



- Available on various industry standard & custom bus platforms

UART

- 1 each of RS-232 / 422 channels (Standard UART)

Digital I/O

- 16 TTL/CMOS Level Digital I/Os pre-configured as 8 inputs and 8 outputs - Optional

MIL-STD-1553B - Optional

- 1 dual redundant channel
- Choice of DDC or UTMIC controller
- Programmable as BC, RT, BM or RT/MT modes
- Direct or Transformer coupled
- Default configuration -Transformer Coupled

ARINC429 - Optional

- Supports up to 2 ARINC429 controllers (4 Transmit / 8 Receive Channels)
- Configurable for High Speed/Low Speed
- Programmable Interrupts
- Software Driver support for a host of operating systems
- Software includes "Virtual Instrument Panel" for interactive card operation in stand-alone mode including:
 - Usage of Driver Library Functions
 - Commands for Register Level Operation

OVERVIEW

The ATS-XXX-MPAC family of products provide the highest level of performance and flexibility on various hardware interface architectures and custom platforms. Integrating MIL-STD-1553B, ARINC429, RS-232, RS-422 and Digital I/O channels, all in a single card, it offers the ideal platform for test & evaluation of avionics systems and sub-systems. While the UART and DIO features are provided as standard, the user has a choice of configuring the card to support either MIL-STD-1553B or ARINC429 or both. The card provides one dual redundant channel of MIL-STD-1553B and up to 2 ARINC429 controllers. Each ARINC429 controller provides 2Tx and 4Rx channels achieving a maximum of 4 Tx and 8 Rx channels.

The MIL-STD-1553B functionality is available with a choice of DDC or UTMIC controllers while ARINC429 is available only with DDC controller.

The ATS-XXX-MPAC is integrated with powerful software that reduces development time. All databus functionality is supported from our advanced API (Application Programming Interface) & VIP (Virtual Instrument Panel).

HARDWARE

PCI Card

The ATS-PCI-MPAC is a ¾ length card meeting PCI Local Bus Spec., Rev 2.1. It comes with a standard 62-pin D-type connector for all I/O connectivity.

PCI Plug & Play

The ATS-PCI-MPAC card provides full PCI plug & play compatibility greatly simplifying the installation of the card into a PCI compliant system. Both the BIOS and the OS can determine the memory and interrupt resources to be used by the card. As PCI interrupts are sharable, the OS can assign an interrupt of any PCI card in the system in the event of no free interrupt resources being available. The driver handles all such events.

VXIbus Modules

The ATS-VXI-MPAC module provides new levels of performance and flexibility for MIL-STD-1553B and ARINC429 interfaces on the VXIbus. The module provides VXI Plug&Play compatibility by implementing the MODID signal from the P2 connector.

The module is available as a register based instrument and is compliant to VXI revision 1.3 standard.

VXI Plug&Play

This is provided as a jumper option on the ATS-VXI-MPAC module. When the signal is enabled, the VXI system sends a query to the module regarding the information contained in its registers. These registers contain information such as manufacturer ID, module address space (A24 or A32), memory required, interrupt vector number etc.

VME Modules

The ATS-VME-MPAC modules meet the VME 64x standard and are available in both 3U and 6U formats. These modules are available in commercial version only. Front panel and Rear I/O connectivity options are provided for 6U modules.

CompactPCI Modules

The ATS-CPC-MPAC modules meet the CompactPCI specifications 2.0 Rev 3.0 and are available in both 3U and 6U formats. The cPCI modules are available in commercial grade only. Front panel and Rear I/O connectivity options are provided.

PMC Modules

The ATS-PMC-MPAC are single width PMC modules and are compliant with the IEEE P1386.1 PCI Mezzanine Card Standard.

I/O CONNECTIVITY

UART Channels

The ATS-XXX-MPAC cards provide two standard serial UART ports supporting RS-232 and RS-422 interfaces. These are capable of a maximum asynchronous baud rate of 115.2 Kb/s.

Digital I/O Channels

In addition to the serial I/O capabilities, the card is equipped with 16 TTL/CMOS level digital I/O channels. These are pre-configured as 8 inputs and 8 outputs. These can be used to generate an interrupt on any type of level shift event.

MIL-STD-1553B Interface - Optional

The ATS-XXX-MPAC card's single function MIL-STD-1553B architecture emulates a Bus Controller or 31 Remote Terminals or Bus Monitor or RT/MT modes. Polling and interrupt generation is also provided. Each 1553B channel comes with either 64K (DDC) or 32K (UTMC) of static RAM.

Transformer and Direct Coupling

The cards are provided with the option of using them either in the transformer mode or in the direct mode. A jumper is provided on the cards to select the mode. The default connectivity is transformer-coupled mode.

ARINC429 Interface - Optional

The card can be configured with up to 2 ARINC429 controllers. Each controller is configured with 2Tx & 4Rx channels and has 128 x 32 bit static RAM. Look-up tables loaded into the RAM enable the module's receive circuitry to filter and sort incoming data by label and destination bit. It also provides multilevel data specific interrupts or hardware triggers.

SOFTWARE

The ATS-XXX-MPAC software includes:

- Drivers & APIs
- Virtual Instrument Panel

Virtual Instrument Panel

The ATS-XXX-MPAC card comes with a "Virtual Instrument Panel" providing interactive control of all I/O features. The control interface appears on the computer display & user manipulates these controls with a mouse or keyboard. The purpose of Virtual Instrument Panel is to help the user (mostly system integrators) to quickly setup & use the card, just like a stand-alone instrument with physical front-end knobs, controls & display without getting into programming intricacies.

Drivers & APIs

The ATS-XXX-MPAC card comes with a powerful set of library functions to access the entire I/O functionality. The drivers are designed in a modular fashion consisting of component functions and application functions. The user's test program can be developed with few calls to the driver by using the set of application functions provided.

Driver and high-level API libraries for Windows 98, 2000, XP, NT, Linux & RT-Linux are available. Sample programs for BC, RT, MT modes are included.

PRODUCT SPECIFICATIONS

UART

- One each of standard serial UART ports supporting RS-232/422 interfaces
- Baud Rate – Max 115.2 kbps

Digital I/O Channels

- 16 digital I/O channels pre-configured as 8 Inputs and 8 Outputs
- TTL/CMOS level compatible I/O channels

MIL-STD-1553B - Optional

- Single channel dual redundant interface
- DDC or UTMC controller
- Programmable as BC or RT or BM or RT/MT
- 64K words of SRAM – DDC controller
- 32K words of SRAM – UTMC controller
- 31 remote terminal control
- Message formats: BC-RT, RT-BC, RT-RT, Broadcast, System Control
- Transformer or Direct coupling options

ARINC429 - Optional

- 1 or 2 ARINC429 controllers (Each controller – 2Tx / 4Rx)
- DDC controller
- 128 x 32 Shared RAM interface on each 6-channel controller (4Rx & 2RTx)
- Programmable Interrupts
- Configurable Bit Format Control
- Built-in Fault Detection Circuitry
- Wraparound Test for each channel

PCI Interface

- Standard PCI card

VXI Interface

- Device Type - VXI Register based instrument
- Interface – Slave A24 or A32, D16

VME Interface

- VME 64x, 3U/6U form factors
- A24/D16 interface

cPCI Interface

- cPCI 3U/6U form factors

PMC Interface

- Single width modules

Software Support

- Driver and High-level API libraries for Win 98, 2000, XP, NT, Linux, RT-Linux available for PCI modules
- Driver and High-level API libraries for Win 98, 2000, NT are available for VXI modules
- VxWorks and LynxOS support is available for VME, cPCI and PMC modules

Physical

- PCI - ¾ length desktop PCI card
- VXI – Single Slot, 'C' Size
- VME – 3U and 6U size
- cPCI – 3U and 6U size
- PMC – Single width size

Environmental

- Operating Temperature: 0°C to +50°C
- Storage Temperature: -20°C to +70°C

Warranty

1 year limited warranty

ORDERING INFORMATION

Hardware Selection

ATS - Platform - Spec - Form Factor - MPAC - 1553 - 429

Platform	Spec	Form Factor
1 - PCI	1 = Rev 2.1	1 = Standard Size
2 - VME	1 = 64 2 = 64x	1 = 3U 2 = 6U
3 - VXI	1 = Rev 1.3	1 = 'C' Size
4 - cPCI	1 = 2.1	1 = 3U 2 = 6U
5 - PMC	1 = P1386.1	1 = Single Size 2 = Double Size

Controller	Controller
0 = Without 429	0 = Without 1553
1 = 2 Tx/4Rx	1 = 1 Ch DDC
2 = 4 Tx/8Rx	2 = 1 Ch UTMC

Software Selection

Operating Systems/Environment Support

	Win98/2K/XP	WinNT	Linux	RT-Linux	LabWindowsCVI	LabVIEW	VxWorks	Lynx OS
PCI	1	2	3	4	5	6	-	-
VXI	-	-	-	-	7	8	-	-
VME	-	-	-	-	-	-	9	10
cPCI	-	-	-	-	-	-	11	12
PMC	-	-	-	-	-	-	13	14

ATS-Platform-MPAC-X : Substitute X with the appropriate number from above table.

: For more than one OS support indicate the appropriate number(s) separated by commas.

* Please contact sales department for cabling and connector options.



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