

## General Notes that apply to all Platforms

### Purpose of the Linux Hardware Matrix

The HP Workstations Linux Hardware Matrix provides per-platform advisory information about the functionality of HP workstation desktops, and the hardware components applicable to them, under several Linux distributions such as Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Desktop (SLED), and Ubuntu LTS.

For similar information about Linux component support in older HP Workstations, please refer to the Archive Linux Hardware Matrix. You can find this by searching for the platform at [www.hp.com/go/workstationsupport](http://www.hp.com/go/workstationsupport) and choosing the Manuals content.

**The Linux Hardware Matrix does not represent the issue support that you can expect from the Linux OS distributor. Please see the section below entitled "Important Information about OS Support."**

### About Linux OS Release Streams

As technology advances, newer releases of Linux distributions are more likely to have sufficient support for new hardware (processors and chipset architectures, storage controllers, etc.) than are older releases in the same streams.

The Linux Hardware Matrix shows information for releases that provide reasonably complete functionality for the platform and components, using drivers that are part of the distribution, unless noted to the contrary. The releases shown are typically the most current at the time that the platform was launched, but in some cases an already-existing release may provide good functionality.

It is advisable to apply the distributor's most recent maintenance updates in order to get defect and security fixes (and in some cases, additional hardware enablement).

### Important Information about OS Support

Distributors of enterprise-class Linux releases have certification processes that verify that a particular platform is functional and supportable. Most distributors will not support issues that arise on non-certified platforms. Therefore, it is important that you consult the vendor's certification website to verify certification for the OS release you are planning to use. Here are the sites for distributions covered in this document:

SUSE: <https://www.suse.com/yessearch/Search.jsp>

Red Hat: <https://access.redhat.com/ecosystem/search/#/ecosystem>

Ubuntu: <http://www.ubuntu.com/certification/desktop>

### How to Use this Document

Please remember that the general notes on this page apply to all platforms in this Linux Hardware Matrix. If you print out platform pages, be sure to print this one also.

The platform-specific pages in this matrix are formatted as follows:

- \* The platform is identified at the top of the page. For some platforms, the original releases on which the platform was certified by Linux distributors are noted. However, the Linux vendor certification site is always the authoritative source.
- \* Built-in (onboard) and optional components are listed in the left-hand column. This set of components initially represents what was listed as available at the time the platform was launched. The list may be updated periodically as new options are added. However, it is not an authoritative list of product options. Please see the platform specification (QuickSpecs), available at [www.hp.com](http://www.hp.com), for the most up-to-date list.
- \* One or more OS distribution columns are shown to the right of the components column. The headers of these columns identify the OSes for which functionality has been evaluated by HP. In some cases, these columns have been updated since the platform was launched. Component functionality is expected to be retained later in the same OS release stream, and some missing functionality might be added. For example, a component might be usable in RHEL 6.1 "or later," implying RHEL 6.2, 6.3, ... (See the note above entitled "About Linux OS Release Streams.")
- \* A solid circle in a cell represents usable functionality with the combination of OS release shown in the column header and the component, using drivers that are part of the distribution.
- \* A blank cell represents absence of functionality with default drivers. This does not mean that the component is necessarily useless--you may have to download and possibly build a driver from another source, such as the component manufacturer's website or an open source community site. Or, as mentioned, the support might have been added in a subsequent release in the same OS stream, or an available update.
- \* A number represents a reference to a footnote. Footnotes are located at the bottom of the page.

© Copyright 2018 HP Development Company, L.P.

AMD is a trademark of Advanced Micro Devices, Inc. Intel and Xeon are trademarks of Intel corporation or its subsidiaries in the U.S. and/or other countries. Linux® is the registered trademark of Linus Torvalds in the U.S. and other countries. NVIDIA is a trademark or registered trademark of NVIDIA Corporation in the U.S. and other countries. Red Hat and Enterprise Linux are registered trademarks of Red Hat, Inc. in the United States and other countries.

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.

**Linux Hardware Matrix for HP Workstations**

**HP Zbook 17 G5 Mobile Workstation**

As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box indicates the listed component is NOT functional w/ as-is OS)	RHEL 7.5 or later (x86_64)	Ubuntu 16.04.4 or later (x86_64)	Ubuntu 18.04 or later (x86_64)
<b>HP Workstation Base System</b>			
Base system includes: Chassis, System Board, Power Supply, etc.	•	•	•
HP Localization Kit	1	1	1
<b>All Supported Processors</b>			
All support Intel 8th generation Core i5, i7 and Xeon processors	•	•	•
<b>Graphics Card (Video Card)</b>			
Intel UHD integrated 630 graphics on Core i5/i7 processors	•	•	•
Intel UHD integrated P630 graphics on Core i5/i7 and Xeon processor	•	•	•
AMD RadeonPro WX 4170 (4GB Frame buffer)	2, 4, 5	2, 4, 5	2, 4, 5
NVIDIA Quadro P1000 (4GB Frame buffer)	3, 5	3, 5	3, 5
NVIDIA Quadro P2000 (4GB Frame buffer)	3, 5	3, 5	3, 5
NVIDIA Quadro P3200 (6GB Frame buffer)	3, 5	3, 5	3, 5
NVIDIA Quadro P4200 (8GB Frame buffer)	3, 5	3, 5	3, 5
NVIDIA Quadro P5200 (16GB Frame buffer)	3, 5	3, 5	3, 5
<b>System RAM</b>			
Minimum (GB)	4GB	4GB	4GB
Maximum (GB)	64GB	64GB	64GB
<b>Display - internal panel</b>			
17.3" diagonal HD+ IPS eDP anti-glare, 220 nits (1600x900)	•	•	•
17.3" diagonal FHD IPS eDP anti-glare, 300 nits with ambient light sensor(1920x1080)	•	•	•
17.3" diagonal UHD IPS + PSR Touch-screen, 400 nits w/ambient light sensor(3840x2160)	•	•	•
17.3" diagonal HP Dreamcolor Technology, UHD IPS eDP + PSR, anti-glare, 400 nits, 100% AdobeRGB with 10 bit color(3840x2160)	•	•	•
<b>Hard Disks</b>			
All Supported M.2 SSD's	•	•	•
Intel Optane Cache memory	9	9	9
All Supported SATA Disk Drives	•	•	•
All Supported Z Turbo NVMe PCIe SSD's	•	•	•
HP 3D DriveGuard	9	9	9
<b>Integrated Components</b>			
Wired LAN - Intel i219LM Gigabit Ethernet	•	•	•
Wireless LAN - Intel dual-band wireless-AC 9560 802.11ac (2x2) Wi-Fi and Bluetooth 5.0 combo, vPro	•	6	6
Wireless LAN - Intel dual-band wireless-AC 9560 802.11ac (2x2) Wi-Fi and Bluetooth 5.0 combo, non-vPro	•	6	6
Intel XMM 7360 LTE-Advanced mobile broadband module			
Intel It4132 LTE/HSPA+ 4G mobile broadband module			
NFC Mirage WNC XRAV-1			
Onboard Audio (Conexant codec)	•	•	•
Webcam	•	•	•
Onboard Intel integrated SATA RAID (0/1)	•	•	•
USB 3.0 Type A ports	•	•	•
USB 3.1 G2 Type C ports(USB 3.1 Gen2, PCIe gen 3, DisplayPort 1.3, Thunderbolt 3)	•	•	•
USB 2.0/3/1 G1 internal ports	•	•	•
TPM 2.0 Module	7	7	7
<b>Input/Output Devices</b>			
Trackpad + buttons	•	8	•
Smart Card reader	•	•	•
HP Media Card Reader	•	•	•
External HDMI port	10	10	10
<b>Removable CD/DVD Media</b>			
HP DVD RW Supermulti Drive	•	•	•
<b>Dock options</b>			
HP ZBook Dock with Thunderbolt™ 3	•	•	•
HP ZBook Dock with Thunderbolt™ 3 G2 with optional audio module	11	11	11
HP USB Type-C Elite dock	•	•	•

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - AMD Radeon Pro graphics cards are now supported in Linux by the amdgpu open source driver. OS streams are supported at specific release version levels, starting with these: RHEL 7.5, Ubuntu 16.04.4 and 18.04.

footnote 3 - HP recommends the following minimum revision of the NVIDIA driver: 390.67 (or newer).

footnote 4 - At the time this document was published, AMD had not yet released a pro version of their driver for these enterprise Linux distributions. Please check at a later time or check the availability of a released driver at the [hp.com/support/workstations](http://hp.com/support/workstations) support website.

footnote 5 - For installation, HP recommends setting the BIOS gfx mode to 'discrete'. It may be necessary to boot with the 'nomodeset' option for installation to work around issues with the inbox gfx driver.

footnote 6 - The current supported Linux distros have the correct iwlwifi driver, but may lack the latest Intel 9560 firmware to properly operate the wifi solution. Check with your distribution vendor for updates.

footnote 7 - Support for the TPM or other security devices varies by OS distribution. Any use of the TPM module may require additional software from the distribution.

footnote 8 - On Ubuntu 16.04.4 the trackpad has issues initially after installation that require manual work-arounds in the /etc/X11/xorg.conf file. See HP support website for documentation on how to accomplish this. Until this issue is worked around, the desktop user experience is very poor, as the cursor randomly jumps into "follow" mode.

footnote 9 - This option is not supported on Linux distributions.

footnote 10 - With NVIDIA-based configurations, it is recommended to use the NVIDIA closed source driver when using externally connected displays. It is not currently recommended to use externally connected displays with AMD graphics options at this time.

footnote 11 - The speaker and volume controls in the audio module are functional, but the telephony controls are not.

**Linux Hardware Matrix for HP Workstations**

**HP ZBook 17 G4 Mobile Workstation**

RHEL 7 certifications pending.  
As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

*At this time, there are no other supported Linux distributions for this mobile workstation.  
When additional updates are ready, additional columns for supported releases will be added to this document.*

Product Items/Features (Blank box indicates the listed component is NOT functional w/ as-is OS)	RHEL 7.3 or later (x86_64)	Ubuntu 16.04.1 or later (x86_64)
<b>HP Workstation Base System</b>		
Base system includes: Chassis, System Board, Power Supply, etc.	•	•
HP Localization Kit	1	1
<b>All Supported Processors</b>		
All supported 7th generation Intel Core™ i7, i5 and Xeon® processors	•	•
<b>System RAM</b>		
Minimum (GB)	4GB	4GB
Maximum (GB)	64GB	64GB
<b>Graphics Card (Video Card)</b>		
Intel® HD integrated graphics 630 on Core™ i7 processors	5	5
Intel® HD integrated graphics P630 on Xeon® processors	5	5
AMD WX4170 with 4 GB of graphics memory		
NVIDIA Quadro M1200 with 4 GB of graphics memory	6	6, 11
NVIDIA Quadro M2200 with 4 GB of graphics memory	6	6, 11
NVIDIA Quadro P3000 with 6 GB of graphics memory	6	6, 11
NVIDIA Quadro P4000 with 8 GB of graphics memory	6	6, 11
NVIDIA Quadro P5000 with 16 GB of graphics memory	6	6, 11
<b>Display - internal panel</b>		
17.3" diagonal FHD UWVA IPS eDP anti-glare. LED backlight (1920x1080)	•	•
17.3" diagonal LED backlight HD+ SVA anti-glare (1600x900)	•	•
17.3" diagonal UHD UWVA IPS LED anti-glare Dreamcolor (3840x2160)	•	•
17.3" diagonal Touch LED-backlit FHD UWVA IPS (1920x1080)	7	7
<b>Hard Disks</b>		
All supported 2.5" AHCI SATA Drives	•	•
All Supported M.2 Solid State Drives	•	•
All Supported HP Z Turbo Drive NVMe PCIe-attached storage	•	•
All Supported M.2 SATA SED Solid State Drives	8	8
<b>Onboard Components</b>		
Wired LAN - Intel® i219LM Gigabit Ethernet	•	•
Onboard Audio (Conexant codec)	•	•
Onboard SATA RAID	2	2
Intel dual-band wireless AC 8265 802.11 AC/a/b/g/n (2x2) WiFi + Bluetooth (vPro & non-vPro)	•	•
Mobile Broadband - HP It4120 Qualcomm Snapdragon X5 LTE mobile broadband		
Mobile Broadband - HP It4132, LTE/HSPA+ 4G w/GPS		
Mobile Broadband - HP s3210 HSPA+ Intel® Mobile Broadband Module		
HP webcam	•	•
Thunderbolt 3™ ports	3	3
USB 3.0 ports	•	•
<b>Input/Output Devices</b>		
Touchpad	•	•
TPM Module	4	4
Smart Card	•	•
HP Media Card Reader	•	•
External HDMI port	•	•
External VGA port	•	•
<b>Dock Options</b>		
Zbook dock with Thunderbolt 3™	9, 11	10, 11
HP USB Type-C Elite dock		

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - Hardware RAID is not supported on SATA drives. Software RAID is available in most Linux OSes and can be used with SATA or PCIe storage devices.

footnote 3 - Newer Linux kernels may provide device functionality through the Thunderbolt ports. Such kernels are likely to be available in leading-edge distributions, but inclusion of the support with any Enterprise Linux distribution is at the distributor's discretion.

footnote 4 - Support for the TPM or other security devices varies by OS distribution.

footnote 5 - The Intel HD graphics works with the in-box frame-buffer drivers. Support for the "native" Intel driver on v7 processors (Kaby lake) is not available for most release streams as of this edition of the table.

footnote 6 - HP recommends use of NVIDIA driver 375.66 (or newer) on NVIDIA graphics options.

footnote 7 - As of this edition of the table, only basic touch capability was available in most Linux desktop managers and no desktops are optimized for a satisfactory touch experience.

footnote 8 - SED drives work with Linux. There is, however, no Linux support available for manipulating encryption settings via the Opal API.

footnote 9 - The Thunderbolt dock is compatible with RHEL 7 on this zbook model, starting with RHEL 7.3.

footnote 10 - The Thunderbolt dock is compatible with Ubuntu 16.04, starting with 16.04.1. The one known limitation is that the audio headphone jack does not work.

footnote 11 - With NVIDIA-based configurations, it is recommended to use the NVIDIA closed source driver when using externally connected displays. It is not currently recommended to use the dock with AMD graphics options at this time.

**Linux Hardware Matrix for HP Workstations**

**HP ZBook 17 G3 Mobile Workstation**

RHEL 7 certifications pending. RHEL 6 certifications unlikely.  
As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

*At this time, there are no other supported Linux distributions for this mobile workstation. Evaluation and testing are underway on Ubuntu 14.04. When additional updates are ready, additional columns for supported releases will be added to this document.*

Product Items/Features (Blank box indicates the listed component is NOT functional w/ as-is OS)	RHEL 6.8 or later	RHEL 7.2 or later (x86_64)	Ubuntu 16.04.1 or later
<b>HP Workstation Base System</b>			
Base system includes: Chassis, System Board, Power Supply, etc.	•	•	•
HP Localization Kit	1	1	1
<b>All Supported Processors</b>			
All Supported Processors (single-CPU configs)	•	•	•
Hyperthreading	•	•	•
<b>System RAM</b>			
Minimum (GB)	4GB	4GB	4GB
Maximum (GB)	64GB	64GB	64GB
<b>Graphics Card (Video Card)</b>			
Intel HD integrated graphics 530	5	5	5
Intel HD integrated graphics P530	5	5	5
Intel HD integrated pro graphics P580(available 1H16)	5	5	5
AMD W6150M with 4 GB of graphics memory	•	•	•
NVIDIA Quadro M1000M with 2 GB of graphics memory	6	6	6, 11
NVIDIA Quadro M2000M with 4 GB of graphics memory	6	6	6, 11
NVIDIA Quadro M3000M with 4 GB of graphics memory	6	6	6, 11
NVIDIA Quadro M4000M with 4 GB of graphics memory	6	6	6, 11
NVIDIA Quadro M5000M with 8 GB of graphics memory	6	6	6, 11
<b>Display - internal panel</b>			
17.3" diagonal FHD UWVA IPS eDP anti-glare. LED backlit (1920x1080)	•	•	•
17.3" diagonal LED backlit HD+ SVA eDP anti-glare (1600x900)	•	•	•
17.3" diagonal UHD UWVA IPS LED anti-glare Dreamcolor (3840x2160) (available in 1H16)	•	•	•
17.3" diagonal Touch LED-backlit FHD UWVA IPS (1920x1080) (available in 1H16)	7	7	7
<b>Hard Disks</b>			
All supported 2.5" AHCI SATA Drives	•	•	•
All Supported M.2 Solid State Drives	•	•	•
All Supported HP Z Turbo Drive NVMe PCIe-attached storage	•	•	•
All Supported M.2 SATA SED Solid State Drives	8	8	8
<b>Onboard Components</b>			
Wired LAN - Intel i219LM Gigabit Ethernet	•	•	•
Onboard Audio (Conexant codec)	•	•	•
Onboard SATA RAID	2	2	2
Intel dual-band wireless AC 8260 802.11 AC/a/b/g/n (2x2) WiFi + Bluetooth (vPro & non-vPro)	10	10	10
Wireless WAN - lt4120 Qualcomm Snapdragon X5 LTE mobile broadband capability			
Wireless WAN - hs3110 HSPA+ Intel mobile broadband capability			
HP webcam	•	•	•
Thunderbolt 3™ ports		3	•
USB 3.0 ports	•	•	•
<b>Input/Output Devices</b>			
Touchpad	•	•	•
TPM Module	4	4	4
Smart Card	•	•	•
HP Media Card Reader		•	•
External HDMI port	•	•	•
External VGA port	•	•	•
<b>Dock Options</b>			
ZBook dock with Thunderbolt 3™		9, 13	12, 13
HP USB Type-C Elite dock			

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - Hardware RAID is not supported on SATA drives. Software RAID is available in most Linux OSes and can be used with SATA or PCIe storage devices. Software RAID may not support RAID of the boot volume.

footnote 3 - Newer Linux kernels may provide device functionality through the Thunderbolt ports. Such kernels are likely to be available in leading-edge distributions, but inclusion of the support with any Enterprise Linux distribution is at the distributor's discretion.

footnote 4 - Support for the TPM or other security devices varies by OS distribution.

footnote 5 - The Intel HD graphics works with the in-box frame-buffer drivers. Support for the "native" Intel driver on v5 processors (Skylake) is not available for most release streams as of this edition of the table.

footnote 6 - HP recommends use of NVIDIA driver 361.28 (or newer) for configurations with NVIDIA graphics.

footnote 7 - As of this edition of the table, only basic touch capability was available in most Linux desktops and no desktops are optimized for a satisfactory touch experience.

footnote 8 - SED drives work with Linux. There is, however, no Linux support available for manipulating encryption settings via the Opal API.

footnote 9 - The Thunderbolt dock is compatible with RHEL 7 on this zbook model, starting with RHEL 7.3.

footnote 10 - As of this edition, the Bluetooth functionality of this "combo" device has not been enabled in any tested distribution. However, the wireless LAN capability is functional.

footnote 11 - In order to install Ubuntu 16.04.1 on this graphics option, HP recommends that you change the graphics mode in BIOS to use the 'discrete' setting. You may also need to add 'nomodeset' to the boot line during installation.

footnote 12 - The Thunderbolt dock is compatible with Ubuntu 16.04, starting with 16.04.1. The one known limitation is that the audio headphone jack does not work.

footnote 13 - With NVIDIA-based configurations, it is recommended to use the NVIDIA closed source driver when using externally connected displays. It is not currently recommended to use the dock with AMD graphics options at this time.

**Linux Hardware Matrix for HP Workstations**

**HP Zbook 15 G5 Mobile Workstation**

As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box indicates the listed component is NOT functional w/ as-is OS)	RHEL 7.5 or later (x86_64)	Ubuntu 16.04.4 or later (x86_64)	Ubuntu 18.04 or later (x86_64)
<b>HP Workstation Base System</b>			
Base system includes: Chassis, System Board, Power Supply, etc.	•	•	•
HP Localization Kit	1	1	1
<b>All Supported Processors</b>			
All support Intel 8th generation Core i7, i5 and Xeon processors	•	•	•
<b>Graphics Card (Video Card)</b>			
Intel UHD integrated 630 graphics on Core i5/i7 processors	•	•	•
Intel UHD integrated P630 graphics on Xeon processors	•	•	•
AMD RadeonPro WX 4150 (4GB Frame buffer)	2, 4, 5	2, 4, 5	2, 4, 5
NVIDIA Quadro P1000 (4GB Frame buffer)	3, 5	3, 5	3, 5
NVIDIA Quadro P2000 (4GB Frame buffer)	3, 5	3, 5	3, 5
<b>System RAM</b>			
Minimum (GB)	4GB	4GB	4GB
Maximum (GB)	64GB	64GB	64GB
<b>Display - internal panel</b>			
15.6" diagonal FHD IPS eDP anti-glare, 220 nits (1920x1080)	•	•	•
15.6" diagonal FHD IPS eDP + PSR anti-glare, 400 nits with ambient light sensor (1920x1080)	•	•	•
15.6" diagonal HP Sure View FHD IPS eDP+PSR Touch-screen with Corning Gorilla Glass 4 650 nits (1920x1080)	•	•	•
15.6" diagonal UHD IPS eDP + PSR anti-glare, 400 nits with ambient light sensor (3840x2160)	•	•	•
15.6" diagonal UHD IPS eDP + PSR Touch-screen with Corning Gorilla Glass 4 400 nits with ambient light sensor (3840x2160)	•	•	•
15.6" diagonal HP DreamColor Technology, UHD IPS eDP + PSR anti-glare, 600 nits, 100% AdobeRGB with 10-bit color (3840x2160)	•	•	•
<b>Hard Disks</b>			
All Supported M.2 SSD's	•	•	•
Intel Optane Cache memory	9	9	9
All Supported SATA Disk Drives	•	•	•
All Supported Z Turbo NVM PCIe SSD's	•	•	•
HP 3D DriveGuard	9	9	9
<b>Integrated Components</b>			
Wired LAN - Intel i219LM Gigabit Ethernet	•	•	•
Wireless LAN - Intel dual-band wireless-AC 9560 802.11ac (2x2) Wi-Fi and Bluetooth 5.0 combo, vPro	•	•	•
Wireless LAN - Intel dual-band wireless-AC 9560 802.11ac (2x2) Wi-Fi and Bluetooth 5.0 combo, non-vPro	•	•	•
Intel XMM 7360 LTE-Advanced mobile broadband module			
Intel It4132 LTE/HSPA+ 4G mobile broadband module			
NFC Mirage WNC XRAV-1			
Onboard Audio (Conexant codec)	•	•	•
Webcam	•	•	•
Onboard Intel integrated SATA RAID (0/1)	•	•	•
USB 3.0 Type A ports	•	•	•
USB 3.1 G2 Type C ports(USB 3.1 Gen2, PCIe gen 3, DisplayPort 1.3, Thunderbolt 3)	•	•	•
USB 2.0/3/1 G1 internal ports	•	•	•
TPM 2.0 Module	7	7	7
<b>Input/Output Devices</b>			
Trackpad + buttons	•	8	•
Smart Card reader	•	•	•
HP Media Card Reader	•	•	•
External HDMI port	10	10	10
<b>Removable CD/DVD Media</b>			
HP DVD RW Supermulti Drive	•	•	•
<b>Dock options</b>			
HP ZBook Dock with Thunderbolt™ 3	•	•	•
HP ZBook Dock with Thunderbolt™ 3 G2 with optional audio module	11	11	11
HP USB Type-C Elite dock	•	•	•

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - AMD Radeon Pro graphics cards are now supported in Linux by the amdgpu open source driver. OS streams are supported at specific release version levels, starting with these: RHEL 7.5, Ubuntu 16.04.4 and 18.04.

footnote 3 - HP recommends the following minimum revision of the NVIDIA driver: 390.67 (or newer).

footnote 4 - At the time this document was published, AMD had not yet released a pro version of their driver for these enterprise Linux distributions. Please check at a later time or check the availability of a released driver at the [hp.com/support/workstations](http://hp.com/support/workstations) support website.

footnote 5 - For installation, HP recommends setting the BIOS gfx mode to 'discrete'. It may be necessary to boot with the 'nomodeset' option for installation to work around issues with the inbox gfx driver.

footnote 6 - The current supported Linux distros have the correct iwlfwifi driver but may lack the latest Intel 9560 firmware to properly operate the wifi solution. Check with your distribution vendor for updates.

footnote 7 - Support for the TPM or other security devices varies by OS distribution. Any use of the TPM module may require additional software from the distribution.

footnote 8 - On Ubuntu 16.04.4 the trackpad has issues initially after installation that require manual work-arounds in the /etc/X11/xorg.conf file. See HP support website for documentation on how to accomplish this. Until this issue is worked around, the desktop user experience is very poor, as the cursor randomly jumps into "follow" mode.

footnote 9 - This option is not supported on Linux distributions.

footnote 10 - With Nvidia-based configurations, it is recommended to use the Nvidia closed source driver when using externally connected displays. It is not currently recommended to use externally connected monitors with AMD graphics options.

footnote 11 - The speaker and volume controls in the audio module are functional, but the telephony controls are not.

## Linux Hardware Matrix for HP Workstations

### HP ZBook 15 G4 Mobile Workstation

RHEL 7 certifications pending.  
As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

*At this time, there are no other supported Linux distributions for this mobile workstation. When additional updates are ready, additional columns for supported releases will be added to this document.*

Product Items/Features (Blank box indicates the listed component is NOT functional w/ as-is OS)	RHEL 7.3 or later (x86_64)	Ubuntu 16.04.1 or later (x86_64)
<b>HP Workstation Base System</b>		
Base system includes: Chassis, System Board, Power Supply, etc.	•	•
HP Localization Kit	1	1
<b>All Supported Processors</b>		
All supported 7th generation Intel Core™ i7, i5 and Xeon® processors	•	•
<b>System RAM</b>		
Minimum (GB)	4GB	4GB
Maximum (GB)	64GB	64GB
<b>Graphics Card (Video Card)</b>		
Intel® HD integrated graphics 630 on Core™ i7 processors	5	5
Intel® HD integrated graphics P630 on Xeon® processors	5	5
AMD WX4150 with 4 GB of graphics memory		
NVIDIA Quadro M1200 with 4 GB of graphics memory	6	6
NVIDIA Quadro M2200 with 4 GB of graphics memory	6	6
<b>Display - internal panel</b>		
15.6" diagonal LED-backlit FHD UWVA IPS eDP anti-glare + panel self refresh (PSR) (1920x1080)	•	•
15.6" diagonal LED backlit FHD SVA eDP anti-glare + panel self refresh (PSR) (1920x1080)	•	•
15.6 diagonal LED UHD UWVA IPS LED anti-glare Dreamcolor (3840x2160)	•	•
15.6" diagonal Touch LED-backlit FHD UWVA IPS (1920x1080)	7	7
<b>Hard Disks</b>		
All supported 2.5" AHCI SATA Drives	•	•
All Supported M.2 Solid State Drives	•	•
All Supported HP Z Turbo Drive NVMe PCIe-attached storage	•	•
All Supported M.2 AHCI SED Solid State Drives	8	8
<b>Onboard Components</b>		
Wired LAN - Intel i219LM Gigabit Ethernet	•	•
Onboard Audio (Conexant codec)	•	•
Onboard SATA RAID	2	2
Intel dual-band wireless AC 8265 802.11 AC/a/b/g/n (2x2) WiFi + Bluetooth (vPro * non-vPro)	•	•
Mobile Broadband - HP lt4120 Qualcomm Snapdragon X5 LTE mobile broadband		
Mobile Broadband - HP lt4132, LTE/HSPA+ 4G w/GPS		
Mobile Broadband - HP s3210 HSPA+ Intel® Mobile Broadband Module		
HP webcam	•	•
Thunderbolt 3™ ports	3	3
USB 3.0 ports	•	•
<b>Input/Output Devices</b>		
Touchpad	•	•
TPM Module	4	4
Smart Card	•	•
HP Media Card Reader	•	•
External HDMI port	•	•
External VGA port	•	•
<b>Dock Options</b>		
ZBook dock with Thunderbolt 3™	9, 11	10, 11
HP USB Type-C Elite dock		

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - Hardware RAID is not supported on SATA drives. Software RAID is available in most Linux OSes and can be used with SATA or PCIe storage devices.

footnote 3 - Newer Linux kernels may provide device functionality through the Thunderbolt ports. Such kernels are likely to be available in leading-edge distributions, but inclusion of the support with any Enterprise Linux distribution is at the distributor's discretion.

footnote 4 - Support for the TPM or other security devices varies by OS distribution.

footnote 5 - The Intel HD graphics works with the in-box frame-buffer drivers. Support for the "native" Intel driver on v7 processors (KabyLake) is not available for most release streams as of this edition of the table.

footnote 6 - HP recommends use of NVIDIA driver 375.66 (or newer) on NVIDIA graphics options.

footnote 7 - As of this edition of the table, only basic touch capability was available in most Linux desktop managers and no desktops are optimized for a satisfactory touch experience.

footnote 8 - SED drives work with Linux. There is, however, no Linux support available for manipulating encryption settings via the Opal API.

footnote 9 - The Thunderbolt dock is compatible with RHEL 7 on this zbook model, starting with RHEL 7.3.

footnote 10 - The Thunderbolt dock is compatible with Ubuntu 16.04, starting with 16.04.1. The one known limitation is that the audio headphone jack does not work.

footnote 11 - With NVIDIA-based configurations, it is recommended to use the NVIDIA closed source driver when using externally connected displays. It is not currently recommended to use the dock with AMD graphics options at this time.

**Linux Hardware Matrix for HP Workstations**

**HP Zbook 15 G3 Mobile Workstation**

RHEL 7 certifications pending. RHEL 6 certifications unlikely.  
As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

*At this time, there are no other supported Linux distributions for this mobile workstation. Evaluation and testing are underway on Ubuntu 14.04. When additional updates are ready, additional columns for supported releases will be added to this document.*

Product Items/Features (Blank box indicates the listed component is NOT functional w/ as-is OS)	RHEL 6.8 or later	RHEL 7.2 or later (x86_64)	Ubuntu 16.04.1 or later
<b>HP Workstation Base System</b>			
Base system includes: Chassis, System Board, Power Supply, etc.	•	•	•
HP Localization Kit	1	1	1
<b>All Supported Processors</b>			
All Supported Processors (single-CPU configs)	•	•	•
Hyperthreading	•	•	•
<b>System RAM</b>			
Minimum (GB)	4GB	4GB	4GB
Maximum (GB)	64GB	64GB	64GB
<b>Graphics Card (Video Card)</b>			
Intel HD integrated graphics 530	5	5	5
Intel HD integrated graphics P530	5	5	5
Intel HD integrated pro graphics P580(available 1H16)	5	5	5
AMD W5170M with 2 GB of graphics memory	•	•	•
NVIDIA Quadro M1000M with 2 GB of graphics memory	6	6	6, 10
NVIDIA Quadro M2000M with 4 GB of graphics memory	6	6	6, 10
<b>Display - internal panel</b>			
15.6" diagonal LED-backlit FHD UWVA IPS eDP anti-glare + panel self refresh(PSR) (1920x1080)	•	•	•
15.6" diagonal LED backlit FHD SVA eDP anti-glare (1920x1080)	•	•	•
15.6 diagonal LED UHD UWVA IPS LED anti-glare Dreamcolor (3840x2160) (available in 1H16)	•	•	•
15.6" diagonal Touch LED-backlit FHD UWVA IPS (1920x1080) (available in 1H16)	7	7	7
<b>Hard Disks</b>			
All supported 2.5" AHCI SATA Drives	•	•	•
All Supported M.2 Solid State Drives	•	•	•
All Supported HP Z Turbo Drive NVMe PCIe-attached storage	•	•	•
All Supported M.2 AHCI SED Solid State Drives	13	13	13
<b>Onboard Components</b>			
Wired LAN - Intel i219LM Gigabit Ethernet	•	•	•
Onboard Audio (Conexant codec)	•	•	•
Onboard SATA RAID	2	2	2
Intel dual-band wireless AC 8260 802.11 AC/a/b/g/n (2x2) WiFi + Bluetooth (vPro & non-vPro)	9	9	9
Wireless WAN - lt4120 Qualcomm Snapdragon X5 LTE mobile broadband capability			
Wireless WAN - hs3110 HSPA+ Intel mobile broadband capability			
HP webcam	•	•	•
Thunderbolt 3™ ports		3	•
USB 3.0 ports	•	•	•
<b>Input/Output Devices</b>			
Touchpad	•	•	•
TPM Module	4	4	4
Smart Card	•	•	•
HP Media Card Reader		•	•
External HDMI port	•	•	•
External VGA port	•	•	•
<b>Dock Options</b>			
ZBook dock with Thunderbolt 3™		8, 12	11, 12
HP USB Type-C Elite dock			

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - Hardware RAID is not supported on SATA drives. Software RAID is available in most Linux OSes and can be used with SATA or PCIe storage devices. Software RAID may not support RAID of the boot volume.

footnote 3 - Newer Linux kernels may provide device functionality through the Thunderbolt ports. Such kernels are likely to be available in leading-edge distributions, but inclusion of the support with any Enterprise Linux distribution is at the distributor's discretion.

footnote 4 - Support for the TPM or other security devices varies by OS distribution.

footnote 5 - The Intel HD graphics works with the in-box frame-buffer drivers. Support for the "native" Intel driver on v5 processors(Skylake) is not available for most release streams as of this edition of the table.

footnote 6 - HP recommends use of NVIDIA driver 361.28 (or newer) for configurations with NVIDIA graphics.

footnote 7 - As of this edition of the table, only basic touch capability was available in most Linux desktops and no desktops are optimized for a satisfactory touch experience.

footnote 8 - The Thunderbolt dock is compatible with RHEL 7 on this zbook model, starting with RHEL 7.3.

footnote 9 - As of this edition, the Bluetooth functionality of this "combo" device has not been enabled in any tested distribution. However, the wireless LAN capability is functional.

footnote 10 - In order to install Ubuntu 16.04.1 (or later versions) on this graphics option, HP recommends that you change the graphics mode in BIOS to use the 'discrete' setting. You may also need to add 'nomodeset' to the boot line during installation.

footnote 11 - The Thunderbolt dock is compatible with Ubuntu 16.04, starting with 16.04.1. The one known limitation is that the audio headphone jack does not work.

footnote 12 - With NVIDIA-based configurations, it is recommended to use the NVIDIA closed source driver when using externally connected displays. It is not currently recommended to use the dock with AMD graphics options at this time.

footnote 13 - SED drives work with Linux. There is, however, no Linux support available for manipulating encryption settings via the Opal API.

**Linux Hardware Matrix for HP Workstations**

**HP ZBook Studio G5 Mobile Workstation**

As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box indicates the listed component is NOT functional w/ as-is OS)	RHEL 7.5 or later (x86_64)	Ubuntu 16.04.4 or later (x86_64)	Ubuntu 18.04 or later (x86_64)
<b>HP Workstation Base System</b>			
Base system includes: Chassis, System Board, Power Supply, etc.	•	•	•
HP Localization Kit	1	1	1
<b>All Supported Processors</b>			
All support Intel® 8th generation Core™ i5, i7 and Xeon processors	•	•	•
<b>Graphics Card (Video Card)</b>			
Intel® UHD integrated 630 graphics on Core™ i5/i7 processors	•	•	•
Intel® UHD integrated P630 graphics on Xeon processors	•	•	•
NVIDIA® Quadro® P1000 (4GB Frame buffer)	3, 5	3, 5	3, 5
<b>System RAM</b>			
Minimum (GB)	4GB	4GB	4GB
Maximum (GB)	32GB	32GB	32GB
<b>Display - internal panel</b>			
15.6" diagonal FHD IPS eDP + PSR anti-glare, 400 nits with ambient light sensor (1920x1080)	•	•	•
15.6" diagonal HP Sure View FHD IPS eDP+PSR anti-glare, 650 nits (1920x1080)	•	•	•
15.6" diagonal UHD IPS eDP + PSR anti-glare, 400 nits with ambient light sensor (3840x2160)	•	•	•
15.6" diagonal HP DreamColor Technology, UHD IPS eDP + PSR anti-glare, 600 nits, 100% AdobeRGB with 10-bit color (3840x2160)	•	•	•
<b>Hard Disks</b>			
All Supported M.2 SSD's	•	•	•
Intel Optane™ Cache memory	9	9	9
All Supported Z Turbo NVMe PCIe SSD's	•	•	•
HP 3D DriveGuard	9	9	9
<b>Integrated Components</b>			
Wireless LAN - Intel dual-band wireless-AC 9560 802.11ac (2x2) Wi-Fi and Bluetooth 5.0 combo, vPro	•	6	6
Wireless LAN - Intel dual-band wireless-AC 9560 802.11ac (2x2) Wi-Fi and Bluetooth 5.0 combo, non-vPro	•	6	6
Intel XMM 7360 LTE-Advanced mobile broadband module			
Intel It4132 LTE/HSPA+ 4G mobile broadband module			
NFC Mirage WNC XRAV-1			
Onboard Audio (Conexant codec)	•	•	•
Webcam	•	•	•
Onboard Intel integrated SATA RAID (0/1)	•	•	•
USB 3.0 Type A ports	•	•	•
USB 3.1 G2 Type C ports(USB 3.1 Gen2, PCIe gen 3, DisplayPort 1.3, Thunderbolt 3)	•	•	•
USB 2.0/3.1 G1 internal ports	•	•	•
TPM 2.0 Module	7	7	7
<b>Input/Output Devices</b>			
Trackpad + buttons	8	8	8
Smart Card reader	•	•	•
HP Media Card Reader	•	•	•
External HDMI port	10	10	10
<b>Dock options</b>			
HP ZBook Dock with Thunderbolt™ 3	•	•	•
HP ZBook Dock with Thunderbolt™ 3 G2 with optional audio module	11	11	11
HP USB Type-C Elite dock	•	•	•

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - AMD Radeon Pro graphics cards are now supported in Linux by the amdgpu open source driver. OS streams are supported at specific release version levels, starting with these: RHEL 7.5, Ubuntu 16.04.4 and 18.04.

footnote 3 - HP recommends the following minimum revision of the NVIDIA driver: 390.67 (or newer).

footnote 4 - At the time this document was published, AMD had not yet released a pro version of their driver for these enterprise Linux distributions. Please check at a later time or check the availability of a released driver at the [hp.com/support/workstations](http://hp.com/support/workstations) support website.

footnote 5 - For installation, HP recommends setting the BIOS gfx mode to 'discrete'. It may be necessary to boot with the 'nomodeset' option for installation to work around issues with the inbox gfx driver.

footnote 6 - The current supported Linux distros have the correct iwlmwifi driver, but may lack the latest Intel 9560 firmware to properly operate the wifi solution. Check with your distribution vendor for updates.

footnote 7 - Support for the TPM or other security devices varies by OS distribution. Any use of the TPM module may require additional software from the distribution.

footnote 8 - **The trackpad is not functional out of the box with any of these distributions at this time. To use the G5 Studio, one will have to use an external USB pointer device until such time as a work-around is found or a permanent solution is available. Please check with your distribution vendor.**

footnote 9 - This option is not supported on Linux distributions.

footnote 10 - With Nvidia-based configurations, it is recommended to use the Nvidia closed source driver when using externally connected displays.

footnote 11 - The speaker and volume controls in the audio module are functional, but the telephony controls are not.



## Linux Hardware Matrix for HP Workstations

### HP ZBook Studio G4 Mobile Workstation

RHEL 7 certifications pending.  
As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

*At this time, there are no other supported Linux distributions for this mobile workstation. When additional updates are ready, additional columns for supported releases will be added to this document.*

Product Items/Features (Blank box indicates the listed component is NOT functional w/ as-is OS)	RHEL 7.3 or later (x86_64)	Ubuntu 16.04.1 or later (x86_64)
<b>HP Workstation Base System</b>		
Base system includes: Chassis, System Board, Power Supply, etc.	•	•
HP Localization Kit	1	1
<b>All Supported Processors</b>		
All supported 7th generation Intel Core™ i7, i5 and Xeon® processors	•	•
<b>System RAM</b>		
Minimum (GB)	4GB	4GB
Maximum (GB)	32GB	32GB
<b>Graphics Card (Video Card)</b>		
Intel® HD integrated graphics 630 on Core™ i7 processors	5	5
Intel® HD integrated graphics P630 on Xeon® processors	5	5
NVIDIA Quadro M1200 with 4 GB of graphics memory	6	6
<b>Display - internal panel</b>		
15.6" diagonal LED-backlit FHD UWVA IPS eDP anti-glare + panel self refresh (PSR) (1920x1080)	•	•
15.6" diagonal UHD UWVA IPS LED anti-glare (3840x2160)	•	•
15.6" diagonal Touch LED-backlit FHD UWVA IPS (1920x1080)	7	7
<b>Hard Disks</b>		
All Supported M.2 AHCI Solid State Drives	•	•
All Supported HP Z Turbo Drive NVMe PCIe-attached storage	•	•
All Supported M.2 AHCI SED Solid State Drives	8	8
<b>Onboard Components</b>		
Wired LAN - Intel i219LM Gigabit Ethernet	•	•
Onboard Audio (Conexant codec)	•	•
Onboard SATA RAID	2	2
Intel dual-band wireless AC 8265 802.11 AC/a/b/g/n (2x2) WiFi + Bluetooth (vPro & non-vPro)	•	•
HP webcam	•	•
Thunderbolt 3™ ports	3	3
USB 3.0 ports	•	•
<b>Input/Output Devices</b>		
Touchpad	11	•
TPM Module	4	4
External HDMI port	•	•
<b>Dock Options</b>		
ZBook Dock with Thunderbolt 3™	9, 10	10, 12
HP USB Type-C Elite dock		

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - Hardware RAID is not supported on SATA drives. Software RAID is available in most Linux OSes and can be used with SATA or PCIe storage devices.

footnote 3 - Newer Linux kernels may provide device functionality through the Thunderbolt module. Such kernels are likely to be available in leading-edge distributions, but inclusion of the support with any Enterprise Linux distribution is at the distributor's discretion.

footnote 4 - Support for the TPM or other security devices varies by OS distribution.

footnote 5 - The Intel HD graphics works with the in-box frame-buffer drivers. Support for the "native" Intel driver on v7 processors (Kabylake) is not available for most release streams as of this edition of the table.

footnote 6 - HP recommends use of NVIDIA driver 375.66 (or newer) on NVIDIA graphics options.

footnote 7 - As of this edition of the table, only basic touch capability was available in most Linux desktops and no desktops are optimized for a satisfactory touch experience.

footnote 8 - SED drives work with Linux. There is, however, no Linux support available for manipulating encryption settings via the Opal API.

footnote 9 - The Thunderbolt dock is compatible with RHEL 7 on this zbook model, starting with RHEL 7.3.

footnote 10 - With NVIDIA-based configurations, it is recommended to use the NVIDIA closed source driver when using externally connected displays.

footnote 11 - The Touchpad requires a post RHEL 7.3 z-stream update. A simple work-around can also be used in lieu of the z-stream fix by adding the boot option 'module\_blacklist=i2c-hid' to the boot command line.

footnote 12 - The Thunderbolt dock is compatible with Ubuntu 16.04, starting with 16.04.1. The one known limitation is that the audio headphone jack does not work.

**Linux Hardware Matrix for HP Workstations**

**HP ZBook Studio G3 Mobile Workstation**

RHEL 7 certifications pending. RHEL 6 certifications unlikely.  
As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

*At this time, there are no other supported Linux distributions for this mobile workstation. Evaluation and testing are underway on and Ubuntu 14.04. When additional updates are ready, additional columns for supported releases will be added to this document.*

Product Items/Features (Blank box indicates the listed component is NOT functional w/ as-is OS)	RHEL 6.8 or later	RHEL 7.2 or later (x86_64)	Ubuntu 16.04.1 or later
<b>HP Workstation Base System</b>			
Base system includes: Chassis, System Board, Power Supply, etc.	•	•	•
HP Localization Kit	1	1	1
<b>All Supported Processors</b>			
All Supported Processors (single-CPU configs)	•	•	•
Hyperthreading	•	•	•
<b>System RAM</b>			
Minimum (GB)	4GB	4GB	4GB
Maximum (GB)	32GB	32GB	32GB
<b>Graphics Card (Video Card)</b>			
Intel HD integrated graphics 530	5	5	5
Intel HD integrated graphics P530	5	5	5
Intel HD integrated pro graphics P580 (available 1H16)	5	5	5
NVIDIA Quadro M1000M with 2 GB of graphics memory	6	6	6, 12
NVIDIA Quadro M2000M with 4 GB of graphics memory	6	6	6, 12
<b>Display - internal panel</b>			
15.6" diagonal LED-backlit FHD UWVA IPS eDP anti-glare + panel self refresh (PSR) (1920x1080)	•	•	•
15.6" diagonal LED backlit FHD SVA eDP anti-glare (1920x1080)	•	•	•
15.6 diagonal LED UHD UWVA IPS LED anti-glare Dreamcolor (3840x2160) (available in 1H16)	•	•	•
15.6" diagonal Touch LED-backlit FHD UWVA IPS (1920x1080) (available in 1H16)	7	7	7
<b>Hard Disks</b>			
All Supported M.2 AHCI Solid State Drives	•	•	•
All Supported HP Z Turbo Drive NVMe PCIe-attached storage	•	•	•
All Supported M.2 AHCI SED Solid State Drives	8	8	8
<b>Onboard Components</b>			
Wired LAN - Intel i219LM Gigabit Ethernet	•	•	•
Onboard Audio (Conexant codec)	•	•	•
Onboard SATA RAID	2	2	2
Intel dual-band wireless AC 8260 802.11 AC/a/b/g/n (2x2) WiFi + Bluetooth (vPro & non-vPro)	10	10	10
HP webcam	•	•	•
Thunderbolt 3™ ports	•	3	•
USB 3.0 ports	•	•	•
<b>Input/Output Devices</b>			
Touchpad	•	11	•
TPM Module	4	4	4
External HDMI port	•	•	•
<b>Dock Options</b>			
ZBook Dock with Thunderbolt 3™		9	9

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - Hardware RAID is not supported on SATA drives. Software RAID is available in most Linux OSes and can be used with SATA or PCIe storage devices. Software RAID may not support RAID of the boot volume.

footnote 3 - Newer Linux kernels may provide device functionality through the Thunderbolt module. Such kernels are likely to be available in leading-edge distributions, but inclusion of the support with any Enterprise Linux distribution is at the distributor's discretion.

footnote 4 - Support for the TPM or other security devices varies by OS distribution.

footnote 5 - The Intel HD graphics works with the in-box frame-buffer drivers. Support for the "native" Intel driver on v5 processors (Skylake) is not available for most release streams as of this edition of the table.

footnote 6 - HP recommends use of NVIDIA driver 361.28 (or newer) for configurations with NVIDIA graphics.

footnote 7 - As of this edition of the table, only basic touch capability was available in most Linux desktops and no desktops are optimized for a satisfactory touch experience.

footnote 8 - SED drives work with Linux. There is, however, no Linux support available for manipulating encryption settings via the Opal API.

footnote 9 - As of this edition, the docking station has not been tested for compatibility with Linux distributions. The supported state of the various I/O ports will be updated as new information becomes available over time.

footnote 10 - As of this edition, the Bluetooth functionality of this "combo" device has not been enabled in any tested distribution. However, the wireless LAN capability is functional.

footnote 11 - Red Hat introduced a regression in RHEL 7.3 in which the Touchpad ceases to function. Adding the option "module\_blacklist=i2c\_hid" to the kernel boot line will work around this issue. Red Hat is working on an errata to fix this issue prior to the release of 7.4.

footnote 12 - In order to install Ubuntu 16.04.1 on this graphics option, HP recommends that you change the graphics mode in BIOS to use the 'discrete' setting. You may also need to add 'nomodeset' to the boot line during installation.

## Linux Hardware Matrix for HP Workstations

### HP Z1 All-in-one Workstation

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box or unlisted -> component is NOT functional w/ as-is OS)	RHEL WS 6.2 or later (x86 & x86_64)	SLED11 SP2 or later (x86_64)
<b>HP Workstation Base System</b>		
Base system includes: Chassis, System Board, USB, Power Supply, etc.	•	•
HP Localization Kit	9	9
<b>Software</b>		
Remote Graphics Software		
<b>All Supported Processors</b>		
All Supported Processors (single-CPU configs)	•	•
Hyperthreading	•	•
<b>Firmware Features</b>		
CSM (Compatibility Support Module) Mode	•	•
2.1 UEFI Mode	•	•
Intel AMT remote manageability		
<b>Graphics Card (Video Card) (see footnote 10)</b>		
Intel Onboard Graphics	3	3
NVIDIA Quadro Q500M	5	5
NVIDIA Quadro Q1000M	5	5
NVIDIA Quadro Q3000M	5	5
NVIDIA Quadro Q4000M	5	5
NVIDIA Quadro K3000M	6	6
NVIDIA Quadro K4000M	6	6
<b>System RAM</b>		
Minimum (GB)	2GB	2GB
Maximum (GB)	32GB	32GB
<b>Hard Disks (see footnote 11)</b>		
All Supported SSD Disk Drives	•	•
All Supported SATA Disk Drives less than 3TB	•	•
Support SATA Disk Drives 3TB and larger	7	7
All Supported USB Drive Keys	•	•
<b>Network Cards (no modem support)</b>		
Wireless LAN (Intel Centrino 6230 or 6235)	•	8
<b>Onboard Components</b>		
Onboard LAN - Intel 82579 Gigabit Ethernet	•	•
Integrated 6 in 1 Card Reader	•	•
Onboard Audio (IDT 92HD91 codec)	4	4
Onboard SATA RAID	1	1
Onboard USB 3.0	•	•
<b>Removable CD/DVD Media</b>		
HP 8x DVD-ROM Drive	•	•
HP BD-RE (Blu-Ray writer)	•	•
<b>Input/Output Devices (no spaceball support)</b>		
HP Optical Scroll Mouse, USB	•	•
HP Standard Keyboard, USB	•	•
HP Wireless AIO Keyboard/Mouse	•	•
TPM Module/ Smart Card		
HP Printers	2	2
All Supported Monitors	•	•

footnote 1 - Hardware RAID is not supported on SATA drives.

footnote 2 - For more info about Linux driver support for HP printers, go to <http://www.hplip.net>.

footnote 3 - Depending on the OS release, the kernel DRM and X.org "Intel" driver may not support the Z1 built-in display correctly.

footnote 4 - Depending on the OS release, the kernel ALSA driver may not enable all audio functions; some earlier kernels enable headphones but not speakers.

footnote 5 - For NVIDIA Quadro graphics on Linux, HP requires NVIDIA driver versions 295.20 or later for proper Z1 built-in display support.

footnote 6 - For K3000M and K4000M graphics on Linux, NVIDIA driver version 304.51 or later is required.

footnote 7 - In general, single drives or volumes larger than 2.2TB can only be fully accessed using GPT formatting. OSes listed can format GPT for the boot drive or volume but may require installation of UEFI boot support, and can access GPT-formatted data volumes.

footnote 8 - The 6235 wireless controller requires updates to the SLED 11 SP2 kernel support and firmware package. The updates are available from SUSE, and are also included in 2013 versions of the HP drivers kit (see footnote 10).

footnote 9 - HP systems can usually be ordered with a localization that affects documentation, keyboards, and other components. Typical Linux distributions are not installed as pre-localized, but the user can choose a language and keyboard layout during post-installation configuration, or during the "first boot" when the OS comes preloaded on the system.

footnote 10 - Get the latest drivers: "HP Installer Kit for Linux - HP Driver CD for Red Hat Enterprise Linux 6" and "HP Installer Kit for Linux - HP Driver CD for SUSE Linux Enterprise Desktop 11" ISO images from <http://www.hp.com/support/z1>. Under Download options, select Get drivers, software & firmware.

footnote 11 - The Z1 all-in-one can support up to two 2.5-inch SATA drives or one 3.5-inch SATA drive.

## Linux Hardware Matrix for HP Workstations

### HP Z1 G2 All-in-one Workstation

Originally certified with SLED 11 SP3 (x86\_64) and RHEL 6.5 (x86\_64)

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box or unlisted -> component is NOT functional w/ as-is OS)	SLED11 SP3 or later (x86_64)	RHEL 6.5 or later (x86_64)	RHEL 7.0 or later (x86_64)	Ubuntu 14.04 LTS or later (x86_64)
<b>HP Workstation Base System</b>				
Base system includes: Chassis, System Board, USB, Power Supply, etc.	•	•	•	•
Base system with Touch capability (see footnote 8)				•
HP Localization Kit	1	1	1	1
<b>Software</b>				
Remote Graphics Software				
<b>All Supported Processors</b>				
All Supported Processors (single-CPU configs)	•	•	•	•
Hyperthreading	•	•	•	•
<b>Graphics Card (Video Card) (see footnote 9)</b>				
Intel Onboard Graphics	4	4	4	4
NVIDIA Quadro K610M	6	6	6	6
NVIDIA Quadro K2100M	6	6	6	6
NVIDIA Quadro K3100M	6	6	6	6
NVIDIA Quadro K4100M	6	6	6	6
<b>System RAM</b>				
Minimum (GB)	2GB	2GB	2GB	2GB
Maximum (GB)	32GB	32GB	32GB	32GB
<b>Hard Disks (see footnote 10)</b>				
All Supported Solid State Drives	•	•	•	•
All Supported SATA Disk Drives less than 3TB	•	•	•	•
Supported SATA Disk Drives 3TB and larger	7	7	7	7
All Supported USB Drive Keys	•	•	•	•
<b>Network Cards (no modem support)</b>				
Wireless LAN (Intel Centrino 7260)	•	•	•	•
<b>Onboard Components</b>				
Wired LAN - Intel i217LM Gigabit Ethernet	•	•	•	•
Integrated Media Card Reader	•	•	•	•
Onboard Audio (IDT 92HD68 codec)	5	5	5	5
Onboard SATA RAID	2	2	2	2
<b>Add Ons</b>				
Thunderbolt Module (see footnote 11)				
<b>Removable CD/DVD Media</b>				
HP DVD-ROM Drive	•	•	•	•
HP DVD RW Supermulti Drive	•	•	•	•
HP BD-RE (Blu-Ray writer)	•	•	•	•
<b>Input/Output Devices (no spaceball support)</b>				
HP Laser Scroll Mouse, USB	•	•	•	•
HP Standard Keyboard, USB	•	•	•	•
HP Wireless AIO Keyboard/Mouse	•	•	•	•
TPM Module/ Smart Card				
HP Printers	3	3	3	3
All Supported Monitors	•	•	•	•

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available.

footnote 2 - Hardware RAID is not supported on SATA drives.

footnote 3 - For more info about Linux driver support for HP printers, go to <http://www.hplip.net>.

footnote 4 - Depending on the OS release, the kernel DRM and X.org "intel" driver may not support the Z1 G2 built-in display correctly.

footnote 5 - Depending on the OS release, the kernel ALSA driver may enable all audio functions; some earlier kernels enable headphones but not speakers.

footnote 6 - For NVIDIA Quadro graphics on Linux, HP requires NVIDIA driver versions 319.60 or later for proper Z1 G2 built-in display support.

footnote 7 - In general, single drives or volumes larger than 2.2 TB can only be fully accessed using GPT formatting. OSes listed can format GPT for the boot drive or volume but may require installation of UEFI boot support, and can access GPT-formatted data volumes.

footnote 8 - Basic Linux Touch support requires very recent kernel (recommended 3.10 or greater) and X server versions for proper USB HID recognition and multi-touch event translation. Robust gesture libraries, touch-aware display managers, and touch-capable applications will emerge with time for desktop distributions (but not at this time for enterprise releases of SLED 11 SP3 or RHEL 6.5).

footnote 9 - Get the latest drivers: "HP Installer Kit for Linux - HP Driver CD (or DVD) for Linux-distribution-name" ISO images by going to <http://www.hp.com/support/z1g2>. Under Download options, select Get drivers, software & firmware. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 10 - The Z1 G2 all-in-one can support up to two 2.5-inch SATA drives or one 3.5-inch SATA drive. It can also support mSATA devices in the mPCIe/mSATA slots.

footnote 11 - Newer Linux kernels may provide device functionality through the Thunderbolt module. Such kernels are likely to be available in leading-edge distributions, but inclusion of the support with any Enterprise Linux distribution is at the distributor's discretion. For example, neither SLED 11 SP3 nor RHEL 6.5 incorporates significant Thunderbolt support.

## Linux Hardware Matrix for HP Workstations

### HP Z1 G3 All-in-one Workstation

Certifications pending.  
As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box indicates the listed component is NOT functional w/ as-is OS)	SLED11 SP4 or later (x86_64)	SLED12 SP1 or later (x86_64)	RHEL 6.7 or later (x86_64)	RHEL 7.2 or later (x86_64)	Ubuntu 14.04 LTS, 14.04.4 or later (x86_64)	Ubuntu 16.04 LTS or later (x86_64)
<b>HP Workstation Base System</b>						
Base system includes: Chassis, System Board, Power Supply, etc.	•	•	•	•	•	•
HP Localization Kit	1	1	1	1	1	1
<b>All Supported Processors</b>						
All Supported Processors (single-CPU configs)	•	•	•	•	•	•
Hyperthreading	•	•	•	•	•	•
<b>Graphics Card (Video Card) (See footnote 10)</b>						
Intel Onboard Graphics	9	9	9	9	9	9
NVIDIA Quadro M1000M	•	•	•	•	•	•
NVIDIA Quadro M2000M	•	•	•	•	•	•
<b>System RAM</b>						
Minimum (GB)	4GB	4GB	4GB	4GB	4GB	4GB
Maximum (GB)	32GB	32GB	32GB	32GB	64GB	64GB
<b>Storage Devices</b>						
All Supported Solid State Drives	•	•	•	•	•	•
All Supported SATA Disk Drives	•	•	•	•	•	•
All Supported USB Drive Keys	•	•	•	•	•	•
HP Z Turbo Drive PCIe-attached storage	4	4	4	4	4	4
<b>Network Cards (no modem support)</b>						
Intel 8260 802.11 a/b/g/n/ac & Bluetooth PCIe	3	3	3	3	•	•
<b>Onboard Components</b>						
Wired LAN - Intel i219LM Gigabit Ethernet	•	•	•	•	•	•
Onboard Audio (Conexant CX7501 codec)	•	•	•	•	•	•
Onboard Webcam	•	•	•	•	•	•
Onboard SATA RAID	2	2	2	2	2	2
SD 4.0 Media Card Reader	•	•	•	•	•	•
Thunderbolt 3™ ports	5	5	5	5	5	5
<b>Input/Output Devices (no spaceball support)</b>						
HP Laser Scroll Mouse, USB	•	•	•	•	•	•
HP Business Slim Keyboard, USB	•	•	•	•	•	•
HP Business Slim Keyboard and Mouse, Wireless	•	•	•	•	•	•
TPM Module/Smart Card	8	8	8	8	8	8
<b>Attached Devices</b>						
External USB Optical Drive	6	6	6	6	6	6
HP Printers	7	7	7	7	7	7
All Supported Monitors	•	•	•	•	•	•

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - Hardware RAID is not recommended on SATA drives with Linux. Software RAID is available in most Linux OSes and can be used with SATA or PCIe storage devices.

footnote 3 - The wireless LAN functionality is supported by many Linux distributions as of this edition. However, enablement for the Bluetooth functionality is not available in all of the same releases. Later updates on most of those release streams can be expected to improve the support.

footnote 4 - The Z Turbo Drive G2 PCIe-attached storage device has its own controller and is supported by the standard nvme kernel module in supported OSes.

footnote 5 - Newer Linux kernels may provide device functionality through the Thunderbolt module. Such kernels are likely to be available in leading-edge distributions, but inclusion of the support with any Enterprise Linux distribution is at the distributor's discretion.

footnote 6 - Linux growisofs supports DVD+RW media on the listed OSes.

footnote 7 - For more info about Linux driver support for HP printers, please visit <http://www.hp.com>.

footnote 8 - This platform implements TPM 2.0. Support for the TPM or other security devices varies by OS distribution.

footnote 9 - The Intel HD graphics hardware works with the in-box frame-buffer drivers. Support for the "native" Intel driver is not available for most release streams as of this edition of the table.

footnote 10 - Get the latest drivers: "HP Installer Kit for Linux - HP Driver CD (or DVD) for Linux-distribution-name" ISO images from <http://www.hp.com/support>. Select your language, choose Software and Drivers, type Z1 G3 in the Enter my HP model number field, and select Find my product. Under Download options, select Get drivers, software & firmware.

**Linux Hardware Matrix for HP Workstations**

**HP Z2 Tower G4 Workstation**

Certifications pending.  
As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box indicates the listed component is NOT functional w/ as-is OS)	SLED 12 support pending (x86_64)	RHEL 7.5 or later (x86_64)	Ubuntu 16.04.5 or later (x86_64)	Ubuntu 18.04.1 or later (x86_64)
<b>HP Workstation Base System</b>				
Base system includes: Chassis, System Board, Power Supply, etc.		•	•	•
HP Localization Kit		1	1	1
<b>All Supported Processors</b>				
8th generation Intel Core™ i7/i5/i3 and Xeon® processors		•	•	•
<b>Graphics Card (Video Card) (See footnote 2)</b>				
No Graphics Card		•	•	•
Intel® HD Graphics 630 (on v8 Core™ i3/i5/i7-8xxx processors)		2	2	2
Intel® HD Graphics P630 for v8 Xeon® E processors based on Unified Memory Architecture		2	2	2
AMD FirePro WX 3100 (4 GB Frame buffer)		3	3	3
AMD FirePro WX 4100 (4 GB Frame buffer)		3	3	3
AMD FirePro WX 7100 (8 GB Frame buffer)		3	3	3
NVIDIA Quadro P400 (2GB Frame buffer)		4	4	4
NVIDIA Quadro P620 (2 GB Frame buffer)		4	4	4
NVIDIA Quadro P1000 (4GB Frame buffer)		4	4	4
NVIDIA Quadro P2000 (5GB Frame buffer)		4	4	4
NVIDIA Quadro P4000 (8GB Frame buffer)		4	4	4
NVIDIA Quadro P5000 (16GB Frame buffer)		4	4	4
<b>System RAM</b>				
Minimum (GB)		4GB	4GB	4GB
Maximum (GB)		64GB	64GB	64GB
<b>Hard Disks</b>				
All Supported Solid State Drives		•	•	•
All Supported SATA Disk Drives <= 2 TB		•	•	•
All Supported SATA Disk Drives > 2 TB		5	5	5
Intel® Optane™ 905p Series AIC SSD (up to 480 GB)		•	•	•
HP Z Turbo Drive G2 PCIe® NVMe™ SSD storage		12	12	12
<b>Network Cards</b>				
Intel i350-T2 PCIe Dual Port 1Gb NIC		•	•	•
Intel i350-T4 PCIe Quad Port 1 Gb NIC		•	•	•
Aquantia® AQN-108 Single-Port 5GbE NIC		6	6	6
Intel X550 10GbE Dual Port Adapter		•	•	•
Intel X710-DA2 10GbE Dual Port Adapter (and HP SFP+ SR Transceiver)		•	•	•
Intel 10GbE SFP+ SR Transceiver		•	•	•
<b>Integrated Components</b>				
Wired LAN - Intel i219LM Gigabit Ethernet		•	•	•
Intel AMT functionality on Wired LAN		11	11	11
Intel® 9560 Wireless LAN (802.11 a/b/g/n/ac) and Bluetooth 5 Module		•	7	•
Onboard Audio (Conexant CX20632)		•	•	•
Onboard Intel integrated SATA RAID (0/1)		•	•	•
USB 3.1 G1 Type A ports		•	•	•
USB 3.1 G2 Type C ports		•	•	•
Flexible I/O port options (including Thunderbolt™ 3 options)		•	•	•
<b>Removable CD/DVD Media</b>				
HP DVD-ROM Drive		•	•	•
HP DVD RW Supermulti Drive		8	8	8
HP BD-RE (Blu-Ray writer)		8	8	8
<b>Input/Output Devices (no spaceball support)</b>				
HP USB mouse options		•	•	•
HP USB keyboard options		•	•	•
HP Media Card Reader		•	•	•
HP Printers		9	9	9
All Supported Monitors		•	•	•
TPM Module/SmartCard		10	10	10
HP Serial Port Adapter		•	•	•

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - The Intel HD graphics works with the in-box frame buffer drivers. Support for the "native" Intel driver and modesetting driver on v8 processors (CoffeeLake) is not available for most release streams as of this edition of the table.

footnote 3 - AMD Radeon Pro graphics are supported by the amdgpu-pro driver stack. An 18.10 or later driver is recommended for this platform. Some OS distributions may have the amdgpu-open driver built in. AMD pro driver support for Ubuntu 18.04 is pending.

footnote 4 - HP recommends use of NVIDIA driver 390.77 (or newer) on NVIDIA graphics options.

footnote 5 - Single drives or volumes larger than 2.2 TB can only be fully accessed using GPT formatting. The OS's listed can create GPT formatted storage drives/volumes but this requires installation of the OS in UEFI mode. Once formatted and installed, the OS can access the entirety of storage drives/volumes.

footnote 6 - The driver for the Aquantia Nbase-T AQN-108 aftermarket NIC is not in-box for most of the listed Linux streams. Driver source can be found at the Aquantia site [www.aquantia.com/driver-download/](http://www.aquantia.com/driver-download/).

footnote 7 - Intel 9560 Wireless support for WLAN on Ubuntu 16.04.5 is currently not functional due to firmware version incompatibility (although Bluetooth is supported on this release).

footnote 8 - Linux growisofs supports DVD+RW and Blu-ray media on the listed OSes.

footnote 9 - For more info about Linux driver support for HP printers, please visit <http://www.hpip.net>.

footnote 10 - Support for the TPM or other security devices varies by OS distribution. Any use of the TPM module requires additional software.

footnote 11 - Intel support for AMT varies by distribution and requires additional software packages be added to the base OS. Please check with the distribution vendor you have interest in.

footnote 12 - There are currently issues installing enterprise Linux distros on M.2 and Z turbo options when the system is running in legacy BIOS mode. HP recommends using the system in its default UEFI BIOS mode when using these storage devices.

**Linux Hardware Matrix for HP Workstations**

**HP Z2 SFF G4 Workstation**

Certifications pending.  
As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box indicates the listed component is NOT functional w/ as-is OS)	SLED 12 support pending (x86_64)	RHEL 7.5 or later (x86_64)	Ubuntu 16.04.5 or later (x86_64)	Ubuntu 18.04.1 or later (x86_64)
<b>HP Workstation Base System</b>				
Base system includes: Chassis, System Board, Power Supply, etc.		•	•	•
HP Localization Kit		1	1	1
<b>All Supported Processors</b>				
8th generation Intel Core™ i7/i5/i3 and Xeon® processors		•	•	•
<b>Graphics Card (Video Card) (See footnote 2)</b>				
No Graphics Card		•	•	•
Intel® HD Graphics 630 (on v8 Core™ i3/i5/i7-8xxx processors)		2	2	2
Intel® HD Graphics P630 for v8 Xeon® E processors based on Unified Memory Architecture		2	2	2
AMD FirePro WX 3100 (4GB Frame buffer)		3	3	3
AMD FirePro WX 4100 (4GB Frame buffer)		3	3	3
NVIDIA Quadro P400 (2GB Frame buffer)		4	4	4
NVIDIA Quadro P620 (2 GB Frame buffer)		4	4	4
NVIDIA Quadro P1000 (4GB Frame buffer)		4	4	4
<b>System RAM</b>				
Minimum (GB)		4GB	4GB	4GB
Maximum (GB)		64GB	64GB	64GB
<b>Hard Disks</b>				
All Supported Solid State Drives		•	•	•
All Supported SATA Disk Drives <= 2 TB		•	•	•
All Supported SATA Disk Drives > 2 TB		5	5	5
Intel® Optane™ 905p Series AIC SSD (up to 480 GB)		•	•	•
HP Z Turbo Drive G2 PCIe® NVMe™ SSD storage		12	12	12
<b>Network Cards</b>				
Intel i350-T2 PCIe Dual Port 1Gb NIC		•	•	•
Intel i350-T4 PCIe Quad Port 1 Gb NIC		•	•	•
Aquantia® AQN-108 Single-Port 5GbE NIC		6	6	6
Intel X550 10GbE Dual Port Adapter		•	•	•
Intel X710-DA2 10GbE Dual Port Adapter (and HP SFP+ SR Transceiver)		•	•	•
HP 10GbE SFP+ SR Transceiver		•	•	•
<b>Integrated Components</b>				
Wired LAN - Intel i219LM Gigabit Ethernet		•	•	•
Intel AMT functionality on Wired LAN		11	11	11
Intel® 9560 Wireless LAN (802.11 a/b/g/n/ac) and Bluetooth 5 Module		•	7	•
Onboard Audio (Conexant CX20632)		•	•	•
Onboard Intel integrated SATA RAID (0/1)		•	•	•
USB 3.1 G1 Type A ports		•	•	•
USB 3.1 G2 Type C ports		•	•	•
Flexible I/O port options (including Thunderbolt™ 3 options)		•	•	•
<b>Removable CD/DVD Media</b>				
HP DVD-ROM Drive		•	•	•
HP DVD RW Supermulti Drive		8	8	8
HP BD-RE (Blu-Ray writer)		8	8	8
<b>Input/Output Devices (no spaceball support)</b>				
HP USB mouse options		•	•	•
HP USB keyboard options		•	•	•
HP Media Card Reader		•	•	•
HP Printers		9	9	9
All Supported Monitors		•	•	•
TPM Module / SmartCard		10	10	10
HP Serial Port Adapter		•	•	•

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - The Intel HD graphics works with the in-box frame buffer drivers. Support for the "native" Intel driver and modesetting driver on v8 processors (CoffeeLake) is not available for most release streams as of this edition of the table.

footnote 3 - AMD Radeon Pro graphics are supported by the amdgpu-pro driver stack. An 18.10 or later driver is recommended for this platform. Some OS distributions may have the amdgpu-open driver built in. AMD pro driver support for Ubuntu 18.04 is pending.

footnote 4 - HP recommends use of NVIDIA driver 390.77 (or newer) on NVIDIA graphics options.

footnote 5 - Single drives or volumes larger than 2.2 TB can only be fully accessed using GPT formatting. The OS's listed can create GPT formatted storage drives/volumes but this requires installation of the OS in UEFI mode. Once formatted and installed, the OS can access the entirety of storage drives/volumes.

footnote 6 - The driver for the Aquantia Nbase-T AQN-108 aftermarket NIC is not in-box for most of the listed Linux streams. Driver source can be found at the Aquantia site [www.aquantia.com/driver-download/](http://www.aquantia.com/driver-download/).

footnote 7 - Intel 9560 Wireless support for WLAN on Ubuntu 16.04.5 is currently not functional due to firmware version incompatibility (although Bluetooth is supported on this release). The Ubuntu 18.04 LTS release stream is fully functional for integrated WLAN and Bluetooth.

footnote 8 - Linux growisofs supports DVD+RW and Blu-ray media on the listed OSes.

footnote 9 - For more info about Linux driver support for HP printers, please visit <http://www.hplip.net>.

footnote 10 - Support for the TPM or other security devices varies by OS distribution. Any use of the TPM module requires additional software.

footnote 11 - Intel support for AMT varies by distribution and requires additional software packages be added to the base OS. Please check with the distribution vendor you have interest in.

footnote 12 - There are currently issues installing enterprise Linux distros on M.2 and Z turbo options when the system is running in legacy BIOS mode. HP recommends using the system in its default UEFI BIOS mode when using these storage devices.

**Linux Hardware Matrix for HP Workstations**

**HP Z2 Mini G4 Workstation  
Performance & Entry models**

Certifications pending.  
As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box indicates the listed component is NOT functional w/ as-is OS)	SLED 12 support pending (x86_64)	RHEL 7.5 or later (x86_64)	Ubuntu 16.04.5 or later (x86_64)	Ubuntu 18.04.1 or later (x86_64)
<b>HP Workstation Base System</b>				
Base system includes: Chassis, System Board, Power Supply, etc.		•	•	•
HP Localization Kit		1	1	1
<b>All Supported Processors</b>				
8th generation Intel Core™ i7/i5/i3 and Xeon® processors		•	•	•
<b>Graphics Card (Video Card) (See footnote 2)</b>				
Intel® HD Graphics 630 (on v8 Core™ i3/i5/i7-8xxx processors)		2	2	2
Intel® HD Graphics P630 for v8 Xeon® E processors based on Unified Memory Architecture		2	2	2
AMD Radeon™ Pro WX 4150 with 4 GB of graphics memory		3	3	3
NVIDIA Quadro P600 with 4 GB of graphics memory		4, 7	4, 7	4, 7
NVIDIA Quadro P1000 with 4 GB of graphics memory		4, 7	4, 7	4, 7
<b>System RAM</b>				
Minimum (GB)		4GB	4GB	4GB
Maximum (GB)		32GB	32GB	32GB
<b>Hard Disks</b>				
All Supported 2.5" AHCI SATA Drives		•	•	•
All Supported SATA Solid State Drives		•	•	•
HP Z Turbo Drive G2 PCIe® NVMe™ SSD storage		•	•	•
<b>Integrated Components</b>				
Wired LAN - Intel i219LM Gigabit Ethernet		•	•	•
Intel AMT functionality on Wired LAN		9	9	9
Intel® 9560 Wireless LAN (802.11 a/b/g/n/ac) and Bluetooth 5 Module		•	8	•
Onboard Audio (Conexant CX20632)		•	•	•
USB 3.1 G1 Type A ports		•	•	•
USB 3.1 G2 Type C ports		•	•	•
Flexible I/O port options (including Thunderbolt™ 3 options)		•	•	•
<b>Input/Output Devices (no spaceball support)</b>				
HP USB mouse options		•	•	•
HP USB keyboard options		•	•	•
HP Printers		6	6	6
All Supported Monitors		•	•	•
TPM Module / SmartCard		5	5	5
HP Serial Port Adapter		•	•	•

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - The Intel HD graphics works with the in-box frame buffer drivers. Support for the "native" Intel driver and modesetting driver on v8 processors (CoffeeLake) is not available for most release streams as of this edition of the table.

footnote 3 - AMD Radeon Pro graphics are supported by the amdgpu-pro driver stack. An 18.10 or later driver is recommended for this platform. Some OS distributions may have the amdgpu-open driver built in. AMD pro driver support for Ubuntu 18.04 is pending.

footnote 4 - HP recommends use of NVIDIA driver 390.77 (or newer) on NVIDIA graphics options.

footnote 5 - Support for the TPM or other security devices varies by OS distribution. Any use of the TPM module requires additional software.

footnote 6 - For more info about Linux driver support for HP printers, please visit <http://www.hplic.net>.

footnote 7 - On the performance model, the NVIDIA and AMD gpus support a maximum of only four DisplayPort outputs in any combination of connections (one of which may require an adapter to accommodate displays). Heterogenous use of the Intel graphics port is not recommended until general improvements are made in Linux for heterogeneous GPU support.

footnote 8 - Intel 9560 Wireless support for WLAN on Ubuntu 16.04.5 is currently not functional due to firmware version incompatibility (although Bluetooth is supported on this release). The Ubuntu 18.04 LTS release stream is fully functional for integrated WLAN and Bluetooth.

footnote 9 - Intel support for AMT varies by distribution and requires additional software packages be added to the base OS. Please check with the distribution vendor you have interest in.



## Linux Hardware Matrix for HP Workstations

### HP Z2 Mini G3 Workstation Performance & Entry models

Officially certified on RHEL 7.4, SLED 12/SP2, and SLED 12/SP3. No certification on Ubuntu 16.04 is planned at this time, but HP is supporting use of 16.04.1 (or newer) on this platform. Certification is underway and HP will update this document when each version completes the vendor's process.

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box or unlisted -> component is NOT functional w/ as-is OS)	RHEL 6.8 or later (x86_64)	RHEL 7.2 or later (x86_64)	SLED 12/SP2 or later (x86_64)	Ubuntu 16.04.1 (x86_64)
<b>HP Workstation Base System</b>				
Base system includes: Chassis, System Board, Power Supply, etc.	•	•	•	•
HP Localization Kit	1	1	1	1
<b>All Supported Processors</b>				
All supported 7th generation Intel Core™ i7, i5 and Xeon® processors	•	•	•	•
Hyperthreading	•	•	•	•
<b>Graphics Card (Video Card)</b>				
Intel® HD Graphics 530 (on v5 Core™ i3/i5/i7-6xxx processors)	2, 5	2, 5	2, 5	2, 5
Intel® HD Graphics P530 for v5 Xeon® E3 processors based on Unified Memory Architecture (UMA)	2, 5	2, 5	2, 5	2, 5
Intel® HD Graphics 630 (on v6 Core™ i3/i5/i7-6xxx processors)	2, 5	2, 5	2, 5	2, 5
Intel® HD Graphics P630 for v6 Xeon® E3 processors based on Unified Memory Architecture (UMA)	2, 5	2, 5	2, 5	2, 5
NVIDIA Quadro M620 with 2 GB of graphics memory	3, 5	3, 5	3, 5	3, 5, 6
<b>System RAM</b>				
Minimum (GB)	4GB	4GB	4GB	4GB
Maximum (GB)	32GB	32GB	32GB	32GB
<b>Hard Disks</b>				
All supported 2.5" AHCI SATA Drives	•	•	•	•
All Supported SATA SSD's	•	•	•	•
All Supported HP Z Turbo Drive NVMe PCIe-attached storage	•	•	•	•
<b>Onboard Components</b>				
Wired LAN - Intel i219LM Gigabit Ethernet	•	•	•	•
Onboard Audio (Realtek HD ALC221-VB)	•	•	•	•
Intel® 8265 Wireless LAN (802.11ac) and Bluetooth® 4.2 Module	7	7	7	7
USB 3.1 ports (premium model only)	•	•	•	•
USB 3.0 ports	•	•	•	•
<b>Input/Output Devices (no spaceball support)</b>				
TPM Module	4	4	4	4
HP Serial Port Adapter	•	•	•	•

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - The Intel HD graphics works with the in-box frame-buffer drivers. Support for the "native" Intel driver on v5 processors (Skylake) is not available for most release streams as of this edition of the table.

footnote 3 - HP recommends use of NVIDIA driver 375.20 (or newer) on NVIDIA graphics options.

footnote 4 - Support for the TPM or other security devices varies by OS distribution.

footnote 5 - On the performance model, at this time only the 3 DP outputs associated with the NVIDIA Quadro M620 will be usable with Linux distros. You can enable the 4th DP port for the Intel graphics, but it does not currently operate well in conjunction with the NVIDIA option. HP recommends that customers not use the Intel port until general improvements are made in Linux for heterogeneous GPU support.

footnote 6 - In order to install Ubuntu 16.04.1 with the NVIDIA Quadro M620 graphics option, you will need to add 'nomodeset' to the boot line during installation and again post installation with the installed kernel.

footnote 7 - SUSE added support for the 8265 wlan/bt option in SLED 12/SP2. Kernel update 4.4.74-92.29.1 is required for the proper driver.

**Linux Hardware Matrix for HP Workstations**

**HP Z238 Microtower Workstation**

Certifications pending.  
As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

<b>Product Items/Features</b> (Blank box indicates the listed component is NOT functional w/ as-is OS)	<b>SLED11 SP4 or later (x86_64)</b>	<b>SLED12 SP1 or later (x86_64)</b>	<b>RHEL 6.7 or later (x86_64)</b>	<b>RHEL 7.2 or later (x86_64)</b>	<b>Ubuntu 14.04 LTS, 14.04.3 or later (x86_64)</b>
<b>HP Workstation Base System</b>					
Base system includes: Chassis, System Board, USB, Power Supply, etc.	•	•	•	•	•
HP Localization Kit	1	1	1	1	1
<b>All Supported Processors</b>					
All supported v5 and v6 Intel Core™ i5, i7, and Xeon® processors	•	•	•	•	•
Hyperthreading	•	•	•	•	•
<b>Graphics Card (Video Card) (see footnote 10)</b>					
No Graphics Card	•	•	•	•	•
Intel® Onboard graphics (HD 530/HD P530 for v5, HD 630/HD P630 for v6)	9	9	9	9	9
AMD FirePro W2100	•	•	•	•	•
NVIDIA NVS 315	•	•	•	•	•
NVIDIA Quadro K1200	•	•	•	•	•
NVIDIA Quadro K420 2GB	•	•	•	•	•
NVIDIA Quadro K620	•	•	•	•	•
<b>System RAM</b>					
Minimum (GB)	4GB	4GB	4GB	4GB	4GB
Maximum (GB)	64GB	64GB	64GB	64GB	64GB
<b>Hard Disks</b>					
All Supported SSD Disk Drives	•	•	•	•	•
All Supported SATA Disk Drives less than 3TB	•	•	•	•	•
All Supported SATA Disk Drives 3TB and larger	3	3	3	3	3
All Supported USB Drive Keys	•	•	•	•	•
HP Z Turbo Drive PCIe-attached storage	4	4	4	4	4
<b>Network Cards (no modem support)</b>					
Intel i210-T1 GbE PCIe NIC	•	•	•	•	•
<b>Onboard Components</b>					
Wired LAN - Intel i219LM Gigabit Ethernet	•	•	•	•	•
Onboard Audio (Realtek ALC221 codec)	8	8	8	8	8
Onboard SATA RAID	2	2	2	2	2
<b>Removable CD/DVD Media</b>					
HP DVD-ROM Drive	•	•	•	•	•
HP DVD+RW Supermulti drive	5	5	5	5	5
<b>Input/Output Devices (no spaceball support)</b>					
HP Scroll Mouse, USB	•	•	•	•	•
HP Standard Keyboard, USB	•	•	•	•	•
HP Keyboard and Mouse, PS/2	•	•	•	•	•
TPM Module/ Smart Card	7	7	7	7	7
HP Media Card Reader	•	•	•	•	•
HP Printers	6	6	6	6	6
All Supported Monitors	•	•	•	•	•

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - Hardware RAID is not supported on SATA drives. Software RAID is available in most Linux OSes and can be used with SATA or PCIe storage devices.

footnote 3 - In general, single drives or volumes larger than 2.2 TB can only be fully accessed using GPT formatting. OSes listed can format GPT for the boot drive or volume but may require installation of UEFI boot support, and can access GPT-formatted data volumes.

footnote 4 - The Z Turbo Drive G2 PCIe-attached storage device has its own controller and is supported by the standard nvme kernel module in supported OSes. Updates are needed for SLED11 SP4 and SLED12 SP1 to operate with these NVME devices.

footnote 5 - Linux growisofs supports DVD+RW media on the listed OSes.

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hp.com>.

footnote 7 - Support for the TPM or other security devices varies by OS distribution.

footnote 8 - An ALSA kernel "quirk" is required for the system built-in speaker to be usable. Not all listed distributions include it; some may provide it in an update.

footnote 9 - The Intel HD graphics works with the in-box frame-buffer drivers. Reliable behavior from the "native" Intel driver is not available for most release streams as of this edition of the table.

footnote 10 - Get the latest drivers: "HP Installer Kit for Linux - HP Driver CD (or DVD) for Linux-distribution-name" ISO images from <http://www.hp.com/support>. Select your language, choose Software and Drivers, type z238 in the Enter my HP model number field, select Find my product, and then select HP Z228 Microtower Workstation from the results. Under Download options, select Get drivers, software & firmware. HP Workstations can be ordered with a variety of localization options that may vary by platform.

**Linux Hardware Matrix for HP Workstations**

**HP Z240 Tower Workstation**

Certified on RHEL 6.8, 7.2. Certified on SLED 11/SP4, 12/SP1. Currently no Ubuntu certifications planned.  
As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box indicates the listed component is NOT functional w/ as-is OS)	SLED11 SP4 or later (x86_64)	SLED12 SP1 or later (x86_64)	RHEL 6.7 or later (x86_64)	RHEL 7.2 or later (x86_64)	Ubuntu 14.04 LTS, 14.04.3 or later (x86_64)	Ubuntu 16.04 LTS, base release or later (x86_64)
<b>HP Workstation Base System</b>						
Base system includes: Chassis, System Board, Power Supply, etc.	•	•	•	•	•	•
HP Localization Kit	1	1	1	1	1	1
<b>All Supported Processors</b>						
All supported v5 and v6 Intel Core™ i5, i7, and Xeon® processors	•	•	•	•	•	•
Hyperthreading	•	•	•	•	•	•
<b>Graphics Card (Video Card) (See footnote 14)</b>						
No Graphics Card	•	•	•	•	•	•
Intel® Onboard Graphics (HD 530/HD P530 for v5, HD 630/HD P630 for v6)	9	9	9	9	9	9
AMD FirePro W2100	•	•	•	•	•	•
AMD FirePro W4300	•	•	•	•	•	•
AMD FirePro W5100	•	•	•	•	•	•
AMD FirePro W7100	•	•	•	•	•	•
AMD Radeon Pro WX 4100	12	12	12	12	12	12
AMD Radeon Pro WX 7100	12	12	12	12	12	12
NVIDIA NVS 310 1GB	•	•	•	•	•	•
NVIDIA NVS 315	•	•	•	•	•	•
NVIDIA NVS 510	•	•	•	•	•	•
NVIDIA Quadro K1200	•	•	•	•	•	•
NVIDIA Quadro K420 2GB	•	•	•	•	•	•
NVIDIA Quadro K620	•	•	•	•	•	•
NVIDIA Quadro K2200	•	•	•	•	•	•
NVIDIA Quadro M2000 4GB	10	10	10	10	10	10
NVIDIA Quadro M4000	10	10	10	10	10	10
NVIDIA Quadro M5000 8GB	10	10	10	10	10	10
NVIDIA Quadro P400	10	10	10	10	10	10
NVIDIA Quadro P600	10	10	10	10	10	10
NVIDIA Quadro P1000	10	10	10	10	10	10
NVIDIA Quadro P2000	10	10	10	10	10	10
NVIDIA Quadro P4000	10	10	10	10	10	10
NVIDIA Quadro P5000	10	10	10	10	10	10
<b>System RAM</b>						
Minimum (GB)	4GB	4GB	4GB	4GB	4GB	4GB
Maximum (GB)	64GB	64GB	64GB	64GB	64GB	64GB
<b>Hard Disks</b>						
All Supported Solid State Disk Drives	•	•	•	•	•	•
All Supported SATA Disk Drives less than 3TB	•	•	•	•	•	•
All Supported SATA Disk Drives 3TB and larger	3	3	3	3	3	3
All Supported USB Drive Keys	•	•	•	•	•	•
HP Z Turbo Drive PCIe-attached storage	4	4	4	4	4	4
Intel 750 Series PCIe Storage	4	4	4	4	4	4
<b>Network Cards (no modem support)</b>						
Aquantia Nbase-T PCIe NIC	•	13	•	13	13	13
Intel i210-T1 GbE PCIe NIC	•	•	•	•	•	•
Intel i350-T2 Dual-Port and i350-T4 Quad-Port 1GbE PCIe NIC	•	•	•	•	•	•
Intel X520 10GbE Dual Port Adapter (and HP SFP+ SR Transceiver)	•	•	•	•	•	•
Intel X540 10GbE Base-T Dual Port Adapter (RJ45 - Copper)	•	•	•	•	•	•
Intel 8260 802.11 a/b/g/n/ac & Bluetooth PCIe	11	11	11	11	11	11
<b>Onboard Components</b>						
Wired LAN - Intel i219LM Gigabit Ethernet	•	•	•	•	•	•
Onboard Audio (Realtek ALC221 codec)	8	8	8	•	•	•
Onboard SATA RAID	2	2	2	2	2	2
<b>Add Ons</b>						
Thunderbolt™ PCIe card (see footnote 15)						
<b>Removable CD/DVD Media</b>						
HP DVD-ROM Drive	•	•	•	•	•	•
HP DVD RW Supermulti Drive	5	5	5	5	5	5
HP BD-RE (Blu-Ray writer)	5	5	5	5	5	5
<b>Input/Output Devices (no spaceball support)</b>						
HP Scroll Mouse, USB	•	•	•	•	•	•
HP Standard Keyboard, USB	•	•	•	•	•	•
HP Keyboard and Mouse, PS/2	•	•	•	•	•	•
TPM Module/Smart Card	7	7	7	7	7	7
HP Media Card Reader	•	•	•	•	•	•
HP Printers	6	6	6	6	6	6
All Supported Monitors	•	•	•	•	•	•

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - Hardware RAID is not supported on SATA drives. Software RAID is available in most Linux OSes and can be used with SATA or PCIe storage devices.

footnote 3 - In general, single drives or volumes larger than 2.2 TB can only be fully accessed using GPT formatting. OSes listed can format GPT for the boot drive or volume but may require installation of UEFI boot support, and can access GPT-formatted data volumes.

footnote 4 - The Z Turbo Drive G2 PCIe-attached storage device has its own controller and is supported by the standard nvme kernel module in supported OSes. Updates are needed for SLED11 SP4 and SLED12 SP1 to operate with these NVME devices. Other NVME storage devices have similar requirements.

footnote 5 - Linux growisofs supports DVD+RW and Blu-ray media on the listed OSes.

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hpip.net>.

footnote 7 - Support for the TPM or other security devices varies by OS distribution.

footnote 8 - An ALSA kernel "quirk" is required for the system built-in speaker to be usable. Not all listed distributions include it; some may provide it in an update.

footnote 9 - The Intel HD graphics works with the in-box frame-buffer drivers. Reliable behavior from the "native" Intel driver is not available for most release streams as of this edition of the table.

footnote 10 - HP recommends the following minimum NVIDIA driver versions for M4000 and M5000 (352.41); M2000 (361.45.11); P400, P600, P1000, P2000, and P4000 (375.39); and P5000 (367.57).

footnote 11 - As of this edition of the table, only a few enterprise distributions have support for the Intel 8260 WLAN/BT combo device. Look for updates from the distributors.

footnote 12 - AMD Radeon Pro graphics cards are supported by the newer amdppu-pro vendor driver. OS streams are supported at specific release version levels, starting with these: SLED 12 SP2, RHEL 6.8, RHEL 7.3, Ubuntu 14.04.5, and Ubuntu 16.04.1. There is no amdppu-pro driver for SLED 11.

footnote 13 - The driver for the Aquantia Nbase-T AQN-108 aftermarket NIC is not in-box for most of the listed Linux streams. Driver source can be found at the Aquantia site <https://www.aquantia.com/driver-download/>.

footnote 14 - Get the latest drivers: "HP Installer Kit for Linux - HP Driver CD (or DVD) for Linux-distribution-name" ISO images from <http://www.hp.com/support>. Select your language, choose Software and Drivers, type z240 in the Enter my HP model number field, select Find my product, and then select HP Z240 Tower Workstation from the results. Under Download options, select Get drivers, software & firmware. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 15 - Newer Linux kernels may provide device functionality through the Thunderbolt module. Such kernels are likely to be available in leading-edge distributions, but inclusion of the support with any Enterprise Linux distribution is at the distributor's discretion. As an example, RHEL 7.2 enables more functionality than RHEL 7.1.

**Linux Hardware Matrix for HP Workstations**

**HP Z240 SFF Workstation**

Certified on RHEL 6.8, 7.2. Certified on SLED 11/SP4, 12/SP1. Currently no Ubuntu certifications planned.  
As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box or unlisted means the component is NOT functional w/ as-is OS)	SLED11 SP4 or later (x86_64)	SLED12 SP1 or later (x86_64)	RHEL 6.7 or later (x86_64)	RHEL 7.2 or later (x86_64)	Ubuntu 14.04 LTS, 14.04.3 or later (x86_64)	Ubuntu 16.04 LTS, base release or later (x86_64)
<b>HP Workstation Base System</b>						
Base system includes: Chassis, System Board, Power Supply, etc.	•	•	•	•	•	•
HP Localization Kit	1	1	1	1	1	1
<b>All Supported Processors</b>						
All supported v5 and v6 Intel Core™ i5, i7, and Xeon® processors	•	•	•	•	•	•
Hyperthreading	•	•	•	•	•	•
<b>Graphics Card (Video Card) (see footnote 14)</b>						
No Graphics Card	•	•	•	•	•	•
Intel® Onboard graphics (HD 530/HD P530 for v5, HD 630/HD P630 for v6)	9	9	9	9	9	9
AMD FirePro W2100	•	•	•	•	•	•
AMD FirePro W4300	•	•	•	•	•	•
AMD Radeon Pro WX 4100	11	11	11	11	11	11
NVIDIA NVS 310 1GB	•	•	•	•	•	•
NVIDIA NVS 315	•	•	•	•	•	•
NVIDIA NVS 510	•	•	•	•	•	•
NVIDIA Quadro K1200	•	•	•	•	•	•
NVIDIA Quadro K420 2GB	•	•	•	•	•	•
NVIDIA Quadro K620	•	•	•	•	•	•
NVIDIA Quadro P400	12	12	12	12	12	12
NVIDIA Quadro P600	12	12	12	12	12	12
NVIDIA Quadro P1000	12	12	12	12	12	12
<b>System RAM</b>						
Minimum (GB)	4GB	4GB	4GB	4GB	4GB	4GB
Maximum (GB)	64GB	64GB	64GB	64GB	64GB	64GB
<b>Hard Disks</b>						
All Supported SSD Disk Drives	•	•	•	•	•	•
All Supported SATA Disk Drives less than 3TB	•	•	•	•	•	•
All Supported SATA Disk Drives 3TB and larger	3	3	3	3	3	3
All Supported USB Drive Keys	•	•	•	•	•	•
HP Z Turbo Drive PCIe-attached storage	4	4	4	4	4	4
<b>Network Cards (no modem support)</b>						
Aquantia Nbase-T PCIe NIC	•	13	•	13	13	13
Intel I210-T1 GbE PCIe NIC	•	•	•	•	•	•
Intel I350-T2 Dual-Port I350-T4 Quad-Port 1GbE PCIe NIC	•	•	•	•	•	•
Intel X520 10GbE Dual Port Adapter (and HP SFP+ SR Transceiver)	•	•	•	•	•	•
Intel X540 10GbBase-T Dual Port Adapter (RJ45 -Copper)	•	•	•	•	•	•
Intel 8260 802.11 a/b/g/n/ac & Bluetooth PCIe	10	10	10	10	10	10
<b>Onboard Components</b>						
Wired LAN - Intel i219LM Gigabit Ethernet	•	•	•	•	•	•
Onboard Audio (Realtek ALC221 codec)	8	8	8	8	8	8
Onboard SATA RAID	2	2	2	2	2	2
<b>Add Ons</b>						
Thunderbolt™ PCI-E Card (see footnote 15)	•	•	•	•	•	•
<b>Removable CD/DVD Media</b>						
HP DVD-ROM Drive	•	•	•	•	•	•
HP DVD+RW Supermulti Drive	5	5	5	5	5	5
HP BD-RE (Blu-Ray writer)	5	5	5	5	5	5
<b>Input/Output Devices (no spaceball support)</b>						
HP Scroll Mouse, USB	•	•	•	•	•	•
HP Standard Keyboard, USB	•	•	•	•	•	•
HP Keyboard and Mouse, PS/2	•	•	•	•	•	•
TPM Module/ Smart Card	7	7	7	7	7	7
HP Media Card Reader	•	•	•	•	•	•
HP Printers	6	6	6	6	6	6
All Supported Monitors	•	•	•	•	•	•

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - Hardware RAID is not supported on SATA drives. Software RAID is available in most Linux OSes and can be used with SATA or PCIe storage devices.

footnote 3 - In general, single drives or volumes larger than 2.2 TB can only be fully accessed using GPT formatting. OSes listed can format GPT for the boot drive or volume but may require installation of UEFI boot support, and can access GPT-formatted data volumes.

footnote 4 - The Z Turbo Drive G2 PCIe-attached storage device has its own controller and is supported by the standard nvme kernel module in supported OSes. Updates are needed for SLED11 SP4 and SLED12 SP1 to operate with these NVME devices.

footnote 5 - Linux growisofs supports DVD+RW and Blu-ray media on the listed OSes.

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hpip.net>.

footnote 7 - Support for the TPM or other security devices varies by OS distribution.

footnote 8 - An ALSA kernel "quirk" is required for the system built-in speaker to be usable. Not all listed distributions include it; some may provide it in an update.

footnote 9 - The Intel HD graphics works with the in-box frame-buffer drivers. Reliable behavior from the "native" Intel driver is not available for most release streams as of this edition of the table.

footnote 10 - As of this edition of the table, only a few enterprise distributions have support for the Intel 8260 WLAN/BT combo device. Look for updates from the distributors.

footnote 11 - AMD Radeon Pro graphics cards are supported by the newer amdgpu-pro vendor driver. OS streams are supported at specific release version levels, starting with these: SLED 12 SP2, RHEL 6.8, RHEL 7.3, Ubuntu 14.04.5, and Ubuntu 16.04.1. There is no amdgpu-pro driver for SLED 11.

footnote 12 - HP recommends the following minimum NVIDIA driver versions for: P400, P600, and P1000 (375.39).

footnote 13 - The driver for the Aquantia Nbase-T AQN-108 aftermarket NIC is not in-box for most of the listed Linux streams. Driver source can be found at the Aquantia site <https://www.aquantia.com/driver-download/>.

footnote 14 - Get the latest drivers: "HP Installer Kit for Linux - HP Driver CD (or DVD) for Linux-distribution-name" ISO images from <http://www.hp.com/support>. Select your language, choose Software and Drivers, type z240 in the Enter my HP model number field, select Find my product, and then select HP Z240 Small Form Factor Workstation from the results. Under Download options, select Get drivers, software & firmware. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 15 - Newer Linux kernels may provide device functionality through the Thunderbolt module. Such kernels are likely to be available in leading-edge distributions, but inclusion of the support with any Enterprise Linux distribution is at the distributor's discretion. As an example, RHEL 7.2 enables more functionality than RHEL 7.1.

**Linux Hardware Matrix for HP Workstations**

**HP Z4 G4 Workstation**

Certified on RHEL 7.4 and SLED 12/SP3 (NVIDIA). Other certifications are pending.  
As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box indicates the listed component is NOT functional w/ as-is OS)	SLED12 SP3 or later (x86_64)	RHEL 6.9 or later (x86_64)	RHEL 7.4 or later (x86_64)	Ubuntu 16.04 LTS, 16.04.3 or later (x86_64)	Ubuntu 18.04 LTS or later (x86_64)
<b>HP Workstation Base System</b>					
Base system includes: Chassis, System Board, Power Supply, etc.	•	12	•	•	•
HP Localization Kit	1	1	1	1	1
<b>All Supported Processors</b>					
Intel Xeon W and i7/i9 Core X-series processors	•	•	•	•	•
Hyperthreading	•	•	•	•	•
<b>Graphics Card (Video Card)</b>					
No Graphics Card	•	•	•	•	•
AMD FirePro W2100 (2GB frame buffer)	7	7	7	7	7
AMD FirePro WX 3100 (4GB Frame buffer)	7	7	7	7	7
AMD FirePro WX 4100 (4GB Frame buffer)	7	7	7	7	7
AMD FirePro WX 7100 (8GB Frame buffer)	7	7	7	7	7
AMD FirePro WX 9100 (16GB Frame buffer)	7	7	7	7	7
NVIDIA Quadro P400 (2GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P600 (2 GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P620 (2 GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P1000 (4GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P2000 (5GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P4000 (8GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P5000 (16GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P6000 (24GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro GP100 (16GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro GV100 (32GB Frame buffer)	8	8	8	8	8
<b>System RAM</b>					
Minimum (GB)	8GB	8GB	8GB	8GB	8GB
Maximum (GB) X-series processor/W processor	128/256GB	128/256GB	128/256GB	128/256GB	128/256GB
<b>Hard Disks</b>					
All Supported Solid State Drives	•	•	•	•	•
All Supported SATA Disk Drives <= 2 TB	•	•	•	•	•
All Supported SATA Disk Drives > 2 TB	2	2	2	2	2
All Supported M.2 NVMe PCIe Solid State Drives	•	•	•	•	•
All Support SAS Disk Drives					
HP Z Turbo Drive PCIe-attached storage	11	11	11	11	11
<b>Network Cards</b>					
Intel i210-T1 GbE PCIe NIC	•	•	•	•	•
Intel i350-T2 PCIe Dual Port 1Gb NIC	•	•	•	•	•
Intel i350-T4 PCIe Quad Port 1 Gb NIC	•	•	•	•	•
Aquantia® AQN-108 Single-Port 5GbE NIC	10	10	10	10	10
Intel X550 10GbE Dual Port Adapter	•	•	•	•	•
Intel X710-DA2 10GbE Dual Port Adapter (and HP SFP+ SR Transceiver)	•	•	•	•	•
Intel 10GBase-T Dual Port Adapter (RJ-45 Copper)	•	•	•	•	•
Intel 8265 802.11 a/b/g/n/ac & Bluetooth PCIe	•	•	•	•	•
<b>Integrated Components</b>					
LAN port 0 - Intel i219LM Gigabit Ethernet	•	•	•	•	•
LAN port 1 - Intel i210 Gigabit Ethernet	•	•	•	•	•
Intel AMT functionality on LAN port 0	9	9	9	9	9
Onboard Audio (Realtek ALC221 codec)	•	•	•	•	•
Onboard Intel integrated SATA RAID (0/1/5/10)	•	•	•	•	•
USB 3.1 G1 Type A ports	•	•	•	•	•
USB 3.1 G2 Type C ports (on FIO-P module)	•	•	•	•	•
USB 2.0/3/1 G1 internal ports	•	•	•	•	•
TPM 2.0 Module	6	6	6	6	6
<b>Add Ons</b>					
MicroSemi SmartHBA2100-4i4e SAS controller	3	3	3	3	3
<b>Removable CD/DVD Media</b>					
HP DVD-ROM Drive	•	•	•	•	•
HP DVD RW Supermulti Drive	4	4	4	4	4
HP BD-RE (Blu-Ray writer)	4	4	4	4	4
<b>Input/Output Devices (no spaceball support)</b>					
HP Scroll Mouse, USB	•	•	•	•	•
HP Standard Keyboard, USB	•	•	•	•	•
HP Keyboard and Mouse, PS/2	•	•	•	•	•
HP Media Card Reader	•	•	•	•	•
HP Printers	5	5	5	5	5
All Supported Monitors	•	•	•	•	•

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - Single drives or volumes larger than 2.2 TB can only be fully accessed using GPT formatting. The OS's listed can create GPT formatted storage drives/volumes but this requires installation of the OS in UEFI mode. Once formatted and installed, the OS can access the entirety of storage drives/volumes.

footnote 3 - The MicroSemi 2100-4i4e is not currently being supported on enterprise Linux distros by HP Inc.

footnote 4 - Linux growisofs supports DVD+RW and Blu-ray media on the listed OSes.

footnote 5 - For more info about Linux driver support for HP printers, please visit <http://www.hpip.net>.

footnote 6 - Support for the TPM or other security devices varies by OS distribution. Any use of the TPM module requires additional software.

footnote 7 - AMD Radeon Pro graphics cards are now supported in Linux by the recently released amdppu open source driver. OS streams are supported at specific release version levels, starting with these: SLED 12/SP2, RHEL 6.9, RHEL 7.4, Ubuntu 16.04.2. For RHEL 6.9 with certain AMD cards, it may be necessary to remove "rhgb" from the boot line in order for the X server to start correctly with the amdppu-pro driver.

footnote 8 - HP recommends using NVIDIA driver 390.48 or newer for NVIDIA graphics on this platform.

footnote 9 - Intel support for AMT varies by distribution and requires additional software packages be added to the base OS. Please check with the distribution vendor of your choice.

footnote 10 - The driver for the Aquantia Nbase-T AQN-108 aftermarket NIC is not in-box for most of the listed Linux streams. Driver source can be found at the Aquantia site <https://www.aquantia.com/driver-download/>.

footnote 11 - There are currently issues installing enterprise Linux distros on M.2 and Z turbo options when the system is running in legacy BIOS mode. HP recommends using the system in its default UEFI BIOS mode when using these storage devices.

footnote 12 -UEFI mode only. RHEL 6.9 currently does not support running in legacy BIOS on this platform.

**Linux Hardware Matrix for HP Workstations**

**HP Z6 G4 Workstation**

Certified on RHEL 7.4 and SLED 12/SP3 (NVIDIA). Other certifications pending.  
As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  
HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box indicates the listed component is NOT functional w/ as-is OS)	SLED12 SP3 or later (x86_64)	RHEL 6.9 or later (x86_64)	RHEL 7.4 or later (x86_64)	Ubuntu 16.04 LTS, 16.04.3 or later (x86_64)	Ubuntu 18.04 LTS or later (x86_64)
<b>HP Workstation Base System</b>					
Base system includes: Chassis, System Board, Power Supply, etc.	•	12	•	•	•
HP Localization Kit	1	1	1	1	1
<b>All Supported Processors</b>					
Xeon Skylake EP 81xx/61xx/51xx/41xx/31xx Processors (single and dual CPU configs)	•	•	•	•	•
Hyperthreading	•	•	•	•	•
<b>Graphics Card (Video Card)</b>					
No Graphics Card	•	•	•	•	•
AMD FirePro W2100 (2GB Frame buffer)	7	7	7	7	7
AMD Radeon Pro WX 3100 (4GB Frame buffer)	7	7	7	7	7
AMD Radeon Pro WX 4100 (4GB Frame buffer)	7	7	7	7	7
AMD Radeon Pro WX 7100 (8GB Frame buffer)	7	7	7	7	7
AMD Radeon Pro WX 9100 (16GB Frame buffer)	7	7	7	7	7
NVIDIA Quadro P400 (2GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P600 (2 GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P620 (2GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P1000 (4GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P2000 (5GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P4000 (8GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P5000 (16GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P6000 (24GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro GP100 (16GB Frame buffer)	8	8	8	8	8
<b>System RAM</b>					
Minimum (GB)	8GB	8GB	8GB	8GB	8GB
Maximum (GB)	384GB	384GB	384GB	384GB	384GB
<b>Hard Disks</b>					
All Supported Solid State Drives	•	•	•	•	•
All Supported SATA Disk Drives <= 2 TB	•	•	•	•	•
All Supported SATA Disk Drives > 2 TB	2	2	2	2	2
All Supported M.2 NVMe PCIe Solid State Drives	10	10	10	10	10
All Supported SAS Disk Drives					
HP Z Turbo Drive PCIe-attached storage	10	10	10	10	10
<b>Network Cards</b>					
Aquantia Nbase-T PCIe NIC	11	11	11	11	11
Intel i210-T1 GbE PCIe NIC	•	•	•	•	•
Intel i350-T2 PCIe Dual Port 1Gb NIC	•	•	•	•	•
Intel i350-T4 PCIe Quad Port 1 Gb NIC	•	•	•	•	•
Intel X550 10GbE Dual Port Adapter	•	•	•	•	•
Intel X710-DA2 10GbE Dual Port Adapter (and HP SFP+ SR Transceiver)	•	•	•	•	•
Intel 10GbBase-T Dual Port Adapter (RJ-45 Copper)	•	•	•	•	•
Intel 8265 802.11 a/b/g/n/ac & Bluetooth PCIe	•	•	•	•	•
<b>Integrated Components</b>					
LAN port 0 - Intel i219LM Gigabit Ethernet	•	•	•	•	•
LAN port 1 - Intel x722 Gigabit Ethernet	•	•	•	•	•
Intel AMT functionality on LAN port 0	9	9	9	9	9
Onboard Audio (Realtek ALC221 codec)	•	•	•	•	•
Onboard Intel integrated SATA RAID (0/1/5/10)	•	•	•	•	•
USB 3.1 G1 Type A ports	•	•	•	•	•
USB 3.1 G2 Type C ports (on Front I/O Premium module)	•	•	•	•	•
USB 2.0/3/1 G1 internal ports	•	•	•	•	•
TPM 2.0 Module	6	6	6	6	6
<b>Add Ons</b>					
MicroSemi SmartHBA2100-4i4e SAS controller	3	3	3	3	3
<b>Removable CD/DVD Media</b>					
HP DVD-ROM Drive	•	•	•	•	•
HP DVD RW Supermulti Drive	4	4	4	4	4
HP BD-RE (Blu-Ray writer)	4	4	4	4	4
<b>Input/Output Devices (no spaceball support)</b>					
HP USB mouse options	•	•	•	•	•
HP USB keyboard options	•	•	•	•	•
HP PS/2 keyboard/mouse	•	•	•	•	•
HP Media Card Reader	•	•	•	•	•
HP Printers	5	5	5	5	5
All Supported Monitors	•	•	•	•	•

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - Single drives or volumes larger than 2.2 TB can only be fully accessed using GPT formatting. The OS's listed can create GPT formatted storage drives/volumes, but this requires installation of the OS in UEFI mode. Once formatted and installed, the OS can access the entirety of storage drives/volumes.

footnote 3 - The MicroSemi 2100-4i4e is not currently being supported on enterprise Linux distros by HP Inc.

footnote 4 - Linux growisofs supports DVD+RW and Blu-ray media on the listed OSes.

footnote 5 - For more info about Linux driver support for HP printers, please visit <http://www.hpip.net>.

footnote 6 - Support for the TPM or other security devices varies by OS distribution. Any use of the TPM module does require additional software.

footnote 7 - AMD Radeon Pro graphics cards are now supported in Linux by the recently released amdgpu open source driver. OS streams are supported at specific release version levels, starting with these: SLED 12/SP2, RHEL 6.9, RHEL 7.4, and Ubuntu 16.04.2. The amdgpu pro driver is available on the AMD website. "Enterprise" drivers are posted quarterly, e.g. "18.Q2" was the latest at the time this document was published. For RHEL 6.9 and certain AMD cards, it may be necessary to remove "rhgb" from the boot line in order for the X server to start with the amdgpu-pro driver.

footnote 8 - HP recommends using NVIDIA driver 384.111 or newer for NVIDIA graphics on this platform.

footnote 9 - Intel support for AMT varies by distribution and requires additional software packages be added to the base OS. Please check with the distribution vendor of your choice.

footnote 10 - There are currently issues installing enterprise Linux distros on M.2 and Z turbo options when the system is running in legacy BIOS mode. HP recommends using the system in its default UEFI BIOS mode when using these storage devices.

footnote 11 - The driver for the Aquantia Nbase-T AQN-108 aftermarket NIC is not in-box for most of the listed Linux streams. Driver source can be found at the Aquantia site <https://www.aquantia.com/driver-download>

footnote 12 - UEFI mode only. RHEL 6.9 currently does not support running in legacy BIOS on this platform.

Linux Hardware Matrix for HP Workstations					
HP Z8 G4 Workstation					
<p>Certified on RHEL 7.4, SLED 12/SP3, SLED 15 and Ubuntu 18.04. Other certifications pending.  As of this edition of this matrix, some Enterprise-class Linux releases enable the Intel architecture used in this system.  HP considers enablement for the CPU, chipset, and the on-board LAN to be minimum requirements.</p>					
<p><i>This page is not complete without the General Notes (first page of the matrix).</i></p>					
Product Items/Features (Blank box indicates the listed component is NOT functional w/ as-is OS)	SLED12 SP3 or later (x86_64)	RHEL 6.9 or later (x86_64)	RHEL 7.4 or later (x86_64)	Ubuntu 16.04 LTS, 16.04.3 or later (x86_64)	Ubuntu 18.04 LTS or later (x86_64)
<b>HP Workstation Base System</b>					
Base system includes: Chassis, System Board, Power Supply, etc.	•	12	•	•	•
HP Localization Kit	1	1	1	1	1
<b>All Supported Processors</b>					
Xeon Skylake EP 81xx/61xx/51xx/41xx/31xx Processors (single and dual CPU configs)	•	•	•	•	•
Hyperthreading	•	•	•	•	•
<b>Graphics Card (Video Card)</b>					
No Graphics Card	•	•	•	•	•
AMD FirePro W2100 (2GB Frame buffer)	7	7	7	7	7
AMD Radeon Pro WX 3100 (4GB Frame buffer)	7	7	7	7	7
AMD Radeon Pro WX 4100 (4GB Frame buffer)	7	7	7	7	7
AMD Radeon Pro WX 7100 (8GB Frame buffer)	7	7	7	7	7
AMD Radeon Pro WX 9100 (16GB Frame buffer)	7	7	7	7	7
NVIDIA Quadro P400 (2GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P600 (2 GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P620 (2GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P1000 (4GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P2000 (5GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P4000 (8GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P5000 (16GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro P6000 (24GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro GP100 (16GB Frame buffer)	8	8	8	8	8
NVIDIA Quadro GV100 (32GB Frame buffer)	8	8	8	8	8
<b>System RAM</b>					
Minimum (GB)	8GB	8GB	8GB	8GB	8GB
Maximum (GB)	3TB	3TB	3TB	3TB	3TB
<b>Hard Disks</b>					
All Supported Solid State Drives	•	•	•	•	•
All Supported SATA Disk Drives <= 2 TB	•	•	•	•	•
All Supported SATA Disk Drives > 2 TB	2	2	2	2	2
All Supported M.2 NVMe PCIe Solid State Drives	10	10	10	10	10
All Supported SAS Disk Drives	•	•	•	•	•
HP Z Turbo Drive PCIe-attached storage	10	10	10	10	10
<b>Network Cards</b>					
Aquantia Nbase-T PCIe NIC	11	11	11	11	11
Intel I210-T1 GbE PCIe NIC	•	•	•	•	•
Intel I350-T2 PCIe Dual Port 1 Gb NIC	•	•	•	•	•
Intel I350-T4 PCIe Quad Port 1 Gb NIC	•	•	•	•	•
Intel X550 10GbE Dual Port Adapter	•	•	•	•	•
Intel X710-DA2 10GbE Dual Port Adapter (and HP SFP+ SR Transceiver)	•	•	•	•	•
Intel 10GbBase-T Dual Port Adapter (RJ-45 Copper)	•	•	•	•	•
Intel 8265 802.11 a/b/g/n/ac & Bluetooth PCIe	•	•	•	•	•
<b>Integrated Components</b>					
LAN port 0 - Intel I219LM Gigabit Ethernet	•	•	•	•	•
LAN port 1 - Intel x722 Gigabit Ethernet	•	•	•	•	•
Intel AMT functionality on LAN port 0	9	9	9	9	9
Onboard Audio (Realtek ALC221 codec)	•	•	•	•	•
Onboard Intel integrated SATA RAID (0/1/5/10)	•	•	•	•	•
USB 3.1 G1 Type A ports	•	•	•	•	•
USB 3.1 G2 Type C ports (on Front I/O Premium module)	•	•	•	•	•
USB 2.0/3/1 G1 internal ports	•	•	•	•	•
TPM 2.0 Module	6	6	6	6	6
<b>Add Ons</b>					
MicroSemi SmartHBA2100-4i4e SAS controller	3	3	3	3	3
<b>Removable CD/DVD Media</b>					
HP DVD-ROM Drive	•	•	•	•	•
HP DVD RW Supermulti Drive	4	4	4	4	4
HP BD-RE (Blu-Ray writer)	4	4	4	4	4
<b>Input/Output Devices (no spaceball support)</b>					
HP USB mouse options	•	•	•	•	•
HP USB keyboard options	•	•	•	•	•
HP PS/2 keyboard/mouse	•	•	•	•	•
HP Media Card Reader	•	•	•	•	•
HP Printers	5	5	5	5	5
All Supported Monitors	•	•	•	•	•

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 2 - Single drives or volumes larger than 2.2 TB can only be fully accessed using GPT formatting. The OS's listed can create GPT formatted storage drives/volumes, but this requires installation of the OS in UEFI mode. Once formatted and installed, the OS can access the entirety of storage drives/volumes.

footnote 3 - The MicroSemi 2100-4i4e is not currently being supported on enterprise Linux distros by HP Inc.

footnote 4 - Linux growisofs supports DVD+RW and Blu-ray media on the listed OSes.

footnote 5 - For more info about Linux driver support for HP printers, please visit <http://www.hpip.net>.

footnote 6 - Support for the TPM or other security devices varies by OS distribution. Any use of the TPM module does require additional software.

footnote 7 - AMD Radeon Pro graphics cards are now supported in Linux by the recently released amdppu open source driver. OS streams are supported at specific release version levels, starting with these: SLED 12/SP2, RHEL 6.9, RHEL 7.4, and Ubuntu 16.04.2. For RHEL 6.9 with certain AMD cards, it may be necessary to remove "rhgb" from the boot line in order for the X server to start correctly with the amdppu-pro driver.

footnote 8 - HP recommends using NVIDIA driver 390.48 or newer for NVIDIA graphics on this platform.

footnote 9 - Intel support for AMT varies by distribution and requires additional software packages be added to the base OS. Please check with the distribution vendor of your choice.

footnote 10 - There are currently issues installing enterprise Linux distros on M.2 and Z turbo options when the system is running in legacy BIOS mode. HP recommends using the system in its default UEFI BIOS mode when using these storage devices.

footnote 11 - The driver for the Aquantia Nbase-T AQN-108 aftermarket NIC is not in-box for most of the listed Linux streams. Driver source can be found at the Aquantia site <https://www.aquantia.com/driver-download/>.

footnote 12 - UEFI mode only. RHEL 6.9 currently does not support running in legacy BIOS on this platform.

**Linux Hardware Matrix for HP Workstations**

**HP Z440 Workstation**

Certified with RHEL 6.5 and RHEL 7.0. Certified with Ubuntu 14.04 LTS (BIOS 1.25 required).  
 Certified with SLED 11 SP3 and SLED 12 (NVIDIA graphics). Other certifications pending.

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box or unlisted -> component is NOT functional w/ as-is OS)	SLED11 SP3 or later (x86_64)	SLED12 or later (x86_64)	RHEL 6.5 or later (x86_64)	RHEL 7.0 or later (x86_64)	Ubuntu 14.04 LTS or later (x86_64)	Ubuntu 16.04 LTS or later (x86_64)
<b>HP Workstation Base System</b>						
Base system includes: Chassis, System Board, Power Supply, etc.	*	*	*	*	*	*
HP Localization Kit	1	1	1	1	1	1
<b>All Supported Processors</b>						
All supported v3 (Haswell) & v4 (Broadwell) E5-16xx Xeon® processors (see footnote 14)	*	*	*	*	*	*
<b>Graphics Card (Video Card) (see footnote 15)</b>						
No Graphics Card	*	*	*	*	*	*
AMD FirePro W2100	*	*	*	*	*	*
AMD FirePro W4300	*	*	*	*	*	*
AMD FirePro W5100	*	*	*	*	*	*
AMD FirePro W7100	*	*	*	*	*	*
AMD Radeon Pro WX 4100	11	11	11	11	11	11
AMD Radeon Pro WX 7100	11	11	11	11	11	11
NVIDIA NVS 310 512MB and 1GB	*	*	*	*	*	*
NVIDIA NVS 315 1GB	*	*	*	*	*	*
NVIDIA NVS 510 2GB	*	*	*	*	*	*
NVS Quadro K420 1GB and 2GB	*	*	*	*	*	*
NVIDIA Quadro K620 2GB	*	*	*	*	*	*
NVIDIA Quadro K2200 4GB	*	*	*	*	*	*
NVIDIA Quadro K4200 4GB	*	*	*	*	*	*
NVIDIA Quadro K5200 8GB	*	*	*	*	*	*
NVIDIA Quadro K6000 12GB	*	*	*	*	*	*
NVIDIA Quadro M2000 4GB	9	9	9	9	9	9
NVIDIA Quadro M4000 8GB	9	9	9	9	9	9
NVIDIA Quadro M5000 8GB	9	9	9	9	9	9
NVIDIA Quadro P400	9	9	9	9	9	9
NVIDIA Quadro P600	9	9	9	9	9	9
NVIDIA Quadro P1000	9	9	9	9	9	9
NVIDIA Quadro P2000	9	9	9	9	9	9
NVIDIA Quadro P4000	9	9	9	9	9	9
NVIDIA Quadro P6000	9	9	9	9	9	9
<b>High Performance GPU Computing</b>						
NVIDIA Tesla K40	8	8	8	8	8	8
<b>System RAM</b>						
Minimum (GB)	4GB	4GB	4GB	4GB	4GB	4GB
Maximum (GB)	128GB	128GB	128GB	128GB	128GB	128GB
<b>Hard Disks</b>						
All Supported SAS Disk Drives	2	2	2	2	2	2
All Supported Solid State Drives	*	*	*	*	*	*
All Supported SATA Disk Drives less than 3TB	*	*	*	*	*	*
Supported SATA Disk Drives 3TB and larger	3	3	3	3	3	3
All Supported USB Drive Keys	*	*	*	*	*	*
HP Z Turbo Drive and Z Turbo QuadPro PCIe-attached storage	4	4, 13	4	4, 13	4	4, 13
Intel 750 Series PCIe Storage	4	4	4	4	4	4
<b>Network Cards (no modem support)</b>						
Aquantia Nbase-T PCIe NIC		12		12	12	12
Intel Ethernet I210-T1 PCIe NIC	*	*	*	*	*	*
Intel I350-T2 Dual-Port I350-T4 Quad-Port 1GbE PCIe NIC	*	*	*	*	*	*
Intel X540 10GbBase-T Dual Port Adapter (RJ45 -Copper)	*	*	*	*	*	*
Intel 361T 1GbE dual port PCI NIC	*	*	*	*	*	*
Intel Ethernet X520 10GbE dual port PCIe NIC	*	*	*	*	*	*
Intel 7260 802.11 a/b/g/a/n PCIe WLAN NIC	*	*	*	*	*	*
Intel 8260 802.11 a/b/a/n/ac & Bluetooth PCIe	10	10	10	10	10	10
<b>Onboard Components</b>						
Integrated Intel SATA sSATA Controller	2	2	2	2	2	2
Wired LAN - Intel i218LM Gigabit Ethernet	7	7	*	*	*	*
Onboard Audio (Realtek ALC221 codec)	*	*	*	*	*	*
Onboard SATA RAID	2	2	2	2	2	2
<b>Add Ons</b>						
LSI 9217-4i4e 8-port SAS 6Gb/s RAID Controller	2	2	2	2	2	2
LSI 9270-Bi 8-port SAS 6Gb/s ROC RAID Controller & iBBU9 battery backup unit	2	2	2	2	2	2
Thunderbolt™ PCIe card (see footnote 16)	*	*	*	*	*	*
1394b Firewire PCIe card	*	*	*	*	*	*
<b>Removable CD/DVD Media</b>						
HP DVD-ROM Drive	*	*	*	*	*	*
HP DVD RW Supermulti Drive	5	5	5	5	5	5
HP BD-RE (Blu-Ray writer)	5	5	5	5	5	5
<b>Input/Output Devices (no spaceball support)</b>						
HP Scroll Mouse, USB	*	*	*	*	*	*
HP Standard Keyboard, USB	*	*	*	*	*	*
HP Keyboard and Mouse, PS/2	*	*	*	*	*	*
TPM Module/ Smart Card (see footnote 17)	*	*	*	*	*	*
HP Media Card Reader	*	*	*	*	*	*
HP Printers	6	6	6	6	6	6
All Supported Monitors	*	*	*	*	*	*

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available.

footnote 2 - Hardware RAID is supported using the LSI 9217-4i4e (RAID 0/1/1E/10 SATA & SAS) and the LSI 9270-Bi (RAID 0/1/5/6/10 SATA & SAS). SATA RAID is supported on sSATA ports(0/1/5/10 SATA only).

footnote 3 - In general, single drives or volumes larger than 2.2 TB can only be fully accessed using GPT formatting. OSes listed can format GPT for the boot drive or volume but may require installation of UEFI boot support, and can access GPT-formatted data volumes.

footnote 4 - The Z Turbo Drive PCIe-attached storage device has its own controller and is supported by the standard ahci kernel module in supported OSes. Z Turbo Drive G2 is an NVME device and is supported by the kernel NVME module. Z Turbo QuadPro is an enclosure for several NVME devices. Updates are needed for SLED11 SP4 and SLED12 SP1 to operate with these NVME devices. Other NVME storage devices have similar requirements.

footnote 5 - Linux growisofs supports DVD+RW and Blu-ray media on the listed OSes.

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hp.com>.

footnote 7 - SLED 11/SP3 requires an update kernel to operate this on-board network interface properly. Please check with SuSE support for the appropriate update.

footnote 8 - The NVIDIA K40 is a GPU-compute device without graphics. The base OS will more or less ignore it. To make use of this device, the proprietary driver must be installed. The minimum driver version for support of K40 is 319.72.

footnote 9 - HP recommends the following minimum NVIDIA driver versions for M4000 and M5000 (352.41); M2000 (361.45.11); P400, P600, P1000, P2000, and P4000 (375.39); and P6000 (367.57).

footnote 10 - As of this edition of the table, only a few enterprise distributions have support for the Intel 8260 WLAN/BT combo device. Look for updates from the distributors.

footnote 11 - AMD Radeon Pro graphics cards are supported by the newer amdgpu-vendor driver. OS streams are supported at specific release version levels, starting with these: SLED 12 SP2; RHEL 6.8; RHEL 7.3; Ubuntu 14.04.5; Ubuntu 16.04.1. There is no amdgpu-pro driver for SLED 11.

footnote 12 - The driver for the Aquantia Nbase-T AQN-108 aftermarket NIC is not in-box for most of the listed Linux streams. Driver source can be found at the Aquantia site [www.aquantia.com/driver-download/](http://www.aquantia.com/driver-download/).

footnote 13 - There are currently issues installing enterprise Linux distros on M.2 and Z turbo options when the operating system is booted by legacy BIOS method. HP recommends installing the system in UEFI boot setup when using these storage devices.

footnote 14 - Correct operation with the "Broadwell" family of processors may require a later release of OS stream than the "Haswell" family. The following OS releases are known to be capable: SLED11 SP4, SLED12 SP1, RHEL 6.8, RHEL 7.2.

footnote 15 - Get the latest drivers: "HP Installer Kit for Linux - HP Driver CD (or DVD) for Linux-distribution-name" ISO images from <http://www.hp.com/support/z440>. Under Download options, select Get drivers, software & firmware. HP Workstations can be ordered with a variety of localization options that may vary by platform. The default in-box graphics drivers (e.g., nouveau and radeon) may not always handle newer graphics cards correctly. In some cases, even OS installation must be done using a "basic mode" or by specifying a frame-buffer driver (e.g., "xdriver=fbdev").

footnote 16 - Newer Linux kernels may provide device functionality through the Thunderbolt module. Such kernels are likely to be available in leading-edge distributions, but inclusion of the support with any Enterprise Linux distribution is at the distributor's discretion. For example, RHEL 7.2 is more capable than RHEL 7.1.

footnote 17 - The TPM and Smartcard readers can be used with the addition of extra software packages which support operation of these devices.



**Linux Hardware Matrix for HP Workstations**

**HP Z640 Workstation**

Certified with RHEL 6.5 and RHEL 7.0. Certified with Ubuntu 14.04 LTS (BIOS 1.25 required).  
 Certified with SLED 11 SP3 and SLED 12 (NVIDIA graphics). Other certifications pending.

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box or unlisted -> component is NOT functional w/ as-is OS)	SLED11 SP3 or later (x86_64)	SLED12 or later (x86_64)	RHEL 6.5 or later (x86_64)	RHEL 7.0 or later (x86_64)	Ubuntu 14.04 LTS or later (x86_64)	Ubuntu 16.04 LTS or later (x86_64)
<b>HP Workstation Base System</b>						
Base system includes: Chassis, System Board, Power Supply, etc.	*	*	*	*	*	*
HP Localization Kit	1	1	1	1	1	1
<b>All Supported Processors</b>						
All supported v3 (Haswell) & v4 (Broadwell) E5-16xx & E5-26xx Xeon® processors (see footnote 12)	*	*	*	*	*	*
<b>Graphics Card (Video Card) (see footnote 13)</b>						
No Graphics Card	*	*	*	*	*	*
AMD FirePro W2100	*	*	*	*	*	*
AMD FirePro W4300	*	*	*	*	*	*
AMD FirePro W5100	*	*	*	*	*	*
AMD FirePro W7100	*	*	*	*	*	*
AMD Radeon Pro WX 4100	11	11	11	11	11	11
AMD Radeon Pro WX 7100	11	11	11	11	11	11
NVIDIA NVS 310 S1 2MB and 1GB	*	*	*	*	*	*
NVIDIA NVS 315 1GB	*	*	*	*	*	*
NVIDIA NVS 510 2GB	*	*	*	*	*	*
NVS Quadro K420 1GB and 2GB	*	*	*	*	*	*
NVIDIA Quadro K620 2GB	*	*	*	*	*	*
NVIDIA Quadro K2200 4GB	*	*	*	*	*	*
NVIDIA Quadro K4200 4GB	*	*	*	*	*	*
NVIDIA Quadro K5200 8GB	*	*	*	*	*	*
NVIDIA Quadro K6000 12GB	*	*	*	*	*	*
NVIDIA Quadro M2000 4GB	9	9	9	9	9	9
NVIDIA Quadro M4000 8GB	9	9	9	9	9	9
NVIDIA Quadro M5000 8GB	9	9	9	9	9	9
NVIDIA Quadro M6000 12GB and 24GB	9	9	9	9	9	9
NVIDIA Quadro P600	9	9	9	9	9	9
NVIDIA Quadro P2000	9	9	9	9	9	9
NVIDIA Quadro P4000	9	9	9	9	9	9
NVIDIA Quadro P5000	9	9	9	9	9	9
NVIDIA Quadro P6000	9	9	9	9	9	9
<b>High Performance GPU Computing</b>						
NVIDIA Tesla K40	8	8	8	8	8	8
<b>System RAM</b>						
Minimum (GB)	4GB	4GB	4GB	4GB	4GB	4GB
Maximum (GB) (with two processors installed)	256GB	256GB	256GB	256GB	256GB	256GB
<b>Hard Disks</b>						
All Supported SAS Disk Drives	2	2	2	2	2	2
All Supported Solid State Drives	*	*	*	*	*	*
All Supported SATA Disk Drives less than 3TB	*	*	*	*	*	*
Supported SATA Disk Drives 3TB and larger	3	3	3	3	3	3
All Supported USB Drive Keys	*	*	*	*	*	*
HP Z Turbo Drive and Z Turbo QuadPro PCIe-attached storage	4	4	4	4	4	4
Intel 750 Series PCIe Storage	4	4	4	4	4	4
<b>Network Cards (no modem support)</b>						
Intel Ethernet I210-T1 PCIe NIC	*	*	*	*	*	*
I350-T4 Quad-Port 1GbE NIC	*	*	*	*	*	*
Intel 361T 1GbE dual port PCI NIC	*	*	*	*	*	*
Intel Ethernet X520 10GbE dual port PCIe NIC	*	*	*	*	*	*
Intel X540 10GbBase-T Dual Port Adapter (RJ45 - Copper)	2	2	2	2	2	2
Intel 7260 802.11a/b/g/n PCIe WLAN NIC	*	*	*	*	*	*
Intel 8260 802.11 a/b/g/n/ac & Bluetooth PCIe	10	10	10	10	10	10
<b>Onboard Components</b>						
Integrated Intel SATA sSATA Controller	2	2	2	2	2	2
Wired LAN - Intel I210/1GbE Gigabit Ethernet	7	7	*	*	*	*
Onboard Audio (Realtek ALC221 codec)	*	*	*	*	*	*
Onboard SATA RAID	2	2	2	2	2	2
<b>Add Ons</b>						
LSI 9217-4i4e 8-port SAS 6Gb/s RAID Controller	2	2	2	2	2	2
LSI 9270-8i 8-port SAS 6Gb/s ROC RAID Controller & IBBU9 battery backup unit	2	2	2	2	2	2
Thunderbolt™ PCIe card (see footnote 14)						
1394b Firewire PCIe card	*	*	*	*	*	*
<b>Removable CD/DVD Media</b>						
HP DVD-ROM Drive	*	*	*	*	*	*
HP DVD RW Supermulti Drive	5	5	5	5	5	5
HP BD-RE (Blu-Ray writer)	5	5	5	5	5	5
<b>Input/Output Devices (no spaceball support)</b>						
HP Scroll Mouse, USB	*	*	*	*	*	*
HP Standard Keyboard, USB	*	*	*	*	*	*
HP Keyboard and Mouse, PS/2	*	*	*	*	*	*
TPM Module/ Smart Card (see footnote 15)	*	*	*	*	*	*
HP Media Card Reader	*	*	*	*	*	*
HP Printers	6	6	6	6	6	6
All Supported Monitors	*	*	*	*	*	*

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available.

footnote 2 - Hardware RAID is supported using the LSI 9217-4i4e (RAID 0/1/1E/10 SATA & SAS) and the LSI 9270-8i (RAID 0/1/5/6/10 SATA & SAS). SATA RAID is supported on sSATA ports(0/1/5/10 SATA only).

footnote 3 - In general, single drives or volumes larger than 2.2 TB can only be fully accessed using GPT formatting. OSes listed can format GPT for the boot drive or volume but may require installation of UEFI boot support, and can access GPT-formatted data volumes.

footnote 4 - The Z Turbo Drive PCIe-attached storage device has its own controller and is supported by the standard ahci kernel module in supported OSes. Z Turbo Drive G2 is an NVME device and is supported by the kernel NVME module. Z Turbo QuadPro is an enclosure for several NVME devices. Updates are needed for SLED11 SP4 and SLED12 SP1 to operate with these NVME devices. Other NVME storage devices have similar requirements.

footnote 5 - Linux growisofs supports DVD+RW and Blu-ray media on the listed OSes.

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hpip.net>.

footnote 7 - SLED 11/SP3 requires an update kernel to operate this on-board network interface properly. Please check with SuSE support for the appropriate update.

footnote 8 - The NVIDIA K40 is a GPU-compute device without graphics. The base OS will more or less ignore it. To make use of this device, the proprietary driver must be installed. The minimum driver version for support of K40 is 319.72.

footnote 9 - HP recommends the following minimum NVIDIA driver versions for M6000 12GB (346.47); M6000 24GB (361.28); M4000 and M5000 (352.41); M2000 (361.45.11); P600, P2000, and P4000 (375.39); and P5000 and P6000 (367.57).

footnote 10 - As of this edition of the table, only a few enterprise distributions have support for the Intel 8260 WLAN/BT combo device. Look for updates from the distributors. The following OS releases are known to be capable: SLED11 SP4, SLED12 SP1, RHEL 7.2.

footnote 11 - AMD Radeon Pro graphics cards are supported by the newer amdgpu-pro vendor driver. OS streams are supported at specific release version levels, starting with these: SLED 12 SP2; RHEL 6.8; RHEL 7.3; Ubuntu 14.04.5; Ubuntu 16.04.1. There is no amdgpu-pro driver for SLED 11.

footnote 12 - Correct operation with the "Broadwell" family of processors may require a later release of OS stream than the "Haswell" family. The following OS releases are known to be capable: SLED11 SP4, SLED12 SP1, RHEL 6.8, RHEL 7.2.

footnote 13 - Get the latest drivers: "HP Installer Kit for Linux - HP Driver CD (or DVD) for Linux-distribution-name" ISO images from <http://www.hp.com/support/z440>. Under Download options, select Get drivers, software & firmware. HP Workstations can be ordered with a variety of localization options that may vary by platform. The default in-box graphics drivers (e.g., nouveau and radeon) may not always handle newer graphics cards correctly. In some cases, even OS installation must be done using a "basic mode" or by specifying a frame-buffer driver (e.g., "xdriver=fbdev").

footnote 14 - Newer Linux kernels may provide device functionality through the Thunderbolt module. Such kernels are likely to be available in leading-edge distributions, but inclusion of the support with any Enterprise Linux distribution is at the distributor's discretion.

footnote 15 - The TPM and Smartcard readers can be used with the addition of extra software packages which support operation of these devices.

Linux Hardware Matrix for HP Workstations						
HP Z840 Workstation						
Certified with RHEL 6.5 and RHEL 7.0. Certified with Ubuntu 14.04 LTS (BIOS 1.25 required). Certified with SLED 11 SP3 and SLED 12 (NVIDIA graphics). Other certifications pending.						
This page is not complete without the General Notes (first page of the matrix).						
Product Items/Features (Blank box or unlisted -> component is NOT functional w/ as-is OS)	SLED11 SP3 or later (x86_64)	SLED12 or later (x86_64)	RHEL 6.5 or later (x86_64)	RHEL 7.0 or later (x86_64)	Ubuntu 14.04 LTS or later (x86_64)	Ubuntu 16.04 LTS or later (x86_64)
<b>HP Workstation Base System</b>						
Base system includes: Chassis, System Board, Power Supply, etc.	*	*	*	*	*	*
HP Localization Kit	1	1	1	1	1	1
<b>All Supported Processors</b>						
All supported v3 (Haswell) & v4 (Broadwell) E5-26xx Xeon® processors (see footnote 12)						
<b>Graphics Card (Video Card) (see footnote 13)</b>						
No Graphics Card						
AMD FirePro W2100	*	*	*	*	*	*
AMD FirePro W4300	*	*	*	*	*	*
AMD FirePro W5100	*	*	*	*	*	*
AMD FirePro W7100	*	*	*	*	*	*
AMD Radeon Pro WX 4100	11	11	11	11	11	11
AMD Radeon Pro WX 7100	11	11	11	11	11	11
NVIDIA NVS 310 512MB and 1GB	*	*	*	*	*	*
NVIDIA NVS 315 1GB	*	*	*	*	*	*
NVIDIA NVS 510 2GB	*	*	*	*	*	*
NVIDIA Quadro K420 1GB and 2GB	*	*	*	*	*	*
NVIDIA Quadro K620 2GB	*	*	*	*	*	*
NVIDIA Quadro K1200	*	*	*	*	*	*
NVIDIA Quadro K2200 4GB	*	*	*	*	*	*
NVIDIA Quadro K4200 4GB	*	*	*	*	*	*
NVIDIA Quadro K5200 8GB	*	*	*	*	*	*
NVIDIA Quadro K6000 12GB	*	*	*	*	*	*
NVIDIA Quadro M2000 4GB	9	9	9	9	9	9
NVIDIA Quadro M4000 8GB	9	9	9	9	9	9
NVIDIA Quadro M5000 8GB	9	9	9	9	9	9
NVIDIA Quadro M6000 12GB and 24GB	9	9	9	9	9	9
NVIDIA Quadro P2000	9	9	9	9	9	9
NVIDIA Quadro P4000	9	9	9	9	9	9
NVIDIA Quadro P5000	9	9	9	9	9	9
NVIDIA Quadro P6000	9	9	9	9	9	9
NVIDIA Quadro GP100	9	9	9	9	9	9
<b>High Performance GPU Computing</b>						
NVIDIA Tesla K40	8	8	8	8	8	8
<b>System RAM</b>						
Minimum (GB)	4GB	4GB	4GB	4GB	4GB	4GB
Maximum (GB) (see footnote 14)	1024GB	1024GB	1024GB	1024GB	1024GB	1024GB
<b>Hard Disks</b>						
All Supported SAS Disk Drives	2	2	2	2	2	2
All Supported Solid State Drives	*	*	*	*	*	*
All Supported SATA Disk Drives less than 3TB	*	*	*	*	*	*
Supported SATA Disk Drives 3TB and larger	3	3	3	3	3	3
All Supported USB Drive Keys	*	*	*	*	*	*
HP Z Turbo Drive and Z Turbo QuadPro PCIe-attached storage	4	4	4	4	4	4
Intel 750 Series PCIe Storage	4	4	4	4	4	4
<b>Network Cards (no modem support)</b>						
Intel Ethernet I210-T1 PCIe NIC	*	*	*	*	*	*
i350-T4 Quad-Port 1GbE NIC	*	*	*	*	*	*
Intel 361T 1GbE dual port PCI NIC	*	*	*	*	*	*
Intel Ethernet X520 10GbE dual port PCIe NIC	*	*	*	*	*	*
Intel X540 10GbE Base-T Dual Port Adapter (RJ45 - Copper)	*	*	*	*	*	*
Intel Z760 802.11a/b/g/n/ac PCIe WLAN NIC	*	*	*	*	*	*
Intel B260 802.11a/b/g/n/ac & Bluetooth PCIe	10	10	10	10	10	10
<b>Onboard Components</b>						
Integrated Intel SATA sSATA Controller	2	2	2	2	2	2
Integrated LSI 2308 SAS Controller with RAID	2	2	2	2	2	2
Wired LAN - Intel i210 Gigabit Ethernet	*	*	*	*	*	*
Wired LAN - Intel i218LM Gigabit Ethernet	7	7	*	*	*	*
Onboard Audio (Realtek ALC221 codec)	*	*	*	*	*	*
Onboard SATA RAID	2	2	2	2	2	2
<b>Add Ons</b>						
LSI 9270-8i 8-port SAS 6Gb/s ROC RAID Controller & iBBU9 battery backup unit	2	2	2	2	2	2
Thunderbolt™ PCIe card (see footnote 15)	*	*	*	*	*	*
1394b Firewire PCIe card	*	*	*	*	*	*
<b>Removable CD/DVD Media</b>						
HP DVD-ROM Drive	*	*	*	*	*	*
HP DVD RW Supermulti Drive	5	5	5	5	5	5
HP BD-RE (Blu-Ray writer)	5	5	5	5	5	5
<b>Input/Output Devices (no spaceball support)</b>						
HP Scroll Mouse, USB	*	*	*	*	*	*
HP Standard Keyboard, USB	*	*	*	*	*	*
HP Keyboard and Mouse, PS/2	*	*	*	*	*	*
TPM Module/ Smart Card (see footnote 16)	*	*	*	*	*	*
HP Media Card Reader	*	*	*	*	*	*
HP Printers	6	6	6	6	6	6
All Supported Monitors	*	*	*	*	*	*

footnote 1 - Typical Linux distributions support many possible localizations. If you're installing the OS yourself, you can make selections for language and keyboard layout during that process. For a pre-loaded Linux OS, similar choices can be made during the "firstboot" process. In some cases, extra font packages may be available.

footnote 2 - Hardware RAID is supported using the LSI 2308 SAS (RAID 0/1/1e SATA & SAS) and the LSI 9270-8i (RAID 0/1/5/6/10 SATA & SAS). SATA RAID is supported on sSATA ports(0/1/5/10 SATA only).

footnote 3 - In general, single drives or volumes larger than 2.2 TB can only be fully accessed using GPT formatting. OSes listed can format GPT for the boot drive or volume but may require installation of UEFI boot support, and can access GPT-formatted data volumes.

footnote 4 - The Z Turbo Drive PCIe-attached storage device has its own controller and is supported by the standard ahci kernel module in supported OSes. Z Turbo Drive G2 is an NVME device and is supported by the kernel NVME module. Z Turbo QuadPro is an enclosure for several NVME devices. Updates are needed for SLED11 SP4 and SLED12 SP1 to operate with these NVME devices. Other NVME storage devices have similar requirements.

footnote 5 - Linux growisofs supports DVD+RW and Blu-ray media on the listed OSes.

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hp.com>.

footnote 7 - SLED 11/SP3 requires an update kernel to operate this on-board network interface properly. Please check with SuSE support for the appropriate update.

footnote 8 - The NVIDIA K40 is a GPU-compute device without graphics. The base OS will more or less ignore it. To make use of this device, the proprietary driver must be installed. The minimum driver version for support of K40 is 319.72.

footnote 9 - HP recommends the following minimum NVIDIA driver versions for M6000 12GB (346.47); M6000 24GB (361.28); M4000 and M5000 (352.41); M2000 (361.45.11); P2000, P4000, and GP100 (375.39); and P5000 and P6000 (367.57).

footnote 10 - As of this edition of the table, only a few enterprise distributions have support for the Intel 8260 WLAN/BT combo device. Look for updates from the distributors.

footnote 11 - AMD Radeon Pro graphics cards are supported by the newer amdppu-pro vendor driver. OS streams are supported at specific release version levels, starting with these: SLED 12 SP2; RHEL 6.8; RHEL 7.3; Ubuntu 14.04.5; Ubuntu 16.04.1. There is no amdppu-pro driver for SLED 11.

footnote 12 - Correct operation with the "Broadwell" family of processors may require a later release of OS stream than the "Haswell" family. The following OS releases are known to be capable: SLED11 SP4, SLED12 SP1, RHEL 6.8, RHEL 7.2.

footnote 13 - Get the latest drivers: "HP Installer Kit for Linux - HP Driver CD (or DVD) for Linux-distribution-name" ISO images from <http://www.hp.com/support/z840>. Under Download options, select Get drivers, software & firmware. HP Workstations can be ordered with a variety of localization options that may vary by platform. The default in-box graphics drivers (e.g., nouveau and radeon) may not always handle newer graphics cards correctly. In some cases, even OS installation must be done using a "basic mode" or by specifying a frame-buffer driver (e.g., "xdriver=fbdev").

footnote 14 - Issues have been observed with several distributions during system boot with 1TB of RAM. Often these seem to be associated with the in-box mode-setting graphics drivers (nouveau and radeon). Mode-setting can be prevented by adding nomodeset to the kernel boot parameters.

footnote 15 - For more info about Linux driver support for HP printers, go to <http://www.hp.com>.

footnote 16 - As of this edition of the table, only a few enterprise distributions have support for the Intel 8260 WLAN/BT combo device. Look for updates from the distributors.

**Linux Hardware Matrix for HP Workstations**

**HP Z420 Workstation**

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box or unlisted means the component is NOT functional w/ as-is OS)	RHEL DT 5.8 or later (x86_64)	RHEL WS 6.2 or later (x86_64)	SLED11 SP2 or later (x86_64)	RHEL 7.0 or later (x86_64)	Ubuntu 14.04 LTS or later (x86_64)
<b>HP Workstation Base System</b>					
Base system includes: Chassis, System Board, USB, Power Supply, etc.	•	•	•	•	•
Localization Kit (see footnote 1)	•	•	•	•	•
HP Localization Kit	•	•	•	•	•
<b>Software</b>					
Remote Graphics Software					
<b>All Supported Processors</b>					
All Supported Processors	9	9	•	•	•
Hyperthreading	•	•	•	•	•
<b>Firmware Features</b>					
CSM (Compatibility Support Module) Mode	•	•	•	•	•
2.1 UEFI Mode		•			
Intel AMT remote manageability					
<b>Graphics Card (Video Card)</b>					
No Graphics Card	•	•	•	•	•
NVIDIA NVS 300	•	•	•	•	•
NVIDIA NVS 310	•	•	•	•	•
NVIDIA NVS 315	•	•	•	•	•
NVIDIA Quadro 410	•	•	•	•	•
NVIDIA Quadro NVS 450	•	•	•	•	•
NVIDIA NVS 510	•	•	•	•	•
NVIDIA Quadro 600	•	•	•	•	•
NVIDIA Quadro 2000	•	•	•	•	•
NVIDIA Quadro 4000	•	•	•	•	•
NVIDIA Quadro 5000	•	•	•	•	•
NVIDIA Quadro 6000	•	•	•	•	•
NVIDIA Tesla C2075	•	•	•	•	•
NVIDIA Quadro K600	•	•	•	•	•
NVIDIA Quadro K2000	•	•	•	•	•
NVIDIA Quadro K4000	•	•	•	•	•
NVIDIA Quadro K5000	•	•	•	•	•
NVIDIA Quadro K6000	•	•	•	•	•
NVIDIA Tesla K20C	10	10	10	10	10
NVIDIA Tesla K40	10	10	10	10	10
AMD 2270 PCIe	•	•	•	•	•
AMD v3800 PCIe	•	•	•	•	•
AMD v4800 PCIe	•	•	•	•	•
AMD v5800 PCIe	•	•	•	•	•
AMD v7900 PCIe	•	•	•	•	•
AMD w7000	•	•	•	•	•
<b>System RAM</b>					
Minimum (GB)	2GB	2GB	2GB	2GB	2GB
Maximum (GB)	64GB	64GB	64GB	64GB	64GB
<b>Hard Disks</b>					
All Supported SAS Disk Drives	5	5	5	5	5
All Supported SSD Disk Drives	•	•	•	•	•
All Supported SATA Disk Drives less than 3TB	•	•	•	•	•
All Supported SATA Disk Drives 3TB and larger	7	7	7	7	7
All Supported USB Drive Keys	•	•	•	•	•
Z Turbo Drive PCIe-attached storage	13	13	13	13	13
<b>Network Cards (no modem support)</b>					
Broadcom 5761 PCIe	•	•	•	•	•
Intel Pro 1000 CT Gigabit PCI	•	•	•	•	•
HP NC 360T and 361T PCIe Dual Port Gigabit NIC	2	2	2	2	2
HP X520 10GbE Dual Port Adapter (and SFP+ SR Transceiver)	•	•	•	•	•
Intel i210-T1 GbE PCIe NIC	•	•	•	•	•
Wireless Intel 6205 or 7260 802.110 a/b/g/n PCIe1 NIC	•	•	•	•	•
<b>Onboard Components</b>					
Onboard LAN - Intel 52579LM Gigabit	•	•	•	•	•
Onboard SATA RAID	5	5	5	5	5
Onboard SAS RAID	5	5	5	5	5
USB 3.0 Support	8	•	•	•	•
<b>Add Ons</b>					
IEEE 1394B PCI-E Card	•	•	•	•	•
LSI 9212-4i and LSI 9217-4i4e	5	5	5	5	5
LSI 9260-8i and 9270-8i	2	2	2	2	2
Fusion ioFX 410GB PCIe Accelerator	12	12	12	12	12
Thunderbolt™ PCI-E Card (see footnote 11)					
<b>Removable CD/DVD Media</b>					
HP 16x DVD-ROM Drive	•	•	•	•	•
HP 16x Super Multi DVD+RW	4	4	4	4	4
HP BD-RE (Blu-Ray writer)	•	•	•	•	•
<b>Input/Output Devices (no spaceball support)</b>					
HP 3-Button Mouse, PS/2	•	•	•	•	•
HP Scroll Mouse, PS/2	•	•	•	•	•
HP Optical Scroll Mouse, USB	•	•	•	•	•
HP Standard Keyboard, USB/PS2	•	•	•	•	•
TPM Module/ Smart Card					
HP Media Card Reader	•	•	•	•	•
HP Printers	6	6	6	6	6
All Supported Monitors	•	•	•	•	•

footnote 1 - HP systems can usually be ordered with a localization that affects documentation, keyboards, and other components. Typical Linux distributions are not installed as pre-localized, but the user can choose a language and keyboard layout during post-installation configuration, or during the "first boot" when the OS comes preloaded on the system.

footnote 2 - May not be orderable integrated into systems. Order AMO (After Market Option) kit if that is the case.

footnote 3 - Get the latest drivers, "HP Installer Kit for Linux - HP Driver CD (or DVD) for Linux-distribution-name" ISO images from <http://www.hp.com/support/z420>. Under **Download options**, select **Get drivers, software & firmware**. Under **Download options**, select **Get drivers, software & firmware**. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 4 - Linux growisofs supports DVD+RW and Blu-ray media on the listed OSes. For drives that have the Lightscribe functionality, go to [www.lightscribe.com](http://www.lightscribe.com) for software to enable the labeling feature.

footnote 5 - Hardware RAID is supported using the LSI 9212-4i and 9217-4i4e (RAID 0, 1, 10 SATA & SAS), and for the LSI 9260-8i and 9270-8i (RAID 0, 1, 5, 10 SATA & SAS). SATA RAID is now supported on AHCI ports (0,1,5,10) and SCU ports (0,1,5,10).

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hpilp.net>.

footnote 7 - In general, single drives or volumes larger than 2.2TB can only be fully accessed using GPT formatting. New Linux OSes can format GPT for the boot drive or volume but may require installation of UEFI boot support. OSes listed can all access GPT-formatted volumes.

footnote 8 - USB 3.0 ports are completely non-functional under RHEL 5 due to absence of a driver for the port controller.

footnote 9 - This platform was originally certified with Intel "Sandy Bridge" CPUs. The minimum versions of RHEL needed to use Intel "Ivy Bridge" CPUs are RHEL 5.9 and RHEL 6.4.

footnote 10 - The NVIDIA K20C and K40 are GPU-compute devices without graphics. The base OS will more or less ignore them. To make use of these devices, the proprietary driver must be installed. The minimum driver version for support of K40 is 319.72.

footnote 11 - Newer Linux kernels may provide device functionality through the Thunderbolt module. Such kernels are likely to be available in leading-edge distributions, but inclusion of the support with any Enterprise Linux distribution is at the distributor's discretion. For example, neither SLED 11 SP3 nor RHEL 6.5 incorporates significant Thunderbolt support.

footnote 12 - The Fusion ioFX device requires proprietary kernel module and utilities not included in any open-source Linux distribution. Customers who order the device from HP are entitled to downloads using their device serial number. Go to [support.fusionio.com](http://support.fusionio.com) to get started. Not all distributions are supported.

footnote 13 - The Z Turbo Drive PCIe-attached storage device has its own controller and is supported by the standard ahci kernel module in supported OSes.

**Linux Hardware Matrix for HP Workstations**

**HP Z620 Workstation**

*This page is not complete without the General Notes (first page of the matrix).*

<b>Product Items/Features</b> (Blank box or unlisted means the component is NOT functional w/ as-is OS)	<b>RHEL DT 5.8 or later (x86_64)</b>	<b>RHEL WS 6.2 or later (x86_64)</b>	<b>SLED11 SP2 or later (x86_64)</b>	<b>RHEL 7.0 or later (x86_64)</b>	<b>Ubuntu 14.04 LTS or later (x86_64)</b>
<b>HP Workstation Base System</b>					
Base system includes: Chassis, System Board, USB, Power Supply, etc.	•	•	•	•	•
Localization Kit (see footnote 1)	•	•	•	•	•
HP Localization Kit	•	•	•	•	•
<b>Software</b>					
Remote Graphics Software					
<b>All Supported Processors</b>					
All Supported Processors (1 & 2 CPU configs)	9	9	•	•	•
Hyperthreading	•	•	•	•	•
<b>Firmware Features</b>					
CSM (Compatibility Support Module) Mode	•	•	•	•	•
2.1 UEFI Mode	•	•	•	•	•
Intel AMT remote manageability					
<b>Graphics Card (Video Card)</b>					
No Graphics Card	•	•	•	•	•
NVIDIA NVS 300	•	•	•	•	•
NVIDIA NVS 310	•	•	•	•	•
NVIDIA NVS 315	•	•	•	•	•
NVIDIA Quadro 410	•	•	•	•	•
NVIDIA Quadro NVS 450	•	•	•	•	•
NVIDIA NVS 510	•	•	•	•	•
NVIDIA Quadro 600	•	•	•	•	•
NVIDIA Quadro 2000	•	•	•	•	•
NVIDIA Quadro 4000	•	•	•	•	•
NVIDIA Quadro 5000	•	•	•	•	•
NVIDIA Quadro 6000	•	•	•	•	•
NVIDIA Tesla C2075	•	•	•	•	•
NVIDIA Quadro K600	•	•	•	•	•
NVIDIA Quadro K2000	•	•	•	•	•
NVIDIA Quadro K4000	•	•	•	•	•
NVIDIA Quadro K5000	•	•	•	•	•
NVIDIA Quadro K6000	•	•	•	•	•
NVIDIA Tesla K20C	10	10	10	10	10
NVIDIA Tesla K40	10	10	10	10	10
AMD 2270 PCIe	•	•	•	•	•
AMD v3900 PCIe	•	•	•	•	•
AMD v4900 PCIe	•	•	•	•	•
AMD v5900 PCIe	•	•	•	•	•
AMD v7900 PCIe	•	•	•	•	•
AMD w7000	•	•	•	•	•
<b>System RAM</b>					
Minimum (GB)	2GB	2GB	2GB	2GB	2GB
Maximum (GB)	96GB	96GB	96GB	96GB	96GB
<b>Hard Disks</b>					
All Supported SAS Disk Drives	5	5	5	5	5
All Supported SSD Disk Drives	•	•	•	•	•
All Supported SATA Disk Drives less than 3TB	•	•	•	•	•
All Supported SATA Disk Drives 3TB and larger	7	7	7	7	7
All Supported USB Drive Keys	•	•	•	•	•
Z Turbo Drive PCIe-attached storage	13	13	13	13	13
<b>Network Cards (no modem support)</b>					
Broadcom 5761 PCIe	•	•	•	•	•
Intel Pro 1000 CT Gigabit PCI	•	•	•	•	•
HP NC350T and 361T PCIe Dual Port Gigabit NIC	2	2	2	2	2
HP X520 10GbE Dual Port Adapter (and SFP+ SR Transceiver)	•	•	•	•	•
Intel i210-T1 GbE PCIe NIC	•	•	•	•	•
Wireless Intel 6205 or 7260 802.110 a/b/g/n PCIe x1 NIC	•	•	•	•	•
<b>Onboard Components</b>					
Onboard LAN - Intel 52574L Gigabit	•	•	•	•	•
Onboard LAN - Intel 52579LM Gigabit	•	•	•	•	•
Onboard Audio	•	•	•	•	•
Onboard SATA RAID	5	5	5	5	5
TPM Module/ Smart Card					
USB 3.0 support	8	•	•	•	•
<b>Add Ons</b>					
IEEE 1394B PCI-E Card	•	•	•	•	•
LSI 9212-4i and LSI 9217-4i4e	5	5	5	5	5
LSI 9260-8i and 9270-8i	2	2	2	2	2
Fusion ioFX 410GB PCIe Accelerator	12	12	12	12	12
Thunderbolt™ PCI-E Card (see footnote 11)					
<b>Removable CD/DVD Media</b>					
HP 16x DVD-ROM Drive	•	•	•	•	•
HP 16x Super Multi DVD+RW Drive	4	4	4	4	4
HP Slot Load DVD +/-RW Drive	4	4	4	4	4
HP BD-RE (Blu-Ray writer)	•	•	•	•	•
<b>Input/Output Devices (no spaceball support)</b>					
HP 3-Button Mouse, PS/2	•	•	•	•	•
HP Scroll Mouse, PS/2	•	•	•	•	•
HP Optical Scroll Mouse, USB	•	•	•	•	•
HP Standard Keyboard, USB/PS2	•	•	•	•	•
TPM Module/ Smart Card					
HP Media Card Reader	•	•	•	•	•
HP Printers	6	6	6	6	6
All Supported Monitors	•	•	•	•	•

footnote 1 - HP systems can usually be ordered with a localization that affects documentation, keyboards, and other components. Typical Linux distributions are not installed as pre-localized, but the user can choose a language and keyboard layout during post-installation configuration, or during the "first boot" when the OS comes preloaded on the system.

footnote 2 - May not be orderable integrated into systems. Order AMO (After Market Option) kit if that is the case.

footnote 3 - Get the latest drivers, "HP Installer Kit for Linux - HP Driver CD (or DVD) for Linux-distribution-name" ISO images from <http://www.hp.com/support/z620>. Under **Download options**, select **Get drivers, software & firmware**. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 4 - Linux growisofs supports DVD+RW and Blu-ray media on the listed OSes. For drives that have the Lightscribe functionality, go to [www.lightscribe.com](http://www.lightscribe.com) for software to enable the labeling feature.

footnote 5 - Hardware RAID is supported using the LSI 9212-4i and 9217-4i4e (RAID 0, 1, 10 SATA & SAS), and for the LSI 9260-8i and 9270-8i (RAID 0, 1, 5 SATA & SAS). SATA RAID is now supported on AHCI ports(0,1,5,10) and SCU ports(0,1,5,10).

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hpip.net>.

footnote 7 - In general, single drives or volumes larger than 2.2TB can only be fully accessed using GPT formatting. Newer Linux OSes can format GPT for the boot drive or volume but may require installation of UEFI boot support. OSes listed can all access GPT-formatted volumes.

footnote 8 - USB 3.0 ports are completely non-functional under RHEL 5 due to absence of a driver for the port controller.

footnote 9 - This platform was originally certified with Intel "Sandy Bridge" CPUs. The minimum versions of RHEL needed to use Intel "Ivy Bridge" CPUs are RHEL 5.9 and RHEL 6.4.

footnote 10 - The NVIDIA K20C and K40 are GPU-compute devices without graphics. The base OS will more or less ignore them. To make use of these devices, the proprietary driver must be installed. The minimum driver version for support of K40 is 319.72.

footnote 11 - Newer Linux kernels may provide device functionality through the Thunderbolt module. Such kernels are likely to be available in leading-edge distributions, but inclusion of the support with any Enterprise Linux distribution is at the distributor's discretion. For example, neither SLED 11 SP3 nor RHEL 6.5 incorporates significant Thunderbolt support.

footnote 12 - The Fusion ioFX device requires proprietary kernel module and utilities not included in any open-source Linux distribution. Customers who order the device from HP are entitled to downloads using their device serial number. Go to [support.fusionio.com](http://support.fusionio.com) to get started. Not all distributions are supported.

footnote 13 - The Z Turbo Drive PCIe-attached storage device has its own controller and is supported by the standard ahci kernel module in supported OSes.

**Linux Hardware Matrix for HP Workstations**

**HP Z820 Workstation**

*This page is not complete without the General Notes (first page of the matrix).*

<b>Product Items/Features</b> (Blank box or unlisted means the component is NOT functional w/ as-is OS)	<b>RHEL DT 5.8 or later</b> (x86_64)	<b>RHEL WS 6.2 or later</b> (x86_64)	<b>SLED11 SP2 or later</b> (x86_64)	<b>RHEL 7.0 or later</b> (x86_64)	<b>Ubuntu 14.04 LTS or later</b> (x86_64)
<b>HP Workstation Base System</b>					
Base system includes: Chassis, System Board, USB, Power Supply, etc.	*	*	*	*	*
Localization Kit (see footnote 1)	*	*	*	*	*
HP Localization Kit	*	*	*	*	*
<b>Software</b>					
Remote Graphics Software					
<b>All Supported Processors</b>					
All Supported Processors (1 & 2 CPU configs)	9	9	*	*	*
Hyperthreading	*	*	*	*	*
<b>Firmware features</b>					
CSM (Compatibility Support Module) Mode	*	*	*	*	*
2.1 UEFI Mode	*	*	*	*	*
Intel AMT remote manageability					
<b>Graphics Card (Video Card)</b>					
No Graphics Card	*	*	*	*	*
NVIDIA NVS 300	*	*	*	*	*
NVIDIA NVS 310	*	*	*	*	*
NVIDIA NVS 315	*	*	*	*	*
NVIDIA Quadro 410	*	*	*	*	*
NVIDIA Quadro NVS 450	2	2	2	2	2
NVIDIA NVS 510	*	*	*	*	*
NVIDIA Quadro 600	*	*	*	*	*
NVIDIA Quadro 2000	*	*	*	*	*
NVIDIA Quadro 4000	*	*	*	*	*
NVIDIA Quadro 5000	*	*	*	*	*
NVIDIA Quadro 6000	*	*	*	*	*
NVIDIA Tesla K20S	*	*	*	*	*
NVIDIA Quadro K600	*	*	*	*	*
NVIDIA Quadro K2000	*	*	*	*	*
NVIDIA Quadro K4000	*	*	*	*	*
NVIDIA Quadro K5000	*	*	*	*	*
NVIDIA Quadro K6000	*	*	*	*	*
NVIDIA Tesla K20C	10	10	10	10	10
NVIDIA Tesla K40	10	10	10	10	10
AMD 2270 PCIe	*	*	*	*	*
AMD v3900 PCIe	*	*	*	*	*
AMD v4900 PCIe	*	*	*	*	*
AMD v5900 PCIe	*	*	*	*	*
AMD v7900 PCIe	*	*	*	*	*
AMD w7000	*	*	*	*	*
<b>System RAM</b>					
Minimum (GB)	2GB	2GB	2GB	2GB	2GB
Maximum (GB)	512GB	512GB	512GB	512GB	512GB
<b>Hard Disks</b>					
All Supported SAS Disk Drives	*	*	*	*	*
All Supported SSD Disk Drives	*	*	*	*	*
All Supported SATA Disk Drives less than 3TB	*	*	*	*	*
Support SATA Disk Drives 3TB and larger	7	7	7	7	7
All Supported USB Drive Keys	*	*	*	*	*
Z Turbo Drive PCIe-attached storage	13	13	13	13	13
<b>Network Cards (no modem support)</b>					
Broadcom 5761 PCIe	*	*	*	*	*
Intel Pro 1000 CT Gigabit PCI	*	*	*	*	*
HP NC360T and 361T PCIe Dual Port Gigabit NIC	2	2	2	2	2
HP X520 10GbE Dual Port Adapter (and SFP+ SR Transceiver)	*	*	*	*	*
Intel i210-T1 GbE PCIe NIC	*	*	*	*	*
Wireless Intel 6205 or 7260 802.110 a/b/g/n PCIe1 NIC	*	*	*	*	*
<b>Onboard Components</b>					
Onboard LAN - Intel 52574L Gigabit	*	*	*	*	*
Onboard LAN - Intel 52579LM Gigabit	*	*	*	*	*
Onboard Audio	*	*	*	*	*
Onboard SATA AHCI RAID	5	5	5	5	5
Onboard SCU RAID	5	5	5	5	5
Onboard SAS RAID	5	5	5	5	5
TPM Module/ Smart Card					
USB 3.0 support	8	*	*	*	*
<b>Add Ons</b>					
IEEE 1394B PCI-E Card	*	*	*	*	*
LSI 9260-8i and 9270-8i	5	5	5	5	5
Fusion ioFX 410GB PCIe Accelerator	12	12	12	12	12
Intel Xeon Phi 3120AIB Compute Processor	14	14	14	14	14
Thunderbolt™ PCI-E Card (see footnote 11)					
<b>Removable CD/DVD Media</b>					
HP 16x DVD-ROM Drive	*	*	*	*	*
HP 16x Super Multi DVD+RW	4	4	4	4	4
HP Slot Load DVD +/-RW Drive	*	*	*	*	*
HP BD-RE (Blu-Ray writer)	*	*	*	*	*
<b>Input/Output Devices (no spaceball support)</b>					
HP 3-Button Mouse, PS/2	*	*	*	*	*
HP Scroll Mouse, PS/2	*	*	*	*	*
HP Optical Scroll Mouse, USB	*	*	*	*	*
HP Standard Keyboard, USB/PS2	*	*	*	*	*
HP Media Card Reader	*	*	*	*	*
HP Printers	6	6	6	6	6
All Supported Monitors	*	*	*	*	*

footnote 1 - HP systems can usually be ordered with a localization that affects documentation, keyboards, and other components. Typical Linux distributions are not installed as pre-localized, but the user can choose a language and keyboard layout during post-installation configuration, or during the "first boot" when the OS comes preloaded on the system.

footnote 2 - Not orderable integrated into systems. Order AMO (After Market Option) kit.

footnote 3 - Get the latest drivers, "HP Installer Kit for Linux - HP Driver CD (or DVD) for *linux-distribution-name*" ISO images from <http://www.hp.com/support/z820>. Under **Download options**, select **Get drivers, software & firmware**. HP Workstations can be ordered with a variety of platform.

footnote 4 - Linux growisofs supports DVD+RW and Blu-ray media on the listed OSes. For drives that have the Lightscribe functionality, go to [www.lightscribe.com](http://www.lightscribe.com) for software to enable the labeling feature.

footnote 5 - Hardware RAID is supported using the LSI 9212-4i and 9217-4i4e (RAID 0, 1, 10 SATA & SAS), and for the LSI 9260-8i and 9270-8i (RAID 0, 1, 5 SATA & SAS), and on-board LSI 2308 (RAID 0, 1, 10 SATA & SAS). SATA RAID is now supported on AHCI ports (0, 1) and SCU ports (0, 1, 5, 10).

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hpilp.net>.

footnote 7 - In general, single drives or volumes larger than 2.2 TB can only be fully accessed using GPT formatting. Newer Linux OSes can format GPT for the boot drive or volume but may require UEFI boot support. OSes listed can all access GPT-formatted data volumes.

footnote 8 - USB 3.0 ports are completely non-functional under RHEL 5 due to absence of a driver for the port controller.

footnote 9 - This platform was originally certified with Intel "Sandy Bridge" CPUs. The minimum versions of RHEL needed to use Intel "Ivy Bridge" CPUs are RHEL 5.9 and RHEL 6.4.

footnote 10 - The NVIDIA K20C and K40 are GPU-compute devices without graphics. The base OS will more or less ignore them. To make use of these devices, the proprietary driver must be installed. The minimum driver version for support of K40 is 319.72.

footnote 11 - Newer Linux kernels may provide device functionality through the Thunderbolt module. Such kernels are likely to be available in leading-edge distributions, but inclusion of the support with any Enterprise Linux distribution is at the distributor's discretion. For example, neither SLED 11 SP3 nor RHEL 6.5 incorporates significant Thunderbolt support.

footnote 12 - The Fusion ioFX device requires proprietary kernel module and utilities not included in any open-source Linux distribution. Customers who order the device from HP are entitled to downloads using their device serial number. Go to [support.fusionio.com](http://support.fusionio.com) to get started. Not all distributions are supported.

footnote 13 - The Z Turbo Drive PCIe-attached storage device has its own controller and is supported by the standard ahci kernel module in supported OSes.

footnote 14 - The Intel Xeon Phi coprocessor is available as an after-market accessory only. There is no in-box support in typical Linux distributions. Software must be obtained from Intel's site: <https://software.intel.com/en-us/mic-developer>. You can find more information on the HP Support Page for this platform under the RHEL 6 or SLED 11 OSes. Look for the item entitled "Linux Driver Quick Start Guide for Intel Phi Coprocessors on HP Workstations."

## Linux Hardware Matrix for HP Workstations

### HP Z200 SFF Workstation

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box or unlisted -> component is NOT functional w/ as-is OS)	RHEL DT 5.5 or later (x86 & x86_64)	RHEL WS 6.0 or later (x86 & x86_64)	SLED11 or later (x86_64)
<b>HP Workstation Base System</b>			
Base system includes: Chassis, System Board, USB, Power Supply, etc.	•	•	•
Localization Kit (see footnote 1)			
HP Localization Kit	•	•	•
<b>Software</b>			
Remote Graphics Software			
<b>All Supported Processors</b>			
All Supported Processors (1 CPU configs)	•	•	•
Hyperthreading	•	•	•
<b>Graphics Card (Video Card) (see footnote 2)</b>			
No Graphics Card	•	•	•
Intel Onboard Graphics	VESA Driver Only	Intel Driver Only	Intel Driver Only
NVIDIA Quadro NVS 295	•	•	•
NVIDIA Quadro NVS 300	•	•	•
NVIDIA Quadro FX380 LP (Low Profile)	•	•	•
NVIDIA Quadro Q600	•	•	•
ATI v3800 PCIe - Single Card Supported	•	•	•
<b>System RAM</b>			
Minimum (GB)	1GB	1GB	1GB
Maximum (GB)	16GB	16GB	16GB
<b>Hard Disks</b>			
All Supported SAS Disk Drives			
All Supported SSD Disk Drives	•	•	•
All Supported SATA Disk Drives	•	•	•
All Supported USB Drive Keys	•	•	•
<b>Network Cards (no modem support)</b>			
Intel Pro 1000 CT Gigabit PCI	•	•	•
Broadcom 5761 PCIe	•	•	•
<b>Onboard Components</b>			
Onboard LAN - Intel 82578DM Gigabit Ethernet	•	•	•
Onboard Audio	•	•	•
Onboard SATA RAID	4	4	4
<b>Add Ons</b>			
IEEE 1394A PCI Card		•	•
IEEE 1394A PCI-E Card		•	•
IEEE 1394B PCI-E Card		•	•
SATA Controllers	5	5	5
Creative Sound Blaster X-Fi	•	•	•
<b>Removable CD/DVD Media</b>			
HP 16x DVD-ROM Drive	•	•	•
HP 16x Super Multi DVD+RW	3	3	3
HP BD-RE (writer)	•	•	•
<b>Input/Output Devices (no spaceball support)</b>			
HP 3-Button Mouse, PS/2	•	•	•
HP Scroll Mouse, PS/2	•	•	•
HP Optical Scroll Mouse, USB	•	•	•
HP Standard Keyboard, USB/PS2	•	•	•
TPM Module/ Smart Card			
22 in 1 Card Reader	•	•	•
HP Printers	6	6	6
All Supported Monitors	•	•	•

footnote 1 - HP systems can usually be ordered with a localization that affects documentation, keyboards, and other components. Typical Linux distributions are not installed as pre-localized, but the user can choose a language and keyboard layout during post-installation configuration, or during the "first boot" when the OS comes preloaded on the system.

footnote 2 - Get the latest drivers, "HP Installer Kit for Linux - HP Driver CD for Red Hat Enterprise Linux 5.4", and "HP Installer Kit for Linux - HP Driver CD for SuSE Linux Enterprise Desktop 11" ISO images from <http://www.hp.com/support/z200SFF>. Under **Download options**, select **Get drivers, software & firmware**.

footnote 3 - Linux growisofs supports DVD+RW and Blu-ray media on Red Hat EL 5 Desktop or later and SLED11 or later. For drives that have the Lightscribe functionality, go to [www.lightscribe.com](http://www.lightscribe.com) for software to enable the labeling feature.

footnote 4 - Hardware RAID is not supported on SATA drives.

footnote 5 - The Z200 SFF can support up to 2 SATA drives.

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hpclip.net>.

footnote 7 - Hyperthreading is supported on all platforms when the processor allows it.

**Linux Hardware Matrix for HP Workstations**

**HP Z200 CMT Workstation**

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box or unlisted -> component is NOT functional w/ as-is OS)	RHEL DT 5.4 or later (x86 & x86_64)	RHEL WS 6.0 or later (x86 & x86_64)	SLED11 or later (x86_64)
<b>HP Workstation Base System</b>			
Base system includes: Chassis, System Board, USB, Power Supply, etc.	•	•	•
Localization Kit (see footnote 1)			
HP Localization Kit	•	•	•
<b>Software</b>			
Remote Graphics Software			
<b>All Supported Processors</b>			
All Supported Processors (1 CPU configs)	•	•	•
Hyperthreading	•	•	•
<b>Graphics Card (Video Card) (see footnote 2)</b>			
No Graphics Card	•	•	•
Intel Onboard Graphics	VESA Driver Only	Intel Driver Only	Intel Driver Only
NVIDIA Quadro NVS 295	•	•	•
NVIDIA Quadro NVS 300	•	•	•
NVIDIA Quadro FX380	•	•	•
NVIDIA Quadro FX580	•	•	•
NVIDIA Quadro Q600	•	•	•
NVIDIA Quadro FX1800	•	•	•
NVIDIA Quadro Q2000	•	•	•
NVIDIA Quadro FX3800			
ATI v3700 PCIe - Single Card Supported	•	•	•
ATI v5700 PCIe - Single Card Supported	•	•	•
ATI v7750 PCIe - Single Card Supported			
ATI v3800 PCIe - Single Card Supported	•	•	•
ATI v4800 PCIe - Single Card Supported	•	•	•
ATI v5800 PCIe - Single Card Supported	•	•	•
<b>System RAM</b>			
Minimum (GB)	1GB	1GB	1GB
Maximum (GB)	16GB	16GB	16GB
<b>Hard Disks</b>			
All Supported SAS Disk Drives			
All Supported SSD Disk Drives	•	•	•
All Supported SATA Disk Drives	•	•	•
All Supported USB Drive Keys	•	•	•
<b>Network Cards (no modem support)</b>			
Intel Pro 1000 CT Gigabit PCI	•	•	•
Broadcom 5761 PCIe	•	•	•
<b>Onboard Components</b>			
Onboard LAN - Intel 82578DM Gigabit Ethernet	•	•	•
Onboard Audio	•	•	•
Onboard SATA RAID	4	4	4
<b>Add Ons</b>			
IEEE 1394A PCI Card		•	•
IEEE 1394A PCI-E Card		•	•
IEEE 1394B PCI-E Card		•	•
SATA Controllers	5	5	5
Creative Sound Blaster X-Fi	•	•	•
<b>Removable CD/DVD Media</b>			
HP 16x DVD-ROM Drive	•	•	•
HP 16x Super Multi DVD+RW	3	3	3
HP BD-RE (writer)	•	•	•
<b>Input/Output Devices (no spaceball support)</b>			
HP 3-Button Mouse, PS/2	•	•	•
HP Scroll Mouse, PS/2	•	•	•
HP Optical Scroll Mouse, USB	•	•	•
HP Standard Keyboard, USB/PS2	•	•	•
TPM Module/ Smart Card			
22 in 1 Card Reader	•	•	•
HP Printers	6	6	6
All Supported Monitors	•	•	•

footnote 1 - HP systems can usually be ordered with a localization that affects documentation, keyboards, and other components. Typical Linux distributions are not installed as pre-localized, but the user can choose a language and keyboard layout during post-installation configuration, or during the "first boot" when the OS comes preloaded on the system.

footnote 2 - Get the latest drivers, "HP Installer Kit for Linux - HP Driver CD for Red Hat Enterprise Linux 5.4", and "HP Installer Kit for Linux - HP Driver CD for SUSE Linux Enterprise Desktop 11" ISO images from <http://www.hp.com/support/z200>. Under Download options, select Get drivers, software & firmware.

footnote 3 - Linux growisofs supports DVD+RW and Blu-ray media on Red Hat EL 5 Desktop or later and SLED11 or later. For drives that have the Lightscribe functionality, go to [www.lightscribe.com](http://www.lightscribe.com) for software to enable the labeling feature.

footnote 4 - Hardware RAID is not supported on SATA drives.

footnote 5 - The Z200 can support up to 3 SATA drives.

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hplip.net>.

footnote 7 - Hyperthreading is supported on all platforms when the processor allows it.

**Linux Hardware Matrix for HP Workstations**

**HP Z210 SFF Workstation**

*This page is not complete without the General Notes (first page of the matrix).*

<b>Product Items/Features</b> (Blank box or unlisted means the component is NOT functional w/ as-is OS)	<b>RHEL DT 5.6 or later (x86 &amp; x86_64)</b>	<b>RHEL WS 6.0 or later (x86 &amp; x86_64)</b>	<b>SLED11 SP1 or later (x86_64)</b>
<b>HP Workstation Base System</b>			
Base system includes: Chassis, System Board, USB, Power Supply, etc.	•	•	•
Localization Kit (see footnote 1)			
HP Localization Kit	•	•	•
<b>Software</b>			
Remote Graphics Software			
<b>All Supported Processors</b>			
All Supported Processors (1 CPU configs)	•	•	•
Hyperthreading	•	•	•
<b>Graphics Card (Video Card) (see footnote 2)</b>			
No Graphics Card	•	•	•
Intel Onboard Graphics	VESA Driver Only	Intel Driver Only	Intel Driver Only
NVIDIA Quadro NVS 295	•	•	•
NVIDIA Quadro NVS 300	•	•	•
NVIDIA Quadro Q400	•	•	•
NVIDIA Quadro Q600	•	•	•
ATI v2270 PCIe - Single Card Supported	•	•	•
ATI v3800 PCIe - Single Card Supported	•	•	•
<b>System RAM</b>			
Minimum (GB)	1GB	1GB	1GB
Maximum (GB)	16GB	16GB	16GB
<b>Hard Disks</b>			
All Supported SAS Disk Drives			
All Supported SSD Disk Drives	•	•	•
All Supported SATA Disk Drives	•	•	•
All Supported USB Drive Keys	•	•	•
<b>Network Cards (no modem support)</b>			
Intel Pro 1000 CT Gigabit PCI	•	•	•
Broadcom 5761 PCIe	•	•	•
<b>Onboard Components</b>			
Onboard LAN - Intel 82579LM Gigabit Ethernet	2	2	2
Onboard Audio	•	•	•
Onboard SATA RAID	4	4	4
<b>Add Ons</b>			
IEEE 1394A PCI Card		•	•
IEEE 1394A PCI-E Card		•	•
IEEE 1394B PCI-E Card		•	•
USB 3.0 PCI-E Card		•	•
SATA Controllers	5	5	5
Creative Sound Blaster X-Fi	•	•	•
<b>Removable CD/DVD Media</b>			
HP 16x DVD-ROM Drive	•	•	•
HP 16x Super Multi DVD+RW	3	3	3
HP BD-RE (writer)	•	•	•
<b>Input/Output Devices (no spaceball support)</b>			
HP 3-Button Mouse, PS/2	•	•	•
HP Scroll Mouse, PS/2	•	•	•
HP Optical Scroll Mouse, USB	•	•	•
HP Standard Keyboard, USB/PS2	•	•	•
TPM Module/ Smart Card			
Z2 in 1 Card Reader	•	•	•
HP Printers	6	6	6
All Supported Monitors	•	•	•

footnote 1 - Localization supported: (ABA US English, ABC French Canadian, ABD Germany, ABE Spain, ABF France, ABG Australia, ABU UK English, ABJ Japan, AB2 China (PRC), AB4 Singapore/ Malaysia, ABZ Italy, AB5 Hong Kong, ACF Japan-English, ACJ India-English, ABO Taiwan, AK6 Europe A4, ACO Belgium, ABS Sweden, ABB Int'l English).

footnote 2 - Get the latest drivers, "HP Installer Kit for Linux - HP Driver CD for Red Hat Enterprise Linux 5.4", and "HP Installer Kit for Linux - HP Driver CD for SuSE Linux Enterprise Desktop 11" ISO images from <http://www.hp.com/support/z210SFF>. Under **Download options**, select **Get drivers, software & firmware**.

footnote 3 - Linux growisofs supports DVD+RW and Blu-ray media on Red Hat EL 5 Desktop or later and SLED11 or later. For drives that have the Lightscribe functionality, go to [www.lightscribe.com](http://www.lightscribe.com) for software to enable the labeling feature.

footnote 4 - Hardware RAID is not supported on SATA drives.

footnote 5 - The Z210 SFF can support up to 2 SATA drives.

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hplip.net>.

footnote 7 - Hyperthreading is supported on all platforms when the processor allows it.



**Linux Hardware Matrix for HP Workstations**

**HP Z210 CMT Workstation**

*This page is not complete without the General Notes (first page of the matrix).*

<b>Product Items/Features</b> (Blank box or unlisted means the component is NOT functional w/ as-is OS)	<b>RHEL DT 5.6 or later</b> (x86 & x86_64)	<b>RHEL WS 6.0 or later</b> (x86 & x86_64)	<b>SLED11 SP1 or later</b> (x86_64)
<b>HP Workstation Base System</b>			
Base system includes: Chassis, System Board, USB, Power Supply, etc.	•	•	•
Localization Kit (see footnote 1)			
HP Localization Kit	•	•	•
<b>Software</b>			
Remote Graphics Software			
<b>All Supported Processors</b>			
All Supported Processors (1 CPU configs)	•	•	•
Hyperthreading	•	•	•
<b>Graphics Card (Video Card) (see footnote 2)</b>			
No Graphics Card	•	•	•
Intel Onboard Graphics	VESA Driver Only	Intel Driver Only	Intel Driver Only
NVIDIA Quadro NVS 295	•	•	•
NVIDIA Quadro NVS 300	•	•	•
NVIDIA Quadro Q400	•	•	•
NVIDIA Quadro Q600	•	•	•
NVIDIA Quadro Q2000	•	•	•
ATI v2270 PCIe - Single Card Supported	•	•	•
ATI v3800 PCIe - Single Card Supported	•	•	•
ATI v4800 PCIe - Single Card Supported	•	•	•
ATI v4900 PCIe - Single Card Supported	•	•	•
ATI v5800 PCIe - Single Card Supported	•	•	•
ATI v5900 PCIe - Single Card Supported	•	•	•
ATI v7900 PCIe - Single Card Supported	•	•	•
<b>System RAM</b>			
Minimum (GB)	1GB	1GB	1GB
Maximum (GB)	16GB	16GB	16GB
<b>Hard Disks</b>			
All Supported SAS Disk Drives			
All Supported SSD Disk Drives	•	•	•
All Supported SATA Disk Drives	•	•	•
All Supported USB Drive Keys	•	•	•
<b>Network Cards (no modem support)</b>			
Intel Pro 1000 CT Gigabit PCI	•	•	•
Broadcom 5761 PCIe	•	•	•
<b>Onboard Components</b>			
Onboard LAN - Intel 82579LM Gigabit Ethernet	2	2	2
Onboard Audio	•	•	•
Onboard SATA RAID	4	4	4
<b>Add Ons</b>			
IEEE 1394A PCI Card		•	•
IEEE 1394A PCI-E Card		•	•
IEEE 1394B PCI-E Card		•	•
USB 3.0 PCI-E Card		•	•
SATA Controllers	5	5	5
Creative Sound Blaster X-Fi	•	•	•
<b>Removable CD/DVD Media</b>			
HP 16x DVD-ROM Drive	•	•	•
HP 16x Super Multi DVD+RW	3	3	3
HP BD-RE (writer)	•	•	•
<b>Input/Output Devices (no spaceball support)</b>			
HP 3-Button Mouse, PS/2	•	•	•
HP Scroll Mouse, PS/2	•	•	•
HP Optical Scroll Mouse, USB	•	•	•
HP Standard Keyboard, USB/PS2	•	•	•
TPM Module/ Smart Card			
22 in 1 Card Reader	•	•	•
HP Printers	6	6	6
All Supported Monitors	•	•	•

footnote 1 - Localization supported: (ABA US English, ABC French Canadian, ABD Germany, ABE Spain, ABF France, ABG Australia, ABU UK English, ABJ Japan, AB2 China (PRC), AB4 Singapore/ Malaysia, ABZ Italy, ABS Hong Kong, ACF Japan-English, ACJ India-English, ABO Taiwan, AK6 Europe A4, ACO Belgium, ABS Sweden, ABB Int'l English).

footnote 2 - Get the latest drivers, "HP Installer Kit for Linux - HP Driver CD for Red Hat Enterprise Linux 5.4", and "HP Installer Kit for Linux - HP Driver CD for SuSE Linux Enterprise Desktop 11" ISO images from <http://www.hp.com/support/z210CMT>. Under **Download options**, select **Get drivers, software & firmware**.

footnote 3 - Linux growisofs supports DVD+RW and Blu-ray media on Red Hat EL 5 Desktop or later and SLED11 or later. For drives that have the Lightscribe functionality, go to [www.lightscribe.com](http://www.lightscribe.com) for software to enable the labeling feature.

footnote 4 - Hardware RAID is not supported on SATA drives.

footnote 5 - The Z210 CMT can support up to 2 SATA drives.

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hplip.net>.

footnote 7 - Hyperthreading is supported on all platforms when the processor allows it.

## Linux Hardware Matrix for HP Workstations

### HP Z220 SFF Workstation

Originally certified with RHEL 6.3 (x86\_64) and SLED 11 SP2 (x86\_64).  
Certified with RHEL 5.8 (x86\_64) in October 2012.

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box or unlisted means the component is NOT functional w/ as-is OS)	RHEL DT 5.8 or later (x86_64)	RHEL WS 6.3 or later (x86_64)	SLED11 SP2 or later (x86_64)
<b>HP Workstation Base System</b>			
Base system includes: Chassis, System Board, USB, Power Supply, etc.	•	•	•
Localization Kit (see footnote 1)			
HP Localization Kit	•	•	•
<b>Software</b>			
Remote Graphics Software			
<b>All Supported Processors</b>			
All Supported Processors (single-CPU configs)	•	•	•
Hyperthreading	•	•	•
<b>Firmware Features</b>			
CSM (Compatibility Support Module) Mode	•	•	•
2.1 UEFI Mode		•	•
Intel AMT remote manageability			
<b>Graphics Card (Video Card) (see footnote 2)</b>			
No Graphics Card	•	•	•
Intel Onboard Graphics	VESA Driver Only	8	8
NVIDIA NVS 300	•	•	•
NVIDIA NVS 310	•	•	•
NVIDIA Quadro 410	•	•	•
NVIDIA NVS 510	•	•	•
NVIDIA Quadro Q600	•	•	•
NVIDIA Quadro K600	•	•	•
AMD 2270	•	•	•
AMD v3900	•	•	•
<b>System RAM</b>			
Minimum (GB)	2GB	2GB	2GB
Maximum (GB)	32GB	32GB	32GB
<b>Hard Disks</b>			
SATA Controllers	5	5	5
All Supported SAS Disk Drives			
All Supported SSD Disk Drives	•	•	•
All Supported SATA Disk Drives	•	•	•
All Supported USB Drive Keys	•	•	•
<b>Network Cards (no modem support)</b>			
Intel GbE CT NIC	•	•	•
Broadcom NetXtreme PCIe	•	•	•
<b>Onboard Components</b>			
Onboard LAN - Intel 82579 Gigabit Ethernet	2	•	•
Onboard Audio	•	•	•
Onboard SATA RAID	4	4	4
Onboard USB 3.0		•	•
<b>Add Ons</b>			
IEEE 1394A and 1394B PCI-E Cards		•	•
USB 3.0 PCI-E Card		•	•
<b>Removable CD/DVD Media</b>			
HP 16x DVD-ROM Drive	•	•	•
HP 16x Super Multi DVD+RW	3	3	3
HP BD-RE (writer)	•	•	•
<b>Input/Output Devices (no spaceball support)</b>			
HP Mouse, PS/2 or USB	•	•	•
HP Optical Scroll Mouse, USB	•	•	•
HP Standard Keyboard, USB/PS2	•	•	•
TPM Module/ Smart Card			
22 in 1 Card Reader	•	•	•
HP Printers	6	6	6
All Supported Monitors	•	•	•

footnote 1 - HP systems can usually be ordered with a localization that affects documentation, keyboards, and other components. Typical Linux distributions are not installed as pre-localized, but the user can choose a language and keyboard layout during post-installation configuration, or during the "first boot" when the OS comes preloaded on the system.

footnote 2 - Get the latest drivers, "HP Installer Kit for Linux - HP Driver CD for Red Hat Enterprise Linux 5," "HP Installer Kit for Linux - HP Driver CD for Red Hat Enterprise Linux 6" and "HP Installer Kit for Linux - HP Driver CD for SUSE Linux Enterprise Desktop 11" ISO images from <http://www.hp.com/support/z220SFF>. Under **Download options**, select **Get drivers, software & firmware**.

footnote 3 - Linux growisofs supports DVD+RW and Blu-ray media on Red Hat EL 5 Desktop or later and SLED11 or later. For drives that have the Lightscribe functionality, go to [www.lightscribe.com](http://www.lightscribe.com) for software to enable the labeling feature.

footnote 4 - Hardware RAID is not supported on SATA drives.

footnote 5 - The Z220 SFF can support up to 2 SATA drives.

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hplip.net>.

footnote 7 - Hyperthreading is supported on all platforms when the processor allows it.

footnote 8 - Depending on the OS release, the kernel DRM and X.org "Intel" driver may not support the Intel graphics correctly.

**Linux Hardware Matrix for HP Workstations**

**HP Z220 CMT Workstation**

Originally certified with RHEL 6.3 (x86\_64) and SLED 11 SP2 (x86\_64).  
Certified with RHEL 5.8 (x86\_64) in October 2012.

*This page is not complete without the General Notes (first page of the matrix).*

Product Items/Features (Blank box or unlisted means the component is NOT functional w/ as-is OS)	RHEL DT 5.8 or later (x86_64)	RHEL WS 6.3 or later (x86_64)	SLED11 SP2 or later (x86_64)
<b>HP Workstation Base System</b>			
Base system includes: Chassis, System Board, USB, Power Supply, etc.	•	•	•
Localization Kit (see footnote 1)			
HP Localization Kit	•	•	•
<b>Software</b>			
Remote Graphics Software			
<b>All Supported Processors</b>			
All Supported Processors (single-CPU configs)	•	•	•
Hyperthreading	•	•	•
<b>Firmware Features</b>			
CSM (Compatibility Support Module) Mode	•	•	•
2.1 UEFI Mode		•	•
Intel AMT remote manageability			
<b>Graphics Card (Video Card) (see footnote 2)</b>			
No Graphics Card	•	•	•
Intel Onboard Graphics	VESA Driver Only	8	8
NVIDIA NVS 300	•	•	•
NVIDIA NVS 310	•	•	•
NVIDIA Quadro 410	•	•	•
NVIDIA NVS 510	•	•	•
NVIDIA Quadro Q600	•	•	•
NVIDIA Quadro Q2000	•	•	•
NVIDIA Quadro Q4000	•	•	•
NVIDIA Quadro K600	•	•	•
NVIDIA Quadro K2000	•	•	•
NVIDIA Quadro K4000	•	•	•
AMD 2270	•	•	•
AMD v3900	•	•	•
AMD v4900	•	•	•
AMD v5900	•	•	•
AMD v7900	•	•	•
AMD w7000	•	•	•
<b>System RAM</b>			
Minimum (GB)	2GB	2GB	2GB
Maximum (GB)	32GB	32GB	32GB
<b>Hard Disks</b>			
SATA Controllers	5	5	5
All Supported SAS Disk Drives			
All Supported SSD Disk Drives	•	•	•
All Supported SATA Disk Drives	•	•	•
All Supported USB Drive Keys	•	•	•
<b>Network Cards (no modem support)</b>			
Intel GbE CT NIC	•	•	•
Broadcom NetXtreme PCIe	•	•	•
HP X520 10GbE Dual Port Adapter (and SFP+ SR Transceiver)	•	•	•
<b>Onboard Components</b>			
Onboard LAN - Intel 82579 Gigabit Ethernet	2	•	•
Onboard Audio	•	•	•
Onboard SATA RAID	4	4	4
Onboard USB 3.0	•	•	•
<b>Add Ons</b>			
IEEE 1394A and 1394B PCI-E Cards		•	•
USB 3.0 PCI-E Card		•	•
<b>Removable CD/DVD Media</b>			
HP 16x DVD-ROM Drive	•	•	•
HP 16x Super Multi DVD+RW	3	3	3
HP BD-RE (writer)	•	•	•
<b>Input/Output Devices (no spaceball support)</b>			
HP Mouse, PS/2 or USB	•	•	•
HP Optical Scroll Mouse, USB	•	•	•
HP Standard Keyboard, USB/PS2	•	•	•
TPM Module/ Smart Card			
Z2 in 1 Card Reader	•	•	•
HP Printers	6	6	6
All Supported Monitors	•	•	•

footnote 1 - HP systems can usually be ordered with a localization that affects documentation, keyboards, and other components. Typical Linux distributions are not installed as pre-localized, but the user can choose a language and keyboard layout during post-installation configuration, or during the "first boot" when the OS comes preloaded on the system.

footnote 2 - Get the latest drivers, "HP Installer Kit for Linux - HP Driver CD for Red Hat Enterprise Linux 5," "HP Installer Kit for Linux - HP Driver CD for Red Hat Enterprise Linux 6" and "HP Installer Kit for Linux - HP Driver CD for SUSE Linux Enterprise Desktop 11" ISO images from <http://www.hp.com/support/z220CMT>. Under **Download options**, select **Get drivers, software & firmware**.

footnote 3 - Linux growisofs supports DVD+RW and Blu-ray media on Red Hat EL 5 Desktop or later and SLED11 or later. For drives that have the Lightscribe functionality, go to [www.lightscribe.com](http://www.lightscribe.com) for software to enable the labeling feature.

footnote 4 - Hardware RAID is not supported on SATA drives.

footnote 5 - The Z220 CMT can support up to 3 SATA drives.

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hplip.net>.

footnote 7 - Hyperthreading is supported on all platforms when the processor allows it.

footnote 8 - Depending on the OS release, the kernel DRM and X.org "Intel" driver may not support the Intel graphics correctly.

**Linux Hardware Matrix for HP Workstations**

**HP Z228 Microtower Workstation**

Certifications pending

*This page is not complete without the General Notes (first page of the matrix).*

<b>Product Items/Features</b> (Blank box or unlisted means the component is NOT functional w/ as-is OS)	<b>SLED11 SP3 or later (x86_64)</b>	<b>RHEL 6.5 or later (x86_64)</b>	<b>RHEL 7.0 or later (x86_64)</b>	<b>Ubuntu 14.04 LTS or later (x86_64)</b>
<b>HP Workstation Base System</b>				
Base system includes: Chassis, System Board, USB, Power Supply, etc.	•	•	•	•
Localization Kit (see footnote 1)				
HP Localization Kit	•	•	•	•
<b>Software</b>				
Remote Graphics Software				
<b>All Supported Processors</b>				
All Supported Processors (single-CPU configs)	•	•	•	•
Hyperthreading	•	•	•	•
<b>Firmware Features</b>				
CSM (Compatibility Support Module) Mode	•	•	•	•
2.1 UEFI Mode	•	•	•	•
Intel AMT remote manageability				
<b>Graphics Card (Video Card) (see footnote 2)</b>				
No Graphics Card	•	•	•	•
Intel Onboard Graphics	8	8	8	8
NVIDIA NVS 315	•	•	•	•
NVIDIA Quadro K420	•	•	•	•
NVIDIA Quadro K620	•	•	•	•
NVIDIA Quadro K1200	•	•	•	•
AMD FirePro W2100	•	•	•	•
<b>System RAM</b>				
Minimum (GB)	2GB	2GB	2GB	2GB
Maximum (GB)	32GB	32GB	32GB	32GB
<b>Hard Disks</b>				
SATA Controllers	5	5	5	5
All Supported SSD Disk Drives	•	•	•	•
All Supported SATA Disk Drives less than 3TB	•	•	•	•
All Supported SATA Disk Drives 3TB and larger	7	7	7	7
All Supported USB Drive Keys	•	•	•	•
<b>Network Cards (no modem support)</b>				
Intel i210-T1 GbE PCIe NIC	•	•	•	•
<b>Onboard Components</b>				
Onboard LAN - Intel i217LM Gigabit Ethernet	•	•	•	•
Onboard Audio	•	•	•	•
Onboard SATA RAID	4	4	4	4
Onboard USB 3.0	•	•	•	•
<b>Add Ons</b>				
IEEE 1394B PCI-E Card	•	•	•	•
<b>Removable CD/DVD Media</b>				
HP 16x DVD-ROM Drive	•	•	•	•
HP 16x Super Multi DVD+RW	3	3	3	3
<b>Input/Output Devices (no spaceball support)</b>				
HP Mouse, PS/2 or USB	•	•	•	•
HP Standard Keyboard, USB/PS2	•	•	•	•
TPM Module/ Smart Card				
HP Media Card Reader	•	•	•	•
HP Printers	6	6	6	6
All Supported Monitors	•	•	•	•

footnote 1 - HP systems can usually be ordered with a localization that affects documentation, keyboards, and other components. Typical Linux distributions are not installed as pre-localized, but the user can choose a language and keyboard layout during post-installation configuration, or during the "first boot" when the OS comes preloaded on the system.

footnote 2 - Get the latest drivers: "HP Installer Kit for Linux - HP Driver CD (or DVD) for Linux-distribution-name" ISO images from <http://www.hp.com/support>. Select your language, choose **Software and Drivers**, type z228mt in the **Enter my HP model number** field, and select **Find my product**. Under **Download options**, select **Get drivers, software & firmware**. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 3 - Linux growisofs supports DVD+RW and Blu-ray media on the listed OSes. For drives that have the Lightscribe functionality, go to [www.lightscribe.com](http://www.lightscribe.com) for software to enable the labeling feature.

footnote 4 - Hardware RAID is not supported on SATA drives. Software RAID is available in most Linux OSes.

footnote 5 - The Z228 can support up to 2 SATA drives.

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hplip.net>.

footnote 7 - In general, single drives or volumes larger than 2.2TB can only be fully accessed using GPT formatting. Newer Linux OSes can format GPT for the boot drive or volume but may require installation of UEFI boot support. OSes listed can all access GPT-formatted volumes.

footnote 8 - Depending on the OS release, the kernel DRM and X.org "Intel" driver may not support the Intel graphics correctly.

**Linux Hardware Matrix for HP Workstations**

**HP Z230 SFF Workstation**

Originally certified with SLED 11 SP3 (x86\_64), RHEL 6.5 (x86\_64). Also certified with RHEL 7.0.

*This page is not complete without the General Notes (first page of the matrix).*

<b>Product Items/Features</b> (Blank box or unlisted means the component is NOT functional w/ as-is OS)	<b>SLED11 SP3 or later (x86_64)</b>	<b>RHEL 6.5 or later (x86_64)</b>	<b>RHEL 7.0 or later (x86_64)</b>	<b>Ubuntu 14.04 LTS or later (x86_64)</b>
<b>HP Workstation Base System</b>				
Base system includes: Chassis, System Board, USB, Power Supply, etc.	•	•	•	•
Localization Kit (see footnote 1)				
HP Localization Kit	•	•	•	•
<b>Software</b>				
Remote Graphics Software				
<b>All Supported Processors</b>				
All Supported Processors (single-CPU configs)	•	•	•	•
Hyperthreading	•	•	•	•
<b>Firmware Features</b>				
CSM (Compatibility Support Module) Mode	•	•	•	•
Z.1 UEFI Mode	•	•	•	•
Intel AMT remote manageability				
<b>Graphics Card (Video Card) (see footnote 2)</b>				
No Graphics Card	•	•	•	•
Intel Onboard Graphics	8	8	8	8
NVIDIA NVS 310	•	•	•	•
NVIDIA NVS 315	•	•	•	•
NVIDIA Quadro 410	•	•	•	•
NVIDIA NVS 510	•	•	•	•
NVIDIA Quadro K420	•	•	•	•
NVIDIA Quadro K600	•	•	•	•
NVIDIA Quadro K620	•	•	•	•
NVIDIA Quadro K1200	•	•	•	•
AMD FirePro v3900	•	•	•	•
AMD FirePro W2100	•	•	•	•
<b>System RAM</b>				
Minimum (GB)	2GB	2GB	2GB	2GB
Maximum (GB)	32GB	32GB	32GB	32GB
<b>Hard Disks</b>				
SATA Controllers	5	5	5	5
All Supported SAS Disk Drives				
All Supported SSD Disk Drives	•	•	•	•
All Supported SATA Disk Drives less than 3TB	•	•	•	•
All Supported SATA Disk Drives 3TB and larger	7	7	7	7
All Supported USB Drive Keys	•	•	•	•
Z Turbo Drive PCIe-attached storage	10	10	10	10
<b>Network Cards (no modem support)</b>				
Intel i210-T1 GbE PCIe NIC	•	•	•	•
Wireless Intel 6205 or 7260 802.110 a/b/g/n PCIe1x1 NIC	11	•	•	•
HP X520 10GbE Dual Port Adapter (and SFP+ SR Transceiver)	•	•	•	•
<b>Onboard Components</b>				
Onboard LAN - Intel i217LM Gigabit Ethernet	•	•	•	•
Onboard Audio	•	•	•	•
Onboard SATA RAID	4	4	4	4
Onboard USB 3.0	•	•	•	•
<b>Add Ons</b>				
IEEE 1394B PCI-E Card	•	•	•	•
Thunderbolt™ PCI-E Card (see footnote 9)				
<b>Removable CD/DVD Media</b>				
HP 16x DVD-ROM Drive	•	•	•	•
HP 16x Super Multi DVD+RW	3	3	3	3
HP BD-RE (Blu-Ray writer)	3	3	3	3
<b>Input/Output Devices (no spaceball support)</b>				
HP Mouse, PS/2 or USB	•	•	•	•
HP Standard Keyboard, USB/PS2	•	•	•	•
TPM Module/ Smart Card				
HP Media Card Reader	•	•	•	•
HP Printers	6	6	6	6
All Supported Monitors	•	•	•	•

footnote 1 - HP systems can usually be ordered with a localization that affects documentation, keyboards, and other components. Typical Linux distributions are not installed as pre-localized, but the user can choose a language and keyboard layout during post-installation configuration, or during the "first boot" when the OS comes preloaded on the system.

footnote 2 - Get the latest drivers: "HP Installer Kit for Linux - HP Driver CD (or DVD) for Linux-distribution-name" ISO images from <http://www.hp.com/support>. Select your language, choose **Software and Drivers**, type *z230* in the **Enter my HP model number** field, select **Find my product**, and then select **HP Z230 Small Form Factor Workstation** from the results. Under **Download options**, select **Get drivers, software & firmware**. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 3 - Linux growisofs supports DVD+RW and Blu-ray media on the listed OSes. For drives that have the Lightscribe functionality, go to [www.lightscribe.com](http://www.lightscribe.com) for software to enable the labeling feature.

footnote 4 - Hardware RAID is not supported on SATA drives. Software RAID is available in most Linux OSes.

footnote 5 - The Z230 SFF can support up to 2 SATA drives.

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hplip.net>.

footnote 7 - In general, single drives or volumes larger than 2.2TB can only be fully accessed using GPT formatting. Newer Linux OSes can format GPT for the boot drive or volume but may require installation of UEFI boot support. OSes listed can all access GPT-formatted volumes.

footnote 8 - Depending on the OS release, the kernel DRM and X.org "Intel" driver may not support the Intel graphics correctly.

footnote 9 - Newer Linux kernels may provide device functionality through the Thunderbolt module. Such kernels are likely to be available in leading-edge distributions, but inclusion of the support with any Enterprise Linux distribution is at the distributor's discretion. For example, neither SLED 11 SP3 nor RHEL 6.5 incorporates significant Thunderbolt support.

footnote 10 - The Z Turbo Drive PCIe-attached storage device has its own controller and is supported by the standard ahci kernel module in supported OSes.

footnote 11 - Support for this device is available in updates from SUSE or from the HP Installer Kit for Linux disk image (see footnote 2).

**Linux Hardware Matrix for HP Workstations**

**HP Z230 Tower Workstation**

Originally certified with SLED 11 SP3 (x86\_64), RHEL 6.5 (x86\_64). Also certified with RHEL 7.0.

*This page is not complete without the General Notes (first page of the matrix).*

<b>Product Items/Features</b> (Blank box or unlisted means the component is NOT functional w/ as-is OS)	<b>SLED11 SP3 or later (x86_64)</b>	<b>RHEL 6.5 or later (x86_64)</b>	<b>RHEL 7.0 or later (x86_64)</b>	<b>Ubuntu 14.04 LTS or later (x86_64)</b>
<b>HP Workstation Base System</b>				
Base system includes: Chassis, System Board, USB, Power Supply, etc.	•	•	•	•
Localization Kit (see footnote 1)				
HP Localization Kit	•	•	•	•
<b>Software</b>				
Remote Graphics Software				
<b>All Supported Processors</b>				
All Supported Processors (single-CPU configs)	•	•	•	•
Hypertexting	•	•	•	•
<b>Firmware Features</b>				
CSM (Compatibility Support Module) Mode	•	•	•	•
Z.1 UEFI Mode	•	•	•	•
Intel AMT remote manageability				
<b>Graphics Card (Video Card) (see footnote 2)</b>				
No Graphics Card	•	•	•	•
Intel Onboard Graphics	8	8	8	8
NVIDIA NVS 310	•	•	•	•
NVIDIA NVS 315	•	•	•	•
NVIDIA Quadro 410	•	•	•	•
NVIDIA NVS 510	•	•	•	•
NVIDIA Quadro K420	•	•	•	•
NVIDIA Quadro K600	•	•	•	•
NVIDIA Quadro K620	•	•	•	•
NVIDIA Quadro K2000	•	•	•	•
NVIDIA Quadro K2200	•	•	•	•
NVIDIA Quadro K4000	•	•	•	•
NVIDIA Quadro K4200	•	•	•	•
AMD FirePro v3900	•	•	•	•
AMD FirePro W2100	•	•	•	•
AMD FirePro W5100	•	•	•	•
AMD FirePro W7000	•	•	•	•
AMD FirePro W7100	•	•	•	•
<b>System RAM</b>				
Minimum (GB)	2GB	2GB	2GB	2GB
Maximum (GB)	32GB	32GB	32GB	32GB
<b>Hard Disks</b>				
SATA Controllers	5	5	5	5
All Supported SAS Disk Drives				
All Supported SSD Disk Drives	•	•	•	•
All Supported SATA Disk Drives less than 3TB	•	•	•	•
All Supported SATA Disk Drives 3TB and larger	7	7	7	7
All Supported USB Drive Keys	•	•	•	•
Z Turbo Drive PCIe-attached storage	10	10	10	10
<b>Network Cards (no modem support)</b>				
Intel i210-T1 GbE PCIe NIC	•	•	•	•
Intel X540 10GbBase-T Dual Port Adapter (RJ45 -Copper)	•	•	•	•
Wireless Intel 6205 or 7260 802.110 a/b/g/n PCIe1 NIC	11	•	•	•
HP X520 10GbE Dual Port Adapter (and SFP+ SR Transceiver)	•	•	•	•
<b>Onboard Components</b>				
Onboard LAN - Intel i217LM Gigabit Ethernet	•	•	•	•
Onboard Audio	•	•	•	•
Onboard SATA RAID	4	4	4	4
Onboard USB 3.0	•	•	•	•
<b>Add Ons</b>				
IEEE 1394B PCI-E Card	•	•	•	•
Creative Recon3D PCIe Audio Card				
Thunderbolt™ PCI-E Card (see footnote 9)				
<b>Removable CD/DVD Media</b>				
HP 16x DVD-ROM Drive	•	•	•	•
HP 16x Super Multi DVD+RW	3	3	3	3
HP BD-RE (Blu-Ray writer)	3	3	3	3
<b>Input/Output Devices (no spaceball support)</b>				
HP Mouse, PS/2 or USB	•	•	•	•
HP Standard Keyboard, USB/PS2	•	•	•	•
TPM Module/ Smart Card				
HP Media Card Reader	•	•	•	•
HP Printers	6	6	6	6
All Supported Monitors	•	•	•	•

footnote 1 - HP systems can usually be ordered with a localization that affects documentation, keyboards, and other components. Typical Linux distributions are not installed as pre-localized, but the user can choose a language and keyboard layout during post-installation configuration, or during the "first boot" when the OS comes preloaded on the system.

footnote 2 - Get the latest drivers: "HP Installer Kit for Linux - HP Driver CD (or DVD) for Linux-distribution-name" ISO images from <http://www.hp.com/support>. Select your language, choose **Software and Drivers**, type `z230` in the **Enter my HP model number** field, select **Find my product**, and then select **HP Z230 Tower Workstation** from the results. Under **Download options**, select **Get drivers, software & firmware**. HP Workstations can be ordered with a variety of localization options that may vary by platform.

footnote 3 - Linux growisofs supports DVD+RW and Blu-ray media on the listed OSes. For drives that have the Lightscribe functionality, go to [www.lightscribe.com](http://www.lightscribe.com) for software to enable the labeling feature.

footnote 4 - Hardware RAID is not supported on SATA drives. Software RAID is available in most Linux OSes.

footnote 5 - The Z230 Tower can support up to 3 SATA drives.

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hplip.net>.

footnote 7 - In general, single drives or volumes larger than 2.2TB can only be fully accessed using GPT formatting. Newer Linux OSes can format GPT for the boot drive or volume but may require installation of UEFI boot support. OSes listed can all access GPT-formatted volumes.

footnote 8 - Depending on the OS release, the kernel DRM and X.org "intel" driver may not support the Intel graphics correctly.

footnote 9 - Newer Linux kernels may provide device functionality through the Thunderbolt module. Such kernels are likely to be available in leading-edge distributions, but inclusion of the support with any Enterprise Linux distribution is at the distributor's discretion. For example, neither SLED 11 SP3 nor RHEL 6.5 incorporates significant Thunderbolt support.

footnote 10 - The Z Turbo Drive PCIe-attached storage device has its own controller and is supported by the standard ahci kernel module in supported OSes.

footnote 11 - Support for this device is available in updates from SUSE or from the HP Installer Kit for Linux disk image (see footnote 2).

**Linux Hardware Matrix for HP Workstations**

**HP Z400 Workstation**

*This page is not complete without the General Notes (first page of the matrix).*

<b>Product Items/Features</b> (Blank box or unlisted means the component is NOT functional w/ as-is OS)	<b>RHEL WS 4.8 or later</b> (x86 & EM64T)	<b>RHEL DT 5.3 or later</b> (x86 & x86_64)	<b>RHEL WS 6.0 or later</b> (x86 & x86_64)	<b>SLED11 or later</b> (x86_64)
<b>HP Workstation Base System</b>				
Base system includes: Chassis, System Board, USB, Power Supply, etc.	•	•	•	•
Localization Kit (see footnote 1)				
HP Localization Kit	•	•	•	•
<b>Software</b>				
Remote Graphics Software				
<b>All Supported Processors</b>				
All Supported Processors (1 CPU configs)	•	•	•	•
Hyperthreading	•	•	•	•
<b>Graphics Card (Video Card) (see footnote 2)</b>				
No Graphics Card	•	•	•	•
NVIDIA Quadro NVS 295	•	•	•	•
NVIDIA Quadro NVS 300	•	•	•	•
NVIDIA Quadro NVS 450	•	•	•	•
NVIDIA Quadro FX380	•	•	•	•
NVIDIA Quadro 400	•	•	•	•
NVIDIA Quadro FX580	•	•	•	•
NVIDIA Quadro 600	•	•	•	•
NVIDIA Quadro FX1800	•	•	•	•
NVIDIA Quadro 2000	•	•	•	•
NVIDIA Quadro FX3800	•	•	•	•
NVIDIA Quadro 4000	•	•	•	•
NVIDIA Quadro FX4800	•	•	•	•
NVIDIA Quadro 5000	•	•	•	•
NVIDIA Tesla C2075				
ATI v2270 PCIe - Single Card Supported	•	•	•	•
ATI v3700 PCIe - Single Card Supported	•	•	•	•
ATI v5700 PCIe - Single Card Supported	•	•	•	•
ATI v7750 PCIe - Single Card Supported	•	•	•	•
ATI v3800 PCIe - Single Card Supported	•	•	•	•
ATI v3900 PCIe - Single Card Supported	•	•	•	•
ATI v4800 PCIe - Single Card Supported	•	•	•	•
ATI v4900 PCIe - Single Card Supported	•	•	•	•
ATI v5800 PCIe - Single Card Supported	•	•	•	•
ATI v5900 PCIe - Single Card Supported	•	•	•	•
ATI v7900 PCIe - Single Card Supported	•	•	•	•
<b>System RAM</b>				
Minimum (GB)	1GB	1GB	1GB	1GB
Maximum (GB)	24GB	24GB	24GB	24GB
<b>Hard Disks</b>				
All Supported SAS Disk Drives	4	4	4	4
All Supported SSD Disk Drives	•	•	•	•
All Supported SATA Disk Drives	4,5	4,5	4,5	4,5
All Supported USB Drive Keys	•	•	•	•
<b>Network Cards (no modem support)</b>				
Broadcom 5761 PCIe	•	•	•	•
Intel Pro 1000 CT Gigabit PCI	•	•	•	•
Intel NC360T PCIe Dual Port Gigabit NIC	•	•	•	•
<b>Onboard Components</b>				
Onboard LAN - Broadcom 5764 10/100/1000	•	•	•	•
Onboard Audio	•	•	•	•
Onboard SATA RAID	4	4	4	4
<b>Add Ons</b>				
LSI 3041E SAS Card	4	4	4	4
LSI 8888 ELP	4	4	4	4
LSI 9212-4i	4	4	4	4
LSI 9260-8i	4	4	4	4
IEEE 1394A PCI Card			•	•
IEEE 1394A PCI-E Card			•	•
IEEE 1394B PCI-E Card			•	•
USB 3.0 PCI-E Card			•	•
Creative Sound Blaster X-Fi			•	•
<b>Removable CD/DVD Media</b>				
HP 16x DVD-ROM Drive	•	•	•	•
HP 16x Super Multi DVD+RW	3	3	3	3
HP BD-RE (writer)	•	•	•	•
<b>Input/Output Devices (no spaceball support)</b>				
HP 3-Button Mouse, PS/2	•	•	•	•
HP Scroll Mouse, PS/2	•	•	•	•
HP Optical Scroll Mouse, USB	•	•	•	•
HP Standard Keyboard, USB/PS2	•	•	•	•
TPM Module/ Smart Card				
22 in 1 Card Reader				
HP Printers	6	6	6	6
All Supported Monitors	•	•	•	•

footnote 1 - Localization supported: (ABA US English, ABC French Canadian, ABD Germany, ABE Spain, ABF France, ABG Australia, ABU UK English, ABJ Japan, AB2 China (PRC), AB4 Singapore/ Malaysia, ABZ Italy, AB5 Hong Kong, ACF Japan-English, ACJ India-English, ABO Taiwan, AK6 Europe A4, ACO Belgium, ABS Sweden, ABB Int'l English).

footnote 2 - Get the latest drivers, "HP Installer Kit for Linux - HP Driver CD for Red Hat Enterprise Linux 4.7", "HP Installer Kit for Linux - HP Driver CD for Red Hat Enterprise Linux 5.3", and "HP Installer Kit for Linux - HP Driver CD for SUSE Linux Enterprise Desktop 11" ISO images from <http://www.hp.com/support/z400>. Under **Download options**, select **Get drivers, software & firmware**.

footnote 3 - Linux growisofs supports DVD+RW and Blu-ray media on Red Hat EL WS 4 or later, Red Hat EL 5 Desktop or later and SLED11 or later. For drives that have the Lightscribe functionality, go to [www.lightscribe.com](http://www.lightscribe.com) for software to enable the labeling feature.

footnote 4 - Hardware RAID is supported using the LSI 3041E (RAID 0, 1 SAS only), LSI 8888 ELP (RAID 0, 1, 5 SAS only), LSI 9212 (RAID 0, 1 SAS only) and the LSI 9260-8i (RAID 0, 1, 5 SAS only). SATA RAID is not supported.

footnote 5 - The Z400 can support up to 4 SATA drives. To support the third and fourth SATA drives, you must acquire the Optical Bay Conversion Kit for each drive.

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hpipj.net>.

footnote 7 - Hyperthreading is supported on platforms when the processor allows it. There are one or two low-end processors which do not support turbo mode or hyperthreading.

**Linux Hardware Matrix for HP Workstations**

**HP Z600 Workstation**

*This page is not complete without the General Notes (first page of the matrix).*

<b>Product Items/Features</b> (Blank box or unlisted means the component is NOT functional w/ as-is OS)	<b>RHEL WS 4.8 or later</b> (x86 & EM64T)	<b>RHEL DT 5.3 or later</b> (x86 & x86_64)	<b>RHEL WS 6.0 or later</b> (x86 & x86_64)	<b>SLED11 or later</b> (x86_64)
<b>HP Workstation Base System</b>				
Base system includes: Chassis, System Board, USB, Power Supply, etc.	•	•	•	•
Localization Kit (see footnote 1)				
HP Localization Kit	•	•	•	•
<b>Software</b>				
Remote Graphics Software	•	•	•	•
<b>All Supported Processors</b>				
All Supported Processors (1 & 2 CPU configs)	•	•	•	•
Hyperthreading	•	•	•	•
<b>Graphics Card (Video Card) (see footnote 2)</b>				
No Graphics Card	•	•	•	•
NVIDIA Quadro NVS 295	•	•	•	•
NVIDIA Quadro NVS 300	•	•	•	•
NVIDIA Quadro NVS 450	•	•	•	•
NVIDIA Quadro FX380	•	•	•	•
NVIDIA Quadro 400	•	•	•	•
NVIDIA Quadro FX580	•	•	•	•
NVIDIA Quadro 600	•	•	•	•
NVIDIA Quadro FX1800	•	•	•	•
NVIDIA Quadro 2000	•	•	•	•
NVIDIA Quadro FX3800	•	•	•	•
NVIDIA Quadro 4000	•	•	•	•
NVIDIA Quadro FX4800	•	•	•	•
NVIDIA Quadro 5000	•	•	•	•
NVIDIA Quadro 6000	•	•	•	•
ATI v2270 PCIe - Single Card Supported	•	•	•	•
ATI v3700 PCIe - Single Card Supported	•	•	•	•
ATI v5700 PCIe - Single Card Supported	•	•	•	•
ATI v7750 PCIe - Single Card Supported	•	•	•	•
ATI v3800 PCIe - Single Card Supported	•	•	•	•
ATI v3900 PCIe - Single Card Supported	•	•	•	•
ATI v4800 PCIe - Single Card Supported	•	•	•	•
ATI v4900 PCIe - Single Card Supported	•	•	•	•
ATI v5800 PCIe - Single Card Supported	•	•	•	•
ATI v5900 PCIe - Single Card Supported	•	•	•	•
ATI v7900 PCIe - Single Card Supported	•	•	•	•
<b>System RAM</b>				
Minimum (GB)	1GB	1GB	1GB	1GB
Maximum (GB)	48GB	48GB	48GB	48GB
<b>Hard Disks</b>				
All Supported SAS Disk Drives	5	5	5	5
All Supported SSD Disk Drives	•	•	•	•
All Supported SATA Disk Drives	5	5	5	5
All Supported USB Drive Keys	•	•	•	•
<b>Network Cards (no modem support)</b>				
Broadcom 5761 PCIe	•	•	•	•
Intel Pro 1000 CT Gigabit PCI	•	•	•	•
Intel NC360T PCIe Dual Port Gigabit NIC	•	•	•	•
<b>Onboard Components</b>				
Onboard LAN - Broadcom 5764 10/100/1000	•	•	•	•
Onboard Audio	•	•	•	•
Onboard SATA RAID	5	5	5	5
<b>Add Ons</b>				
LSI 3041E SAS Card	5	5	5	5
LSI 8888 ELP	5	5	5	5
LSI 9212-4i	5	5	5	5
LSI 9260-8i	5	5	5	5
IEEE 1394A PCI Card			•	•
IEEE 1394A PCI-E Card			•	•
IEEE 1394B PCI-E Card			•	•
USB 3.0 PCI-E Card			•	•
Creative Sound Blaster X-Fi		•	•	•
<b>Removable CD/DVD Media</b>				
HP 16x DVD-ROM Drive	•	•	•	•
HP 16x Super Multi DVD+RW	4	4	4	4
HP BD-RE (writer)	•	•	•	•
<b>Input/Output Devices (no spaceball support)</b>				
HP 3-Button Mouse, PS/2	•	•	•	•
HP Scroll Mouse, PS/2	•	•	•	•
HP Optical Scroll Mouse, USB	•	•	•	•
HP Standard Keyboard, USB/PS2	•	•	•	•
TPM Module/ Smart Card			•	•
22 in 1 Card Reader			•	•
HP Printers	6	6	6	6
All Supported Monitors	•	•	•	•

footnote 1 - Localization supported: (ABA US English, ABC French Canadian, ABD Germany, ABE Spain, ABF France, ABG Australia, ABU UK English, ABJ Japan, AB2 China (PRC), AB4 Singapore/ Malaysia, ABZ Italy, AB5 Hong Kong, ACF Japan-English, ACJ India-English).

footnote 2 - Not orderable integrated into systems. Order AMO (After Market Only) kit.

footnote 3 - Get the latest drivers, "HP Installer Kit for Linux - HP Driver CD for Red Hat Enterprise Linux 4.7", "HP Installer Kit for Linux - HP Driver CD for Red Hat Enterprise Linux 5.3", and "HP Installer Kit for Linux - HP Driver CD for SuSE Linux Enterprise Desktop 11" ISO images from <http://www.hp.com/support/z600>. Under **Download options**, select **Get drivers, software & firmware**.

footnote 4 - Linux growisofs supports DVD+RW and Blu-ray media on Red Hat EL WS 4 or later, Red Hat EL 5 Desktop or later and SLED11 or later. For drives that have the Lightscribe functionality, go to [www.lightscribe.com](http://www.lightscribe.com) for software to enable the labeling feature.

footnote 5 - Hardware RAID is supported using the LSI 3041E (RAID 0, 1 SAS only), LSI 8888 ELP (RAID 0, 1, 5 SAS only), LSI 9212 (RAID 0, 1 SAS only), and the LSI 9260-8i (RAID 0, 1, 5 SAS only). SATA RAID is not supported.

footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hpip.net>.

footnote 7 - Hyperthreading is supported on platforms when the processor allows it. There are one or two low-end processors which do not support turbo mode or hyperthreading.



**Linux Hardware Matrix for HP Workstations**

**HP Z800 Workstation**

*This page is not complete without the General Notes (first page of the matrix).*

<b>Product Items/Features</b> (Blank box or unlisted means the component is NOT functional w/ as-is OS)	<b>RHEL WS 4.8 or later</b> (x86 & EM64T)	<b>RHEL DT 5.3 or later</b> (x86 & x86_64)	<b>RHEL WS 6.0 or later</b> (x86 & x86_64)	<b>SLED11 or later</b> (x86_64)
<b>HP Workstation Base System</b>				
Base system includes: Chassis, System Board, USB, Power Supply, etc.	•	•	•	•
Localization Kit (see footnote 1)				
HP Localization Kit	•	•	•	•
<b>Software</b>				
Remote Graphics Software				
<b>All Supported Processors</b>				
All Supported Processors (1 & 2 CPU configs)	•	•	•	•
Hyperthreading	•	•	•	•
<b>Graphics Card (Video Card) (see footnote 2)</b>				
No Graphics Card	•	•	•	•
NVIDIA Quadro NVS 295	•	•	•	•
NVIDIA Quadro NVS 300	•	•	•	•
NVIDIA Quadro NVS 450	•	•	•	•
NVIDIA Quadro FX380	•	•	•	•
NVIDIA Quadro 400	•	•	•	•
NVIDIA Quadro FX580	•	•	•	•
NVIDIA Quadro 600	•	•	•	•
NVIDIA Quadro FX1800	•	•	•	•
NVIDIA Quadro 2000	•	•	•	•
NVIDIA Quadro FX3800	•	•	•	•
NVIDIA Quadro 4000	•	•	•	•
NVIDIA Quadro FX4800	•	•	•	•
NVIDIA Quadro 5000	•	•	•	•
NVIDIA Quadro FX5800	•	•	•	•
NVIDIA Quadro 6000	•	•	•	•
Tesla C1060	•	•	•	•
Tesla 3GB C2050	•	•	•	•
NVIDIA Tesla C2075	•	•	•	•
ATI v2270 PCIe - Single Card Supported	•	•	•	•
ATI v3700 PCIe - Single Card Supported	•	•	•	•
ATI v5700 PCIe - Single Card Supported	•	•	•	•
ATI v7750 PCIe - Single Card Supported	•	•	•	•
ATI v3800 PCIe - Single Card Supported	•	•	•	•
ATI v3900 PCIe - Single Card Supported	•	•	•	•
ATI v4800 PCIe - Single Card Supported	•	•	•	•
ATI v4900 PCIe - Single Card Supported	•	•	•	•
ATI v5800 PCIe - Single Card Supported	•	•	•	•
ATI v5900 PCIe - Single Card Supported	•	•	•	•
ATI v7900 PCIe - Single Card Supported	•	•	•	•
ATI v8800 PCIe - Single Card Supported	•	•	•	•
<b>System RAM</b>				
Minimum (GB)	1GB	1GB	1GB	1GB
Maximum (GB)	192GB	192GB	192GB	192GB
<b>Hard Disks</b>				
All Supported SAS Disk Drives	5	5	5	5
All Supported SSD Disk Drives	•	•	•	•
All Supported SATA Disk Drives	5	5	5	5
All Supported USB Drive Keys	•	•	•	•
<b>Network Cards (no modem support)</b>				
Broadcom 5764 PCIe	•	•	•	•
Intel Pro 1000 CT Gigabit PCI	•	•	•	•
Intel NC360T PCIe Dual Port Gigabit NIC	•	•	•	•
Intel Pro 1000 GT Gigabit PCI	•	•	•	•
<b>Onboard Components</b>				
Onboard LAN - Broadcom 5764 10/100/1000	•	•	•	•
Onboard Audio	•	•	•	•
Onboard SATA RAID	5	5	5	5
Onboard SAS RAID	5	5	5	5
<b>Add Ons</b>				
IEEE 1394A PCI Card			•	•
IEEE 1394A PCI-E Card			•	•
IEEE 1394B PCI-E Card			•	•
USB 3.0 PCI-E Card			•	•
Creative Sound Blaster X-Fi		•	•	•
LSI 8888 ELP	5	5	5	5
LSI 9260-Bi	5	5	5	5
<b>Removable CD/DVD Media</b>				
HP 16x DVD-ROM Drive	•	•	•	•
HP 16x Super Multi DVD+RW	4	4	4	4
HP BD-RE (writer)	•	•	•	•
<b>Input/Output Devices (no spaceball support)</b>				
HP 3-Button Mouse, PS/2	•	•	•	•
HP Scroll Mouse, PS/2	•	•	•	•
HP Optical Scroll Mouse, USB	•	•	•	•
HP Standard Keyboard, USB/PS2	•	•	•	•
TPM Module/ Smart Card				
22 in 1 Card Reader		•	•	•
HP Printers	6	6	6	6
All Supported Monitors	•	•	•	•

Footnote 1 - Localization supported: (ABA US English, ABC French Canadian, ABD Germany, ABE Spain, ABF France, ABG Australia, ABU UK English, ABJ Japan, AB2 China (PRC), AB4 Singapore/ Malaysia, ABZ Italy, ABS Hong Kong, ACF Japan-English, ACJ India-English.

Footnote 2 - Not orderable integrated into systems. Order AMO (After Market Only) kit.

Footnote 3 - Get the latest drivers, "HP Installer Kit for Linux - HP Driver CD for Red Hat Enterprise Linux 4.7", "HP Installer Kit for Linux - HP Driver CD for Red Hat Enterprise Linux 5.3", and "HP Installer Kit for Linux - HP Driver CD for SuSE Linux Enterprise Desktop 11" ISO images from <http://www.hp.com/support/z800>. Under **Download options**, select **Get drivers, software & firmware**.

Footnote 4 - Linux growisofs supports DVD+RW and Blu-ray media on Red Hat EL WS 4 or later, Red Hat EL 5 Desktop or later and SLED11 or later. For drives that have the Lightscribe functionality, go to [www.lightscribe.com](http://www.lightscribe.com) for software to enable the labeling feature.

Footnote 5 - Hardware RAID is supported using the LSI 8888 ELP (RAID 0, 1, 5 SAS only), LSI 8888 ELP (RAID 0, 1, 5 SAS only), LSI 9260-Bi (RAID 0, 1, 5 SAS only), and the Onboard SAS RAID (RAID 0, 1, 5). SATA RAID is not supported.

Footnote 6 - For more info about Linux driver support for HP printers, go to <http://www.hpip.net>.

Footnote 7 - Hyperthreading is supported on platforms when the processor allows it. There are one or two low-end processors which do not support turbo mode or hyperthreading.