

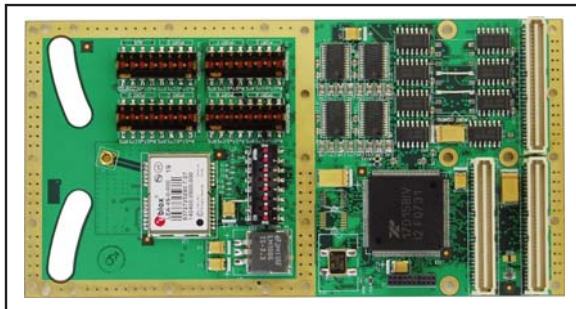
## ► GPS+7-Channel Serial I/O and 8-Channel Serial I/O Adapters

The GPS+7-Channel Serial I/O Adapter incorporates an integrated GPS (Global Positioning Service) receiver. This adapter also has seven user configurable serial I/O channels, with the eighth being dedicated to communication with the onboard GPS receiver.

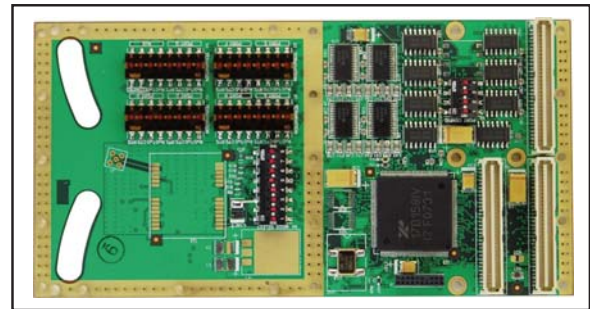
The 8-Channel Serial I/O Adapter provides eight channels of simultaneous, bidirectional UART (Universal Asynchronous Receiver/Transmitter) serial communications. All channels are individually configurable as RS-232/485 by means of a DIP switch.

The adapters are available in the following range of 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 (requires modification to host carrier)
- PCI-104 (PCI-104 v2.0)
- PCI (PCI Local Bus Specification Rev. 2.3)



**GPS+7-Channel Serial I/O**



**8-Channel Serial I/O**

### Architecture

Both Serial I/O Adapters employ a high performance, industry standard 16550 compatible, 8-channel PCI-based UART. The UART serial channels are connected to both RS-232 and RS-485 transceivers. The transceivers are enabled / disabled by onboard programmable logic, according to a user specified code which is entered into a configuration DIP (Dual In-line Package) switch.

### Features

- Cost-effective option for systems that require a large number of UART compatible serial communication links
- Allows direct low-level control of the serial communication links
- The adapter can implement many different combinations of RS-232 and RS-485 communications interfaces simultaneously

### Applications

- Distributed real-time applications in harsh environments
- Mission-critical applications
- Avionics
- Remote Access Servers



► **GPS+7-Channel Serial I/O and 8-Channel Serial I/O Adapters**

<b>Specifications</b>	
<b>Bus Interface</b>	32-bit, 33 MHz Electrically : PCI Rev.2.3, 3,3 V and 5,0 V signalling
<b>I/O Addresses</b>	Automatically assigned to the slot by PCI Rev. 2.3 Plug-and-Play
<b>EEPROM</b>	Optional EEPROM for board ID (PCI Plug-and-Play) and other user applications
<b>Interrupt</b>	PCI INT A
<b>Serial I/O Interface</b> User configurable for each channel	RS-232 :TxD, RxD, RTS, CTS, DTR, DSR, CD, RI
	RS-485 :TxD, RxD, RTS, CTS
<b>Termination</b>	100 ohm (individually selectable for each channel)
<b>Bit Rates</b> Standard rates up to	RS-232 : 1 Mbit/s RS-485 : 6,25 Mbit/s
<b>Special Functions</b>	<ul style="list-style-type: none"> <li>- RS-485 multi-drop support</li> <li>- RS-485 extended modes (additional flow control signals on selected RS-485 channels)</li> <li>- GPS backup battery support</li> <li>- Differential GPS (DGPS) support</li> <li>- GPS time-pulse output</li> </ul>
<b>UART ASIC</b>	EXAR XR17D158 Octal PCI UART
<b>GPS Module</b>	u-blox LEA-4S GPS Receiver Module
<b>GPS Specification</b>	L1 frequency, C/A Code, 16 Channels
<b>GPS Data Format</b>	NMEA 0183, UBX
<b>DGPS Data Format</b>	RTCM SC-104
<b>GPS Update Rate</b>	4 Hz
<b>Power</b>	8-Channel Serial I/O Adapter : 5,0 V at 0,35 A GPS+7-Channel Serial I/O Adapter : 5,0 V at 0,40 A
<b>Software Drivers</b>	The 8-Channel Serial CCPMC interface is compatible with the industry-standard 16550 UART. As such, no specific driver is required for most Operating Systems. VxWorks source code to locate the device in PCI space and obtain a pointer to the UART is supplied as an example. <ul style="list-style-type: none"> <li>- VxWorks 5.x, 6.x, Linux, Windows 2000, XP, Vista</li> </ul>
<b>Supporting Software</b>	Sample software driver usage (C/C++ source code)



► **GPS+7-Channel Serial I/O and 8-Channel Serial I/O Adapters**

Characteristics		
Formfactor	Dimensions	Weight
PMC (IEEE Std 1386.1-2001)	149,00 mm x 74,00 mm, conforming to CMC envelope	80 g ± 10 g (8-Ch.) 90 g ± 10 g (GPS+7-Ch.)
CCPMC (ANSI/VITA 20-2001)	143,65 mm x 74,00 mm, conforming to VITA 20 envelope	65 g ± 10 g (8-Ch.) 75 g ± 10 g (GPS+7-Ch.)
PCI-104 (PCI-104 v2.0)	95,89 mm x 90,17 mm x 23,80 mm	85 g ± 10 g (8-Ch.) 95 g ± 10 g (GPS+7-Ch.)
PCI (PCI Local Bus Specification Rev.2.3)	168,0 mm x 64,5 mm x 10,0 mm	80 g ± 10 g (8-Ch.) 90 g ± 10 g (GPS+7-Ch.)

Reliability				
MTBF	Figures according to MIL-HDBK-217F, Parts Stress Method			
8-Channel Serial	Ground, Mobile	T <sub>j</sub> = 65 C	T <sub>a</sub> = 45 C	37 000 hrs
	Naval, Sheltered	T <sub>j</sub> = 60 C	T <sub>a</sub> = 40 C	77 000 hrs
	Airborne, Inhabited Cargo	T <sub>j</sub> = 75 C	T <sub>a</sub> = 55 C	63 000 hrs
GPS+7-Channel Serial	Ground, Mobile	T <sub>j</sub> = 65 C	T <sub>a</sub> = 45 C	31 000 hrs
	Naval, Sheltered	T <sub>j</sub> = 60 C	T <sub>a</sub> = 40 C	64 000 hrs
	Airborne, Inhabited Cargo	T <sub>j</sub> = 75 C	T <sub>a</sub> = 55 C	46 000 hrs

Environmental Specifications			
	Commercial Grade	Industrial Grade	Ruggedised/Conduction-Cooled Grade
Temperature - Operating - Storage	0 C to +55 C -40 C to +85 C	-15 C to +75 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 g <sup>2</sup> /Hz at 15 Hz to 2 kHz	10 g (peak) 5 Hz to 2 kHz 0,1 g <sup>2</sup> /Hz at 15 Hz to 2 kHz	10 g (peak) 5 Hz to 2 kHz 0,1 g <sup>2</sup> /Hz at 15 Hz to 2 kHz



► **GPS+7-Channel Serial I/O and 8-Channel Serial I/O Adapters**

<b>Part Selector</b>				
<b>Part Designation</b>	<b>Formfactor</b>	<b>Grade</b>	<b>Serial I/O Channels</b>	<b>Product Status</b>
CCII/SIO/PMC/UART8/BP/CC CCII/SIO/PMC/GPS/BP/CC	CCPMC CCPMC	Conduction-Cooled Conduction-Cooled	8 x RS-232/485 GPS + 7 x RS-232/485	Production Production
CCII/SIO/PMC/UART8/FP/COM CCII/SIO/PMC/UART8/FP/IND CCII/SIO/PMC/UART8/FP/RGD CCII/SIO/PMC/GPS/FP/COM CCII/SIO/PMC/GPS/FP/IND CCII/SIO/PMC/GPS/FP/RGD	PMC PMC PMC PMC PMC PMC	Commercial Industrial Ruggedised Commercial Industrial Ruggedised	8 x RS-232/485 8 x RS-232/485 8 x RS-232/485 GPS + 7 x RS-232/485 GPS + 7 x RS-232/485 GPS + 7 x RS-232/485	Advance Advance Advance Advance Advance Advance
CCII/SIO/PC104/UART8/COM CCII/SIO/PC104/UART8/IND CCII/SIO/PC104/UART8/RGD CCII/SIO/PC104/GPS/COM CCII/SIO/PC104/GPS/IND CCII/SIO/PC104/GPS/RGD	PCI-104 PCI-104 PCI-104 PCI-104 PCI-104 PCI-104	Commercial Industrial Ruggedised Commercial Industrial Ruggedised	8 x RS-232/485 8 x RS-232/485 8 x RS-232/485 GPS + 7 x RS-232/485 GPS + 7 x RS-232/485 GPS + 7 x RS-232/485	Development Development Development Development Development Development
CCII/SIO/PCI/UART8/COM CCII/SIO/PCI/UART8/IND CCII/SIO/PCI/GPS/COM CCII/SIO/PCI/GPS/IND	PCI PCI PCI PCI	Commercial Industrial Commercial Industrial	8 x RS-232/485 8 x RS-232/485 GPS + 7 x RS-232/485 GPS + 7 x RS-232/485	Development Development Development Development