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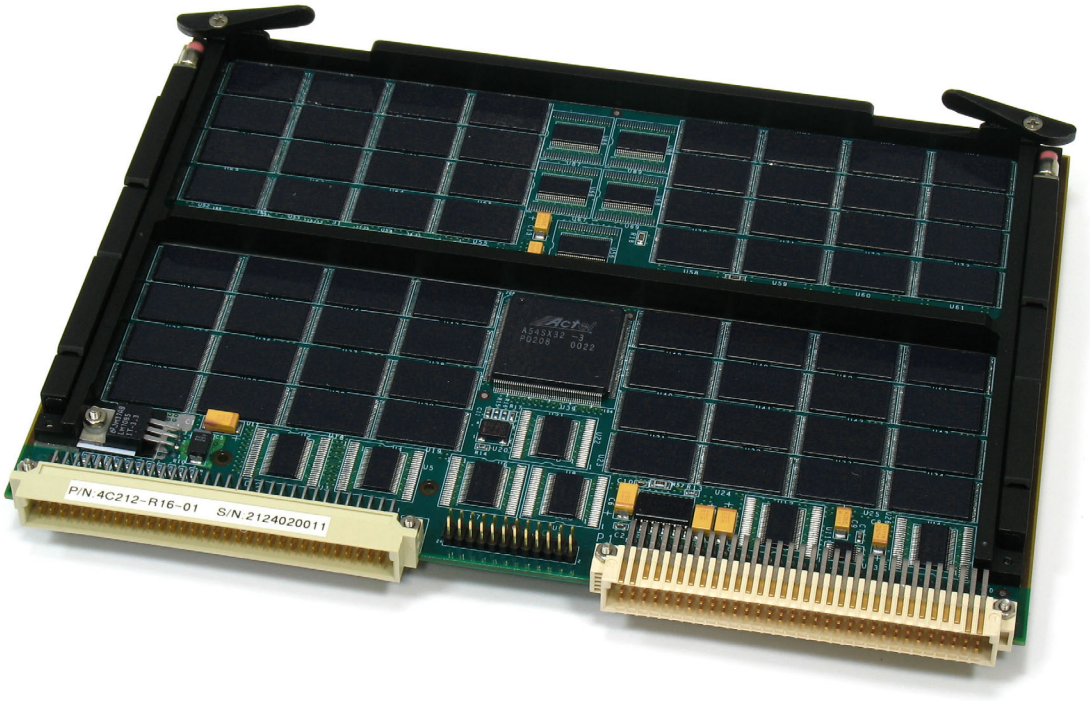
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C212

High Density Flash Memory Board



- ***Up to 256 GB NAND Flash Memory in 32 Banks***
- ***20 MB/sec Transfer Rate (BLT Mode)***
- ***VME Slave Interface Implemented in a High Performance FPGA***
- ***Low Power Consumption***
- ***VxWorks Real Time OS Support***
- ***Aitech Flash Memory Manager (FMM)***
- ***FMM Software Support:***
  - ***Full File System Read/Write Emulation***
  - ***Automatic Block Management***
  - ***Memory Interleaving***
- ***Conduction and Air Cooled Versions***
- ***Vibration and Shock Resistant***

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

Overview

The Aitech C212 is a high capacity VMEbus Flash memory board.

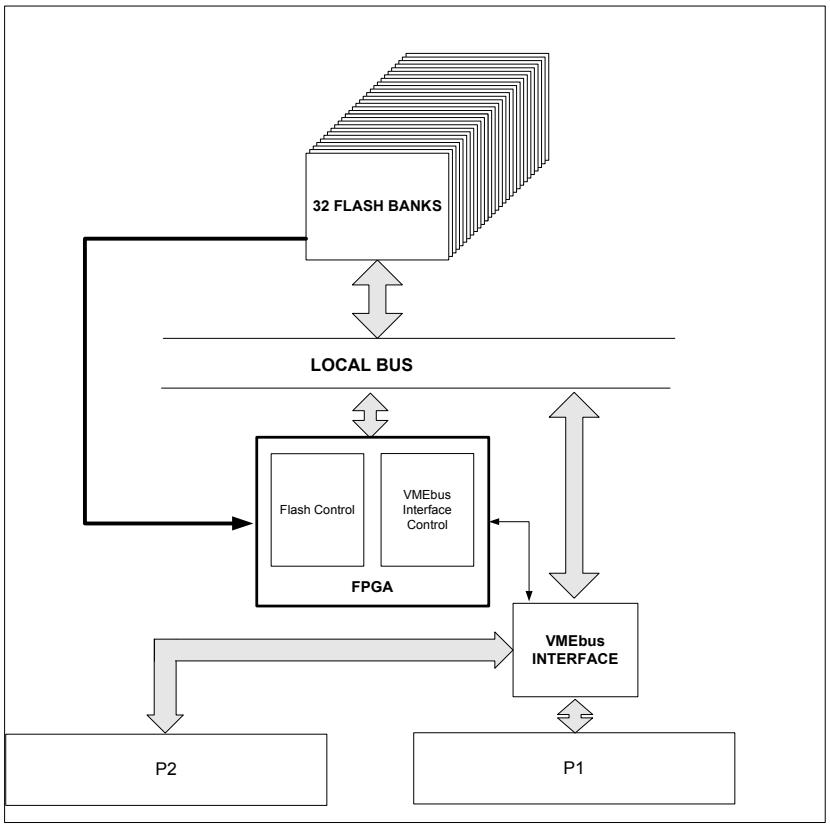
The C212 implements the Flash arrays using advanced NAND Flash devices. These devices provide high performance and capacity and have built-in features to support ECC mechanisms (ECC is done externally through software). Aitech FMM technology is supported through the software drivers delivered with the board to provide full hard-disk emulation.

The board incorporates no moving parts, resulting in significant reduced power consumption and increased reliability.

The VMEbus interface operates in A32/D32 data access and A32 block transfer (BLT) modes.

Throughput of 20 MByte/sec is achieved when A32 block transfer (BLT) mode is used and interfacing with a fast master using the Tundra Universe II VME to PCI Bridge.

The Aitech Flash Memory Manager (FMM) supports interleaved memory access and Error Correction Code (ECC). The FMM can interleave up to a maximum of 32 memory banks for achieving high performance. The software ECC mechanism is used for applications where high data integrity is required, and is implemented on the host processor.



C212 Block Diagram

Features

NAND Flash Memory

The C212 features up to 256 GB NAND Flash Memory to provide the highest performance and the most cost-effective solution for solid-state mass storage with low power consumption.

Programming and reading are performed on a sector or a page unit of 512/2K bytes to emulate the popular sector size.

The C212 can provide up to 256 GB Flash memory in 32 banks.

Available configurations include 2 GB, 4 GB, 8 GB, 16 GB, 32 GB, 64 GB, 128 GB, 256 GB Flash. Additional configurations are available upon request

VMEbus Interface

The C212 VME Bridge is implemented in an Actel FPGA. This bridge provides slave VME capabilities and supports A32/D32 data transfers.

The C212 provides the capability to generate a VMEbus interrupt on any of the seven VME interrupt levels. It is also capable of providing an interrupt acknowledge during the interrupt vector cycle.

Geographical Addressing

The VME Base address can be set in one of three methods:

- Using the on board jumpers
- Through dedicated pins on P2 connector
- Factory programmed upon request

Software Support

The C212 is delivered with an FLL (Flash Low Level) driver. This driver provides full C212 Flash access and Flash operations such as read, write and erase. The FLL provides a straightforward API allowing the user application to take full advantage of the C212 resources.

Aitech FMM

In addition to the FLL, Aitech offers a Flash Memory Manager (FMM) software package that provides an Aitech proprietary high level file system-like solution. This package is designed for the VxWorks RTOS environment. The FMM complies with the DosFS structure and interface, and provides full file system emulation, automatic block management, and memory interleaving.

The FMM application enables full file system access to the C212 Flash array, similar to DosFS file system access to a magnetic-medium mechanical disk drive. Even though low level operation differs between the C212 Flash array and standard hard drive media, the FMM is designed to make it transparent to the user application.

Memory Interleaving

The FMM utilizes a memory interleaving mechanism to enable the C212 to simultaneously access multiple memory banks, substantially increasing data throughput for program/erase operations.

Error Correction Code (ECC)

For a high reliability Flash disk, a software Error Correction Code (ECC) algorithm is implemented.

Data Throughput with ECC Enabled

Write – 16.0 MB/sec
Read – 13.0 MB/sec

Mechanical Features

The C212 is available in two mechanical formats:

- Air-cooled per ANSI/VITA 1-1994
- Conduction cooled per IEEE 1101.2

Both mechanical formats are single slot 6U modules.

Custom metal frame provides excellent rigidity and shock resistance.

Dimensions

- Air-cooled: per ANSI/VITA 1-1994
- Conduction cooled: per IEEE 1101.2

Weight

- Air-cooled: 375 g (0.825 lbs)
- Conduction-cooled: 460 g (1.012 lb)

Thermal Management

A careful mechanical design including custom Heatsink modules combined with a metal frame allow optimal heat dissipation and relief of the board.

Power Requirements

The C212 may be configured to receive all its power from the VME backplane +5.0V supply and generate +3.3V using on board power circuits or it may be configured to take the +3.3V also from the backplane supply as defined in the VME64x specification.

Total power consumption of the C212 depends on its configuration and assembly options.

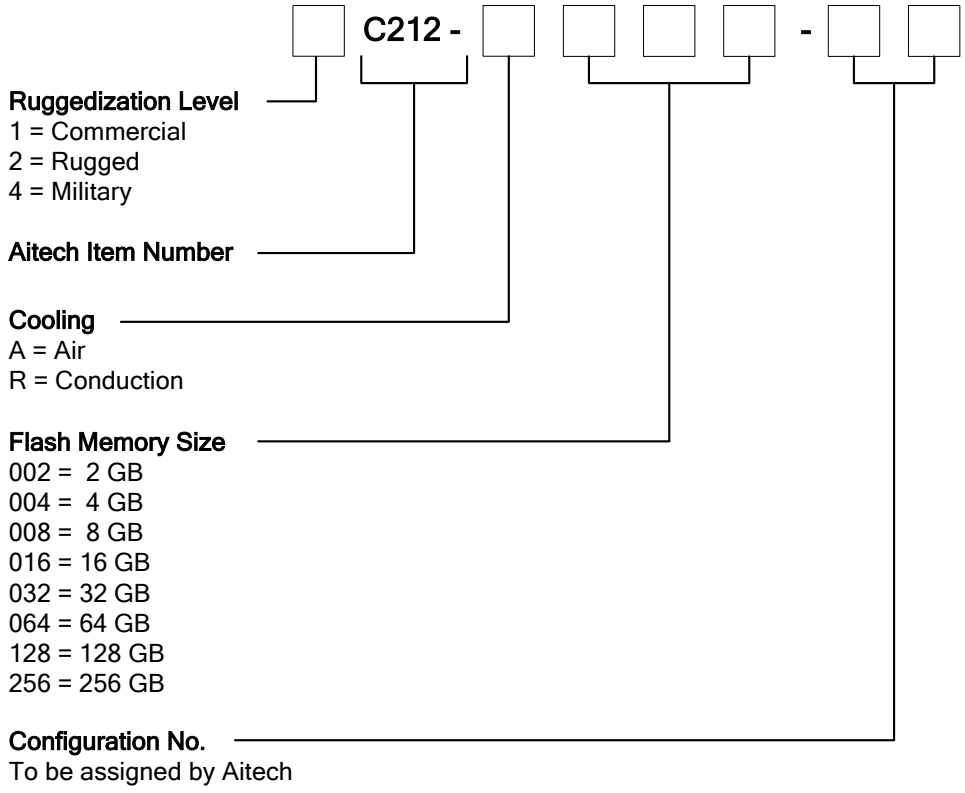
Fully featured and configured to take all its supply from the +5.0V power supply, the C212 power consumption is as follows:

+5 V (±5%)	0.8 A (typ)	1 A (max)
+3.3 V (±5%)	0A	
+12 V (±10%)	0A	
-12 V (±10%)	0A	

Environmental Features

Refer to the Aitech Ruggedization datasheet.

Ordering Information for the C212



Example: 2C212-R064-00

For other configurations, please contact your sales representative.

For more information about the C212 or any Aitech product, please contact Aitech Defense Systems sales department at (888) Aitech-8 (248-3248).

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