



INCAA Computers B.V.

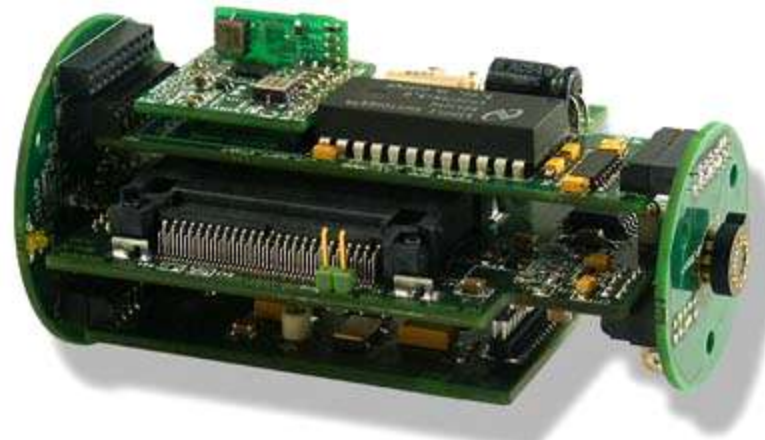
Van complexe "Proof of Concept" systemen
naar
OEM producten

Dennis Motshagen

- Bestaat al vanaf 1975
- Klant gerichte oplossingen
- Hardware en Software
- Eigen ontwerp en fabricage afdeling



- Diensten
- Systemen
- Modulen
- OEM producten



Ultrasonic Measurement Module



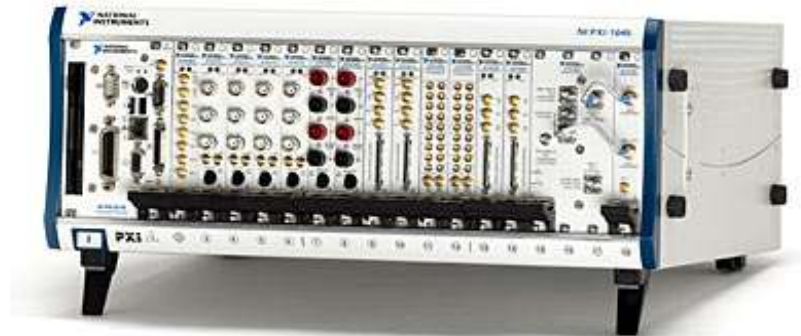
INCAA Computers & NI

- Sinds 1993 Labview gebruiker
- Sinds 1995 Alliance partner van NI
- Samenvoegen van technologieën
- Klanten helpen bij integratie HW & SW
- Realiseren van OEM oplossingen op basis NI HW & SW

- Klant heeft een wens!
- Kan het gerealiseerd worden?
- INCAA Bied een oplossing aan in de vorm van een “Proof of Concept”
- Of klant heeft zelf een “Proof of Concept” klaar maar kan nog geen product maken

OEM product – Proof of Concept

- Keuze uit NI hardware
- Keuze uit eigen producten range
- LabVIEW software



Voordelen van de Proof of Concept

- Snel te realiseren
 - Door standaard verkrijgbare hardware onderdelen
- Makkelijk te debuggen en te wijzigen
 - Door voor handen zijn van de meest uitgebreide software tools

Welke eisen zijn er om er een OEM product van te maken?

- Moet mobiel zijn
- Moet aan automotive-eisen voldoen
- Moet een speciale vormfactor hebben
- Heeft speciale omgeving eisen zoals temperatuur, vochtigheid, trilbestendigheid, veiligheidseisen
- Moet zeer snel werken/reageren
- Goedkoop bij grote aantallen



Welke keuzes hebben we bij het omzetten van het "Proof of Concept" systeem?

- LabVIEW op Mobile Systems
- LabVIEW op Windows Embedded
- LabVIEW op Embedded Linux
- LabVIEW for Embedded Applications
- LabVIEW FPGA Module

LabVIEW for Mobile

- Communicate Wirelessly Using 802.11, Bluetooth, SMS Text Messaging, IrDA, and Serial Protocols
- Acquire Data with NI USB-DAQ, CompactFlash, and PCMCIA Data Acquisition Devices
- Test Applications Using Included Emulator Without Hardware
- Develop Remote Interfaces for Benchtop GPIB Instrumentation





LabVIEW op Embedded Windows

- **Reduced Footprint** 12,000 Individual Components; 40 MB at smallest
- **Processor** x86
- **Real-time OS:** Via Third Party Plug in (IntervalZero, RTX, TenAsys, and INtime)
- **Run Win32 Apps:** Full Win 32 Application compatibility
- **Cost (USD)** Development Tools: Licensing: \$995 Runtime \$90 (per unit shipped)
- **Support** 10-year product support life cycle Windows XP Embedded Development Center (MSDN) Partner Resources Starts 2H'CY2008 Started in CY2002
- **Microsoft Silverlight** Cross-browser, cross-platform plug-in for delivering the next generation of media experiences
- **.NET Framework 3.5** Latest managed-code programming model for Windows
- **Support for Windows Server 2008 (RDP 6.1)** Includes security and management technology to help devices connect seamlessly to Windows Vista and take advantage of the new features in Windows Server 2008
- **Windows Media Player 11** Includes new media features designed to help manage libraries of digital music, photos, and videos
- **Internet Explorer 7** Improved navigation and search, improved printing, and access to RSS feeds
- **Windows Server Update Services (Support)** Software update service
- **System Center Configuration Manager (Support)** Solution to comprehensively assess, deploy, and update your devices
- **MBSA** Microsoft Baseline Security Analyzer
- **Future Platform Innovation (Features & Technologies)**

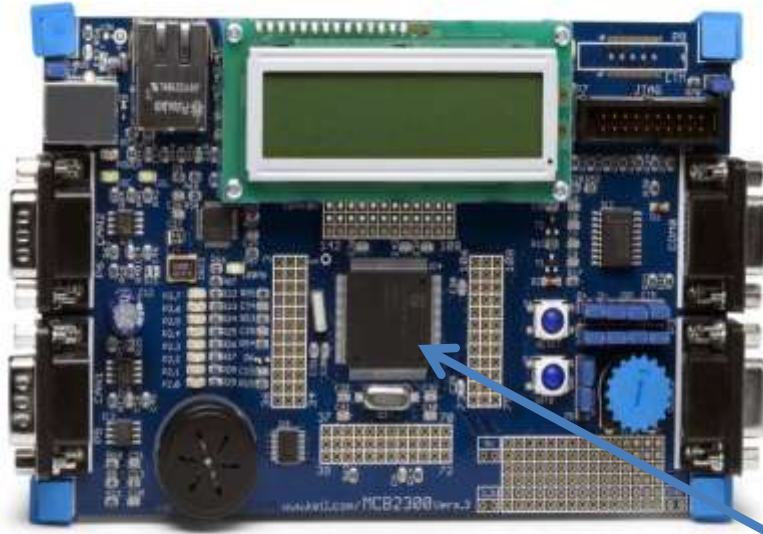
Alles is mogelijk net zoals onder normale Windows

- Alles is mogelijk zoals ook onder normale Linux
- Er wordt minder hardware direct ondersteund
- Geen Active-X componenten
- Geen of lage licentie kosten
- X86 architectuur

- Beschikbaar voor DSP's, ARM, 32-Bit CPU's
- Heeft beperkte Library set
- Kan floatingpoint
- Kan Multi-Threading
- Genereerd C-code
- Low Cost deployment



LabVIEW Embedded SDK's



ARM Processor



LabVIEW FPGA Module

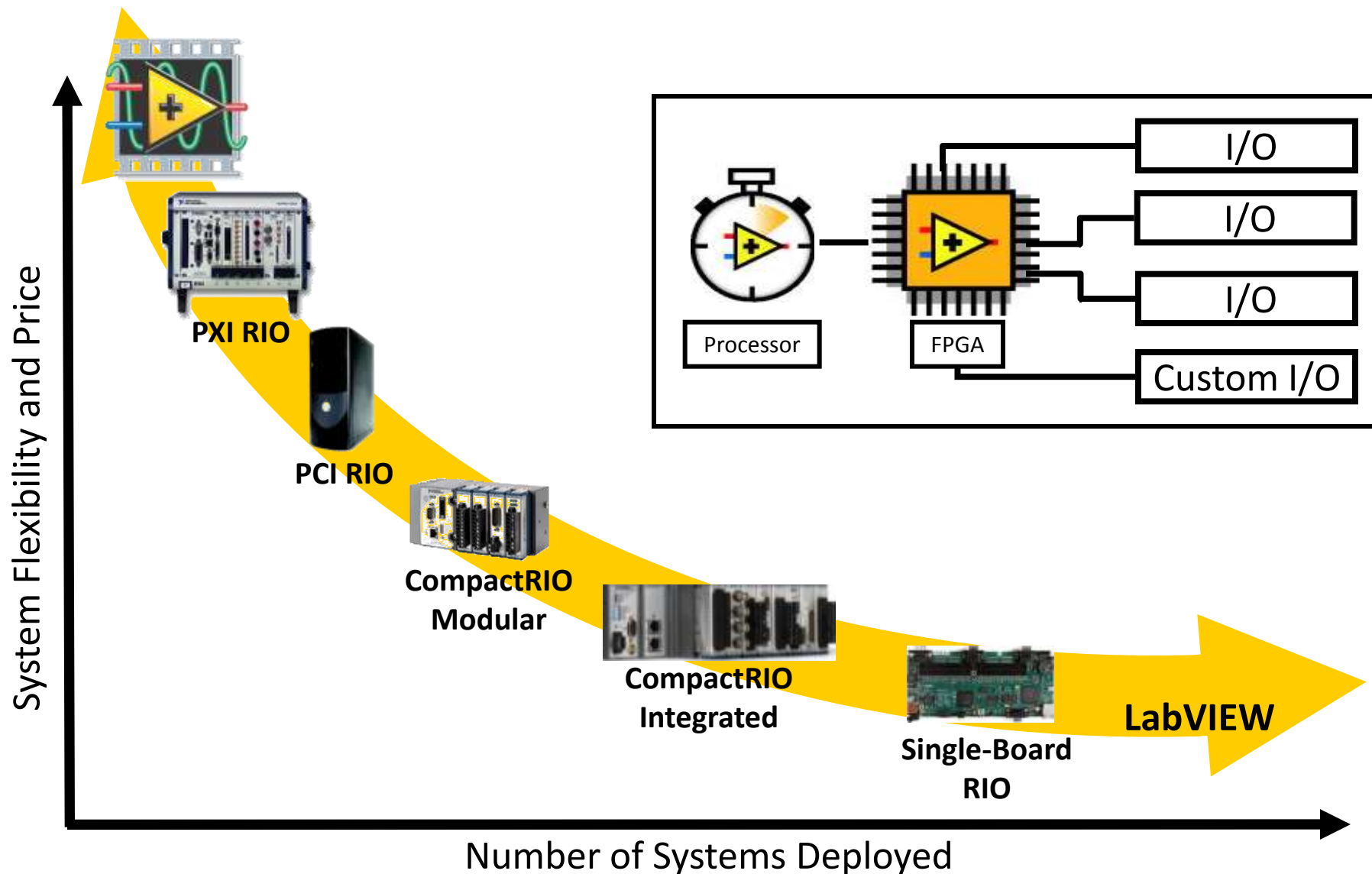
- Reconfigurable I/O
- Support for hardware targets including both PCI/PXI boards and modular stand-alone systems
- More than 100 FPGA IP blocks for quick development
- Built-in I/O direct memory access (DMA) provides fast communication with a host system
- Create logic that can execute in one cycle of 40Mhz, 80MHz, or faster clocks
- Manage memory, FIFOs, clocks, and I/O in the LabVIEW project
- Use available Wizards for quick-start or begin from a blank slate



Single-Board RIO

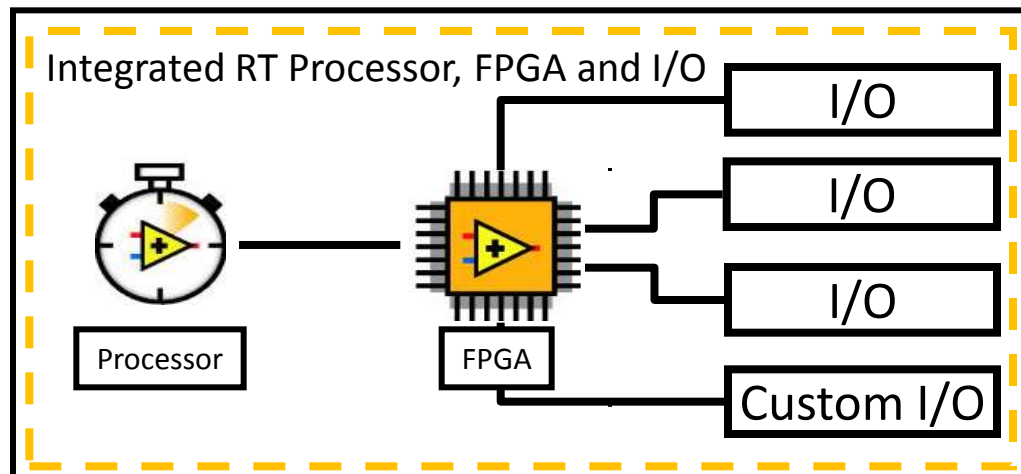
- Reconfigurable I/O Platforms
- Deterministic Ethernet I/O
- Low Cost CompactRIO Integrated System

The NI RIO Deployment Curve



Single-Board RIO

- Embedded device and machine I/O, processing and control
- FPGA customization and performance
- Lowest cost RIO product for high volume machines and devices



The power of CompactRIO on a single board

Networking/Peripherals

10/100 Ethernet port
RS232 Serial port

Real-Time Processor

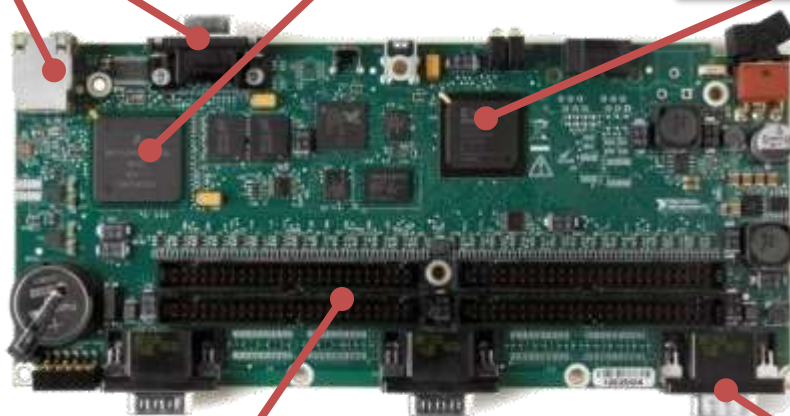
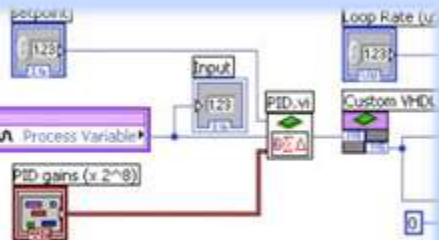
400 MHz processor for floating-point control, analysis, and logging

Reconfigurable FPGA

Customized timing and processing of I/O

LabVIEW

- Graphical software for rapid development
- Program processor, FPGA and I/O with one tool
- Integrate existing C/VHDL



Small Size, Low Power

21 x 9 cm. (8.2 x 3.7 in.)
19-30 VDC power, (7-10 W typ.)

Expansion I/O

Connect up to three C Series modules for additional I/O (strain, TC, comm., motion, etc...)

Onboard Analog and Digital I/O


110 DIO, Up to 32-ch AI, up to 4-ch AO,
Up to 32-ch of 24 V DIO

CompactRIO Certifications & Ratings

Description	Standard
Electromagnetic Compatibility (Emissions, Immunity, EMC/EMI)	EN 55011 Class A at 10 m FCC Part 15A above 1 GHz Industrial levels per EN 61326-1:1997 + A2:2001, Table A.1 CE, C-Tick, and FCC Part 15 (Class A) Compliant 89/336/EEC
Mean Time Before Failure (MTBF)	Belcore Issue 6, Method 1, Case 3 MIL-HDBK-217F
Product Safety	73/23/EEC EN 61010-1, IEC 61010-1 UL 3111-1, UL 61010B-1 CAN/CSA C22.2 No. 1010.1
Hazardous Locations, Class I, Division 2	Class I, Division 2, Groups A, B, C, D, T4; Class I, Zone 2, AEx nC IIC T4
Shock and Vibration	IEC 60068-2-64 IEC 60068-2-27 IEC 60068-2-6



Single-Board RIO Certifications & Ratings

Description	Standard
Electromagnetic Compatibility (EMC)	EN 55011 Class A at 10 m  + A2:2001, Table A.1 Compliant
Mechanical Failure	
Product Safety	73/23/EEG EN 6101 UL 3111 CAN/CS UL Reco
Hazardous Locations, Class I, Division 2	Class I, Div 2 AEx nC IIC T4 UL Reco
Shock and Vibration	IEC 60068-2-64 IEC 60068-2-27 IEC 60068-2-6



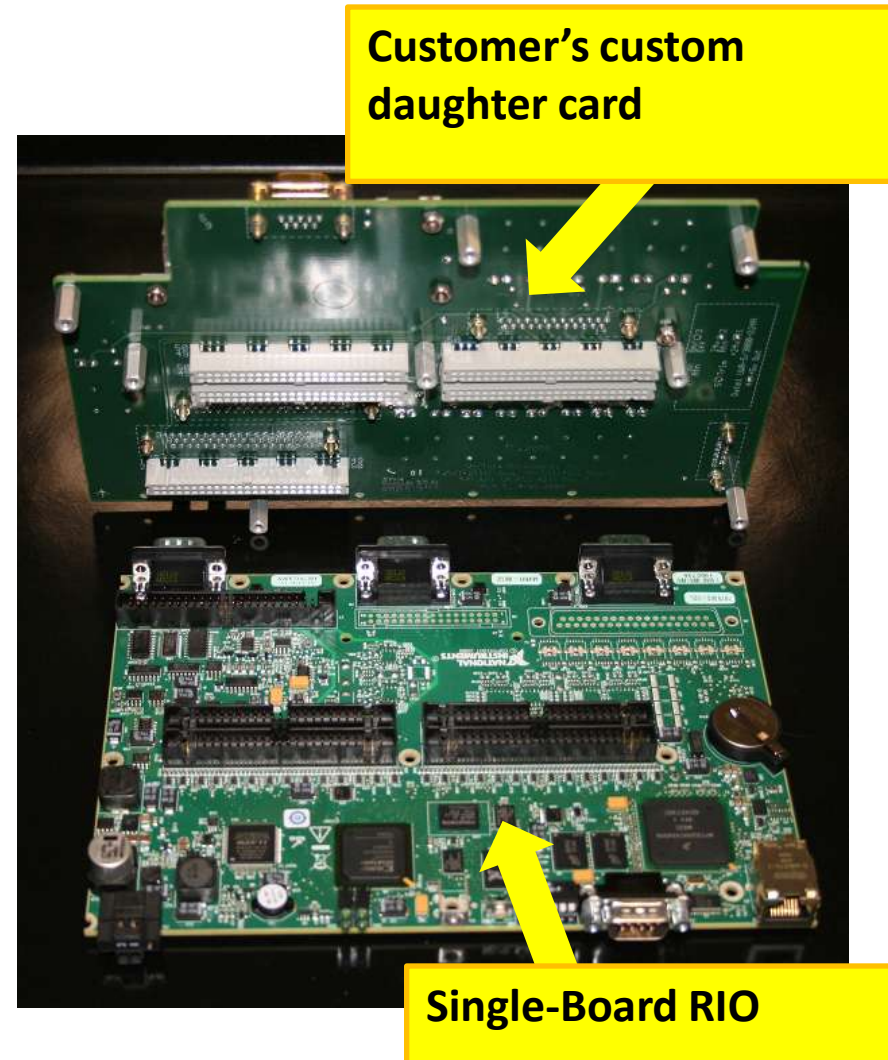
Can do the certification of the final product

LISTED



Customization Options for Single-Board RIO

- Custom C Series Module
 - cRIO/sbRIO MDK
 - Online resource templates for schematics and layout
 - Design using NI Ultiboard and NI Multisim
- Build a custom daughter card
 - 110 3.3 V/TTL DIO lines available on mass termination connectors





Boardcomputer voor Tram en Bus

Windows Embedded met LabVIEW



Priodeck: Altijd groen licht voor hulpdiensten

Embedded Linux met LabVIEW

- Dual Brushed Motor Control Unit
- Based on LabVIEW for ARM
- With Luminary ARM chip
- Special I/O on customer specifications
- Low Cost
- In Field downloadable firmware for remote updates

Kunnen wij u van dienst zijn?

- Neem dan een kijkje op onze stand
- Of op onze site: www.incaacomputers.com
- Of neem contact op met:

Dennis Motshagen
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Bedankt voor uw aandacht