CPUs	7th generation dual-core Intel® Core™ i7 and i5 CPUs
<b>Graphics<sup>11,12</sup></b>		Intel® HD Graphics 620 AMD FirePro™ W4190M (2 GB GDDR5)	Intel® HD Graphics 620 AMD FirePro™ W4190M (2 GB GDDR5)
<b>Maximum Memory<sup>13</sup></b>		Up to 32 GB DDR4-2133 non-ECC SDRAM (Transfer rates up to 2133 MT/s)	Up to 32 GB DDR4-2133 non-ECC SDRAM (Transfer rates up to 2133 MT/s)
<b>Internal storage<sup>4</sup></b>		1 TB SATA (5400 rpm) 500 GB SATA (7200 rpm) 500 GB SATA SED (7200 rpm) 500 GB SATA SED FIPS 140-2 (7200 rpm) 500 GB (8 GB cache) SATA SSHD (5400 rpm) 256 GB M.2 SATA SED SSD 512 GB M.2 SATA SED FIPS SSD 256 up to 1 TB HP Z Turbo Drive G2 (NVMe PCIe MLC SSD) 256 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SSD) 512 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SED SSD)	1 TB SATA (5400 rpm) 500 GB SATA (7200 rpm) 500 GB SATA SED (7200 rpm) 500 GB SATA SED FIPS 140-2 (7200 rpm) 500 GB (8 GB cache) SATA SSHD (5400 rpm) 256 GB M.2 SATA SSD 512 GB M.2 SATA SED SSD 256 up to 1 TB HP Z Turbo Drive G2 (NVMe PCIe MLC SSD) 256 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SSD) 512 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SED SSD)
<b>Battery<sup>14</sup></b>		HP Long Life 3-cell 51 WHr Li-ion polymer with HP Fast Charge support	HP Long Life 3-cell 51 WHr Li-ion with HP Fast Charge support
<b>Battery life<sup>15</sup></b>		TBD	Up to 12:14
<b>Adapter</b>		Slim Smart AC Adapter (65 W)	Slim Smart AC Adapter (65 W)
<b>Ports</b>		(1) USB 3.0 charging (1) USB 3.0 (1) USB 3.1 Gen 1 (1) DisplayPort™ 1.2 (1) VGA (1) RJ-45 (Ethernet) (1) Power Connector (1) Stereo microphone-in/headphone-out combo	(1) USB 3.0 charging (1) USB 3.0 (1) USB 3.1 Gen 1 (1) DisplayPort™ 1.2 (1) VGA (1) RJ-45 (Ethernet) (1) Power connector (1) Stereo microphone-in/headphone-out combo

## HP ZBook 15u G4 Mobile Workstation

### What is special about the HP ZBook 15u G4 Mobile Workstation?

The HP ZBook 15u G4 is our 15.6" diagonal screen size thin and light workstation sporting the same thin industrial design of the previous generation. If it's value in a lightweight design you want, look no further. This customizable workstation contains 7th generation Intel® Core™ processors<sup>3</sup>, professional AMD FirePro™ 3D graphics (2 GB GDDR5 dedicated), up to 32 GB memory, and passes 14 MIL-STD<sup>1</sup> tests. It can handle up to 2 internal storage devices (up to 2 TB<sup>4</sup>), including the HP Z Turbo Drive (M.2 NVMe PCIe SSD)<sup>5</sup>, and has an optional FHD resolution touch display, numeric keypad, and long battery life. It also comes standard with HP Remote Graphics Software (HP RGS)<sup>9</sup> for high-end screen sharing or remote access to a workstation from home.

### How does the HP ZBook 15u G4 compare to the HP ZBook 15u G3?

		HP ZBook 15u G3	HP ZBook 15u G4
<b>Dimensions</b>	<b>Depth</b>	257.7 mm/10.1"	257.7 mm/10.1"
	<b>Width</b>	383.3 mm/15.09"	383.3 mm/15.09"
	<b>Height (front)</b>	19.9 mm/.78"	19.9 mm/.78"
<b>Weight<sup>2</sup></b>		1.9 kg/4.18 lb	1.9 kg/4.18 lb
<b>Display</b>		FHD SVA/AG, FHD UWVA/AG, Touch FHD SVA/AG, UHD UWVA/AG	FHD SVA/AG, FHD UWVA/AG, Touch FHD SVA/AG, UHD UWVA/AG
<b>Chipset</b>		Chipset integrated within processor	Chipset integrated within processor
<b>Processor<sup>3,8</sup></b>		6th generation dual-core Intel® Core™ i7 and i5 CPUs	7th generation dual-core Intel® Core™ i7 and i5 CPUs
<b>Graphics<sup>11,12</sup></b>		Intel® HD Graphics 520 AMD FirePro™ W4190M (2 GB GDDR5)	Intel® HD Graphics 620 AMD FirePro™ W4190M (2 GB GDDR5)
<b>Maximum Memory<sup>13</sup></b>		Up to 32 GB DDR4-2133 non-ECC SDRAM (Transfer rates up to 2133 MT/s)	Up to 32 GB DDR4-2133 non-ECC SDRAM (Transfer rates up to 2133 MT/s)
<b>Internal storage<sup>4</sup></b>		500 GB SATA (7200 rpm) 1 TB SATA (5400 rpm) 500 GB SATA SED (7200 rpm) 500 GB SATA SED FIPS 140-2 (7200 rpm) 500 GB (8 GB cache) SATA SSHD (5400 rpm) 128 GB M.2 SATA SSD 256 GB M.2 SATA SED SSD 256 GB up to 512 GB HP Z Turbo Drive (NVMe PCIe SSD)	1 TB SATA (5400 rpm) 500 GB SATA (7200 rpm) 500 GB SATA SED (7200 rpm) 500 GB SATA SED FIPS 140-2 (7200 rpm) 500 GB (8 GB cache) SATA SSHD (5400 rpm) 256 GB M.2 SATA SSD 512 GB M.2 SATA SED SSD 256 up to 1 TB HP Z Turbo Drive G2 (NVMe PCIe MLC SSD) 256 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SSD) 512 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SED SSD)
<b>Battery<sup>14</sup></b>		HP Long Life 3-cell 46 WHr Li-ion	HP Long Life 3-cell 51 WHr Li-ion with HP Fast Charge support
<b>Battery life<sup>15</sup></b>		Up to 10:00	Up to 12:14
<b>Adapter</b>		Slim Smart AC Adapter (65 W)	Slim Smart AC Adapter (65 W)
<b>Ports</b>		(1) USB 3.0 charging (1) USB 3.0 (1) USB 3.1 Gen 1 (1) DisplayPort™ (1) VGA (1) RJ-45 (Ethernet) (1) Power Connector (1) Stereo microphone-in/headphone- out combo	(1) USB 3.0 charging (1) USB 3.0 (1) USB 3.1 Gen 1 (1) DisplayPort™ 1.2 (1) VGA (1) RJ-45 (Ethernet) (1) Power connector (1) Stereo microphone-in/headphone-out combo

## HP ZBook Studio G4 Mobile Workstation

### What is special about the HP ZBook Studio G4 Mobile Workstation?

The HP ZBook Studio is the industry's first true mobile device designed from the ground up for commercial-class customers and delivers a thin & light user experience with full performance workstation class capabilities. The HP ZBook Studio G4 contains Intel® 7th generation quad-core processors<sup>3</sup>, next generation professional NVIDIA® Quadro® graphics, up to 32 GB memory, dual USB Type-C™ connectors supporting Thunderbolt™ 3, DisplayPort™ 1.2, and USB 3.1, and passes 14 MIL-STD<sup>1</sup> tests. It can handle up to 2 internal storage devices (up to 2.0 TB<sup>4</sup>) including up to 2 simultaneous 1 TB HP Z Turbo Drive G2 (M.2 NVMe MLC PCIe SSD)<sup>5</sup> devices. It has UHD UWVA, UHD HP DreamColor, or FHD Touch display options and comes standard with HP Remote Graphics Software (HP RGS)<sup>9</sup> for high-end screen sharing or remote access to a workstation from home.

### How does the HP ZBook Studio G4 compare to the HP ZBook Studio G3?

	HP ZBook Studio G3	HP ZBook Studio G4
<b>Dimensions</b>	<b>Depth</b>	255 mm/10.0"
	<b>Width</b>	375 mm/14.7"
	<b>Height (front)</b>	18.0 mm/0.7"
<b>Weight<sup>2</sup></b>	2.04 kg /4.49 lb	2.09 kg/4.6 lb
<b>Display</b>	FHD UWVA/AG, UHD UWVA/AG, UHD DreamColor UWVA/AG, Touch FHD UWVA	FHD UWVA/AG, UHD UWVA/AG, UHD DreamColor UWVA/AG, Touch FHD UWVA
<b>Chipset</b>	Mobile Intel® CM236 integrated with processor	Mobile Intel® CM236 integrated with processor
<b>Processor<sup>3,8</sup></b>	6th generation Intel® Xeon® processors 6th generation Intel® Core™ i7 processors 6th generation Intel® Core™ i5 processors	7th Generation Intel® Xeon® processors 7th Generation Intel® Core™ i7 processors 7th Generation Intel® Core™ i5 processors
<b>Graphics<sup>11,12</sup></b>	Intel® HD Graphics 530 HP ZBook Studio special edition: NVIDIA® Quadro® M1000M (4 GB GDDR5 dedicated) <i>(Extra 2 GB of graphics memory provides enhanced application performance with larger graphics datasets)</i>	Intel® HD Graphics 630 NVIDIA® Quadro® M1200M (4 GB GDDR5 dedicated)
<b>Maximum Memory<sup>13</sup></b>	Up to 32 GB DDR4-2133 ECC or non-ECC SDRAM (Transfer rates up to 2133 MT/s)	Up to 32 GB DDR4-2400 ECC or non-ECC SDRAM (Transfer rates up to 2400 MT/s)
<b>Internal storage<sup>4</sup></b>	128 GB up to 512 GB M.2 SATA SSD 256 GB up to 512 GB M.2 SATA SED SSD 256 GB up to 1 TB HP Z Turbo Drive G2 (NVMe PCIe SSD)	128 GB M.2 SATA SSD 256 GB M.2 SATA SED SSD 256 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SSD) 512 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SED SSD) 256 GB up to 1 TB HP Z Turbo Drive G2 (NVMe PCIe MLC SSD)
<b>Battery<sup>14</sup></b>	HP Long Life 4-cell 64 Whr Li-ion prismatic	HP Long Life 4-cell, 64 Wh Li-ion prismatic (with HP Fast Charge support) HP Long Life 8-cell, 92 Wh Li-ion polymer (with HP Fast Charge support)
<b>Battery life<sup>15</sup></b>	Up to 9:30	Up to 16:47
<b>Adapter</b>	Slim Smart AC Adapter (150 w)	Slim Smart AC Adapter (150 w)
<b>Ports</b>	(2) USB Type-C™ (Thunderbolt™ 3, DisplayPort™ 1.2, USB 3.1) (2) USB 3.0 (1) USB 3.0 (charging) (1) RJ-45 (1) HDMI 1.4 (1) Power connector (1) Stereo microphone-in/headphone-out combo	(2) USB Type-C™ (Thunderbolt™ 3, DisplayPort™ 1.2, USB 3.1) (2) USB 3.0 (1) USB 3.0 (charging) (1) RJ-45 (1) HDMI 1.4 (1) Power connector (1) Stereo microphone-in/headphone-out combo



## HP ZBook 15 G4 Mobile Workstation

### What is special about the new HP ZBook 15 G4 Mobile Workstation?

We built desktop workstation power, performance and expandability into a device designed for the road. Made for mobile creative and design professionals, where compromise is simply not an option, the HP ZBook 15 is made for the most demanding workloads and is used by NASA to help push the boundaries of science and discovery on the International Space Station. Engineered with the latest 7th generation Intel® Xeon® or Core™ processors<sup>3</sup>, NVIDIA® Quadro® or AMD Radeon™ Pro graphics, up to 3 TB of storage<sup>4</sup>, and dual USB Type-C™ ports supporting Thunderbolt™ 3, DisplayPort™ 1.2, USB 3.1 imagine what it could do for you.

### How does the HP ZBook 15 G3 compare to the HP ZBook 15 G4?

		HP ZBook 15 G3	HP ZBook 15 G4
<b>Dimensions</b>	<b>Depth</b>	264 mm/10.4"	264 mm/10.4"
	<b>Width</b>	386 mm/15.2"	386 mm/15.2"
	<b>Height</b>	26 mm/1.0"	26 mm/1.0"
<b>Weight<sup>2</sup></b>		2.63 kg/5.8 lb	2.59 kg/5.7 lb
<b>Display</b>		FHD SVA/AG, FHD UWVA/AG, Touch FHD UWVA, UHD DreamColor UWVA/AG+PSR	FHD SVA/AG, FHD UWVA/AG, Touch FHD UWVA, UHD DreamColor UWVA/AG+PSR
<b>Chipset</b>		Mobile Intel® CM236 integrated with processor	Mobile Intel® CM236 integrated with processor
<b>Processor<sup>3,8</sup></b>		6th generation Intel® Xeon® processors 6th generation Intel® Core™ i7 processors	7th Generation Intel® Xeon® processors 7th Generation Intel® Core™ i7 processors 7th Generation Intel® Core™ i5 processors
<b>Graphics<sup>11,12</sup></b>		Intel® HD graphics 530 Intel® HD graphics P530 Intel® Iris™ Pro Graphics P580 AMD FirePro™ W5170M NVIDIA® Quadro® M600M NVIDIA® Quadro® M1000M NVIDIA® Quadro® M2000M	Intel® HD Graphics P630 Intel® HD Graphics 630 AMD Radeon™ Pro WX 4150 NVIDIA® Quadro® M620 NVIDIA® Quadro® M1200 NVIDIA® Quadro® M2200
<b>Maximum Memory<sup>13</sup></b>		Up to 64 GB DDR4-2133 ECC or non-ECC SDRAM (Transfer rates up to 2133 MT/s)	Up to 64 GB DDR4-2400 ECC or non-ECC SDRAM (Transfer rates up to 2400 MT/s for systems with less than 32 GB. Transfer rates up to 2133 MT/s for systems with greater than 32 GB)
<b>Internal storage<sup>4</sup></b>		500 GB SATA (7200 rpm) 1 TB SATA (5400 rpm) 500 GB SATA SED (7200 rpm) 500 GB SATA SED FIPS 140-2 (7200 rpm) 500 GB (8 GB cache) SATA SSHD 256 GB up to 512 GB M.2 SATA SED SSD 256 GB up to 1 TB HP Z Turbo Drive G2 (NVMe PCIe SSD)	500 GB SATA (7200 rpm) 1 TB SATA (5400 rpm) 500 GB SATA SED (7200 rpm) 500 GB SATA SED FIPS 140-2 (7200 rpm) 500 GB (8 GB cache) SATA SSHD 256 GB up to 1 TB SATA SSD 256 GB M.2 SATA SED SSD 512 GB M.2 SATA FIPS SSD 256 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SSD) 512 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SED SSD) 256 GB up to 1 TB HP Z Turbo Drive G2 (NVMe PCIe MLC SSD)
<b>Battery<sup>14</sup></b>		HP Long Life 9-cell 90 WHr Li-ion polymer	HP Long Life 9-cell, 90 WHr Li-ion polymer with HP Fast Charge support
<b>Battery life<sup>15</sup></b>		Up to 15:45	Up to 17:30

Adapter	Slim Smart AC Adapter (150 w)	Slim Smart AC Adapter (150 w)
Ports	(2) USB Type-C™ (Thunderbolt™ 3, DisplayPort™ 1.2, USB 3.1) (3) USB 3.0 (1) USB 3.0 (charging) (1) HDMI 1.4 (1) VGA (1) RJ-45 (1) Power connector (1) Stereo microphone-in/headphone-out combo	(2) USB Type-C™ (Thunderbolt™ 3, DisplayPort™ 1.2, USB 3.1) (3) USB 3.0 (1) USB 3.0 (charging) (1) HDMI 1.4 (1) VGA (1) RJ-45 (1) Power connector (1) Stereo microphone-in/headphone-out combo

## HP ZBook 17 G4 Mobile Workstation

### What is special about the HP ZBook 17 G4 Mobile Workstation?

HP's largest screen size and most powerful mobile workstation contains Intel® 7th generation quad-core processors<sup>3</sup> and a choice of graphics including AMD Radeon™ Pro and NVIDIA® Quadro® options and includes HP VR Ready configurations. Be confident you can configure the HP ZBook 17 G4 to meet your most demanding needs. Get the ultimate in mobile performance by rounding out your system with up to 64 GB memory, dual USB Type-C™ supporting Thunderbolt™ 3, DisplayPort™ 1.2, and USB 3.1, an HP DreamColor display option, and up to 4 internal storage devices (up to 4.0 TB<sup>4</sup>) including up to 2 simultaneous HP Z Turbo Drive G2 (M.2 NVMe MLC PCIe SSD)<sup>5</sup>. It also comes standard with HP Remote Graphics Software (HP RGS)<sup>9</sup> for high-end screen sharing or remote access to a workstation from home, a tool-less access chassis, and passes 14 MIL-STD tests<sup>1</sup> for the ultimate in reliability.

### How does the HP ZBook 17 G4 compare to the HP ZBook 17 G3?

		HP ZBook 17 G3	HP ZBook 17 G4
Dimensions	Depth	280 mm/11.0"	280 mm/11.0"
	Width	420 mm/16.5"	420 mm/16.5"
	Height	30 mm/1.2"	33 mm/1.3"
Weight <sup>2</sup>		3.0 kg/6.62 lb	3.14 kg/6.9 lb
Display		HD+ SVA/AG, FHD UWVA/AG, Touch FHD UWVA, UHD HP DreamColor UWVA/AG+PSR	HD+ SVA/AG, FHD UWVA/AG, Touch FHD UWVA, UHD HP DreamColor UWVA/AG+PSR
Chipset		Mobile Intel® CM236 integrated with processor	Mobile Intel® CM236 integrated with processor
Processor <sup>3,8</sup>		6th generation Intel® Xeon® processors 6th generation Intel® Core™ i7 processors 6th generation Intel® Core™ i5 processors	7th Generation Intel® Xeon® processors 7th Generation Intel® Core™ i7 processors 7th Generation Intel® Core™ i5 processors
Graphics <sup>11,12</sup>		Intel® Iris™ Pro Graphics P580 Intel® HD graphics P530 Intel® HD graphics 530 AMD FirePro™ W6150M NVIDIA® Quadro® M1000M NVIDIA® Quadro® M2000M NVIDIA® Quadro® M3000M NVIDIA® Quadro® M4000M NVIDIA® Quadro® M5000M	Intel® HD Graphics P630 Intel® HD Graphics 630 AMD Radeon™ Pro WX 4170 NVIDIA® Quadro® M1200 NVIDIA® Quadro® M2200 NVIDIA® Quadro® P3000 NVIDIA® Quadro® P4000 NVIDIA® Quadro® P5000 HP VR Ready Configurations available
Maximum Memory <sup>13</sup>		Up to 64 GB DDR4-2133 ECC or non-ECC SDRAM (Transfer rates up to 2133 MT/s)	Up to 64 GB DDR4-2133 ECC or non-ECC SDRAM (Transfer rates up to 2400 MT/s for systems with less than 32 GB. Transfer rates up to 2133 MT/s for systems with greater than 32 GB)

<b>Internal storage<sup>4</sup></b>	500 GB up to 1 TB SATA (7200 rpm) 500 GB SATA SED (7200 rpm) 500 GB SATA SED FIPS 140-2 (7200 rpm) 500 GB (8 GB cache) SATA SSHD 256 GB up to 512 GB M.2 SATA SED SSD 256 GB up to 1 TB HP Z Turbo Drive G2 (NVMe PCIe SSD)	1 TB SATA (7200 rpm) 500 GB up to 1 TB SATA (7200 rpm) 500 GB SATA SED (7200 rpm) 500 GB (8 GB cache) SATA SSHD 256 GB up to 1 TB SATA SSD 256 GB M.2 SATA SED SSD 256 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SSD) 512 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SED SSD) 256 GB up to 1 TB HP Z Turbo Drive G2 (NVMe PCIe MLC SSD)
<b>Battery<sup>14</sup></b>	HP Long Life 6-cell 96 WHr Li-ion prismatic	HP Long Life 9-cell, 96 Wh Li-ion polymer with HP Fast Charge support
<b>Battery life<sup>15</sup></b>	Up to 16:45	Up to 17:07
<b>Adapter</b>	Slim Smart AC Adapter (200 w)	Slim Smart AC Adapter (200 w)
<b>Ports</b>	(2) USB Type-C™ (Thunderbolt™ 3, DisplayPort™ 1.2, USB 3.1) (5) USB 3.0 (1) USB 3.0 (charging) (1) HDMI 1.4 (1) VGA (1) RJ-45 (1) Power connector (1) Stereo microphone-in/headphone-out combo	(2) USB Type-C™ (Thunderbolt™ 3, DisplayPort™ 1.2, USB 3.1) (5) USB 3.0 (1) USB 3.0 (charging) (1) HDMI 1.4 (1) VGA (1) RJ-45 (1) Power connector (1) Stereo microphone-in/headphone-out combo

#### What are the key differences between the HP ZBook G4 Mobile Workstations and the previous, HP ZBook G3, generation?

- The HP ZBook 14u G4 was added as a 14.0-inch diagonal form factor
- Tool-less access was enabled on the HP ZBook 17 G4
- HP VR Ready configurations are available on the HP ZBook 17 G4
- 7th gen Intel® Xeon® and Core™ processors are standard<sup>3</sup> (as opposed to 6th gen on the HP ZBook G3 family)
- The latest AMD and NVIDIA® professional graphics were incorporated
- Additional HP Z Turbo Drives options were added including an SED version
- Batteries are larger and come with HP Fast Charge<sup>16</sup> to recharge your battery up to 50% within 30 minutes when the system is off or in standby mode
- A new cover ID was implemented across the entire HP ZBook G4 family
- New security features including HP Sure Start Gen3<sup>17</sup> were added making the HP ZBook G4 Mobile workstation family the world's most secure<sup>18</sup>

## HP ZBook Docking Solutions

#### What are the docking options for the HP ZBook G4 Mobile Workstations?

The HP ZBook 14u G4 and HP ZBook 15u G4 will use the HP UltraSlim Docking Station, a side docking solution due to its thin design.

The HP ZBook Studio G4, HP ZBook 15 G4 and HP ZBook 17 G4 will use the HP ZBook Dock with Thunderbolt 3 which supports Intel's Thunderbolt™ 3 protocol.

#### What are the key features of the HP ZBook Dock with Thunderbolt 3?

- Link up to 10 devices at once through ports that include Thunderbolt™ 3 (which also supports DisplayPort™ 1.2 and USB 3.1 Gen 2), four USB 3.0, RJ-45, VGA, combo audio, and two additional DisplayPort™ ports.
- Simple, single cable connection delivering both power/charging and connectivity.
- Small, lightweight portable ID—allowing for optimized cable management.

**How does the HP ZBook Dock with Thunderbolt 3 power a mobile workstation?**

A single combo cable connects the HP ZBook Dock with Thunderbolt 3 with the HP ZBook Mobile Workstation delivering both power and connectivity. The AC adapter will plug into the dock and not be required on the mobile workstation. There are two versions of the HP ZBook Dock with Thunderbolt 3: a 150 W version for the HP ZBook Studio and HP ZBook 15 and a 200 W version for the HP ZBook 17.

**What is the difference between the HP ZBook Dock with Thunderbolt 3 and a port replicator?**

The HP ZBook Dock with Thunderbolt 3 has a custom designed Thunderbolt™ 3 power cable that allows you to power and charge your unit without having to connect an AC adapter onto your mobile workstation. A traditional port replicator requires you to have an AC Adapter plugged into your mobile workstation. Overall, the HP ZBook Dock with Thunderbolt 3 allows you to expansive device, display, and network connectivity while simultaneous charging of your system.

**Where can I find more information on the features of the HP ZBook Dock with Thunderbolt 3?**

Please see the following resources:

- [HP ZBook Dock with Thunderbolt 3 webpage](#)
- [HP Elite Dock with Thunderbolt 3 & HP ZBook Dock with Thunderbolt 3 white paper](#)

## HP ZBook security

**What security features are available on the HP ZBook Mobile Workstations?**

The HP ZBook G4 Mobile Workstation family are the most secure and manageable mobile workstations on the planet!<sup>18</sup>

Security feature	HP ZBook 14u G4	HP ZBook 15u G4	HP ZBook Studio G4	HP ZBook 15 G4	HP ZBook 17 G4
HP Sure Start Gen3 <sup>17</sup>	•	•	•	•	•
Integrated Smart Card Reader	•	•	•	•	•
HP Spare Key (requires initial user setup)	•	•	•	•	•
One-Step Logon	•	•	•	•	•
Common Criteria EAL4+ Augmented Certified Discrete TPM 1.2 Embedded Security Chip	•	•	•	•	•
Security lock slot	•	•	•	•	•
Support for Intel® AT	•	•	•	•	•
HP Fingerprint Sensor (optional)	•	•	•	•	•
Computrace*	•	•	•	•	•

\*The Computrace agent is shipped turned off, and must be activated by customers when they purchase a subscription. Subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S.

Please see product QuickSpecs for more information on security features.

## HP ZBook displays

**What are the display choices on the HP ZBook G4 Mobile Workstations?**

HP ZBook 14u G4: HD SVA/AG, FHD SVA/AG, FHD UWVA/AG, Touch FHD SVA.

HP ZBook 15u G4: FHD SVA/AG, FHD UWVA/AG, UHD UWVA/AG, Touch FHD SVA.

HP ZBook Studio G4: FHD UWVA/AG, UHD UWVA/AG, UHD HP DreamColor UWVA/AG, Touch FHD UWVA.

HP ZBook 15 G4: FHD SVA/AG, FHD UWVA/AG, UHD HP DreamColor UWVA/AG, Touch FHD UWVA.

HP ZBook 17 G4: HD+ SVA/AG, FHD UWVA/AG, UHD HP DreamColor UWVA/AG, Touch FHD UWVA.

**What is the UHD UWVA/AG HP DreamColor display panel choice on the HP ZBook Studio, 15 and 17?**

UHD panels offer extremely high resolution (3840 x 2160) for maximum screen real estate and vibrant, clear pictures. HP DreamColor technology has been added to this screen resolution for our customers who desire color accuracy for their workflows. The panel will be color calibrated out of the factory and come outfitted with the HP Mobile Display assistant software application.

## HP ZBook graphics

**What graphics solutions are available on each HP ZBook model?**

	HP ZBook 14u G4	HP ZBook 15u G4	HP ZBook Studio G4	HP ZBook 15 G4	HP ZBook 17 G4
<b>Professional 2D</b>					
Intel® HD Graphics 620	•	•			
Intel®HD Graphics 630			•	•	•
Intel®HD Graphics P630			•	•	•
<b>Professional 3D</b>					
AMD FirePro™ W4190M	•	•			
AMD Radeon™ Pro WX 4150				•	
AMD Radeon™ Pro WX 4170					•
NVIDIA® Quadro® M620				•	
NVIDIA® Quadro® M1200			•	•	•
NVIDIA® Quadro® M2200				•	•
NVIDIA® Quadro® P3000					•
NVIDIA® Quadro® P4000					•
NVIDIA® Quadro® P5000 (HP VR Ready)					•

**What does HP VR Ready mean with respect to the HP ZBook 17 G4?**

With the HP ZBook 17 G4, you can now visualize work in an ultra-smooth VR experience with up to 90 FPS. The HP ZBook 17 G4 is VR Ready with optimal horsepower to drive the latest 7th gen Intel® processors and NVIDIA® Quadro® P5000 graphics to bring VR content to life.

**What are the recommended maximum display configurations by platform?**

All resolutions @60 Hz refresh rate. VGA/DVI displays up to 24 bpp and DP displays up to 30 bpp color depth.

**HP ZBook 15 and 17:****• Without dock:**

The HP ZBook 15 and 17 with hybrid graphics and without the use of the HP ZBook Dock with Thunderbolt 3 support up to a maximum of four independent displays. These four displays are the internal panel plus three external displays connected to the VGA and two of the three following ports: HDMI, Thunderbolt™ 3, Thunderbolt™ 3.

**• With HP ZBook Dock with Thunderbolt 3:**

The HP ZBook Dock with Thunderbolt 3 has Thunderbolt™ 3, VGA, and two DisplayPort™ 1.2. When used together with the HP ZBook 15 and 17 configuration with hybrid graphics, a maximum of 6 independent displays are supported. These six displays are internal panel, one external display connected to the system's VGA port and four external displays connected to the HP ZBook Dock with Thunderbolt 3, VGA, and two DisplayPort™ ports.

**HP ZBook Studio G3:****• Without dock:**

The HP ZBook Studio with hybrid graphics and without the use of the HP ZBook Dock with Thunderbolt 3 supports up to a maximum of three independent displays. These three displays are the internal panel plus two external displays connected to two of the three following ports: HDMI, Thunderbolt™ 3, Thunderbolt™ 3.

- **With HP ZBook Dock with Thunderbolt 3:**

The HP ZBook Dock with Thunderbolt 3 has a Thunderbolt™ 3 port, VGA port, and two DisplayPort™ 1.2 ports. When used together with the HP ZBook Studio configuration with hybrid graphics, a maximum of 5 independent displays are supported. These five displays are internal panel plus four external displays connected to the HP ZBook Dock with Thunderbolt 3 via the Thunderbolt™ 3, VGA, and two DisplayPort™ ports.

**HP ZBook 14u and 15u G4:**

- **With and without HP UltraSlim Docking Station:**

Support up to 3 independent displays via internal LCD Panel, system DisplayPort™, system VGA, or using the HP UltraSlim Docking Station DisplayPort™ and VGA ports (dock sold separately).

**How is a 4K monitor supported on the system and via docking?**

- **HP ZBook Studio, HP ZBook 15, HP ZBook 17**

- 4096 x 2160 @ 60 Hz supported on both system Thunderbolt™ 3 ports
- 4096 x 2160 @ 60 Hz supported on the HP ZBook Dock with Thunderbolt 3 via the Thunderbolt™ 3 port and one DisplayPort™ 1.2 port

- **HP ZBook 14u and 15u**

- 4096 x 2160 @ 60 Hz supported on system DisplayPort™
- 4096 x 2160 @ 60 Hz supported on HP UltraSlim Docking station's DisplayPort™

For more information, please see the Multi-Display Whitepaper and the appropriate HP ZBook QuickSpecs for your system.

## HP ZBook storage

**What is the HP Z Turbo Drive G2?**

HP Z Turbo Drive G2 is PCIe SSD storage based on the lower latency NVMe protocol. The HP Z Turbo Drive G2 is dramatically faster than a SATA connection. It reduces boot up, calculation, and graphics response times (even with 4K video) and revolutionizes how your HP ZBook Mobile Workstation handles large files. It is a remarkably affordable and innovative storage solution for fast data access.

The entire HP ZBook family will take advantage of this blazing fast storage technology. This is the same storage solution offered on our latest HP Z Desktop Workstations offered in an M.2 configuration. Up to two simultaneously running HP Z Turbo Drives will be configurable on the HP ZBook Studio, 15, 17 for up to 2 TB<sup>4</sup> of M.2 NVMe PCIe storage. The HP Z Turbo Drive G2 allows for over 2 Gb/s sequential write speeds. RAID 0,<sup>10</sup> will be supported on the HP ZBook Studio G4, HP ZBook 15 G4, and HP ZBook 17 G4.

**How many storage devices do each of the HP ZBook Mobile Workstations support and what is the maximum capacity supported?**

Storage devices vary by HP ZBook model according to the chart below:

	Max drives/bays	Max HP Z Turbo Drives	Max total capacity <sup>4</sup>
HP ZBook 14u G4	2	1	2 TB
HP ZBook 15u G4	2	1	2 TB
HP ZBook Studio G4	2	2	2 TB
HP ZBook 15 G4	3	2	3 TB
HP ZBook 17 G4	4	2	4 TB

**Do the HP ZBook Mobile Workstations offer and support solid-state drives?**

Yes. See below for supported configurations.

	SSD drive support <sup>4</sup>
HP ZBook 14u G4	256 GB M.2 SATA SED SSD 512 GB M.2 SATA SED FIPS SSD 256 GB up to 1 TB HP Z Turbo Drive G2 (NVMe PCIe MLC SSD) 256 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SSD) 512 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SED SSD)
HP ZBook 15u G4	256 GB M.2 SATA SED SSD 512 GB M.2 SATA SED FIPS SSD 256 GB up to 1 TB HP Z Turbo Drive G2 (NVMe PCIe MLC SSD) 256 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SSD) 512 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SED SSD)
HP ZBook Studio G4	128 GB M.2 SATA SSD 256 GB M.2 SATA SED SSD 256 GB up to 1 TB HP Z Turbo Drive G2 (NVMe PCIe MLC SSD) 256 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SSD) 512 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SED SSD)
HP ZBook 15 G4	256 GB M.2 SATA SED SSD 256 GB up to 1 TB HP Z Turbo Drive G2 (NVMe PCIe MLC SSD) 256 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SSD) 512 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SED SSD)
HP ZBook 17 G4	256 GB M.2 SATA SED SSD 256 GB up to 1 TB HP Z Turbo Drive G2 (NVMe PCIe MLC SSD) 256 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SSD) 512 GB HP Z Turbo Drive G2 (NVMe PCIe TLC SED DSS)

## Thunderbolt™ 3

### Why did HP decide to include Thunderbolt™ 3 on the USB Type-C™ connector on the HP ZBook Studio/15/17 G4 Mobile Workstations?

Thunderbolt™ 3 —the industry's fastest and most versatile connection—currently runs over this USB-C connector. Thunderbolt™ 3 provides the highest speed I/O and is required by the most demanding users to maximize the overall performance of the workstation. The HP Workstation team decided to outfit the HP ZBook Studio/15/17 Mobile Workstations with dual USB Type-C™ connectors (and thus options for dual Thunderbolt™ 3 capabilities). This would allow unique differentiation in the market but also allow for added capabilities by connecting to the new HP ZBook Dock with Thunderbolt 3 and still supporting native Thunderbolt™ 3 on the system.

### What is the difference between Thunderbolt™ 3 and USB Type-C™?

Thunderbolt™ 2 was previously the fastest I/O port available and standardized on the mini-DisplayPort™ 1.2 (mDP). Thunderbolt™ 3 is the next generation I/O port and Intel® has chosen to standardize this technology on the new USB-C connector. The HP ZBook Studio/15/17 will feature (2) USB Type-C™ ports supporting Thunderbolt™ 3.

The HP ZBook 14u, HP ZBook 15u, and other HP EliteBook products will feature a standard USB-C port that does not support Thunderbolt™ 3. Specifically, the difference is a standard USB-C port is based on the USB 3.1 Gen 1 interface with data transfer speeds equivalent to that of a USB 3.0 port at 5 Gb/s. Thunderbolt™ 3 via USB Type-C™ allows for transfer speeds of up to 40 Gb/s. See below for comparison matrix.

Port	USB 3.0	USB 3.1 (Gen 1)	USB 3.1 (Gen 2)	Thunderbolt™ 2	Thunderbolt™ 3
Port connector	USB Type A	USB-C	USB-C	Mini DisplayPort™	USB-C
Transfer speeds	5 Gb/s	5 Gb/s	10 Gb/s	20 Gb/s	40 Gb/s
Protocols supported	USB 3.0	USB 3.1 Gen 1	USB 3.1 Gen 2 (SuperSpeed USB)	PCIe, DisplayPort™	PCIe, DisplayPort™, USB 3.1 Gen 2
Platforms supported	All HP ZBooks	HP ZBooks G3/G4: • HP ZBook 14u • HP ZBook 15u	HP ZBooks G3/G4: • HP ZBook Studio • HP ZBook 15 • HP ZBook 17	HP ZBook G2: • HP ZBook 15 • HP ZBook 17	HP ZBook G3/G4: • HP ZBook Studio • HP ZBook 15 • HP ZBook 17
Note		USB-port on HP ZBook 14u G4, HP ZBook 15u G4, and HP EliteBook G3 series is spec'd as USB 3.1 Gen 1	Thunderbolt™ 3 port integrates a USB 3.1 host controller	(1) Thunderbolt™ 2 port supported on HP ZBooks G2	(2) Thunderbolt™ 3 ports supported on HP ZBooks G3/G4

### What are the unique features of USB Type-C™ available on the HP ZBook Studio/15/17 G3/G4 Mobile Workstations?

- USB Type-C™ is a super-set port supporting multiple protocols over a single connection simultaneously: Thunderbolt™ 3, DisplayPort™ 1.2, SuperSpeed USB (USB 3.1 Gen 2), and PCI Express.
- Industry leading I/O speeds at 40 Gb/s
- Support for 2 x 4K displays @ 60 Hz through a single port
- Power – 15 W to bus-powered devices
- Daisy chain up to 6 Thunderbolt™ devices
- Connectivity with the new HP ZBook Dock with Thunderbolt 3

### Why didn't HP include Thunderbolt™ support on the HP ZBook 14u and 15u?

The HP ZBook 14u and HP ZBook 15u are highly mobile workstation platforms that do not have the same throughput requirements as the HP ZBook Studio, 15, and 17 products. With a highly portable chassis, the HP ZBook 14u and HP ZBook 15u meet the needs of the target customers who are demanding performance and portability at a value. Even though Thunderbolt™ was not added, USB 3.0 ports, full size DisplayPort™ 1.2, and standard USB-C (USB 3.1 Gen 1) are available.

### How does Thunderbolt™ 3 compare to USB 3.0?

Thunderbolt™ 3 provides 8x the throughput of USB 3.0.

### What are the type of customers that require Thunderbolt™ 3?

Workstation customers from all segments have been asking for Thunderbolt™ 3, with Media & Entertainment segment having the most momentum and Oil & Gas, Control, and Healthcare segments following closely behind. As data files get larger and the adoption of 4K resolutions displays and video continues to expand having high storage capacity and blazing fast I/O speeds will become more mainstream.

## Operating systems

### What operating systems (OSs) are available on the HP ZBook G4 Mobile Workstations?

A variety of OSs are available, including the following:

(Please note that the exact OSs carried by each workstation vary by product. For more information, see individual product datasheets and QuickSpecs).

- Windows 10 Professional 64<sup>19</sup>
- Windows 10 Home 64<sup>19</sup>
- FreeDOS 2.0

### Is dual OS preload an option?

Dual OS preload will not be offered due to restrictions of licensing agreements.

### Will the HP ZBook Mobile Workstations support Linux®?

Yes. Red Hat® Enterprise Linux® 7 will be supported via the Linux® Ready system install option (FreeDOS). For a complete list of Linux® supported hardware, go to [hp.com/support/linux\\_hardware\\_matrix](http://hp.com/support/linux_hardware_matrix).



**What value does HP bring to Linux® on Personal Workstations?**

HP brings the following value:

- Dedicated Linux® R&D team with 25+ years of experience in OS and driver development
- Close relationship with multiple third-parties to enable the complete Linux® workstation solution
- Extensive pre-sales technical support provided by HP engineering
- Detailed documents, drivers, and white papers published by HP on the support website regarding Linux® on HP Workstations

## Software

**What is HP RGS<sup>5</sup> and what value does it bring to the HP ZBook Mobile Workstations?**

HP RGS, or HP Remote Graphics Software<sup>5</sup>, is software that allows you to access, share, and broadcast your Windows and Linux® workstation and virtual workstation apps in amazing, high-speed clarity from any remote PC, Mac®, MacBook®, Windows tablet, or thin client. The application has been built from the ground up with HP's workstation expertise and gives you workstation-class performance everywhere you work, with transfer speeds up to 60 fps for your most demanding apps, to allow you to work like you're local. HP RGS looks fantastic even at 4K. And with integrated HP Velocity and advanced video compression you get a premium experience regardless of connectivity strength.

**What is HP Performance Advisor<sup>6</sup> and what value does it bring to the HP ZBook Mobile Workstations?**

Designed for non-techies, this ultra-savvy software wizard is the simplest and most effective way to make sure your computer is always operating at its optimum potential. HP Performance Advisor comes pre-installed with every HP Workstation.

When Performance Advisor<sup>6</sup> is run on a mobile workstation, it takes a thorough inventory of the hardware and software components in the system. Details of the configuration are revealed through an interactive block diagram that shows how the individual devices are interconnected, and allows access to certain system-level settings that can affect performance and reliability. HP Performance Advisor utilizes an extensive database to report the certified driver versions of over one hundred recognized applications that may be installed on the system, and it simplifies the download and installation of those drivers to prepare the workstation to begin crunching your workflow. The Workstation Monitor feature of HP Performance Advisor<sup>6</sup> can be employed to examine the long-term resource usage of the machine to report how the system is able to handle your dataset, possibly suggesting configuration changes to enable even more performance out of the system.

**What is HP Velocity and what value does it bring to the HP ZBook Mobile Workstations?**

HP Velocity is a software solution that improves the user experience for cloud, mobile, and network-based applications by addressing common network bottlenecks, such as packet loss, network latency and Wi-Fi congestion. HP Velocity provides the greatest performance improvement for remote and branch offices, teleworkers, Wi-Fi, and 3G/4G. HP Velocity works by first sensing the network conditions and network technologies used on the network edge, and then intelligently applying optimizers to improve traffic quality by reducing packet loss, reducing latency, and generally improving the networking user experience. HP Velocity is also adaptive—when network conditions change, so do the optimizations that are applied to ensure the best QoS possible for your situation.

## Warranty and support

**Will the HP ZBook Mobile Workstations utilize the same HP Elite Support that the HP EliteBook Notebooks use today?**

Yes. Our HP Elite Premium Support offers support to our customers that reside in the U.S. or English-speaking regions of Canada.

- Simply call us at 1.866.625.1175. There are no phone trees, and no time-consuming menus to wade through
- Connect to an exclusively U.S.-based team of Elite accredited specialists available 24/7/365
- Schedule appointments to suit you—we'll make our schedule match yours
- Work with your agent of choice when calling—just ask for them by name
- Receive priority repair status at any HP repair center

### What is the warranty and support for HP ZBook Mobile Workstations with Windows?

The standard is 3-year or 1-year limited warranty, depending on country. Batteries have a default one year limited warranty except for Long Life batteries which will have same 1-year or 3-year limited warranty as the platform. Optional HP Care Pack Services are extended service contracts which go beyond your standard limited warranties. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at [hp.com/go/cpc](http://hp.com/go/cpc)<sup>20</sup>.

### Resources, contacts, or additional links for HP ZBooks

- HP ZBook 14u G4: [hp.com/go/zbook14u](http://hp.com/go/zbook14u)
- HP ZBook 15u G4: [hp.com/go/zbook15u](http://hp.com/go/zbook15u)
- HP ZBook Studio G4: [hp.com/go/zbookstudio](http://hp.com/go/zbookstudio)
- HP ZBook 15 G4: [hp.com/go/zbook15](http://hp.com/go/zbook15)
- HP ZBook 17 G4: [hp.com/go/zbook17](http://hp.com/go/zbook17)
- HP ZBook Dock with Thunderbolt 3: [hp.com/go/zbookdock](http://hp.com/go/zbookdock)

Learn more about the HP Z family of products at [hp.com/zworkstations](http://hp.com/zworkstations)

<sup>1</sup>All HP ZBooks are designed to MIL-STD 810G testing. Testing was not intended to demonstrate fitness for U.S. Department of Defense contract requirements or for military use. Test results are not a guarantee of future performance under these test conditions. Damage under the MIL STD test conditions or any accidental damage requires an optional HP Accidental Damage Protection Care Pack.

<sup>2</sup>Weight varies by configuration and components.

<sup>3</sup>In accordance with Microsoft's support policy, HP does not support the Windows 8 or Windows 7 operating system on products configured with Intel® and AMD 7th generation and forward processors or provide any Windows 8 or Windows 7 drivers on <http://www.support.hp.com>.

<sup>4</sup>For hard drives, GB = 1 billion bytes, TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30 GB of system disk is reserved for system recovery software.

<sup>5</sup>Sold separately or as an optional feature.

<sup>6</sup>Not all configurations qualify as an Ultrabook™.

<sup>7</sup>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.

<sup>8</sup>Multicore 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.

<sup>9</sup>HP RGS requires a Windows, Linux®, or Mac® OS X 10.10 or newer operating system and network access.

<sup>10</sup>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 [hp.com/bc/docs/support/Supportmanual/c00060684/c00060684.pdf](http://hp.com/bc/docs/support/Supportmanual/c00060684/c00060684.pdf) for RAID capabilities with Linux®.

<sup>11</sup>HD content required to view HD images.

<sup>12</sup>Intel® HD graphics 630 is configurable as a standalone graphics option; Intel® HD graphics P630 is only used when NVIDIA® Optimus™ Technology is enabled.

<sup>13</sup>Non-ECC memory only available with Intel® Core™ processors.

<sup>14</sup>Recharges your battery up to 50% within 30 minutes when the system is off or in standby mode. Power adapter with a minimum capacity of 65 watts is required. After charging has reached 50% capacity, charging will return to normal. Charging time may vary +/-10% due to System tolerance.

<sup>15</sup>Battery life results based on MobileMark benchmark measured in hours:minutes. HP ZBook G3 and G4 configurations were measured with MobileMark14, Windows 10 64-bit.

<sup>16</sup>Recharges your battery up to 50% within 30 minutes when the system is off or in standby mode. Power adapter with a minimum capacity of 65 watts is required. After charging has reached 50% capacity, charging will return to normal. Charging time may vary +/-10% due to System tolerance.

<sup>17</sup>HP Sure Start Gen3 is available on HP EliteBook and HP ZBook products equipped with Intel® 7th generation processors.

<sup>18</sup>Based on HP's unique and comprehensive security capabilities at no additional cost among mobile workstation vendors as of Jan. 2017 on HP Mobile Workstations with 7th Gen Intel® processors.

<sup>19</sup>Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows functionality. See [microsoft.com](http://microsoft.com).

<sup>20</sup>Care Packs are optional. Service levels and response times for HP Care Packs may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. For details, visit [hp.com/go/cpc](http://hp.com/go/cpc).

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