SWITCHING GEARS

The Fiat Chrysler stand brought a new level of spectacle to the auto show in Detroit

By: Sharon Stancavage

Photos: Steve Jennings

Every year, the automotive giants of the world exhibit their wares at the North American International Auto Show in Detroit, the only international show in the US auto show circuit. This year, Fiat Chrysler Automobiles (FCA) revolutionized the way consumers engage with their exhibit stand by putting the "show" back in auto show. "This is something totally different for the automotive industry; it is the first time an automotive client has really embraced a theatrical approach to their stand—usually most auto show stands are illuminated with white lighting, but FCA really wanted to break that mold," explains technical director for show control systems James Klein, of New York City-based James Klein Events (JKE). The design and build of the booth, and the specification of many of the components, was handled by FCA's longtime partner, George P. Johnson Experience Marketing, of Auburn Hills, Michigan; the show's creative direction and video content came from George P. Johnson's sister agency, Spinifex Group, which is based in Los Angeles.

The 62,000-sq.-ft. stand highlighted seven FCA brands: Fiat, Ram, Jeep, Alfa Romeo, Dodge, Chrysler, and Mopar, the group's parts brand. The show, which ran automatically during the day, was based on a time-coded sequence that started at the top of the hour. "The intent was to create magical, theatrical moments that truly immersed the audience, yet retained a structure that enabled the brands to showcase their more traditional media content (running footage and TV commercials), and maintained opportunities for their brand ambassadors to conduct live presentations to audiences," notes Spinifex executive producer Anthony Hickson.

The overall production, titled *Gears,* started with a visual bang called the "super storm." "This was a two-minute sequence designed to provide an introductory teaser for the show ahead," Hickson sayss. "It began with literal gears filling each screen. These were custom-designed for each brand—so Fiat, for example, had a very different look from Jeep. Over the course of the two minutes, the gears gave way to a logo reveal, one brand at a time, until all the brands had been revealed. The super storm culminated in an Alfa Romeo Giulia takeover—a brief moment where the Giulia filled all screens simultaneously." This opening gave way to what was termed the relief state, a visual loop that gave booth visitors time to go to whichever space they chose. From there came the takeover. Hickson notes, "This 15-minute section featured a two-and-a-half-minute full screen takeover for each brand, running concurrently, one after another. The takeover featured synchronized lighting and sound design throughout the booth."

This was followed by the "down state," which lasted approximately 40 minutes and featured live product

All photos: Courtesy of George P. Johnson Experience Marketing

Above the exhibit were circular aluminum gears. “FCA custom-manufactured gears, made up of Pixel Perfect LED tape, made in the UK by Litestructures,” Klein says.

specialists and brand-specific commercials that played on the numerous video surfaces in the space. Klein notes, “FCA was able to really engage their consumers for 25 to 30 minutes longer than any other brand at the auto show. People were drawn into the booth with this theatrical experience and they stood there, capturing it all.”

Above the exhibit were circular aluminum gears. “FCA custom-manufactured gears, made up of Pixel Perfect LED tape, made in the UK by Litestructures,” Klein says. “The gears were comprised of two runs of RGB tape and one run of white tape split into three sections. Given the size of the stand, that created basically 9,000 linear feet of pixel tape, which ended up being 387,000 pixels of LED that needed to light up.” The lighting gears broke down into 375 sections, each of which required three universes of DMX.

Klein and his team, including system designer/technical manager Jason Rudolph, designed the control system. An almost unimaginable 1,200 universes of DMX were presented to JKE in need of managing. Rudolph explains, “We had Green Hippo V4 Taiga servers on site to handle the pixel mapping. The Hippo sent out sACN, which was fed to 80 brand-new [TMB] ProPlex IQ Two 1616 bidirectional DMX-Ethernet converters. With over 100,000' of RJ45 ProPlex CAT5e Ethernet cables, including 400 ProPlex Sneak Snakes as well as ProPlex Fibre, quality and reliability were requirements for such a large and intricate system.” The Hippos were controlled via MA Lighting grandMA2 consoles.

The ProPlex boxes were a critical part of the system. Klein notes, “My main concern was keeping the network speed as high as possible. The internal gigabit switching was critical in the design of the system. Jason worked with TMB and their head designer, Ainārs Pastars, to custom-write the firmware in the boxes to manage this monster network load. Then, using the TMB gigabit-managed switches, we achieved a reliable network load, with each ProPlex IQ ticking along at roughly 40% capacity, which is just incredible.”

Lighting

According to Richard Neville, of Mandylights, the lighting director/programmer, FCA “wanted us to essentially uproot

Various screen resolutions were used, inducing 5.9mm for the towers seen above.

the typical white-wash-style motor show lighting and to help the lighting transform the entire FCA stand into this huge theatrical show that would keep people coming back to it."

Overall, JKE enhanced the Spinifex show content, delivering a showcase of FCA brands in a spectacular show sequence. Neville adds, "We programmed huge, full stand-wide sequences that saw colors ripping from one end of the venue to the other, and dramatic strobe and dimmer effects that really enveloped the entire setup. The theatrical show sequence was hugely cue-intensive—about 900 lighting cues fired in the 20-minute sequence, where we tried to accentuate every beat, every squeal of tires, and match every sound effect we could." Neville and Alex Grierson, the lighting director/programmer, did their programming on two MA Lighting grandMA2 full-size consoles.

Color was used in both the show sequence and down state. Neville comments, "We made a very clear programming and design decision to use strong, big blocks of colors and effects to sort of take over the entire stand—much in the same way that the show sequences used video and audio for each FCA brand to consume the entire booth; each of the seven takeover sequences was given one or two dominant colors that washed over the entire stand. We subtly used color throughout all the down states to help reinforce the separate brand identities present around the stand. Chrysler had some cyan tinges, we gave Ram a noticeable tint towards straw and CTO, and Alfa Romeo and Dodge used red to reinforce their brand colors."

The lighting rig, specified by Chris Wojcieszyn, of LightHaus Design and supplied by Los Angeles-based Seibo, was comprised of, from Martin Professional, MAC 2000s, Mac 2000 XBs, Mac Vipers, Mac Viper Air FXs, Mac Auras, and Mac Viper DX Performances. "It was mainly wash lights, because we were in an auto show environment, but we did add over 50 Air FXs to create the show moment and to really focus people's attention across the stand," Klein says. Neville adds, "The main workhorses for the rig were the Mac 2000 Washes; we added Viper AirFX fixtures to produce a number of beam and gobo

effects throughout the show sequences."

JKE show design and pre-visualization was done in conjunction with David Perkins, of the previsualization team at VER. This component was a critical part of the design and programing process. "We modeled the complete stand in full 3-D, capturing all 64 cars, all 20 LED video screen surface (32 outputs), referencing every light, and capturing all the 387,000 pixels of LED rings," Klein says. "The ability to fly around in real time in the space, checking every light focus and show sequence from multiple angles, gave us the time and ability to program over 900 show cues without the stand being finished. We only received the finished stand two days prior to show, so this tool was essential in the delivering the project."

Video

The FCA space included 20 LED screens. Peter Acken, who handled the d3 Technologies media server programming and 16 channels of audio playback from d3, says, "There were no flat video screens; everything was curved on one angle, except for Jeep, which was 32' wide and 20' tall with LED pillars that extended the screen a further 30' on each side. The screens that were not curved were completely cylindrical, built to play back custom content."

The LED screens ranged in size and in resolution. "Chrysler had a high-res screen that was 95' wide and 7' tall," Acken says. "The tallest screen was Jeep, and it was in multiple pieces; the biggest piece was 32" wide x 20' high." The resolution ranged included 3.9mm [for the main screens], 5.9mm [the columns], 8.33mm, and 18.75mm; the latter was for the stylized video chandelier in the Fiat portion of the exhibit. "We used the latest concave and convex adjustable LED panels, which have only recently been made available to market," he adds.

The exhibit itself was a seamless environment that, according to Acken, enveloped you inside the space. "No screen was ever turned off and there were no crossfades or dips to black. Utilizing precise programming and synchronizing the entire lighting video and audio system to time code, we were in sync all the time."

Speaking of the media server, Acken says, "d3 has the

ability to do pre-viz in 3-D already built-in, which gave us the 60,000' view of the space required to see the entire show as it developed."

Also, Acken says, "Every system within the entire design marched to time code while genlock kept the heartbeat of all the machines in sync." During previsualization, and once the programing was completed, the system was capable of running automatically via audio-generated time code, with minimal technicians. "From the costing point of view, doing the time code made it so that instead of having 12 people there for the whole run, it basically reduced the crew to two people who were babysitting the system," Klein says.

"We had a total of 10 d3 systems outputting a total of thirty-two 1920 x 1080 video feeds to make 20 high-resolution displays," Rudolph explains. "Media was distributed from a NAS over a 10GBE network. Video routing control was handled also via the console, utilizing VER's Pathfinder solution for controlling our Blackmagic 72 x 72 HD-SDI router."

Audio

In a standard auto show exhibit, the audio is relegated to two simple elements. "Typically, it's just TV commercial spots playing in the background and a product specialist speaking when there's a crowd around them," explains FCA's audio engineer Michael McDermott, who was brought onto the project by JKE. "When I engaged Michael, I tasked him with the job to deliver a 3-D sound environment so we could shift peoples' focuses across the stand," notes Klein.

The FCA exhibit had those elements, and much more. "The overall concept was centered around panning and routing to any individual brand or location in the booth, to draw attention to individual brands and globally to tie the whole stand together," says McDermott.

For hardware, there were 50 Meyer UPJ-1P and 20 Meyer UMS-1P subwoofers, provided by Seibo. McDermott says, "The speakers were distributed throughout the ceiling in brand locations and also through the center of the booth, so that we could create some motion when you were standing in the middle of the booth

The d3 control system.

and draw attention to the individual brands."

McDermott had two consoles on hand, both from Yamaha. "We had a DM2000 automated and syncing up with time code, and that fed a CL5 for distribution to each individual brand," he says. "The DM2000 was chosen because it's one of the only desks I know of that allows you fully automate via time code. What that means is that fader movements to time code on a time line." Time code was provided by QLab software, running off two Mac laptops in primary and backup configurations.

Two TiMax 2 SoundHubs were key components of McDermott's audio system. "TiMax is a 64 x 64 input and output audio matrix that has the capability to play back any source, whether from its internal playback engine or from an external line input, like from the multiple D3 servers. At that point, TiMax gives you the capability to pan and route audio, based on a time-coded time line, to any destination or any speaker in the system.

"In TiMax software you can create an image definition, which is a group of inputs routed to an output, and you can essentially, with the mouse, drag and drop that input to where you want it to come out of and you can pan that from brand to brand via TiMax. So it will let you pan from a Mopar focus video to a Jeep brand. You could then have it pan over to that booth so that the audio energy is focused to that brand, to highlight it. To do that out of a console would take a massive amount of outputs."

TiMax was also able to control the volume levels over the 24-hour time code-generated global clock. "TiMax sent MIDI control changes and MIDI scene changes to the CL5, so that no matter where the master volume faders ended at, at the end of the day, they would reset themselves to a predetermined level. Even if it was 6dB louder the night before, because the booth was packed, in the morning it would start at a certain level so that it wouldn't blow everybody's ears out," McDermott says.

The majority of the audio came from the d3 media servers. McDermott says, "We did 16 channels of audio out per machine via [Audinate] Dante. That then fed over Dante to the DM2000's MY16-Dante cards."

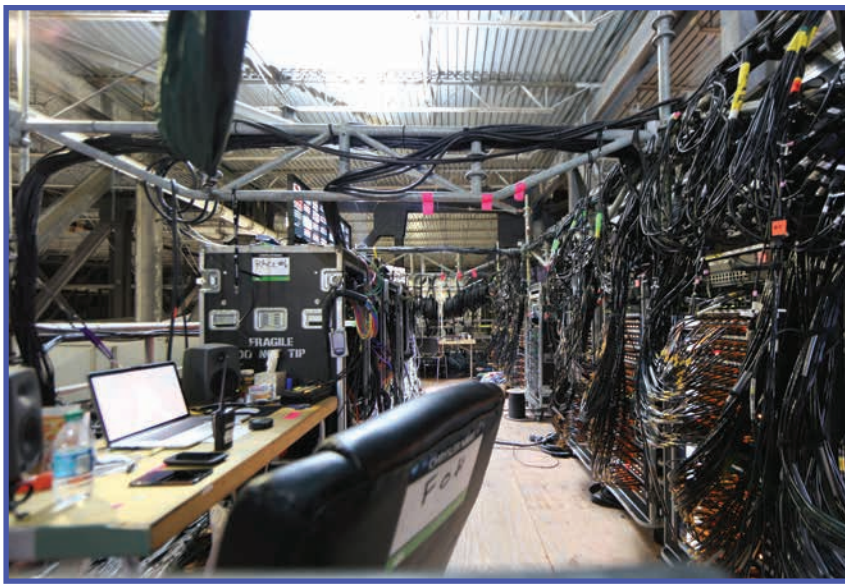
The Dante protocol, native on Yamaha CL consoles, was an important component of the FCA audio design. "All interconnects, all sources were all done and distributed over Dante; it allows audio to be routed over cat five or fiber—it's an all-digital distributed network," he says.

During the down state, when the commercials were played, product specialists spoke live to the booth patrons. In the FCA booth, it was decided that they would speak at specific time slots. "The microphones we used for them were Shure UXL-D quads [ULXDQ receivers and ULXD2/B87A transmitters] that were fed to the CL5," McDermott says. "The CL5 was chosen for this task

because I could build each brand into a bank of eight on the CL5; when the simultaneous commercials were playing back, the ducking feature of the CL5 could be used so that the microphone went on, all playback in that brand ducked, and only the voice was heard. After they stopped talking, the audio from the video faded back up a second and a half later. The audio from the video faded out and up, based on when they would speak."

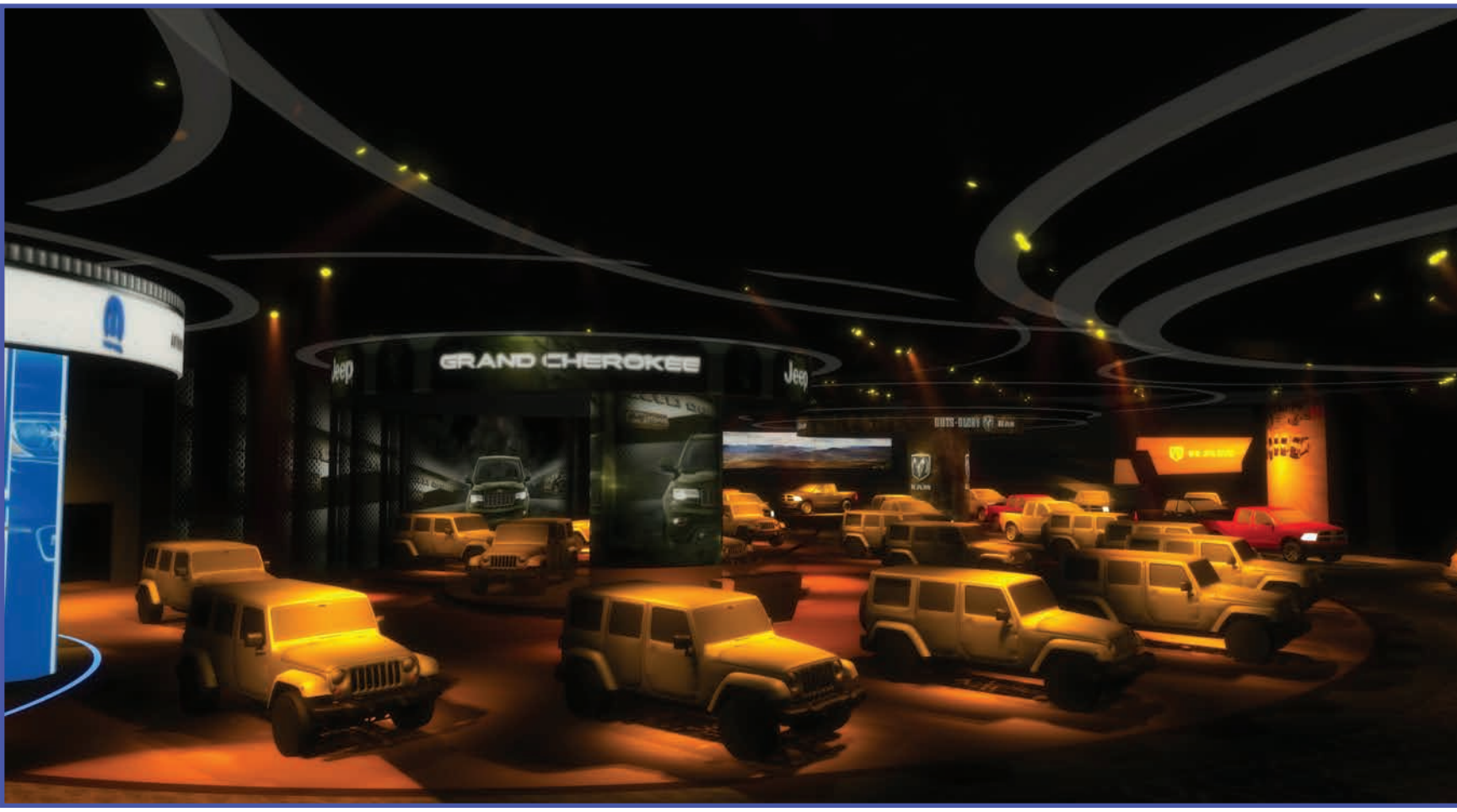
One of McDermott's biggest challenges was creating his sound design before the video content was completely finalized. "The advantage that I had was having something like TiMax," he says. "I was able to have the producers or Spinifex distribute the audio content to me, and I could play it back from my TiMax independently of the video playback servers. I was allowed to go out and program the show freely how I needed without having the final video content to run the show. Once all the video content was ready, I was able to stop playing back from TiMax and take audio from the video servers."

Gears will be up and running again at the 2017 North American International Auto Show in Detroit.



Above: Server village. With 1,200 universes of DMX to manage and Green Hippo V4 Taiga servers on site to handle the pixel mapping, the control system included 80 ProPlex IQ Two 1616 bidirectional DMX-Ethernet converters and over 100,000' of RJ45 ProPlex Cat5e Ethernet cables, including 400 ProPlex Sneak Snakes as well as ProPlex Fibre.

Rendering: Courtesy of James Klein Events



A rendering of the exhibit design showing the Jeep area of the stand.