Circaflex™ 360

Rapid Prototyping & Deployment Control System

READY FOR PROTOTYPING WITH AN ARRAY OF TYPICAL INDUSTRIAL INPUTS AND OUTPUTS

Circaflex is a family of off-the-shelf control systems, prototyping boards, and signal conditioning modules which combine to make customized embedded control systems based on the National Instruments RIO platform. Each Circaflex product is designed to support a variety of sensors and devices commonly used in industrial, medical, and biotech device development. Using Circaflex engineers and scientists can develop feature-packed control systems for prototyping or deployment, which can be developed or modified in just days without the risk and cost of custom designed control systems.

Circaflex 360 is a prototyping daughterboard for use with the NI sb-RIO 9651 SOM designed originally for a high speed event capture application. The board includes a variety of I/O such as 48 high-speed TTL digital inputs/outputs, 8 analog outputs and 6 RS232. With a generous six sockets for Circaflex modules, users can meet application-specific needs like reed relays, pH probes, RTDs, and steppers. After prototyping and choosing the modules, use Circaflex software for LabVIEW to create your application.

STANDARD FEATURES

- For use with NI sb-RIO 9651 SOM
- 24V Power Input
- Power & Status LED's
- Primary Gigabit Ethernet
- USB 2.0 Host Port
- RS232 / Console Port
- RTC Battery
- Reset Button
- Micro SD Card Socket

UNIQUE FEATURES

- 2 x High Speed Analog Input
- 48 x 3.3V TTL Digital I/O
- 8 x Analog Output
- 6 x RS232
- 6 x Circaflex Modular I/O Sockets
- Plug In Spring Terminals

HELPFUL FEATURES

- 9-30V Power options
- Reverse power protection
- Strictly regulated power onboard
- Fuses protect Circaflex, modules, and RIO SOM during prototyping
- LED's for power, blown fuses, and most I/O signals help with troubleshooting
- On-board power terminals make prototyping and changes easy
- Two power connectors for proper benchtop and deployment use
- Circaflex modules make expansion easy and efficient
- Attractive and powerful user interfaces via embedded computers, remote computers, and Android and iOS devices.
- Can be redesigned and customized to match application requirements

OEM PRICING

Aggressive discounts are available for higher-volume customers.

For pricing information please call 888-508-7355 (US) or email us at sales@cyth.com.

PROJECTS & CUSTOMIZATIONS

Cyth is the best resource worldwide for embedded control integration projects using NI RIO products like Compact-RIO and Single-Board RIO.

Contact Cyth for advice, product recommendations, and cost estimates for your product development goals.

PACKING LIST (920-00360)

CFX-360 OEM Modular Control System
24V, 4 Amp Power Supply
Quick Start Guide
Circaflex Screwdriver
Circaflex Thumb-drive with software
Spare Fuses, Standoffs

cyth systems

FEATURES, CHANNELS, PERIPHERALS

Circaflex provides the necessities to quick-start embedded control projects using the NI RIO SOM 9651, as well as most common basic I/O, plus expansion ports for customization.

1	Power Input, 24V with reverse polarity protection
3	Power Regulators for 3.3, 5.0, 24 V
3	Fuses to protect Circaflex and RIO SOM
3	LED Red/Green indicators to illustrate power on / blown fuse
8	LED's for Status and Performance
1	Gigabit Ethernet Port
1	USB 2.0 Host port
1	MicroSD adaptor
6	RS-232 Serial / Device Console Port
48	Digital I/O, Low-Voltage TTL/CMOS
2	High Speed Analog Input, 80MHz per channel, simultaneous
8	Analog Output, 16 Bit, +/- 5V or 10V
30	Power & Ground Terminals: 6 x 24V, 6 x 5V, 6 x 3.3V, 12 GND
6	Circaflex I/O Module adaptors

CIRCAFLEX I/O EXPANSION MODULES

The customizations never end with Circaflex I/O Expansion modules. Choose from a variety of most common I/O types made by Cyth, or request something new and Cyth will share the cost.

8 ch TTL (3.3V, 5V)	2 Axis Stepper/Encoder
8 ch Analog Input	1 Axis Stepper Driver
4 ch Analog Input Current	4 ch 12V Power Supply
4 ch Analog Output	4 ch Power Breakout (5V, 24V)
4 ch Analog Output Current	GPS
8 ch Industrial Digital Input	IMU
8 ch Industrial Digital Output	
4 ch Thermocouple	
2 ch RS-485	
2 ch CAN Bus	
4 ch Solid State Relay	
1 ch RTD	
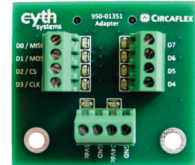
SPECIFICATIONS & DETAILS

General / SOM Features
- Compatible NI sbRIO — NI sb-RIO SOM 9651
- Processor Type — Xilinx Zync 7020 SoC
- Processor Architecture — Dual-Core ARM Cortex A9
- Processor Speed — 667 MHz
- Operating System — NI Linux Real-Time
- RAM/Nonvolatile Storage — 512 MB / 512 MB
- Environmental Range — -40 to +85 Deg C
- Physical Size — 144 x 170 x 29 mm

Input Power
- Voltage — 24V +/- 0.5V
- Current (idle) — 1.2A
- Current (common) — 1.2-2.6A
- Current (max, fused) — 4A
- Connector for Benchtop — 2.5 x 5.5 mm barrel plug
- Connector for Deployment — 2-pos MTA-156
- Power Usage — 3-5 W Typical

OnBoard Power
- 3.3 V DC Regulation — 0.1%
- 3.3 V DC Current (max, fused) — 2A
- 5 V DC Regulation — 1%
- 5 V DC Terminal Current — 500mA/terminal
- 5 V Current (max, fused) — 2A

Network & Communications
- Network Interface — 10/100/1000 (Gigabit)
- Network Cabling — auto-neg, half-/full-duplex
- RS-232 Speed (Default, max) — 9600 baud, 230k baud

TTL Digital I/O
- Settle and Transfer time — < 1 ns
- Maximum Update Rate — 200MHz
- Input Off State — Off < 1V, On >2V
- Output Voltage States — Off = 0V, On = 3.3V

High Speed Analog Input
- Sample Rate — 80 MHz
- Input Voltage Range — +/- 1.1V (Programmable ability coming)
- Resolution — 16 Bit
- Channel Interaction — Simultaneous

Analog Output
- Output Voltage Range — +5V, +10V, +10.8V, +/-5V, +/-10V, +/-10.8V
- Resolution — 16 Bit
- Settling Time — 10us (100kS/s)

Status & Performance LED's
- Code Status — RTOS, FPGA
- RIO SOM Status — FPGA Config, SOM Status
- RIO SOM Other — Temp Alert
- Communication — Ethernet Activity
- User LED's — User 1, User 2