



Embedded Computing *without* Compromise

Mission-Critical Embedded Rugged COTS Solutions



LAND



SEA



AIR



SPACE

Embedded Computing *Without Compromise*

Since 1983, Aitech has delivered highly reliable, rugged and Mil-Spec embedded computing solutions used in a variety of high-profile global defense, critical embedded and space programs.

From our CompactPCI, VME and VPX-based boards, mezzanine cards and power supplies to our full-featured enclosures, GPGPU-, Intel- and PowerPC-based Small Form Factors (SFF) and fully integrated, harsh environment computer subsystems, Aitech boasts many technological accomplishments and innovations:

PROVEN COMMITMENT

- Only defense COTS supplier to maintain true Mil-Spec operating temperature range (-55°C to +85°C)
- Decades of producing rugged and Mil products and services for defense, space and industrial
- Integrated, leading-edge, GPGPU- and HPEC-systems in compact small form factors
- Counterfeit component mitigation through ISO-approved, industry standard SAE processes
- Component obsolescence and risk mitigation through unique COTSLifecycle+™ Program

ADVANCING MILITARY & DEFENSE

- COTS OpenVPX™, CompactPCI and VMEbus SBCs, Flash memory, GPGPU and I/O boards, and more...
- Low SWaP (Size, Weight and Power) options in industry standard or custom form factors
- In-house DO-254 (hardware) and DO-178 (software) DAL-A expertise for avionics subsystems

- MIL-STD-1553, ARINC 429/708/818, A/D, D/A, R/D, discrete I/O and more...
- Rugged Intel- and PowerPC-based control units and data concentrators
- Up-to-date high-speed serial (HSS) fabric architectures (OpenVPX)

EXPANDING SPACE EXPLORATION

- Ultra-compact space system enclosures
- Box-level MTBF >100,000 hours (space flight environment)
- TID of at least 25 krad(Si) to 100 krad, latch-up immunity of LET 37 MeV-cm²/mg (typical)
- Low SEU rate – typical one upset every 25 years (ISS orbit)
- Low outgassing urethane conformal coating (other coatings optional)
- Vacuum operating temperature (at card edge) -40°C to +65°C



Enhanced Technology for Land, Sea, Air...and Beyond



RUGGED SOLUTIONS

Aitech products are available in multiple ruggedization levels – commercial, rugged/ industrial, military – and in two mechanical/ thermal formats – air-cooled and conduction-cooled. Many of our off-the-shelf, defense-rated boards operate in the full Mil temperature range of -55°C to +85°C, as well as in high shock and vibration, at altitudes up to 70,000 feet and in relative humidity up to 100%.

Even more essential, our designs are 100% hardware and software compatible across the multiple levels of ruggedization. You can economically prototype and test commercial level units, then upgrade to rugged or military levels quickly and confidently, without changing the most critical asset – your application software.

TECHNICAL EXCELLENCE

By heavily investing in R&D and design re-use, Aitech continually provides more cost-effective solutions and faster time-to-market, whether developing completely new designs or modifying existing base designs.

This forward-thinking approach helps customers quickly adapt their short- and long-term strategies to meet unique system requirements. Our US headquarters and operating subsidiaries worldwide are backed by diverse and knowledgeable manufacturing, sales and technical support accessible to all customers 24/7.

EXPLORE THE UNIVERSE

Providing boards and systems for the most hostile and demanding applications, both manned and unmanned, is our badge of honor. Several Aitech radiation-tolerant SFF, boards and subsystem solutions are space-qualified, used on launch vehicles, satellites, the International Space Station (ISS Freedom) and over a dozen other low to high earth orbit and deep space environments.

We've worked hard to earn our reputation for responsiveness and willingness to go the extra mile for our customers. ▼



A176



C877



E905

Supporting Your Success with

COTS COMPUTING

Our versatile COTS designs provide exceptional flexibility to allocate processor speed, functionality and performance as well as I/O and memory configurations, or for specifying ruggedization and cooling requirements.

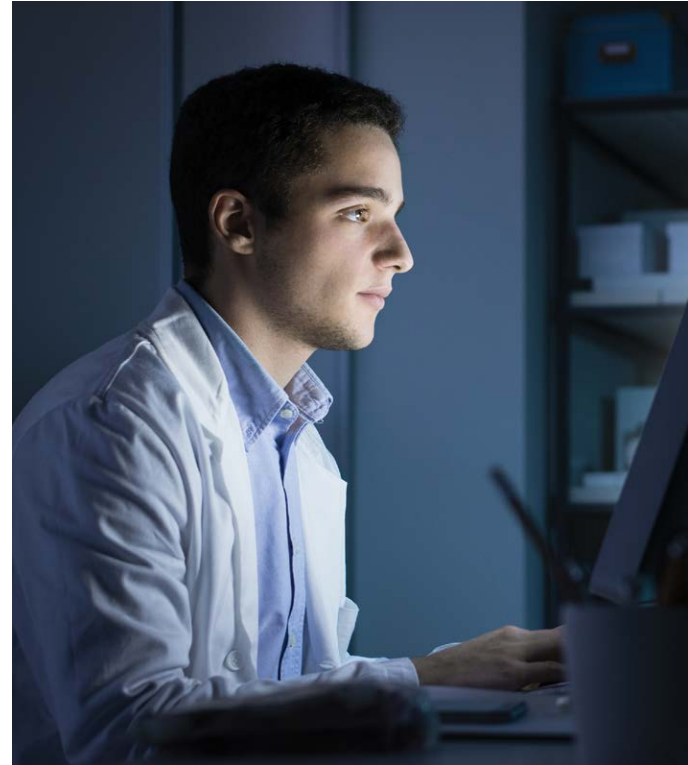
With a wide range of off-the-shelf boards and integrated subsystems that reliably operate across the widest operating temperature range, we supply high performance computing to a countless number of rugged environments, customers and applications.

COST-EFFECTIVE CUSTOM

Through technology re-use, or by developing a totally unique solution, our experienced engineering and manufacturing team can cost-effectively customize our baseline products to solve even the most complex issues, no matter how demanding or unique your requirements may be.

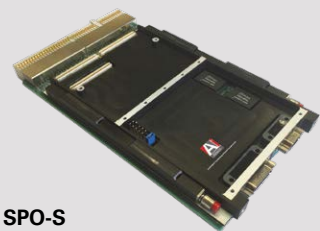
SWAP-OPTIMIZED SFF SYSTEMS

As component size decreases, and system integration increases, a growing number of rugged applications are turning to small form factor (SFF) systems to deliver high capacity computing in remote, space-constrained locations. At Aitech, we use our decades of expertise to develop highly-integrated computing systems that offer the best combination of SWaP-optimized computing and compact, low power enclosures to deliver powerful solutions for virtually any application environment.



ADVANCED GPGPU PROCESSING

Fully-integrated, rugged HPEC computing is an Aitech specialty. By harnessing the parallel processing capabilities of today's multi-core GPGPU-based technologies, combined with high performance multi-core Intel CPUs, Aitech develops systems that easily handle fast, complex computation of multiple data sources, taking full advantage of today's shift towards artificial intelligence-based deep learning systems.



SPO-S



P233



Ai-RIO



A196

Dependable Products and Services



SUBSYSTEM INTEGRATION

When a program needs a more comprehensive system solution than a drop-in-place COTS subsystem, our highly skilled engineers provide fully integrated hardware systems, including complete assembly, testing and qualification and full documentation, from prototype system development to full-scale production.

SOFTWARE SUPPORT

Software cost and development time can represent the most significant part of your embedded system, so our ongoing software support strategy takes full advantage of evolving products, programs and technologies. We incorporate full real-time operating system (RTOS) support for best-in-class, third-party OS vendors, including Wind River VxWorks, Green

Hills INTEGRITY, Microsoft Windows, Embedded Linux (Red Hat, Fedora, Ubuntu, etc.) and real-time Linux from Spaceflight Systems (NASA cFS), Concurrent RT, etc.

Support includes many extensive board support packages (BSPs), built-in-test (BIT) firmware and drivers for specific Aitech SBCs, memory and mezzanine boards, including our Flash Memory Manager (FMM) to wear-level and manage your high capacity, non-volatile Flash disk drives as needed.

Or if you just need driver source code to support your non-Aitech SBCs and PMC carriers, let us know...we do that too. Consult our software specialists for the very latest on our OS, BSP and driver and BIT support programs.

UNRIVALED TECHNICAL ASSISTANCE

Unlike others in the industry, our technical support comes free of charge. If there's a problem, just give us a call or drop us an email; we're here to help...it's that simple.

No hassles, no expensive tiered packages. And if you need help writing your application, let us know, we may be able to give you a hand with that, too.

Each product is fully documented in easy-to-understand language and includes step-by-step procedures with detailed graphics and block diagrams to provide you with a thorough understanding of the unit. Even after delivery, experienced technical support and service personnel are available around the clock for short- and long-term hardware and application support.

From development to deployment, Aitech is there to ensure the success of your land, sea, air or space program. ▼

Visit www.rugged.com/advantages.htm for more information.



Uncompromising Quality: Designed In... Built In... Fully Tested

PROVEN QUALITY

Backed by a total corporate commitment, quality management is deep-rooted in every aspect of our product design, development and manufacturing – from evaluation of contract requirements through purchasing, inspection and testing of incoming components to final production, testing and delivery.

With ISO 9001:2015, AS 9100D and IPC-A-610 – as well as continuous inspections and improvement – we deliver consistent, high quality solutions to exacting specifications. Aitech is also an approved Boeing supplier, per Boeing D6-82479, Addendum 2 and Appendix A, and a certified supplier to JPL, per NASA quality standards and to ITT Space Systems, per GPS program standards.

RELIABILITY FROM THE GROUND UP

Adhering to rigid NASA parts selection and control standards ensures a more cost-effective parts selection process. It makes Aitech unique in our design and manufacture of radiation-hardened and radiation-tolerant boards and subsystems, specifically for manned or unmanned Earth-orbit and deep space environments.

To ensure the highest product quality, we radiation test and characterize each production lot of flight parts ourselves at fully qualified facilities

with component lot- and date-code traceability by card assembly to the most stringent NASA “Criticality-1” workmanship standards. This level of expertise and attention to detail stems from our long-term relationships within NASA and with local contract manufacturers familiar with Design for Manufacturing (DFM) guidelines related to space-grade assemblies.

Parts selected and used for our standard space products follow strict selection processes in accordance with NASA NEPP EEE-INST-002 and PEM-INST-001. Customer/program specific EEE parts plans can be applied; just ask us how we can provide the most cost-effective, high reliability, low SEU/SEE boards and systems for your next booster, satellite or ISS-based programs.

PARTNERSHIPS FOR CONTINUED SUCCESS

Our well-established, international network of organizations stretches from private companies to government agencies, all of which help support the design, development and manufacture of our products to affordably meet our customers’ space mission requirements.

Aitech’s effective multi-level mitigation solutions, from component selection to board- and system-level implementation, ensure the utmost reliability for your missions, from LEO through GEO and into deep space. ▼



Our team qualified the first BGA components for NASA in space that were then approved for use in the ISS. In fact, Aitech has supplied more manned spacecraft VME and PMC-based boards for the ISS than any other supplier in the world.

Maximize Your Program Life

AITECH'S UNIQUE COTSLifecycle+™ PROGRAM

No matter the industry – rugged commercial, industrial, military, aerospace – we understand that reliability of technology and of support is everything. Aitech has earned a global reputation for both.

Each COTS product is guaranteed across our three-phase COTSLifecycle+™ Program for a minimum of 12 years from product introduction.

ACTIVE PHASE

This first phase starts at initial production, ensuring availability and full support for a minimum of four years, but typically lasts for many additional years.

SUPPORTED PHASE

Products are fully supported and repairable, but not recommended for new designs (current customers can re-order). This phase extends for at least another four years after the Active Phase ends.

EXTENDED SUPPORT PHASE

Via special arrangement, Aitech will continue to support a customer's product, typically lengthening product lifecycle another four years...for a total of 12 years minimum.

MANAGING COMPONENTS AND UPGRADES

Let's face it; some components are obsolete before your program even gets deployed, leading to costly hardware re-designs. Through our Obsolescence Awareness Program, we track the status of all components needed for our products using a



combination of customer and government-approved periodic reviews and automated component lifecycle databases.

A managed, P3I (Pre-Planned Product Improvement) technology insertion program ensures upgrades are applied to all Aitech COTS products as they occur, so our customers benefit from performance, device and packaging advances.

Significant computing upgrades across multiple generations of processors are as easy as changing a board, without major alterations to application software, system backplanes or other system hardware. These time, cost and performance benefits are enormous.

Aitech can lock production designs and apply multiple levels of configuration management control to products, ensuring minimal impact and risk of unmanaged changes to hardware and on-board firmware. This protects your application software on long-term production programs – just let us know when this needs to happen!

Aitech can also repair our products, ensuring we provide whatever it takes to keep your program at peak performance. ▼



Next Generation Military and Aerospace Solutions...

Single board computers and general purpose VMEbus, CompactPCI and OpenVPX processors for defense and aerospace applications are available in 3U and 6U form-factors; with Intel, NXP PowerPC and other processor family types (including ARM, etc.) and in a wide variety of speed, memory and I/O configurations.



PowerPC-based OpenVPX and VMEbus SBC Processors

PRODUCT	PROCESSOR	DESCRIPTION
C111 VME	T4240/4160/4080 QorIQ PowerPC with Altivec™	Rugged/Mil 6U VMEbus QorIQ PowerPC SBC with 4, 8 or 12 e6500 cores up to 1.5 GHz, up to 4 GB SDRAM with ECC, 256 MB user Flash, 16 GB Flash file SATA SSD, GbE, serial, USB ports and dual 1553, Trusted/Secure Boot, avionics watchdog timers, temp sensors, 2 PMC/XMC sites.
C112 VPX	T4240/4160/4080 QorIQ PowerPC with Altivec	Rugged/Mil 6U OpenVPX QorIQ PowerPC SBC with 4, 8 or 12 e6500 cores up to 1.5 GHz, up to 4GB SDRAM with ECC, 256 MB user Flash, 16 GB Flash file SATA SSD, GbE, serial, USB ports and dual 1553, Trusted/Secure Boot avionics, watchdog timers, temp sensors, 2 PMC/XMC sites.
C912 VPX	T4160/4080 QorIQ PowerPC with Altivec	Rugged/Mil 3U OpenVPX QorIQ PowerPC SBC with 4 or 8 e6500 cores up to 1.5 GHz, up to 4 GB DDR3 SDRAM with ECC, 128 MB user Flash, 16 GB Flash file SATA SSD, Intelligent Platform Management Interface (IPMI), Trusted/Secure Boot, watchdog timers, temp sensors, 1 PMC/XMC site.
CB912 VPX	NXP QorIQ Multicore SoC/ AMD Radeon E8860 GPU	Rugged VideoPaC™ includes C912 SBC features plus the AMD Radeon E8860 Adelaar GPU for a SWaP-optimized, fully integrated 3U VPX single-slot SBC + video/graphics XMC combination, 12/8/4 e6500 Dual Thread Cores (T4240/T4160/T4080), Secure Boot and trust architecture 2.0, 4GB DDR3L with ECC, versatile I/O.
C114 VME	T2081/T1042 QorIQ PowerPC with Altivec	Rugged/Mil 6U VMEbus QorIQ PowerPC SBC with 4 e6500 or 4 e5500 cores up to 1.5 GHz, up to 4 GB DDR3L SDRAM with ECC, 256 MB user Flash, 64 GB Flash file SATA SSD, GbE, high speed Sync/Async serial, USB ports and dual 1553, Trusted/Secure Boot, watchdog timers, temp sensors, 2 PMC/XMC sites.
C102* VME	Dual 7448 PowerPC with Altivec	Rugged/Mil 6U VMEbus single slot SBC with dual MPC7448 processors up to 1.42 GHz up to 2 GB SDRAM with ECC, user Flash, Boot Flash, GbE, serial, USB ports, and dual 1553 and 2 PMC slots.
C106* VME	7447A PowerPC with Altivec	Rugged/Mil 6U VMEbus single slot SBC up to 1.4 GHz, up to 1 GB SDRAM with ECC, user Flash, Flash File Memory, Fast Ethernet, 1553 ports, serial ports, USB, and PMC expansion via PCI over P0.
C108* VME	7448 PowerPC with Altivec	Rugged/Mil 6U VMEbus single slot SBC up to 1.4 GHz, up to 1 GB SDRAM with ECC, 128 MB user Flash, up to 8 GB on-board Flash, USB SSD, GbE and 2 Fast Ethernet, dual 1553, serial, USB and CANbus ports, 2 PMC sites.
C6100 VME	7457 G4 PowerPC with Altivec	Ruggedized Motorola 6U VMEbus G4 SBC with 2 GB SDRAM with ECC, 128 MB user Flash, Fast Ethernet serial ports, 2 standard PMC sites. Replaced by the C105.

Intel-based 3U/6U Open VPX and VMEbus Processors for defense and aerospace applications are available in 3U and 6U form-factors; with the latest generation of Intel® Core™ i7, Xeon® and later generation processors; and in a wide variety of speed, memory and I/O configurations.



PRODUCT	PROCESSOR	INTEL 3U	DESCRIPTION
C877 VPX	Intel Xeon D with Xilinx/Zynq FPGA		Rugged/Mil 3U Open VPX single slot Intel Xeon D 1500 Series, up to 32 GB DDR4 SDRAM with ECC, up to 1 TB SATA SSD, SLC & MLC Flash options, Dual BIOS Flash, optional Xilinx UltraScale+ FPGA w/ARM CPU, Intel security, on-board SSD security and anti-tamper protection.
C875 VPX	Intel Core i7 Gen 8 / Xeon E-2176		Rugged/Mil 3U OpenVPX single slot Core i7 8th gen Corei7 or Xeon E-2176 SBC, up to 32 GB DDR4 SDRAM with ECC, up to 2TB NVME/SATA Flash disk, dual redundant BIOS Flash, GbE and USB, SATA III, discrete I/O and serial ports, XMC site, up to 3 HD graphics ports, TPM/TXT, Secure Boot and IPMI support and more...
C874 VPX	5th Gen Intel Core i7 Broadwell		Rugged/Mil 3U OpenVPX single slot 5th gen Core i7 Broadwell SBC, up to 16 GB DDR3 SDRAM, (SLC/MLC) SATA Flash disk, dual redundant BIOS Flash, GbE and USB, SATA II and serial ports, 1 PMC/XMC site, HD graphics, TPM and IPMI support and more...
C873 VPX	4th Gen Intel Core i7 Haswell		Rugged/Mil 3U OpenVPX single slot 4th gen Core i7 Haswell SBC, up to 16 GB DDR3 SDRAM, (SLC/MLC) SATA Flash disk, dual redundant BIOS Flash, GbE and USB, SATA II and serial ports, 1 PMC/XMC site, HD graphics, TPM and IPMI support and more...
C870* VPX	2nd Gen Intel Core i7 Calpella		Rugged/Mil 3U OpenVPX single slot Core i7 Arrandale CPU-based SBC, up to 4 GB DDR3 SDRAM, (SLC/MLC) SATA Flash disk, dual redundant BIOS Flash, GbE and USB, SATA II and serial ports, 1 PMC/XMC site, HD graphics, TPM and IPMI support and more...



PRODUCT	PROCESSOR	INTEL 6U	DESCRIPTION
C164 VME	5th Gen Intel Core i7 Broadwell		Rugged/Mil 6U VMEbus single slot 5th gen Core i7 Broadwell CPU-based SBC, up to 16 GB DDR3L SDRAM, (SLC/MLC) SATA Flash disk, dual redundant BIOS Flash, GbE and USB, SATA II and serial ports, 2 PMC/XMC sites, HD graphics, TPM and IPMI support and more...
C163 VME	4th Gen Intel Core i7 Haswell		Rugged/Mil 6U VMEbus single slot 4th gen Core i7 Haswell CPU-based SBC, up to 8 GB DDR3 SDRAM, (SLC/MLC) SATA Flash disk, dual redundant BIOS Flash, GbE and USB, SATA II and serial ports, 2 PMC/XMC sites, HD graphics, TPM and IPMI support and more...
C162* VME	2nd Gen Intel Core i7 Calpella		Rugged/Mil 6U VMEbus single slot Core i7 620EU Arrandale CPU-based SBC, up to 8 GB DDR3 SDRAM, (SLC/MLC) SATA Flash disk, dual redundant BIOS Flash, GbE and USB, SATA II and serial ports, 2 PMC/XMC sites, HD graphics, TPM and IPMI support.
C160* VME	Intel Core 2 Duo Pentium®		Rugged/Mil 6U VMEbus single slot T/L7500 CPU-based SBC, up to 4 GB DDR2 SDRAM, IDE Flash disk, SSD, on-board graphics controller, GbE, serial, SATA II, USB ports, 2 PMC expansion slots.

* Supported Phase – available, but not recommended for new designs. See Aitech COTS Lifecycle+™ Program.

for the Toughest Land, Sea and Air Applications



3U CompactPCI SBC Processors

PRODUCT	PROCESSOR	DESCRIPTION
C800* cPCI	Intel Core 2 Duo Pentium Merom	Rugged/Mil 3U CompactPCI master/slave single slot T/L7500 SBC, 1 to 2 GB DDR2 SDRAM, IDE Flash disk, SSD, on-board graphics, GbE, serial, SATA II, USB ports, 1 PMC slot.
C802* cPCI	Gen 2 Intel Core i7 Arrandale	Rugged/Mil 3U CompactPCI master/slave single slot Core i7 SBC, up to 4 GB DDR3 SDRAM, SATA SSD Flash, dual redundant BIOS Flash, on-board graphics controller, 2 GbE, 1 SATA II, USB, serial ports, 1 PMC/XMC slot.
C925 cPCI	PowerQuicc III MPC8548E	Rugged, 3U CompactPCI DO-254/DO-178 certifiable SBC, up to 1 GB DDR2 SDRAM with ECC, user Flash, Boot/utility Flash, user protected Flash (with memory protect interlocks), GbE, serial, USB, CANbus ports, 1 PMC slot.
C920 cPCI	PowerQuicc II Pro 8349	Rugged, 3U CompactPCI DO-254/DO-178 certifiable SBC, up to 256 MB DDR2 SDRAM with ECC, user Flash, Boot/utility Flash (with memory protect interlocks), Fast Ethernet, serial ports, 1 PMC slot.
C901* cPCI	7448 G4 with Altivec	Rugged 3U CompactPCI single slot SBC, 1.4 GHz, 24W, up to 1 GB DDR SDRAM with ECC, user/Boot Flash, Flash file, GbE, USB, serial ports, 1 PMC slot.

*Supported Phase – available, but not recommended for new designs. See Aitech COTS Lifecycle+™ Program.

GPGPU boards (General Purpose Graphics Processing Unit), such as Aitech's rugged 3U VPX C530, offer parallel processing capabilities for computationally intensive, graphics applications. Operating as a peripheral board with a compatible x86 VPX host SBC, such as Aitech's C873 and C874 3U VPX SBCs, the C530 provides high-performance graphics rendering capabilities and multiple video output channels.



PRODUCT	PROCESSOR	DESCRIPTION
C530 3U VPX	NVIDIA GeForce® GTX 965M	Rugged 3U OpenVPX single slot NVIDIA-based GPGPU, NVIDIA Maxwell architecture with 1024 CUDA cores, 950 MHz, 4 GB GDDR5 SDRAM, 2 independent graphics head outputs, OpenGL 4.5, OpenCL 1.1, CUDA, PhysX, DirectX 12, Shader 5.0, rugged and extended temp air and conduction-cooled with optional conformal coating. Max power consumption 50 W, < 5 W in idle mode.
C531 3U VPX	NVIDIA GeForce® GTX 1050 or 1060	Rugged 3U OpenVPX single slot NVIDIA-based GPGPU, NVIDIA Pascal architecture with 640-1280 CUDA cores at over 1.3 GHz, 1.73-3.59 TFLOPS, 4-6 GB GDDR5 SDRAM, multiple independent graphics head outputs, 8X multiple video inputs, and so much more...
TM530	NVIDIA-based	Rear panel I/O transition module for C530 GPGPU. Provides standard I/O connectors to all onboard I/O for your software development and integration lab.

GB Ethernet and PCIe switches. Aitech offers the broadest and most advanced range of GbE and PCIe managed and unmanaged switches for the most demanding, rugged embedded computing applications.



PRODUCT	FORM FACTOR	DESCRIPTION
M620	XMC GbE	8 to 16 port XMC Layer 2/3, managed Gb Ethernet switch.
M640	XMC GbE	8 to 10 port XMC, unmanaged Gb Ethernet switch, no user configuration required, boots immediately.
C660	6U CompactPCI GbE	24 port, 6U CompactPCI Layer 2/3, managed Gb Ethernet switch.
C670	6U OpenVPX GbE	24 port, 6U OpenVPX Layer 2/3, managed Gb Ethernet switch.
C680	3U OpenVPX GbE	24 port, 3U OpenVPX Layer 2/3, managed Ethernet switch.
C681	3U OpenVPX GbE	10 port, 3U OpenVPX Layer 2/3, unmanaged Ethernet switch.
C690	3U OpenVPX GbE & PCIe	5 to 8 port 3U OpenVPX Layer 2/3 managed Ethernet and 6 to 20 port PCIe (Gen 2) switch.
C691	3U OpenVPX GbE & PCIe	5 to 8 port 3U OpenVPX Layer 2/3 unmanaged Ethernet and 6 to 20 port PCIe (Gen 2) switch.
C695	3U OpenVPX PCIe	24 port PCIe (Gen 2) switch with 8 lane PCIe XMC site.
TM660	6U cPCI I/O Transition	Rear I/O transition module for C660, 6U CompactPCI.
TM670	6U VPX I/O Transition	Rear I/O transition module for C670, 6U OpenVPX.
TM680	3U VPX I/O Transition	Rear I/O transition module for C680, 3U OpenVPX.

Memory boards for 6U VMEbus applications offer enhanced capacity for your embedded sub-systems with versatile choices for electronic, non-rotating media, Flash-based memory. Inherently shock- and vibration-resistant, these designs are available in multiple levels of ruggedization, either air-cooled or conduction-cooled. See PMC section (next page) for other low size, weight and power (SWaP) solid-state Flash memory options.



MEMORY BOARD	DESCRIPTION
C212*	Flash-based, 6U VME memory board with up to 256 GB NAND Flash. Multiple boards can provide over 1 TB.
M222/M224	(See PMC and XMC section)

*Supported Phase – available, but not recommended for new designs. See Aitech COTS Lifecycle+™ Program.

Peripheral I/O boards accommodate numerous I/O configuration options for a variety of signal formats and protocols.



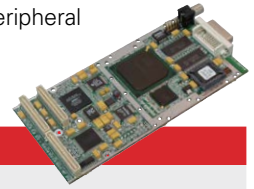
PRODUCT	DESCRIPTION
C430 VME	6U VMEbus board provides 192 channels of discrete I/O interfaces in three groups of 64, including differential digital, TTL digital and MOSFET switches.
C431 VME	6U VMEbus board provides A/D, D/A and digital I/O and numerous configuration options for analog and digital signals, with all digital and analog I/O signals available at the VME P2 and P0 connectors.
C437 VME	6U VMEbus with discrete I/O channels, analog I/O channels, ARINC 429 receivers and line drivers and stereo audio output.

Carrier boards and I/O transition modules for development can easily accommodate the addition of PMC/XMC I/O cards into 3U or 6U slots and connect all your backplane I/O onto standard, commercial/lab development connectors.

PRODUCT	DESCRIPTION
CM106*	6U VME dual PMC carrier board for use with C106 SBC.
CM900*	3U CompactPCI PMC carrier board. Easily adds PMC functionality to your CompactPCI backplane.
CM870	3U OpenVPX PMC/XMC carrier board.
TM870	Rear panel I/O transition module for all C87x 3U VPX SBC boards. Provides standard I/O connectors to all on-board I/O for your software development and integration lab.
TM877	Rear panel I/O transition module for all versions of the C877 3U VPX SBC board.
TM112	Rear panel I/O transition module for C112 6U OpenVPX SBC. Provides standard I/O connectors to all on-board I/O for software development.
TM100*	Front or rear panel I/O transition module for all C10x/C111 VME SBC boards. Provides standard I/O connectors to all on-board I/O for software development.
TM102*	Front or rear panel I/O transition module for all single- and dual-processor C102 VME SBC boards. Provides standard I/O connectors to all on-board I/O for your software development and integration lab.
TM106*	Front or rear panel I/O transition module for the C106 6U VME SBC and CM106 carrier boards.
TM162	Rear panel I/O transition module for all C162 and C163 VME SBC boards. Provides standard I/O connectors to all on-board I/O for your software development and integration lab.
TM160*	Rear panel I/O transition module for all C160 6U VME SBC boards.
TM800	Rear panel I/O transition module for all C80x CompactPCI SBC boards. Provides standard I/O connectors to all on-board I/O for your software development and integration lab.
TM900	Front or rear panel I/O transition module for all C900 CompactPCI SBC boards. Provides standard I/O connectors to all on-board I/O for your software development and integration lab.
TM925	Rear panel I/O transition module for C925 CompactPCI SBC. Provides standard I/O connectors to all on-board I/O for your software development and integration lab.
TM912	Rear panel I/O transition module for C912 3U VPX PowerPC SBC. Provides standard I/O connectors to all on-board I/O for software development.



PMC & XMC mezzanine cards provide task-specific I/O, FPGA and signal processing capabilities through the peripheral component interface. Also supporting PCI Express, high speed serial (HSS) XMC/PMC options on select models.



PMC/XMC Mezzanines FPGA-based and I/O

PRODUCT	DESCRIPTION
M222	High capacity 128 GB Flash PMC (w/ FMM wear-leveling software driver).
M224	Mass storage SATA PMC/XMC up to 512 GB (MLC) or 256 GB (SLC) Flash, RAID 0 or 1 options, drivers for Windows™, Linux® and VxWorks®.
M410	Servo I/O PMC, 2 S/D or R/D inputs, A/D (16 bits), D/A (12 bits) and discrete I/O.
M451	Parallel I/O PMC, 64 TTL or 32 differential, optional 8 D/As.
M453	Analog I/O PMC, 58 A/D I/Os, single ended or differential.
M457*	Telemetry Pulse Code Modulation (PCM), 6 serial ports and discrete I/O PMC.
M610*	Quad-Fast 10/100 Ethernet interface and port repeater PMC.
M611	Quad-Port Gb Ethernet interface XMC.
M620	Single-width managed GbE switch XMC with multiple port configuration options.
M640	Single-width unmanaged GbE switch XMC with multiple port configuration options.
M703*	Dual channel, dual redundant MIL-STD-1553B ports and Serial I/O PMC.
M705	Multi-I/O comms PMC, up to 5 MIL-STD-1553 ports, 16 recv/8 xmit, ARINC 429 channels, 6 RS232/422/485 UART serial ports, 8 opto-isolated discrete I/O lines.
M706	Dual channel, dual redundant MIL-STD-1553, ARINC 429 ports (16 in/8 out), 12 RS232/422/485 serial ports, 10 discrete I/Os, 2 opto-isolated CANbus 2.0B ports. Windows, Linux, VxWorks, INTEGRITY® drivers.
M707	PCI Express-based XMC with four dual redundant MIL-STD-1553 channels, 1 ARINC 429 port (2 in/1 out) and 2 transmit-only ARINC 708 radar interface.

*Supported Phase – available, but not recommended for new designs. See Aitech COTS Lifecycle+™ Program.

PMC/XMC Mezzanines Graphics and Video



PRODUCT	DESCRIPTION
M571	Multi-channel, analog (NTSC/PAL) video frame grabber XMC. PMC P4 connector options, drivers for Windows and Linux.
M575	HUD controller single-width PMC, supports stroke-only and stroke-on-raster HUD operation, OpenGL software by CoreAVI.
M577	Low power, multi-input single width XMC frame grabber supports RS-170, NTSC/PAL, S-Video, HD and SD with auto-detect of resolutions.
M590*	ATI M9 multi-video I/O standards, 2D/3D, dual head video graphics and imaging PMC with frame grabber, over and underlay and keying. Windows, VxWorks drivers, OpenGL/OpenCL software by CoreAVI.
M591*	ATI M9 multi-video I/O standards, 2D/3D video graphics output PMC. Windows, VxWorks drivers. OpenGL/OpenCL software by CoreAVI.
M595*	ATI E4690 multi-video I/O standards, 2D/3D, dual head video graphics output XMC. Windows, Linux, VxWorks, INTEGRITY drivers, OpenGL/OpenCL software by CoreAVI.
M596	ATI Radeon E8860 multi-video I/O standards, 2D/3D, video and graphics XMC. DirectX 11.1, Shader 5.0, Open GL 4.2, OpenCL 2.1, Windows, Linux, VxWorks, INTEGRITY drivers, OpenGL/OpenCL software by CoreAVI.
M597*	ATI E4690 multi-video I/O standards, 2D/3D, dual head video graphics and imaging PMC with frame grabber, over and underlay and keying. Windows, Linux, VxWorks, INTEGRITY drivers, OpenGL/OpenCL software by CoreAVI.
M598	ATI Radeon E8860 multi-video I/O standards, 2D/3D, dual head video graphics and imaging PMC with frame grabber, over and underlay and keying. Windows, VxWorks drivers, OpenGL/OpenCL software by CoreAVI.

*Supported Phase – available, but not recommended for new designs. See Aitech COTS Lifecycle+™ Program.

Power supplies are offered in a variety of models or as spares and replacements.



PRODUCT	DESCRIPTION
P221	Rugged 6U VMEbus power supply board, 175 W, 16-36 VDC input, +5V, +3.3V, +/-12 VDC.
P226	Rugged 6U VMEbus power supply board, 300 W, 16-26 VDC input, +5V, +3.3V, +/-12 VDC with optional power hold-up.
P228	Rugged 6U VMEbus power supply board, 500 W, 18-26 VDC input, +5V, +3.3V, +/-12 VDC with optional power hold-up.
P230	Rugged/Mil 3U supply, 150 W, 18-36 VDC input, +5V, +3.3V, +/-12 VDC outputs, with optional power hold-up.
P231	Rugged/Mil 3U supply, 100 W, 10-32 VDC input, +5V, +3.3V, +/-12 VDC outputs, with optional power hold-up.
P232	Rugged/Mil 3U supply, 150 W, 50-90 VDC input, +5V, +3.3V, +/-12 VDC outputs (for railroad applications).
P233	New and improved! Rugged/Mil 3U VPX supply, 500 W, 16-32 VDC input, +5V, +3.3V, +/-12 VDC outputs, with current sharing mode, ANSI/VITA 62 compliant.
B047	Test backplane for dual PSU and load sharing.

Military-qualified and rugged sub-systems are available in a variety of form factors, including our RediBuilt™ products that eliminates any NRE. Just plug in the cables, connect to your network, set the IP address and you're ready to download your application. All sub-systems operate from -40°C to +55°C (-55° and +71°C optional).



PRODUCT	DESCRIPTION
GGPU/CPU-Based Systems	
A178	Thunder™ SFF rugged RediBuilt™ supercomputer. SWaP-optimized HPEC NVIDIA® Xavier SoM with Volta™ GPU and 8-core ARM v8.2 64-bit CPU, 512 CUDA cores reaching 11 or 22 TFLOPS, 366 or 733 GFLOP/W, large capacity SATA SSD, up to 16 GB LPDDR4, video capture via SDI/RS170, versatile I/O.
A177	Twister™ SFF industrial-grade RediBuilt™ supercomputer. SWaP-optimized HPEC at 149 mm² square and < 1 kg, NVIDIA® Jetson™ SoM with Pascal™ (TX2) GPU and Denver 2 Dual-Core ARM® CPU + Cortex® A57 Quad-Core ARM® CPU, 256 CUDA cores reaching > 1 TFLOP, 60 GFLOPS/W, large capacity SATA SSD, up to 8 GB LPDDR4, video capture via SDI/RS170, versatile I/O.
A176	Cyclone™ SFF rugged RediBuilt™ supercomputer. SWaP-optimized HPEC at 129 mm² square and < 1 kg, NVIDIA® Jetson™ SoM with NVIDIA Pascal™ (TX2) GPU and ARM® Cortex® A57 Quad-Core CPU, 256 CUDA cores reaching greater than 1 TFLOP, 8-10 W typical, large capacity SATA SSD, up to 8 GB LPDDR4, video capture via SDI/RS170, versatile I/O.
A191	Small/compact RediBuilt™ GPGPU-based 3U VPX rugged computer. 5th gen quad-core Intel Core i7 Broadwell at 2.4 GHz, NVIDIA GeForce GTX-965, GTX-770, video HD outputs, composite video frame grabber inputs, GbE, USB, serial ports. 18 to 36 VDC input, Windows, Linux.
A195	RediBuilt™ GPGPU-based 3U OpenVPX HPEC rugged computer in 1/2 ATR short chassis. 5th gen quad-core Intel Core i7 Broadwell at 2.4 GHz, NVIDIA GeForce GTX-770, video HD outputs, composite video frame grabber inputs, GbE, USB, serial ports, 18 to 36 VDC input, Windows, VxWorks or Linux.
A196	Rugged RediBuilt™ HPEC and GPGPU.
EV176	SFF NVIDIA Jetson Pascal-based GPGPU evaluation system, for applications to be ported to the A176 Cyclone.
EV178	SFF NVIDIA Jetson Xavier-based GPGPU evaluation system, for applications to be ported to the A178 Thunder.
CPU-Based Systems	
Ai-RIO	Remote, modular intelligent data I/O concentrator/space flight C&DH.
A171*	Intel Core i7-based rugged system 1.33 to 2.53 GHz. 4 GB DDR3 SDRAM with ECC, SATA Flash SSD, dual redundant BIOS, GbE and Fast Ethernet ports, USB, serial ports, discrete I/O, CANbus, CRT and DVI display ports, high-def stereo audio I/O ports, 18 to 36 VDC input, Windows, Linux or VxWorks, all I/O pre-routed to front panel.
A172	4th gen Intel Core i7 COM Express (Type 6) based rugged, compact PC. Up to 32 GB DDR3L SDRAM, SATA Flash SSD, GbE, USB, serial ports, discrete I/O, CANbus, DVI display ports, composite NTSC/PAL video frame grabber inputs, high-def stereo audio I/O ports, 12 to 32 VDC input, Windows, Linux.
A174	Remote I/O subsystem and I/O expansion unit. Dual core ARM Cortex A9 and FPGA-based with GbE-based interface to host computer. Standard I/O includes: MIL-STD-1553 (BS/RT/MT), ARINC 429, analog A/D, D/A, galvanically-isolated inputs, 28 V/GND discretes, ETR, temp sensors, 16-32 VDC input, 10 W power dissipation.
A175	I/O expansion Remote Interface Unit. FPGA-based with dual redundant 1553 interface to host computer. Standard I/O includes: ARINC 429, analog A/D, D/A, galvanically- isolated inputs, 28V/GND discretes, ETR, temp sensors, 16 to 32 VDC input, 10 W power dissipation.
A180	Military-qualified MPC7448 PowerPC 1 GHz-based, multirole computer. 1 GB SDRAM, Boot Flash, user Flash, RTC, ETR, WDT, temp sensors, 64 GB NAND Flash storage, video outputs, composite video input (with overlay), ARINC 708 input, 18 to 36 VDC input, <70 W, -40°C to +71°C operation, VxWorks or INTEGRITY.
A190	Small, modular/compact RediBuilt™ HPEC 3U VPX rugged computer. Latest gen multi-core Intel Core i7 SBC at 2.4 GHz, video HD outputs, composite video frame grabber inputs, GbE, USB, serial ports, CANbus, serial ports and more! 18 to 36 VDC input, Windows or Linux.
A660	24 port, Layer 2/3, managed GbE switch, 1U, 19" RETMA rackmount 115/230 VAC input, 50/60 Hz, 0°C to +50°C.
A661	Rugged, Mil-spec, 2 x 24 (48) port managed GbE switch, -40°C to +50°C operation. Radiation tolerant option for use in LEO.
Nighthawk RCU™*	Low power, rugged, expandable remote interface/data concentrator. Intel N270 Navy Pier processor at 1.6 GHz, 2 GB DDR2 SDRAM, SSD Flash, SATA SSD, GbE, USB ports, keyboard/mouse, 4 serial ports, DVI/CRT video outputs, stereo audio I/O. <10 W typ. operation from -55°C to +55°C.

Chassis and Enclosures are available in a variety of space-saving sizes to accommodate your exact board and chassis configuration requirements. All enclosures are environmentally and electrically sealed with no forced or moving air inside the board enclosure.



PRODUCT	DESCRIPTION	PRODUCT	DESCRIPTION
E103	1/2 ATR Short, 5 slot, VME64x, free air-cooled.	E121	3/4 ATR Short, 8 slot VME64x, baseplate-cooled.
E104	1/2 ATR Short, 5 slot, VME64x, baseplate-cooled.	E190	Rugged, 2 slot, 3U CompactPCI or 3U OpenVPX, free air convection-cooled or baseplate conduction-cooled.
E105	1/2 ATR Short, 5 slot, VME64x, forced air/fan-cooled.	E191	Rugged SWaP, 2 slot 3U CompactPCI, free air-cooled.
E108	1/2 ATR Short, 5 slot, VME64x, free air-cooled (Heavy Rail/Locomotive).	E192	Rugged, 2 slot, 3U CompactPCI, baseplate-cooled.
E110	1 ATR Short, 6 slot, VME64x, free air-cooled.	E193	1/2 ATR Short, 4 slot, 3U CompactPCI, free air-cooled.
E111*	1 ATR Long, 15 slot, VME64x, fan-cooled.	E195	1/2 ATR Short, 4 slot, 3U OpenVPX, 150 W, free air or forced air/fan-cooled options.
E112*	1 ATR Short, 9 slot, VMEbus, forced air/fan-cooled.	E151	3U cPCI Development Chassis.
E116	1 ATR Short, 6 slot, VME64x forced air/fan-cooled.	E152	6U VME Development Chassis.
E118*	Rugged, single-slot, VME64x, convection-cooled.	E153	3U VPX Development Chassis.
E119*	Rugged, 2 slot, VME64x, free air-cooled.	E154	6U VPX and VME Development Chassis.
E120	3/4 ATR Short, 8 slot, VME64x, forced air/fan-cooled.		

* Supported Phase – available, but not recommended for new designs. See Aitech COTS Lifecycle+™ Program.

A Product for Every Space Application

Aitech's continued innovation is not only found in our rugged and military products, but in our space portfolio as well. If you need fully characterized and tested, radiation tolerant – and in some cases rad hard – embedded “COTS in Space” products, Aitech has both the products and the expertise to meet your most demanding needs.

PRODUCT	DESCRIPTION
Single Board Computers	
SP0*	3U rad hard CompactPCI PowerPC MPC8548E PowerQuicc III SBC.
SP0-S	Enhanced 3U rad hard CompactPCI PowerPC PowerQuicc III SBC with DDR2 SDRAM, on-board temp sensors, on-board voltage monitors, and more...
S950*	3U CompactPCI rad tolerant PowerPC 750FX SBC.
Mezzanine Peripheral I/O Boards	
S703	Single channel, dual redundant MIL-STD-1553 rad tolerant PMC.
S710*	Serial communications, rad tolerant PMC.
S730	3 port, SpaceWire and LVDS interface PMC.
S740	Multi-protocol serial communications and discrete GPIO PMC.
S750*	4 port, managed or unmanaged 10/100/1000 BaseT Ethernet switch PMC.
CompactPCI Peripheral I/O Boards	
S752*	6U CompactPCI 9 port, managed or unmanaged Gigabit Ethernet switch.
S910/S911	3U dual or quad channel, dual redundant MIL-STD-1553 rad hard I/O card.
S930	3U CompactPCI rad tolerant analog I/O card.
S931/932	3U CompactPCI rad tolerant analog I/O card with up to 64 2-wire RTDs and multiple POT inputs.
S940	3U CompactPCI rad tolerant digital I/O card.
S990*	3U CompactPCI rad tolerant non-volatile Flash memory card – 1 GB (use S992 for new designs).
S992	3U CompactPCI rad hard non-volatile Flash memory card – 8 to 64 GB.
CM950	3U CompactPCI PMC carrier module for S9xx PMC series products.
CM951	3U CompactPCI PMC carrier module for S9xx PMC series products – with on-board single channel, dual redundant MIL-STD-1553 port.
Powered Space Enclosures	
E900	8 slot 3U CompactPCI chassis/enclosure with modular rad tolerant or rad hard power supplies.
E901	5 slot 3U CompactPCI chassis/enclosure with modular rad tolerant or rad hard power supplies.
E902	2 slot 3U CompactPCI chassis/enclosure with modular rad tolerant power supplies.
E903	3 slot 3U CompactPCI chassis/enclosure with modular rad tolerant or rad hard power supplies.
E905	3 slot 3U CompactPCI rad hard chassis enclosure with modular rad tolerant or rad hard power supplies.
P900	3U CompactPCI rad tolerant power supply, 3.3 VDC, $\pm 15V$, $\pm 12V$.
P901	3U CompactPCI rad tolerant power supply +5 VDC, +12V.
Space Remote I/O Subsystems	
Ai-RIO	Remote, modular intelligent data I/O concentrator/space flight C&DH.
Other	
TMSP0	3U I/O transition module for SP0 Space SBC.
S950-EDK	Ethernet and serial port developers kit for the S950 processor.
TM950	3U I/O transition module for all 3U space board products.
TM750*	5 port 3U Gigabit Ethernet transition module.
TM752*	5 port 6U rear I/O Gigabit Ethernet transition module.

* Supported Phase – available, but not recommended for new designs. See Aitech COTS Lifecycle+™ Program.

Commercial, Rugged and Military Ruggedization Levels

Our products are available in multiple levels of ruggedization – commercial, rugged, rugged military – and in two mechanical/thermal formats – air-cooled and conduction-cooled. Our COTS off-the-shelf military-rated boards withstand extreme, high shock and vibration in a near-space vacuum at altitudes of over 70,000 feet or more and in a relative humidity of up to 100%.

The physics of defense and military applications haven't changed – nor has Aitech's commitment to meeting the laws of physics. Aitech is the only company to continue to provide select products operating at -55°C to +85°C.

MECHANICAL FORMAT	AIR-COOLED ¹			CONDUCTION-COOLED ²	
Ruggedization Level	Series 100 Commercial	Series 200 Rugged	Series 400 Military	Series 200 Rugged	Series 400 Military
Temperature (°C)					
VITA 47 Class	AC1	AC3	AC4	CC3	CC4
Storage	-40°C to +85°C	-50°C to +100°C	-62°C to +125°C	-50°C to +100°C	-62°C to +125°C
Operating	0°C to +55°C ³	-40°C to +70°C ³	-40°C to +85°C ^{3,4}	-40°C to +70°C ⁵	-40°C to +85°C ^{4,5}
Vibration (all axes)					
VITA 47 Class	V1	V2		V3	
Random	5-100 Hz PSD = 0.04 g ² /Hz	5-100 Hz; PSD = +3 dB/oct 100-1,000 Hz; PSD = 0.04 g ² /Hz 1,000-2,000 Hz; PSD = -6 dB/oct		5-100 Hz; PSD = +3 dB/oct 100-1,000 Hz; PSD = 0.1 g ² /Hz 1,000-2,000 Hz; PSD = -6 dB/oct	
Shock (all axes)					
VITA 47 Class	OS1	OS1		OS2	
Half Sine/Sawtooth	20 g/11 ms	20 g/11 ms		40 g/11 ms	
Altitude (feet)					
Operating Maximum	15,000	35,000	70,000	35,000	70,000
Relative Humidity					
Operating (non-condensing)	0-90%	0-100% ⁶	0-100% ⁶	0-100% ⁶	0-100% ⁶
Conformal Coating					
Acrylic	N/A	Standard	Standard	Standard	Standard
Silicone	N/A	Optional	Optional	Optional	Optional
Urethane	N/A	Optional	Optional	Optional	Optional

Notes:

1 Extended temperature operation to -55°C is available for select products. Please contact Aitech for additional information.

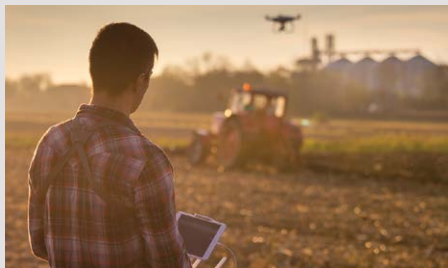
2 Operating ambient air temperature (with sufficient airflow).

3 Operating card edge temperature.

4 100% with urethane or optional silicone conformal coating (limited to 95% with acrylic conformal coating).

5 Air-cooled boards per ANSI/VITA 1-1994 (VME), ANSI/VITA 1.1-1997 (VME64x), ANSI/VITA 48/48.1 (VPX) or PICMG 2.0 Rev 3.0 (CompactPCI). Air-cooled PMCs per ANSI/IEEE 1386-2001. Air-cooled XMCs per ANSI/VITA 42.0.2.

6 Conduction-cooled per ANSI/IEEE 1101.2-1992 (VME), ANSI/VITA 48/48.2 (VPX) or ANSI/VITA 30.1-2002 (CompactPCI). Conduction-cooled PMCs per ANSI/VITA 20-2001. Conduction-cooled XMCs per ANSI/VITA 42.0.



Space Ruggedization Levels

Aitech space products are available in multiple levels of ruggedization – lab grade (EDU), qual unit and radiation tolerant flight unit – in a conduction-cooled thermal format. They are designed to fully operate throughout the boost phase/launch cycle and in the vacuum environment of Earth orbit or deep space.

MECHANICAL FORMAT	CONDUCTION-COOLED ¹		
Ruggedization Level	Series 100 Lab Grade EDU	Series 200 Qual Unit	Series 500 Rad Tolerant Flight Unit
Temperature (°C)			
Storage	-40°C to +85°C	-50°C to +100°C	-62°C to +125°C
Operating	0°C to +55°C ²	-40°C to +71°C ²	-40°C to +65°C ² (space vacuum)
Vibration (all axes)			
Random (g ² /Hz)	20-2,000 Hz 0.02 g ² /Hz	20-2,000 Hz 0.1 g ² /Hz	20-2,000 Hz 0.1 g ² /Hz
Sine (g Peak)	2 g/10-100 Hz	10 g/50-500 Hz	10 g/50-500 Hz
Shock (all axes)			
Half Sine/Sawtooth	20 g/6 mS	40 g/11 mS 100 g/6 mS	40 g/11 mS 100 g/6 mS (pyro-shock-875 g)
Altitude (feet)			
Operating Maximum	15,000	70,000	10 ⁴ Torr
Relative Humidity			
Operating (non-condensing)	0-90%	0-100%	0-100% ³
Conformal Coating			
Acrylic	Optional	Standard	Urethane
Silicone	Optional	Optional	

Notes:

¹ Conduction-cooled per ANSI/VITA 30.1 3U Eurocard mechanical form factor, conduction-cooled PMC/XMCs: per ANSI/VITA 20-2001 (R2005).

² Operating card edge temperatures at module thermal management interface.

³ With optional silicone conformal coating (100% non-condensing with acrylic type of conformal coating).

COMPONENT SELECTION IS CRITICAL TO SUCCESS

Parts chosen for our space products are modeled after EEE-INST-002, PEM-INST-001 and similar European Space Agency (ESA) documents, with the understanding that the implementation may be different for each end-use application. Our strict selection process is supplemented by our deep, on-going relationships with EEE parts manufacturers, which allows Aitech to procure components with the desired levels of testing and reliability.

Space mission profiles that need to last 5 to 20 years require careful consideration of radiation hardness assurance practices because of the high Total Ionizing Dose (TID) involved, typically well beyond the tolerance of standard commercial COTS parts. Even if some commercial parts survive the TID, they may suffer from excessive Single Event Effects (SEEs), which can potentially disrupt your data integrity or mission success.

Aitech's effective multi-level mitigation solutions, from component selection to board- and system-level implementation, ensure the utmost reliability for your missions, from LEO through GEO and into deep space.

Our customers also benefit from our long-term relationships within NASA and with local contract manufacturers familiar with Design for Manufacturing (DFM) guidelines related to space-grade assemblies.

Aitech has also formed relationships with other private and public companies, space agencies and government organizations in the United States, Europe and the Far East to support the design, development and manufacture of our products to affordably meet our customers' space mission requirements.

Aitech. All you need to know about mission-critical embedded COTS solutions.

Global companies and organizations that rely on our quality include:

ATK
BAE Systems
Battelle
Bharat Electronics Limited
Boeing
British Aerospace
EADS
Elta
Excelis
Finmeccanica
Fujitsu
General Atomics
General Dynamics
Hindustan Aeronautics Limited
Harris
IAI
JRC
L-3 Communications
Lockheed Martin
Mitsubishi Heavy Industries
NASA
Nippon Avionics
Northrop Grumman
Orbcomm
Rafael
Raytheon
Rockwell Collins
Sikorsky
Space-X
Thales
Toshiba
United Technologies
...and many others

Proven Heritage

Aitech's products are used throughout the most demanding military and space applications, like LIDAR processors, mobile gun computer systems and helicopter cockpit mission computers, in many high-profile air, land, sea **and** space programs:

- Avenger and THAAD Air Defense Systems
- Fire Control and Positioning: LOSAT, E-FOGM, MLRS/HIMARS
- C-130 and AC-130U Gunship Electronics
- E2-C Hawkeye, F-15 Talon, F-16, F/A-18 Tactical Fighters Spaceship II
- LA-, Ohio-, Virginia- and Seawolf-class Nuclear Submarines
- Helicopters: AH-1 Cobra/UH-1 Iroquois, AH-6 Littlebird, AW101/EH101, India's Advanced Light Helicopter, Joint Multi-role, S97 Raider Helicopter, V-22 Osprey
- US Navy Multiband SATCOM Terminals
- UAV Programs: Joint Land Attack Elevated Network (JLENS), RQ-1/MQ-1/Predator UAS, MQ-4 Triton, X-45 UCAV/J-UCAS



Trusted Reliability

In addition to the more than 100 boards on the ISS, Aitech's products reliably operate in a host of critical space programs:

- NASA's latest CST-100 Starliner and Orion Spacecraft Mission Electronics
- NASA, ISS: ICU Program, Express Rack and Video Processor and Plasma Propulsion Control Unit
- DARPA's Orbital Express ASTRO Satellite Avionics and Hypersonic Transport Vehicles/FALCON
- Spaceship II Rocket Motor Controller
- Radar Sat-2 Constellation Processors

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