

Analog Summing for Live Sound Mixing

By George Petersen

For years, a growing number of studio engineers have turned to using outboard summing boxes that combine the individual outputs of subgroup pairs (stems) from a digital console or digital audio workstation into a single analog stereo output. This same process could easily be done within the DAW or console itself, but the many engineers who heard A/B comparisons between the two methods would often report hearing improved sound quality, with increased levels of spatial detail, channel separation, clarity, punch and definition when these multiple sources were combined using an outboard analog summing mixer.

Users also claim that this process gives them access to all the advantages of digital production (recall ability, plug-ins, automation, etc.) while gleaning the perks of a minimalist analog approach to busing, via a fairly simple circuit topology with high-grade components for a more pristine, open sound.

And while this out-of-the-box analog summing process is well-known in studio circles, it's been relatively unknown among sound reinforcement engineers. All it re-

quires is an outboard summing unit, a digital console with access to multiple analog bus outputs, some cables and the ability to route the analog stereo output of the summation device into your L/R system feeds.

» The Summing Solution

Front of house engineer Horace Ward has mixed all kinds of live events, from concerts to awards ceremonies. His client roster reads like a *Who's Who* of top-end pop and R&B acts, ranging from Lady Gaga and Prince to Destiny's Child, Beyoncé, Mary J. Blige, Dru Hill, Puff Daddy, Wyclef Jean, Usher, Busta Rhymes, the Fugees, LL Kool J and PM Dawn. Ward takes a serious approach to sound and is constantly looking for ways to advance the state-of-the-art.

Recently, Ward added a secret weapon in his quest for making his live music mixes sound their best: the 2-Bus from Dangerous Music (dangerousmusic.com). Essentially, the 2-Bus is a two-rackspace analog summing mixer that's designed to bypass your console's master section. It has 16 analog XLR inputs (eight stereo pairs) and stereo L/R XLR outs



» FOH mixer Horace Ward with the Dangerous Music 2-Bus summing amp, just before mixing an Usher show at the Moon Palace Resorts in Cancun, Mexico, 2012.

on the back panel. The front has eight switches that can route each of the stereo input pairs to center-panned mono (if desired), but otherwise each of the stereo input pairs are summed to the main L/R output bus. A switch for each input pair can add +6 dB of gain to that pair — if needed — and a rotary output gain control is provided for tweaking or trimming the level to precisely match your system requirements.

In the spirit of sharing, Ward wanted other engineers to know about this as well. He has long been aware of summing mixers in the studio environment, and wanted to use the 2-Bus to achieve a similar enhancement — and control — over his live mixes. "I don't understand how the 2-Bus has been in the studio so long but hasn't gotten to live shows — the sound is unbelievable," says Ward.

"The feel is different with analog and digital summing output," he continues. "Using the Dangerous 2-Bus and summing stems, you really hear the difference. With keyboards, for instance, when you put reverb on them, now they 'wrap around' the audience, it's like 3-D, even coming from behind you. You get none of that with a typical live digital console. You lose the 'spread' in the sound."

In front of house applications, Ward mixes stems from the console as stereo drums, mono bass, stereo instruments such as guitar and keyboards, stereo backing vocals, lead vocals, etc., to the 16 analog inputs of the Dangerous 2-Bus and then takes the analog output of the 2-Bus right into the PA feed. Ward often mixes on an Avid VENUE Profile live mixing console. "I'm so used to using plug-ins in the studio with Pro Tools, I use them with the Profile and they sound the same," says Ward. "If you push too many tracks through the 48K digital console, it doesn't sound that good, but with the Dangerous 2-Bus, it sounds a whole lot better."

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» Studio to Stage

"Audio integrity is non-negotiable," says Dangerous Music president and co-founder Bob Muller, who notes that the company's products benefit from electronics designer Chris Muth's mastering wizardry. Muth is known for his role creating the custom black boxes for world-class facilities including Hit Factory, Masterdisk, Absolute Audio and Sterling Sound. Dangerous Music also benefits from feedback from experienced engineers, artists and producers for its products, which are geared for the needs of today's computer-based studio — and live mix engineers.

Asked a personal analogy for what analog summing with the 2-Bus achieves, Ward suggests, "When you take a photograph and you look at it and the foreground is sharp and clear, but the background is 'fuzzy' and out of focus: that's digital in-the-box summing. To get the 'depth of field' where the foreground and background are both in focus and clear: that's analog summing.

"I do a lot of hip hop with a lot of low-end and grit and a lot of dynamics," adds Ward, explaining some of the specifics on the sound he works with. "I need the depth that I get with the 2-Bus so that I can place everything in the mix. With the 2-Bus, I can get the vocal to the front for the audience to hear without being so loud. Using the 2-Bus with the Avid VENUE Profile makes the mix sound 'expensive.' You can hear the difference. The 2-Bus really should be part of any live mix setup now. It is for me." **FOH**

Got a tip or trick that FOH readers should know about? Share it with editor George Petersen at george@fohonline.com.



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