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## **RF Engines' Wideband Digital Down Converter efficiently processes 1 GHz bandwidth**

*Feature rich IP core offers fast route to production*



**Newport, Isle of Wight, UK – 19<sup>th</sup> July 2010**

RF Engines Limited (RFEL) has extended the range of its Digital Down Converter (DDC) technology so that it can now process up to 1 GHz of bandwidth (2Gsp/s ADC rate) input and provide a narrower band output. This technology can operate with fixed frequencies and bandwidths or be fully flexible as required.

One of the main application areas is for Electronic Surveillance in military digital receivers, where this approach enables a desired signal band to be extracted from a wide slice of the spectrum in order that further analysis of the signal content can be carried out. For example a radar warning receiver can rapidly spot the signal 'signature' of an incoming missile or other threat, and the downconverter will extract the specific signal and measure its parameters. In scientific applications, for example in the latest radio telescopes, this approach allows very wide sections of the spectrum to be monitored at one time, in order to acquire weak or hidden signals.

The RFEL Wideband DDC core is highly optimised for size and speed, on a range of Xilinx or Altera FPGA devices. Many customers have already seen the benefits of a proven core that can be rapidly tuned for most efficient use of the available resources, whilst still offering best in class performance. With unique options like fractional re-sampling for arbitrary output bandwidth selection and the ability to implement the design in either logic-rich or DSP-rich FPGA architectures, the RFEL Wideband DDC will meet the needs of a wide variety of applications in the shortest time possible. Furthermore, RFEL is committed to offering a world-class portfolio of DSP IP cores and as such is currently engaged to research DDC designs in the +10GHz range. Such research programmes are made possible by the high quality architectural design underlying the Wideband DDC core.

“Our world class expertise in DDC design means that we optimise the solution to deliver exactly what is required using the minimum amount of silicon to keep costs down and well below that of a conventional solution,” added Simon Underhay, RFEL’s Technical Sales Director. “As it draws on our library of IP cores that we have developed and perfected over the years, there is a very low technical risk and customers can be up and running very quickly.”

## **RF Engines Ltd**

RF Engines Limited (RFEL) is a UK-based electronic systems designer, providing high specification signal processing solutions for FPGAs, as well as supplying digital receiver and complete product solutions for the homeland security, defence, communications and instrumentation markets. Applications include communications base stations, satellite communications systems, test and measurement instrumentation, and bespoke wideband receivers/transceivers.

### **Further Information and illustrations**

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