CONCURRENT TECHNOLOGIES

Application Note

Software Defined Radio (SDR)

SDR

SDR is a radio communication system where components are implemented by means of software rather than by hardware. This has several advantages: it is much faster to prototype next generation radio standards; it enables on the fly changes like frequency hopping and encryption; the radio elements (mixer, filter, amplifier, modulator/demodulator) can be individually and flexibly reconfigured and it enables voice and data communication capabilities.

SDR is particularly useful in military environments by providing clear, secure and low latency communication across a range of simultaneous frequencies and protocols within a realistic Size, Weight and Power (SWaP) envelope.

The Solutions

Many deployed military SDR solutions are based on the 3U VPX form factor. A typical starting point might be a Concurrent Technologies processor board mated with a Pentek multi-channel data converter board. For example, Concurrent Technologies latest TR E5x/msd board can be used as the user interface, storage server and management station.

When mated with a Pentek FlexorSet 5973-312 board, a SDR solution can be set up as a turnkey solution or customized with specialized signal processing blocks. The whole solution would include RF inputs/outputs, analog to digital converters, clocking, upconverters, digital to analog converters and a high performance FPGA for waveform decoding and programming. Using modular, open building blocks as the basis of an SDR solution, provides easy scalability, the flexibility to upgrade individual elements for future proof technology transitions and the ability to source the best in class elements for additional connectivity and storage as required.

TR E5x/msd