



Why you can't afford cheap computers

There have been great advances in software functionality in recent years. From solar analysis in Revit to stress computation packages that run with Inventor or even realistic point cloud visualization in AutoCAD, the design software we use can do more and more. But how can this powerful software provide real value to us if it is forced to run on an old, slow (or both) consumer grade computer? And for that matter does it make sense for expensive design and engineering talent to sit idly by while these old/slow computers take way more time than they should to complete a task? These are the questions we'll examine in this Tech Insights document.



The HP Z240 SFF and HP Z240 Tower Workstations offer great performance at reasonable prices.

Cost justification 101

Here's the conundrum: Everyone would love to have a new high-powered workstation but how can we be sure it makes sense to purchase one? To answer the question a few parameters must be understood, including the following:

New workstation cost. What will a new workstation, like HP's Z240 SFF, cost?

User labor cost. What is the labor cost of the user who'll receive the new workstation? The more the user makes the easier it will be to justify a new workstation—more on that in the next section.

Maintenance costs. How much does it cost to maintain an old PC? Contrast this cost with the comprehensive 3-year limited warranty that all HP Workstations include.

Knowing these parameters will allow you to understand the complete cost and savings picture so you can compute your cost justification.

The costs of old computers

The first question that must be examined is exactly what old computers cost your company. At this point someone in accounting will probably say, "Old computers don't cost us anything because they're already paid for!" But using the well-known equation $\text{Time} = \text{Money}$, old computers really can rack up substantial costs as compared to a well-equipped HP Z240 SFF Workstation. Consider the following:

Slow task completion. The older computer simply takes longer to perform a task than it otherwise would on the Z240 SFF.

Crashing and restarting. For complex processes - like rendering or visualization - older computers with less RAM and no SSD can sometimes lock up. Any time it takes to restart the process and reclaim lost work is time lost.

Inability to multitask. With today's high power design software, it is possible to perform analysis in the background while design continues, or to create animations/renderings while working with a spreadsheet or AutoCAD session in the foreground. With the Turbo Boost speeds of today's Intel® processors, high bandwidth SSD's and certified graphics GPUs, these background processes

can move right along while the foreground applications receive maximum processor frequencies for fast, freeze free performance.

Extra support time. Keeping an old computer with obsolete hardware running can sometimes be costlier than you think. IT time spent supporting obsolete graphics cards and the expense of fixing old hardware quickly adds up where the new workstation would have none of these issues. Your challenge is to figure out how many hours a user experiences these types of problems per year to arrive at a total number of wasted hours per year for each old computer in your office.

Time = Money = Savings

To convert the wasted time you tallied in the last step into money you'll need the labor rate of the user sitting at the computer. Simply multiply the labor rate times the wasted hours per user in a given year and you'll have a solid savings estimate. Obviously, a \$22/hr drafter will present less savings potential than a \$38/hr rendering specialist or a \$55/hr mechanical engineer will, but you may be surprised at how it all adds up. Consider the \$55/hr mechanical engineer's case if a one hour per week time savings can be achieved. At 48 work weeks per year the annual wasted

Helpful links

hp.com/go/AEC
hp.com/go/engineering
hp.com/go/autodesk
hp.com/go/Z240

time for this engineer equals a whopping \$2640 (48 weeks* 1 hr/wk * \$55/hr). And if you consider that a new workstation (with a three-year life span) will actually save an hour per week for a full three years the savings goes up to \$7920. By substituting the drafter's or rendering specialist's labor rates you'll arrive at three-year savings of \$3168 and \$5472, respectively.

The final justification

A quick visit to the HP web site allows you to configure an HP Z240 SFF with a 3.5 GHz Intel® Xeon® processor, 16 GB RAM, a 256 GB Z Turbo Drive SSD¹, a 1 TB hard drive¹, and a 2 GB NVIDIA® Quadro® 620 graphics processor² for \$1499³.

Remember when the accountant said, "Old computers don't cost us anything because they're paid for" in an earlier section? Now we can confidently make the case that these older computers really do cost money based on our time savings studies.

Further, we can see that investing in a new \$1499 Z240 SFF Workstation is actually a money maker if we consider the case of the mechanical engineer. Equipping the engineer with a new \$1499 workstation can start saving \$2640 per year which can pay for the new workstation in 29.5 weeks.

HP recommends Windows 10 Pro.

In summary

Why continue to slow your high cost users down with slow, crashing obsolete computers when you can actually profit from high power, low cost workstations like HP's Z240 SFF? While your user time savings and labors costs will likely vary from the scenarios presented here, You can use the same methodology to make smart workstation purchasing decisions in your organization. You may find that those old "paid for" computers are really costing you.

About the author

Robert Green provides CAD management consulting, programming, speaking, and training services for clients throughout the United States, Canada, and Europe. A mechanical engineer by training and alpha CAD user by choice, Robert is also well known for his insightful articles and book, Expert CAD Management: The Complete Guide. Reach Robert at rgreen@greenconsulting.com.



1 Maximum memory capacities assume Windows 64-bit operating systems or Linux. With Windows 32-bit operating systems, memory above 3 GB may not all be available due to system resource requirements.

2 Intel HT Technology (HT) is designed to improve performance of compatible multi-threaded software products and requires an HT-enabled chipset, BIOS and OS. Not all customers or software applications will benefit from the use of HT. See intel.com/info/hyperthreading for more information.

3 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 system required. Performance will vary depending on your hardware and software configurations.

