NVIDIA Maximus Case Study

NVIDIA Maximus Takes Commercial VFX to New Heights at *a*52

When looking for ways to field-test the phenomenal power of the latest NVIDIA® Maximus™ enabled workstations, the company teamed up with longtime customer *a*52, a boutique visual effects studio based in Santa Monica, Calif. The visual effects and post-production arm of sister companies Elastic and Rock Paper Scissors, an editorial company founded by Academy Award-winning editor Angus Wall, *a*52 has worked on numerous award-winning advertising campaigns, as well as the Emmy winning *Game of Thrones* opening title sequence, and last year's Red Cross Holiday campaign, which recently received top honors at the Annecy Animation Festival. Having used NVIDIA Quadro® GPUs exclusively in their artists' workstations, as well as their Autodesk Smoke and Flame systems, *a*52 offered the perfect venue to evaluate the second generation of NVIDIA Maximus enabled-workstations.

Senior Technical Director Christopher Janney oversees R&D and the technical pipeline for the *a*52 visual effects team, which will expand to include up to 25 staffers depending on project requirements. Having already experienced the advantages and reliability of NVIDIA GPUs, Janney brought in NVIDIA Maximus systems to dramatically improve workflows for *a*52's digital lighting and shading artists. NVIDIA Maximus combines the visualization and interactive design capabilities of NVIDIA Quadro GPUs with the high-performance computing power of NVIDIA Tesla® GPUs into a single workstation to enable a range of production workflow benefits.

"Right from the start, when I told the artists we would test Maximus, everyone was very excited and on board," said Janney. "Upgrading our workstations to the Maximus configuration was simple, and integration with our Autodesk Maya and Chaos Group V-Ray workflows was a piece of cake."

CHALLENGE

A typical *a*52 project goes through several stages once it comes in from either an advertising agency, commercial director, production company or end client. Projects start in pre-visualization and pass through several steps until live action plates are married with computer generated (CG) elements and polished with custom lighting and shading effects. From shoot to delivery, *a*52's average project timeline requires anywhere from four to six weeks, and involves active client interaction and review at every stage.

Some of the most challenging projects in commercial visual effects are automotive campaigns—where high-polygon-count CG car models are built to be indistinguishable from real physical cars. *a*52 often works on car commercials and other projects that tax their pipeline with extreme CG lighting and shading demands. Accelerating that workflow is an ongoing challenge, and with Maximus, the promise of building effects interactively in the viewport while the system is simultaneously rendering shots was very enticing.

One problem the *a*52 team faced on a recent commercial for Lexus was the ability to efficiently raytrace scenes in real time with very large car models built based on CAD data. Without NVIDIA Maximus they would have had to devise several workarounds—loading only one car model at a time and lighting each car separately for every scene. “About seventy to eighty percent of our work involves high-polygon-count models. Prior to the Maximus setup we’re running now, we’d be reluctant to do any major real-time raytracing because we simply couldn’t load all of the geometry at once,” explained Janney. “We would work around it by loading one model at a time, lighting each in a separate pass and then merge them all together in a single shot, which was incredibly time consuming. This was not only inefficient, but the wait time would often take artists out of their creative flow.”

SOLUTION

*a*52 adopted NVIDIA Maximus systems on three of their workstations and immediately began noticing significant improvements in throughput. “The benefits for the lighters were tremendous,” said Janney. “Getting our broad stroke lighting done is considerably faster, and rendering iterations to refine the lighting and texturing takes less than half the time than it used to—from three minutes to twenty seconds per frame on a recent test. While our typical project timeline remains at four to six weeks, with Maximus, our artists are able to go home at a decent hour instead of having to wait for renders to finish. That’s a tremendous benefit.”

“We now have the opportunity to produce more iterations of color and lighting to get to where we want faster. With faster turnaround, we can submit shots much sooner for client approvals. I wouldn't hesitate to recommend a Maximus setup, particularly for artists working in V-Ray RT. The time-savings alone are significant, but it’s also allowing our artists a better workflow in the creative process, without long pauses for renders. That is where the Maximus setup really helps our look development process,” Janney continued.

IMPACT

In order to evaluate the benefits of NVIDIA Maximus technology, *a*52 brought in scenes from a recent series of animation-intensive commercials for Ben and Jerry’s Ice Cream (which can be seen here and here). On an average scene from this campaign, *a*52 was able to realize a significant time-savings in billable hours when compared with work completed on the single GPU workstation that was initially used for the project. Artists also leverage the NVIDIA Maximus Configuration Utility to optimize their workstations for either best graphics or best compute performance. In this specific case, artists can configure Maximus to allocate both the GPUs to rendering in V-Ray, or one GPU to accelerate the Maya UI for faster interactivity while using the second GPU for accelerated raytracing.

“We tested scenes from our Ben and Jerry’s project and I have to say, I wish we had the Maximus setup for that job, it was fantastic how smoothly everything went,” said Janney. “The biggest workflow boost we experienced with Maximus was when we started early on in a project with lighting setups—even before texturing—to establish the broad stroke look and get the client feedback loop up and running very quickly.”

“Dynamics is another big black hole of time waiting around for your particle cache – we’re excited to see how Maximus will help out with that and other visual effects and rendering processes in the future,” concluded Janney.

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