

VANGUARD ANIMATION



Vanguard Animation Speeds Movie Production 30%

To create a computer generated (CG) animated feature film as efficiently as possible and grow its business in an increasingly competitive market, Vanguard Animation selected SGI technology and The Seven Group for speed and reliability for its current and future productions.

In order to complete Space Chimps, a \$40 million animated film due to be released in theatres by Twentieth Century Fox in Summer 2008, Vanguard Animation needed to manage multi-megabyte files efficiently throughout the production process.

Aspiring to deliver the highest quality images for Space Chimps, the Vanguard team realized that their older server farm simply did not have enough fire power to move and render the large detailed, high-definition animation files generated by Renderman, a leading rendering software, which runs on Linux® OS. At Vanguard, the software renders animations created in Maya, a top-of-the-line animation program. For Space Chimps, Maya files are typically several megabytes in size and it is not uncommon to have hundreds of frames in a shot, starting with perhaps a 10MB Maya scene file and generating 100 or 200 multi-megabyte image files. To get the most value out of the Renderman licenses, Vanguard needed to have the most efficient hardware to render Maya files as rapidly as possible on the studio's 140 workstations.

Vanguard knows this challenge well. Located in Vancouver, Canada, Vanguard Animation is a film and animation production company whose credits include The Tuxedo with Jackie Chan and Seven Years in Tibet starring Brad Pitt. Dedicated to producing family-friendly entertainment, Vanguard Animation's first full-length CG feature, Valiant, is distributed by Walt Disney Films, and Happily N'Ever After from Lionsgate. Space Chimps is the latest project from producer and Vanguard CEO John Williams (Shrek, Shrek 2). Barry Sonnenfeld (Men In Black) is creative contributor. Kirk DeMicco (Racing Stripes, The Twits, Crood Awakening – all

VANGUARD ANIMATION



"We are creating an amazing film while striving for excellence on a very aggressive schedule, and we are thrilled to have SGI as part of the backbone of our technical and render support. Qube! alone is amazing at empowering our artists. With the added speed from the Altix we can constantly refine the characters, lighting, and effects we strive for and still meet the production schedule."

—Tom Jacomb, Associate Producer, Space Chimps

Dreamworks productions) is directing and also penned the Space Chimps script.

Space Chimps, an irreverent and comedic adventure starring three chimps that boldly go where no man has gone before, is being produced through a partnership between Vanguard Animation and Starz Media. It has been pre-sold to over twenty foreign territories through Odyssey Entertainment. Space Chimps is being produced under the guidance of Co-Producer Curtis Augspurger (Valiant) and Associate Producer Tom Jacomb (Valiant). The production of the 80-minute feature will require between 180 and 200 people in the 30,000-square-foot space on Production Way in Burnaby, a suburb of Vancouver.

Through the Seven Group, the SGI channel partner in Burnaby, B.C., Vanguard Animation purchased SGI high-performance server technology for its render farm. The SGI® Workflow-Ready Solution for Render Management accelerates rendering and removes production bottlenecks the studio has experienced on older machines. The SGI solution is designed to integrate with and enhance the performance of PipelineFX Qube!™ scheduling and render farm management software, which was already in use at Vanguard Animation. The SGI solution will also enable to company to seamlessly expand the render farm for future productions, several of which are in the planning stages already.

"We are creating an amazing film while striving for excellence on a very aggressive schedule, and we are thrilled to have SGI as part of the backbone of our technical and render support," said Tom Jacomb, Space Chimps Associate Producer. "Qube! alone is amazing at

Vanguard Animation

VANGUARD
ANIMATION



Space Chimps Productions Ltd.

“It’s great to be returning to SGI, a tried and true company which has proven their ability to support productions for decades.”

—Curtis Augspurger, Producer, Space Chimps

empowering our artists. With the added speed from the Altix we can constantly refine the characters, lighting, and effects we strive for and still meet the production schedule.”

Producer Curtis Augspurger added, “It’s great to be returning to SGI, a tried and true company which has proven their ability to support productions for decades.”

Vanguard, along with PipelineFX, tested a number of servers from various manufacturers. They found, in a head-to-head comparison, that the SGI Workflow-Ready Solution for Render Management employing SGI® Altix® XE310 servers came out on top with price-performance. Because of Vanguard’s use of Renderman and Maya, the fact that SGI Altix servers all run the Linux environment and use Intel® processors, was critical to the studio.

“The Altix XE310 servers deliver the ultimate performance density; they have given us a 20-30% improvement in speed,” said Troy Brooks, on-site Pipeline supervisor at Vanguard. “That’s largely due to the fact that the SGI server has 3GHz processors, the fastest available versus the 2.2GHz processors we were using. The two most important things to us are processing speed and I/O, because the data sets tend to be very large and the output images tend to be very large. With the Altix XE310, SGI has taken a dual socket, dual-core –that’s 4 CPUs – and put servers in a 1U box. That’s actually better than a quad core because it means I have two network interface cards on two totally separate machines. Rather than having 8 or 16 cores behind one network interface card, I have two interfaces, and it’s still in a 1U package. From my point of view, it’s overall great: I get better throughput and the system is very price-performance and size efficient.”

“Seven Group was also fantastic to work with on this project. They acted as a true partner and helped us throughout the evaluation and deployment of the render farm. Their in depth knowledge of render pipelines and digital media specific applications allowed us to design a

solution tailored to meet our specific challenges. They really know what they are doing.” added Brooks.

The Production Workflow

Within Vanguard’s CG animation workflow, from layout to modeling to texturing to lighting and compositing, artists are constantly iterating the part of the production they are working on. The layout people are refining their camera moves, the modelers are uploading and increasing the detail to their elements, the shading people are refining the look and material and color on each of the items, the lighting artists are refining the lights, and the animators are refining the moves on all the characters. Every one of these stages means doing a render and doing it on the render farm, and every one of these stages goes through the SGI servers and Qube! The powerful combination of SGI Altix XE servers speeding the animation processing and scheduling through the Qube! management system makes things happen at break-neck speed.

“While we’re working on the film, there’s a ton of different things that happen on the Altix render farm and Qube!,” explains Jacomb. “For example, you do a shot breakout: we take a set where a number of different shots will happen

“The Altix XE310 servers deliver the ultimate performance density; they have given us a 20-30% improvement in speed. That’s largely due to the fact that the SGI server has 3GHz processors, the fastest available versus the 2.2GHz processors we were using.”

— Troy Brooks, on-site supervisor at Vanguard, PipelineFX

“With the Altix XE310, SGI has taken a dual socket, dual-core –that’s 4 CPUs – and put servers in a 1U box. That’s actually better than a quad core because it means I have two network interface cards on two totally separate machines. Rather than having 8 or 16 cores behind one network interface card, I have two interfaces, and it’s still in a 1U package. From my point of view, it’s overall great: I get better throughput and the system is very price-performance and size efficient.”

– Troy Brooks, on-site supervisor at Vanguard, PipelineFX

and there are number of different camera setups. We break those out into individual shots that the animators will then populate and animate their characters. When the modelers are working on things, they’ll do what’s called a turntable—just a little spin-around of the model they’re working on so they can see it at every angle. We do all of our tech renders for animation – they may be low res, they may be unlit, just flat-shaded—all those happen on Qube!

Our revision control system automates a lot of the build processes for us. For instance, when we check in an “Asset” file into the system that was modeled in Maya, Qube! automatically generates a RIB file in the archives—like a stand-in for the Maya file—and then when you go to render, you don’t have to create a RIB, it’s already there. (RIB is a file format used to pass scene information (model data, lights, camera, shaders, attributes, and options) to a RenderMan renderer to control image that it will render.) We automatically bake animation into them in the next department. Then the lighting department gets a hold of it and Renderman renders in high resolution HD that take hours, and then it goes to compositing. They put together all the layers, the foreground characters and the background texture and reflective maps. Anything that goes through the SGI Altix render farm, things that people do non-interactively – they’re moving the job off to run on the SGI computer, and everything pretty much happens through Qube!”

Vanguard Animation purchased 10 SGI Altix XE310 servers with 64GB RAM and four Dual-Core Intel® Xeon® processors running Red Hat Linux Fedora Core 5. Almost all phases of animation production are run through the SGI Altix XE310 servers and PipelineFX Qube! 5.1 render farm management software, which interfaces seamlessly with leading animation and rendering software and uses industry-standard Python scripting. The SGI Altix

XE310 server features the industry’s first system with the innovative new “Atoka” motherboard design, developed in a collaborative effort between SGI and Intel Corporation. The new Atoka board allows the Altix XE310 server to accommodate up to four Quad Core Intel® Xeon® processor 5300 series into a single 1U chassis. That equates to eight cores per node, or a total of 16 cores per chassis.

Production continues apace on Space Chimps, and as Vanguard Animation knows from years of experience, the biggest expense in any CG production, in special effects or full-length features, is the labor -- the skilled and talented animators, lighting artists and modelers -- and maximizing their time is key. The best way to maximize their time is turning things around in the render farm as fast as possible. The more iterations they can do on a shot, the better it will be, and by having an efficient render farm running on the fastest, most efficient hardware possible, animation studios can get as close as possible to an optimal workflow. The SGI Workflow-Ready Solution for Render Management, consisting of SGI Altix XE servers and PipelineFX Qube! creates a turn-key solution for creative and technical users that is easy to purchase, install, service and upgrade that will help Vanguard keep its animations on a fast track.

Unobstructed Creativity

Animation studios require a unique set of applications and architectures designed to get the most from their creative resources. The goal is to create as collaborative and iterative an environment as possible to allow for the creative freedom the artists need, while still allowing for a controlled and streamlined pipeline so that the studio can meet budget and time deadlines. SGI, with experts like PipelineFX and The Seven Group, brings together the expertise and technology to make it possible for studios to continue to produce fresh, beautiful animated films.



Corporate Office
1140 E. Arques Avenue
Sunnyvale, CA 94085
(650) 960-1980
www.sgi.com

North America +1 800.800.7441
Latin America +55 11.5185.2860
Europe +44 118.912.7500
Japan +81 3.5488.1811
Asia Pacific +1 650.933.3000

© 2007 SGI. All rights reserved. SGI, Altix, the SGI cube, NUMAflex and the SGI logo are registered trademarks of SGI in the United States and/or other countries worldwide. Linux is a registered trademark of Linus Torvalds in several countries. Intel and Itanium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. All other trademarks mentioned herein are the property of their respective owners. 4044 [09.2007]

J15326