Case Study
Intel® Core™ i7 vPro™ Processor
Intel® Xeon® Processor E5 Family
Mobile Computing
Performance
Communications/Media

Look Inside.™

Mobile on the Movie Set with Intel® Technologies

From leading-edge labs to real-world motion capture, Intel® technologies play a starring role for Chapman University film students

CHAPMAN UNIVERSITY
DODGE COLLEGE
OF FILM AND MEDIA ARTS

When Chapman University established its film program in 1992, its leaders standardized on Intel® processor-based workstations and servers. Today, Chapman University's Dodge College of Film and Media Arts is the seventh highest-ranked film program in the United States.[1] It still relies on Intel® technologies. And Dan Leonard, professor, associate dean, and chief technology officer (CTO) of Dodge College, says Intel technologies help his IT group provide affordable, industry-leading capabilities while empowering students and professors to advance into new areas such as portable motion capture and ultra-high resolution 4K content.

Challenges

- **Stay on the forefront.** Provide high-performance technologies for next-generation film production, animation, visual effects (F/X), gaming, and other digital arts.
- **Move forward with mobile.** Implement new use cases made possible by higher-performance laptops.

Solution

- **Intel everywhere.** Dodge College uses Intel® Xeon® processor E5 family-based workstations and servers in its media labs and render farm, with lightweight mobile workstations powered by the Intel® Core™ i7 vPro™ processor for mobile applications. Intel® Wireless Display (Intel® WiDi) expands the opportunities for collaboration.

Technology Results

- **End-to-end advantages.** Dodge College creates a consistent, high-performance environment that meets educational needs while increasing flexibility and reducing costs.

Business Value

- **Enhanced reputation.** Technology leadership builds Chapman's reputation as a top-flight film school. It aids in recruiting students and faculty, securing grants and endowments, and placing students in prestigious internships.
- **Ready to lead.** Students are empowered to bring their visions to life. They develop expertise with industry-standard technologies and graduate ready to create exciting new films, games, F/X, and other content.

"Intel really is one of the titans of the industry. They determine a lot of the future of what's going to happen. They make cost-effective technologies that are both forward- and backward-looking. We get the benefits of backward compatibility, yet they keep us on the cutting edge."

– Dan Leonard, Professor, Associate Dean, and CTO, Dodge College of Film and Media Arts, Chapman University

Technologically Advanced Film School

Dan Leonard is the envy of his peers. "Chapman is regarded as probably the most technologically advanced film school on the planet," he says. "When I talk at industry conferences, the comment I get is, 'Oh, it must be great to work at Chapman, where the streets are paved with gold.' We assess the needs of our students and professors each year and upgrade our equipment to make sure our students are learning on industry-standard tools and using the latest systems. We really do stay on the cutting edge of technology."

Located a few dozen miles south of Hollywood, Chapman is a private, nonprofit university that emphasizes academic excellence and interdisciplinary studies. Approximately 1,500 of Chapman's 7,800 students are enrolled in Dodge College. The Dodge faculty includes winners of Oscar*, Emmy*, and Clio* awards, and the college's facilities replicate working production studios.

Creating and Collaborating

Film production requires massive computer processing and diverse talents, so the Dodge College facilities feature high-performance technologies and multipurpose spaces designed to encourage creativity and collaboration.

Dodge College's 18,000-square-foot Digital Media Arts Center, which opened in September 2014, uses Dell Precision* T7610 workstations based on the Intel Xeon processor E5-2630 product family for its labs and digital arts suites. The college's 76,000-square-foot Marian Knott Studios house a mix of Intel Xeon processor-based workstations from Dell and HP. An 892-core cluster of Quanta* servers with the Intel Xeon processor E5 family handles the heavy lifting of rendering digital content with lifelike detail.

Both facilities are open 24/7 and connected by a 16 GB Fibre Channel interface. "We've designed the infrastructure so we can do an entire end-to-end 4K uncompressed workflow, which uses tremendous amounts of data," says Leonard. "We're seeing more of a push to distribute 4K material, and we need to stay abreast—or even ahead of—the industry trends."

Mobile computing extends the film community's ability to collaborate. "Whatever form factor you prefer, mobile expands the ability to share digital information, watch videos together, and work together, whether you're five feet away or 5,000 miles away," Leonard says. "In this industry, you still need your big workstation. But when you're not in front of it, you can use your mobile devices to continue your work. This allows for less downtime and greater collaboration."

Mobile Makes New Ways to Work

Chapman students bring their own laptops, and Leonard's infrastructure planning assumes each student will have a laptop, tablet, and smart phone. The IT department also acquires laptops to support specific applications and tasks. "One of the most exciting ones is the ability to do motion capture on a high-end laptop," Leonard explains. "You used to need a special room with big computers and very long calibrations. Mobile computers are getting so powerful that now a single laptop can provide the power for magnetic motion capture."

This capability is transforming the economics of motion capture and giving creative artists new flexibility and power. "They're no longer limited to a small motion-capture stage," says Leonard. "They can do motion capture anywhere around the town with a high-end laptop. This enhances their ability to get more exciting motion and to interact more with the actual world they're filming."

Intel® Core™ and Xeon® processors facilitate creativity and collaboration at Chapman University

Lessons Learned

"Mobile computing is here to stay," says Dan Leonard. "It's driving a lot of convergence. Some tasks that used to need a million dollars' worth of equipment are now being converged onto a laptop and a digital camera. The power in the boxes allows one person to do things that used to be 15 people's jobs. You still need the big iron for rendering and other tasks, but a lot of work can be done on a laptop. That's really changing the skill sets. Where you used to only need to know one task, now you need to know a little bit about every aspect. It's all being made possible by this digital and mobile revolution."

Dodge College's most recent laptop purchases were Dell Precision M3800 mobile workstations with the 4th generation Intel Core i7 vPro processor. Well-suited to digital media work on the go, the laptops provide massive compute power, 3,200 x 1,800 DPI resolution, and a quad-high-definition (quad HD) display.

"Our top priorities for the mobile workstations were price, performance, and dependability," Leonard says. "The Dell laptops with the Intel processors fit all those criteria. They pack a lot of power into a very small form factor, which allows us to go out to sets and not suffer any performance issues." To provide flexibility in the future, Leonard specified that the laptops include Intel® vPro™ technology for advanced manageability and security and Intel WiDi for enhanced collaboration in the classroom or studio.

A Bigger Role for IT on the Set

The digital era of filmmaking means IT plays a bigger role on the movie set, according to Leonard. "You almost need an IT professional on set these days," he explains. "There's a new position now called the DIT or digital intermediate technician. They're on the set copying these huge data files from all the cameras that are creating 4K uncompressed raw files. They copy onto the drives and return the memory cards to the camera so the shooting can continue. Managing all that media and transcoding it in the different formats is a huge part of the workflow, and we're training folks to do that."

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Dodge students use DIT carts for many projects, with mobile workstations for smaller projects or sets where space is limited. “We have seven DIT carts, each with a high-end workstation with Intel processors inside,” says Leonard. “They have a lot of horsepower and fast connections to external hard drives so they can back up the data, do the transcoding, and view what people are shooting on set so they can make a good creative film.”

A Strategic Choice

Dodge College’s use of Intel technologies is a strategic choice that has delivered solid value through the years. And Leonard counts on Intel to keep Dodge College and its students at the forefront of their demanding and exciting field.

“Intel really is one of the titans of the industry,” he says. “They determine a lot of the future of what’s going to happen. They make cost-effective technologies that are both forward- and backward-looking. We get the benefits of backward compatibility, yet they keep us on the cutting edge and give us the biggest bang for the buck in terms of price and quality. They help us plan for what new technologies are coming down the pipe that will affect how people create and watch movies. That’s invaluable.”

Find the solution that’s right for your organization. Contact your Intel representative, visit Intel’s **Business Success Stories for IT Managers** and check out **IT Center**, Intel’s resource for the IT industry.

[1] Tim Appelo, The Hollywood Reporter, “These Are the Top 25 Film Schools in the United States,” July 30, 2014 (http://www.hollywoodreporter.com/news/top-25-film-schools-united-721649).

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