Control System Evolution: What's Different?

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	Current Control System (assuming 4-slot cRIO)	2015 Control System
Platform/ Processor	Xilinx Spartan-6 LX45 FPGA Freescale 5125 Power PC, 400 MHz	Xilinx Zynq-7020, Dual-Core ARM Cortex A9, 667 MHz
OS	Wind River VxWorks	Linux with real-time extensions
Cost to Teams (new/ different devices used for comparison)	$893.95 = • cRIO + I/O Kit, $525 • PD Board, $189 • Digital Sidecar, $82 • Analog Breakout Board, $24 • Solenoid Breakout Board, $24 • Spike for Compressor, $34.95 • Voltage converter, $15	$765 = • roboRIO, $435 • PD Panel, $200 • Pneumatic Control Module, $90 • Voltage Regulator Module (if needed), $40
Memory	128MB RAM, 256MB Flash	256MB RAM, 512MB Flash
Power Reqmts	cRIO: 9-30V Breakout Boards: 12V	roboRIO: 6.8-16V PCM: 12V in, 12V or 24V out (user selectable)
Ethernet & RS232	1 each integrated in the cRIO	1 Ethernet and 2 RS232 integrated in the roboRIO
CAN	Via RS232 on the cRIO or 2CAN device	Integrated in the roboRIO, each PCM, & each PDP
Digital I/O	Integrated in each DSC: • 12 channels	Integrated in the roboRIO: • 10 channels (+16 shared via MXP) • 1 3-axis accelerometer
Analog I/O	Integrated in each ABB: • 8 channels (analog in only)	Integrated in the roboRIO : • 4 channels (+4 input & 2 output via MXP)
Relay/ Pneumatic Control	Integrated in each DSC: • 8 dual-output (FWD/REV), usually w/ Spike Relay Integrated in each SBB: • 8 pneumatic solenoid channels	Integrated in the roboRIO: • 4 dual-output (FWD/REV), usually w/ Spike Relay Integrated in each PCM: • 8 pneumatic solenoid channels • 1 compressor control • 1 pressure switch
PWM	Integrated in each DSC: • 10 dedicated channels	Integrated in the roboRIO: • 10 channels (+10 shared via MXP)
SPI and I²C	One SPI bus shared for all DSCs One I²C bus for each DSC	Integrated in the roboRIO • 1 SPI bus (+1 shared via MXP) • 1 I²C bus (+1 shared via MXP)
USB	Not available	2 USB Host and 1 USB Device
Wireless	Ethernet Bridge	TBD (can accommodate Ethernet Bridge OR USB WiFi Dongle)
Power Dist.	8 x 40A circuits 12 x 30A (max) circuits Dedicated supplies for cRIO, radio, and 5V camera	8 x 40A circuits 8 x 30A (max) circuits Dedicated supplies for VRM, PCM, and roboRIO Current monitoring via CAN

LabVIEW, Java, and C/C++ will continue to be supported!

Are you interested in beta testing the 2015 Control System?

We're looking for a wide variety of teams to help us test and develop… and test and develop… and test and develop…

➢ Beta testing will run from July through November, 2014.
➢ Each beta team will be loaned 2015 hardware

Find out if your team is interested, and apply using the QR code or link below by May 30, 2014.

https://www.surveymonkey.com/s/JLTYSGS

THANK YOU!