

March 2012 Issue

Features

Grammy Live



Audio crew at 2012 Grammy Awards, photo courtesy of the Recording Academy - WireImage

When the envelopes were opened for the 54th annual Grammy Awards Show on Feb. 12 from the Staples Center arena in Los Angeles, there were few surprises between Adele, Foo Fighters and Taylor Swift. But at the ends of the fiber optic snake, there was a big one. After a decade with the venerable (and recently discontinued) Yamaha PM1D console at the FOH and monitor mix positions for the Grammy Awards telecast, DiGiCo's SD series desks made their first appearance on "Music's Biggest Night," and did so in force. If the Grammy's tendency to stick with technology platforms consistently for long periods continues to hold true — the Yamahas were there for nine consecutive years — expect to see these British imports in place for some time to come.

The FOH position used a 256-input DiGiCo SD7 console, manned by mixer Ron Reaves, who worked his 10th Grammy show that night; the two monitor consoles (each with a mirrored surface for backup), one for each of the two show stages, were 96-input DiGiCo SD10s, worked by Tom Pesa on stage right and Mike Parker stage left, both long-time Grammy show veterans; a third 96-channel SD10 was used for the production mix, operated by ATK Audiotek vice president for live events Mikael Stewart. All consoles process at 96 kHz.

Other new wrinkles this year included a full buildout of an Optocore fiber network (one had been partially in place last year) that connected all three consoles' mic pre's plus their fail-safe backup work surfaces, creating a fully digital ring network for the first time. Furthermore, this was the first Grammy Awards for ATK's Powersoft K10 amplifiers powering JBL VerTec VT4889 line arrays they've used for the last decade, to which ATK system designer Jeff Peterson applied modified Version 4 presets.



Mikael Stewart (above) and Ron Reaves at FOH

Written by By Dan Daley, Photos by WireImage
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New Desks

Everyone seemed highly satisfied with the performance and operation of the DiGiCo consoles, even in the face of what all the operators agreed was a hefty learning curve — one, they said, was inevitable after so long on another platform. Reaves had perhaps the biggest jump on the board — DiGiCo had arranged for an SD7 to be set up at his home for a couple of weeks, and he estimated that he had logged between 30 and 40 hours on it, playing shows he'd recorded previously and monitoring over headphones.

"I love it," Reaves said with little prompting. "I was able to learn it before I had to do a show with it, which really helped, but it's a great-sounding and very powerful console. I had gotten to the point on [the PM1D] where I could have operated it in a coma, so I have to think a bit about what I'm doing as I move through this console. There was definitely a learning curve, but the effort is definitely worthwhile." Reaves cites in particular the SD7's dynamic EQ and multiband compression on all I/Os; he's also impressed by its ability to run Waves plug-ins, though he opted not to do so for the Grammy show. "I just didn't want to add that extra layer of complexity to it," he said. "Maybe next year."

Sharing Pre-Amps

One thing they all agreed on, ahead of time, was the decision to share pre-amps among the FOH and monitor consoles, for a total of 448 I/O between them — 288 shared inputs available to all the consoles and 200 shared outputs. (DiGiCo has a gain tracking software package available, but the mixers decided against employing it this time around.) The monitor consoles had control of pre-amp inputs for instruments, while inputs for vocal microphones and the Pro Tools playback system were under the control of the FOH console.

"We sat down and found a level that we all felt comfortable with as a starting basis, and then we all used digital trim from there to adjust individual inputs," said Reaves. Added Peterson, "When you go to a digital infrastructure, it's a whole new ballgame of full scale versus what we used to use as zero dB with analog amplifiers and how much gain you're putting out. It's whole new digital world, and you have to have parameters like your limiters all lined up the same [across the boards]."



Mike Parker with the SD10 at stage left

The entire signal chain was digital for the first time this year, from the DiGiCo mic-pre's to the amplifiers, via an Optocore network, but as radical as they might seem, the big changes to the system design and workflow this year actually represent a continued transition to digital over the course of several years, with the intent of keeping the Grammy show at the edge of the envelope, but doing so incrementally, since it's not a great idea to experiment in front of an audience of nearly 40 million people.

Peterson said Optocore had been used in the past to drive the rear delay speaker amplifiers that ATK, which has been the sound reinforcement provider as it has been at the Grammy Awards show for 22 of the last 27 years, used to have to hang before the Staples expanded its own VerTec system last year.



Tom Pesa with the SD10 at stage right

“Now, we’re using Optocore for the entire drive side, with one A-to-D conversion, at the mic preamps and back to analog at the amplifier, all via a 24-channel MADI feed,” using 10 XTA speaker processors sending an AES signal to the amplifiers, he explained. Another first is driving the Powersoft amplifiers digitally, though for reasons similar to Reaves’ decision not to add plug-in processing to the DiGiCo desks this year, ATK opted not to use the K10 amplifiers’ onboard DSP yet. “ATK will probably move to internal DSP processing next year; this year we’re still using the XTA external processing,” which they’ve employed for 15 years.

Redundancy was critical with this many firsts. Peterson and Stewart set up the system, including all of the consoles, at ATK’s shop for an entire week, running every possible failure scenario they could conceive of, including pulling out cables and emergency reboots. If, for instance, the FOH SD7 console were to fail, the SD10 production console could be immediately manually switched over to cover that task, as well, drawing a music mix from the broadcast truck over the Optocore network. Or if a rack were to fail, the Powersoft K10s would be switched to their analog inputs, receiving a completely redundant signal. This was military-level preparedness, of which Peterson said simply, “There’s a reason they call us back every year.”



Michael Abbott with pre
amps

Speaking of military-level activity, Michael Abbott, audio director and coordinator for the Grammy show for 26 years, spent much of the rehearsal period as he usual, putting out fires as they arise. He says the new digital infrastructure this year came at a time when the show itself was becoming more complex, with several multiple-artist performances, such as Maroon 5 and Foster The People joining the Beach Boys for their 50th anniversary appearance on the show, which alone used an estimated 110 inputs. “We also have string sections performing with Paul McCartney and Bruce Springsteen, and neither of them use click tracks, so we can’t do a pre-record to add sound to [fatten the strings] during the performance,” he said.

“There were 22 performances this year, versus 18 last year, plus we have a show across the street,” (Deadmau5 interjected into Foo Fighters’ “Rope” — on an outdoor stage built on the LA Live plaza) — “that we’re treating as integrated into the rest of the production via fiber from the stage to the Music Mix Mobile [broadcast] truck, rather than as a stand-alone like we did a few years ago,” Abbott noted. There were 134 SMPTE fiber strands and 26 pairs of single-mode fiber from the outdoor stage, making the most fully digital Grammy show also the most complex in terms of inputs. Four JBL VT4889 enclosures per side were used for Foo Fighters, supplemented by eight of ATK’s CSW-218 subs, with a DiGiCo D-5 for Foo Fighter’s FOH and a Midas Pro 6 for monitors.

Radio World



There was also plenty of RF on the show, with 44 channels for vocals (the Beach Boys’ segment used eight and Taylor Swift’s performance used seven), nearly that many for instruments (Springsteen’s opening performance used 10 simultaneously), and 26 channels of in-ear monitors. Wireless coordinator David Bellamy of Burbank-based Soundtronics was constantly busy between allocating frequencies and tracking down noise sources, which emanated mostly from the video LEDs along the bottom and sides of the stage.

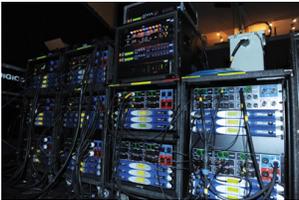
Bellamy counted a total of 218 frequencies used, including those for wireless intercom for 30 stage managers, 20 A2s and 10 lighting techs. With Sennheiser artists using both 2000 and 5000 Series wireless handheld mics on the show, the company’s new EM 3732-II receiver, which is compatible with both systems, proved to be a timesaver. “Using this

receiver means there is one less machine I need in the rack,” Bellamy said. “We changed back and forth between the 2000 and 5000 series twice. It was nice to be able to do that.”

The topping on that particular cake, however, might have been the nearly 10,000 RF LED wristbands distributed for the Coldplay segment, which flashed in synch with the music via a pulse beacon that required its own RF channel. That was pulled off thanks to Bellamy’s attorney in Washington, DC working out a deal with cellular provider Nextel to turn off the 869.6-MHz repeater for their service in the Staples Center during rehearsals and the show. “That’s some serious frequency coordination,” Abbott said.

For in-ear monitors, this year’s Grammys used 26 channels of Shure PSM1000 between both monitor positions. “The PSM 1000s are a dream come true,” said Pesa. “The RF stability is so solid, it allows us to focus on mixing. Using the Cue Mode feature, we can provide visiting monitor engineers a single pack with all of the bands’ mixes so they can scroll through them while rehearsing on stage.”

Considering the show’s complexity, there were remarkably few glitches when show day finally arrived, given the over 5,000 audio patches made during rehearsals and the show itself. Jason Aldean’s microphone cutting out on the tag of his duet with Kelly Clarkson was somewhat mysterious, attributed ultimately to a loosened battery connection, and an intermittent bad microphone among the nearly two dozen used on the string section for Paul McCartney’s first performance, was hunted down on the fly and corrected quickly. The show pulled in its largest viewership since 1984 and an entirely new audio mixing and distribution infrastructure had been successfully implemented. Not a bad week’s work.



**Powersoft K10
amplifiers, XTA DP 226
DSP and Optocore X6R-
FX fiber network
interfaces**

Optocore Ring Network Encompasses Entire Workflow This Year

This was Optocore’s second Grammy Awards outing, but the first time where it was used to distribute all of the audio signals around the arena. At FOH, the Optocore network received three MAD1 feeds from the DiGiCo SD 10 production-audio console as well as the prime word clock sync to one of two Optocore DD4MR-FX dual channel MAD1 interfaces.

The second DD4MR-FX received two MAD1 streams from the dual-engine SD 7 music mix desk along with redundant word clock, providing a complete backup feed for the system. The Optocore network also carried network control data for the Powersoft amplifiers for the main PA, subs and fill cabinets.

Two dual-fiber multimode tactical cables ran from FOH to three node locations under the stage at center, left and right positions. At the center position were two Optocore DD32R-FX AES devices that fed audio signal and control data to 10 XTA speaker processors.

System designer Jeff Peterson’s utilization of the DD32’s bi-directional AES ports allowed for the post-processor AES signals to be re-injected into the network for distribution to stage right and left processors. Three outputs were allocated for front fill speakers and subwoofer amps.

Vocal Microphone Choices

- **Jason Aldean:** Audio-Technica AEW-T6100
- **Bruno Mars:** Sennheiser SKM2000/945
- **Rihanna:** Sennheiser SKM2000/965
- **Alicia Keyes:** Sennheiser KK104
- **Bruce Springsteen:** Shure SM58
- **Dave Grohl:** Sennheiser MD 431 II
- **Brian Wilson and Mike Love:** Audio-Technica AEW-T6100
(with Adam Levine and Mark Foster): Shure UR2/SM58
- **Paul McCartney:** Shure SM58
(with Diana Krall): Sennheiser SKM 5200/KK104
- **Taylor Swift:** Shure Super 55
- **Katy Perry:** Sennheiser SKM 5200/MD 5235
- **Adele:** Sennheiser SKM 2000/965
- **Tony Bennett:** Sennheiser SKM5200/KK105
(with Carrie Underwood): Shure UR2/RC35
- **Glen Campbell:** Shure UR2/SM58
(with The Band Perry): Shure UR2/SM58
(and Blake Shelton): Sennheiser SKM2000/KK205
- **Bonnie Raitt:** Sennheiser SKM 5200/MD 5235
- **Coldplay:** Shure UR2/Beta 58
- **The Civil Wars:** Shure UR2/KSM9
- **Jennifer Hudson:** Shure UR2/KSM9
- **Foster the People:** Shure UR2/KSM9

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