

GEARBOX SOFTWARE

Game development accelerated with new HP xw8600 Workstations



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—Michael Athey, Director of Information Technology, Gearbox Software

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HP customer case study: Gearbox Software moves up to fifth generation of HP Workstations to continue rapid game development

Industry: Gaming

Objective:

Continue to accelerate speed of new game development

Approach:

Gearbox Software has deployed HP xw8600 Workstations (its fifth generation of HP Workstations) and HP DreamColor displays, all leased through HP Financial Services

IT improvements:

- Improved I/O throughput and processing speed eliminates development bottlenecks
- Broader color gamut enables artists to see new level of color detail
- Hardware addresses 8GB of RAM for faster processing

Business benefits:

- Developers save an estimated two hours daily in compiling
- HPFS leasing facilitates 12- to 18-month technology refresh

When you find a good thing, you stick with it. That is why Gearbox Software, an award-winning developer of computer games, is now on its fifth generation of HP Workstations—specifically, the HP xw8600 Workstation, used in combination with HP DreamColor displays.

Game developers and artists at Gearbox use HP Workstations to develop and test such games as *Brothers in Arms: Hell’s Highway*, *Aliens: Colonial Marines*, *Borderlands* and others. They choose HP for performance, ease of deployment, reliability and value.

“The gaming industry pushes the boundaries for performance,” says Michael Athey, Director of Information Technology at Gearbox. “We have found HP Workstations are the best fit for us. Our developers



love them, our artists love them, and for ease of deployment and support, I love them. They're the best Workstations for us out there."

HP xw8600 Workstations: "Everybody wanted them"

Gearbox (www.gearboxsoftware.com, as well as www.gearboxity.com) standardized on HP Workstations in 2005 after a thorough assessment of the industry. Its most recent rollout was the xw8600 Workstation, with Intel® Xeon® Quad-Core E5430 processor, 8GB of memory, 146GB Serial Attached SCSI (SAS) hard drives, and the latest consumer-grade ATI and NVIDIA video cards, all running under the 64-bit¹ genuine Windows® Vista® Business operating system.

Athey started with a small deployment of 12 xw8600 Workstations to just one development team. After a short period of internal testing, word around the water cooler led to demand for more. "I started getting requests for immediate upgrades from the other teams," Athey says. "Everybody wanted them."

Why the positive reviews? "Well, our users can get more work done with the xw8600 Workstation. That's for sure," Athey notes. He estimates the xw8600's improved performance translates to time savings of as much as two hours per day for developers who are compiling levels, "cooking" maps or other processor-intensive tasks.

Athey credits both the chip set and the bandwidth that the Workstation can utilize between the CPU and memory. "That alleviated one of the major bottlenecks for developers," he explains. "The choice of SAS drives also increased productivity for our coders."

He notes that in compiling parts of a game, optimizing I/O between the CPU and memory is critical. "Going with the Intel 5400 chipset and, in particular, the newer grade Intel Xeon 5430 processors allowed us to utilize more memory across the pipe between the CPU and memory."

"If you take too long to develop the game, the technology that you chose at the beginning of that cycle is going to look old and dated by the time it comes out. So we need game development to move along as quickly as possible. Having leading edge Workstations from HP is a big part of that."

Michael Athey, Director of Information Technology,
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To facilitate that further, Athey moved developers from Microsoft® Windows XP to the 64-bit version of Vista. "Implementing Direct X10 within our next generation games was important, as was the move to 64-bit Vista OS because it would allow us to make more use of memory within the Workstation. Before that, we were

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limited to 4GB, and effectively that means about three-and-a-quarter GB usable,” Athey explains.

With the move to the 64-bit Vista OS, developers have access to all 8GB of RAM. “That’s why we moved to Vista now. We decided it was smarter to go to Vista with 64-bit processing now rather than moving to Windows XP 64-bit now, and then migrate a second time to Vista later on.”

Athey adds that the HP xw8600 Workstation delivers more graphics processing bandwidth than previous generation Workstations. “The improved graphics processing is due to the Xeon 5400 chipset and how HP has engineered that on their Workstation,” he notes.

HP DreamColor displays improve color accuracy

But video quality itself is critical, which is why the company is deploying HP DreamColor displays to lead artists and art directors. The HP DreamColor LP2480zx Professional Display is the world’s only color-critical LCD display based on HP DreamColor Engine technology. The 30-bit LCD panel technology supports more than 1 billion active colors—64 times the color gamut supported by traditional LCDs.

“Having a display that we know is much more accurate in terms of color precision lets us sleep better,” jokes Brian Cozzens, an Art Director at Gearbox. “We have to know the game will ‘read’ properly for users at home, and the DreamColor display is the best assurance we can get.” He says the display is surprisingly bright, but even when he turns down the luminosity, the image retains its integrity. “It doesn’t become washed out, or shift toward yellow. There’s no loss of clarity,” he explains.

In working with still reference photos from the *Alien* movie series, Cozzens notes, “I was seeing information

I’d never seen before. The color nuances brought out detail we had missed before.” While gamers don’t have monitors today that will match the DreamColor’s ability to deliver subtle color variation, it’s only a matter of time before the technology works its way into the broader consumer market, Athey says. So it’s important for Gearbox to work toward delivering the very best color possible.

Rapid refresh facilitated by HP Financial Services

Athey has the game development staff on a 12- to 18-month refresh cycle. “Keeping ourselves at the top of the technology curve for Workstations is very important for our development team,” he says, because they push the capabilities of each new generation Workstation.

The choice of what technology will be used to develop a game are made early in the production cycle.

“What are you going to use for the engine? For the lighting? For animation? How are you going to handle voice-overs? All these technologies are integrated into a game, and if you take too long to develop the game, the technology that you chose at the beginning of that cycle is going to look old and dated by the time it comes out,” Athey explains. “So we need game development to move along as quickly as possible. Having leading-edge Workstations from HP is a big part of that.”

To facilitate the rapid refresh, Gearbox leases all its Workstations through HP Financial Services (HPFS). Athey says leasing ensures his developers can have current technology, and that Gearbox can easily dispose of old technology when the time comes.

Leasing also makes technology costs more manageable. “From a business perspective, the lease cost is just like any other cost of doing business—a consistent, level, monthly expenditure—as opposed to having to make a major outlay one month and then depreciate it over the next few years,” Athey notes.

Gearbox’s leasing agreements with HP not only allow the company to keep costs consistent over the life of a project, but to take advantage of technology advancements and the cost advantages that result. “As Workstation technology has gotten better, the price/performance has actually improved. So in some cases, newer technology is actually cheaper than what we had in the past, and it delivers improved performance. Leasing through HPFS gives us the flexibility to take advantage of new technology at the time that’s best for us.”

Finally, Athey notes, working with HPFS under a master lease simplifies the process. “There are times when I’ll need to add 10 or more Workstations within a matter of weeks. I don’t have extra time to go through more

Customer solution at a glance

Primary applications

Interactive game development

Primary hardware

- HP xw8600 Workstations
- HP DreamColor displays

Primary software

- Genuine Windows Vista

HP Services

- HP Financial Services
- HP on-site hardware support

paperwork and hoops to get new financing. HP was happy to work with us on crafting a master lease agreement, where every purchase order is an addition to the master lease under the same terms. And we can customize the agreement on each Workstation so that if I want to keep all the developers on a team on the same technology, we retire those Workstations all at the same time. HP's willingness to shape the lease to our needs really shows that they're dedicated not just to their own success, but also to ours."

HP & Gearbox: a partnership that delivers

Athey says he thinks of HP as a true technology partner. "At the drop of a hat, I can call Matt Barker, our HP representative, and he will work with me to develop the right solution for our needs, pulling in other people from within HP as need be," he notes. One recent example: finding a new technological solution to compiling the final version of a new game for multiple platforms. Typically the final compile is done on a server farm with large RAID arrays. But even with the RAID, the operation is a bottleneck that can delay final release of new games.

"HP and our local HP partner, TSA, came up with a solution and a way to demonstrate it." They provided

Gearbox with a ProLiant DL 580 server with 256GB of RAM to test the idea of compiling everything within a RAM drive. "And it was a big success. It cut the time down from approximately 12-16 hours in the past, to just two to three hours." By providing Gearbox with the tools to do a proof of concept, Athey notes, HP helped the company zero in on the right solution.

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"HP has been accommodating and open to sharing their future plans with us," he says. "They keep us fully in the loop on what is going on in HP that Gearbox may be able to leverage in our business, even listening to feedback and soliciting our assistance at HP's first Game Developers Council. That's the kind of technology partner you want in a business like ours."

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