



Extron JMP 9600 High Definition Players Contribute to a Dramatic Production at The National WWII Museum

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Steve Calver
Electrosonic Project Manager

The new 250-seat Solomon Victory Theater at the National World War II Museum in New Orleans is home to a powerful show entitled "Beyond All Boundaries." Using high definition video, audio, and special effects with a complex, large format projection system, the 45-minute show engages all the senses in telling the dramatic story of the Allied Forces' victory. For high definition video and multi-channel audio playback, system integrator Electrosonic installed five Extron JMP 9600 Two-Channel JPEG 2000 HD Video Players to supply nine high brightness projectors with frame-synchronized program material and visual effects.

The \$60 million theater houses a powerful projection system that produces outstanding visual effects. The projection system has three projection planes and five projection screens. The main screen is a "scrim" or gauze, which covers a 120 x 36 foot area and spans a 180 degree field of view. The scrim is situated in front of a pit from which artifacts and three small front projection screens emerge during the show. A second projection screen that is 115 feet long and 28 feet high is located behind the pit. At various times during the production, large objects, such as a tank, emerge from the pit, are illuminated and can be seen through projection scrim. Three smaller motorized screens also rise into view and display projected material at various times during the production.

The main presentation on the scrim uses three Christie Roadster S+ 20K DLP projectors while five Christie DS+ 10K-M projectors cover the rear screen. A single Christie HD10KM projector illuminates the three smaller motorized screens. Playback of synchronized, high definition video across the entire projection system originates from five Extron JMP 9600 video players.



Superior JPEG 2000 Compression

The JMP 9600 HD Video Players support playback of high quality JPEG 2000 encoded video at high bitrates, typically between 125 and 250 Mbps. "Compared to other compression systems such as MPEG, JPEG 2000 is a much better quality compression algorithm for playback of high definition media onto large format projection," reports Electrosonic Project Manager Steve Calver. "You get a much higher compression rate of data and a better quality reproduction in terms of color and saturation. The data throughput to the projector on playback is much higher." The JPEG2000 format is ideal for applications where superior image quality is critical to the audience experience. In fact, JPEG 2000 was chosen by the digital cinema industry as the best option to replace film in commercial cinema presentations.

Unlike MPEG-2, which typically compresses and encodes video across multiple video frames, JPEG 2000 codes each frame independently while managing audio separately. This simplifies management of the encoding process and supports frame-accurate access and control from playback devices. The ultra-wide video production for the Solomon Theater was originally prepared in TARGA - TGA format and then encoded into JPEG 2000 using the Extron J2KENC PRO JPEG 2000 software encoder created specifically for use with JMP 9600 video players. This software encoder served as a flexible and reliable method to encode content during the project programming phase. "The content was stored in individual TGA files, making it easy to pull segments out and drop them back in, even during post-production," Calver adds. The large images were then sliced into separate sections for playback on multiple displays during content encoding.



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Sophisticated System Synchronization

JMP 9600 video players have two output channels to support independent playback from each channel or allow for synchronized playback across both channels. The JMP 9600 also has a Genlock input to synchronize video playback across multiple units, valuable in 3D systems or super widescreen applications like The Solomon Theater. Electrosonic capitalized on this two output feature so that only five players were needed to feed nine projectors. A Horita video sync generator and a distribution amplifier provided Genlock sync reference to the players.

A Medialon show control system generates master SMPTE time code, which is distributed to the lighting control system, JMP 9600 players, and MOTU Timepiece to synchronize multichannel audio, video, and effects. The JMP 9600 players are controlled via Ethernet and show audio was produced and edited on site. The ability to synchronize playback and control of all show elements using SMPTE time code and video sync references supported by the JMP 9600 was essential.

The JMP 9600 players and J2KENC PRO software provided a cost-effective, high quality video playback solution and a reliable encoding tool that made integration and programming of a complex multi-projector production possible.



Dual DVI-I or HD-SDI outputs

Video Genlock Synchronization signal outputs

SMPTE Timecode inputs for show synchronization

The JMP 9600 offers two video output channels plus inputs for locking video output across units and show synchronization.



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