ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Aitech Defense Systems A180* at our website: ***Click HERE***

A180 Multi-Role Computer



- **High Performance PowerPC Platform**
- **GPS Navigation Receiver**
- **Digital Map Functionality**
- **Internal Solid State Mass Storage**
- **Large Variety of I/O Interfaces**
  - **ARINC-429**
  - **ARINC-708**
  - **Analog In/Out**
  - **Fast Ethernet**
  - **MIL-STD-1553B**
  - **Serial Communication**
  - **USB 2.0**
  - **Discrete I/O**
  - **Analog & Digital Video In/Out**
  - **Stereo Audio Output**
- **Supports Video with Graphics Overlay**
- **Full BIT Capability**
- **Rugged Small Form Factor Enclosure**
- **Light Weight System: < 7.5 kg**
- **Internally Conduction Cooled Externally Convection Cooled**
- **Modular 28 Vdc Power Supply**
- **EMI/RFI Protection**
- **RTOS Support**
  - **WindRiver VxWorks®**
  - **Green Hills INTEGRITY®**

Aitech Defense Systems, Inc.
A member of the Aitech Rugged Group
19756 Prairie Street, Chatsworth, CA 91311
Tel: (888) Aitech-8 (248-3248) Fax: (818) 718-9787 e-mail: sales@rugged.com web: www.rugged.com

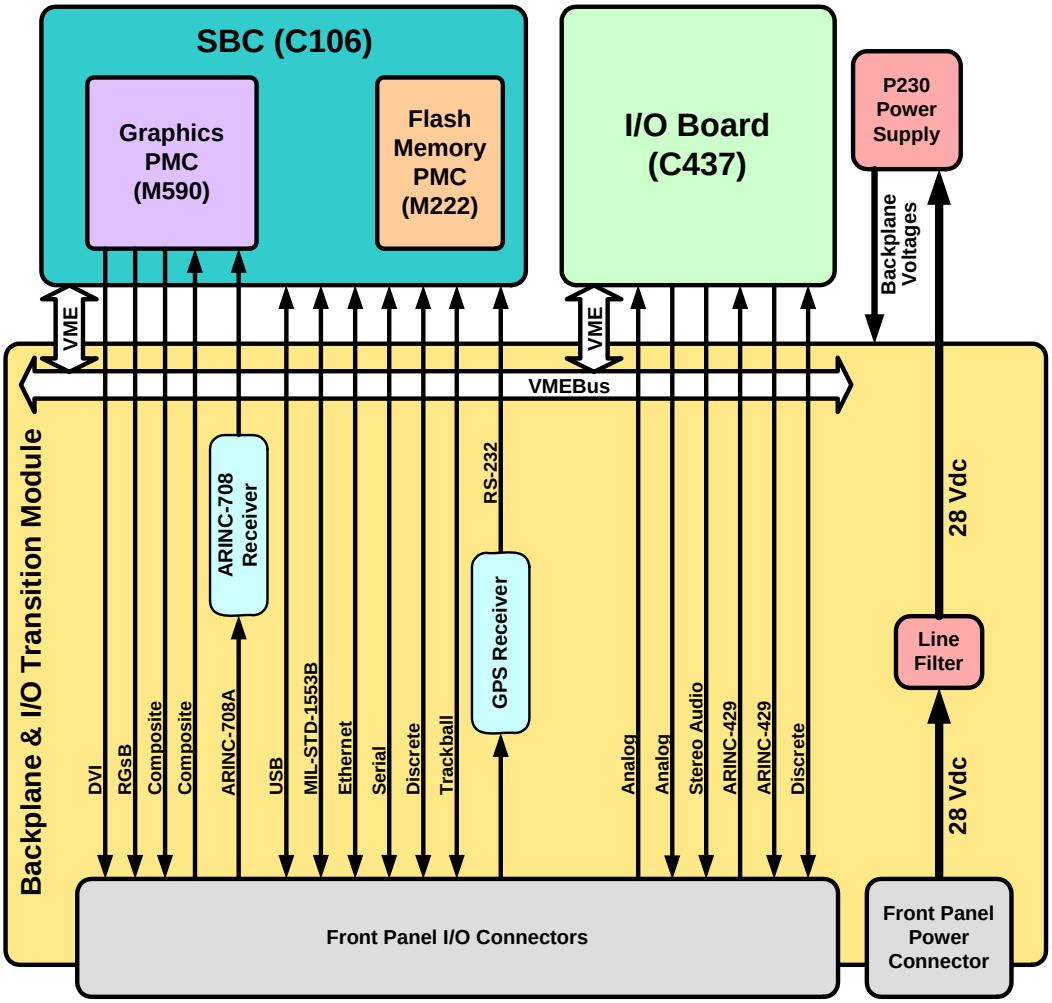
Compact Multi-Role Avionics Computer

Aitech's A180 Multi-Role Computer (MRC) is a full featured compact computer suitable for many harsh environment applications. The MRC is a modern and flexible product comprising a set of standard off-the-shelf Aitech boards, firmware packages, power supply, and enclosure that have been specially configured and integrated to satisfy a broad range of mission requirements.

The MRC is housed in a two-slot VME enclosure. One slot is populated with a central processing unit (the C106 VME SBC) hosting two PMCs (PCI Mezzanine Card) – an Aitech M590 graphics/video PMC and an Aitech M222 mass storage PMC. An Aitech C437 VME slave digital/analog I/O board populates the second slot. System hardware also includes a built-in navigation receiver (GPS or GLONASS depending on the system configuration).

The A180 MRC provides extensive processing, control, and I/O functionality to support a wide variety of military and aerospace system applications.

A functional block diagram of the MRC is provided below.

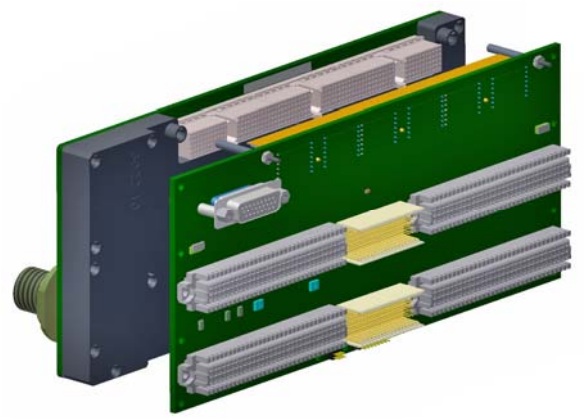


A180 Multi-Role Computer Block Diagram

Rugged and Reliable

The A180 Multi-Role Computer (MRC) is based on a rugged Aitech 6U enclosure constructed from aircraft grade anodized aluminum. Fasteners are stainless steel and often-used threads have self-locking stainless steel helicoils to withstand severe vibration and shock. All connectors are located on the enclosure front panel for easy access. Sidewalls are externally finned for natural convection and radiation cooling without sacrificing ruggedness. Designed with a built-in carrying handles for convenient handling, the A180 is equipped with captive screws in the sidewalls for convenient hard mounting.

Internal I/O routing from the backplane to the front panel connectors is by means of a solid-state I/O transition module. This design philosophy, which was pioneered by Aitech, provides higher reliability and improved signal integrity than harnessing, and is lower in cost.



Versatile

Aitech has been designing custom embedded real-time rugged computing systems for many years. In that time we have listened and learned. Our experience, together with the increasing functionality and decreasing size and power consumption of today's components, led us to develop the A180 MRC to provide unprecedented processing power and functionality in a small, lightweight, low power package.

Ready to Use

The A180 MRC is ready-to-use right out of the box, with features and functionality suitable for many defense and aerospace applications.

The system is fully integrated, with all drivers and BSP of your choice already installed. Just connect power and I/O harnessing, load your application, and you are ready to go.

Connectivity

Aitech's A180 MRC features MIL-DTL-38999 front panel power and I/O connectors for reliable operation in adverse environments.

High Performance Power Supply

The integral P230 modular power supply is MIL-STD-704A and D compliant, accepting input voltage over a wide range of 18 - 36 Vdc. The high efficiency of the power supply ensures reliable operation of the A180 MRC with minimum heat dissipated by the power supply itself.

Numerous protection mechanisms in the power supply protect the A180 MRC from power line interference, reverse polarity, and overheating. Output overvoltage and short circuit protection prevent damage to the power supply in the event of malfunctions in the system.

Software

The A180 MRC is available with several popular real time operating systems. Refer to the A180 ordering information section for available options.

Specifications

Processing Core

- Single Processor Architecture
- High performance processing engine – PowerPC G4+ MPC7447A @ 1 Ghz
- 2310 Dhrystone 2.1 MIPS @ 1 GHz
- On-chip 32 kB/32 kB L1 and 512 kB L2 Caches
- VME and PCI system buses providing high data bandwidth
  - High speed resources reside on PCI bus
  - Low speed resources reside on VME64x bus
- 1 GB SDRAM with ECC
- 16 MB Boot Flash memory
- 64 MB User Flash Memory
- 128 kB NVRAM
- Eight 32-bit Timers
- Real-Time Clock
- Watchdog Timer
- Two Temperature Sensors

Mass Storage

- Up to 64 GB Solid State NAND Flash Memory
- Transfer Rate of Up to 130 MB/s
- High Performance Flash Controller

Graphic & Video Subsystem

- ATI M9 (Mobility Radeon 9000) Graphics Processor with built in 64 MB DDR Frame Buffer Memory
- Two DVI Outputs at up to XGA
- One Composite Video Output (Supporting NTSC/PAL formats)
- One RGsB Interlaced Video Output (Supporting NTSC/PAL formats)
- One Composite Video Input (Supporting NTSC/PAL formats)
- One ARINC-708A Input Channel (digital layer)
- Video Overlay Support

Audio Announcement System

- Stereo audio output (left and right)
- SRAM and Flash memory for file playback & storage
- High quality stereo DAC with no phase error between channels
- Support for VME interrupt or polling mode operation

Navigation Receiver

- Integral GPS or GLONASS Receiver

I/O Interfaces

- Three Fast Ethernet Ports
- Two USB 2.0 Ports
- One Dual Redundant MIL-STD-1553B Port
- Eight Standard RS-232/422/485 UART Ports
- Ten ARINC-429 Receive Channels
- Five ARINC-429 Transmit Channels
- Seven GND/OPEN Discrete Inputs
- Eight GND/OPEN Discrete Outputs
- Four TTL Discrete I/O Channels
- One Stereo Audio Output Supporting MP3 Playback (Pre-recorded and Real Time Messages)
- One Trackball Input
- One Analog Input
- One Analog Output

Front Panel

- MIL-DTL-38999 Power and I/O Connectors
- SMA Connector for GPS Antenna
- Grounding Screw

Power Supply

- 70 W Typical Power Consumption
- Wide input voltage range 18 - 36 V
- 50 ms Holdup Time
- MIL-STD-704A, D, and E Compliant

Environmental

- Operating Temp. -40 to +71 °C
- Storage Temp. -54 to +85 °C
- Altitude +70,000 ft
- Humidity 95%
- Vibration
  - MIL-STD-810F, Method 514.5, Procedure I
  - MIL-STD-810F, Method 519.5, Procedure IV
- Shock
  - MIL-STD-810F, Method 516.5, Procedure I
  - 20 g/11 ms sawtooth shocks
- Crash Safety
  - MIL-STD-810F, Method 516.5, Procedure V
  - 40 g/11 ms sawtooth shocks
- Linear Acceleration - Operational
  - MIL-STD-810F, Method 513.5, Procedure II
  - 9 g acceleration level

A180 Multi-Role Computer

- Linear Acceleration - Structural
  - MIL-STD-810F, Method 513.5, Procedure I
  - 13.5 g acceleration level
- Bench Handling
  - MIL-STD-810F, Method 516.5, Procedure VI
- Dust
  - MIL-STD-810F, Method 510.4, Procedure I
- Fungus Resistant
- Salt Fog
  - MIL-STD-810F, Method 509.4, Procedure I
- EMI/RFI
  - MIL-STD-461/462
  - Test Methods RS103, CS101, CS114, CS115, CS116, RE102, CE101, CE102

MTBF

- >5000 hours - A_{RW} @ 45 ºC (MIL-STD-217F)

Mechanical

- Dimensions
  - Maximum external dimensions including handles: 250.6 x 275 x 139 mm (L x W x H)
- Weight < 7.5 kg

Software Support

- Firmware
  - Startup Firmware (boot software)
  - AIMon Monitor/Debugger tool
  - AIDiag Diagnostic Suite
  - BIT
  - Boot Loader
- RTOS
  - VxWorks® (Wind River)
  - INTEGRITY® (Green Hills)

Ordering Information for the A180

2A180 - □ □ □ 0 - □ □

Aitech Item Number

Nav Receiver
0 = None
1 = GPS
2 = GLONASS

Flash Memory Size
2 = 32 GB
3 = 64 GB

RTOS
1 = VxWorks
2 = INTEGRITY

Reserved

Configuration No.
To be assigned by Aitech

Example: 2A180-1210-00

For more information about the A180 Multi-Role Computer or any Aitech product, please contact Aitech Defense Systems sales department at (888) Aitech-8 (248-3248).

Names, products, and/or services mentioned are trademarks or registered trademarks of their respective holders.
All information contained herein is subject to change without notice.

A180T0712R10

Aitech Defense Systems, Inc.
A member of the Aitech Rugged Group
19756 Prairie Street, Chatsworth, CA 91311
Tel: (888) Aitech-8 (248-3248) Fax: (818) 718-9787 e-mail: sales@rugged.com web: www.rugged.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP