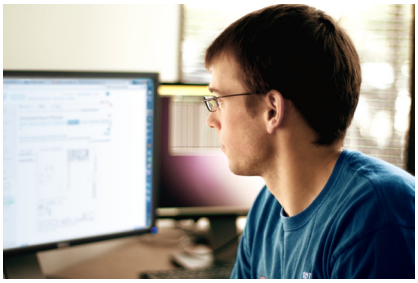
CASE STUDY
Intel® Xeon® Processor 5600 Series
Enterprise Server
High-Performance Computing

More Rendering Power Takes 2K Stereo VFX to a New Level

Intel® Xeon® processors empower the Blackmagic Design team and let their creativity take flight with efficient, compact and high-performance rendering



Blackmagicdesign

"The main thing about Intel is that they're very good at putting multiple cores in one machine. In the old days, you had to pay for the rendering software license per core, so if you had 16 cores, you paid a fortune. Now you pay per machine. So if you have a machine with three or four chips and they have eight cores each, you're licensing 24 cores for the price of one. It's a large concentration reduction of processors."

Mike Parsons
Post Supervisor/Compositor
Blackmagic Design

CHALLENGES

- **Increase rendering performance.** As Blackmagic Design embarked on a large-scale 3D stereoscopic international feature film project, they needed more rendering power and hard disk capacity to store large, high-resolution film files.
- **Make more room for creativity and experimentation.** Accelerate the rendering process to enable animators to do more iterations and refinements to CGI, improving the final quality of the visual effects.

SOLUTIONS

- **Install a multi-core processor-based server.** Blackmagic Design had a render farm customized by NOVATTE, a supercomputer manufacturer in Singapore. The render farm is powered with four hot-swap, two-way Intel® Xeon® processors 5600 and Intel® 5500 series chipset in a compact base rack form.
- **Deploy designer workstations.** 11 NOVATTE HPC TT100* designer workstations were set up to boost Blackmagic Design's capacity to deliver. All are powered by two-way Intel Xeon processors 5600 and Intel 5520 series chipset.

Introduction

Blackmagic Design is one of the world's leading post-production facilities, specializing in commercials, high-definition documentaries, digital intermediate and feature film finishing. Providing the very latest in resolution-independent, data-centric workflows and technology, Blackmagic Design works in creative partnership with its clients to produce work of an impeccably high standard. Blackmagic Design is also world-renowned for manufacturing its own post production equipment that sets the standard for price/performance and high-end affordability.

In 2010, Blackmagic Design was awarded the post production and visual effects for international 3D stereoscopic feature film 'BAIT'. Set in a sleepy Gold Coast seaside town, 'BAIT' is the story of a freak tsunami that traps shoppers and tourists in a flooded underground supermarket and car park along with hungry great white sharks.

'BAIT' is Singapore's first major international 3D stereoscopic film and is produced by Blackmagic Design Films together with Australia's Arclight Films, Story Bridge Films and Pictures in Paradise. Jointly funded by the Media Development Authority of Singapore (MDA), Blackmagic Design Films, Screen Australia and Screen Queensland, it is the first official Singapore-Australia co-production under the Singapore-Australia Co-production Treaty signed in 2007.

One machine that packs a punch

With over 400 3D stereoscopic VFX shots to complete, post production for 'BAIT' required efficient and reliable high-speed rendering. This led Blackmagic Design to invest in powerful machines they could count on.

They engaged NOVATTE to come up with custom solutions that would give them the rendering and workstation power they needed. NOVATTE set up Blackmagic Design's new render farm, based on the NOVATTE 2U Twin* servers. Powered by the Intel Xeon processor 5600 series, this new render farm has a server with four hot-swap, two-way Intel Xeon processors X5650, Intel 5500 series chipset and two 1GB Ethernet ports with a QDR Infiniband* port. Its energy efficient design supports multiple cores, memory, and data capacity in a scalable 2U package that is easy to service and manage. It offers a flexible, scalable design, a simple upgrade path, and spacious memory.

Based on the Intel® Xeon® processor 5600 series, Blackmagic Design's NOVATTE rendering farm has six times the capacity of its predecessor.

"Comparing the energy consumption of these machines with the previous generation, we're now using 20 to 30 percent less power, because our old machines required 700 watts while these run on just 400."

Michael Dadaev
CG Supervisor
Blackmagic Design

Mike Parsons, Head of VFX for 'BAIT' at Blackmagic Design, had this to say about the clear advantages of the new render farm: "The 64-bit architecture gives us more available memory to use, which was critical as the CG water scenes required 24GB per frame. The ability to address this huge amount of memory isn't possible without 64-bit processors, so you simply can't render these shots with older technology."

Blackmagic Design was also impressed with the efficient multi-core architecture as it streamlines the licensing of rendering software, making system administration much less demanding. Parsons says, "What a post-production company needs is a fire and forget solution. We're in the business of making pretty pictures, not tweaking computers. With the support of NOVATTE and the reliability of Intel the new render farm was a no brainer— rendering is a breeze. Everyone just send their files to the render management software and the files automatically rendered on a prioritized queue with self-checking.

"In the past, artists were using their own machines to do the rendering. When they left their own shots rendering and a scene was completed the rendering stopped," explained Parsons. "But now, with a facility-wide queuing system, everyone's files are rendered regardless of whether they are working or home sleeping."

But what ultimately convinced Blackmagic Design to get the NOVATTE rendering farm is knowing it would perform strongly and consistently. "We knew that with the demands and challenges of the project, we needed a system that was, above all, going to be reliable, and have the backup and support offered by NOVATTE," said Paul Stevens, VFX producer for 'BAIT' at Blackmagic Design.

Increasing work quality while lowering energy consumption

NOVATTE also deployed 11 HPC TT100 designer workstations, all powered with two-way Intel Xeon processors 5600 series and Intel 5520 series chipset at Blackmagic Design. These new workstations are big additions to the team's system, increasing their efficiency as they worked on 'BAIT' and other international projects. Together with the newly deployed compact render farm, these machines boosted the Blackmagic Design team's delivery and performance, while actually saving on energy consumption.

"Comparing the energy consumption of these machines with the previous generation, we're now using 20 to 30 percent less power, because our old machines required 700 watts while these run on just 400," relates Michael Dadaev, CG supervisor at Blackmagic Design.

Parsons adds, "And because we're only using one compact machine, we're now air conditioning a much smaller area, which is a significant saving in a place like Singapore!"

With the new render farm and designer workstations at Blackmagic Design, the team continues to raise the bar for high resolution CGI and visual effects post production.

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