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Xceive shows single-chip tuner in 7-inch HDTV demo

By Loring Wirbel

COLORADO SPRINGS, Colo. — Hybrid TV tuner specialist Xceive Corp. is launching a new line of analog-digital tuners, the XC5000, intended for high-end TV applications that need noise performance exceeding that of can tuners. DSP blocks allow additional baseband programming functions for adding channel optimization features in the future. The company also began sampling an XC4000 family for midrange “value TV” markets, leaving out the QAM256 functions for handling ATSC/NTSC signals.

Xceive announced at the Computex show in Taiwan that it was working with Trident Microsystems on a reference design called Aspen for a mid- to high-end flat-panel system, marrying the XC5000 with Trident's HD-TV Pro CX and FC system-on-a-chip designs. The Trident devices perform capture, digital and analog A/V processing, video scaling and color control.

Also at Computex, Xceive showed another reference design, Breckenridge, for a 7-inch HDTV with 16:9 aspect ratio,

capable of receiving 18 ATSC formats or NTSC signals via terrestrial or cable signals. The primary board for Breckenridge measures 2.75 x 4.75 inches.

Neil Mitchell, vice president of marketing at Xceive, said the company developed the lower-cost global XC4000 chip to have features as good as any can tuner, while the XC5000 outperforms can tuners. Even though Xceive is touting the latter design as bringing about the death of can tuners, Mitchell said he would have no problem with integrating the XC5000 die in a can for customers with special requirements.

Both the new families are based on a 0.18-micron silicon germanium process that integrates all SAW filters. The 48-pin QFN package integrates all RF-to-baseband functions, as well as an FM receiver. Both versions have a noise figure of 5 dB. The XC5000 has a signal-to-noise ratio greater than 53 dB and a noise figure of -95 dBc/Hz at 10 kHz, while the XC4000 has a 50-dB SNR and noise figure of -85.

A typical tuner application with the

XC5000 integrates one chip and 30 passives, while the best can tuners in the market use two ICs and as many as 150 or 200 external components.

Currently, the DSP blocks in XC5000 are used for signal conditioning and data acquisition in real-time, real-time transmission to an MPEG CPU and improving system robustness. In the future, the same DSP block could be used to analyze the analog performance and dynamically change the bandwidth.

Xceive offers two applications unique to its DSP-enabled architecture. QuickTune and QuickScan allow 5-millisecond signal detection, which means all analog channels can be scanned in 2 to 5 seconds. A virtual tuner function called ChannelVista allows multiple channels to be displayed in small screens surrounding the main channel, viewed in near-real-time to serve as a video-based favorite-channel list. Mitchell said that several OEMs working with Xceive already plan to offer this feature in their next TV sets.