

Dedicated Systems' News

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DEDICATED
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Rugged Cubes for Data Acquisition, Logging, Simulation & Control

Educational and Research Centres can take advantage of cost effective, field proven equipment.

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Measuring a very small 10x10x10cm, the smallest Cube from United Electronic Industries (UEI) provides a flexible, rugged and cost effective solution for addressing data acquisition, simulation, data logging and control applications. More importantly they have been designed with many end users in mind. They provide a number of benefits to research and educational institutions seeking to save costs by either reusing components across projects and protecting their investment. Specific benefits include but are not limited to:

Software support

The cubes support a broad array of programming languages, development environments and both real-time and general purpose operating systems. Support is available for Labview, Simulink/ Matlab, C/C++, Java and more.

Configurability

The cubes provide between 1 and 6 expansion slots that can be configured with any of around 30 I/O cards. Options include Analog IO, Digital IO, Serial, CAN, Avionics busses 1553 and ARINC429, WIFI/Cellular, GPS, IRIG and more.

Reusability

The ability to interchange IO cards between the various cube devices provides flexibility to reuse hardware modules between projects. A lab setup involving a number of chassis and IO layers can provide a useful platform for prototyping projects.

Long Term Availability (10 Years Minimum)

Unless you are specifically notified at the time of purchase, UEI guarantees the availability of all Cube series products for a minimum of 10 years.

Ruggedisation

- o Operating temperature: -40C to +70C (some Cubes to +85C)
- o Humidity: 0...95% non-condensing
- o Vibration: 10-500Hz, 5g
- o Shock: 50g, 3msec half sine - 30g, 11msec half sine
- o Altitude: 16,000 feet (some Cubes 70,000 ft)



AdaCore and Dedicated Systems sponsor Final Year Project at the University of Adelaide

Robotics Demonstrator for Safety-Critical & Real-Time Systems

A project team from the University of Adelaide was tasked with creating a demonstrator utilising safety critical programming techniques as part of their final year project. Utilising the latest release of the GNAT for Mindstorms product, their robot supports the Ravenscar profile and is targeted at the ARM 7 based Mindstorms NXT platform.

See the Video here: http://www.adacore.com/home/academia/member-projects/robotics_demonstrator/



Major New Version of GNAT Programming Studio

GPS 5.1 Integrated Development Environment brings new C/C++ features, improved support for CodePeer, and more powerful source editing

AdaCore, a leading supplier of Ada language tools and support services, announced the upcoming release of GNAT Programming Studio (GPS) 5.1. This new major version of AdaCore's graphical Integrated Development Environment (IDE), to be available in October, offers extended feature support for C and C++, improved integration with Code Peer (automated code reviewer and validator), more powerful source editing, and enhanced GUI performance. GPS is provided with GNAT Pro on most platforms, for both native and embedded software development.

Enhancements in GPS 5.1 include:

- **Improved support for C and C++**
 - Smart completion for C and C++ using -fdump-xref info
 - Ada-to-C source navigation
- **Improved CodePeer support**
 - Availability of score card feature
 - Improved filtering
 - Locations view now synched with CodePeer report
 - Ability to specify alternate database/output directories
 - Availability of race condition report
- **New facility for handling VCS menus:**
 - All VCS menus are now handled in a centralized place allowing customization of the layout of all VCS menus
- **Availability of additional automatic code fixes**
- **Enhanced documentation generation:**
 - Ability to export browser contents to PDF
- **Improved GUI integration and performance:**
 - Enhancement of multiple document interface (MDI), search support, and code browsers.

GPS 5.1 is compatible with GNAT Pro versions 3.16a1 up to 6.4. As with all GNAT Pro components, GPS is distributed with full source code and is backed by AdaCore's rapid and expert online support.



CompactPCI GBit Ethernet Switch with M12 Connectors

The CL2-BRASS from EKF is an Industrial 5+1 Port Switch in a 3U CompactPCI format.

Available as 3U CompactPCI® peripheral board, the CL2-BRASS is a powerful Gigabit Ethernet switch. Its 8HP front panel is provided with five M12-style Gigabit Ethernet circular connectors. As an option, a sixth GbE channel is reserved for CompactPCI® backplane communication. The CL2-BRASS is equipped with the Marvell® 88E6350R switch, which has a rich feature set, including latest 802.1 Audio Video Bridging (AVB) standards.

The CL2-BRASS may be operated either as stand-alone card, powered from a single +5V external supply, or as a CompactPCI® peripheral board. For optional communication with the CompactPCI® host CPU across the backplane, an additional on-board Gigabit Ethernet controller is internally connected to the switch. The CL2-BRASS is suitable for a broad range of applications, e.g. industrial communication and transportation.



WIND RIVER**Wind River introduces Software Platform for Medical Devices
complete with Compliance Documentation**

Wind River, a world leader in embedded and mobile software introduced Wind River Platform for Medical Devices, part of a comprehensive software portfolio designed for medical device development, including those devices requiring pre-market notification, U.S. Food and Drug Administration's (FDA) 510(k), or the more stringent Pre-market Approval.

Wind River Platform for Medical Devices is a COTS development and run-time platform enabling safety and security for medical devices. The Platform is built on Wind River's VxWorks, the industry-leading real-time operating system (RTOS), which has a proven track record for use in regulated medical devices that demand the highest levels of safety, reliability and performance. It also includes Wind River Workbench, a collection of embedded software development tools, as well as critical networking and middleware run-time technologies, such as IPsec, SSL, IPv6 and USB. Having VxWorks serve as the core of Wind River Platform for Medical Devices enables the medical device developers to focus on differentiation, while leveraging the core foundational elements of small footprint, determinism, scalability, and high performance.

An essential component of the Platform is a comprehensive vendor qualification summary (VQS), which includes documented descriptions of the controls and processes Wind River uses to design and develop its platform components. The VQS is prepared in accordance with FDA quality system regulation 21CFR820.50 Purchasing Controls, which require manufacturers to evaluate suppliers for their ability to meet specified requirements, including quality requirements.

Wind River offers a broad portfolio of technology solutions that form a complementary solution to Wind River Platform for Medical Devices, including:

- Wind River Hypervisor, a high performance embedded virtualisation solution
- Wind River Simics, a full system simulator enabling developers to simulate the functional behavior of their target hardware
- Wind River Test Management, a test automation system
- Wind River Tilcon Graphics Suite, a solution for the development and deployment of rich graphical user interfaces for embedded medical devices
- Wind River Workbench On-Chip Debugging, a hardware-assisted debugging solution

"Software has become the key differentiator for medical device manufacturers, and with the Wind River Platform for Medical Devices, along with our comprehensive technology portfolio, we are uniquely qualified to help companies meet relevant safety requirements and standardize on open platforms, while taking advantage of next-generation technologies," said Santhosh Nair, director of medical solutions at Wind River. "The medical market segment is a significant growth opportunity for Wind River, and already we're seeing 30 percent year-over-year growth in this segment. Wind River Platform for Medical Devices is the first in a series of related product introductions and enhancements for medical device manufacturers on our roadmap to address this exciting growth."

**DNA-CAR-550 PCIexpress Mini Card module Carrier
for UEI Cubes**

The DNA-CAR-550-600 provides a new level of system connectivity for the UEIPAC, allowing simple and direct connection to a wide assortment of Cell/CDMA/GSM networks, WIFI networks. The board also allows direct connection to the satellite based GPS system.

- Allows UEIPAC direct connection to CELL/WIFI networks
- Allows UEIPAC direct connection to GPS antennas.
- Supports CELL/WIFI/GPS cards from many vendors
- Standard Mini Card USB interface
- Connects internally to UEIPAC USB port
- 2 external RF/Coax connectors
- External access for carrier SIM/UTM card





BittWare's Anemone Floating Point Co-Processor for FPGAs now available on AA-FMC (VITA-57) Board

Provides true C-programmability and superior power efficiency for enhancing FPGA processing solutions, enabling superior development productivity for rugged and commercial systems

BittWare announced that its breakthrough Anemone acceleration technology for FPGAs is ready to ship. BittWare's Anemone chips will first appear on an FMC (VITA 57) mezzanine card that attaches to BittWare's existing line of Altera-based FPGA COTS boards. Anemone offloads C language processing from an FPGA, helping customers finish projects sooner, at lower risk, while consuming less power.

Anemone104 Overview

The Anemone104 (AN104) is a completely scalable 'many core' processor with 16 eCores that run at rates up to 1 GHz, providing a total sustained performance of 32 GFLOPS while consuming only 2 Watts of total power. On-chip distributed shared memory is 4 Mbit (32 KByte per eCore) with 32 GBytes/sec of sustained memory bandwidth within each eCore. The AN104 features an internal high-throughput inter-core mesh network, with separate data paths for on-chip and off-chip communications. Total on-chip, inter-core bandwidth is 128 GBytes/sec full duplex, with an additional 8 GBytes/sec of off-chip bandwidth. The cache-less shared memory architecture is extended off-chip via four low-overhead external I/O links that support memory-mapped direct connection of multiple AN104s and is compatible with any LVDS capable FPGA.

AA-FMC Features

The AA-FMC consists of four Anemones (AN104) which are arranged in a 2D mesh, providing 64 eCores that yield up to 128 GFLOPS. All cores have direct memory mapped access to each other via the shared memory architecture and eMesh network. Link ports from two of the processors go to the FMC interface for direct connection to the host FPGA, which provides external memory interfacing and I/O connectivity. The AA-FMC is compliant with the VITA-57 (FMC) specification, and therefore is compatible with BittWare's Altera Stratix family of AdvancedMC (AMC), VPX (VITA 46/48/65), and PCI Express (PCIe) boards.

Anemone Development System

The Anemone Development System (ANDS) includes one or more AAFMs assembled on BittWare VPX or AMC carrier boards featuring the Altera Stratix family of FPGAs, and a VPX or AMC system, complete with host computers if desired. The development system also includes all necessary development tools: the BittWorks II Toolkit for the BittWare hardware, the Epiphany SDK for the Anemone processor, BittWare's ATLANTIS FrameWork for the Altera FPGAs, and the Insight™ Libraries from Paralant so that a customer can quickly and easily be developing full system-level applications.

Anemone Evaluation Kit

The BittWare Anemone Evaluation Kit provides a cost-effective way to begin evaluating the Anemone co-processor for FPGAs. The evaluation kit features an Anemone104 and Altera Stratix III FPGA based evaluation board and arrives ready to use out of the box, with the Ubuntu Linux OS and Anemone development tools installed on an included laptop. Anemone development

tools include the Adapteva Epiphany™ Software Development Kit (SDK); the Insight™ libraries for Anemone104 from Paralant Ltd. can also be included as an ordering option.

Adapteva Epiphany Software Development Kit

Adapteva's Epiphany software development tools are also included in the Anemone Evaluation Kit. The Adapteva Epiphany SDK is based on standard GNU development tools including an optimizing C compiler, simulator, GDB debugger, and Eclipse multi-core IDE. It enables out-of-the-box execution of applications written in regular ANSI-C and does not require any C-subset, language extensions, or SIMD.

