FAQ

HP Z440, Z640, and Z840 Workstation FAQs

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What are the new workstations?

HP Z440 Workstation

- The HP Z440 Workstation gives you professional expandability in an accessible tool-free mini-tower form factor—all at a great price. With up to eight discrete processor cores, the latest processing and I/O power from Intel®, and the latest graphics technology from leading graphics providers, you have the power you need to get the job done.

HP Z640 Workstation

- With up to 44 discrete processor cores, the HP Z640 workstation packs a ton of computing and visualization power into a quiet, compact footprint. This dual-socket system helps you boost productivity with the performance of next-generation Intel® Xeon® processors[1] and support for up to eight displays[2].

HP Z840 Workstation

- Built for high-end computing and visualization, the dual-processor HP Z840 Workstation delivers outstanding performance, award-winning industrial design, and tool-free serviceability in the industry's most expandable chassis. With next-generation Intel® Xeon® processors[1] and the latest professional graphics, you'll tackle the most demanding projects like never before.

Why don't these follow the rest of the family's naming strategy and use the 'G' designator?

HP carefully evaluates product naming with every new product release. For the HP Z440, Z640 and Z840 Workstations, there is a long legacy of this naming convention for these classes of workstation, and implied product positioning therein.

What products are these replacing and when?

- The HP Z440 Workstation is replacing the HP Z420 Workstation
- The HP Z640 Workstation is replacing the HP Z620 Workstation
- The HP Z840 Workstation is replacing the HP Z820 Workstation

Where do these products fit within the overall HP Z Workstation family?

- The HP Z440 is the performance platform designed for entry-level workstation requirements for a wide range of professional software. With a full range of graphics cards, Intel® processors, and optional Thunderbolt™ 2[3] connectivity, the HP Z440 is capable of handling heavy workloads and complex 3D modeling flawlessly, something users cannot do on a typical commercial PC. The HP Z440 provides a more robust system and a longer lifecycle than the HP Z2x0 series platforms but is positioned below the HP Z640.
- The HP Z640 is a step up into advanced system configurations. It offers increased configurability with the option of dual processors in addition to the full range of graphics cards and memory configurations. HP Z640 is a compact tower form factor, but is more versatile and expandable than the HP Z440 and is positioned below the HP Z840.
- The HP Z840 is a high-end solution that provides the most configurability and highest compute capability of any workstation. The Z840 is HP's ultimate, workstation-class work horse, a step up from the HP Z640. Two key differentiators between the HP Z840 and HP Z640 are the HP Z840 includes an embedded SAS controller and a second processor socket on the main system board.

What are the key differences between the HP Zx20 generation and this one?

- The next generation of HP Zx40 comes with the latest generation Intel® processors, code name Haswell, along with the next generation Intel® chipset, and NVIDIA® and AMD graphics cards.

	HP Z420/Z620/Z820 Workstations	HP Z440/Z640/Z840 Workstations
Processors[1,4]	Intel® Xeon® E5-1600 and E5-2600 Intel® Xeon® E5-1600 v2 and E5-2600 v2	Intel® Xeon® E5-1600 v3/v4 and E5-2600 v3/v4
Chipset	Intel® C602	Intel® C612
Graphics	NVIDIA® Quadro® AMD FirePro™	NVIDIA® Quadro® AMD FirePro™
Memory[4]	Z420: DDR3 ECC Unbuffered 1600/1866 MHz Z620/Z820: DDR3 ECC Unbuffered and Registered 1600/1866MHz	Z440/Z640/Z840: DDR4 ECC Registered 2133/2400 MHz
USB	Front: 1 x USB 2.0, 2 x USB 3.0 Rear: 4 x USB 2.0, 2 x USB 3.0	Front: 4 x USB 3.0 Rear: 4 x USB 3.0, 2 x USB 2.0
PCI Slots[5]	Z420: • 2 x PCIe Gen 3 x16 • 1 x PCIe Gen 3 x8 • 1 x PCIe Gen 2 x8(x4) • 1 x PCIe Gen 2 x4(x1) • 1 x PCI 32bit/33MHz Z620: • 2 x PCIe Gen 3 x16 • 1 x PCIe Gen 3 x8 • 1 x PCIe Gen 2 x8(x4) • 1 x PCIe Gen 2 x4(x1) (1CPU only) • 1 x PCI 32bit/33MHz Z820: • 2 x PCIe Gen 3 x16 • 1 x PCIe Gen 3 x16 (2CPU only) • 1 x PCIe Gen 3 x8 (2CPU only) • 1 x PCIe Gen 3 x4 • 1 x PCIe Gen 2 x4 • 1 x PCI 32bit/33MHz • 1 x Mechanical-only slot	Z440: • 2 x PCIe Gen 3 x16 • 1 x PCIe Gen 3 x8 • 1 x PCIe Gen 2 x4 • 1 x PCIe Gen 2 x1 • 1 x PCI 32bit/33MHz Z640: • 2 x PCIe Gen 3 x16 • 1 x PCIe Gen 3 x8 • 1 x PCIe Gen 2 x4 • 1 x PCIe Gen 2 x1 (1CPU only) • 1 x PCI 32bit/33MHz Z840: • 2x PCIe Gen3 x16 slot • 1x PCIe Gen3 x16 (2CPU only) • 1x PCIe Gen3 x8 slot (2CPU only) • 1x PCIe Gen2 x4 slot (1CPU) or 1x PCIe Gen3 x8 (2CPU) slot • 1x PCIe Gen3 x4 slot • 1x PCIe Gen2 x1 slot • 1x mechanical only • No legacy PCI
Chassis	Z420: • 17.6" H x 7.0" W x 17.5" D • 44.8 cm H x 17.8 cm W x 44.5 cm D • > 4U in rack • Optional front handle	Z440: • 17.0" H x 6.65" W x 17.5" D • 43.2 cm H x 16.9 cm W x 44.5 cm D • < 4U in rack • Integrated front handle and rear recess
LAN	Z620: • 2x integrated GbE LAN	Z640: • 1x integrated GbE LAN

Will these products still be considered long-life cycle?

- The HP Z440 will have a three year life cycle.
- Both the HP Z640 and HP Z840 are targeted for two year life cycles.

Will these products have stable and consistent offerings?

- Yes, a list of the stable and consistent offerings can be found on-line at hp.com/go/whitepapers under "Learn more about the HP Workstations family" or within the "Stable and Consistent" section of the QuickSpecs documents.

	HP Z440	HP Z640	HP Z840
Processors[1,4]			
Intel Xeon E5-1603 v3 4C	✓	✓	
Intel Xeon E5-1620 v3 4C	✓	✓	
Intel Xeon E5-1630 v3 4C	✓	✓	
Intel Xeon E5-2620 v3 6C		✓	✓
Intel Xeon E5-2630 v3 8C	✓	✓	✓
Intel Xeon E5-2643 v3 6C		✓	✓
Hard Drives[6]			
500 GB SATA 7200 RPM	✓	✓	✓
1 TB SATA 7200 RPM	✓	✓	✓
Graphics			
NVIDIA® NVS™ 310 1 GB	✓	✓	✓
NVIDIA® NVS™ 510 2 GB	✓	✓	
NVIDIA® NVS™ K620 2 GB	✓	✓	✓
NVIDIA® Quadro® K2200 4 GB	✓	✓	✓
AMD FirePro™ W2100 2 GB	✓	✓	✓
Memory[4]			
8 GB DDR4-2133 (1x8 GB) Registered RAM 1CPU	✓	✓	✓
16 GB DDR4-2133 (2x8 GB) Registered RAM 1CPU	✓	✓	✓
Optical and Removable Storage			
Slim SuperMulti DVDRW SATA 1st Optical Disk Drive	✓	✓	✓
Slim SuperMulti DVDRW SATA 2nd Optical Disk Drive	✓	✓	✓

Will these products be offered as global series SKUs?

- We have components that are offered globally but do not have a specific SKU set that is defined as global. This gives the regions more flexibility in their configurations and offerings.

Will these products be offered worldwide?

- Yes, all three of these products will be offered worldwide.

Why should I transition from the HP Zx20 to the HP Zx40 products?

- The latest processors, graphics cards and memory configurations will increase performance and expandability, giving you a leg up in your industry through leading technology. With the HP Zx40 platforms, you can connect faster and transfer more data through upgraded I/O ports and the optional Thunderbolt™ 2[3] card. HP Zx40 Workstations also provide future expandability and compatibility with up-coming products such as graphics cards and leading software from HP's certified Independent Software Vendors (ISVs).

What testing and reliability has been built into these Zx40 products?

- At HP, we recognize that professionals can't settle for anything less than the highest levels of reliability. That's why we design our workstations to meet the challenges of the most demanding application workloads and duty cycles—an HP focus for the past 30 years. Today, our three decades of workstation engineering innovation have paid off in a level of reliability that is widely recognized in the industry. HP Workstations are designed for heavy usage, and are fully tested with and certified for a broad variety of professional applications in Product Development; Architecture, Engineering and Construction; Financial Services; Media and Entertainment; and many other segments.
- Please refer to the "Building Reliability into HP Workstations" whitepaper for detail on how HP tests workstation products: h20195.www2.hp.com/V2/GetPDF.aspx/4AA4-3573ENW.pdf

Which segments are the HP Zx40 targeted at?

- HP Zx40 Workstations are targeted towards product development, media and entertainment, oil and gas, and healthcare as the primary segments, though these machines are designed to meet the needs of all industry segments.

Why should someone in media and entertainment, oil and gas and healthcare buy or upgrade their products to the HP Zx40 series platforms?

- The HP Zx40 series offers a wide span of technology, innovation and performance you will not find in other workstations. With all of the upgraded and supported components, speed, reliability, and configurability of HP Workstations, professionals in any industry will be able to bridge the gap between concepts and finished products faster, with more ease and less down time. To learn more about the specific benefits for each market segment, please read the sales brief.

What segment positioning differences are there between the HP Zx40 and the Zx20 products?

- The HP Zx40 platforms represent an evolutionary step forward in HP's Workstation product line providing overall improved performance. As such there is no change in the market segments addressed by each Zx40 platform and its Zx20 predecessor.

Design, processor, memory

What are the key industrial design elements of the new HP Zx40 products?

- In keeping with all HP Z Workstations, the interior of the Zx40 supports tool-less serviceability. With guidance by green touch point indicators, users can easily manipulate serviceable and upgradeable components. Support for rack mounting solutions, security lock options and integrated handles allows users to arrange their work environment for their personal preference. HP uses top of the line technology for minimal acoustics while keeping the unit cool even under demanding rendering projects. HP Workstations are aesthetically appealing, both inside and out with visually cable-less interior and dark, brushed aluminum panels along the sides of the Z640 and Z840.

What is different from an industrial design standpoint with the HP Zx40 products?

- Overall: The chassis design for the HP Zx40 Workstations features an accessory tray across the top of each system. Adjusted from the ribbed or corrugated design on the previous Zx20 workstations, the accessory tray provides a smooth surface for storing external hard drives and other valuable devices that are not to be thrown away. All three platforms have a new slim optical drive that demands much less space in the chassis design than the previous models.
- HP Z440: Per customer feedback, the Z440 chassis has been slimmed down to fit in 4U rack mounting. Along with the accessory tray on the top, recessed hold on the back, and slim optical drive, the Z440 is more versatile for the user's environment.
- HP Z640/ Z840: In addition to the slim optical drive and top accessory tray, the Z640 and Z840 are sporting a new style. In keeping with the brushed aluminum of the Zx20, the side panels will be the same aluminum but with a darker, sleek finish.

What happened to liquid cooling? Is HP still a leader in acoustics?

- Although liquid cooling is no longer offered in the HP Zx40 series, HP Workstations are still leading the industry with our air cooled solutions. And to further address acoustics, HP announced the HP Z Cooler on the Z440 and Z840 platforms. The HP Z Cooler decreases the acoustic levels by up to 25% as compared to the standard air coolers currently used.

What processors do the HP Zx40 products offer?

- The following table shows the current offerings for processors on each platform. Two check marks indicate the capability to add a second processor into the configuration of the system.

Name	Z440	Z640	Z840
Intel® Xeon® E5-2600 v4	**1st CPU**	**1st or 2nd CPU**	**1st or 2nd CPU**
Intel® Xeon® E5-2699 v4 (2.2 GHz, 55 MB cache, 22 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2697 v4 (2.3 GHz, 45 MB cache, 18 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2695 v4 (2.1 GHz, 45 MB cache, 18 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2690 v4 (2.6 GHz, 35 MB cache, 14 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2683 v4 (2.1 GHz, 40 MB cache, 16 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2687w v4 (3.0 GHz, 30 MB cache, 12 cores, Intel® vPro™)			✓
Intel® Xeon® E5-2680 v4 (2.4 GHz, 35 MB cache, 14 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2667 v4 (3.2 GHz, 25 MB cache, 8 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2660 v4 (2 GHz, 35 MB cache, 14 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2650 v4 (2.2 GHz, 30 MB cache, 12 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2643 v4 (3.4 GHz, 20 MB cache, 6 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2640 v4 (2.4 GHz, 25 MB cache, 10 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2637 v4 (3.5 GHz, 15 MB cache, 4 cores, Intel® vPro™)	✓	✓	✓
Intel® Xeon® E5-2630 v4 (2.2 GHz, 25 MB cache, 10 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2623 v4 (2.6 GHz, 10 MB cache, 4 cores, Intel® vPro™)	✓	✓	✓
Intel® Xeon® E5-2620 v4 (2.1 GHz, 20 MB cache, 8 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2609 v4 (1.7 GHz, 20 MB cache, 8 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2603 v4 (1.7 GHz, 15 MB cache, 6 cores, Intel® vPro™)		✓	✓

Name	Z440	Z640	Z840
Intel® Xeon® E5-1600 v4	**1st CPU**	**1st or 2nd CPU**	**1st or 2nd CPU**
Intel® Xeon® E5-1680 v4 (3.4 GHz, 20 MB cache, 8 cores, Intel® vPro™)	✓	✓	
Intel® Xeon® E5-1660 v4 (3.2 GHz, 20 MB cache, 8 cores, Intel® vPro™)	✓	✓	
Intel® Xeon® E5-1650 v4 (3.6 GHz, 15 MB cache, 6 cores, Intel® vPro™)	✓	✓	
Intel® Xeon® E5-1630 v4 (3.7 GHz, 10 MB cache, 4 cores, Intel® vPro™)	✓	✓	
Intel® Xeon® E5-1620 v4 (3.5 GHz, 10 MB cache, 4 cores, Intel®vPro™)	✓	✓	
Intel® Xeon® E5-1607 v4 (3.1 GHz, 10 MB cache, 4 cores, Intel® vPro™)	✓	✓	
Intel® Xeon® E5-1603 v4 (2.8 GHz, 10 MB cache, 4 cores, Intel® vPro™)	✓	✓	
Intel® Xeon® E5-2600 v3			
Intel® Xeon® E5-2699 v3 (2.3 GHz, 45 MB cache, 18 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2697 v3 (2.6 GHz, 35 MB cache, 14 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2695 v3 (2.3 GHz, 35 MB cache, 14 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2690 v3 (2.6 GHz, 30 MB cache, 12 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2687W v3 (3.1 GHz, 25 MB cache, 10 cores, Intel® vPro)			✓
Intel® Xeon® E5-2683 v3 (2.0 GHz, 35 MB cache, 14 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2680 v3 (2.5 GHz, 30 MB cache, 12 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2670 v3 (2.3 GHz, 30 MB cache, 12 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2667 v3 (3.2 GHz, 20 MB cache, 8 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2660 v3 (2.6 GHz, 25 MB cache, 10 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2650 v3 (2.3 GHz, 25 MB cache, 10 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2643 v3 (3.4 GHz, 20 MB cache, 6 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2640 v3 (2.6 GHz, 20 MB cache, 8 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2637 v3 (3.5 GHz, 15 MB cache, 4 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2630 v3 (2.4 GHz, 20 MB cache, 8 cores, Intel® vPro™)	✓	✓	✓
Intel® Xeon® E5-2623 v3 (3.0 GHz, 10 MB cache, 4 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2620 v3 (2.4 GHz, 15 MB cache, 6 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2609 v3 (1.9 GHz, 15 MB cache, 6 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-2603 v3 (1.6 GHz, 15 MB cache, 6 cores, Intel® vPro™)		✓	✓
Intel® Xeon® E5-1600 v3			
Intel® Xeon® E5-1680 v3 (3.2 GHz, 20 MB cache, 8 cores, Intel® vPro™)	✓	✓	
Intel® Xeon® E5-1660 v3 (3.0 GHz, 20 MB cache, 8 cores, Intel® vPro™)	✓	✓	
Intel® Xeon® E5-1650 v3 (3.5 GHz, 15 MB cache, 6 cores, Intel® vPro™)	✓	✓	
Intel® Xeon® E5-1630 v3 (3.7 GHz, 10 MB cache, 4 cores, Intel® vPro™)	✓	✓	
Intel® Xeon® E5-1620 v3 (3.5 GHz, 10 MB cache, 4 cores, Intel® vPro™)	✓	✓	
Intel® Xeon® E5-1607 v3 (3.1 GHz, 10 MB cache, 4 cores, Intel® vPro™)	✓	✓	
Intel® Xeon® E5-1603 v3 (2.8 GHz, 10 MB cache, 4 cores, Intel® vPro™)	✓	✓	

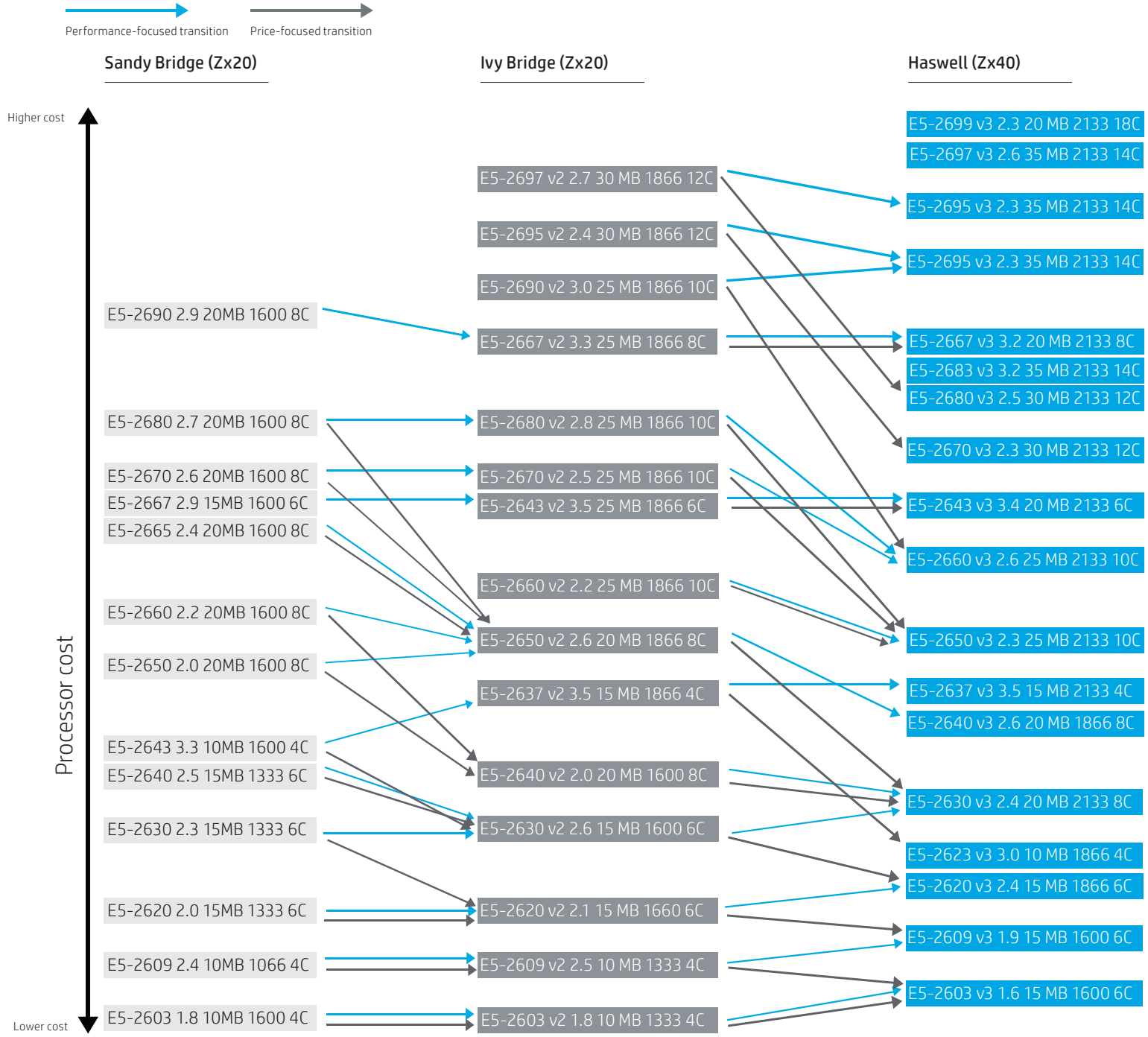
1st or 2nd CPU*' '*Intel® Xeon® E5-1600 processors are single CPU only.

What can I expect with the new processors?

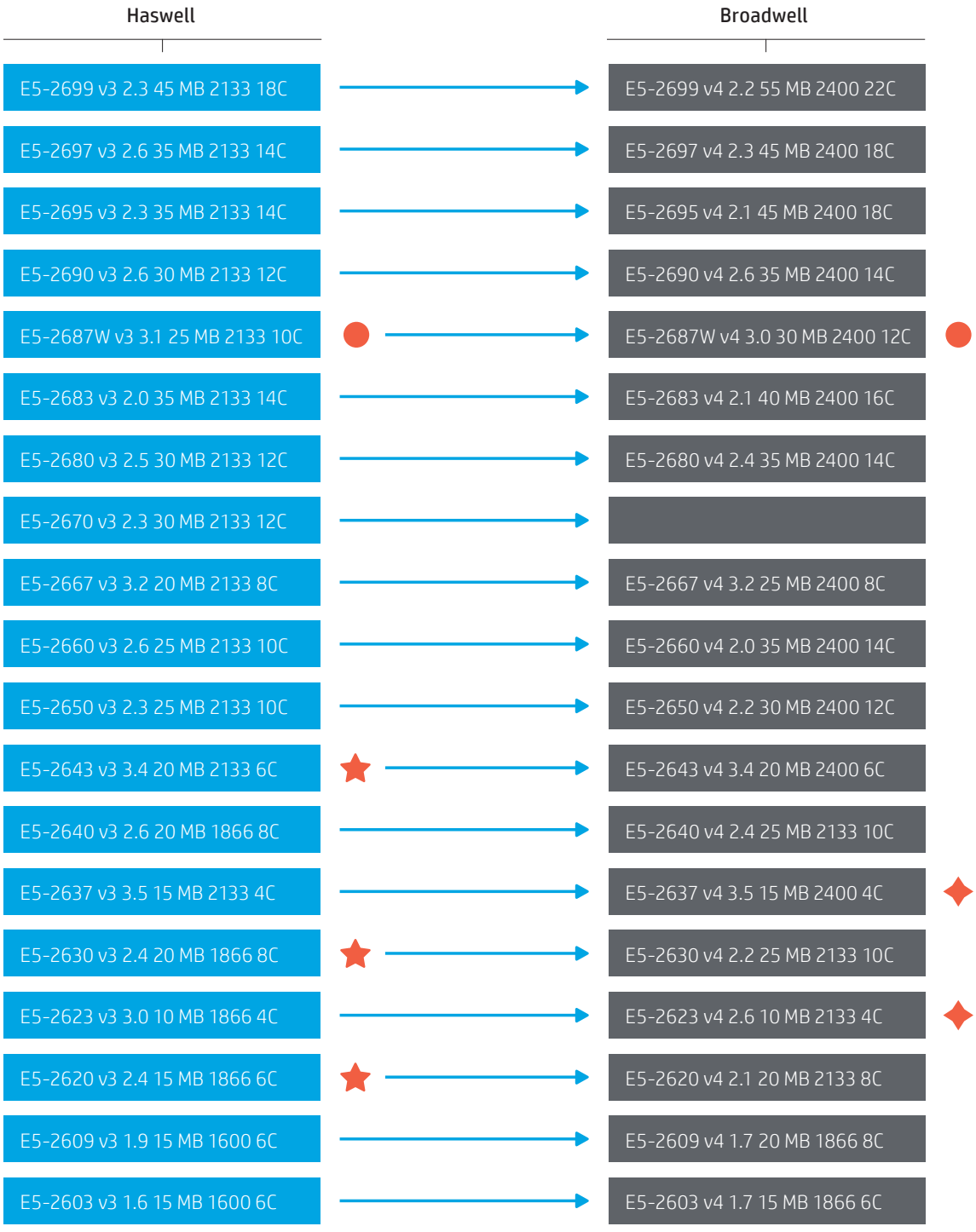
Intel® Xeon® processors are purposely built for workstations and servers. They support Error Checking and Correcting (ECC) memory logic, and are the logical choice for environments where professionals need the performance to work efficiently and accurately by avoiding data corruption and/or computer crashes. This processor series provides PCI Express connections directly from the processor. The processor series also provides dual QuickPath Interconnects (QPI) between processors increasing the processor-to-processor communication speeds for dual processor systems. The Intel® Xeon® Processor E5-2600 v3/v4[1] Product Family supports the following features:

- 40 lanes of PCIe Gen 3 I/O (for each processor)
- For the HP Z840, the 1st processor will provide two PCIe3 x16 slots and one PCIe3 x4 slot. The 2nd HP Z840 processor will provide one PCIe3 x16 slot and two PCIe3 x8 slots
- Intel® Turbo[7] Mode (allows processor to run faster under certain conditions)
- Intel® Hyper-Threading Technology[8]
- 14nm Silicon Process Technology
- From 15 MB to 45 MB of processor cache. The size of the processor cache is dependent on processor model.
- 6.4GT/s, 8.0GT/s and 9.6GT/s QPI links
- The speed of the QPI is dependent on processor frequency
- 80W, 90W, 105W, 120W, 135W, 145W and 160W parts
- Integrated DDR4 memory controller
- 4 channel 2400 MHz DDR4 memory subsystem
- Memory frequency is dependent on processor frequency
- 1 TB memory capacity (with 2 processors; Z840 only)
- Intel® Turbo Boost Max Technology 3.0 that allows higher single and dual core frequencies (on select Intel® Xeon® E5-1600 v4 processors)

What are the differences in processors between the HP Z440, HP Z640, and HP Z840 Workstations?



Intel® Xeon® E5-2600 v3 to v4 for HP Z440, Z640, and Z840 Workstations



Broadwell provides:

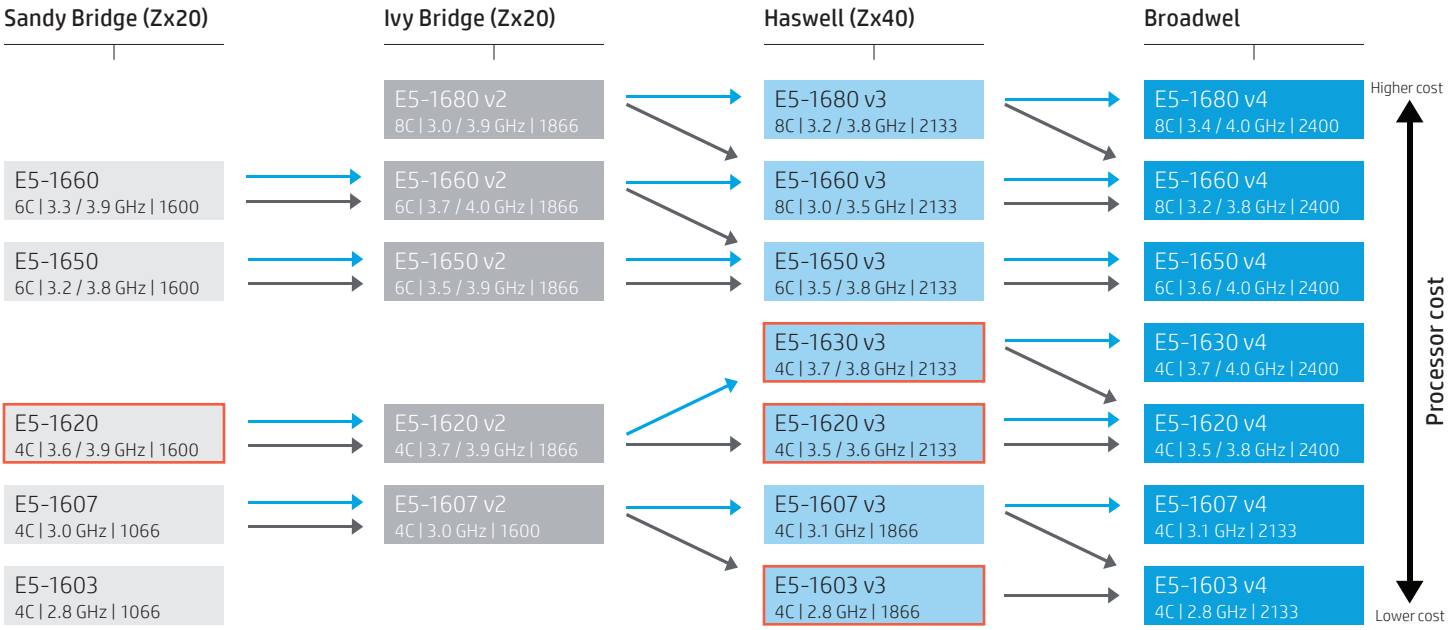
• Faster memory speeds • Higher processor core counts (on select processors)

- NEW: v4 processors supported on Z440
- Stable & consistent
- E5-2687w is not offered/supported on HP Z640 Workstation

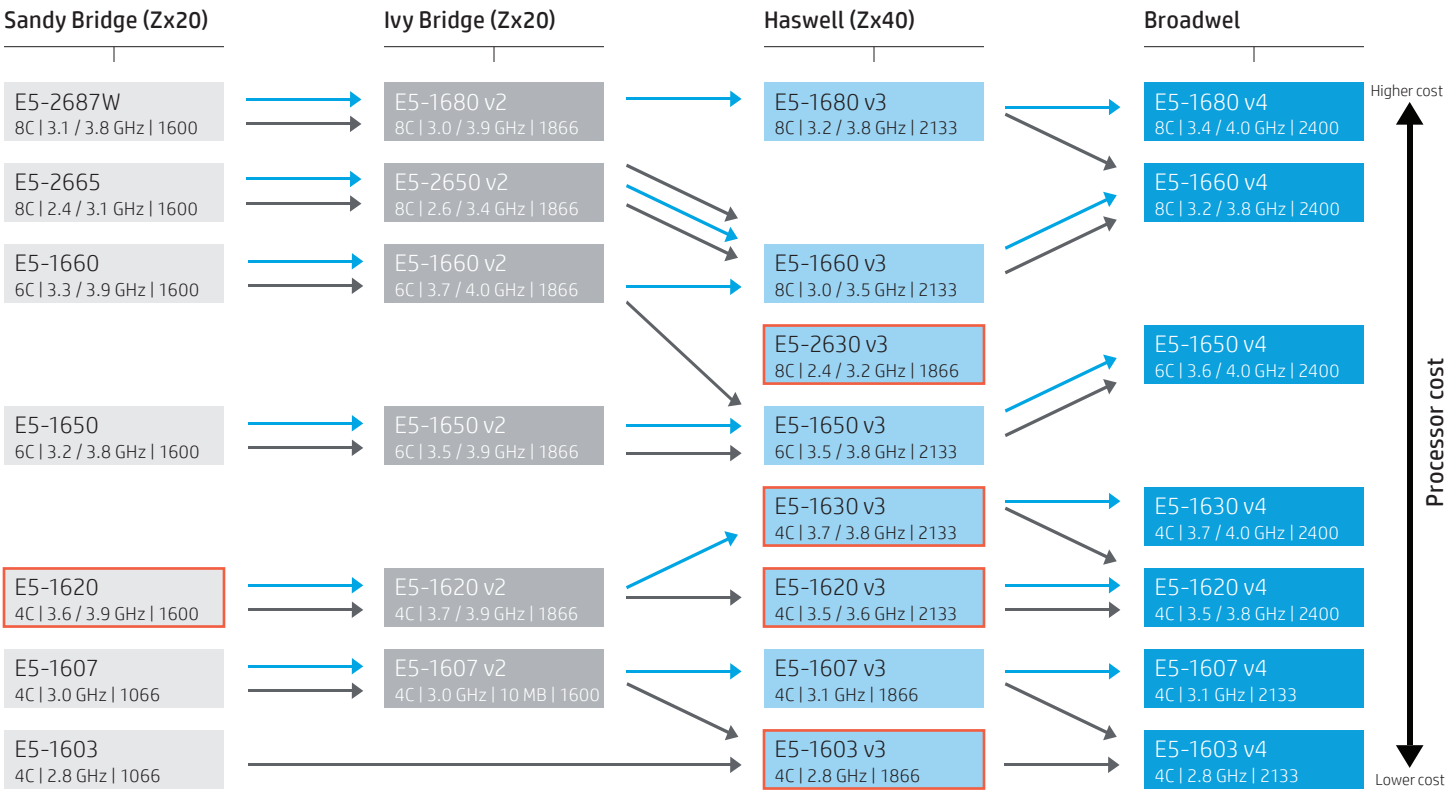
What are the transitions for the Intel® Xeon® E5-1600 processors?

Intel® Xeon® E5-1660 processor transitions for HP Z4 and Z6 Workstations

HP Z440 and Z640 Workstations



HP Z420 to Z440 processor transition



Stable & Consistent — Performance-focused — Price-focused

Do I have to recompile my applications to see the performance advantages of the new Intel® Xeon® processors?

- New Intel® Xeon® processors are designed for immediate application performance increases due to new processor and memory architecture. No recompile is needed.

What are the benefits of multi-core processors?

- Intel® multi-core processors[1] provide greater processing resources. Multi-core processors are ideal for usage models requiring multi-tasking (running many applications or simulations at once); working on spread sheets while listening to music with virus checkers and system backups running (power office); or using applications that can split a task across processors (multi-threaded), like animation/rendering in Digital Content Creation.

What do these terms mean?

Dual-socket	Two physical CPU sockets
Dual-core	Each CPU package has exactly two processor cores
Quad-core	Each CPU package has exactly four processor cores
Six-core	Each CPU package has exactly six processor cores
Eight-core	Each CPU package has exactly eight processors cores
Multi-core	Each CPU package has multiple (2, 4, 6…) processors cores
Dual-processor	A system with two processors in two sockets

What is Intel® Turbo Boost 2.0 technology?

- Intel® Turbo Boost Technology 2.0[7] is a way to automatically run the processor core faster than the marked frequency if the part is operating under power, temperature, and current specifications limits of the Thermal Design Power (TDP). This results in increased performance of both single and multi-threaded applications.

How much faster will the processor run with Intel® Turbo Boost 2.0 technology?

- The maximum frequency of Intel® Turbo Boost Technology 2.0[1,7] is dependent on the number of active cores. The amount of time the processor spends in the Intel® Turbo Boost Technology 2.0 state depends on the workload and operating environment. Any of the following can set the upper limit of Intel® Turbo Boost Technology 2.0 on a given workload:
  - Number of active cores
  - Estimated current consumption
  - Estimated power consumption
  - Processor temperature
- When the processor is operating below these limits and the user's workload demands additional performance, the processor frequency will dynamically increase until the upper limit of frequency is reached. Intel® Turbo Boost Technology 2.0 has multiple algorithms operating in parallel to manage current, power, and temperature to maximize performance and energy efficiency. Note: Intel® Turbo Boost Technology 2.0 allows the processor to operate at a power level that is higher than its rated upper power limit (TDP) for short durations to maximize performance.
- As an independent and complementary feature, Intel® Hyper-Threading Technology[8] (Intel® HT Technology) increases performance of both multi-threaded and single threaded workloads.

What is Intel® Turbo Boost Max Technology 3.0 (TBMT 3.0)?

Intel Turbo Boost Max Technology 3.0 is a new capability in select Intel® Xeon® E5-1600v4 processors that allows higher single and dual core frequencies. This capability is designed into the processor and is not dependent on any special drivers or utilities to properly function. In combination with this new capability, Intel is delivering a driver/utility package that enables users to pin applications to the fast cores supporting the higher frequencies. It is supported on the HP Z440 and Z640 Workstations. For more details see the Intel® Turbo Boost Max Technology 3.0 on HP Workstations white paper.

What memory does the HP Zx40 offer?

- HP Zx40 Workstations will only support 4th generation double data rate memory called DDR4.

Are there still 4 memory channels in this architecture?

- Yes, there are 4 memory channels for each CPU.[4]

How much performance boost is expected with the new processors?

- The performance seen by a user will vary depending on the application and usage model.

What are the memory capacity differences between the products?
- HP Z440: Up to 128 GB (8 x 16 GB)
- HP Z640: Up to 256 GB (8 x 32 GB)
  - Requires 2 CPUs
- HP Z840: Up to 1 TB (16 x 64 GB)
  - Requires 2 CPUs

What are the advantages of DDR4 memory?
- DDR4 memory is moving at up to 2400 MHz, up from 1866 MHz on DDR3, so potentially, when the system is running at max capacity, the user could see an increase of up to 28% in speed and higher performance.

Why should I transition to DDR4 memory?
- New platforms only support DDR4 memory, so for this transition, it is necessary.

Why is DDR4 memory more expensive?
- DDR4 memory is a new technology, so its application in computer systems is still relatively low, making it more expensive to produce in lower volumes.

Will DDR4 memory work in the old HP Zx20 systems?
- No, the HP Zx20 systems support only DDR3 memory. DDR3 and DDR4 memory types cannot be intermixed or installed into systems in which they are not supported.

Will DDR3 memory work in the new HP Zx40 systems?
- No, users will have to transition to DDR4 for the new Zx40 series of HP Workstations.

HP Z440 Workstation

What are the at-a-glance features of the HP Z440?
- Intel® Broadwell processors with support for up to eight cores
- Windows 10 Pro and other editions and downgrades available[9]
- Intel® C612 chipset
- Intel® Xeon® Processor E5-1600 v3/v4 and E5-2600 v3/v4 Product Families[1]
- Improved Intel® Hyper-Threading and Intel® Turbo Boost Technologies[7,8]
- Intel® vPro™ Technology[10]
- Intel® Turbo Boost Max Technology 3.0 (TBMT 3.0) on select Intel® Xeon® E5-1600 v4 processors
- 8 DIMM slots, up to 128 GB of total DDR4 2400 MHz system memory[4]
- 4x USB 3.0 ports on the front and 4x in the rear
- PCI Express Gen3 lanes for enhanced I/O capacity
- 525W 85% or 700W 90% efficient power supply
- HP Remote Graphics Software (RGS) included for high-end screen sharing or remote access to a workstation from home

What does 4U rack mounting do for me?
- Under 4U width now provides a smaller chassis design that allows more room and functionality with rack mounting solutions.

What processors does the HP Z440 offer?
(see table on page 3)

How does the HP Z440 compare to the HP Z420?
- Configured with the next generation Intel® Broadwell processors, NVIDIA® and AMD graphics and HP Z Turbo Drive G2, the HP Z440 is faster and more capable to handle professional applications. It also offers more UBS 3.0 ports for faster connections as well as the optional Thunderbolt™ 2[3] add in card. The new chassis design provides an integrated front handle and is smaller than 4U to increase space for rack mounting. In comparison, the Z440 is more user friendly and faster with all the same features that made the Z420 a well-loved machine.

What differences do I need to be aware of (lack of, removal of, etc)

- Integrated 1394a, present on HP Z420, has been removed. This functionality is provided by an optional add-in card.
- The HP Z440 uses the HP standard air cooling with incredibly low acoustics specifically measured for optimal performance, but will no longer have the option of liquid cooling. However, HP has introduced the HP Z Cooler on the Z440 and Z840 platforms. The HP Z Cooler decreases the acoustic levels by up to 25% as compared to the standard air coolers currently used.
- The HP Z420 included 3 internal 3.5" storage bays, whereas the Z440 includes 2 internal 3.5" storage bays. This allows for improved cooling of the new higher-power architecture.

Why do we continue to offer two power supplies (US)?

- Many HP Z440 configurations do not require the amount of power provided by the larger, 700W power supply. For this reason, we offer you the choice of a lower power, lower cost option.

HP Z640 Workstation

What are the at-a-glance features of the HP Z640?

- Intel® Broadwell processors with support for up to 22 cores per processor
- Windows 10 Pro and other editions and downgrades available[9]
- Intel® C612 chipset
- Intel® Xeon® Processor E5-1600 v3/v4 and E5-2600 v3/v4 Product Families,[1] up to 145W
- Improved Intel® Hyper-Threading and Intel® Turbo Boost Technologies[7,8]
- Intel® vPro™ Technology[10]
- Intel® Turbo Boost Max Technology 3.0 (TBMT 3.0) on select Intel® Xeon® E5-1600 v4 processors
- 8 DIMM slots, up to 256 GB of total DDR4 2400 MHz system memory[4] with 2 CPUs
- 4x USB 3.0 ports on the front and 4x in the rear
- PCI Express Gen3 lanes for enhanced I/O capacity
- Standard 925W 90% efficient power supply
- HP Remote Graphics Software (RGS) included for high-end screen sharing or remote access to a workstation from home

What processors does the HP Z640 offer?

(See table on page 3)

How does the HP Z640 compare to the HP Z620?

- The HP Z640 offers all the next generation Intel® Broadwell processors, up to 44 cores with 2 CPUs, as well as NVIDIA® and AMD graphics and the HP Z Turbo Drive G2 PCIe storage. The Z640 offers more UBS 3.0 ports than the previous generation with an optional Thunderbolt™ 2[3] add in card and six SATA 6 GB/s ports.

What differences do I need to be aware of (lack of, removal of, etc)

- Integrated 1394a, present on HP Z420, has been removed. This functionality is provided by an optional add-in card.
- The HP Z620 included 3 internal 3.5" storage bays, whereas the Z640 includes 2 internal 3.5" storage bays. This allows for improved cooling of the new higher-power architecture.
- The HP Z620 included 2 embedded 1GbE LAN ports, whereas the Z640 includes 1 embedded 1GbE LAN port.
- The HP Z620 included 8 memory DIMM slots on the primary system board, whereas the Z640 includes 4 memory DIMM slots on the primary system board.

HP Z840 Workstation

What are the at-a-glance features of the HP Z840?

- Intel® Broadwell processors with support for up to 22 cores per processor
- Windows 10 Pro and other editions and downgrades available[9]
- Intel® C612 chipset
- Intel® Xeon® Processor E5-2600 v3/v4 Product Families,[1] up to 160W
- Improved Intel® Hyper-Threading and Intel® Turbo Boost Technologies[7,8]
- Intel® vPro™ Technology[10]
- 16 DIMM slots, up to 1 TB of total DDR4 2400 MHz system memory[4]
- 4x USB 3.0 ports on the front and 4x in the rear

- PCI Express Gen3 lanes for enhanced I/O capacity
- 850W 88% or 1125W 90% efficient power supply
- HP Remote Graphics Software (RGS) included for high-end screen sharing or remote access to a workstation from home

What processors does the HP Z840 offer?
(See table on page 3)

How does the HP Z840 compare to the HP Z820?
- The HP Z840 offers all the next generation Intel® Broadwell processors, NVIDIA® and AMD graphics and HP Z Turbo Drive. Added USB 3.0 ports on the front and rear of the chassis along with the optional Thunderbolt™ 2[3] add in card allows users to transfer data with increased speed.

What differences do I need to be aware of (lack of, removal of, etc)
- Integrated 1394a, present on HP Z820, has been removed. This functionality is provided by an optional add-in card.
- The HP Z840 chassis implements an updated industrial design encompassing updated materials and finishes. See the question above relating to the new industrial design elements.

Why do we continue to offer two power supplies (US)?
- Many HP Z840 configurations do not require the amount of power provided by the larger, 1125W power supply. For this reason, we offer you a choice of a lower power, lower cost option.

Graphics and displays

What graphics are offered on the HP Zx40s?

Name	HP Z440	HP Z640	HP Z840
NVIDIA® NVS™ 310 1 GB Graphics	✓✓✓	✓✓✓✓	✓✓✓✓
NVIDIA® NVS™ 315 1 GB Graphics (for HP Workstations)	✓✓✓	✓✓✓✓	✓✓✓✓
NVIDIA® NVS™ 510 2 GB Graphics	✓✓	✓✓	✓✓
NVIDIA® Quadro® K420 1 GB Graphics	✓✓	✓✓	✓✓
NVIDIA® Quadro® K620 2 GB Graphics	✓✓	✓✓	✓✓
NVIDIA® Quadro® K2200 4 GB Graphics	✓✓	✓✓	✓✓
NVIDIA® Quadro® M4000 8 GB Graphics	✓	✓✓	✓✓
NVIDIA® Quadro® M5000 8 GB Graphics	✓	✓✓	✓✓✓
NVIDIA® Quadro® M6000 12 GB Graphics	✓	✓	✓✓
AMD FirePro™ W2100 2 GB Graphics	✓✓	✓✓	✓✓
AMD FirePro™ W4300 4 GB Graphics	✓✓	✓✓	✓✓✓
AMD FirePro™ W5100 4 GB Graphics	✓✓	✓✓	✓✓✓
AMD FirePro™ W7100 8 GB Graphics	✓	✓	✓
AMD FirePro™ W8100 8 GB Graphics	✓*	✓*	✓*
AMD FirePro™ W9100 16 GB Graphics		✓*	✓*

*AMD FirePro™ W8100 and W9100 are tested and certified. Please visit hp.com/go/leadershipgraphics.

What GPU accelerators are offered on each platform?
- The NVIDIA Tesla K40 is offered in various configurations. Please see the hp.com/go/leadershipgraphics for supported configurations. As a note, all NVIDIA® Quadro® and AMD FirePro™ GPUs are capable of acting as GPU accelerators.

What HP Z Displays are supported?
All HP Z Displays and HP DreamColor Displays are supported on the HP Z440, Z640, and Z840 Workstations. For a complete list of HP Z Display options, see hp.com/go/zdisplays.

How many displays can be supported?
- Display support depends on the size and number graphics cards configured in the system.

Drives and storage

What are the storage differences between the HP Zx40 products

- The HP Z440 and Z640 Workstations will both have a maximum of 16 TB of storage[6], but the HP Z840 allows for a maximum storage of 20 TB. Aside from the 4 TB drive on the HP Z840, all three platforms will be configurable with a similar line up of 7200 SATA, 10K SAS, 15K SAS, and PCIe HP Z Turbo Drives.

What are the storage differences between the HP Zx40 and Zx20 products?

- In the HP Zx40 series, the number of SATA controller ports has been increased to support six (6x) SATA 6 Gb/s ports across all three platforms.
- Though supported in the HP Zx20 series, the Zx40 products will be configurable with the HP Z Turbo Drives G2, which provide you with the leading solution in PCIe storage.

How many storage devices does each new HP Zx40 support and what is the maximum capacity supported on each?

HP Z440 and HP Z640

- 16 TB max storage[6]
- 500 GB/1 TB/2 TB/3 TB/4 TB** 7200 SATA[6]
- 128 GB/180 GB/256 GB/512 GB/1 TB SATA SSD[6]
- 240 GB/480 GB Enterprise class SATA SSD
- 300 GB/600 GB/1200 GB 10K SAS[6]
- 300 GB/600 GB 15K SAS[6]
- 256 GB/512 GB/1 TB HP Z Turbo Drive G2[6]
- 512 GB (2 x 256 GB) up to 2 TB (4 x 512 GB) HP Z Turbo Drive Quad Pro[6]

HP Z840: six total hard drives are supported as CTO

- 20 TB max storage[6]
- 500 GB/1 TB/2 TB/3 TB/4 TB** 7200 SATA[6]
- 128 GB/180 GB/256 GB/512 GB/1 TB SATA SSD[6]
- 240 GB/480 GB Enterprise class SATA SSD
- 300 GB/600 GB/1200 GB 10K SAS[6]
- 300 GB/600 GB 15K SAS[6]
- 256 GB/512 GB/1 TB HP Z Turbo Drive[6]
- 512 GB (2 x 256 GB) up to 2 TB (4 x 512 GB) HP Z Turbo Drive Quad Pro[6]

Do the new HP Zx40 products offer support for the HP Z Turbo Drive? In what configurations?

- The HP Z Turbo Drive is supported in a variety of configurations with additional HDDs, SSDs, and HP Z Turbo drives, and also as boot/data and RAID configurations. Many configurations not listed below as factory supported are technically viable, and assembled by you with After Market Option (AMO) components.

Here is a summary of supported factory configurations at launch:

- Single HP Z Turbo Drive as Boot device
- Single HP Z Turbo Drive as Boot device + SATA HDD/SSD(s)
- Single HP Z Turbo Drive as Boot device + SAS HDD(s) on Z840
- Single SATA HDD/SSD as Boot device + HP Z Turbo Drive(1) as Data device
- Single SAS HDD as Boot device on Z840 + HP Z Turbo Drive(1) as Data device

Additional supported factory configurations (planned to be available shortly after launch):

- Single HP Z Turbo Drive as Boot device + Z Turbo Drive as Data device
- Single SATA HDD/SSD as Boot device + HP Z Turbo Drive(2) as Data device
- Single SATA HDD/SSD as Boot device + HP Z Turbo Drive(2) as Data w/ RAID 0
- Single HP Z Turbo Drive as Boot device + SATA HDD(n) as Data w/ RAID 0, 1

Do the new HP Zx40 products support Serial ATA (SATA) and serial attached SCSI (SAS) RAID?

- HP Z840 supports SATA and SAS with an onboard controller.
- HP Z440 and Z640 support SATA devices with an onboard controller. Support for SAS requires an additional SAS controller card.

Are any of the drives hot swappable?

- HP Workstations does not provide the full solution for hot swap of drives.

Is support for Thunderbolt™ 2 offered?

- Yes, Thunderbolt™ 2[3] is offered and supported as an optional add-in-card.

Why is Thunderbolt™ not standard?

- As a relatively new technology, Thunderbolt™ 2[3] is largely used and defined by specific market segments. While it is still in the development stages of getting more universally adapted, low volume and few use cases render it an expensive port to be standardized in all systems.

What are the port differences between the HP Zx40 and Zx20 products?

Ports	HP Z440	HP Z640	HP Z840
Front	4 USB 3.0 1 Headset 1 Microphone	4 USB 3.0 1 Headset 1 Microphone	4 USB 3.0 1 Headset 1 Microphone
Back	4 USB 3.0 2 USB 2.0 2 PS/2 1 RJ-45 (NIC) 1 Audio Line-In 1 Audio Line-Out - Serial supported with optional connector on PCI bracket cabled to system board connector	4 USB 3.0 2 USB 2.0 2 PS/2 1 RJ-45 (NIC) 1 Audio Line-In 1 Audio Line-Out - Serial supported with optional connector on PCI bracket cabled to system board connector	4 USB 3.0 2 USB 2.0 PS/2 2 RJ-45 to integrated Gigabit LAN 1 Audio Line-In (can be re-tasked as microphone) 1 Audio Line-Out 1 Serial
Internal	1 USB 2.0 port available by a 2x5 header. Each 2x5 header supports either one HP Internal USB Port Kit (EM165AA) or one 15-in-1 Media Card Reader. 1 USB 3.0 port available by a 2x10 header.	1 USB 2.0 port available by a 2x5 header. Each 2x5 header supports either one HP Internal USB Port Kit (EM165AA) or one 15-in-1 Media Card Reader. 1 USB 3.0 port available by a 2x10 header.	2 USB 2.0 ports available with a single 2x5 header. 1 USB 3.0 port available with a shrouded 9-pin connector. The 2x5 header supports either one HP Internal USB Port Kit (EM165AA).

Operating systems

What Windows solutions are supported?
- HP Z Workstations come the with following preinstalled:[9,11]
  - Microsoft Windows 7 Professional 64-Bit
  - Microsoft Windows 7 Professional (MSNA) 64-Bit
  - Microsoft Windows 8.1 Pro 64-bit
  - Microsoft Windows 8.1 (China) 64-bit
  - Microsoft Windows 7 Professional 64-bit (available through downgrade rights from Windows 8.1 Pro 64-bit)
  - Microsoft Windows 10 Pro
  - Microsoft Windows 7 Professional 64-bit (available through downgrade rights from Windows 10 Pro)

What Linux® solutions are available?
- HP Installer Kit for Linux® (includes drivers for 64-bit OS versions of RHEL 5 & 6 and SUSE Linux® Enterprise Desktop 11)
- Red Hat® Enterprise Linux® Desktop (Paper license with 1 year support; no preinstalled OS)
- Ubuntu Linux® 14.04 (planned availability in January 2015)

Is dual OS preload an option?
- Dual OS preload is only available through Custom Integration Services.

What is the HP Installer Kit for Linux®?
- The HP Installer Kit for Linux® is FreeDOS with our driver discs included. FreeDOS is a bare-bones OS, intended for those who want to load their own Linux® version.

What value does Linux® bring to HP on Personal Workstations?
- Linux® offers fast, flexible and reliable operating systems for HP Workstations. Designed for organizations requiring security, compatibility, stability and unlimited scalability, Linux® powers millions of computers with enterprise-proven technologies.

Now that we have tremendous mass storage, will we support a server OS?
- Server operating systems are not officially supported. For more information, please visit the whitepaper here.

Software

What manageability features are available on HP Personal Workstations?
- HP Workstations meet the industry standard specifications for DASH 1.1 and support Intel® Active Management Technology (AMT) 9.1 and Intel® vPro™ Technology.[10] Through these programs, IT administrators can remotely control features such as: power management, hardware inventory/alerting (including BIOS and firmware revisions), system defense filters, remote scheduled maintenance, and much more. HP Workstations also support software such as optional LANDesk Management Suite, Microsoft System Center Configurations Manager, and HP Client Automation Enterprise.

What standard software is included (free and preloaded) with HP Zx40 Workstations?

HP Remote Graphics Software[12]
- HP Remote Graphics Software (RGS) is the remote desktop solution for serious workstation users and their most demanding applications. Best of all, it comes with every new HP Z Workstation!
- This advanced tool allows users to access and share the desktop of a remote workstation over a standard network. All applications run natively on the remote workstation and take full advantage of the compute and graphics resources of the sending system.
- HP RGS also allows professionals to collaborate in real time with colleagues across the hall or across the continent using graphic intensive applications.
- For more details, refer to the RGS Datasheet and QuickSpecs.

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

- Maximize your entire workstation environment with access to the HP certified ISV ecosystem. Workstation optimization can take up to 80 steps, but with the HP Performance Advisor, you can do it in two — one-click to improve performance of your key applications and another to select and download certified graphics drivers.

- Gain a quick and accurate understanding of your entire system in one simple, intelligent interface. Expedite troubleshooting and eliminate downtime with one-click system reporting. And stay up-to-date with instant access to an extensive library of white papers on your workstation and key applications.

Foxit PhantomPDF Express for HP

Cyberlink Power DVD (reader)

Cyberlink Power2Go (burner)

What ISV certifications will be in place at launch?
- Please refer to hp.com/go/isv to view the most recent list of ISV certifications for each platform.

Warranty and support

Will the Zx40 still be covered under HP Elite Support?
- HP Zx40 Workstations will receive HP Elite support via an onshore call center in the United States and a dedicated support team.
- For more information see hp.com/united-states/campaigns/elite-products/assets/Elite_Premium_Support_FAQ.pdf.

What is the warranty and support for HP Zx40 Workstations?
- The operating system and preinstalled software follows the same warranty of the system. HP provides support for both Windows and Linux®.
- The standard, limited warranty for HP Zx40 Workstations will be 3/3/3.
- On-site Warranty and Service (Note 1): Three-years, limited warranty and service offering delivers on-site, next business-day (Note 2) service for parts and labor and includes free telephone support (Note 3) 8am - 5pm. Global coverage (Note 2) ensures that any product purchased in one country and transferred to another, non-restricted country will remain fully covered under the original warranty and service offering.
- NOTE 1: Terms and conditions may vary by country. Certain restrictions and exclusions apply.
- NOTE 2: On-site service may be provided pursuant to a service contract between HP and an authorized HP third-party provider, and is not available in certain countries. Global service response times are based on commercially reasonable best effort and may vary by country.
- NOTE 3: Technical telephone support applies only to HP-configured, HP and HP-qualified, third-party hardware and software. Toll-free calling and 24x7 support service may not be available in some countries.

Will HP stand behind Linux® when I have problems?
- Yes, HP will stand behind Linux® if it is a supported version.

Are HP Care Pack Services available?
- Yes, HP Care Pack Services are extended service contracts that go beyond the standard, limited warranties. Service starts from date of hardware purchase. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at hp.com/go/lookuptool.
- Additional HP Care Pack Services information by product is available at hp.com/hps/carepack. Service levels and response times for HP Care Packs may vary depending on your geographic location.

Will 4/4/4 and 5/5/5 Warranties be available?
- Limited three-year Mon-Fri 8-5 next business day, parts, labor and 24x7 phone support, terms and conditions may vary. Optional HP Care Packs are available to extend your protection up to five years.*
- A 4/4/4 and 5/5/5 limited warranty is planned to be available for ZSRP SKUs for select OEMs only. In all other cases, HP Care Packs should be used to provide this type of additional coverage. If you believe your account qualifies for this type of warranty, please check with your regional business unit.

*HP Care Pack Services are extended service contracts that go beyond the standard, limited warranties. Service starts from date of hardware purchase. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at hp.com/go/lookuptool. Additional HP Care Pack Services information by product is available at hp.com/go/carepack. Service levels and response times for HP Care Packs may vary depending on your geographic location.

[1] Multi-Core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. 64-bit computing on Intel® architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers, and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel® 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. Intel®'s numbering is not a measurement of higher performance. Intel®'s numbering is not a measurement of higher performance.
[2] Number of supported displays varies by configuration and graphics cards installed.
[3] Thunderbolt cable and Thunderbolt device (sold separately) must be compatible with Windows. Thunderbolt 2 is sold as an optional card for HP Desktop Workstations. To determine whether your device is Thunderbolt Certified for Windows, see www.thunderbolttechnology.net/products.
[4] Each processor supports up to 4 channels of DDR4 memory. To realize full performance at least 1 DIMM must be inserted into each channel. Actual memory speeds dependent on processor capability.
[5] PCIe Gen3 is new technology and it is expected that there will be limited cards available supporting this technology for a period of time.
[6] For storage drives, 1 GB = 1 billion bytes. 1 TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB of disk space is reserved for system recovery software.
[7] Intel® Turbo Boost technology requires a PC with a processor with Intel® Turbo Boost capability. Intel® Turbo Boost performance varies depending on hardware, software, and overall system configuration. See Intel®.com/technology/turboboost for more information.
[8] The hyper-threading feature is designed to improve performance of multi-threaded software products; please contact your software provider to determine software compatibility. Not all customers or software applications will benefit from the use of hyper-threading. Go to www.intel.com/info/hyperthreading/ for more information including which processors support HT Technology..
[9] Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows functionality. See www.microsoft.com for details.
[10] Some vPro functionality, such as Intel® Active management technology and Intel® Virtualization technology, requires additional 3rd party software in order to run. Availability of future "virtual appliances" applications for Intel® vPro technology is dependent on 3rd party software providers. Microsoft Windows required.
[11] This system is preinstalled with Windows® 7 Pro software and also comes with a license and media for Windows 8 .1 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.
[12] HP RGS requires a Windows, Linux®, or Mac® OS X 10.10 or newer operating system and network access.

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