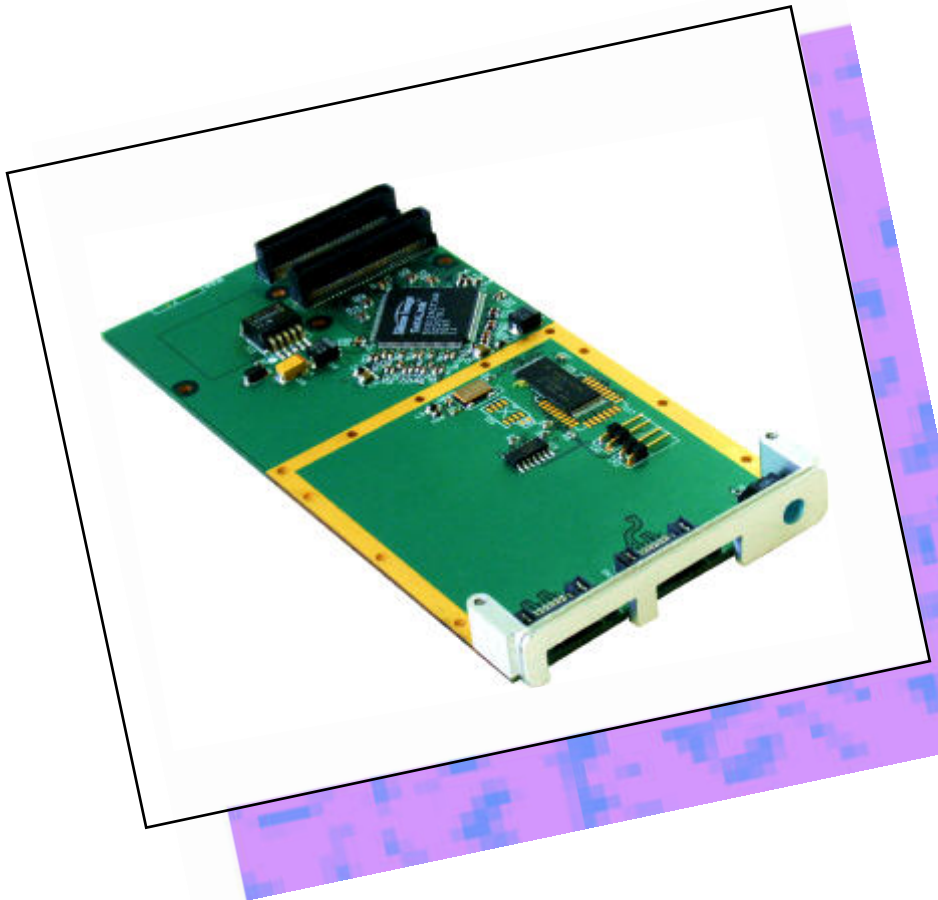# PMCSATA
Dual PMC Serial ATA Controller

- **Serial ATA Features**

  - Integrated Serial ATA Link and PHY logic.
  - Compliant with Serial ATA 1.0 specifications.
  - Two independent Serial ATA channels.
  - Serial ATA Generation 1 transfer rate of 1.5Gbits/sec.
  - Spread Spectrum in receiver.
  - Single PLL architecture,

- **PCI Features**

  - 66 MHz PCI with 32-bit data.
  - PCI PERR and SERR reporting.
  - PCI bus master operations: Memory Read, Memory Read Multiple, and Memory Write.
  - PCI bus target operations: Configuration Read, Configuration Write, I/O Read, I/O Write, Memory Read, Memory Write, Memory Read Line (Memory Read) and Memory Read Multiple (Memory Read).
  - Byte alignment for odd-byte PCI address access.
  - Jumper configurable PCI class code.
  - Base Address Register 5 in memory space.

- Independent 256-byte FIFOs (32-bit x 64 deep) per Serial ATA channel for host reads and writes.

- Serial ATA to PCI interrupt masking.

- On-board FLASH for BIOS.

- Conforms to Programming Interface for Bus Master IDE Controller, revision 1.0.

- Conforms to PMC standard IEEE1386.1.

- Conforms to PCI Local Bus Specification Revision 2.2.

- Compatible with Conduction Cooled PMC (CCPMC) carriers (VITA 20).

The PMCSATA is a dual channel Serial ATA Controller PMC module capable of attaching two serial ATA devices to the PCI bus. Is is compatible with the requirements of conduction cooled carrier boards.

The PMCSATA features the SiL3112A Controller chip and supports both 33 and 66MHz operation achieving a maximum transfer rate of 150MBytes/sec as specified for Serial ATA generation 1.

Typical applications are interfacing to high performance storage devices for commercial and industrial systems.

BVM

The PMCSATA uses a SiI3112A PCI-to-Dual-SATA Controller that supports a 32-bit, 66 or 33MHz PCI bus. It accepts host commands through the PCI bus, processes them and transfers data between the host and Serial ATA devices. It can be used to control two independent Serial ATA channels. Each channel has its own Serial ATA bus and will support one Serial ATA device. The SiI3112A supports a 32-bit 66 MHz PCI bus and the Serial ATA Generation 1 transfer rate of 1.5 Gbits/sec (150 MBytes/sec).

The SiI3112A PCI interface is compliant with the PCI Local Bus Specification (Revision 2.2). The SiI3112A can act as a PCI master and a PCI slave, and contains the SiI3112A PCI configuration space and internal registers. When the SiI3112A needs to access shared memory, it becomes the bus master of the PCI bus and completes the memory cycle without external intervention. In the mode when it acts as a bridge between the PCI bus and the Serial ATA bus it will behave as a PCI slave.

The SiI3112A behaves either as a PCI master or a PCI slave device at any time and switches between these modes as required during device operation. As a PCI slave, the SiI3112A responds to the following PCI bus operations:

- I/O Read

- I/O Write

- Configuration Read

- Configuration Write

- Memory Read

- Memory Write

All other PCI cycles are ignored by the SiI3112A. As a PCI master, the SiI3112A generates the following PCI bus operations:

- Memory Read Multiple

- Memory Read

- Memory Write

Specification

On-Board Functions

SiI3112A PCI SATA Controller

Dual Channel Serial ATA Host Controller,
Serial ATA transfer rate of 1.5Gbit/second,
Spread spectrum receiver,
Single PLL for both channels,
Independent 256 byte (32-bit by 64) FIFO per channel.

Board Configuration

FLASH EPROM:	512KBytes - BIOS
Serial EEPROM:	OPTIONAL.
LED Indicator :	SATA Activity

PMC Interface

Bus Interface:	PCI 2.2 compliant
Bus Width:	32-bit
Bus Speed:	33/66MHz
PCI VI/O:	3.3V
Data Transfer:	PCI 2.2 Bus Mastering
Interrupts:	PCI INT #A
Memory Address:	BIOS assigned

SATA Interface

Serial ATA 1.0 Specification, 150MByte/second.

Operating Environment

Dimensions:	74.0mm x 149.0mm (single PMC size)
Power:	+3.3V 290mA typical
Environmental:	0 to 70 C, 95% humidity non-condensing

PMC Specification

IEEE Standard Physical and Environmental Layers for PCI Mezzanine Cards: PMC 1386.1

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