HP Workstations

HP and ANSYS

HP desktop and mobile workstations deliver the performance, reliability, and application certifications you need to accelerate product development.

Accelerate Computer-Aided-Engineering with HP Workstations.

When you analyze designs using sophisticated simulation tools, you need a workstation that delivers extreme performance, reliability, and expandability. You'll find all of this in the HP Workstations portfolio. HP Workstations deliver the multi-core processing performance and large memories you need to accelerate complex simulation and analysis applications, including those that leverage both GPUs and CPUs, as well as workstation clusters. HP Z Workstations are designed to keep the Intel processors within their temperature specification so you can take full advantage of Intel® Turbo Boost Technology, while HP Performance Advisor, an HP exclusive tool for performance optimization, makes it easy to identify correct BIOS settings, drivers, and application settings.

When only the best will do.

HP Workstations are built for the unyielding demands of today's professional and technical workplaces. They are engineered to help your team work faster, work smarter, and gain a competitive edge. With bold designs, world-class engineering, robust management tools, and leading-edge visual collaboration solutions, HP Workstations take innovation, performance, and reliability to a new level.

HP and ANSYS

HP resources and our relationships with ANSYS, Inc., graphics vendors, chip suppliers, and Microsoft provide a consistent application, operating system, hardware, and graphics technical direction. This results in broader, more dependable performance-oriented technology choices. HP and ANSYS have a unique industry position and relationship that provides comprehensive solutions to the product development market.

Rigorous ISV Certifications

To ensure HP Workstations work as expected with ANSYS applications, HP invests in resources, equipment, relationships, benchmark testing as well as ANSYS certification. This level of HP effort means your investment in software and HP hardware is protected, with a commitment to the quality and support of the full solution. Check your HP Workstation certification status for ANSYS applications >>

Find more information on HP and ANSYS

Learn more

HP recommends Windows.

HP Advantages for ANSYS Customers

Use what engineers everywhere use	• HP is the leading supplier of Workstations and Mobile Workstations to the engineering market by a wide margin per IDC workstation tracker reports.[1]
Protect your investment with HP certification	• HP tests and submits HP Workstations to ANSYS for certification and our equipment stays onsite for ANSYS customer support. This protects your solution investment, as your ANSYS and HP Workstation solution can be duplicated.
Use HP expert knowledge	• HP application experts support customer issues, develop recommended configurations, run performance testing, and application performance analysis. • HP Performance Advisor provides specific performance settings for ANSYS applications. • Learn more with HP Tech Tips and see how you can benefit from specific HP and partner technologies.
Use HP collaboration tools	• HP Remote Graphics Software is designed to remotely access your ANSYS applications.

ANSYS has one of the industry's strongest multiphysics and simulation portfolios — enabling engineering teams to analyze the many forces that impact a complete product system, all the way down to the chip level. ANSYS portfolio supports collaboration and real-time information sharing among geographically dispersed team members. As a result, engineers can leverage systems-level analysis to make intelligent trade-offs in a low-risk, cost-effective virtual design environment.

Structural mechanics solutions from ANSYS provide the ability to simulate every structural aspect of a product, including linear static analyses that simply provides stresses or deformations, modal analysis that determines vibration characteristics, through to advanced transient nonlinear phenomena involving dynamic effects and complex behaviors.

All users, from designers to advanced experts, can benefit from ANSYS structural mechanics solutions. The fidelity of the results is achieved through the wide variety of material models available, the quality of the elements library, the robustness of the solution algorithms, and the ability to model every product — from single parts to very complex assemblies with hundreds of components interacting through contacts or relative motions.

ANSYS fluid dynamics solutions are a comprehensive suite of products which allow you to predict, with confidence, the impact of fluid flows on your product—both during the design and manufacturing and how it will perform during use. The unparalleled fluid flow analysis capabilities in the software can be used to design and optimize new equipment and to troubleshoot already existing installations. Whatever fluid flow phenomena you are studying: single-or multi-phase, isothermal or reacting, compressible or not, ANSYS fluid dynamics solutions gives you valuable insight into your product performance.
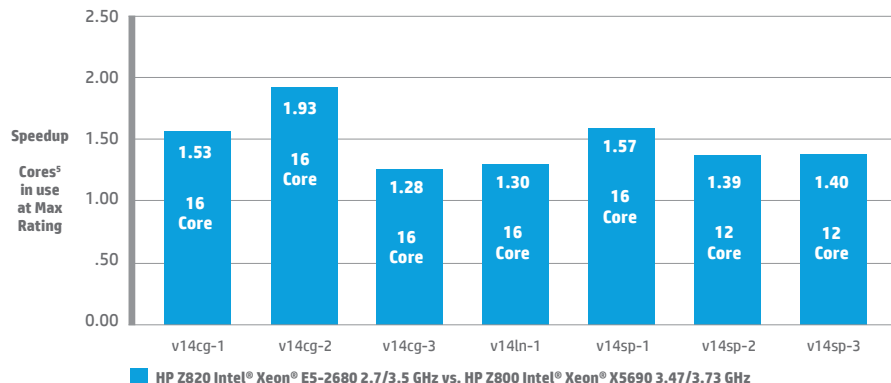
"HP and ANSYS have a long standing partnership that adds significant value to our combined customers. Included in this is a demonstrated understanding of the workstation hardware needs of ANSYS customers based upon real performance testing."

— Barbara Hutchings
Director, Strategic Partnerships, ANSYS, Inc.

Understanding and Planning Performance

ANSYS Mechanical DMP—HP Z820 Workstation is up to 1.93 times faster than a HP Z800
HP Z820 vs. HP Z800 Speed Improvement

Speedup

Cores[5] in use at Max Rating

v14cg-1	v14cg-2	v14cg-3	v14ln-1	v14sp-1	v14sp-2	v14sp-3
1.53 / 16 Core	1.93 / 16 Core	1.28 / 16 Core	1.30 / 16 Core	1.57 / 16 Core	1.39 / 12 Core	1.40 / 12 Core

■ HP Z820 Intel® Xeon® E5-2680 2.7/3.5 GHz vs. HP Z800 Intel® Xeon® X5690 3.47/3.73 GHz

This chart shows the improved performance of a HP Z820 Workstation over the HP Z800 Workstation. It compares a HP Z820 Workstation with 2 Intel® Xeon® E5-2680 2.7 GHz (3.5 GHz Intel® Turbo Boost) eight-core processors to a HP Z800 with 2 Intel® Xeon® X5690 3.47 GHz (3.73 GHz Intel® Turbo Boost) six-core processors running ANSYS Mechanical 14 DMP Benchmarks. Seven work loads are shown. Both systems were running Windows 7 Ultimate 64-bit. Tests were run by HP Technical Marketing May 2012.[5,6,7,8]

Built to perform like no other.

The HP Z Workstation family meets the full range of your workstation needs—from performance-driven computing and design work in space-constrained environments to extreme visualization and analysis with complex datasets. There is an HP Workstation for every professional requirement.

HP Z420 Workstation
Performance you want. Value you need. >>
The HP Z420 Workstation provides high levels of performance and expandability in an accessible tool-free mini-tower form factor—all at a great price. Ideal for part time ANSYS Mechanical users, or those doing pre and post processing.

HP Z620 Workstation
Our most versatile workstation ever. >>
With up to 16 discrete processor cores, the HP Z620 Workstation packs tons of computing and visualization power into a quiet, compact footprint. Ideal for ANSYS users who do not need the expandability.

HP Z820 Workstation
Our ultimate workstation. >>
The dual-socket HP Z820 Workstation delivers exceptional performance, award-winning industrial design, and tool-free serviceability in the industry's most expandable chassis. Ideal for ANSYS users who need maximum in processing cores, the massive memory configurations and GPU acceleration to get their simulations done quickly and effectively. This is the ultimate performing machine for ANSYS Mechanical, Fluent, Multiphysics and other simulations.

HP Workstations Clusters
More information on CAE and Workstation Clusters >>
Users everywhere are taking advantage of the HP Z820 Workstations in cluster configuration to get even more power applied to their simulations. Clusters can be set up as dedicated machines, or in simultaneous dual use configurations through creating and linking virtual machines on each workstation.

HP Mobile Workstations
Mobility for Business. >>
Make no compromises on performance or durability with the HP EliteBook Mobile Workstations. Offering high performance with exceptional battery life. Inspired by aerospace craftsmanship and materials, they feature a wear and smudge-resistant DuraFinish and an optional backlit keyboard for use in low-light environments. With HP rigorous design testing, 26 drops and still running smooth.

HP Workstation Innovation Highlights

HP award-winning Workstations are rich with customer-driven innovations. Servicing is easy with a tool-less access chassis and modular, direct-connect drives and power supplies on select models.

HP Performance Series Displays
Stunning at every angle. >>

HP Performance Displays are engineered to outperform, so you can create with striking visual results. These displays deliver maximum image performance and accuracy, thanks to vivid IPS panels, 178-degree viewing angles, and up to 10x the contrast ratio of mainstream displays, with top end resolutions. They also offer 30-bit panels (over 1 billion colors)[2,3] for outstanding visualization.

HP Performance Advisor
The built-in workstation guru. >>

HP Performance Advisor delivers a simple, effective way to keep your HP Workstation operating at its peak potential. Like having an IT pro always on hand, this helpful software wizard can take you from initial configuration and customization through the optimization of your system for each new application and driver you install. Monitor your system performance, memory usage, I/O, etc and more while your analysis are running.

Remote Graphics Software
Remote access with a "just like local" feel. >>

HP Remote Graphics Software gives you high-performance remote desktop access to your 2D, 3D, video, and media-rich applications—when and where you need them, on-site or from a remote location through a standard Internet connection. This HP innovation allows you to collaborate with colleagues across geographies, in real-time, using content-rich interactive applications. ANSYS users can log in remotely to restart simulations, without the need to download files or ANSYS applications.

HP Z820 Workstation — Recommended for CAE>>
Our ultimate workstation.

HP Workstations for ANSYS Products

Model	HP Z420 Workstation Minimum use case	HP Z420 Workstation Part time usage	HP Z420 Workstation Min NIVIDIA Telsa usage	HP Z820 Workstation Max single user
Operating System[4]	Windows 7 Professional 64-bit[†]	Windows 7 Professional 64-bit[†]	Windows 7 Professional 64-bit[†]	Windows 7 Professional 64-bit[†]
ANSYS Solution[5]	Standard ANSYS License (Dual-cores) plus pre/post licence	Standard ANSYS License (Dual-cores) includes pre/post license + additional Dual-cores	Standard ANSYS license (Dual-cores) includes 1 pre/post license + 1 HPC Pack (Eight-Cores + GPU)	Standard ANSYS license (Dual-cores) includes 1 pre/post license + 1 HPC Pack (Eight-Cores + GPU)
Recommended Min Processors[5,6]	Intel® Xeon® E5-1660 3.3GHz Six-Cores	Intel® Xeon® E5-1660 3.3GHz Six-Cores	Intel® Xeon® E5-2680 2.7GHz Eight-Cores	Qty 2 Intel® Xeon® E5-2680 2.7GHz Eight-Cores
Recommended Min Graphic Card	NVIDIA Quadro 600 (1 GB)	NVIDIA Quadro 600 (1 GB)	NVIDIA Quadro 600 (1 GB)	NVIDIA Quadro 2000 (1 GB)
Recommended Memory[7,8]	64 GB (8 x 8 GB) DDR3-1600 ECC	64 GB (8 x 8 GB) DDR3-1600 ECC	64 GB (8 x 8 GB) DDR3-1600 ECC	128 GB (16 x 8 GB) DDR3-1600 ECC
Recommended Storage	256 GB SATA 3.0 SSD for OS / 2 HDD 500 GB SATA 3.0 Disk Drive/RAID 0 (application data)	256 GB SATA 3.0 SSD for OS / 2 SSD 480 GB SATA 3.0/ RAID 0[10] (application data)	256 GB SATA 3.0 SSD for OS / 2 SSD 480 GB SATA 3.0/ RAID 0[10] (application data)	256 GB SATA 3.0 SSD for OS / 2 SSD 480 GB SATA 3.0/ RAID 0[10] (application data)
Recommended GPU[8,9]			NVIDIA Tesla C2075[11]	Qty 2 NVIDIA Tesla C2075[11]

Learn more
hp.com/go/wsansys and **hp.com/zworkstations**

Screen images courtesy of ANSYS, Inc.

† Windows 7 systems may require upgraded and/or separately purchased hardware and/or a DVD drive to install the Windows 7 software and take full advantage of Windows 7 functionality. See microsoft.com/windows/windows-7 for details.

1. IDC PC Tracker 1Q2011 to 1Q2012, Units, Workstations, Engineering segment
2. Testing was not intended to demonstrate fitness for DOD contracts requirements or for military use. Test results are not a guarantee of future performance under these test conditions.
3. All specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower.
4. 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. See intel.com/info/em64t for more information.
5. Multi-core are designed to improve performance of multithreaded software products and hardware-aware multitasking operating systems and may require appropriate operating system software for full benefits; check with software provider to determine suitability. Not all customers or software applications will necessarily benefit from use of these technologies.
6. Intel's numbering is not a measurement of higher performance.
7. Each processor supports up to 2 channels (HP Z220/HP Z220 SFF) or 4 channels (HP Z420/HP Z620/HP Z820) of DDR3 memory. To realize full performance, at least 1 DIMM must be inserted into each channel. To get full 8 channel support on the HP Z620 & HP Z820, two processors MUST be installed.
8. For hard drives, 1 GB = 1 billion bytes. 1 TB = 1 trillion bytes. Actual formatted capacity is less. Up to 20 GB of hard drive (or system disk) is reserved for the system recovery software for Windows 7.
9. SATA hardware RAID is not supported on Linux systems. The Linux kernel, with built-in software RAID, provides excellent functionality and performance. It is a good alternative to hardware-based RAID. Please visit http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00060684/c00060684.pdf for RAID capabilities with Linux.
10. Available fall 2012
11. Use only for those workloads that are helped by NVIDIA Tesla. 2 Tesla cords are only supported in ANSYS Mechanical 14.5.

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