

Connect Tech Inc

Александр Баковкин
Инженер отдела сервисов
SWD Software

22 апреля 2010 г.

Hardware Building Blocks for your QNX Applications

- Celebrating 25 Years, 1985-2010
- Located near Toronto, Canada
- CTI started as a designer of multi port serial solutions
- Now offering a variety of communication, FPGA, storage, Ethernet and debugging products over many bus architectures

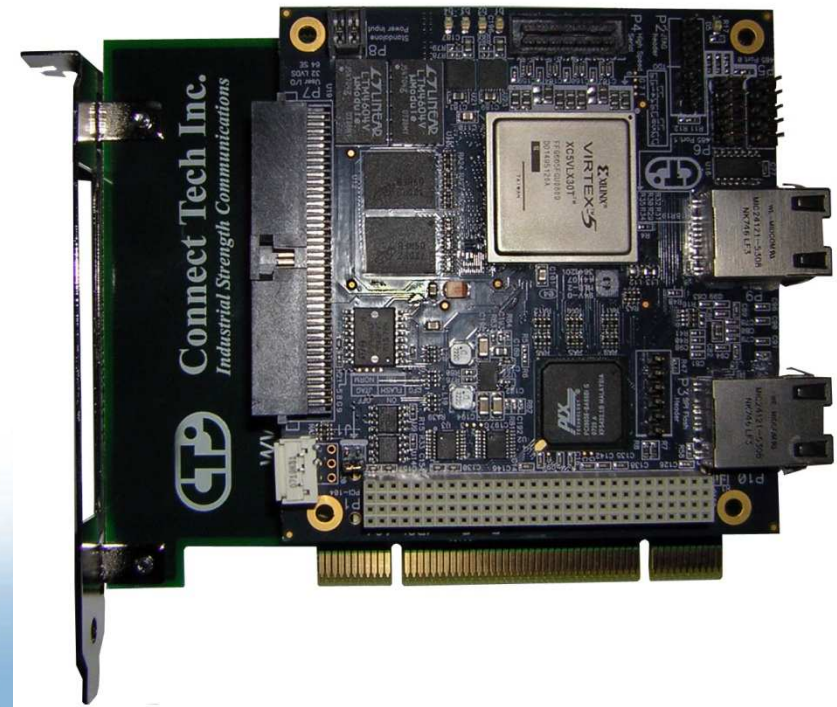
Product Lines

- FPGA Solutions
- Multi port Serial
- CAN Controllers
- Wireless Radio Modems
- Solid State Drives
- Ethernet to Serial
- Adapter Boards & Tools



Adapters for Development

- PCI to PC/104-Plus
- ISA to PC/104-*Plus*
- PCIe to PCI/104 Express
- PCI to cPCI
- PC/104-*Plus* to MiniPCI
- Dump Switch



PC Based Solutions

- PCI
- PCI Express
- ISA
- cPCI



PC/104 Embedded Solutions

- PC/104 (ISA)
- PCI/104, PC/104-Plus (PCI)
- PCIe/104, PCI/104-Express (PCIe)
- www.pc104.org



Xilinx Based Solutions

Design – Develop – Deploy

- FreeForm/104 and FreeForm/PCI-104
- Commercially validated off-the-shelf hardware
- Form factor and temperature range that moves from the development bench to the field
- Rapid proof of concept



FreeForm/104

Features

- Spartan-3E Solution
- 96+18 digital I/O
- Optional Opto-22 compatibility
- External 5V power; can be used as a stand alone controller
- Standard 8254 & 8255 configuration



FreeForm/104

Reference Design

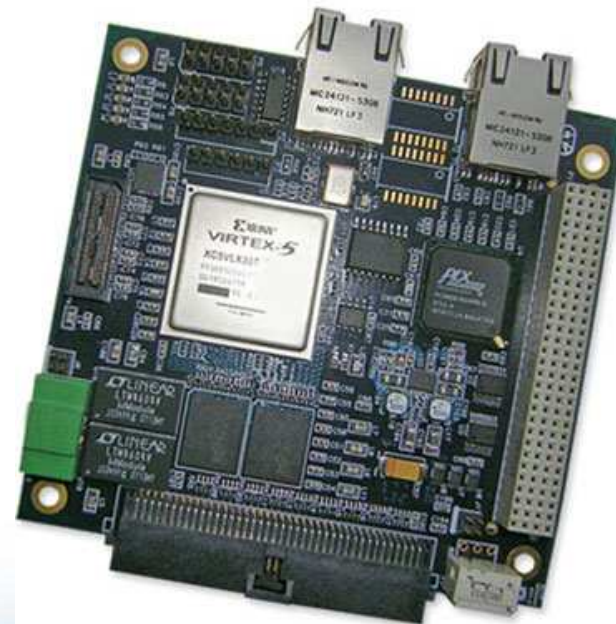
- FPGA source code and examples
- Drivers and software examples for a variety of operating systems
- Documentation
- Optional development kit with low cost programming cable and power supply



FreeForm/PCI-104

Features

- Virtex-5 Solution: LX30T, LX50T or FX30T
- PCI-104 form factor with local bus bridge
- 2x RS485
- 2x 10/100 Ethernet
- 32x LVDS
- 128 MB DDR2
- Rocket I/O
- Flash for embedded code storage



FreeForm/PCI-104

Reference Designs

- Two design approaches
- Standard VHDL based reference designs
- Embedded processing reference designs
- Host system S/W
- Available for download once H/W is purchased



FreeForm/PCI-104

VHDL Based Reference Design

- FPGA modules and associated host system software applications to demonstrate:
 - Communication over the PCI bus
 - Interface to peripheral H/W including memory, flash, Ethernet and serial
- Comprehensive reference design guide including implementation details and block diagrams

FreeForm/PCI-104

VHDL Based Reference Design

- PLX bridge interface:
 - How to decode local bus addresses
 - How to configure bridge registers
 - Explanation of basic bus cycles (read/write to registers)
 - How to perform bus mastering and DMA

FreeForm/PCI-104

Software Support

- Leverage Software Development kit created by bridge manufacturer, PLX
- SDK has generic software support for QNX, Windows & Linux
- Exposes API that allows rapid application development
- Source code is available for drivers & API
- Free download

FreeForm/PCI-104

Embedded Processing Reference Designs

- Embedded platform built with Xilinx EDK, using Xilinx's standard peripherals
- Several custom Connect Tech peripherals – including a customizable PLB-to-PLX bridge
- Several platform variations available – MicroBlaze, PowerPC, with or without PLX interface
- Standalone software application are provided
- Release notes

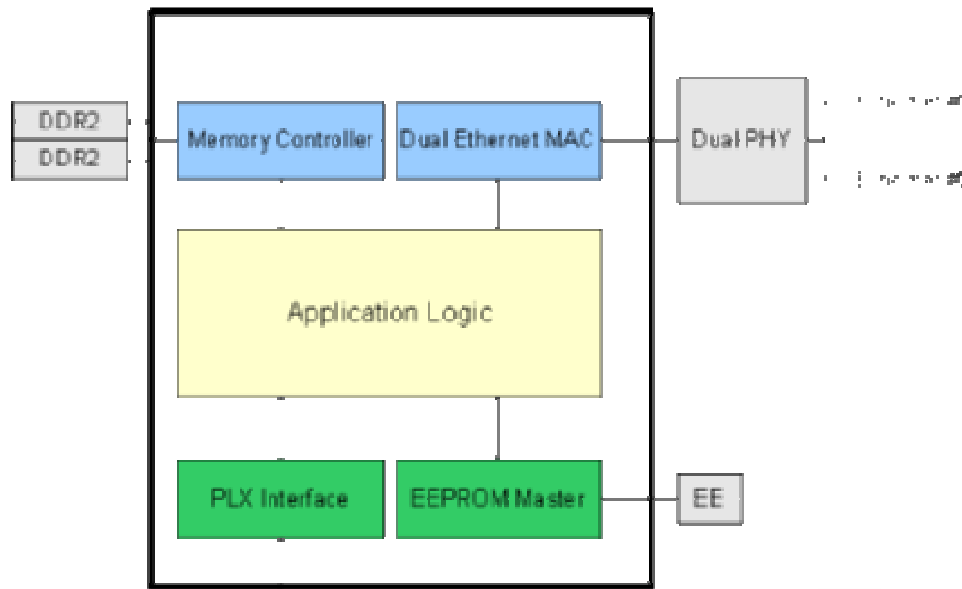
FreeForm/PCI-104

Current Applications

- Energy - Wind Turbines
- Automation - Semi-Conductor processing, factory automation
- Military - Dead Reckoning, Nanosatellite Communications

FreeForm/PCI-104

Example Application #1

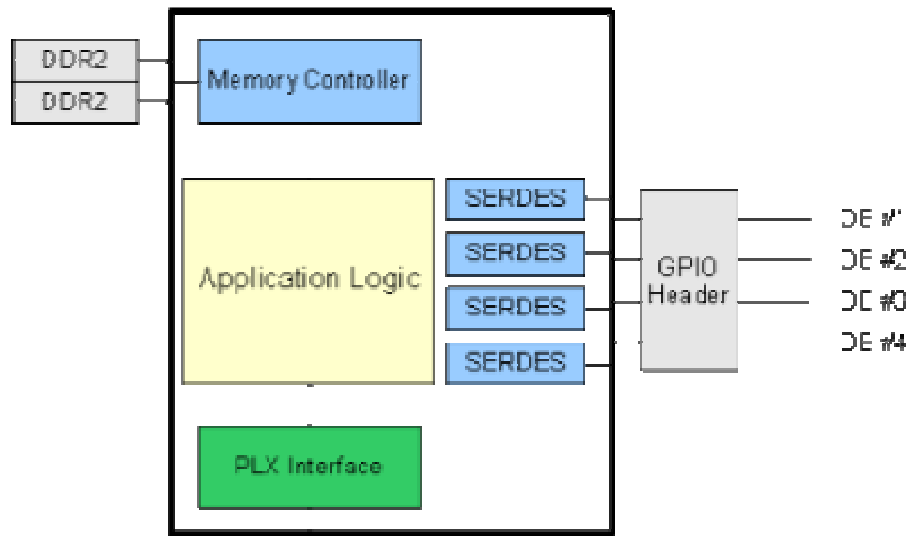


... ..

Custom Ethernet Processor

FreeForm/PCI-104

Example Application #2

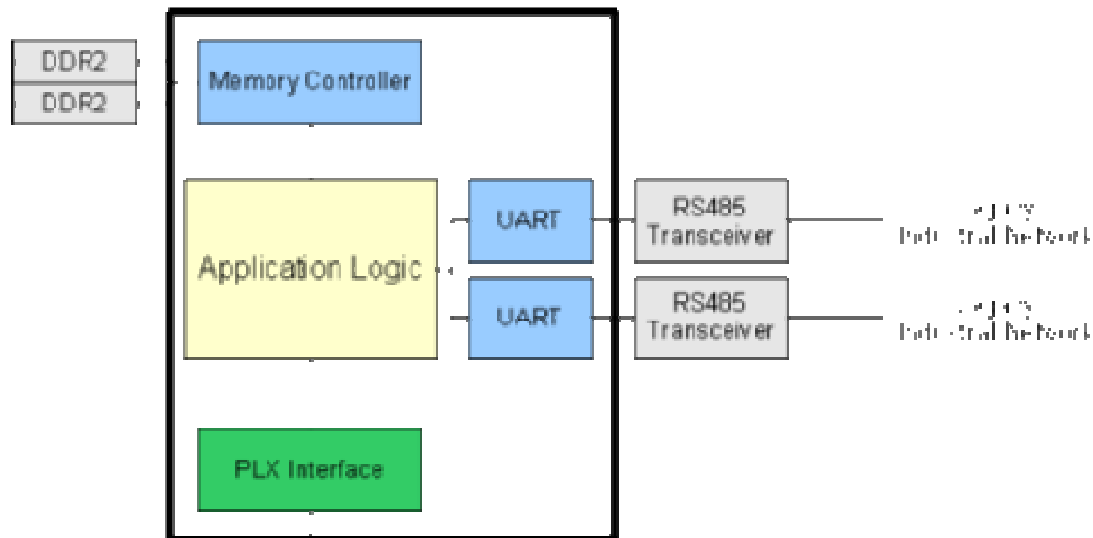


- PLX

Daughter Board Interface

FreeForm/PCI-104

Example Application #3



Industrial Networks

FreeForm Design Services

Custom Design Services

- Rapid development of custom PCB variations providing application specific interfaces
- Design of FPGA IP supporting custom H/W or base H/W
- Development of host system S/W to support the complete solution

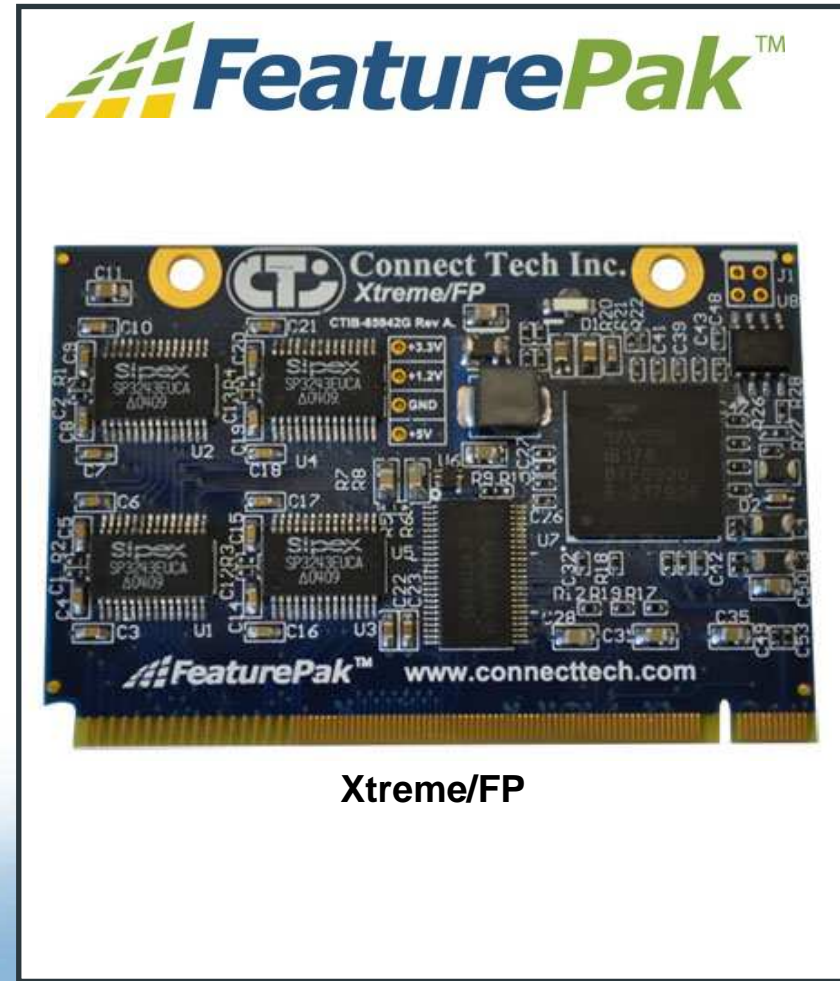
FeaturePak

What is FeaturePak?

– A mezzanine-style standard designed to work with existing standards, including:

- PC/104
- SUMIT
- Qseven
- ETX
- XTX
- COM Express
- Etc.

www.featurepak.org



Xtreme/FP

FeaturePak

FeaturePak

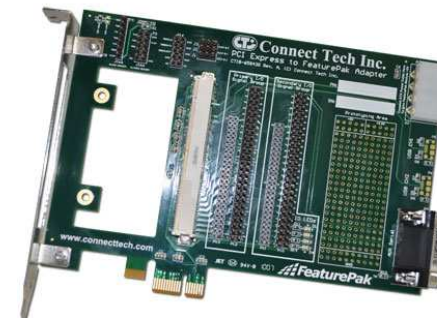
- Smaller than a credit card: 42mm x 65mm
- Low-cost connector integrates all host and external I/O interfaces
- Reconfigurable system design using off-the-shelf modules based on an open standard that will ensure a strong eco-system

 **FeaturePak**TM

Xtreme/FP



**PCI Express to
FeaturePak Adapter**



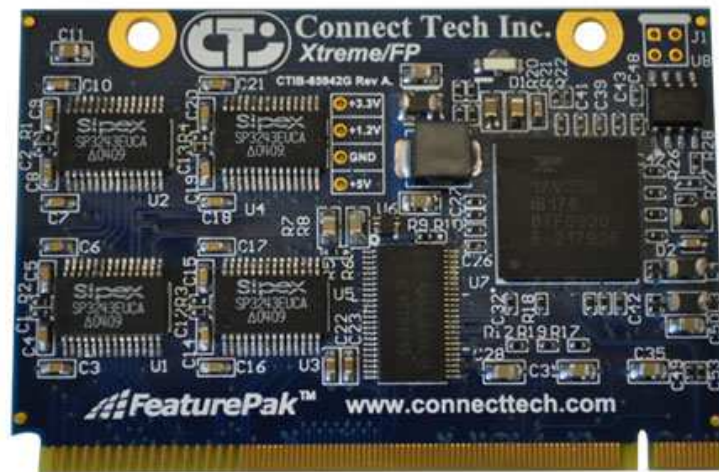
FeaturePak

Xtreme/FP

- 4 ports RS-232
- PCI Express UART
- Speeds up to 1Mbps
- 16 bit digital IO or timer/counter functionality (5V or 3.3V selectable)
- Primary and secondary FeaturePak IO groups

 **FeaturePak**TM

4-Port Multiport Serial and Digital IO FeaturePak Module



Compatible with any FeaturePak host board

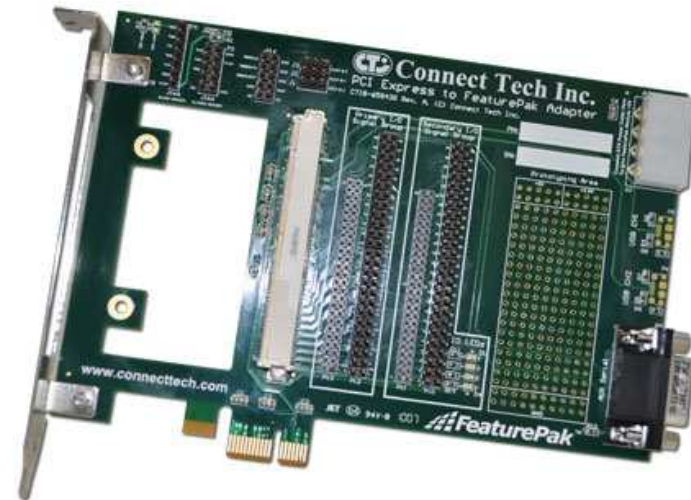
FeaturePak

PCI Express to FeaturePak Adapter

- Install in any x1, x4, x8, x16 slot
- 2x USB micro type B connectors
- Custom prototyping area
- 1x DB-9 for FeaturePak auxiliary serial signals
- 100 FeaturePak IO signals: .1” and 2mm vertical headers
- Debug from top or bottom of adapter via open access area

 **FeaturePak**TM

**Converts any FeaturePak
Module to PCI Express**



Compatible with any FeaturePak module

CTI Roadmap

- Provide off-the-shelf solutions using the latest Xilinx technologies, including Spartan-6 and Virtex-6
- Continue to offer custom hardware and FPGA design services
- Create additional FeaturePak modules in support of the new specification
- Expand our solutions to include baseboard/carrier boards for Qseven and FeaturePak

Thank You

Thank you for joining me today for an overview of Connect Tech products and services. We look forward to working with you on any upcoming projects that you may have.