Force Multiplication through Information Technology©

► 4-Channel and 8-Channel Ultra High-Speed Serial I/O Adapters

The 4-Channel and 8-Channel Ultra High-Speed Serial I/O Adapters provide four or eight channels of simultaneous, ultra high-speed (>20 Mbps), bi-directional serial communications. All channels are jumper configurable as RS232/422/485. These adapters also support a number of UART (Universal Asynchronous Receiver/Transmitter) (<1 Mbps) channels. The adapters are available in the following industry standard compliant formfactors :
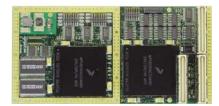
- PMC
  - Air-cooled PMC adapter with frontpanel I/O (IEEE Std 1386.1-2001)
  - Conduction-Cooled PMC (CCPMC) adapter with backplane I/O (ANSI/VITA 20-2001)
  - Conduction-Cooled PMC adapter with frontpanel I/O (may require modification to host carrier)
- PCI-104 (PCI-104 V2.0)
- PCI (PCI Local Bus Specification Rev. 2.3

PMC Adapter

PCI-104 Adapter

PCI Adapter

CCPMC Adapter

Architeture

The 4- and 8-Channel Ultra High-Speed Serial I/O Adapters are intelligent adapters designed with Motorola PowerQUICC II Integrated PowerPC Microprocessors as communication controllers. The PowerQUICC II processor can easily be configured to implement different serial protocols, thus allowing the adapters to keep up with technological advances. All high-speed serial I/O channels are implemented using the PowerQUICC II.

Features

- Cost-effective and flexible option for systems that require both high-speed, real-time communication links as well as some low-speed serial links
- Offers independent I/O processing offboard the host

Conduction-Cooling

The conduction-cooled 4-Channel and 8-Channel Ultra High-Speed Serial I/O PMC Adapters conform to the CCPMC (Conduction-Cooled PCI Mezzanine Card) Standard, namely ANSI/VITA 20-2001.

Applications

- Distributed real-time applications in harsh environments
- Mission-critical applications
- Avionics
- Vetronics
- Ultra high-speed sensor integration

4- and 8-Channel Ultra High-Speed Serial I/O

Board-Level

▶ 4-Channel and 8-Channel Ultra High-Speed Serial I/O Adapters

Bus Interface	32-bit, 33/66 MHz Electrically : PCI Rev. 2.2; 3,3 V signalling (some versions 3,3 V and 5 V)
I/O Addresses	Automatically assigned to the slot by PCI Rev. 2.2 Plug-and-Play
Non-Voltile	EEPROM for board ID (Plug-and-Play) and configuration options
Interrupts	PCI INT A
DMA	Automatic depending on PCI slot
Termination	100 Ohm (individually selectable for each SCC channel)

CPU	Motorola PowerQUICC II Integrated PowerPC Microprocessor
	    1 for 8 channels
	    2 for 8 channels

Power	3,3 V at 1,3 A 5 V at < 5 mA (5 V PCI versions only) 12 V at < 5 mA
Protocols	HDLC, SDLC, Async, BiSync

	SCC Channels	SMC Channels
Serial I/O Interfaces	RS-232 : TxD, RxD, RTS, CTS, CD, CLK_IN, CLK_OUT	RS-232 : RxD, TxD
	RS-422/485 : TxD, RxD, CLK_IN, CLK_OUT	

	Serial I/O Clocking	**RS-232**	**RS-422/485**
Bit Rates	Synchronous Mode	1 Mbps	20 Mbps
	Asynchronous Mode	1 Mbps	6,25 Mbps
	Maximum External Clock Frequency	500 kHz	16 MHz

MTBF	Figures according to MIL-HDBK-217F, Parts Stress Method		
	Commercial and Industrial Grades, 4-Channel	Ground Benign, Controlled, 25 C	790 000 hours
	Commercial and Industrial Grades, 8-Channel	Ground Benign, Controlled, 25 C	570 000 hours
	Ruggedised and Conduction-Cooled Grades, 4-Channel	Ground, Mobile, 45 C Naval, Sheltered, 40 C Airborne, Inhabited Cargo, 55 C	80 000 hours 190 000 hours 86 000 hours
	Ruggedised and Conduction-Cooled Grades, 8-Channel	Ground, Mobile, 45 C Naval, Sheltered, 40 C Airborne, Inhabited Cargo, 55 C	52 000 hours 126 000 hours 56 000 hours

Software Drivers	Various software drivers offered including for VxWorks, Linux, Windows NT, Windows 2000* and Windows XP* operating systems as standard; others are costed options. (*Standard PC HAL (Hardware Abstraction Layer) only)
Supporting	Sample software driver usage (C/C++ source code)

Physical Characteristics

Formfactor	Dimensions	Mass
PMC (IEEE Std 1386.1-2001)	149,00 mm x 74,00 mm, conforming to CMC envelope	90 g ± 10 g
CCPMC (ANSI/VITA 20-2001)	143,65 mm x 74,00 mm, conforming to VITA 20 envelope	80 g ± 5 g
PCI-104 (PCI-104 v2.0)	95,89 mm x 90,17 mm x 23,80 mm	90 g ± 5 g
PCI (PCI Local Bus Specification Rev. 2.3)	160,12 mm x 106,62 mm	120 g ± 5 g

4- and 8-Channel Ultra High-Speed Serial I/O

Board-Level

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Environmental Specifications

	Commercial	Industrial	Ruggedised/Conduction-
Temperature **- Operating** **- Storage**	0 C to +55 C -40 C to +85 C	0 C to +55 C -40 C to +85 C	-40 C to + 85 C -55 C to +125 C
Humidity	0% - 90%	0% - 95%	0% - 95%
Shock	N/A	30 g peak for 11 ms	40 g peak for 11 ms
Vibration **- Sine** **- Random**	2 g (peak) 10 Hz to 100 Hz 0,04 g²/Hz at 15 Hz to 2 kHz	10 g (peak) 5 Hz to 2 kHz 0,1 g²/Hz at 15 Hz to 2 kHz	10 g (peak) 5 Hz to 2 kHz 0,1 g²/Hz at 15 Hz to 2 kHz

Part Selector

Part Designation	Formfactor	Grade	No. of SCC Channels	No. of SMC Channels	PCI VIO
CCII/UHS/PMC/8P/FP3/COM	PMC	Commercial	8 x RS-232/422/485	4 x RS-232	3,3 / 5,0 V
CCII/UHS/PMC/8P/FP3/IND	PMC	Industrial	8 x RS-232/422/485	4 x RS-232	3,3 / 5,0 V
CCII/UHS/PMC/8P/FP3/RGD	PMC	Ruggedised	8 x RS-232/422/485	4 x RS-232	3,3/ 5,0 V
CCII/UHS/PMC/8P/BP/CC	CCPMC	Conduction-Cooled	8 x RS-232/422/485	0	3,3 V
CCII/UHS/PMC/4P/FP3/COM	PMC	Commercial	4 x RS-232/422/485	2 x RS-232	3,3 / 5,0 V
CCII/UHS/PMC/4P/FP3/COM	PMC	Industrial	4 x RS-232/422/485	2 x RS-232	3,3 / 5,0 V
CCII/UHS/PMC/4P/FP3/COM	PMC	Ruggedised	4 x RS-232/422/485	2 x RS-232	3,3 / 5,0 V
CCII/UHS/PMC/4P/BP/CC	CCPMC	Conduction-Cooled	4 x RS-232/422/485	0	3,3 V
CCII/UHS/PCI104/8P/FP3/COM	PCI-104	Commercial	2 x RS-232/422/485 6 x RS-422/485	4 x RS-232	3,3 V
CCII/UHS/PC104/8P/FP3/IND	PCI-104	Industrial	2 x RS-232/422/485 6 x RS-422/485	4 x RS-232	3,3 V
CCII/UHS/PC104/8P/FP3/RGD	PCI-104	Ruggedised	2 x RS-232/422/485 6 x RS-422/485	4 x RS-232	3,3 V
CCII/UHS/PC104/4P/FP3/COM	PCI-104	Commercial	2 x RS-232/422/485 4 x RS-422/485	4 x RS-232	3,3 V
CCII/UHS/PC104/4P/FP3/IND	PCI-104	Industrial	2 x RS-232/422/485 6 x RS-422/484	4 x RS-232	3,3 V
CCII/UHS/PC104/4P/FP3/RGD	PCI-104	Ruggedised	4 x RS-232/422/485	4 x RS-232	3,3 V
CCII/UHS/PCI/8P/FP3/COM	PCI	Commercial	8 x RS-232/422/485	4 x RS-232	3,3 V
CCII/UHS/PCI/8P/FP3/IND	PCI	Industrial	8 x RS-232/422/485	4 x RS-232	3,3 V