Rave Computer wins the 2014 Intel Channel Cares Award for its role in the RAVE CAVE project, which makes state-of-the-art visualization technology accessible to industry and educators.

Challenge >

While advances in simulation technology can make some manufacturing design projects possible, the expense can make it unattainable. The initial capital outlay for the equipment needed for a fully immersive visualization system can be measured in the millions, and that doesn’t include costs for operating or maintaining the technology, or keeping it up to date. This means that most of the time, only the very largest manufacturers have access to the benefits of this technology.
Founded in 1988, Rave Computer is a consultant and computer manufacturer providing custom-engineered solutions to their commercial and military customers. When one of their customers, the Army Tactical Command (TACOM), mentioned that they had a Reconfigurable Automated Virtual Environment (RAVE) system on the base that wasn’t being fully utilized, Rave Computer signed a Cooperative Research and Development Agreement (CRADA) with the U.S. Army to put it to use.

The RAVE CAVE is a full-sized, four-sided, room that utilizes four high-end Christie projectors and optical trackers. The RAVE CAVE is supported by a five-system supercomputing cluster that hosts multiple high-compute, graphics-intensive simulation and visualization applications related to the medical, engineering, design, manufacturing, and architectural industries.

TACOM donated the RAVE shell with its projectors and tracking cameras. Rave Computer donated the engineering and design time to update the RAVE CAVE, as well as the operating systems and the computers. Intel got involved too: The cluster powering the RAVE CAVE uses four Intel® Core™ i7-3970X Extreme Edition Processors and one Intel® Xeon® Processor E5-1660 – all donated by Intel, with plans to donate upgrades when it is needed.

Brought up to current technology standards and staffed by Rave Computer, RAVE CAVE is seeing lots of use. For about 20 percent of its time, it is used by TACOM for activities such as software evaluation and testing. Much of the rest of the RAVE CAVE time is spent providing valuable visualization and design simulations to local businesses and for Science, Technology, Engineering and Math (STEM) related tours and student education. "We’re located in Michigan, the epicenter of where a lot of the country’s ground vehicle design manufacturing happens, both commercial and military," said Rave Computer President and CEO, Rick Darter. "In addition to large OEMs like Ford and GM and Defense contractors like General Dynamics and BAE, there are many tier 1 thru tier X companies that supply engineering services or build components for those vehicles. RAVE CAVE brings a technical capability within reach of these businesses that previously was only available to the largest OEMs.”

But perhaps the most exciting community service RAVE CAVE has provided has been its use in inspiring local students to pursue careers in science, technology, engineering, and math. Rave Computer Vice President of Corporate Relationships, Doris Block-Tomlinson, offered an example of how she worked with the local chapter of the Women in Defense (WID) organization to arrange a RAVE CAVE tour for young women from five local school districts.

“There was a tremendous amount of interest, and the results were very positive,” said Block-Tomlinson. “First we gave them access to a real military vehicle to climb through, and then we brought them to the RAVE CAVE to show them a simulation of the same vehicle.”

Every student involved in the event was asked for her opinion, and every one of them said they’d found it very interesting. “Several of the kids said that after seeing this technology, now they’re interested in pursuing engineering careers,” Block-Tomlinson said. “The only complaint we’ve gotten is, since we created this event for girls, now the boys want to come and see the RAVE CAVE, too.” Needless to say, more events are planned for the coming year, so the boys will get their chance.

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