

**Cognitive Radio & Wireless Communications**

Ultra-wide-band wireless communications implementation with multi-GHz A/D and D/A interfaces

**Radar Signal Processing**

Synthetic aperture radar signal synthesis and processing with full multi-GHz analog bandwidth and the digital process power to every Hertz of the spectrum

**High Performance DSP**

Create complex digital signal processing applications with tera operations per second throughput

**HD Video Processing**

High definition video processing with multiple real-time 1080p video data streams

**Multi-core SoC Design**

Real-time prototyping of large scale next generation multi-core System-on-Chip designs with ease

**Bioinformatics**

Make sense out of enormous data sets created by bioinformatics observations

## BEEcube Platform for Software Defined Radio

Developed out of the Berkeley Wireless Research Center (BWRC) at University of California at Berkeley, the BEE3's high-speed multiple FPGA based platform allows for flexible algorithm and feature set definitions to fit mission critical needs. The BEE3 excels as a true real-time development and deployment platform for:

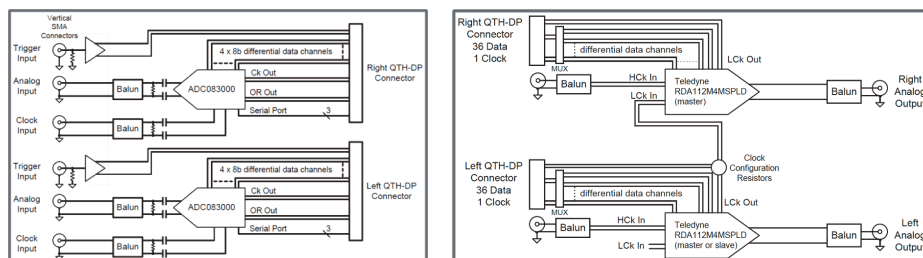
- Software Defined Radio (SDR)
- Signal Intelligence
- Wireless (digital based RF) Algorithm Applications



As a result, the BEE3 has attracted leading industry companies worldwide such as Aerospace Corporation, L3 Communications, and Thales Group.

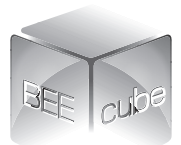
### BEEcube's SDR Demonstration

Our demonstration highlights BEE3 as an SDR prototyping platform - showing off our FPGA based continuous wideband vector signal generator, controlled by software in real-time via Wind River's VxWorks over Gigabit Ethernet, with carrier frequency tone sweeps ranging from 0 to 2GHz. BEE3's inherit I/O 2Gbps DAC highlights BEE3's wideband capability. The BEE3 ADC expansion board simultaneously captured analog output with Data being displayed directly and integrated with Matlab(tm). BEE3's ADC can sample up to 3 GHz, offering a true direct RF sampling capability.



Above: BEEcube ADC Board (left), and BEEcube DAC Board (right)

For additional information or brochures, please contact [sales@beecube.com](mailto:sales@beecube.com). For BEE3 video demos visit <http://youtube.com/BEEcube>





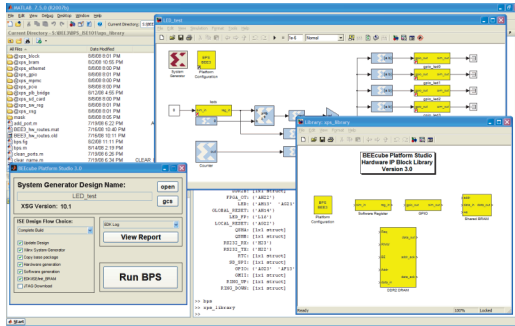
Industry research involvement with BEE3 technology includes companies such as:

- Microsoft Corporation
- Intel Corporation
- Xilinx Corporation
- Lawrence Berkeley National Laboratory
- International Business Machine (IBM) Corporation
- Aerospace Corporation
- L-3 Communications
- Canadian Microelectronics Corporation (CMC) Microsystems
- Sun Microsystems
- Thales Group



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## BEE3 Easy Algorithm Deployment

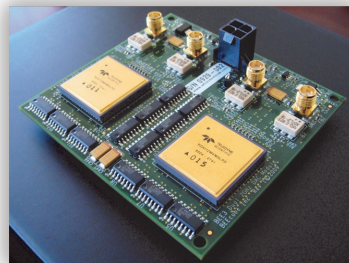
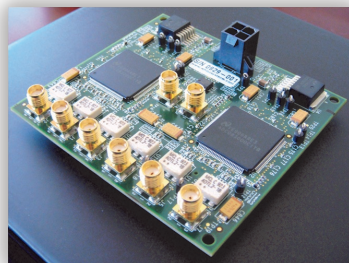


Coupled with high-speed I/O and infrastructure, the BEE3 system software allows algorithm designers without any RTL or implementation knowledge to easily program the target BEE3 system.

BEEcube Platform Studio (BPS) is a system-level, hardware/software co-development environment on top of the MathWorks™ Simulink® framework. BPS provides automatic generation of all platform specific hardware interfaces and corresponding software drivers. Months of engineering tasks to convert complex DSP algorithms to implementation can be achieved through BPS in a matter of days, all without requiring user knowledge of the low level FPGA implementation details, such as high speed I/O interfaces, timing closure, HW/SW interfaces, and IP integration issues.

## BEE3 Hardware Meets All Your Changing Mission Critical Needs

- Combined with the BEEcube's 3rd generation Xilinx Virtex-5 FPGA based hardware platform, the BEE3, the integrated BEEcube solutions enables a wide range of high-performance real-time implementations in multiple military and defense applications, including signal intelligence, signal warfare, software defined radio, MIMO communications, radar applications, and many more.
- Advanced signal processing algorithms can be rapidly prototyped on the BEE3 system, running at hundreds or MHz clock rates, which directly interface to multi-GHz A/D and D/A converters. When it comes to deployment, the same design can be easily retargeted in the BEEcube Platform Studio (BPS) design environment to fit into various hardware platforms with different form factors, capabilities, and FPGA technologies.



Above: BEEcube ADC Expansion Board for BEE3 (left), BEEcube DAC Board

