

ARCX-4000 Rugged, Small Form Factor Embedded Computer



POWER MANAGEMENT



4th Gen Intel® Core™ i7 CPU ♦ Removable SATA drives ♦ PMC/XMC module expansion slots

Description

[Acromag's ARCX embedded computer](#) is a customizable-off-the-shelf (COTS), SWaP-optimized deployable solution. This rugged, small form factor mission computer is designed for extreme rugged and MIL-AERO applications. This true COTS solution uses the Acromag COM Express Type 6 product platform.

Typical applications include military/aerospace deployable systems such as: vetronics, C4ISR, payload management, as well as command and control for drones and robotics. More specifically the ARCX is perfect as a portable data acquisition system in an aircraft by adding a 1553 interface board to a dual unit. Add a FPGA and high-speed graphics card for high-speed video transfer. For multi-sensor monitoring on mobile applications simply add a CAN bus interface.

High-Performance, 4th Generation CPU

Intel's 4th generation of multi-core processors provides enhanced capabilities for floating-point-intensive computations, media, graphics, and security. Better power efficiency reduces heat and allows smaller, lighter designs with more portability.

Cutting-edge technology features programmable power limits, allowing the user to "dial-down" the maximum power consumption of the CPU in systems where heat and/or power is a concern.

Rugged Military Design

The ARCX is designed and tested to meet IP67 ratings for reliably sealed protection from dust and limited immersion.

Thick circuit boards and advanced thermal management allow the computer to operate reliably under hostile conditions. This rugged computer can withstand extended temperatures. Shock and vibration has been tested to MIL-STD-810 specifications.

The front panel features 38999 type high-speed cylindrical connectors for extended I/O interfacing. Optional power filter is designed to meet the requirements of MIL-STD-704 and MIL-STD-1275.

Optional removable solid state drives allows for a variety of configurations including quick security access. Load the operating system on one drive and then collect data on the other drive.

Customizable Expansion

The ARCX offers great flexibility to meet ever-changing requirements for long-term applications with its customizable-off-the-shelf (COTS) design. PMC, XMC, Mini PCIe and mSATA slots allow the addition of specialized I/O, storage, and FPGA modules. Optional removable solid state drives allow large amounts of data storage plus quick security access.

Key Features & Benefits

- 4th Generation Intel Core i7
- Programmable power limits
- IP67 NEMA rating
- MIL-STD-810F environmental specification
- Optional power filter
- Wide range DC input power
- Provides access to standard computer peripherals via Type 6 COM Express CPU
- Ports available - varies by model
 - Two HDMI/DVI ports or three display ports
 - One VGA port
 - One USB 3.0, two or three USB 2.0 ports
 - One SATA port
 - Two Gigabit Ethernet ports
 - Two COM RS232/485 ports
- Audio
- Fault/Status LED
- Two mPCIe/mSATA slots
- PMC/XMC expansion
- Dual/Quad SSD drive bay (optional)
- Two or four SATA SSD drive bays

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Performance Specifications

■ Processor Module

Processor
Intel Core™ i7 processor
(4th generation, codename Haswell). The CPU allows programming a lower power limit in the BIOS setup allowing use in applications where less power is required.

i7-4700EQ: 2.4GHz, quad core, 6Mb cache, 47W.

Chipset
Intel 8-Series QM87 PCH chipset
(codename Lynx Point).

Memory
16GB of 1600 DDR3L ECC memory.

■ Processor Module Carrier

I/O Slots
Two Mini PCIe/mSATA,
One or two PMC/XMC modules.

■ Removable Solid State Bay Option

ARCX-41xx
SATA drives: Supports two 2.5" drives (not included).
Drives: Supports Raid 0 and Raid 1 (software).
Enclosure: IP67 standard maintained.

ARCX-412xx
SATA drives: Supports four 2.5" drives (not included).
Drives: Supports Raid 0, 1, 5 (software).
Enclosure: IP67 standard maintained.

■ Operating System

Microsoft Windows 8.1 (32bit & 64bit).
Microsoft Windows 7 (32bit & 64bit).
Linux (Fedora).
PMC and XMC modules may require hardware device driver's specific to your operating system to operate properly. Refer to your PMC or XMC manual for more information. * User supplied.

■ Thermal Management Device

Aluminum liquid cooled cold plate.
Size: 0.625" thick, 8.0" wide, 10.0" long
Optimal Operating Temperature: 0 to 30°C
Copper pipe Outside Dimensions: 0.375"

Air cooled assembly
Size: : 2 in (50.8 mm) height x 8.2 in (208.28 mm)
wide x 9 in (228.6 mm) depth approx.
Operating temperature: -10 to 60C **

** Note: This may be less depending on the amount of power used by the ARCX box.

Reference the environmental considerations in the manual.

■ Interface Connections

Access to standard computer peripherals of the processor module through B-keyed connector.

Graphics
ARCX-41xx
1 x VGA port.
2 x HDMI/DVI ports.

ARCX-412x
3 display ports.

Audio
1 x speaker out. 1 x mic in.

LAN Port
2 x Gigabit Ethernet.

Serial ATA Interface
ARCX-41xx
1 x SATA Port.

USB Interface
ARCX-41xx
3 x USB 2.0 ports.

ARCX-412x
2 x USB 2.0 ports.
1 x USB 3.0 port.

Serial Ports
2 x RS-232/485.

■ Power Filter Option

Designed to be compliant to MIL-HDBK-704-8 and MIL-STD-1275B

■ Physical & Environmental

Size
ARCX-4110: 5.46" (138.684mm) W x 3.29" (83.566mm) H x 8.108" (205.943mm) D.
ARCX-4120: 8.405" (213.487mm) W x 3.29" (83.566mm) H x 8.108" (205.943mm) D.
NOTE: does not include 38999 type connectors.

Solid state drives (optional): 4" (1.06mm) W x 1.9" (48.26mm) H x 7" (177.8mm) D

ARCX-22x: 8.405 (213.487mm) W x 5.78" (146.812mm) H x 8.108" (205.943mm) D.

Weight
ARCX-4110: 6.8 lbs (3.08 Kg).
ARCX-4120: 9.1 lbs (4.13 Kg).
Solid state drives (optional): less than 2 lbs (0.907 Kg).
ARCX-4122: 14.11 lbs (6.395Kg) estimated.

Operating temperature
-40°C to +85°C based on end application configuration.
Refer to manual for details.
Up to 110W on the ARCX-411x.
Up to 125W on the ARCX-412x and ARCX-4122x.

Storage temperature
-40°C to 85°C

Relative humidity
5% to 95% non-condensing.

MTBF
110,080 hrs. at 25°C.
81,332 hrs. at 40°C.

Ruggedization
Thicker PCB.

High shock and vibration SODIMM hold-down mechanism and heat sink.

Shock
Operating and Non-operating:
50g peak-to-peak, 11ms duration,
MIL-STD-810F Method 516.6
Procedure I (Functional shock)

Vibration (8Hz-500Hz)
Operating and Non-operating:
5g sinusoidal, 1hr/axis
MIL-STD-810F Method 514.6
Procedure I (General vibration)
Category 20 (Ground vehicles/ground mobile)

Power
10-36VDC (on-board DC/DC, fused). 180 W Maximum

Base Line Power Usage:
(i7 CPU/carrier, no PMC/XMC or MiniPCIe installed)
Idle (~5% CPU usage) - 20W
Typical (~40% CPU usage) - 45W
Max (~100% CPU usage) - 70W
EMC Directive 204/108/EC

Embedded Computers

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Ordering Information

NOTE: Build your model using the table below.
Single size not available for quad SSD drive bay version.

ARCX-41

Expansion Size

- 1 = Single PMC/XMC
- 2 = Double PMC/XMC

Drive Bay

- 0 = Standard (No Bay)
- 1 = Dual SSD Drive Bay
- 2 = Quad SSD Drive Bay

Options

- 00 = Standard
- PF = Power Filter
- 01 = Front Panel with Mezzanine*
- 02 = High-Speed
- 03 = High-Speed with Power Filter

Accessories

For more information, see www.acromag.com/ARCX.

5028-556

Size #23 38999 Type Peripheral I/O Breakout Cable for ARCX-41xx models.

5028-573

High-Speed Type Peripheral I/O Breakout Cable for ARCX-4122 models.

5028-557

Size #12 38999 Type Power Cable.

5028-566

High-Speed Type A-keyed mating cable to SCSI-3 Breakout Box

5028-567

High-Speed Type C-keyed mating cable to SCSI-3 Breakout Box

5028-558

Size #23 38999 Type A-Keyed Mating Connector Kit.

5028-559

Size #23 38999 Type C-Keyed Mating Connector Kit.

5028-560

Size #23 38999 Type B-Keyed Mating Connector Kit.

5028-561

Size #12 38999 Type A-Keyed Mating Connector Kit.

5028-571

Drive Bay additional tray.

ATMD-02

Air cooled assembly.

ATMD-03

Aluminum liquid cooled cold plate.

Front Panel with Mezzanine *

Allows for front panel signal conditioning.
Please contact the factory for details.



ARCX-4122



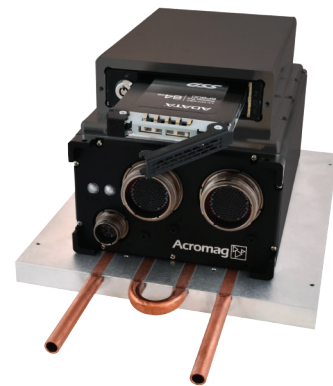
5028-556



ARCX-4121-01 with optional SSD



ATMD-02



ARCX 4111-01 with ATMD-03 * SSD not included

ISO9001
AS9100
 MADE IN USA

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