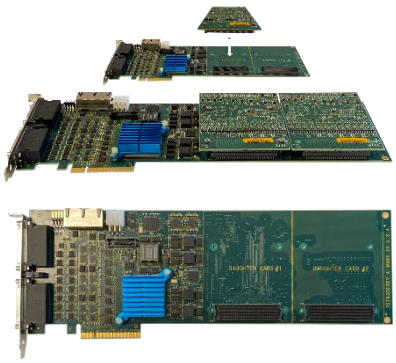
The Arria 10 FPGA Card

Concurrent Real-Time's family of programmable FPGA PCIe cards features a powerful field programmable gate array chip that supports both analog and digital I/O. Each card's I/O functionality is fully customizable by the user by means of the FPGA Workbench tools. The cards are available with 480K or 1150K logic elements. There are two High Pin Count FMC Style Positions available for the High-Speed Daughter Cards.



Intel Quartus Prime Standard Edition for Arria 10 Development

With FPGA Workbench and Quartus Prime Standard Edition for Arria 10 Development software, you can simplify the process of tailoring a card to match your precise I/O requirements. The Quartus tools enable users to create and integrate their custom HDL code specifically designed for the Arria 10 FPGA on the Concurrent Real-Time FPGA boards. Intel's Platform Designer tool eliminates the need for manual system integration tasks, allowing you to concentrate on crafting the custom I/O functionality you require. The Platform Designer tool also saves design time and enhances productivity by automatically generating interconnect logic for connecting intellectual property (IP) functions and subsystems.

More Information:

Concurrent-rt.com

Wiki.simwb.com

info@concurrent-rt.com

800.666.4544

954.974.1700

FPGA Card Features

- **32-Channel Digital I/O**
  - **3.3/5V TTL Compatible**
  - **32ma High Drive**
  - **64ma Low Drive**
  - **Selectable 100 ohm termination**
- **32-Channel LVDS I/O**
- **480k or 1150k Logic elements available**
- **Programmable Clock Generator**
- **Industry Standard SCSI 68-pin VHD Connectors for I/O**
- **Six MSG DMA Engines**
- **Two FMC daughter cards**
- **PCI Express x4 Revision 2**
- **TCXO Clock**

More Information:

Concurrent-rt.com

Wiki.simwb.com

info@concurrent-rt.com

800.666.4544

954.974.1700

Specifications

PACKAGING

- Full Height Full Length PCI Express (12.25” long x 3.75” high)

POWER REQUIREMENTS

- Approximately 60 watts (12VDC @ 5 Amp) with external power connector

ENVIRONMENTAL

- Operating: 10° to 40° C
- Storage: -40° to 65°C
- Relative Humidity: 10 to 80% non-condensing
- Cooling: Forced Air Required
- ROHS Compliant

Functional Module Licenses:

For a complete list of IP cores, visit concurrent-rt.com/products/software/fpga-workbench

Ordering Information

- **CP-FPGA-4**
Programmable FPGA card with 480k logic elements
- **CP-FPGA-5**
Programmable FPGA Card with 1150k logic elements
- **WC-CP-FIO-2**
FPGA Driver for RedHawk™ Linux®
- **WU8021-300**
FPGA Workbench Software
- **WU-ALT-DEV**
Altera FPGA Development Tool Kit
- **ICS-SWB-1275**
License for Programmable FPGA card use under SIMulation Workbench
- **CX-CBL-HSI-F-05**
68-pin SCSI-5 (VHDCI) to SCSI-3 male I/O
interface cable, 5 meter
- **CX-CBL-HSI-F-02**
68-pin SCSI-5 (VHDCI) to SCSI-3 male I/O
interface cable, 2 meter
- **CX-CBL-HSI-F-03**
68-pin SCSI-5 (VHDCI) to SCSI-3 male I/O
interface cable, 3 meter
- **CX-CBL-AIO-BRKF**
I/O terminal breakout module, 68-pin female SCSI-3, DIN mount
- **CX-CBL-HSI-F-15**
68-pin SCSI-5 (VHDCI) to SCSI-3 male I/O
interface cable, 15 meter

The High-Speed Analog Daughter Card

The High-Speed Analog Daughtercard (HSAD) is a precision-engineered, single-width FMC-style module designed for integration with the Next Generation FPGA Card. This card features two distinct analog sections: one with twelve channels of high-speed 16-bit SAR analog inputs, and the other with twelve channels of high-speed 16-bit analog outputs. The analog-to-digital conversion (ADC) capability is powered by Analog Devices' LTC2325 ADCs, while the digital-to-analog conversion (DAC) function leverages Analog Devices' AD5545 DACs. All analog I/O pins are routed directly to the motherboard's front panel via the FMC HPC pins, ensuring seamless signal transmission and connectivity.

More Information:

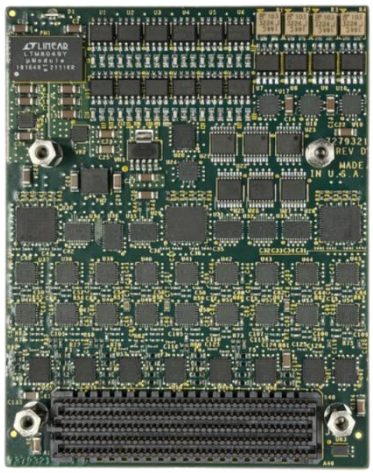
Concurrent-rt.com

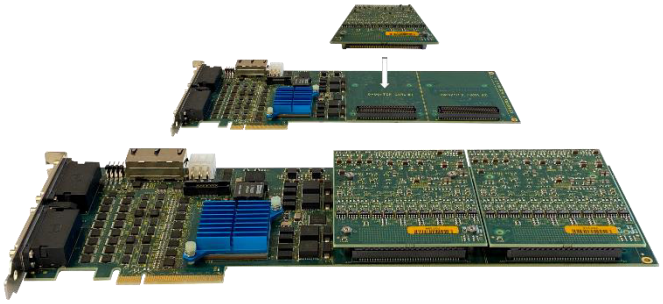
Wiki.simwb.com

info@concurrent-rt.com

800.666.4544

954.974.1700





Features

- Analog Input
  - 12-channel differential or single ended (+/-10V)
  - 16-bit 4M Maximum Sampling Rate
  - 2.5MHz Active Input Filter
- Low Noise Analog Power
- Analog Output
  - 12-channel single-ended (+/-10V)
  - 6-channel differential (+/-20V)
  - 1M samples/second 12-channel
  - 2M samples/second 6-channel
  - 500KHz active output filter
- NIST Traceable Calibration

The High-Speed Digital Daughter Card

The High-Speed Digital Daughtercard (HSDD) is a single-width FMC style card tailored for use with the Next Generation FPGA Card. It contains 32 channels of I/O, compatible with both 3.3V and 5V TTL. This card supports in-system firmware updates and facilitates motherboard front panel I/O connectivity through FMC High Pin Count (HPC) pins.

More Information:

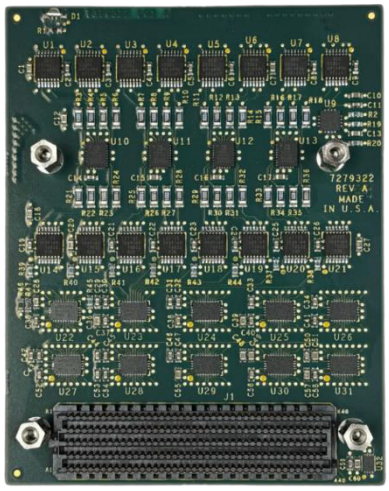
Concurrent-rt.com

Wiki.simwb.com

info@concurrent-rt.com

800.666.4544

954.974.1700



Features

- 32-channel TTL Input/Output
- 3.3/5V TTL Compatible Signals
- 32 Milliamp High Output Source
- 64 Milliamp Low Output Sink
- Switchable 100 Ohm Termination
- Outputs Selectable per Nibble
- Input Channel Snapshot
- Output Channel Synchronization
- Change Of State Sensing