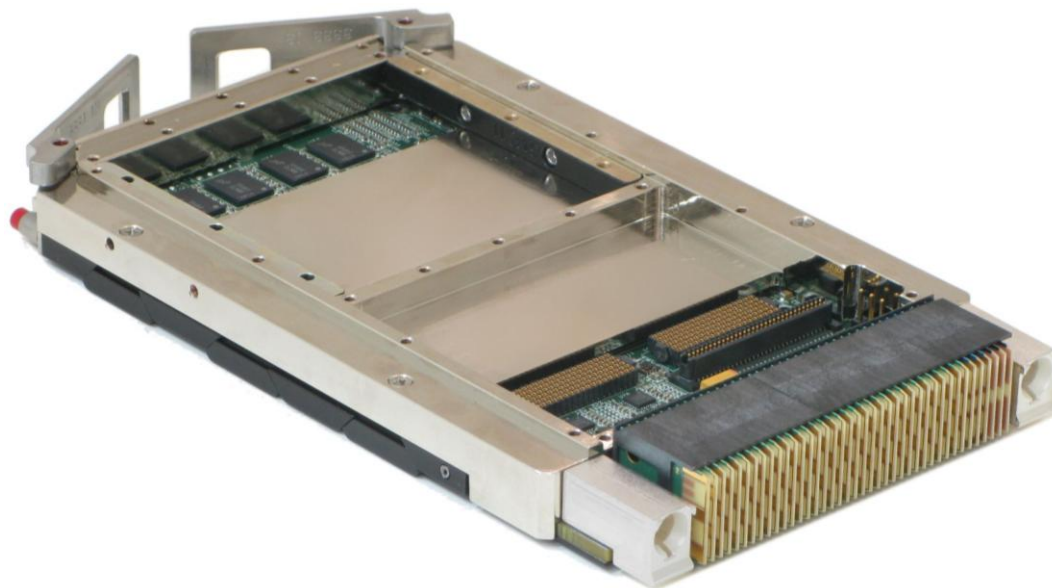


C874

5th Gen. Intel Core™ i7 3U VPX SBC



Embedded Computing
without Compromise



- Rugged 3U VPX 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 1 TB On-Board SATA SSD, with Encryption, Quick Erase, and Secure Erase
- WWDT, IPMI, ETR, RTC, Temp. Sensors
- PMC/XMC Slot
- Versatile Board I/O
 - ▶ USB
 - ▶ Serial
 - ▶ HDMI/DVI Out
 - ▶ SATA
 - ▶ Discrete
 - ▶ RGBHV Out
 - ▶ GbE
 - ▶ Audio In + Out
- Windows®, Linux®, VxWorks®, Red Hawk™ real time Linux Support
- OpenVPX Compliant
- 2LM Option per VITA 48.2
- Conduction and Air-Cooled Versions
- Vibration and Shock Resistant



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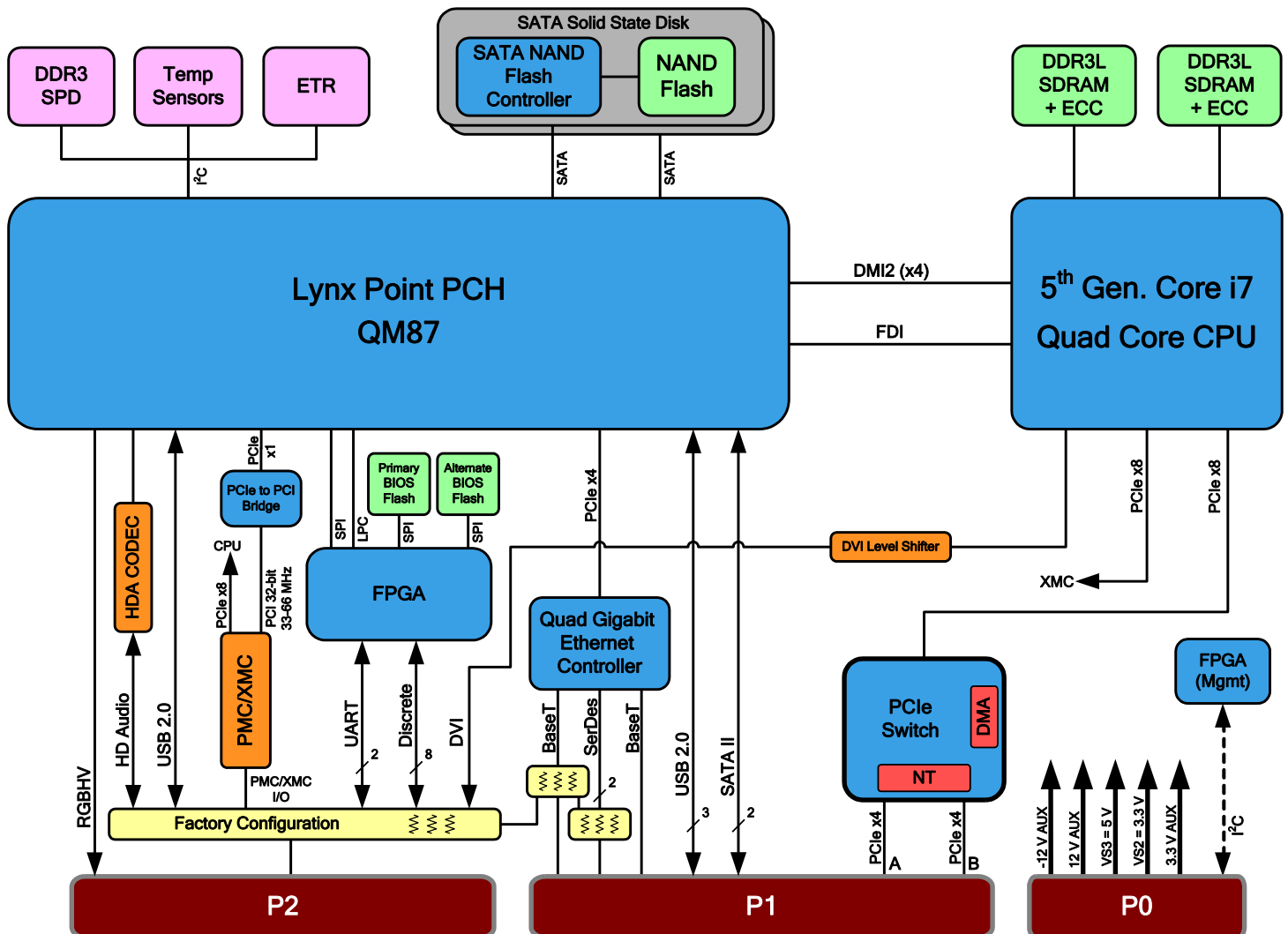
Aitech's C874 is a high-performance 3U VPX SBC for embedded and harsh environment applications. The heart of the C874 is Intel's Broadwell platform, featuring a 5th Generation Intel® Core™ i7 Quad Core processor with integrated Intel® Iris™ Pro Graphics 6200, coupled with a companion Lynx Point QM87 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 C874 integrates large on-board RAM (DDR3L), secured 1TB SATA Flash disk with AES 256 Encryption, Quick Erase, and Secure Erase features, and provides a variety of popular I/O interfaces to meet a wide range of system requirements. Expandability and further flexibility are provided by an industry standard PMC/XMC slot.

The C874 is also pinout compatible with Aitech's C873 4th Gen. Core i7 (Haswell platform) SBC.

C874 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
Herzliya, Israel

Processor	i7-5850EQ – 5 th 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
Board Resources	• Watchdog Timers (Windowed + Standard) • Temperature Sensors • Real Time Clock • Intelligent Platform Management Interface (IPMI) • Elapsed Time Recorder
OpenVPX (VITA 65) Slot Profiles	Available per factory configuration (see <i>Ordering Information</i> below): • SLT3-PAY-2F2U Payload board, 2 PCIe x4 ports, 2 1000Base-BX/KX ports • SLT3-PAY-2F2T Payload board, 2 PCIe x4 ports, 2 1000Base-T ports Implemented via software configuration of the SLT3-PAY-2F2T option: • SLT3-PAY-1D Payload board, 1 PCIe x8 port • SLT3-PAY-2F Payload board, 2 PCIe x4 ports • SLT3-PAY-1F4U Payload board, 1 PCIe x4 port, 4 PCIe x1 ports • SLT3-PAY-8U Payload board, 8 PCIe x1 ports • SLT3-PER-2F Peripheral board, 2 PCIe x4 ports

Memory Resources

RAM	Up to 16 GB of DDR3L SDRAM in dual channels with ECC operates at 1600 MT/s
Flash Disk	Up to 1 TB on-board SATA SSD, SLC & MLC Flash options with AES 256 Encryption (Self Encrypted Disk), TCG OPAL 2.0, Quick Erase, and Secure Erase Standard options are listed in <i>Ordering Information</i> below (additional SLC & MLC options may be available per customer request, contact an Aitech representative for more info)
Boot Flash	Dual BIOS Flash devices (Primary device for normal board operation, Alternate device for board maintenance)

I/O	I/O Variant ⁽¹⁾			
	Variant #1	Variant #2	Variant #3	Variant #4
USB 2.0	4		3	
SATA II	2		1	
GbE Ports: 1000Base-T+1000Base-BX/KX	2+0 ⁽²⁾ or 2+2 ⁽³⁾		2+0 ⁽²⁾ or 1+2 ⁽³⁾	
Audio - Stereo	1 In + 1 Out		0	
RGBHV Out	1		1	
DVI/HDMI Out	1		0	
Serial Ports (RS-232/422/485) Software configurable as RS-232/422/485	2		1	
Discrete I/O Lines/Serial Ports (RS-422/485) Discretes are 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). Four Discrete I/O lines can also be software configured as one RS-422/485 serial port.	8/2		4/1	
PMC I/O Routed per VITA 46.9 pattern P64s	35 ⁽²⁾ or 27 ⁽³⁾	N/A	64	N/A
XMC I/O: Diff Pairs+SE Routed per VITA 46.9 pattern X24s+X8d+X12d	N/A	7+21 ⁽²⁾ or 3+21 ⁽³⁾	N/A	20+24

Notes: (1) C874 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) In slot profile SLT3-PAY-2F2T
(3) In slot profile SLT3-PAY-2F2U

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PMC/XMC Slot

PMC	32-bit PCI at 33/66 MHz, universal site supports 3.3 V and 5 V PCI I/O signaling levels
XMC	PCIe x8 port supporting Gen2 and Gen1 speeds and port widths of x8/x4/x2/x1, 5 V VPWR supply

Note: The SDRAM devices on the second memory channel may cause a mechanical conflict with some PMC/XMCs. Contact an Aitech representative for more information.

Software

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

Mechanical

	Form Factor & Dimensions	Pitch	Weight
Air-Cooled	3U VPX REDI per ANSI/VITA 48.1	1"	< 400 g (0.88 lbs.) – Commercial version < 700 g (1.55 lbs.) – Rugged and Military versions
Conduction-Cooled	3U VPX REDI per ANSI/VITA 48.2	0.8"	< 780 g (1.72 lbs.)
		1"	< 930 g (2.05 lbs.)
Conduction-Cooled 2LM	3U VPX REDI 2LM (Two Level Maintenance) per ANSI/VITA 48.2	0.85"	< 860 g (1.90 lbs.)

Power

	+3.3 V	+3.3 V_AUX	+5 V	+12 V_AUX ⁽³⁾	-12 V_AUX ⁽³⁾	Total ⁽⁴⁾
Typical ⁽¹⁾	1.8 A	200 mA	4 A	0 A	0 A	26.6 W
Maximum ⁽²⁾	1.8 A	200 mA	10 A	0 A	0 A	56.6 W

Notes: (1) Measured in Windows 7 idle condition

(2) Measured when running the PassMark® BurnInTest

(3) ±12V_AUX required for PMC/XMC only

(4) Total power consumption depends on configuration and assembly options.
Tests performed on fully featured configuration, no PMC/XMC installed.

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

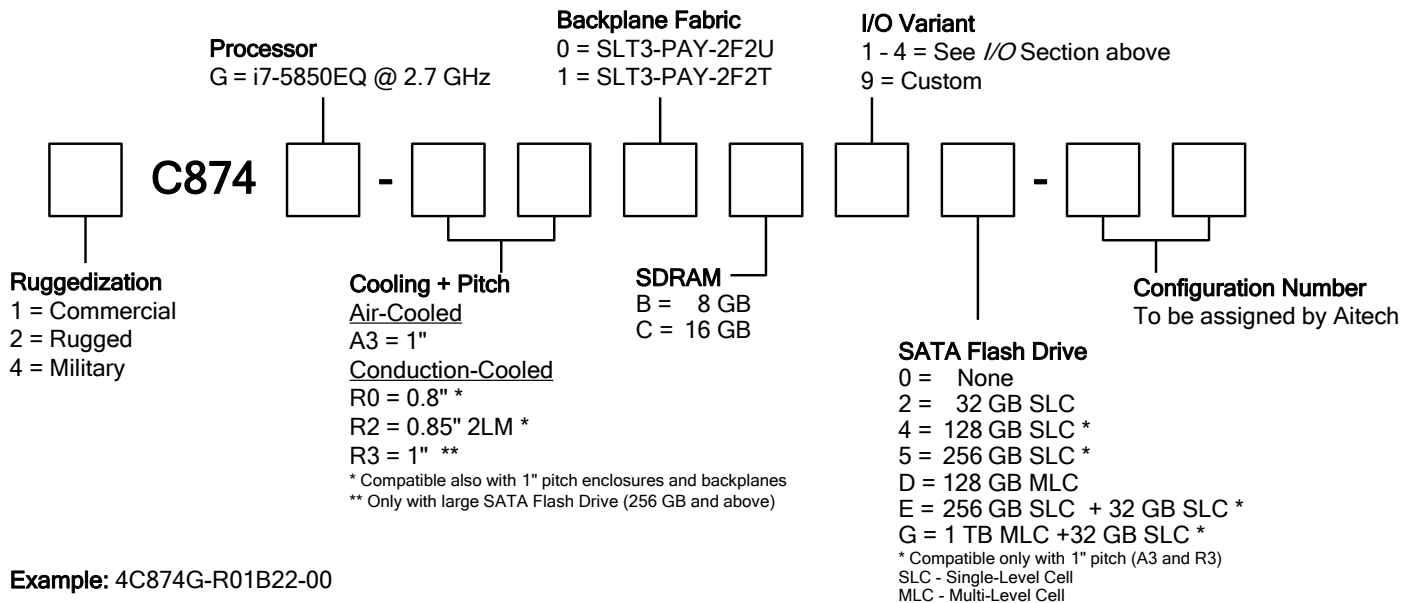
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Ordering Information



Optional Accessories

TM870	Rear Transition Module (RTM) providing convenient access to C874 I/O interfaces via standard connectors and to all PMC/XMC I/O via headers. Supports both air and conduction-cooled C874 mounted in commercial air-cooled chassis. Refer to the TM870 datasheet for further information.
CM870	3U VPX PMC/XMC carrier board. Using one or more CM870s, system functionality can be significantly expanded, enabling the C874 to control additional PMCs/XMCs over the VPX backplane. Refer to the CM870 datasheet for further information.

Contact Aitech

Contact your Aitech sales representative for additional product information, and for inquiries regarding customized configurations of the C874 and additional software support.

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