

Case study

Blur Studio

Deadpool benefits from accelerated power and speed with HP Z Workstations



Industry

Media & Entertainment

Objective

Reinvent production workflows to accelerate simulations and unleash artists' creativity

Approach

Deploy HP Z840 Workstation with NVIDIA® Quadro® M6000 Graphics, and HP DreamColor Z27x Studio Display

IT matters

- Achieve near real time pre-visualization of CG title sequence
- Accelerate simulations by about 2x, enabling additional creative iteration
- Ease color grading with 10-bit color-accurate monitors

Business matters

- Reinventing production workflows impact artistic and business efficiency
- Base decisions on final-frame clarity earlier in production cycle
- Ease movement to UHD and 4K resolution products



Photo courtesy of 20th Century Fox

“With the NVIDIA® GPUs in the HP Z840 Workstations, the quality of our pre-visualizations surpassed all expectations of what our clients were used to seeing.”

—Kevin Margo, VFX/CG supervisor and director, Blur Studio



Blur Studio, an award-winning production company based in Culver City, Calif., produces stunning live action, animation, visual effects and design for any media platform. The studio is co-owned by Tim Miller, director of the American superhero film *Deadpool*, based on the Marvel Comics character of the same name. Behind the scenes at Blur Studio, the creators of *Deadpool's* eye-popping title sequence and VFX relied on the power, speed, and color accuracy of HP Z Workstations with HP DreamColor Displays.

The first 90 seconds of *Deadpool* is the title sequence, but there's much more going on than words scrolling across the screen. As one might expect from one of the industry's highly innovative studios, there's a stunning feast for the eyes, involving—not to give too much away—a highway, some bad guys, and a hero with attitude. If you could pan behind the scenes to how Blur Studio created this sequence, you'd see visual effects specialists, IT professionals, and studio executives all striving to create the best work possible while meeting production deadlines and budgets.

“FX simulations can run for days and can only be run on a single machine, so it's critical to have the fastest possible workstation. HP Z840 Workstations dramatically accelerate this process.”

– Kirby Miller, FX department supervisor, Blur Studio

Bringing it all together is what Blur Studio staff call the most “smoking fast” computer powerhouse they have ever used: The HP Z840 Workstation. “Word quickly spread through the studio that we had these killer boxes, and everybody was coming up with a reason why they needed to use one—modelers, animators, scene assembly folks,” recalls Duane Powell, Chief Technology Officer (CTO) and co-owner of Blur Studio. “We used the HP Z840 Workstation in a variety of ways, but since the FX department always has the highest demand for processing power, they had first priority.”

Improved pre-visualization impacts creativity, efficiency

The HP Z840 Workstation delivers robust processing power, professional graphics, memory, and ultra-fast internal storage capacity for high-end computing and visualization. Blur Studio has the Z840 Workstations equipped with NVIDIA® Quadro® M6000 Graphic cards. Their biggest impact during the creation of *Deadpool*—both on creative output and business efficiency—

was in pre-visualizations of the title sequence created by the visual effects department.

In the past, hardware limitations allowed only crude renderings during early production stages. Artists, unable to see fully detailed soft shadows, lighting, reflections, and ambient occlusion, had to make creative adjustments later in the process to perfect their work. Meanwhile, executives would have to base their project-approval decisions on imagining what the final product would look like.

The HP solution changed all that by enabling the equivalent of final-frame rendering in near real time. Configured with dual 10-core Intel® Xeon® CPUs, 64GB of system memory and HP Z Turbo Drives—along with the NVIDIA® Quadro® M6000 graphics processing units (GPUs)—the Z Workstations brought unprecedented power and speed to the studio's workflows.

GPU-accelerated computing enhances performance by offloading compute-intensive portions of the application to the GPU, while the remainder of the code still runs on the CPU. “The HP Z Workstations are lightning fast, they've got a ton of RAM, and they safely facilitate a speedy workflow—which is further accelerated when the data is handed off to the GPU to continue rendering.

We were able to run Chaos Group's V-Ray® RT at interactive frame rates while we were lighting the title sequence,” says Kevin Margo, Blur Studio's VFX/CG supervisor, who also served as lighting technical director for *Deadpool*. “As a result, our pre-visualizations looked better than any of our clients were used to seeing, and that gave them confidence in our ability to execute.”

“A GPU-centric workflow supported by a monster machine like the HP Z840 Workstation bridges the gap between a creative idea and its execution.”

– Kevin Margo, VFX/CG supervisor and director, Blur Studio

The Blur visual effects team delivered its work in progress to the VFX Supervisor and the editorial department, which in turn funneled it



Photo courtesy of Blur Studios

through to Director Tim Miller and the *Deadpool* stakeholders. For the first time, artists and executives alike could base their decisions on richer details than what would otherwise be seen this early in the production process.

“High-pressure decisions are being made,” CTO Powell says. “We wouldn’t have been able to sell our creative ideas to these clients without the HP Z Workstations. We wouldn’t have been able to turn fully rendered work around fast enough.”

Cutting simulation run times enables additional creative

Blur Studio uses V-Ray software from Chaos Group for near real time rendering; Autodesk® 3ds Max® for modeling and animation; Houdini software from Side Effects and FumeFX from Sitni Sati for visual effects; and NUKE software from The Foundry® for compositing. The HP Z Workstations at Blur Studio accelerated all of these applications. The time it took to run visual effects simulations dropped by about half, doubling the number of possible iterations.

Unlike with a traditional render, which can be farmed out to multiple machines to speed the process, simulations generally run on a single device because every frame depends on the one before it, explains Kirby Miller, Blur Studio FX department supervisor. The only way to get a faster simulation is to get a faster machine. With simulations taking anywhere

from a few hours to three weeks, cutting that time in half with the HP Z Workstations significantly improved production workflows. A two-day simulation started on a Thursday would come back on Friday, allowing artists to make an additional round of creative changes before Monday.

“When you have a deadline and you’re up against the wall, you have one more try at a sim to get it right,” Miller says. “The great advantage of the HP Z Workstations is the speed compared to other simulation workstations we’ve had in the past. I wasn’t sitting around waiting and taking a coffee break to see the results. Having additional workstations was great too, because then you could send off different versions of the scene for review.”

“To make things happen in real time and see the results of the decisions you’re making is a huge benefit to both the creative process and to business efficiency.”

– Duane Powell, CTO and co-owner, Blur Studio

From an IT point of view, faster speed reduced Blur Studio’s infrastructure worries of weeks-long simulations being interrupted by building air conditioning issues or by fluctuations in the public power grid.

Blur Studio staff also liked the flexibility and design of the HP Z Workstations. The tool-less chassis made it easy to swap out graphics cards and power supplies. HP Z Turbo Drive provided a fast onboard storage solution, and now Blur is experimenting with HP Z Turbo Drive Quad Pro 16x faster than a regular SATA SSD. For offline storage, Blur used the extreme performance production storage solution from Open Drives.

“You might have to be an IT geek to appreciate it, but the HP Z Workstation is a thing of art,” says CTO Powell. “It’s so well-designed. The inside is like a sports car and the outside, beautifully, is a simple box with handles so you can rack it.”

HP DreamColor eases evolution to 4K future

Complementing its HP Z Workstations, Blur Studio uses HP DreamColor Z27x Studio Displays featuring 4K input support and 10-bit color driving up to 1.07 billion onscreen colors. “It’s great to have a self-calibrating monitor, in

terms of cost and the time it saves from having to hire third party calibrators to come into the studio with their tens of thousands of dollars in equipment,” Powell says. “It also gives directors and color specialists confidence in a project’s color accuracy.”

As the media industry moves to 4K and Ultra High Definition (UHD), files grow larger and workflows demand ever increasing processing power and speed. Technologies of the past cannot keep up with these demands, making forward-thinking studios like Blur look to HP.

“A GPU-centric workflow supported by a monster machine like the HP Z840 Workstation bridges the gap between a creative idea and its execution,” says VFX/CG Supervisor Margo. “You achieve substantial production gains for visual effects, for commercials—for all kinds of creative projects.”

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hp.com/go/dreamcolor

Customer at a glance

Application

Pre-visualization of title sequence FX simulations, using Autodesk 3ds Max; GPU rendering using V-Ray software from Chaos Group; compositing with NUKE software from The Foundry®

Hardware

- HP Z840 Workstations, configured with:
 - Dual 10-core Intel® Xeon® CPUs
 - NVIDIA® Quadro® M6000 Graphics card
 - 64GB system memory
 - 512GB SSD OS Drive Win 8.1 64-bit Pro
 - HP Z Turbo Drive PCIe SSD 512GB
 - HP Z Turbo Drive Quad Pro
- HP DreamColor Z27x Studio Display

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4AA6-4161ENW, February 2016

