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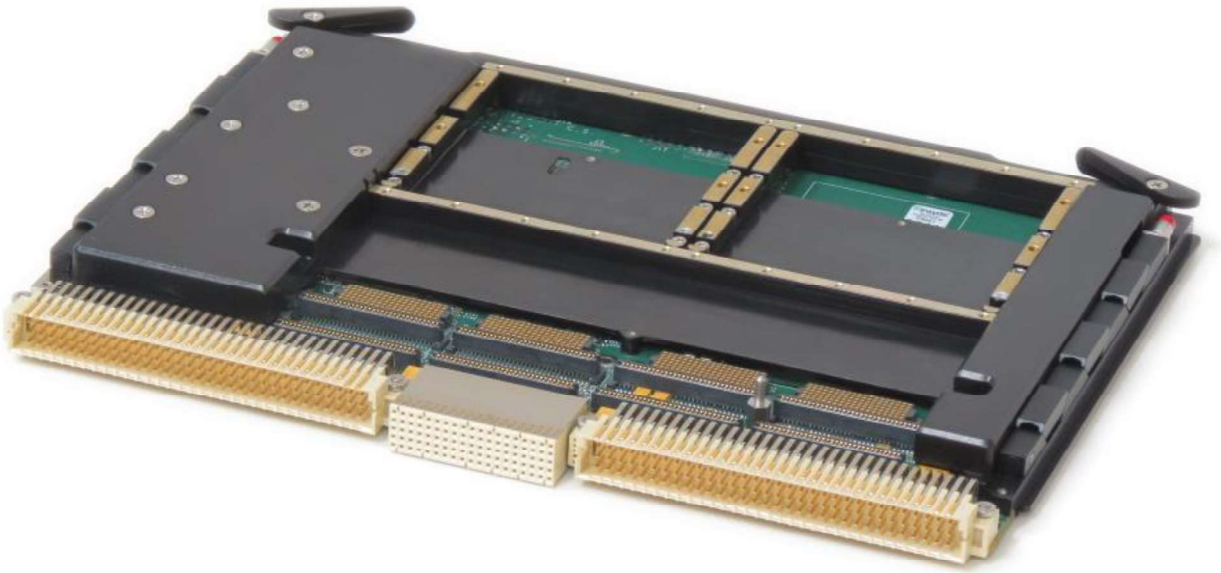
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Find the *Aitech Defense Systems C164* at our website: ***Click HERE***

C164

5th Gen. Intel Core™ i7 6U VME SBC

Aitech
Embedded Computing *without* Compromise



- Rugged 6U VME Single-Slot SBC
- 5th Generation Intel® Core™ i7 CPU
  - Quad Core @ 2.7 GHz
  - Iris™ Pro Graphics 6200
- Up to 16 GB DDR3L with ECC
- Up to 128GB On-Board SATA SSD, with Encryption, Quick Erase, and Secure Erase
- AiSecure™ - Aitech Cyber Security Architecture
- 2 PMC/XMC Slots

Versatile Board I/O

- USB 3.0 & 2.0
- SATA
- GbE
- Serial
- Discrete
- CANbus
- Audio In + Out
- RGBHV Out
- HDMI/DVI Out

- WWDT, ETR, RTC, Temp. Sensors
- Removable RTC backup battery
- Windows®, Linux®, VxWorks® Support
- Conduction and Air-Cooled Versions
- Vibration and Shock Resistant



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Aitech's C164 is a high-performance 6U VME SBC for embedded and harsh environment applications. The heart of the C164 is Intel's Broadwell platform, featuring a 5th Generation Intel® Core™ i7 Quad Core processor with integrated Intel® Iris™ Pro Graphics 6200, coupled with a companion Lynx Point QM87 I/O Platform Controller Hub (PCH).

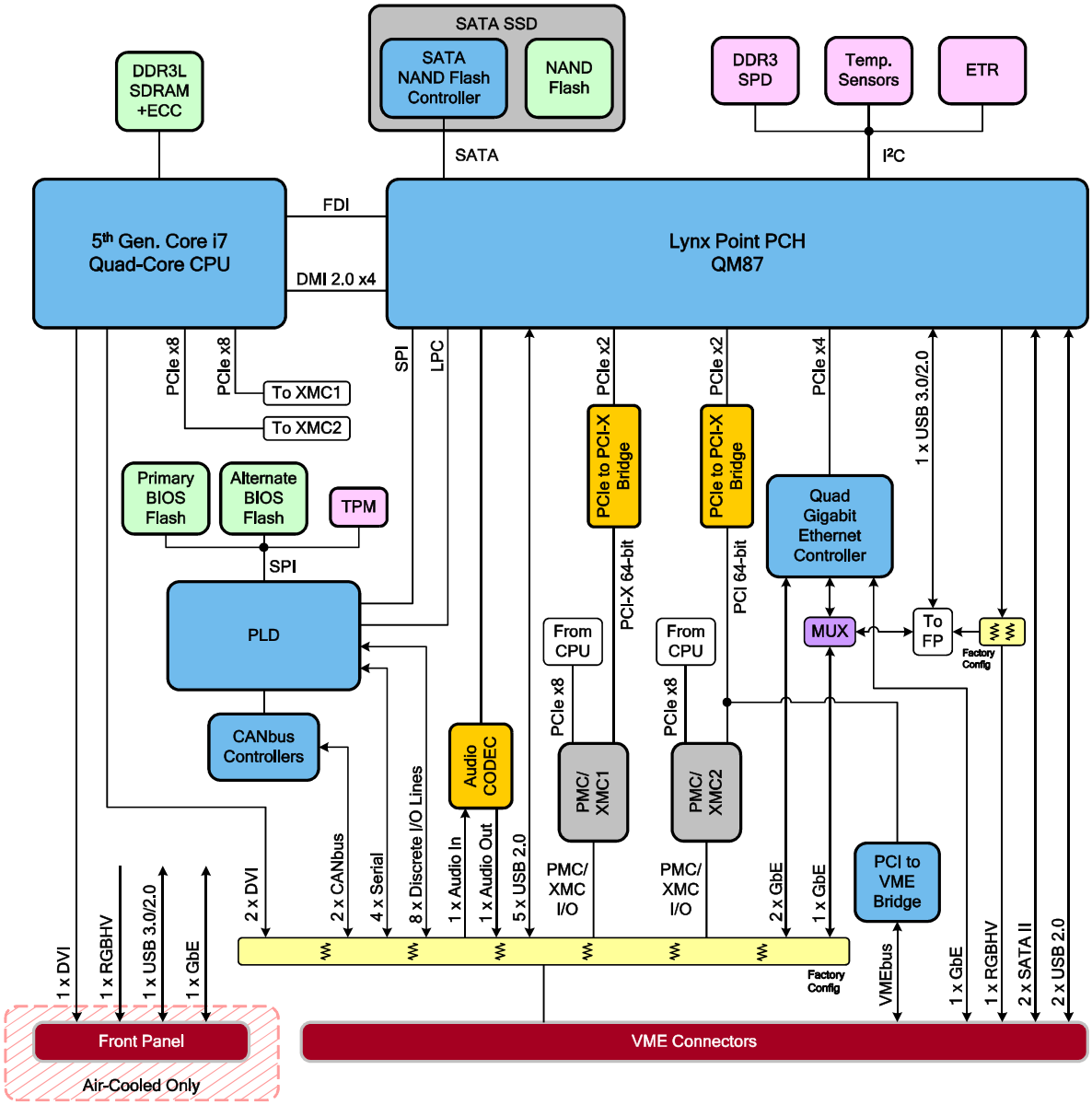
The processor's integrated 2D/3D graphics controller supports graphics and video processing and provides RGBHV and HDMI/DVI outputs.

The C164 integrates large on-board RAM (DDR3L) and mass storage (SATA Flash disk) resources, and provides a variety of popular I/O interfaces to meet a wide range of system requirements. Expandability and further flexibility are provided by two industry standard PMC/XMC slots.

The C164 provides an enhanced Cyber Security platform – AiSecure™ (Aitech Cyber Security Architecture) comprising standard Intel CPU security features (TXT, AES-NI, etc.), as well as an on-board TPM 2.0, and SSD options with AES 256 Encryption, Quick Erase, and Secure Erase features.

The C164 is also pinout compatible with Aitech's C163 4th Gen. Core i7 (Haswell platform) SBC.

C164 mechanical and electrical designs guarantee operation over the full range of rugged application environments. It is available in industry standard conduction-cooled and air-cooled form factors.



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Board Architecture

Processor	i7-5850EQ – 5th Gen. Intel® Core™ i7, Quad Core @ 2.7 GHz, Iris™ Pro Graphics 6200, 6 MB Last Level Cache Supports Hyper-Threading, Intel® Virtualization Technology (VT-x), SSE4.1/4.2, AVX 2.0
Chipset	Intel Lynx Point QM87 Platform Controller Hub
VMEbus	VME64 per ANSI/VITA 1 and VME64x per ANSI/VITA 1.1
Board Resources	• Watchdog Timers (Windowed + Standard) • Removable RTC Battery – optional * • Temperature Sensors • Elapsed Time Recorder • Real Time Clock

* RTC battery is available as a special order option, contact an Aitech representative for more information

Aitech Cyber Security

Intel & BIOS Security	• Secure Boot based on Intel TXT, TPM 2.0 • Trusted Platform	• BIOS Modification Protection • Boot Guard
On-board SSD Security	• Secure Erase • Quick Erase • Disk Data Encryption utilizing AES 256 keys (Self Encrypted Disk), TCG OPAL 2.0	

Memory Resources

RAM	Up to 16 GB of DDR3L SDRAM with ECC, operating at 1600 MT/s
Flash Disk	Up to 128 GB on-board SATA SSD, SLC & MLC Flash options with AES 256 Encryption (Self Encrypted Disk), TCG OPAL 2.0, Quick Erase, and Secure Erase
Boot Flash	Dual BIOS Flash devices (Primary device for normal board operation, Alternate device for board maintenance)

I/O

	I/O Variant (1)		
	Variant #0 On-board I/O	**Variant #1 PMC I/O**	**Variant #2 XMC I/O**
Gigabit Ethernet - 10Base-T/100Base-TX/1000Base-T	4 (2)	2 (3)	1 (3)
USB 2.0/USB 3.0	7/	2	2
USB 3.0	1 (4)	1 (4)	1 (4)
SATA 2.0	2	2	2
Serial Ports Software configurable as RS-232/422/485	4	4	1
Discrete I/O Lines Individually software configurable as input (with optional interrupts) or output, and as SE (1 line per channel) or DIFF RS-422 (2 lines per channel)	4	8	8
CANbus	2	0	0
Audio - Stereo	1 In + 1 Out	1 In + 1 Out	0
DVI/HDMI Output	2 (5)	1 (4)	1 (4)
RGBHV Output	1 (6)	1 (6)	1 (6)
PMC 1 I/O	55	64	0
PMC 2 I/O	22	64	0
XMC 1/XMC 2 I/O: Diff Pairs + SE	0	0	20 + 38

Notes:
(1) C164 I/O Variants offer different combinations/quantities of on-board and PMC/XMC I/O via factory configuration; additional I/O routing options may be available per customer request, contact an Aitech representative for more information
(2) Front panel/backplane routing of one port is software configurable
(3) One additional port is available at the front panel of air-cooled versions
(4) Available only in air-cooled versions at the front panel
(5) One additional DVI/HDMI output channel is provided at the front panel of air-cooled versions, a maximum of two DVI/HDMI outputs can be used simultaneously
(6) The RGBHV output is routed by factory configuration to the backplane (in conduction-cooled versions) or to the front panel (in air-cooled versions)

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PMC/XMC Slots

PMC 1	64-bit PCI/PCI-X @ 133/66/33 MHz, universal site supports 3.3 V and 5 V PCI I/O signaling levels
PMC 2	64-bit PCI @ 33 MHz, supports 5 V PCI I/O signaling level
XMC 1 & 2	For each site: PCIe x8 port supporting Gen2 and Gen1 speeds and port widths of x8/x4/x2/x1, 5 V VPWR supply

Software

Operating Systems	Windows®, WindRiver VxWorks®, and Linux® are supported
Drivers	Operating system specific device drivers for board resources are available
BIT	Built-In Tests are available

Mechanical

	Form Factor & Dimensions	Weight
Air-Cooled	6U VME per IEEE Std 1101.10-1996	< 800 g (1.77 lbs)
Conduction-Cooled	6U VME per IEEE Std 1101.2-1992	< 1600 g (3.53 lbs)

Power

	+3.3 V (4)	+5.0 V	+12 V (3)	-12 V (3)	Total
Typical (1,5)	0 A	5.32 A	0 A	0 A	26.6 W
Maximum (2,5)	0 A	11.32 A	0 A	0 A	56.6 W

Notes:
(1) Typical power measured during Windows 7 idle condition
(2) Maximum power measured during PassMark® BurnInTest (CPU, memory, graphics)
(3) ±12V required for PMC/XMC only (not installed during test)
(4) In standard configurations of the C164, +3.3 V is generated on-board. The C164 can be factory configured to utilize the backplane +3.3 V supply as a special order option (to reduce required current from +5.0 V supply). Contact an Aitech representative for more information
(5) Actual power consumption depends on configuration and assembly options

Environmental

Specs per VITA 47	Air-Cooled			Conduction-Cooled	
	Commercial	**Rugged**	**Military**	**Rugged**	**Military**
Operating Temp.	AC1 (0 to +55 °C) (2)	AC3 (-40 to +70 °C) (2)	AC4 (-40 to +85 °C) (1,2)	CC3 (-40 to +70 °C) (3)	CC4 (-40 to +85 °C) (1,3)
Non-Operating Temp.	C1 (-40 to +85 °C)	C3 (-50 to +100 °C)	C4 (-55 to +125 °C)	C3 (-50 to +100 °C)	C4 (-55 to +125 °C)
Vibration	V1	V2	V2	V3	V3
Operating Shock	OS1	OS1	OS1	OS2	OS2
Altitude	15,000 ft.	35,000 ft.	70,000 ft.	35,000 ft.	70,000 ft.
Relative Humidity (4)	0 - 90%	0 - 95% with Acrylic (Standard), 0 - 100% with Urethane (Optional)			
Conformal Coating	N/A				

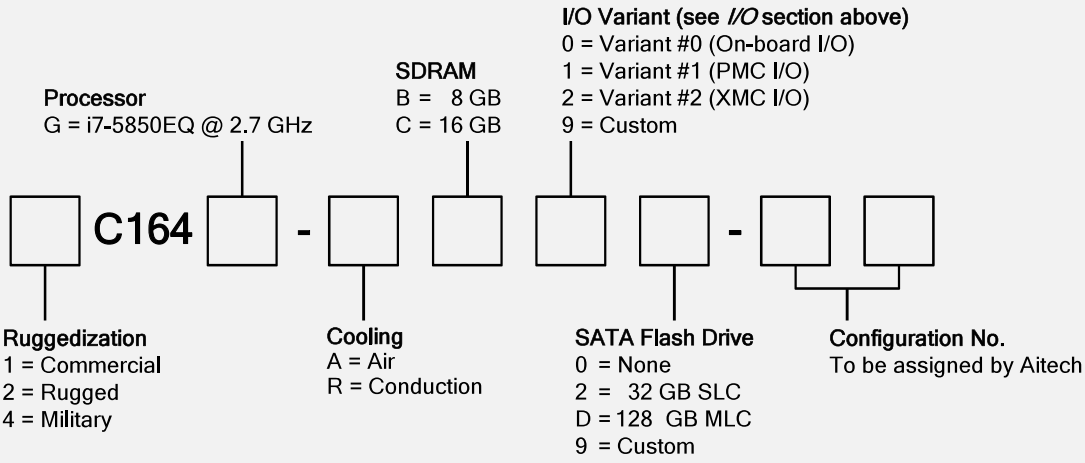
Notes:
(1) -55 °C available, contact an Aitech representative for more information
(2) Operating ambient air temperature (with sufficient airflow)
(3) Operating card edge temperature
(4) Non-condensing

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Ordering Information



Example: 4C164G-RB03-00

Optional Accessories

TM162	Rear Transition Module (RTM) providing convenient access to C164 I/O interfaces via standard connectors and to all PMC/XMC I/O via headers. Supports both air and conduction-cooled C164 mounted in commercial air-cooled chassis. Refer to the TM162 datasheet for further information.

Contact Aitech

Contact your Aitech sales representative for additional product information, and for inquiries regarding customized configurations of the C164 and additional software support.



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