

Case study

Brain Farm

Pushing the envelope of digital filmmaking using
HP Z Workstations with Intel® Xeon® processors



Industry

Media & Entertainment

Objective

Scale post-production studio to meet workflow needs of multiple long-form 4K projects

Approach

Deploy HP Z Workstations powered by Intel® Xeon® processors with Z Turbo Drive Quad Pro and HP DreamColor Professional Displays

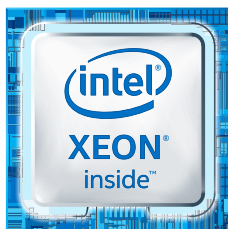
IT matters

- Previous rendering speed of 10 minutes reduced to about 30 seconds
- Process 100+TB raw media per project, 30,000 clips
- Playback 4K resolution native files in real time

Business matters

- Scale post-production workflow to meet higher demands for 4K resolution
- Enable growth from one to four major films a year
- Unleash artists' creativity while meeting production budgets and schedules

BRAIN FARM
DIGITAL CINEMA



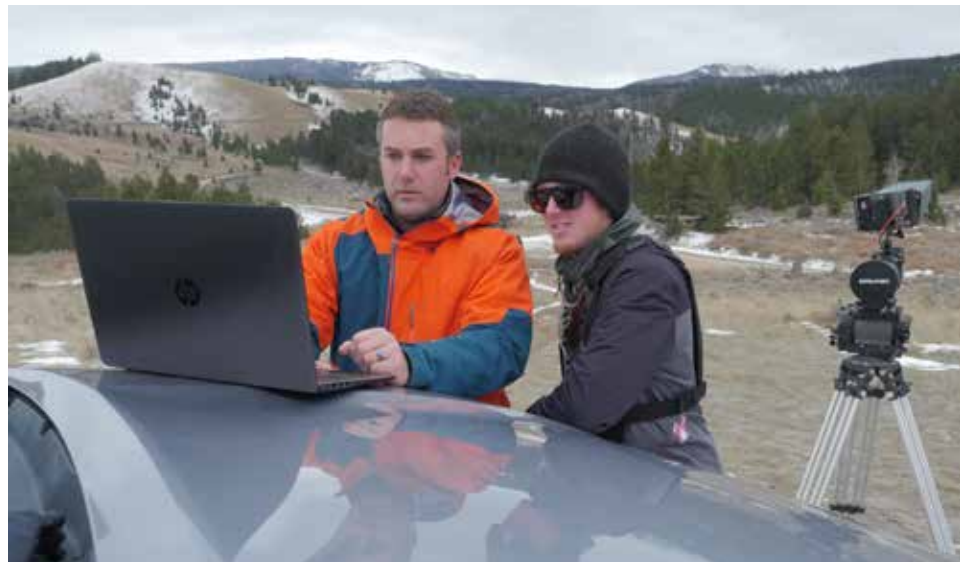
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“This has been a huge year for Brain Farm, with three major releases. To make it all happen we upgraded our post-production firepower with HP Z Workstations and DreamColor Displays.”

– Curt Morgan, CEO, Brain Farm

Brain Farm is an award-winning, full service entertainment and production company that specializes in creating unforgettable film, TV, digital and commercial content. Founded by former snowboarder Curt Morgan, Brain Farm started out making eye-popping sports-action documentaries. Based in Jackson, Wyo., with creative teams from Los Angeles to New York, the company has evolved into a diversified studio able to take on groundbreaking long-form and short-form projects in a variety of genres. For the power to handle high-resolution, post-production workflows, Brain Farm relies on HP Z Workstations, Intel® Xeon® processors and HP DreamColor Professional Displays.



Film Credits

***Wild Yellowstone**,
Art of FLIGHT,
We Are Blood, *View
From A Blue Moon*,
That's It, That's All.**

As snowboarder Travis Rice turns somersaults in midair, grazing the tops of trees, a professional surfer skims a clear wave—the sight captured from churning water underneath the board. A red fox on the hunt, its muscles rippling, leaps nose-first into snow. These are images from Brain Farm's early film *That's It, That's All* and two of its most recent projects, *View from a Blue Moon* and Nat Geo Wild, *Wild Yellowstone*. What these films hold in common is their ability to take viewers into stunning scenes of captured live action.

“I was so impressed by the HP Z840 Workstation that I bought one for myself to use on my other productions so I can guarantee the power, speed and stability I need when editing high-end video.”

— Jimmy Taggart, editor, *Wild Yellowstone*

What's different about these films—in addition to their subject matter—is that with each project, Brain Farm pushes the limits of artistic and technical possibility. *That's It, That's All* in 2008, introduced Hollywood-quality Cineflex cameras to action-sports filmmaking. Three years later, *Art of FLIGHT* incorporated high-definition, slow-motion action footage captured by RED and Phantom® camera systems. Brain Farm's latest skateboarding film, *We Are Blood*, is

shot entirely on 4K cameras. What's more, the company has taken a natural expansion into the action with nature documentaries and virtual reality. Nat Geo Wild, *Wild Yellowstone* won awards at the Jackson Hole Film Festival for Best Editing and Best Cinematography.

“This has been a huge year for Brain Farm. We had three major releases when in previous years we completed one, and we jumped from 1080p to 4K resolution as a finished deliverable,” CEO Morgan says. “To enable this, we had to rebuild our post workflow and turn up the firepower in our computers.”

Tackling post-production workflow bottlenecks

Every advance on the image-capture side of Brain Farm's business increases the demands placed on post-production technologies. When Brain Farm cinematographers haul their state-of-the-art 4K, 5K, even 6K cameras to the edge of glaciers or up in pulsating helicopters, what they bring back to company headquarters in Jackson, Wyo., are master files so large they must be converted—transcoded—to codec format for editing.

During editing, the original digital footage is cut, moved, and rendered into a piece of storytelling, and finally color graded and finished. Each Brain Farm project might involve more than 100TB of raw media, representing 30,000 clips.



* Produced by Nat Geo Wild

The software tools Brain Farm uses include Adobe® products such as Premiere Pro for video editing, Photoshop, and After Effects for motion graphics. The company also uses DaVinci Resolve from Blackmagic for color grading; ZBrush from Pixologic for digital sculpting and painting; and other tools—all of which require robust processing power.

“With the Z Workstations you can get really creative rather than constrain your vision to match the limits of the technology. The right tools can help you expand your creativity.”

– Danny Holland, post-production supervisor, Brain Farm

Brain Farm cannot afford to let computer slowdowns, stutters, or crashes hamper workflows, raise costs or stifle creativity. However, its earlier Mac-based systems could not keep pace with 4K workflows or the need to handle multiple long-form projects a year. The entry of HP Z Workstations and Intel® Xeon® processors also brought a transition from Final Cut Pro to Adobe editing software.

HP Z Workstations ease workflow

Brain Farm looked to HP Z Workstations for workflow improvements. In its edit bays, Brain Farm has deployed four HP Z840 Workstations and two HP Z820 Workstations, with multiple HP DreamColor Z27x Professional Displays. In the field, Brain Farm filmmakers use HP ZBook Studio and HP ZBook 17 Mobile Workstations, all running on Intel® Xeon® processors.

For several years, Brain Farm has configured its HP Z Workstations with Samsung-powered HP Z Turbo Drive SSDs to cut the time it takes to transcode to codec format in half. Recently, it began speeding workflows even more with the new HP Z Turbo Drive Quad Pro, which integrates up to four super-fast HP Z Turbo Drive G2 modules into one PCIe x16 card. Brain Farm also equips its HP Z Workstations

with NVIDIA® professional graphics and RED ROCKET-X® cards supporting direct 4K playback.

“In the past, we primarily were in Mac-based workflows. We weren’t able to handle outputting 4K content, Morgan says. Then we saw that HP had partnered with NVIDIA® to create a solution that lets us output 4K and watch it in real time.”

NVIDIA®’s CUDA parallel computing platform and API model enables acceleration of many of the applications Brain Farm uses, from Photoshop to After Effects to 3D renders.

“A big goal of ours has been to deliver everything in 4K resolution—our films, our commercial projects, our web content,” says Danny Holland, Brain Farm’s post-production supervisor. The NVIDIA® Quadro® M6000 and K6000 graphics cards in HP Z 840 Workstations have been key to enabling that.”

Film editor Jimmy Taggart used Brain Farm HP Z840 Workstations running Premier Pro CC on Microsoft® Windows to edit the award-winning Nat Geo Wild, *Wild Yellowstone*. He says the workstation’s 24 processors—doubled to 48 with hyper threading—and 60 gigs of RAM handled the editing software better than anything he’d used before. At the end of the edit, there were approximately 1,000 cuts, hundreds of speed ramps, color grades and various other effects—and even then Taggart could export the 60-minute cut in 15 minutes.

“With our HP technology, we’re finally able to output 4K and watch it in real time. That means everything to us.”

– Curt Morgan, CEO, Brain Farm

“After cutting on non-HP workstations for years, the Z840 was a total dream,” he says. “The sheer power of the system was outstanding. With that kind of power at my fingertips, I could concentrate on the story and style. I wasn’t waiting for renders, as effects were real time, and when I did render, it completed it faster than anything I’ve seen before. It allowed me to be more productive.”

Customer at a glance

Application

Commercial Digital production and post-production

Hardware

- HP Z820 Workstation
- HP Z840 Workstation
- Intel® Xeon® Processors
- HP Z Turbo Drive
- HP Z Turbo Drive Quad Pro
- NVIDIA® Quadro® M6000 and K6000 graphics cards
- HP Thunderbolt 2 PCIe 1 port I/O Card
- HP ZBook 17 Mobile Workstation
- HP ZBook Studio Mobile Workstation
- HP DreamColor Z27x Professional Display

Freeing artists to realize their vision

With its post-production workflows powered by HP Z Workstations and Intel® Xeon® processors, Brain Farm has built the adaptability to take on evermore challenging creative projects. “It comes down to speed—being able to accomplish your vision without headaches,” says Danny Holland, post-production supervisor. A render that might have taken 10 minutes now takes 30 seconds. What’s more, editors can iterate with high-quality renders instead of lower-resolution comps that required viewers to use their imaginations to envision what the final product would look like.

Speed like that translates into a greater business productivity and a better creative outcome; for example, an artist might enrich a motion graphic with 10 million particles instead of just one million. “It lets you get really creative, whereas before you’d always worry about deadlines and constrain your vision to match the limits of the technology,” Holland says. “Like any artist, you can make do with the tools you’ve got. But the right tools can help you expand your creativity.”

“With our increased workloads come massive amounts of data coming back from the field. HP Z Workstations and Intel® Xeon® make it faster and more efficient to prep footage for editing. Time is money.”

— Chad Jackson, head of production, executive producer, Brain Farm

HP DreamColor Displays, Holland adds, ensure consistent color accuracy, from one edit bay to the next and from one edit to the next. “We’re looking at the same thing no matter where we’re sitting, even in remote locations,” he says. “And the color accuracy is so similar to our high-end color grading monitor that we can rely on HP DreamColor for preliminary color grading.”

In the field, Brain Farm anticipates using the HP ZBook Studio Mobile, the thinnest and lightest full-performance Intel® quad-core HP Z Workstation, to work with Phantom® and RED material on location. “We’re always staying on the forefront of technology and the latest techniques to get the most amazing shots,” says Chad Jackson, Brain Farm’s executive producer and head of production.

“The HP ZBook Studio is a great piece of equipment for our crews that need to travel light and require a computer for off-loading footage in the back country, or places where they just can’t carry heavy gear. It’s super-powerful, super-fast, weighs around four-pounds, and has Thunderbolt connectivity built-in—perfect for off-loading and media management in the field.”

Brain Farm started almost a decade ago in CEO Morgan’s garage and, on its way to becoming a diversified media company, adopted HP technology as an essential enabler of fast, efficient post-production workflows. “We went from film to TV to commercial and now virtual reality,” Morgan says. “As the landscape changes, we stay ahead of the curve. With our HP technology, we’re finally able to output 4K and watch it in real time. And that’s just the beginning.”

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