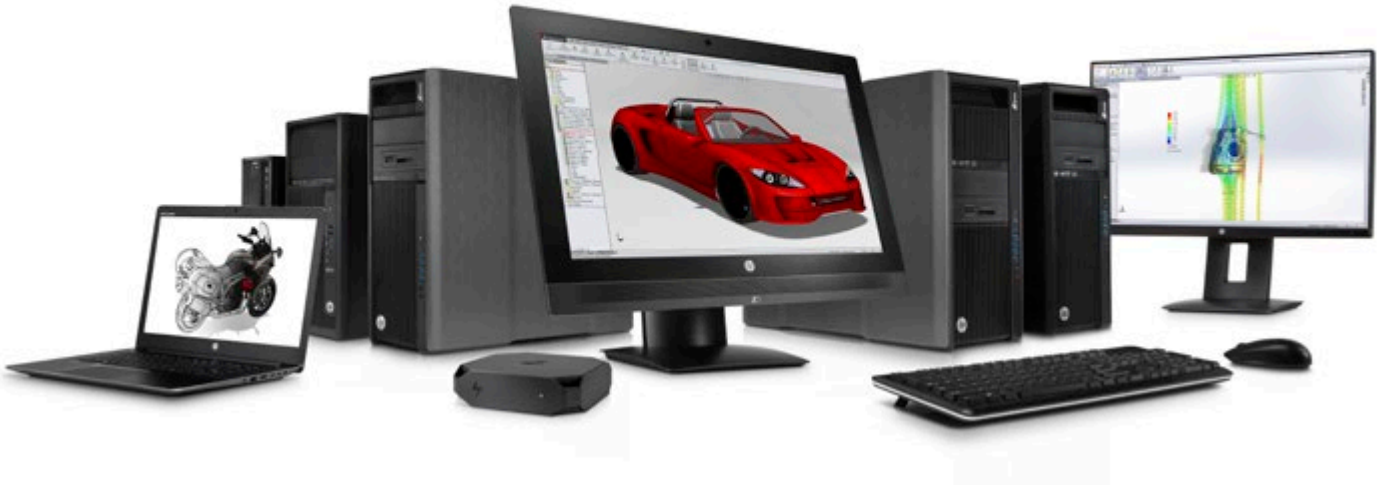
Technical white paper

HP and SOLIDWORKS 2017

Selection of HP Z Workstations for running SOLIDWORKS 2017



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What type of application is SOLIDWORKS 2017?

SOLIDWORKS is a 3D CAD design solution for rapid creation of parts, assemblies, and 2D drawings. Additional SOLIDWORKS solutions include data management, photorealistic rendering, sustainable design, and simulation and design validation toolsets and SOLIDWORKS VISUALIZE. SOLIDWORKS 2017 is supported on Windows 7 and Windows 10 (64-bit only).

SOLIDWORKS is certified on HP Z Workstations and professional graphics
SOLIDWORKS tests and certifies graphics card drivers for each version of SOLIDWORKS and supported operating systems. The results are displayed on the solidworks.com/sw/support/videocardtesting.html web site. SOLIDWORKS requires professional graphics cards with OpenGL capabilities.

How to select an HP Z Workstation for SOLIDWORKS

Processor (CPU)
SOLIDWORKS modeling features are typically serial (executed on a single core/thread) but some modeling tasks can leverage up to 4 cores. SOLIDWORKS PhotoView 360 uses the Luxology rendering engine for lifelike rendering. The rendering engine runs in parallel and can utilize many processor cores. SOLIDWORKS simulation and design validation tools can run in parallel and utilize more processor cores. SOLIDWORKS VISUALIZE provides a suite of standalone software tools that combine industry-leading rendering capabilities. SOLIDWORKS add-in programs may run in parallel (executed on multiple cores/threads). For this reason, consider the add-in program processor requirements.

Things to consider in processor selection:

- CPU clock frequency (GHz) is a top priority as it impacts all processor operations. Select the highest frequency possible.
- Four or six cores in a single CPU provides the highest clock frequency
- Consider dual CPU configuration when using PhotoView 360, VISUALIZE or add-in programs that run in parallel. The dual CPUs will provide more CPU cores.

Memory (RAM)
Things to consider in memory selection:

- 16 GB of memory is recommended for product design
- 32 GB of memory is recommended for more complex design
- Use HP Performance Advisor to monitor the SLDWORKS.exe memory usage with design loaded
- Fill memory channels and balance across CPU sockets with fastest memory DIMMs supported by processor
- More memory may be required for add-in programs or other applications

Graphics (GPU)
Things to consider in graphics selection:

- RealView display mode is supported only with professional graphics
- RealView display mode may be turned off in large assembly mode
- Visualize can utilize GPU (graphics card) compute
- Consider the graphics frame buffer size for your component count and detail
  - 2 GB frame buffer for 100 – 300 components with transparency
  - 4 GB frame buffer for 500 – 2,000 components with transparency
  - >4 GB frame buffer for > 2,000 components with transparency

Storage (SSD, HDD)
Things to consider in storage selection:

- A solid state drive (SSD) is recommended for optimal performance
- SSDs are commonly used for operating system, application and current dataset documents (Tier 1)
- High capacity hard drives (HDDs) are used to store larger archive dataset documents (Tier 2)
- HP Z Turbo Drive is a fast SSD solution in a PCIe x4 card slot or M.2 socket

HP Workstation recommendations for SOLIDWORKS 2017

SOLIDWORKS Workflow	Mainstream Desktop	Thin & Light Mobile	Performance Desktop	Performance Mobile
SOLIDWORKS	Z2 Mini i7-6700 v6 3.4/4.0T 4 Core 16 GB 512 GB SSD M620	ZBook Studio G3 i7-6820HQ v6 2.7/3.6T 4 Core 16 GB 256 GB SSD M1000M	Z240 i7-6700K v6 4.0/4.2T 4 Core 32 GB 512 GB SSD P4000/W5100	ZBook 17 G3 i7-6820HQ v6 2.7/3.6T 4 Core 32 GB 512 GB SSD M3000M/W6150M
SOLIDWORKS Simulation	Z240 SFF i7-6700 v6 3.4/4.0T 4 Core 32 GB 512 GB SSD P1000/W2100	ZBook Studio G3 i7-6820HQ v6 2.7/3.6T 4 Core 16 GB 256 GB SSD M1000M	Z240 i7-6700K v6 4.0/4.2T 4 Core 32 GB 512 GB SSD P2000/W5100	ZBook 17 G3 i7-6820HQ v6 2.7/3.6T 4 Core 32 GB 512 GB SSD M3000M/W6150M
SOLIDWORKS VISUALIZE	Z440 E5-1650 v4 3.6/4.0T 6 Core 64 GB 512 GB SSD P5000	ZBook Studio G3 i7-6820HQ v6 2.7/3.6T 4 Core 16 GB 256 GB SSD M1000M	Z840 (2) E5-2687W v4 3.0/3.5T 12 Core 64 GB 512 GB SSD (2) P6000	ZBook 17 G3 i7-6820HQ v6 2.7/3.6T 4 Core 32 GB 512 GB SSD M5000M/W6150M

Tips for running SOLIDWORKS 2016

Operating System setting	Default	Recommend
Control Panel/Power options	Balanced	High Performance

BIOS setting	Default	Recommend
Power/OS Power Management/Runtime Power Management	Enable	Enable
Power/OS Power Management/Idle Power Savings	Extended	Normal
Power/OS Power Management/Extended Idle Power States	Enable	Disable
Power/OS Power Management/S4/S5 Maximum Power Savings	Disable	Disable
Enhanced Halt State (C1e)	Enable	Disable
Advanced/Performance Options/NUMA (HP Z640 and HP Z840 dual processor)	Enable	Enable
Advanced/Performance Options/QPI Snoop Mode (HP Z640 and Z840 dual processor)	Early Snoop	Early Snoop

HP Performance Advisor

HP Performance Advisor can be used to install graphics drivers certified for SOLIDWORKS, select recommended system BIOS settings and help characterize SOLIDWORKS memory usage. Download from: hp.com/go/hpperformanceadvisor.

Learn more about the HP Workstations family at
hp.com/go/whitepapers
hp.com/go/solidworks
hp.com/go/thinkz

Screen images courtesy of Factory Five Racing, Motus Motorcycles, and Sage Cheshire Aerospace

1 Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows functionality. See microsoft.com.

2 Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations.

3 Each processor supports up to 2 channels of DDR3 or DDR4 memory. To realize full performance at least 1 DIMM must be inserted into each channel. Maximum memory capacities assume Windows 64-bit operating systems or Linux.

4 For hard drives and solid state drives, 1 GB = 1 billion bytes, TB = 1 trillion bytes. Actual formatted capacity is less. Up to 10 GB of system disk (for Windows 7) is reserved for system recovery software.

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4AA5-7540ENW, January 2017