



NIDays





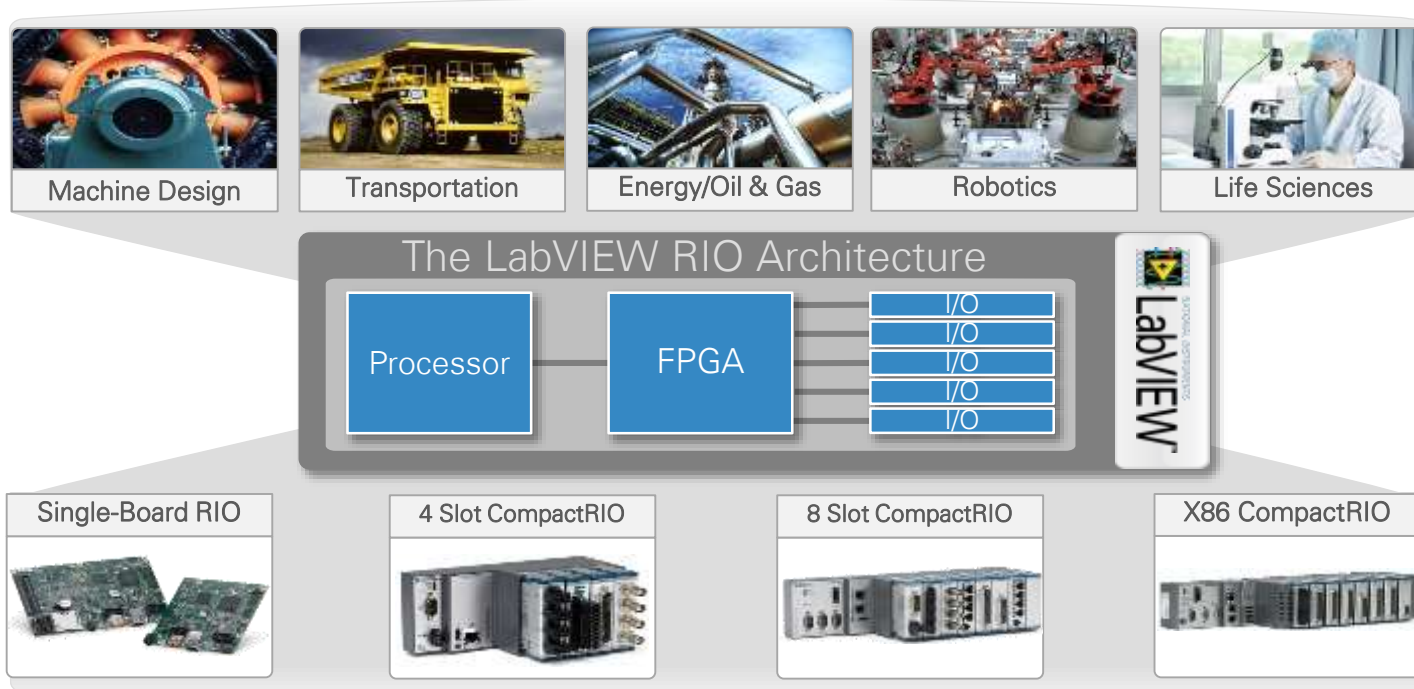
Developing Monitoring and Control Systems with LabVIEW and CompactRIO

Carlos Pazos

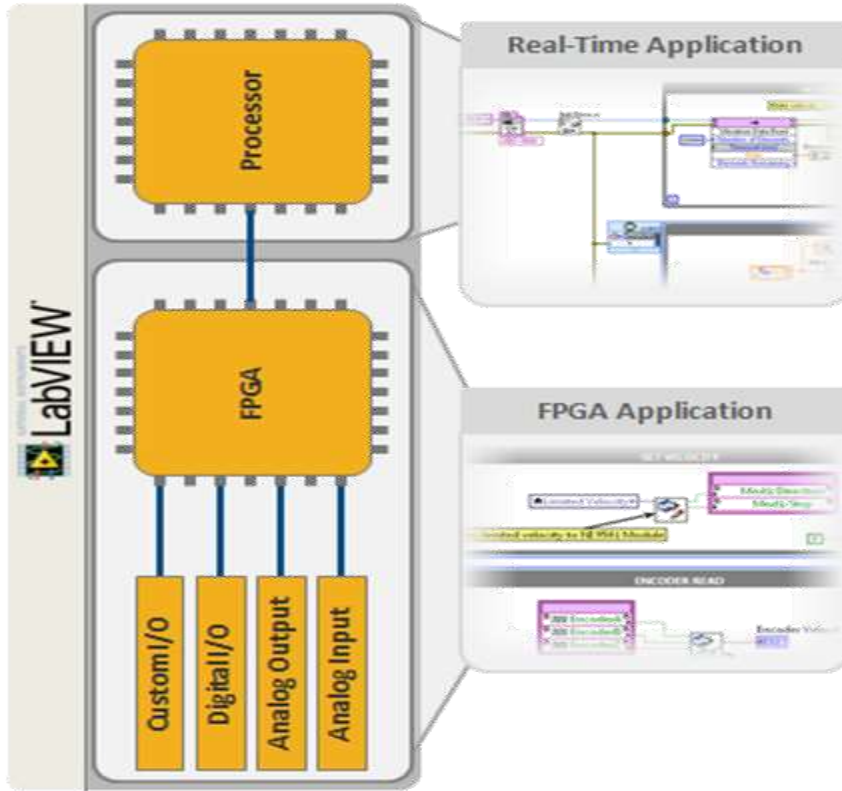
Embedded Software Product Marketing Manager

Graphical System Design

A platform-based approach for measurement and control



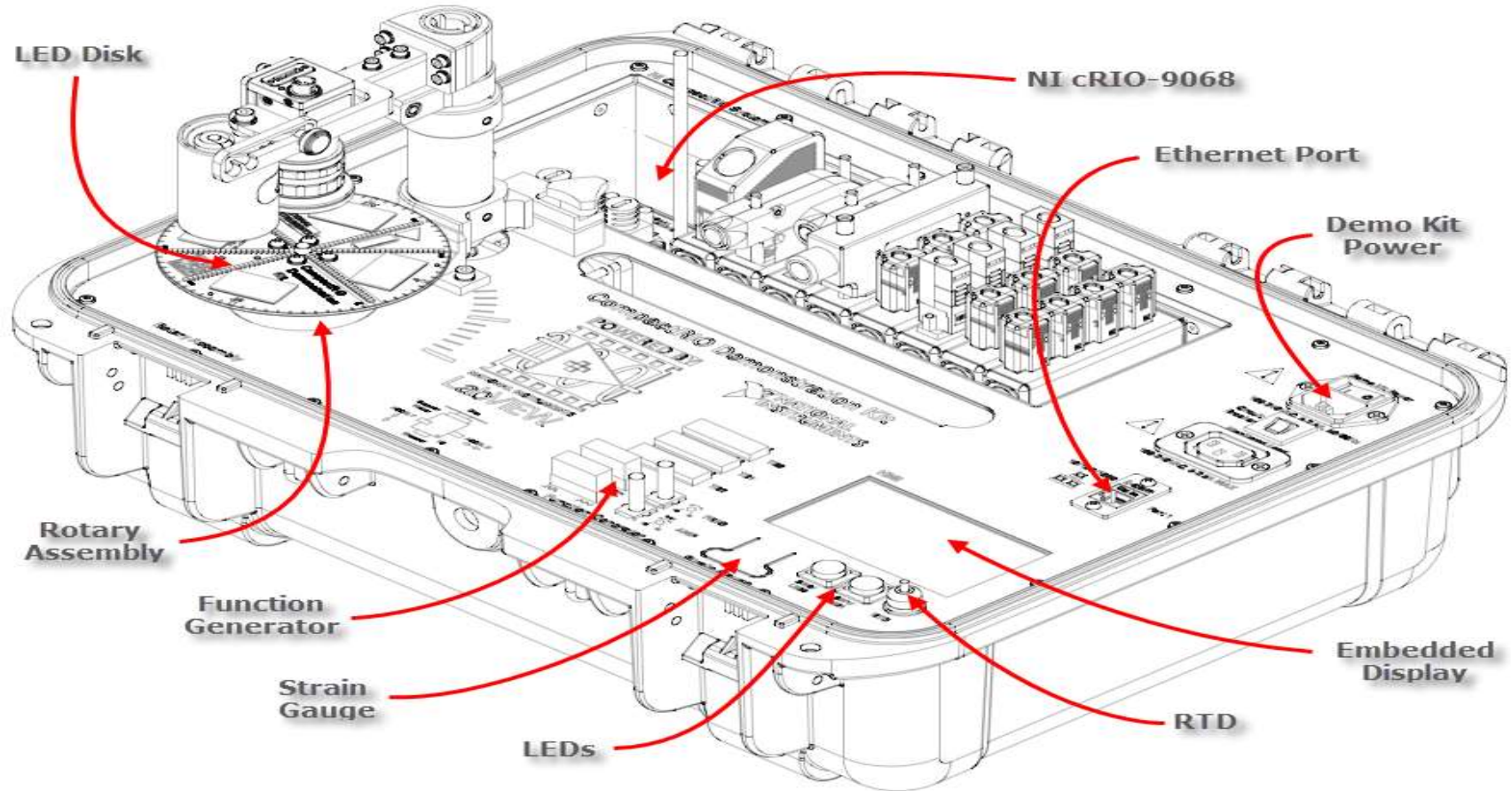
The LabVIEW RIO Architecture



- Real-time OS
- Application software
- Networking and peripheral I/O drives
- DMA, interrupt, and bus control drivers

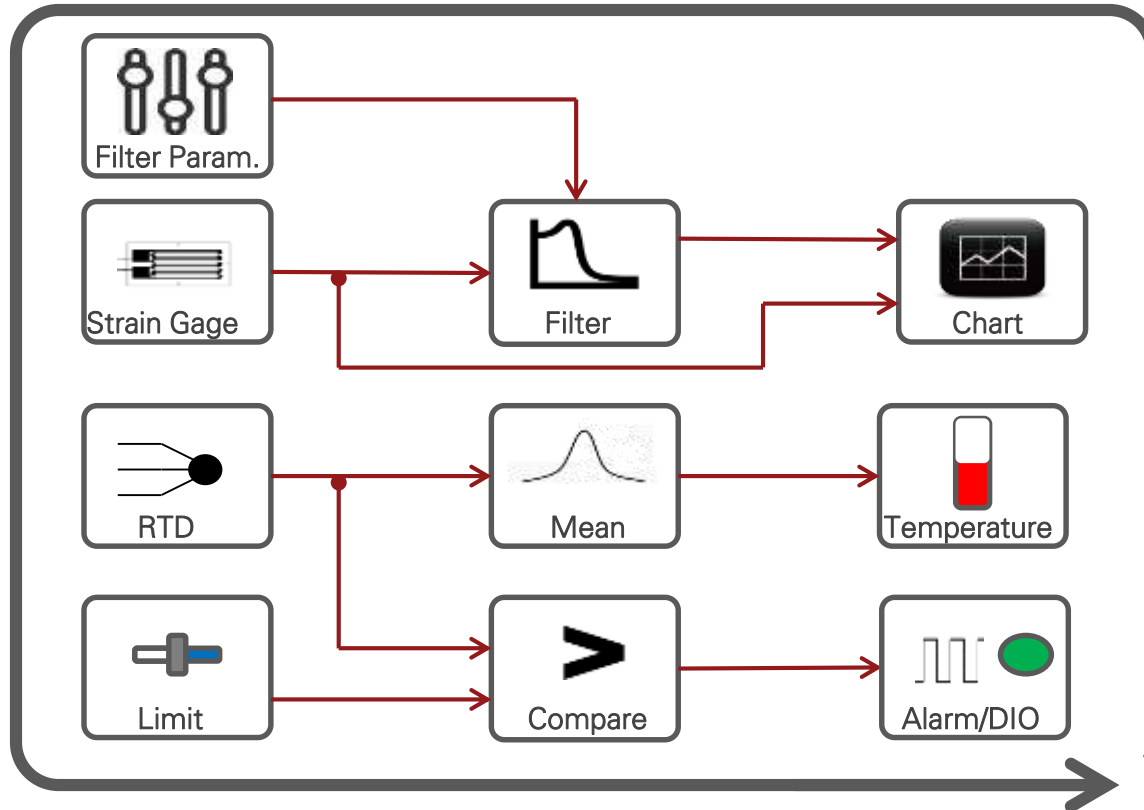
- Application IP
- Control IP
- DSP IP
- Specialized I/O drivers and interface
- DMA controller

CompactRIO Demonstration Kit



Exercise 1

Temperature and Strain Monitoring





Inputs:

Slot 6: NI 9219—24-Bit Universal Analog Input

(4 DIFF · 100 S/s/ch)

Analog Input 0 (AI0)→RTD

(3-Wire Pt100-TCR3851)

Analog Input 2 (AI2)→Strain Gauge

(Quarter Bridge / 350 Ω)

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Outputs:

Slot 2: NI 9401— 8 Ch, 5 V/TTL High-Speed Bidirectional

Digital I/O Module

Digital IO 5 (DIO5)→LED1



CompactRIO Developer's Guide

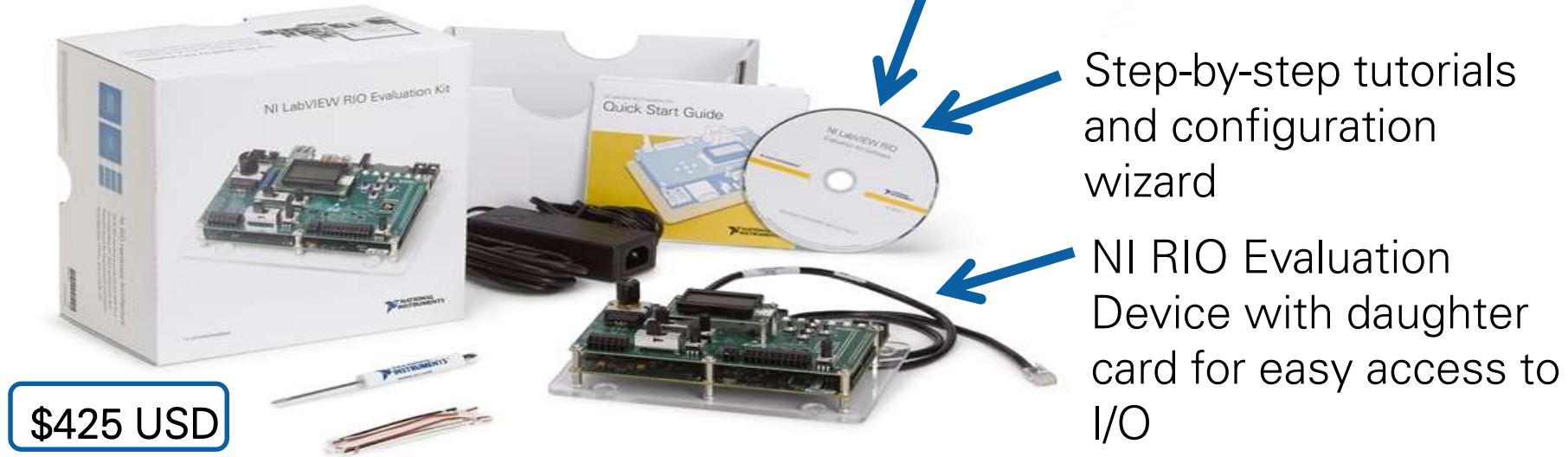
NI LabVIEW for CompactRIO Developer's Guide

Recommended LabVIEW Architectures and Development Practices
for Control and Monitoring Applications

ni.com/compactriodevguide

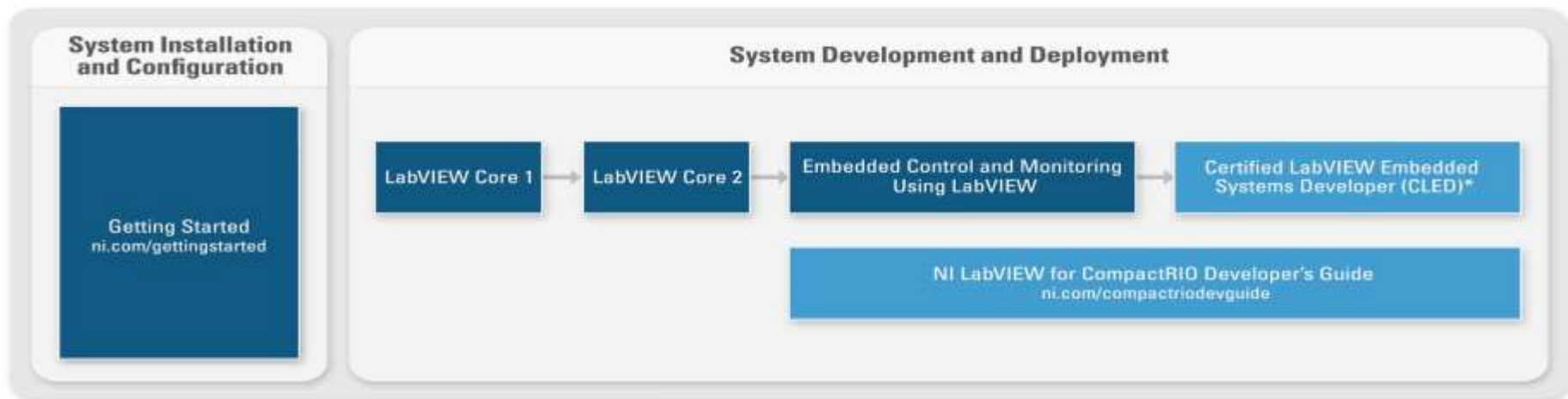
LabVIEW RIO Evaluation Kit

90-day LabVIEW, LabVIEW FPGA, and LabVIEW Real-Time evaluation



Order at ni.com/rioeval
Online Community at ni.com/rioeval/nextstep

Training and Certification



* A CLD or higher is required before attempting the CLED exam

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