

Dedicated Systems' News



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WIND RIVER

Wind River's VxWorks powers Mars Science Laboratory Rover, Curiosity

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Wind River®, a world leader in embedded and mobile software, has congratulated NASA Jet Propulsion Laboratory (JPL) on the successful landing of the Mars Science Laboratory rover Curiosity, powered by Wind River technology. Curiosity, which landed on Mars at approximately 10:31 p.m. PDT, August 5, 2012, is the most complex robotic interplanetary probe ever designed. It is running on Wind River's industry-leading real-time operating system (RTOS), VxWorks®.



Curiosity will investigate whether Mars has ever offered environmental conditions favorable for microbial life, and assess Mars' habitability for future human exploration. VxWorks plays a central role in this historic operation by providing the core operating system for the spacecraft control system - from the second the rocket left Earth on November 26, 2011, until completion of the mission.

Curiosity relied on VxWorks for the complex landing sequence called EDL (entry, descent and landing), which is being described as "seven minutes of terror" due to the absolute precision required for the spacecraft to survive the landing. While on Mars, Curiosity will depend on VxWorks to perform mission-critical tasks, such as ground operations control, data collection, and Mars-to-Earth communication relay.

Wind River has an extensive heritage of achievements in space working with NASA JPL, dating back to 1994, when VxWorks launched into space on the Clementine Moon probe. This was followed by the Mars Pathfinder Mission, which made VxWorks the first commercial operating system to go to Mars. Wind River technology also operates within the Mars Exploration Rovers and Stardust spacecraft, among others.

Since its inception in 1981, Wind River has been a trusted advisor in the development of aerospace and defence products. The company's technology has successfully enabled countless products in the reaches of our universe, including CIRA's FTB-1 reusable unmanned spacecraft, Iridium Communications' in-orbit satellite constellation, and the European Space Agency's PROBA satellite, among others.



Dedicated Systems exhibits at MiLCIS 2012 Canberra; 5th - 8th November 2012

MilCIS is an annual conference aimed at attendees from military and government organisations, academia, and defence industry, who contribute to key decisions in investments in communications and information systems. MilCIS is the only Australian conference focusing directly on the crucial technologies, products, systems and services associated with military communications and information systems.

Dedicated Systems will feature software tools from Wind River and RTI as well as selected rugged computer chassis and COTS FPGA boards.

For more information or to register please visit www.milcis.com.au.



PC720: Kintex®-7 PCI Express Card with FMC interface

4DSP announced the release of the PC720, a high-performance, half-size PCI Express® desktop-compliant card with advanced Digital Signal Processing (DSP) capabilities and multiple I/O options. The PC720 is PCI Express Gen 3 capable with up to two FMC (FPGA Mezzanine Card) sites that are closely coupled to the onboard Xilinx Kintex®-7 FPGA and 1GB of DDR3 SDRAM. The PC720 is the first in a family of cards with the Kintex®-7 and FMC functionality in popular board form factors.

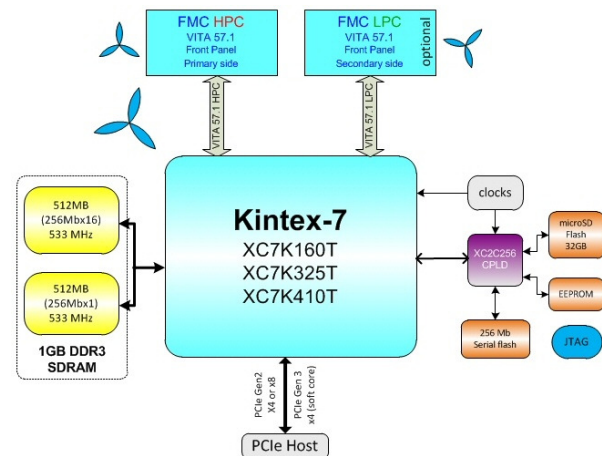
Applications including software define radios, RADAR/SONAR imaging, communications, event processing, and analog/digital signal processing can benefit from the performance of the Kintex®-7 and the I/O flexibility of the FMC sites. The PC720 is an excellent choice for high performance applications that require large band signal digitisation or generation through the use of accelerated frequency-domain algorithms.

The front side FMC site is a high pin count (HPC) slot that is located on the primary side of the board, and when populated, remains within the envelope of a single slot half size PCI Express card. Optionally, a second FMC site with a low pin count (LPC) is available on the backside of the PC720 with the FMC front panel occupying the front panel of the adjacent PCI Express slot.

For a lab test environment or custom system the PC720 can be operated in a standalone mode. In this set-up the power is supplied through the industry standard PCI Express power connector.

A full suite of software is available to support the PC720:

- Board control and monitoring tools
- Flash programming utility
- Confidence tests
- Host side API
- Software program example
- Xilinx ISE project
- Test firmware and VHDL source code
- Drivers for Windows, Linux, VxWorks
- Stellar IP is available for this product. A simple way to design FPGA firmware with automated code and bitstream generation.



CPCI Quad Port eSATA & USB Controller Board

The CE3-GIG has been developed to satisfy the demand for additional SATA and USB ports in a *CompactPCI®* environment. Three front panel eSATA/USB combo connectors are provided, for attachment of either USB 2.0 or eSATA external devices. A fourth front panel connector is available for USB devices only.

The front panel combo connectors are 'Power over eSATA' compliant, with +12V power and ground pins.

In addition, a docking connector is provided for mounting an on-board 2.5-inch SATA hard disk (HDD) or solid state drive (SSD).





Next Generation RTI Connex Software reduces Real-Time System Development, Integration and Testing Costs

Real-Time Innovations (RTI), the real-time infrastructure software company recently released the next generation of its **RTI Connex™** product family. With over 70 new features, the latest release of RTI Connex provides the most versatile and scalable architecture for developing real-time and embedded applications that use a variety of enterprise integration patterns. The resulting flexibility reduces development, integration and testing costs and enables rapid implementation of new system requirements.

In addition, RTI also announced a new Infrastructure Community (IC) licensing model, which, when combined with the next generation of the RTI Connex product family, offers customers the easiest way to adopt common infrastructures within and across an organisation to achieve cost, time to market and interoperability benefits.

New features include:

- Expanded enterprise integration patterns including request-reply, allowing applications to receive information on demand, only when they need it; guaranteed delivery to ensure critical data gets delivered even in the presence of hardware and software failures; and application level acknowledgement, which ensures critical data is processed completely, even if an application fails after the data was received.
- Integrated administration console enables users to administer a running system. The new console also illustrates the state of services in applications and systems, allowing for easy reconfiguration across the development, integration and testing phases of a system.
- Scalability enhancements for better performance across large-scale systems – as the number of subscribers increase, there is virtually no measurable degradation in performance.
- Initial support of DDS-XTypes facilitates information model evolution by allowing extensions and changes to existing data types, while maintaining full interoperability between deployed and newly developed systems. RTI is the only Data Distribution Service (DDS) provider to include support for XTypes, an important feature for compliance with the Object Management Group (OMG) DDS standard.

RTI Connex delivers the only infrastructure that meets the performance, scalability and reliability required by operational systems, while offering the integration and flexible-messaging capabilities required by IT systems. RTI provides the leading implementation of the DDS specification, with over 70 percent market share. This proven technology is the foundation of the RTI Connex product family.

Data Acquisition | Logging | Control

Simulink® Support

- Model Verification
- Rapid Prototyping
- Hardware-in-the-loop Testing

Configurations

- Vibration
- Strain Gage
- Thermocouple
- Voltage / Current
- Avionics Databus
- Quadrature Encoder
- Serial, CAN, PWM, WiFi

10-Year Availability Guarantee



The UEI Volume 12 catalogue is available for download

Larger than ever at 44 pages, the latest catalogue is filled cover-to-cover with information on the company's ever-expanding product line, as well as a number of new application stories and a helpful FAQ section.

The UEI catalogue describes the growing list of I/O boards that are available for use with the company's RACKtangle™ and CUBE chassis. The list includes: analog digital I/O, counter timers, ICP/IEPE interfaces, ARINC-429, ARINC 708/453, and MIL-1553 avionics, serial and CAN-bus ports, IRIG, and many others. Major announcements include their higher-performance, MIL-STD-1553 capable UEILogger, a new AFDX avionics product, and EPICS software support.

The FAQ section of the catalogue covers common product design, options and implementation questions, as well as UEI's progressive policies regarding product demonstrations and NRE.

Download your catalogue here: www.ueidaq.com/cat/
or request your copy from info@dedicatedsystems.com.au.



Intel® Core™ i7 CPU and Kintex™-7 FPGA in one 3U VPX Board

The **IC-INT-VPX3a** is a 3U OpenVPX single board computer based on the **Intel® Core™ i7**, dual-core or quad-core processor coupled with the Intel QM67 chipset and DDR3-1333 with ECC. The Boot Loader, directly supported by IC's R&D team, implements all the initialisations and optimized PBIT's while ensuring the shortest boot time before launching the Operating System.

The embedded **Kintex™-7** open FPGA delivers high signal processing performance, low power consumption and extra serial bandwidth needed today. Combined with a personality module, it makes the **IC-INT-VPX3a** an ideal platform for customer specific demanding applications.

Because of this versatility, you can adapt the **IC-INT-VPX3a** to your own exact needs thus saving precious space/slot and power consumption in your system.

Processor Unit :

- one **Intel® Core™ i7** processor 2655LE (or 2610UE or 2715QE); 1.5GHz - 2.2GHz;
 - o Thermal design power = 17W to 45W
 - o DDR3-1333 with ECC (up to 2 * 4 GBytes)
 - o boot flash memory
 - o Calendar clock with supercap and/or battery backup
 - o one thermal monitoring sensor
 - o a SATA SSD module
- one FPGA (**Kintex-7 XC7KX70T** or **KX160T**) and a personality module to implement customer specific applications

Communication Subsystem :

- 3 GBit Ethernet ports (1000BT or 1000BX)
- 1 front RS232 UART, 1 rear RS232/ RS422/RS485
- 3 USB 2.0 ports (1 front / 2 rear)
- 12 PCI-Express lanes
- up to 4 rear SATA interfaces
- 2 HDMI interfaces (1 front / 1 rear)
- 1 Intel HD Audio interface
- GPIOs (from personality module)
- SERDES (from FPGA and personality module)

PIC μ -controller for System Management (per VITA 46.11)

Accessories :

- Engineering kit for debug : JTAG/COP, console
- 3U Rear Transition Module

Boot Loader :

Interface Concept Single Board Computers based on Intel CPUs use the new UEFI firmware technology.

This Boot Loader, developed and tested by their R&D team, implements all the initialisations and optimised PBIT's while ensuring the shortest boot time before launching the UEFI shell or loading the Operating System from storage devices or network.

When the final application is running, Runtime services remain in memory allowing thus the user to access UEFI variables for monitoring (e.g. PBIT results) or setup operations.

Interface Concept can even customise the Boot Loader to keep only what is strictly necessary for the applications.

