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Developing Monitoring and Control Systems with LabVIEW and CompactRIO

Carlos Pazos

Embedded Software Product Marketing Manager

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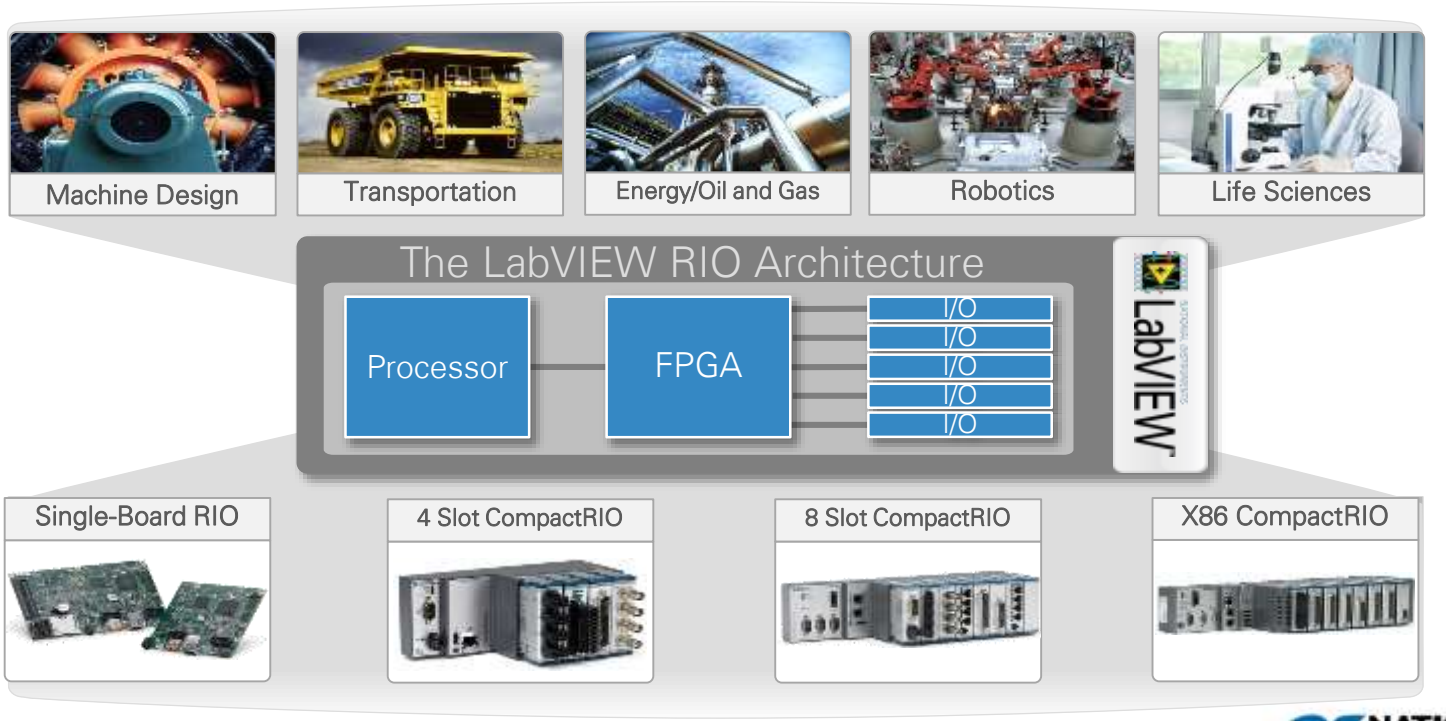
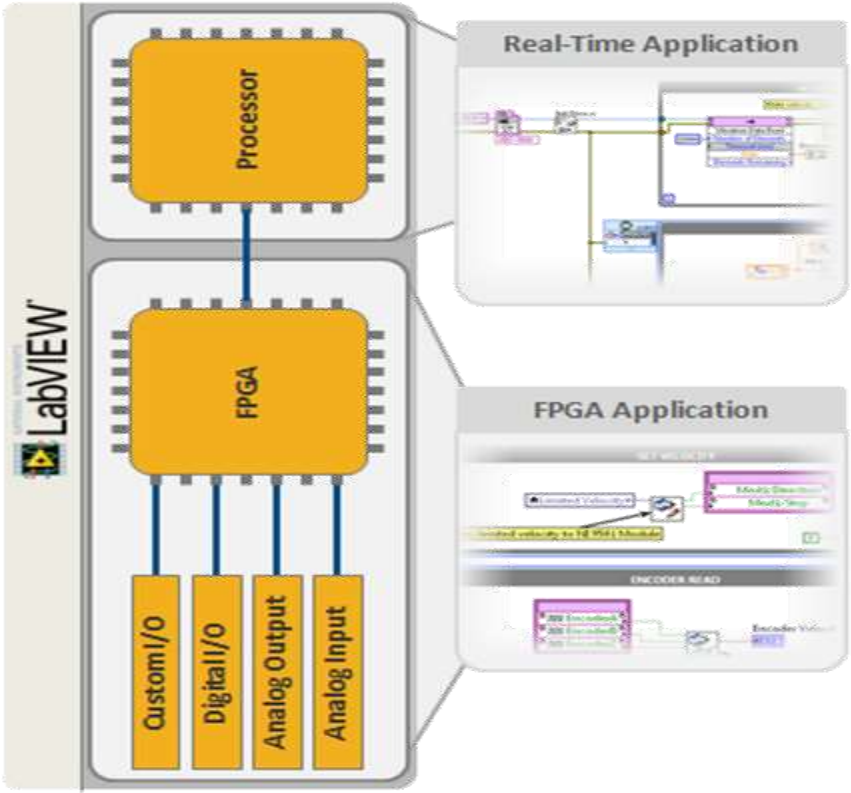
Graphical System Design

A platform-based approach for measurement and control



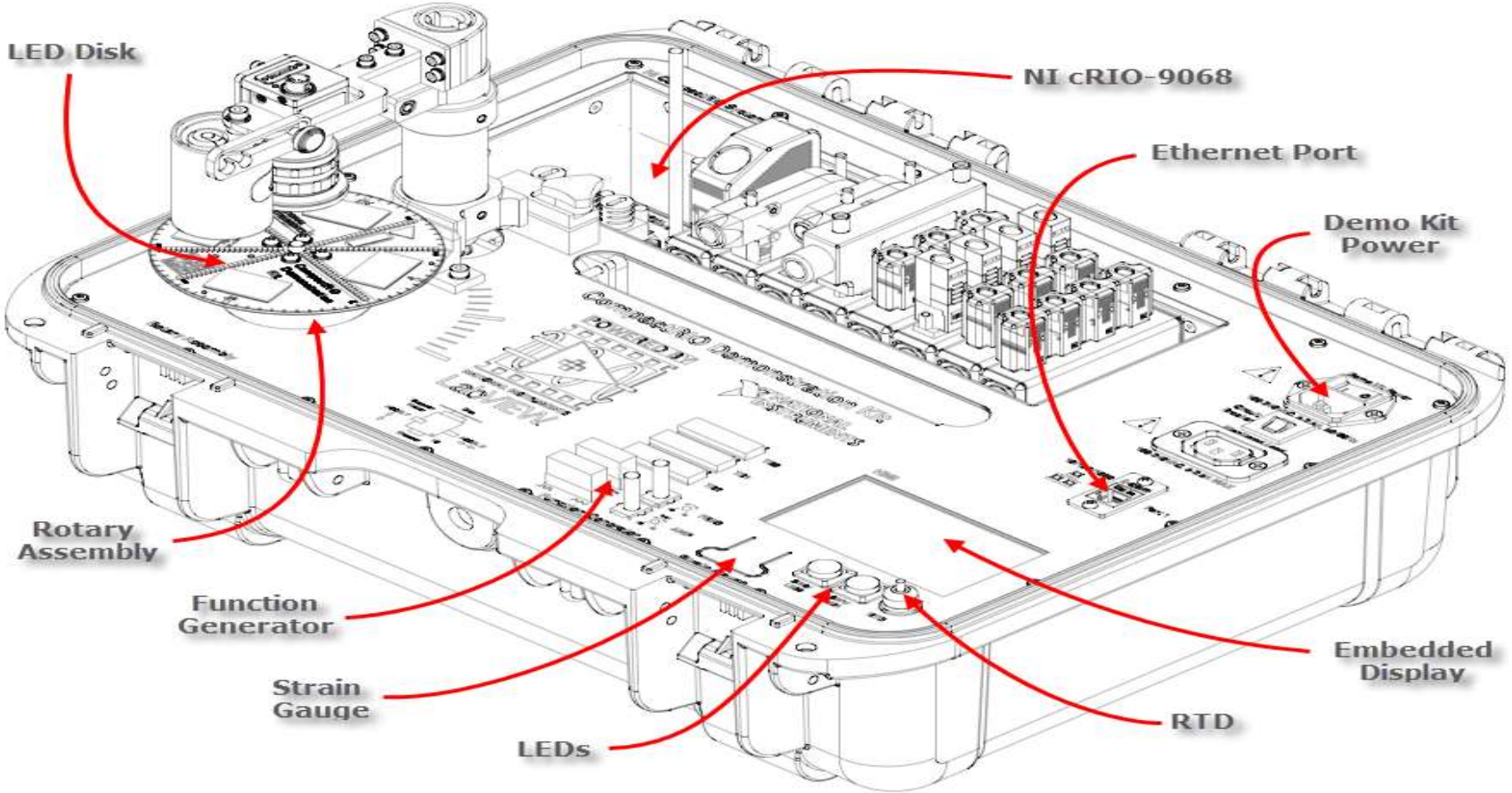
The LabVIEW RIO Architecture



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

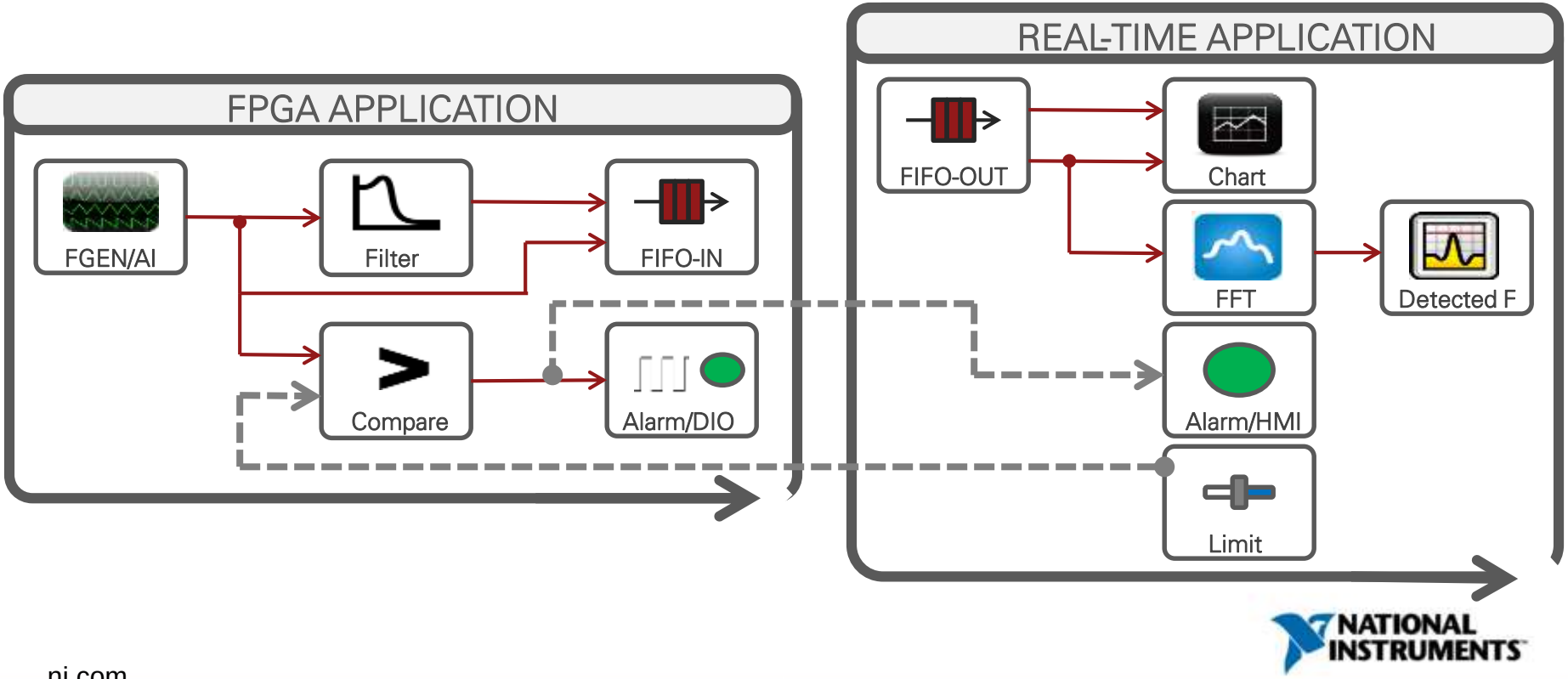
- Application IP
- Control IP
- DSP IP
- Specialized I/O drivers and interface
- DMA controller

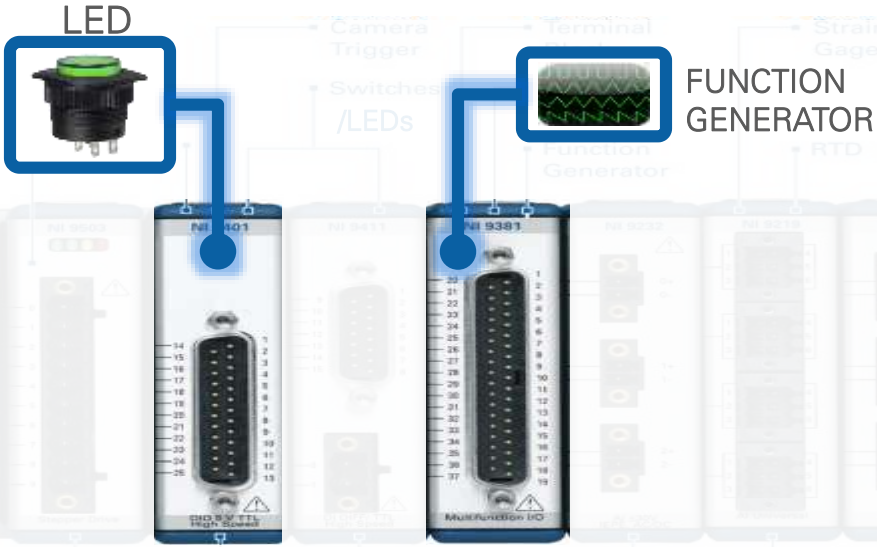
CompactRIO Demonstration Kit



Exercise 2A

FPGA-Based Butterworth Filter





Inputs:

Slot 4: NI 9381— *0 V to 5 V AI/AO Module With 4 LVTTL DIO Lines*
Mod4/AI7→Function Generator
Sampling Period→ 20 kS/s
Resolution→12-Bit

Outputs:

Slot 2: NI 9401— *8 Ch, 5 V/TTL High-Speed Bidirectional Digital I/O Module*
Digital IO 4 (DIO4)→LED0

CompactRIO Developer's Guide

ni.com/compactriodevguide

LabVIEW RIO Evaluation Kit

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

Step-by-step tutorials and configuration wizard

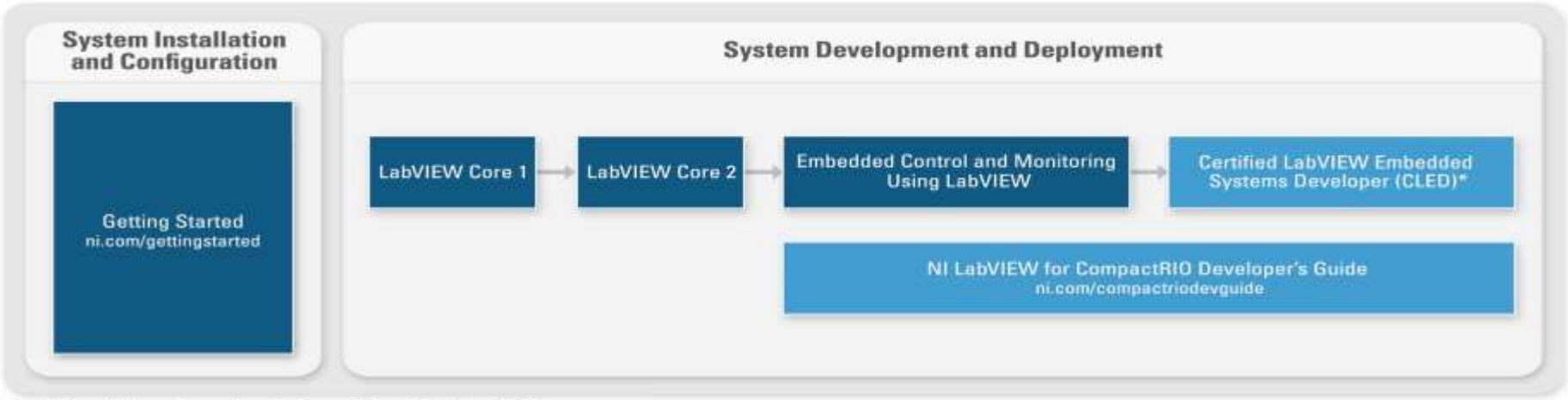
NI RIO Evaluation Device with daughter card for easy access to I/O

$425 USD

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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