

# Embedded Computers

## ARCX1100 Rugged, Small Form Factor Embedded Computer



Intel® Atom™ CPU (E3950 Apollo Lake) ♦ Four I/O expansion slots (AcroPack® or mini PCIe)

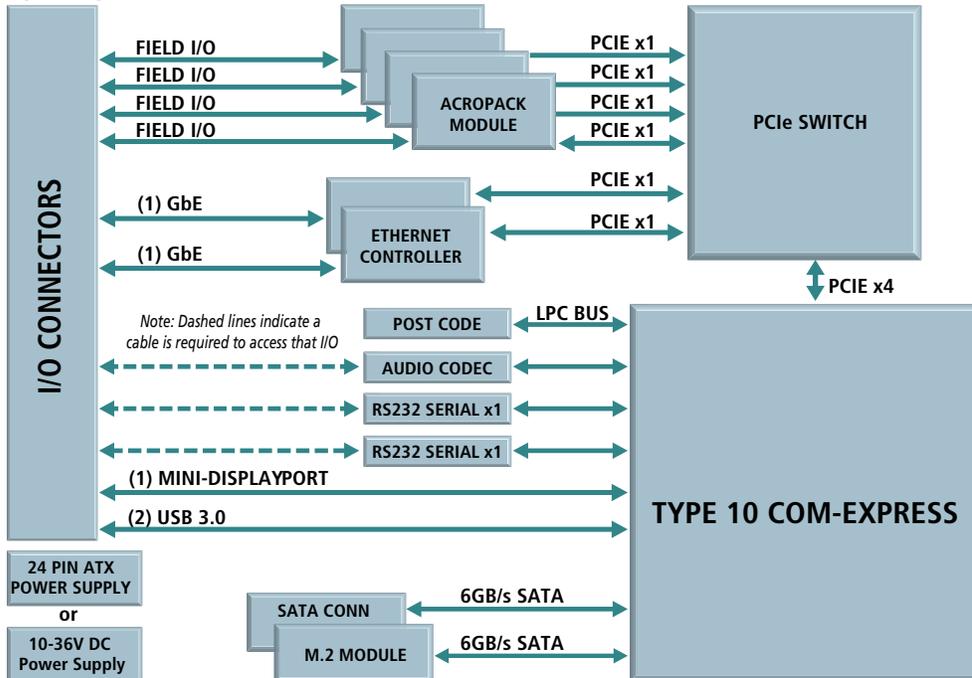
### Description

The ARCX1100 is a customizable-off-the-shelf (COTS), SWaP-optimized deployable computing solution. This rugged, small form factor computer is designed for a variety of defense and industrial applications. For maximum flexibility, the modular platform combines a carrier card hosting a COM Express Type 10 CPU and a mix of AcroPack I/O modules to support a variety of communication, monitoring and control functions. Front ports offer easy access to gigabit Ethernet, USB, video, and COM signals. High-density connectors simplify interfacing field signals.

Typical applications include deployable systems such as: vetronics, C4ISR, payload management, as well as command and control for drones and robotics. The ARCX1100 is perfect as a portable communication system with the ability to add A/D, D/A, discrete I/O, RS-232/485, CAN bus, Ethernet, FPGA, MIL-STD-1553, and other signal interfaces. Using AcroPack plug-in I/O modules provides a more rugged alternative to mini PCIe modules that eliminates the need for internal cables. More than 25 AcroPack models are available to meet your I/O requirements.

### Key Features & Benefits

- Intel Atom COM Express Type 10 module (Apollo Lake)
- Four AcroPack / mini PCIe slots for field I/O
  - A/D and D/A analog I/O
  - Digital I/O and counter/timers
  - Serial communication
  - Ethernet communication
  - CANbus communication
  - Mil-STD 1553 and ARINC 429
  - FPGA signal processing
  - Many more
- Ports available
  - Four field I/O 68-pin CHAMP
  - Two GbE RJ45 ports
  - Mini-DisplayPort
  - Two USB 3.0 ports
  - Two COM RS232 ports
- One M.2 site
- One SATA connector
- -40 to 71°C extended temperature range
- Wide range DC input power with redundancy



Tel 844-878-2352 ■ solutions@acromag.com ■ www.acromag.com ■ 30765 Wixom Rd, Wixom, MI 48393 USA

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### Performance Specifications

#### Processor Interface

##### Compatibility

Provides an electrical and mechanical interface for an industry standard COM Express Type 10 Mini (55mm x 84mm) CPU module.

CPU module must have four PCIe lanes configured as an x4 port.

##### CPU Option

Intel® Atom™ E3950 quad-core, 1.6/2.0GHz (Turbo), 4GB RAM, 12W.

##### Interface

COM Express module provides CPU, memory, PCIe bus, SATA, USB, serial communication, graphics, and other computing functions.

##### PCIe Switch

9-port 12-lane PCIe Gen 2 switch expands the single host PCIe x4 port to 6 independent x1 ports (one for each AcroPack site and one for each Ethernet controller).

#### I/O Interfaces

##### AcroPack / Mini PCIe Expansion I/O

Four slots for plug-in I/O modules. Two isolated slots. Field I/O routed to 68-pin VHDCI connectors.

##### Ethernet Interfaces

Two Intel i210 Gigabit Ethernet Controllers. Two RJ-45 ports supporting 10/100/1000BASE-T.

##### Data Storage

M.2: Expansion site supports SATA III devices, speeds up to 6Gb/s. Accepts 2242, 2260 and 2280 SSD Socket 2/3 (mechanical Key B/M) modules.

SATA: Data and power connectors for use of a Solid-State Disk Drive. Supports SATA III devices, speeds up to 6Gb/s.

##### Serial Communication

Two ports with standard UART (RX/TX) RS-232 signal levels.

##### USB

Two USB 3.0 ports with speeds up to 5Gb/s.

##### Audio

Realtek HD Audio CODEC with line in / line out.

##### Video

Mini DisplayPort for high-resolution graphics.

##### JTAG

14-pin Xilinx JTAG header for programming and debugging FPGA AcroPack modules.

#### Electrical / Mechanical

##### Form Factor

Mini-ITX form factor.

##### Size

7.6 x 7.6 x 3.25 inches (193 x 193 x 83 mm).  
4.55 pounds (2.06 kg).

##### PCI Express

Complies with PCI Express Specification, Rev. 2.1.

##### PICMG

Complies with PICMG COM Express COM.0 Specification Rev. 3.0. Conforms to COM Express Carrier Design Guide Rev. 2.0.

##### Power Requirement

Accepts powered from a standard 24-pin ATX power supply or a 10-36V DC power supply. Carrier will auto-switch between power sources.

+3.3 Volts (±5 %) 0.383A, typical.

+12 Volts (±8 %) 0.175A, typical.

##### Fuses

Individually fused +1.5V, +3.3V, +5V, +12V, and -12V DC power.

#### Environmental

##### Temperature Range

Operation: -40 to 71°C (200 lfm airflow min.)

Storage: -55 to 125°C.

##### Relative Humidity

5 to 95% non-condensing.

##### Shock, Operating

Designed to comply with IEC 60068-2-27. 30G, 11ms half sine, 50G, 3ms half sine, 18 shocks at 6 orientations for both test levels.

##### Vibration, Operating

Sinusoidal: Designed to comply with IEC 60068-2-6. 10-500Hz, 5G, 2 Hours/axis.

Random: Designed to comply with IEC 60068-2-64. 10-500Hz, 5G-rms, 2 Hours/axis.

##### Certifications

CE compliant.

##### Coating / Sealant

Conformal coating available on request.

#### Software Support

##### Operating Systems

AcroPack series products require support drivers specific to your operating system. Supported operating systems include Linux®, Windows®, and VxWorks®.

##### Power ON Self-Test (POST)

POST codes output to 2-digit LED for debugging.

### Ordering Information

#### ARCX1111-0000

No CPU, M.2 or SSD

#### ARCX1121-0000

No CPU, M.2 or SSD, includes a bay to insert a 2.5" SSD

#### ARCX1121-2110

Includes CPU, M.2 (500GB) and 2.5" SSD (500GB)

#### Accessories

See [www.acromag.com/AcroPacks](http://www.acromag.com/AcroPacks) for I/O modules ordering information.

#### 5028-618

ACEX4041 Serial Cable

#### 5028-617

ACEX4041 Audio Cable

#### 5028-615

APIO Cable 68-Pin CHAMP-PIGTAIL 36 inches

#### 5028-616

APIO Cable 68-PIN CHAMP-PIGTAIL 70 inches



All ports and I/O connections are easily accessible from the rear panel.



IP65 water-resistant versions available



Carrier card mounts securely inside to host CPU, I/O, and storage modules.



Metromatics

For further information or pricing, please contact us:

Melbourne 03 9872 4592 Sydney 02 9460 4355  
Brisbane 07 3868 4255 Adelaide 08 8343 8516

sales@metromatics.com.au  
www.metromatics.com.au

ISO9001  
AS9100



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