Meeting bench and production test needs

by Rick Nelson, Executive Editor

Instrument vendors designing new products face trade-offs among factors such as performance, ease of use, and measurement speed and automation capability.

APx555 audio analyzer
Courtesy of Audio Precision

In a recent phone interview, Spyros Lazaris, vice president of sales and marketing at Audio Precision, and Tom Kite, vice president of engineering at the company, described their approach to optimizing the combination of performance, user interface, and digital I/O support in the development of the 30-year-old company's newest instrument, the APx555.

Lazaris described the existing 2700 Series and APx Series as starting points for the new instrument. The 2700, he said, offers industry-leading THD+N of -115 dB. It targets the power user on the bench, enabling interaction in real time with the instrument and device under test. "It has a loyal following," Lazaris said. What the instrument lacks is a sequence mode and support for modern digital interfaces. "2700 customers are pushing the envelope," he said, "but users want access to interfaces like HDMI."

In contrast, an instrument like the APx52x includes a sequence-mode user interface and supports HDMI, Bluetooth, and PDM interfaces. It is suitable for both R&D and production test, but its THD+N is -108 dB, and on the benchtop, it doesn't permit the level of interaction that the 2700 does. "APx customers want better THD+N," he said. "They like the simple interface but want augmented capability to have more real-time interaction with the DUT and instrument."

The effort to meet or exceed the needs of both 2700 and APx instruments, Lazaris said, led to the development of the APx555. Kite described the APx555 as offering unmatched analog performance with improvement in THD+N to a specified -117 dB, -120 dB being typical.

Targeting chip makers, pro-audio equipment manufacturers, and existing 2700 users, the APx555 includes a sequence mode (suitable for QA, certification, and production test) as well as a bench-mode user interface that targets audio experts and power users of audio analyzers. In bench mode, the APx555 enables such users to set up complex test configurations and visualize the interaction between stimulus and response.

"Bench mode offers more visibility into real-time behaviors," said Eric Cline, an engineering technician at Analog Devices, in a press release. "Being able to see everything at once is a huge deal—distortion, noise, and signal level...." He continued, "You have the APx ease of use but can still have all the measurements—all on one screen—when you need it." Cline and his team work in applications development designing and testing ADC and DAC evaluation boards. He uses the instrument's sequence mode to investigate the statistical behavior of components, and he uses the bench mode to help customers facing design problems.

In addition, the instrument includes advanced clocking capabilities to support advanced digital interface testing and external synchronization and timing for pro-audio applications. The instrument also offers a measurement bandwidth up to 1 MHz. "With class D amplifiers," Kite said, "there is a lot of action above the audio band."

Other features include an advanced master clock that provides sync/reference outputs for synchronizing external equipment to the instrument and sync/reference inputs for synchronizing the instrument to external equipment. The instrument also supports jitter generation and analysis. Digital I/O support is provided for balanced AES/EBU, unbalanced S/PDIF, and TOSLINK as well as Bluetooth, HDMI, and PDM. Interface impairments also are supported.

List price for the APx555 is $28,300 vs. $27,000 for a similar 2700 analyzer. The 2700 will remain a part of Audio Precision's portfolio, Lazaris said, offering a lower price point and preserving existing 2700 customers' software investment. There would be no easy, automated way, Kite added, to port 2700 code to the APx555.

Some standard features of the APx555 will become options available on other APx platforms. The advanced master clock and advanced digital I/O capabilities will be $1,750 and $3,000 options, respectively, for the APx58x and APx52x. Bench mode will come standard on most APx models but will be a $2,000 option on the APx515.

For more information

Audio Precision
www.rsleads.com/410ee-193

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