PENTEK
Setting the Standard for Digital Signal Processing

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The new Model 7151 is a high-performance, high-resolution software radio PMC module. Four 200 MHz 16-bit A/D converters feed a pre-installed FPGA IP core that delivers 256 DDC channels. Particularly well-suited to GSM cell phone monitoring and signal intelligence applications, Model 7151 leads the industry with the best resolution and highest channel density.

With its highly optimized 256-channel DDC IP core, Model 7151 represents an entire software radio front end, boasting a channel density 8x higher than any competing product. It is fully supported with drivers and comes ready to use with the FPGA code already developed and installed. Not only does the 7151 module reduce development time and risks, it also saves designers space, power, and costs in their software radio systems. The decimation settings, input selection, and flexible tuning – all unique to Model 7151 – provide engineers with unprecedented choices to suit specific applications. **– Pentek**

256 DDC channels hunt for GSM signals

Since the introduction of their GateFlow family of IP libraries for FPGAs some years ago, DSP expert Pentek has built its product line around front-end signals acquisition products and FPGAs. Their latest PMC module, called Model 7151 (Pentek is nothing if not devoid of fanfare in their nomenclature), is a variation on the company's tried-and-true theme. They take the fastest and highest-resolution A/Ds they can find – in this case from a vendor who won't allow their name to be revealed! – bolt them to a mux, and flow signals into the biggest and baddest Xilinx Virtex-5 FPGA they can find. The 7151 has some unique characteristics that make it ideal for "simultaneously capturing hundreds of signals spanning a wide range of modulation types, signal bandwidths, and antenna sources."

Pentek told us this translates to: locating, triangulating, and even listening in on insurgents' GSM cell phone calls. Of course, other SIGINT applications arise, too. The card's four 200 MHz 16-bit A/Ds feed an FPGA DDC IP core that breaks up into four banks of 64 DDC channels, a total of 256. Each channel is independently controllable, has a 31-bit tuning frequency setting from DC to fs/2, and can be decimated from 128 to 1,024 in steps of 64. For example, at a 200 MHz sampling rate, the available output bandwidths range from 156 KHz to 1.25 MHz. At the front end, the A/Ds can handle up to 100 MHz bandwidths, a 37 percent increase over previous Pentek modules. In summary, this card is ideal for mating to different antennas and is used to search out a variety of signals. For convenience, Model 7651 is a PCI (desktop) version for lab setups. [***Editor's note:*** *Pentek recently told us that they were expanding their PMCs into the data recorder market – a natural extension for the 7151.*]

Model: Model 7151
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