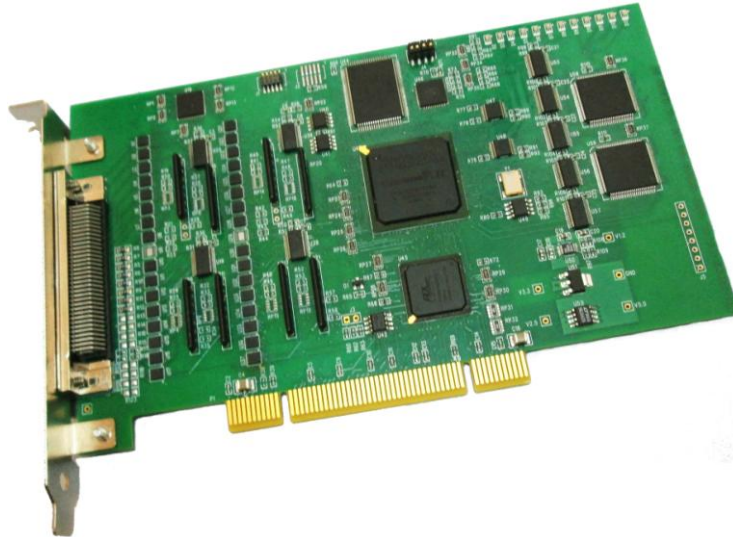


# **General Standards Corporation**

## **High Performance Bus Interface Solutions**

# **PCI66-SIO4B-SYNC**

**Four Channel High Performance Serial I/O PCI Card**  
*Featuring RS422/RS485 Transceivers  
and 32K Byte FIFO Buffers (256K Byte total)*



The PCI66-SIO4B-SYNC is a four channel synchronous serial interface card which provides high speed, full-duplex, multi-protocol serial capability for PCI applications. The PCI66-SIO4B-SYNC combines a flexible serial interface, deep external FIFOs, and fast RS422/RS485 transceivers to provide four fully independent synchronous serial channels. These features, along with a high performance 66MHz PCI interface engine, give the PCI66-SIO4B-SYNC unsurpassed performance in a synchronous serial interface card.

### **Features:**

- Four Independent RS422/RS485 Synchronous Serial Channels
- Independent Transmit and Receive FIFOs for each Serial Channel – 32K byte each
- Fast RS422/RS485 Differential Cable Transceivers Provide Data Rates up to 10Mbps
- Two Signal (Clock/Data) or Three Signal modes (Clock/Data/Data Valid)
- Programmable Oscillators provide increased flexibility for Baud Rate Clock generation
- Programmable Transmit Bit Counts allow for various transmit word lengths
- Programmable Transmit Gap Bit Counts allow for variable gap between words
- Fully Programmable Polarity on all signals
- Eight signals per channel, configurable as either DTE or DCE:  
3 Serial Clocks (TxC,RxC,AuxC), 2 Serial Data (TxD,RxD), 2 Data Valid (TxE,RxE), plus Spare
- Unused signals may be reconfigured as General Purpose IO
- SCSI type 68 pin front edge I/O Connector
- Standard Cable to four DB25 connectors and Custom Cables available
- Interchangeable 120 $\Omega$  Termination Resistors (RS422/RS485 Mode)
- Available drivers include VxWorks, WinNT, Win2k, WinXP, Linux, and Labview
- Industrial Temperature Option Available

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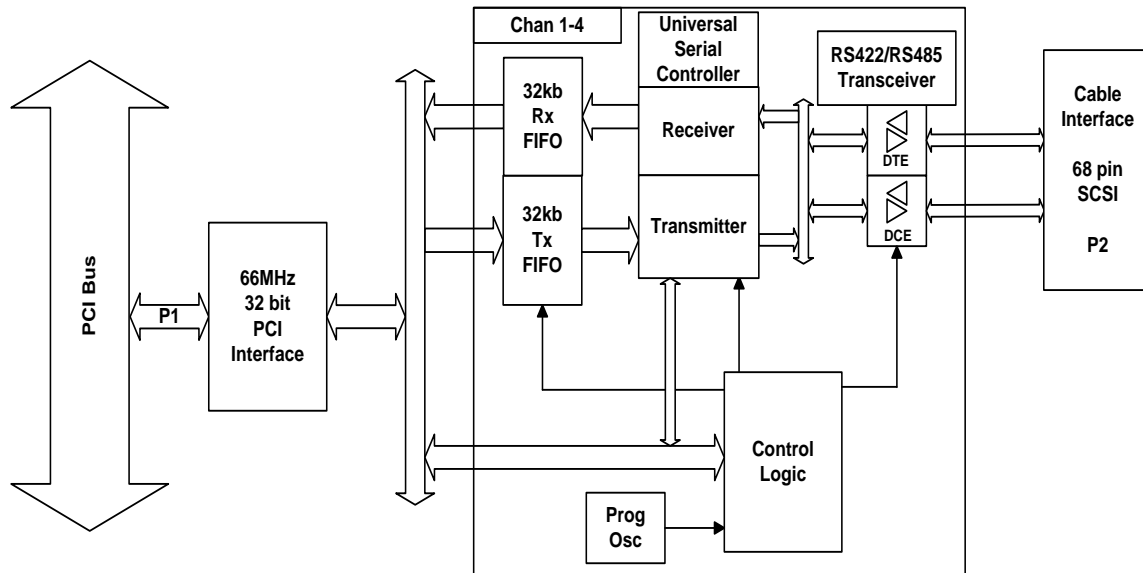
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### Functional Diagram:

The PCI66-SIOB-SYNC is a high performance, four channel serial board based on the SIO4BX-SYNC product line from General Standards Corporation. The PCI66-SIO4B-SYNC has a 66MHz PCI interface, RS422/RS485 transceivers, and 68 Pin SCSI Front Panel IO Connector.



### Serial Interface:

The flexible synchronous interface may be configured as a three signal interface - Clock, Data, and Envelope (Data Valid), or an even simpler two signal interface - Clock and Data. The PCIe4-SIO8BX-SYNC allows the serial interface to be further customized with the following user configurable options:

- Clocking Data on either rising or falling edge of the clock
- Active Hi or Active Lo polarity for the Envelope Signal
- NRZ (Level) or NRZB (Inverted Level) Data Encoding
- Clock and/or Data may be configured high or low while idle
- Transmit Word Size may be configured from 1 to 64k bits (consecutive bit count)
- Transmit Gap Size (clocks between words) can be configured from 0 to 64k bits
- Data may be transmitted MSB first or LSB first (8-bit or less word size).
- Transmit Clock may be configured from 10MHz down to 50Hz on a per channel basis
- Auxiliary Clock input from cable may be used as Transmit Clock
- Transmit and Receive direction may be defined as DTE or DCE for each channel

### Serial Signals:

- TxC - (Out) Transmit Clock
- TxD - (Out) Transmit Data
- TxE - (Out) Transmit Envelope (Data Valid)
- RxC - (In) Receive Clock
- RxD - (In) Receive Data
- RxE - (In) Receive Envelope (Data Valid)
- AuxC - (In/Out) Auxiliary Clock
- Spare - (In/Out) Spare General Purpose IO (May also be used as interrupt input)

The location of the transmit signals (TxC/TxD/TxE) and receive signals (RxC/RxD/RxE) on the cable may be swapped via software by setting DTE/DCE mode.

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## High Performance Bus Interface Solutions

### Power Requirements (@25° C):

- +5VDC ± 0.2 VDC at 2 Amps Max (typical 1.2 Amps)
- +12VDC ± 0.2 VDC at 0.03 Amps Max (typical 0.02 Amps)
- Typical Total Power Dissipation: ~6W

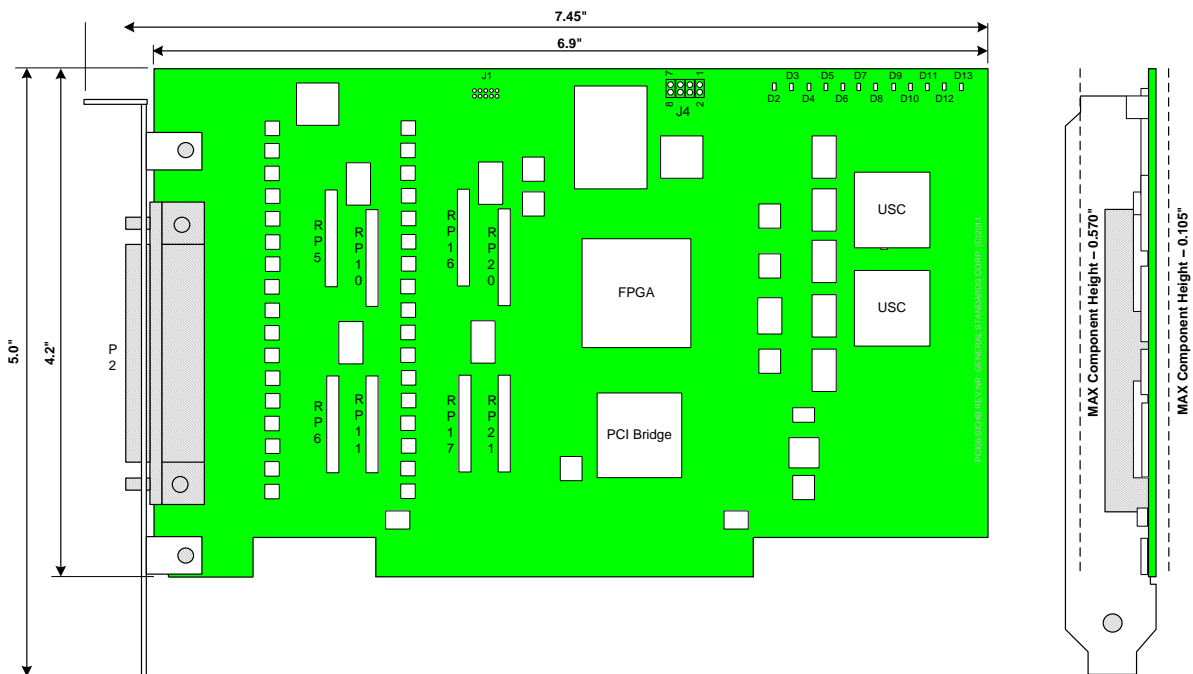
### PCI Compatibility:

- 32bit / 66MHz PCI r2.2 Compliant
- Direct Master DMA transfer
- Provides a single multifunction interrupt (INTA)
- 3.3V IO / 5V tolerant PCI bus interface

### Physical Characteristics:

Conforms to PCI Short Card Specification

Length: 6.9"  
Width: 4.2"



### Environmental Specifications:

Ambient Temperature Range: Operating: 0° to +70° C (Commercial Option)  
 -40° to +85° C (Industrial Option)  
 Storage: -40° to +85° C

Relative Humidity: Operating: 0 to 80%, non-condensing  
 Storage: 0 to 95%, non-condensing

Altitude: Operation to 10,000 ft

### Cooling Requirements:

Conventional air-cooling, 200 LPFM

### Ordering Information:

PCI66 - SIO4B - SYNC - <Temperature>

Option	Valid Selections	Description
Temperature	<blank>	0°C to +70°C – Commercial (Standard)
	I	-40°C to +85°C – Industrial

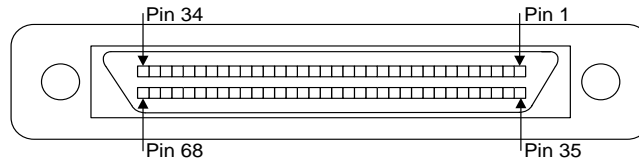
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## High Performance Bus Interface Solutions

### System I/O Connections:

User I/O Connector: 68-pin SCSI connector (female) - P2  
 Part Number: AMP/TYCO 787170-7  
 Mating Connector: AMP/TYCO 749111-6 (or equivalent)



Pin #	RS422/RS485		Pin #	RS422/RS485	
	DTE	DCE		DTE	DCE
1	AUXC1+		35	AUXC3+	
2	AUXC1-		36	AUXC3-	
3	SPARE1+		37	SPARE3+	
4	SPARE1-		38	SPARE3-	
5	RXE1+	TXE1+	39	RXE3+	TXE3+
6	RXE1-	TXE1-	40	RXE3-	TXE3-
7	RXD1+	TXD1+	41	RXD3+	TXD3+
8	RXD1-	TXD1-	42	RXD3-	TXD3-
9	RXC1+	TXC1+	43	RXC3+	TXC3+
10	RXC1-	TXC1-	44	RXC3-	TXC3-
11	TXE1+	RXE1+	45	TXE3+	RXE3+
12	TXE1-	RXE1-	46	TXE3-	RXE3-
13	TXD1+	RXD1+	47	TXD3+	RXD3+
14	TXD1-	RXD1-	48	TXD3-	RXD3-
15	TXC1+	RXC1+	49	TXC3+	RXC3+
16	TXC1-	RXC1-	50	TXC3-	RXC3-
17	SGND1		51	SGND3	
18	SGND2		52	SGND4	
19	RXE2+	TXE2+	53	RXE4+	TXE4+
20	RXE2-	TXE2-	54	RXE4-	TXE4-
21	RXD2+	TXD2+	55	RXD4+	TXD4+
22	RXD2-	TXD2-	56	RXD4-	TXD4-
23	RXC2+	TXC2+	57	RXC4+	TXC4+
24	RXC2-	TXC2-	58	RXC4-	TXC4-
25	TXE2+	RXE2+	59	TXE4+	RXE4+
26	TXE2-	RXE2-	60	TXE4-	RXE4-
27	TXD2+	RXD2+	61	TXD4+	RXD4+
28	TXD2-	RXD2-	62	TXD4-	RXD4-
29	TXC2+	RXC2+	63	TXC4+	RXC4+
30	TXC2-	RXC2-	64	TXC4-	RXC4-
31	SPARE2+		65	SPARE4+	
32	SPARE2-		66	SPARE4-	
33	AUXC2+		67	AUXC4+	
34	AUXC2-		68	AUXC4-	

**Table 1- Front Panel (P2) IO Connections**

General Standards Corporation assumes no responsibility for the use of any circuits in this product. No circuit patent licenses are implied. Information included herein supersedes previously published specifications on this product and is subject to change without notice.

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