



WORKSTATION INNOVATION NEWS

Understanding your desktop technology



Subscribe

Brought to you in part by:

cadalyst



In cooperation with:



New Products!

[HP Z1 Workstation](#)
[Special deals starting at \\$1,899.](#)



Screen image courtesy of Autodesk

[HP Z420 Workstation](#)

HP's Z1 Workstation

Compact, stylish packaging — workstation performance

By Robert Green, *Cadalyst* Contributing Expert



Wouldn't it be awesome if you could have an all-in-one workstation that hardly took up any desk space, looked great, had a big screen, wasn't cluttered with cabling and didn't have a tower unit under your desk to keep hitting with your feet? Of course it would, but all-in-one computers are underpowered, unexpandable, small machines long on image and low on performance, right? No more!

Looks Great on the Outside

HP's Z1 Workstation blazes new ground in the all-in-one computing category by delivering workstation-level performance, expandability, and graphics in a form factor scarcely bigger than a 27-inch flat screen. While the Z1 has some limits on what can fit inside its compact chassis, all but the most power hungry analysts and rendering specialists will find the single quad-core Intel® Xeon®^{1,2} E3-1200 processor, 32 GB RAM architecture up to most CAD tasks.

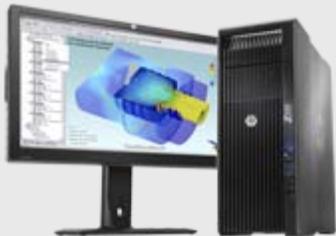
[Special deals starting at \\$1,169.](#)



Screen image courtesy of Autodesk

[HP Z620 Workstation](#)

[Special deals starting at \\$1,649.](#)



Screen image courtesy of Autodesk

[HP Z820 Workstation](#)

[Special deals starting at \\$2,299.](#)

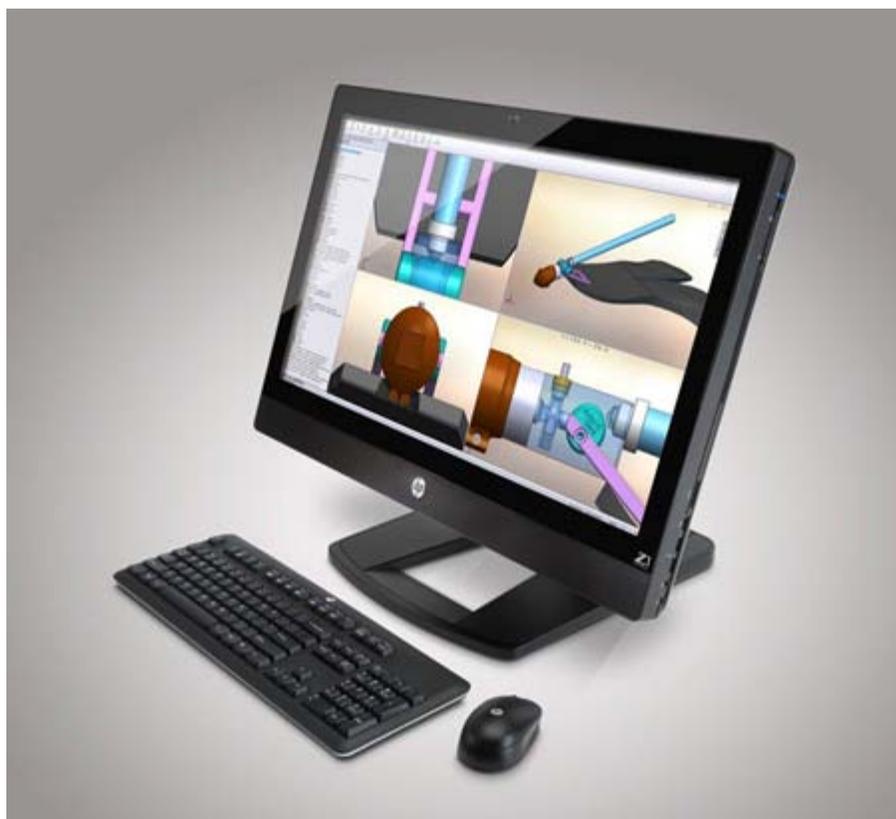


Screen image courtesy of Autodesk

HP Smart Buys

[HP Z210 CMT Workstation](#)

[Special deals starting at \\$659.](#)



The Z1 looks almost like a standalone monitor. Only the various ports and controls around the sides and rear of the unit clue you into the fact that the Z1 is actually a workstation.

A quick glance at the Z1 brings to mind a sturdily built, high-quality flat screen monitor without all the cords festooning from its rear. With its fully adjustable stand and clean lines, you'll see the Z1 sitting on a table and not even realize that the guts of a real workstation are lurking inside the Z1's clamshell-like chassis. It is actually a little disarming to realize that the only thing you need to do is plug the Z1 into a power outlet to get to work, as everything but the AC cord is wireless — the mouse, the keyboard, and the LAN connections. Of course, you can still plug portable drives or hard-wired network cables into the Z1's various expansion ports, if you like, although it seems a shame to ruin the clean, cordless appearance of the unit. In many ways, the Z1 is like working with a super high-power mobile computer — just bigger and faster.

My guess is that the Z1 will find its way into a lot of executive offices due to its unobtrusive and modern look alone. With a Z1 you tend to focus on the high quality screen and lack of wiring so much, that it is easy to forget it is actually a workstation. You may even catch yourself thinking how cool the Z1 is.

All Business On the Inside

But enough with being cool, let's get inside the Z1 and see what makes it tick. A simple backwards tilt of the screen exposes two latches that open the Z1's tool-free chassis³, exposing the incredibly well designed layout of this machine. Everything inside the Z1 can be removed/serviced without tools and no fear of pulling out cabling as all component connections are integrated into the polarized sockets. Only the flexible cabling leading to the display screen give you any clue that you're even looking at the inside of an electrical device.



Screen image courtesy of Autodesk

[HP Elitebook 8460w
Mobile Workstation
Special deals starting at \\$1,329.](#)



[HP ePrint & Share](#)

Contact HP

[Get the latest news
about HP along with a
host of resources for
online technical help and
support.](#)

More from HP

[HP Certification
Has your workstation been
tested and certified?](#)

[HP Workstations.tv
Check out HP on YouTube!](#)

[HP Z Workstation
Microsite](#)

[HP Autodesk Information](#)

[HP Performance Advisor](#)

[HP Remote Graphics
Software](#)

[HP Total Care](#)



With tool-free serviceability, the interior of the HP Z1 is remarkably clear of cabling and electronics, allowing clean airflow through the vertical chassis. Hard drives and the standard optical drive drives are mounted flat on the rear of the chassis behind the display screen.

Some investigation demonstrates that up to three drives/storage devices along with a graphics processor can all fit neatly inside the Z1. Now simply close the clamshell and rotate the monitor back into viewing position and you're back in business. You may find yourself asking, "How did they fit all that stuff in there?"

The Specs

Is the Z1 really a workstation? A quick look at the specifications answer that question.

Processor: The Z1 has processor options ranging from a 3.3 GHz Intel® Core™ i3 (dual core) with 3 MB of on board cache to the 3.5 GHz Intel® Xeon® E3 (quad core) with 8 MB of on board cache all based on an Intel C206 chipset motherboard. This range of processors is well suited for anything from 2D CAD on the low end to 3D CAD with occasional rendering on the high end — in other words, about what 90% of most CAD users do.^{1,2}

RAM: Memory is contained in up to four slots supporting up to 32 GB of fast DDR3 ECC RAM clocking in at 1600MHz.

Display: The 27-inch backlit LED screen supports resolutions up to 2,560 x 1,440 at up to 1-billion colors⁴ (surpassing HD level output resolutions and color depths) thus making even high end mechanical CAD and rendering users feel right at home. Because the screen uses in-plane switching (IPS) technology, it is viewable from very wide angles without color shifting.

Graphics: On board Intel HD 2000 graphics (on the i3 processor) and a more powerful HD P3000 graphics (on the Xeon 3.3GHz processor) mean that an additional graphics card may not even be necessary depending on the processing tasks undertaken with the machine. However, a variety of NVIDIA graphics cards ranging from the entry-level Q500M to the high-level Q4000M are available for those performing rendering, real time geometry rotation, or walk through functions requiring a memory rich graphical processing unit (GPU). All Z1 configurations also support an external DVI monitor connection for driving a second monitor if desired.

Drives: In addition to the on-board DVD optical drive, storage may be installed in one spot that serves double duty. It can be used for one internal 3.5" bay or two internal 2.5"

[Download the HP & Autodesk Productivity White Paper](#) and [The HP & Autodesk Brochure](#)

[Workstation Finder Tool](#)

From our Sponsors

ROCK-SOLID
INNOVATION



bays. It supports Raid 0 or Raid 1.

LAN connections: A wired 1 GB LAN connection and an 802.11 a/b/g/n wireless LAN/Bluetooth radio is included for easy connection to either fixed or wireless network topologies.

Peripheral connections: On the lower right hand side of the case of the Z1, you'll find two USB 3.0 connectors, an IEEE 1394a (FireWire) connector, a multi-format card reader, headphone, and microphone connectors. On the rear of the unit are four USB 2.0 connectors, an RJ-45 gigabit wired LAN port, audio line in/out, display port in and out, and additional audio outputs which I'll detail shortly.

As you can see, the Z1 has ample connectivity ability wedged into its compact chassis. You'd be hard pressed to find anything you can't plug into the Z1.



Even the back of the Z1 looks more like a high-end appliance than a computer.

Multi-Media

If my guess is correct, the cool looks and easy to move packaging of the Z1 will make it a favorite for conference rooms, client demos, and trade show booths as well as executive offices and CAD desks. And, because demo machines are expected to excel at audio and video tasks, these attributes of the machine merit a little more thorough investigation. The Z1's front, side, and rear panels hide several demo friendly features:

Integrated Web Cam: The screen bezel contains a full HD 1080p web cam (much like you'd see on a laptop) to facilitate web conferencing software applications or video capture. It's also adjustable up and down, so you capture what you want, not the top of your head.

Sound: While the integrated speakers allow for demo audio to be played back at standard volumes, the rear panel audio line in and out, SPDIF (Sony/Philips Digital Interconnect Format) digital audio output, and a subwoofer output make the Z1 an ideal machine to drive external high fidelity sound systems.

Monitor: At beyond high density resolutions using IPS LED technology, the Z1's on board screen is bright, viewable from wide angles and ultra crisp for use in CAD software demos. The ability to drive a secondary monitor with the included DVI port makes the Z1 an even more flexible video viewing machine. For high power demos at trade shows or

while on the road, the Z1's portability make it one of the most compact high performance systems obtainable.

Quiet, Cool, Easy to Maintain

While the power, flexibility and cool compact package make the Z1 attractive from the outside, the design features on the inside help make the Z1's cost of ownership more attractive. Including:

Energy consumption: The Z1 is powered by a 400-watt, 90% efficient power supply which cuts power costs and keeps waste heat down as well — thus allowing the use of smaller fans and flow through convective cooling to keep the Z1 quiet as well as cool.

Tool free chassis: The Z1's modified clamshell style design exposes all components in its tool free chassis³ for easy component swap out and servicing. Plus, the fact that you (or your IT staff) don't have to crawl around under desks and fumble with cables makes any maintenance that much easier to perform.



The Z1's clean design and easy setup will make it an ideal demo machine.

Limits: Cost and Function

Starting at \$1,899⁵, the Z1 is admittedly a bit more expensive than an equivalent tower-based desktop and monitor but the mobility, wireless design and compact size allow the Z1 to fit in many environments where tower-based machines dependent on corded network wiring would be clunky to install. When considering setup time and shipping costs at tradeshows or even the ability to carry the Z1 as carryon baggage, the Z1's compact size could actually pay for itself.

Of course, desk-bound engineers and analysts who need dual quad cores, multiple graphics cards and monitors or multiple RAID drives will still have to go with a tower-based machine under their desk as the Z1 can't be configured to meet these requirements. But how many day-to-day CAD users need these features? For most mortal CAD users, the Z1 has all the performance required without the bulk.

Wrapping Up

I've always approached computers from a dispassionate point of view, reasoning that a workstation is a tool not a piece of performance art. However, HP's Z1 is a genre defying machine that blends all-in-one convenience with stylish looks that conceal the workstation-level components inside. The Z1 is a machine you'd be pleased to work on

and your managers would love to have on their desks as well. And you have to admit, that really is pretty cool.

About the Author

Robert Green

Robert provides CAD implementation, consulting, and programming services for a variety of companies throughout the United States and Canada. He holds a degree in mechanical engineering from the Georgia Institute of Technology and is the author of *Expert CAD Management: The Complete Guide*. Reach him via his web site at www.cad-manager.com.

Disclaimers

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 <http://www.microsoft.com/windows/windows-7/> for details.

Select screen images courtesy of Autodesk, Local Motors, Inc. and Spracher Engineering. Intel, the Intel logo, Intel Core, and Ultrabook are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and/or other countries. Microsoft and Windows are trademarks of the Microsoft group of companies. ENERGY STAR is a US registered mark of the United States Environmental Protection Agency. AMD is a trademark of Advanced Micro Devices, Inc.

1. Dual-, quad-, and six-core technologies 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.
2. Intel's numbering is not a measurement of higher performance.
3. The Power Supply, Graphics Card, Hard Drives, Optical Drive, System Cooling Blower and Memory can all be accessed, and removed without tools. Tools may be required for all other components.
4. 1.07 billion viewable colors through A-FRC technology. All specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower.
5. Prices, specifications, availability and terms of offers may change without notice.

© Hewlett-Packard Development Company, L.P. 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.

You are currently subscribed to *Workstation Innovation News* as %%emailaddr%%.
Please do not reply to this message. If you wish to leave this mailing list, simply [Unsubscribe](#)
Cadalist is a division of Longitude Media LLC, P.O. Box 832, Dover, MA 02030.
© 2012 Longitude Media Group, Inc. All Rights Reserved. Refer to our [Privacy Policy](#).
Send us your feedback: customerservice@longitudemedia.com