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Rheinmetall Defence contract RF Engines for an FPGA based Flexible Channeliser and integrated Spectrum Analyser

High performance and compact channeliser system for RDE'

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RF Engines Limited (RFEL), the UK-based signal-processing specialist, and Rheinmetall Defence Electronics (RDE) GmbH, Germany's leading defence technology company, have released details of a recently signed major contract.

The contract relates to the supply and integration of complex high-speed FPGA signal processing designs for an advanced flexible communication channeliser and a 52MHz real-time spectrum analyser. Both designs will be housed on the same hardware platform. Specific details of the application are restricted.

The customised system-on-chip designs are based upon RFEL's unique range of specialist architectures, and the contract includes the integration of the designs into the system hardware.

The channelisation system divides up the wideband input signal into hundreds of narrower band channels for subsequent demodulation and analysis, and utilises RF Engines' unique, patented, tuneable architectures. The system allows the user to independently tune the centre frequency of each channel, and select from different filter shapes and bandwidths in order to adapt the system in a changing signal environment.

The focus of the design is silicon efficiency – with the entire channelisation function implemented on a single FPGA device. This high level of integration has provided RDE with a dramatic upgrade to its existing channelisation system, which requires many dedicated ASIC chips on several boards to perform the same function.

In addition to the channeliser core, RFEL is also supplying an FPGA based spectrum analyser core and the associated display software for the same platform. This core utilises RFEL's high-speed real-time Fast Fourier Transform (FFT) technology to provide a 52MHz continuous bandwidth capability. During initial set up of the communications system, the spectrum analyser core can be loaded into the hardware and a spectral display is provided using a PC based application. Providing this additional capability on the same hardware platform means that a separate spectrum analyser instrument will not be required during set up of the system. The real-time performance of the FPGA based spectrum analyser also allows short duration signals to be analysed in more detail than with a conventional swept spectrum analyser instrument.

John Summers, RFEL's CEO, commented, "We are very pleased to be working with RDE again on such a major programme. RFEL has significant experience at both the system and at the chip level in this sort of communications monitoring application, and so it is a particularly interesting and enjoyable project. RDE has a very clear vision of what they and their customers require, so consequently the teams work together extremely well."

Jürgen Prüsse, VP Marketing and Business Development for RDE commented, "This is an important project which is technically challenging across all elements of the design. We are confident that we

will deliver the most advanced system of its type to our customer on schedule, and also have great confidence in the supply of the key technologies to complement our in-house skills. RFEL has proven capabilities in this highly specialist area and we look forward to further growing our long-term relationship with them over many years as we do with our other key suppliers.”

RF Engines Limited

RF Engines Limited (RFEL) is a UK based signal processing specialist, providing high specification signal processing cores, system on chip designs, and FPGA based board solutions for applications in the defence, communications and instrumentation markets. These applications include base stations, wireless and wireline broadband communications systems, satellite communications systems, test and measurement instrumentation, as well as defence, signal intelligence and surveillance systems.

More specifically, RFEL is a solutions provider for projects requiring complex front end, real time, wide and narrow band, flexible channelisation. The company provides a range of standard cores covering multiple FFT, polyphase DFT and proprietary PFT techniques, as well as system design services for more specialist applications.

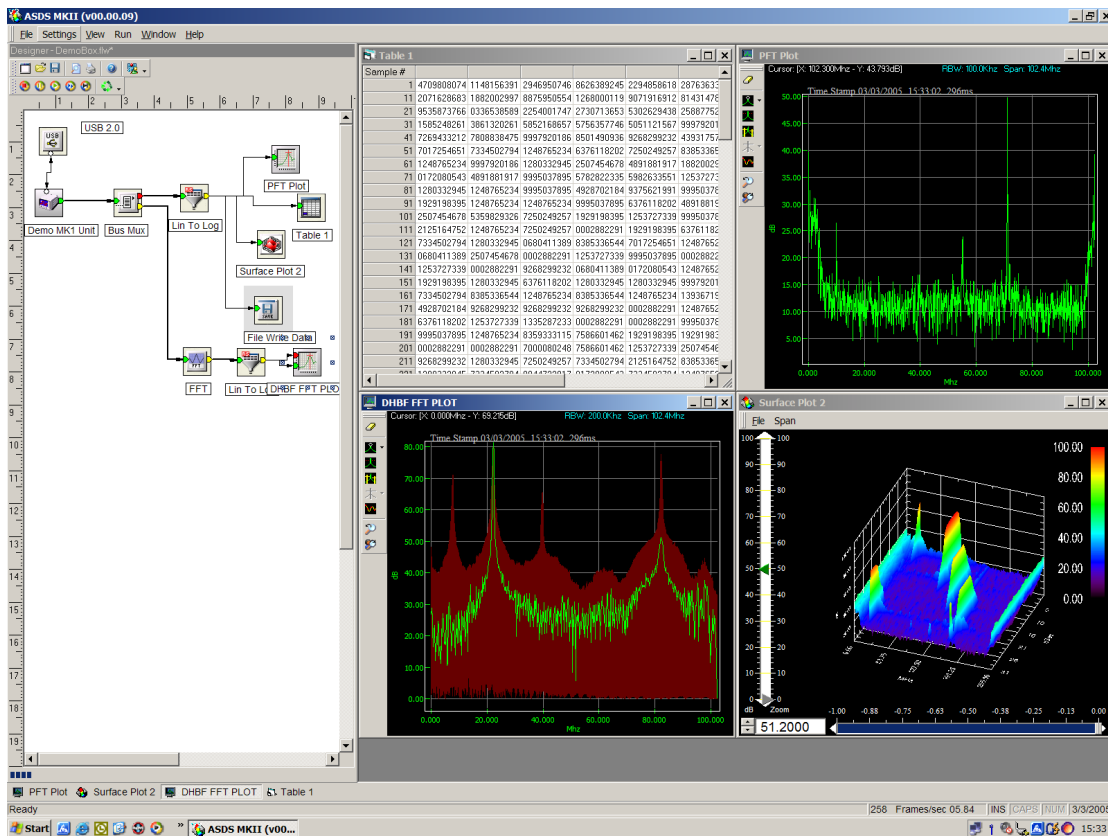
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RDE -- Europe's leading supplier of land forces systems

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Operating around the world, the 8,800-strong staff of Rheinmetall DeTec's affiliates and associated companies generate annual sales of around EUR 1.7 billion. This makes Rheinmetall DeTec one of the largest and most important defence technology companies in Europe. As a reliable partner of the armed forces of Germany, its allies and other likeminded nations, Rheinmetall DeTec makes a significant contribution to safeguarding world peace.



Typical display of the Advanced Spectral Display Software (ASDS) provided by RF Engines.

(The display provides system configuration control, 2D and 3D views of the spectrum, and access to controls for storing of data. Normal controls for peak hold, zooming and manipulation of the spectral views are also provided)