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Find the *Aitech Defense Systems A196* at our website: ***Click HERE***

A196

Rugged RediBuilt™ HPEC and GPGPU

Aitech
Embedded Computing *without* Compromise





Rugged GPGPU is Aitech

- **Rugged High Performance Embedded Computer (HPEC) and GPGPU**
- **Three Standard Configurations, x86 and PowerPC based options**
  - CPU Options
    - Intel® 5th Gen Core™ i7
    - NXP® QorIQ® T4080 SoC
  - GPU Options
    - NVIDIA® GeForce® GTX 965M
    - AMD Radeon™ E8860
  - Gigabit Ethernet Switch Option
- **I/O Options**
  - Gigabit Ethernet
  - UART Serial
  - USB 2.0
  - Discrete I/O
  - DVI/HDMI Output
  - RGBHV Output
  - Composite Input
  - SDI (SD/HD) Input
  - STANAG Input & Output
  - Audio Input & Output
  - 1553B
  - ARINC-429 Rx & Tx
- **SATA Flash SSD Mass Storage**
- **PCIe VPX Backplane Fabric**
- **Available w/OS & Drivers pre-installed**
- **Fully Integrated and Ready to Use**
- **D38999 I/O and Power Connectors**
- **Internally Conduction-Cooled 3U VPX**
- **Fully Sealed Faraday Cage**
- **EMI/RFI Filtering**
- **Environmentally Sealed (IP65)**
- **Two External Cooling Configurations**
  - Forced Convection (Fan) Cooling
  - Cold Plate-Cooling



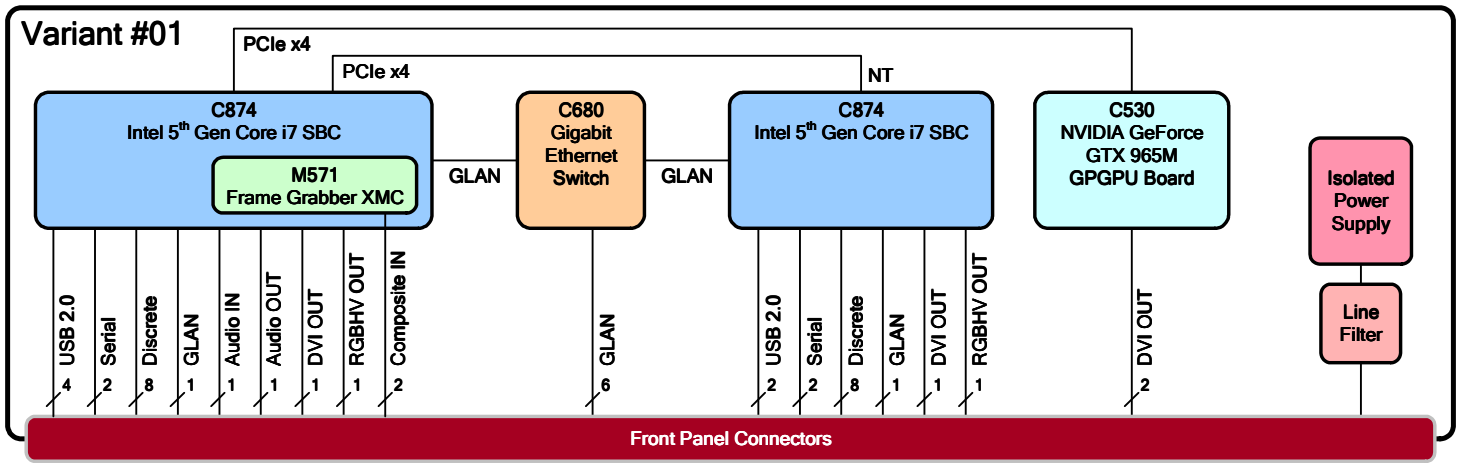
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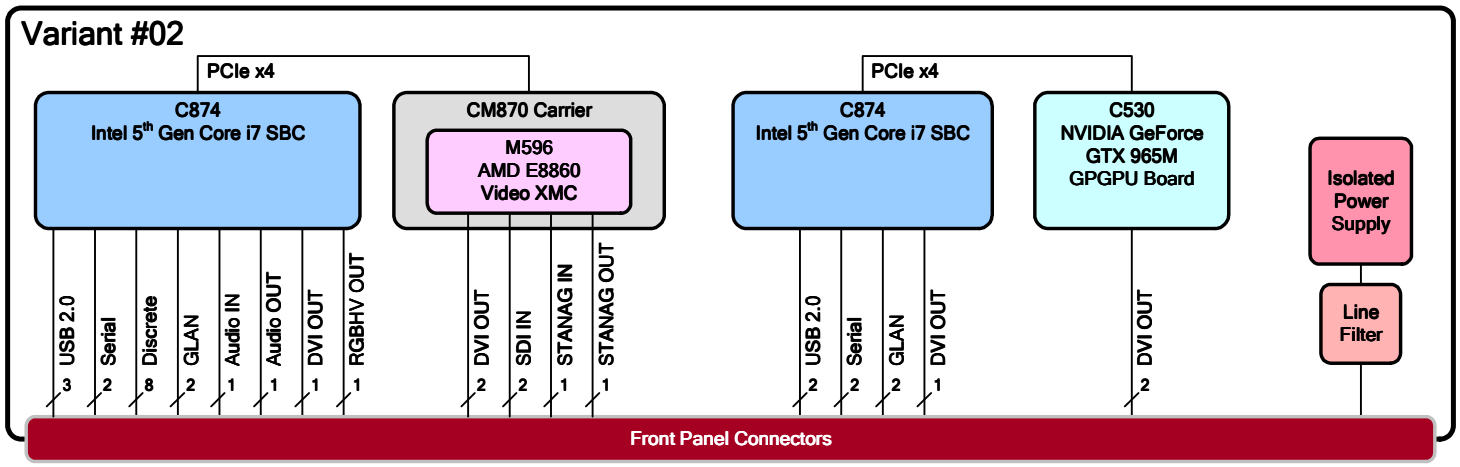
Rugged RediBuilt™ HPEC and GPGPU

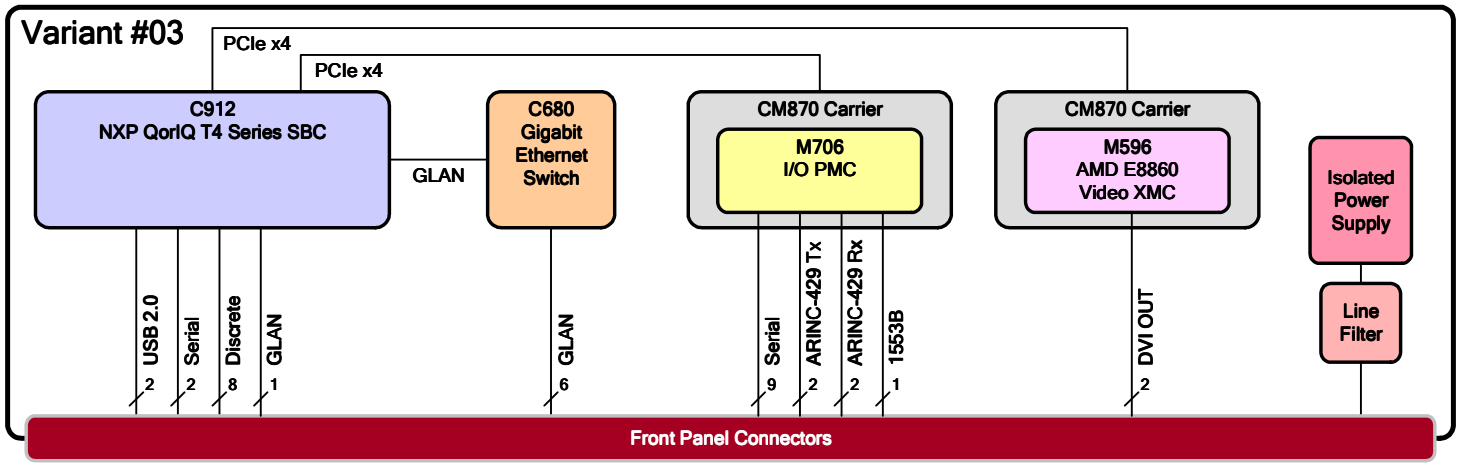
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Available in x86 and PowerPC based configurations, and with NVIDIA and AMD GPU options, the A196 is a fully integrated rugged system, ready to use with OS and drivers pre-installed.

With several standard variants, the A196 can be used as a Mission Computer, and for many other GPGPU applications.







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Configuration Variants

			Variant (1)		
			01	02	03
SBC Options **C874** Intel 5th Gen Core i7 (i7-5850EQ) – Quad Core @ 2.7 GHz w/Hyper-Threading 8 GB DDR3L w/ECC, 64 GB SLC SSD, Windows OS pre-installed (16 GB DDR3L, up to 256 GB SLC SSD, Linux OS available per customer request, contact an Aitech representative for more information) **C912** NXP QorIQ T4080 – 4 x e6500 Dual Threaded Cores @ 1.5 GHz, Altivec 4 GB DDR3L w/ECC, 16 GB SLC SSD, VxWorks OS pre-installed (T4160 with 8 x e6500 Dual Threaded Cores available per customer request, contact an Aitech representative for more information)			2 x C874	2 x C874	C912
GPGPU/Graphics Board Options **C530** NVIDIA GeForce GTX 965M – 4 GB GDDR5, Maxwell Architecture, 1024 CUDA Cores, Optimus Technology **M596** AMD Radeon E8860 – 2 GB GDDR5, 640 Shader Processing Units			C530	C530 + M596	M596
Additional System Board Options **M571** Frame Grabber XMC **C680** Gigabit Ethernet Switch **M706** I/O PMC			M571 + C680	–	M706 + C680
I/O (2)	**Gigabit Ethernet (10/100/1000Base-T)**		8	4	7
	USB 2.0		6	5	2
	UART Serial (3)	**RS-232/422/485**	4	4	9
		RS-232/422	–	–	2
	Discrete I/O Lines (4)		16	8	8
	DVI (single-link) / HDMI Output		4 (5)	6 (5)	2
	RGBHV Output		2	1	–
	STANAG 3350 Class B and C Output		–	1	–
	SDI Input (6) **(480/60i, 576/50i, 720/60p, 1080/60i, 1080/30p)**		–	2	–
	Composite Input (RS-170A [NTSC]/PAL)		2	–	–
	STANAG 3350 Class B and C Input		–	1	–
	Audio Output		1	1	–
	Audio Input		1	1	–
	ARINC-429 Tx		–	–	2
	ARINC-429 Rx		–	–	2
	1553B (BC/RT/MT)		–	–	1

Notes:
(1) Configuration Variants specify the boards used in the A196 system, and determine the type of CPU and GPU, available I/O, and system power consumption; additional configuration options may be available per customer request, contact an Aitech representative for more information
(2) Total quantities at system I/O connectors, see Block Diagrams above for allocation of I/O resources to specific system boards
(3) Supported PHY layer modes for each port are software configurable (C912 SBC serial ports support RS-232/422; all other serial ports support RS-232/422/485)
(4) Groups of two lines are software configurable as two single-ended channels or one differential RS-422 channel
(5) When using NVIDIA Optimus technology in Linux, the NVIDIA GPU can be used for GPGPU and for rendering graphics routed to a host SBC video output, but video output channels routed from the NVIDIA GPU are not supported
(6) Factory configured for 75 Ω single-ended SDI operation mode

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Enclosure Options

Forced Convection (Fan) Cooling	Heat conducted through aluminum sidewalls, dissipated by exterior heat exchanger to surrounding air by fan forced convection.
Cold Plate Cooling	Sidewalls conduct heat to enclosure base for cooling via the cold plate. Cold plate cooling is supplemented with convective cooling via sidewall fins.
I/O Routing and Connectors	All variants of the A196 are equipped with front panel D38999 I/O and power connectors. Variants with SDI video inputs use a taller enclosure, providing two BNC connectors which are accessible from the front side of the enclosure (located near the top of the system).

Mechanical

Enclosure Type	Variant	Dimensions (max. including handle)			Weight
		Height	Width	Depth	
Forced Convection (Fan) Cooled	01, 03	194 mm (7.64")	145 mm (5.71")	329 mm (12.96")	<11 kg (24.3 lbs.)
	02	217 mm (8.55")			
Cold Plate Cooled	01, 03	194 mm (7.64")	204 mm (8.04")	242 mm (9.53")	<16 kg (35.3 lbs.)
	02	217 mm (8.55")			

Power

Input Power	• 85% Typical Efficiency Internal Power Supply • 18 – 32 V_{DC} Input Range • EMI/RFI Input Filter	• Input Transient Protection • Input Reverse Polarity Protection • MIL-STD-704D/E Compliance (no hold-up)
Power Consumption	Maximum power consumption is dependent on system configuration	

Environmental

Operating Temp.	**Min**	-40 °C
	Max	Dependent on system configuration and power dissipation
Non-Operating Temp.		-55 to +105 °C
Vibration		V3 per VITA 47
Operating Shock		OS2 per VITA 47
Altitude		-1,500 to +60,000 ft. (1)
Relative Humidity		0 – 100%
Ingress Protection		IP65
Rain		MIL-STD-810F, Method 506.4, Procedure III
Dust		MIL-STD-810F, Method 510.4, Procedure I & II
Salt Fog		MIL-STD-810F, Method 509.4
Bench Handling		MIL-STD-810F, Method 516.5, Procedure VI
Fungus		Fungus Resistant
EMI/RFI		MIL-STD-461

Notes: (1) Depending on temperature and system power dissipation

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Ordering Information

Cooling Configuration
1 = Forced Convection (Fan) Cooled
2 = Cold Plate-Cooled

Configuration Variant
See descriptions above

2 A196 - [ ] [ ] [ ] [ ] 0 0 - [ ] [ ]

Ruggedization
2 = Rugged

Mounting Options
0 = Standard ARINC-404A *
1 = Hard Mounting
* Relevant only to Forced Convection (fan) cooled option

Reserved

Configuration No.
To be assigned by Aitech

Example: 2A196-110100-00

Rugged GPGPU is Aitech

Optional Accessories

MCS196-1-00	Set of Front Panel Mating Connectors
TC196-J1-00	J1 Power Cable
TC196-J2-*xx*	J2 I/O Breakout Cable
TC196-J3-*xx*	J3 I/O Breakout Cable
TC196-J4-*xx*	J4 I/O Breakout Cable
PS196	External AC Input, DC Output Power Supply



Contact Aitech

Contact your Aitech sales representative for additional product information, and for inquiries regarding customized configurations of the A196 and additional software support.



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