

Discovery World Milwaukee, Wisconsin

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Surrounded by Sound at Discovery World

A museum, a school, a conference center and a technology showcase, Discovery World is one of the most unique and impressive facilities built in the Midwest in recent years. The centerpiece of the jaw dropping AV technology is the two high-definition digital theaters powered by 18,000-lumen HD projectors, 21' to 27'-wide screens and Crestron Surround Sound Processors.

Crestron dealer, Milwaukee-based Lewis Sound & Video Professionals (SVP) was retained to design and implement a state-of-the-art theater experience for Discovery World visitors. "Our guiding light was cutting edge technology," says Henry Lewis, senior design consultant at SVP "All the integrators were told to use the latest and best technology, to the point where we redesigned our systems more than once to take advantage of new developments."

"At the end of the day, we've been very comfortable with the capability and the stability of Crestron products. We have Crestron systems out there that are 10-15 years old and still work perfectly."

To achieve the optimal acoustic configuration, SVP performed extensive computer modeling in designing the theater's sound systems using EASE software. EASE allows the contractor to analyze a room's acoustics and loudspeaker coverage and guides the installer in choosing and placing speakers and acoustical materials.



Lewis notes, "Because of the intimate nature of the theater spaces, loudspeaker placement was critical. The seating goes very close to the back and side walls, so we had to place the surround loudspeakers carefully so they weren't too "hot" for people sitting in the back row. At the same time, the sound needed to reach out to the middle of the space. It's a great tool, but it doesn't take the place of the user's judgment and experience."

One area where the engineer's judgment came into play was in the choosing the sound processors. "Surround sound can add a great deal of realism and impact to a production, and it was definitely a requirement for these high end systems," Lewis added.

Customizable Output Modes, Heart Pumping Sound

The Crestron C2N-DAP8 7.1 Surround Sound Processor was selected for two reasons. "First of all, I'm very comfortable with that system because it's a very solid processor from a strong manufacturer," he said. Since the sound systems typically run seven hours a day, six days a week, the sound processor had to be extremely durable and reliable to withstand this type of use over the long term.

The second and primary reason for choosing the Crestron processor was the ability to customize the setup and tweak the signal-sensing capabilities for any digital input source, and set a different output level for each surround sound mode, which range from Dolby® Digital EX and DTS® ES, as well as Dolby Prologic II and DTS Neo:6.





“The difference between a Dolby source and a DTS is small, but significant,” Lewis explains. “Our goal was to give the audience the exact audio the producer intended, and to do so the sound always has to be shaped to the conditions and materials in each room. We might make the rear speakers a little hotter with DTS, for example, or perhaps lower the level a bit for the center channel with Dolby.”

A direct and major benefit of this versatile customization feature is seen, or heard in this case, in setting up the pre-show background music. “We definitely want a different setup for CD-based music than for DVD or Blue-ray video,” he said. “The music is stereo, but we want a sound on par with surround. With the Crestron DAP8 processor, we were able to take the sound to all of the speakers, emphasizing the front left and right, but also bringing in the rear speakers to add warmth. The nice thing about this processor is that it’s automatic. It detects the type of source and deals with it, which made the setup and control on the audio side very easy.”

The result is an atmosphere with a surround sound experience that would make any Hollywood movie producer take notice.

High End Sound Performance with Touchscreen Control

Crestron 15” touchpanels, designed to seamlessly integrate with the DAP8 processor, are used in each theater and provide a user friendly touchscreen interface to control an intricate, high performance sound system. “These systems are complex and encompassing, controlling source selection, source management-play, pause and stop - and volume controls.”

In the Innovation Theater, a digital mixing console mixes the sound while the touchpanel serves as a preview monitor for the various video sources. In the secondary theater, an operator can adjust the mix using the touchpanel to control a digital signal processor.

“At the end of the day, we’ve been very comfortable with the capability and the stability of the Crestron products, Lewis says. “We have Crestron systems out there that are 10-15 years old and still work perfectly. We’ve had a long and flourishing relationship with Crestron.”