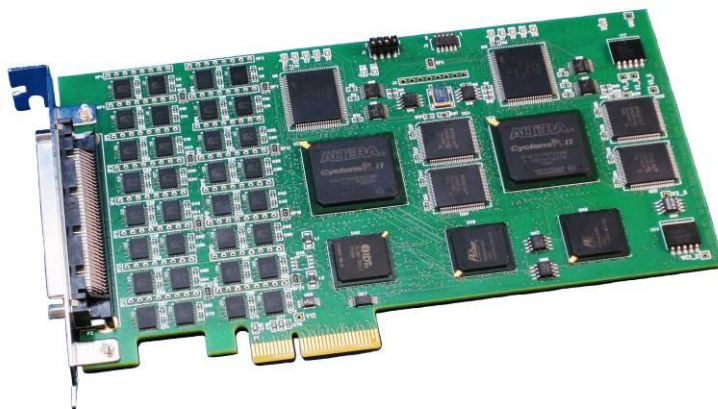


General Standards Corporation

High Performance Bus Interface Solutions

PCIe4-SIO8BX2

**Eight Channel High Performance Serial I/O PCIe Card
Featuring RS422/RS485/RS232 Software Configurable Transceivers
and 32K Byte FIFO Buffers (512K Byte total)**



The PCIe4-SIO8BX2 is an eight channel serial interface card which provides high speed, full-duplex, multi-protocol serial capability for PCIe applications. The PCIe4-SIO8BX2 combines multi-protocol Dual Universal Serial Controllers, deep external FIFOs, and software selectable multi-protocol transceivers to provide eight fully independent synchronous/asynchronous serial channels. These features, along with a high performance four lane PCIe interface engine, give the PCIe4-SIO8BX2 unsurpassed performance in a serial interface card.

Features:

- Four Lane PCI Express (PCIe4) Interface
- Eight Independent RS422/RS485/RS232 Serial Channels
- Serial Mode Protocols include Asynchronous, Monosync, Bisync, SDLC, HDLC, Nine-Bit, and IEEE 802.3
- Synchronous Serial Data Rates up to 10Mbps
- Asynchronous Serial Data Rates up to 1Mbps
- Independent Transmit and Receive FIFOs for each Serial Channel – 32K byte each
- Multi-protocol Transceivers support RS422/RS485 and RS232
- Parity and CRC detection capability
- Programmable Oscillators provide increased flexibility for Baud Rate Clock generation
- Low Force Helix (LFH) type 160 pin front edge I/O Connector
- Eight signals per channel, configurable as either DTE or DCE:
3 Serial Clocks (TxC,RxC,AuxC), 2 Serial Data signals (TxD,RxD), CTS, RTS, DCD
- Unused signals may be reconfigured as General Purpose IO
- Fast RS422/RS485 Differential Cable Transceivers Provide Data Rates up to 10Mbps
- RS232 Cable Transceivers Provide Data Rates up to 250kbps
- Industry Standard Zilog Z16C30 Multi-Protocol Universal Serial Controllers (USC®)
- Standard Cable to eight DB25 connectors and Custom Cables available
- Available drivers include VxWorks, WinNT, Win2k, WinXP, Linux, and Labview
- Industrial Temperature Option Available

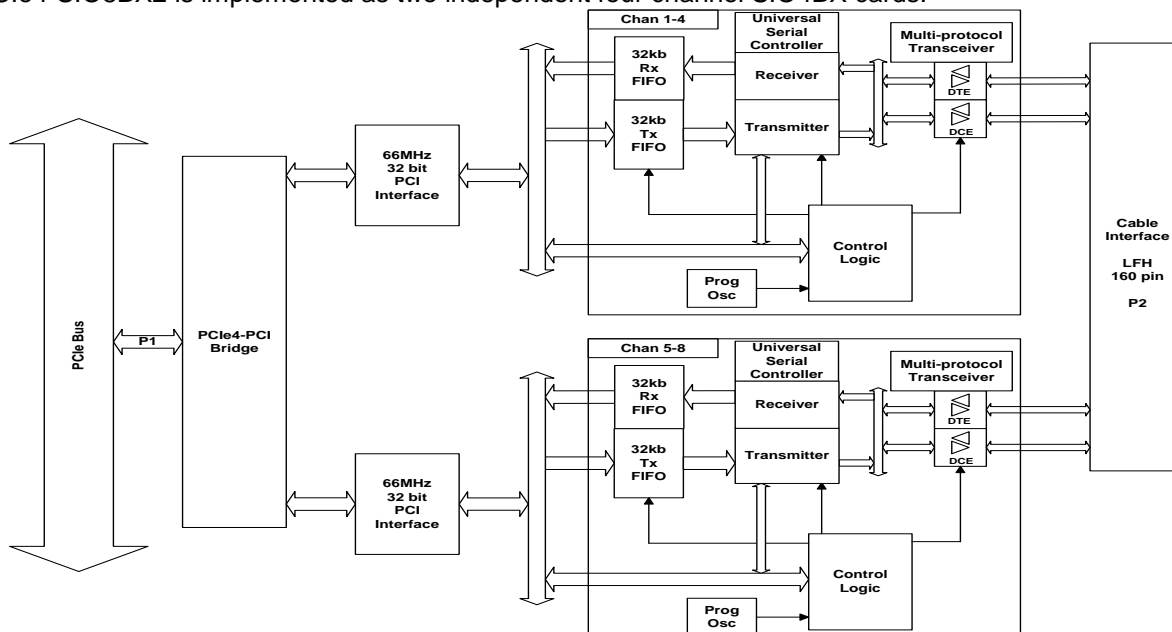
General Standards Corporation
8302A Whitesburg Drive · Huntsville, AL 35802
Phone: (256)880-8787 or (800)653-9970
FAX: (256)880-8788
Email: sales@generalstandards.com

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Functional Diagram:

The PCIe4-SIO8BX2 is a high performance, eight channel serial board based on the SIO4BX product line from General Standards Corporation. In order to maintain software compatibility, the PCIe4-SIO8BX2 is implemented as two independent four channel SIO4BX cards.



Universal Serial Controller Data Modes:

- Asynchronous Sample rates of 1/16, 1/32/ or 1/64 Clock Rate. Programmable Start/Stop/Parity Bits
- Isochronous 1x Synchronous Clocking . Programmable Start/Stop/Parity Bits
- Async with Code Violations Start Bit replaced with Three Bit Code Violation Pattern as in MIL-STD-1553B
- Monosync Single Character used for Synchronization
- Bisync Two Characters used for Synchronization
- HDLC Receiver recognizes Flags, Optional Address Matching, Zero Deletion, and CRC Checking
- Bisync Transparent Sync Pattern is DLE-SYN Programmable.
- NineBit Additional Address/Data bit between Parity and Stop Bits
- 802.3 Implements Data Format of 802.3 with 16 bit Address Compare
- Slaved Monosync Transmit Data is Synchronized to Received Data
- HDLC Loop Transmitter Echoes Received Messages

Universal Serial Controller Data Encoding:

- NRZ
- NRZB
- NRZI-Mark
- NRZI-Space
- Biphase Mark
- Biphase-Space
- Biphase Level
- Differential Biphase Level

See Zilog Z16C30 data sheet at www.zilog.com for detailed Universal Serial Controller Capabilities

General Standards Corporation
 8302A Whitesburg Drive · Huntsville, AL 35802
 Phone: (256)880-8787 or (800)653-9970
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Power Requirements (@25° C):

- +3.3VDC ± 0.2 VDC at 2.3 Amps Max (typical 1.7 Amps)
- +12VDC ± 0.2 VDC at 0.05 Amps Max (typical 0.03 Amps)
- Typical Total Power Dissipation: ~6.1W

PCIe Compatibility:

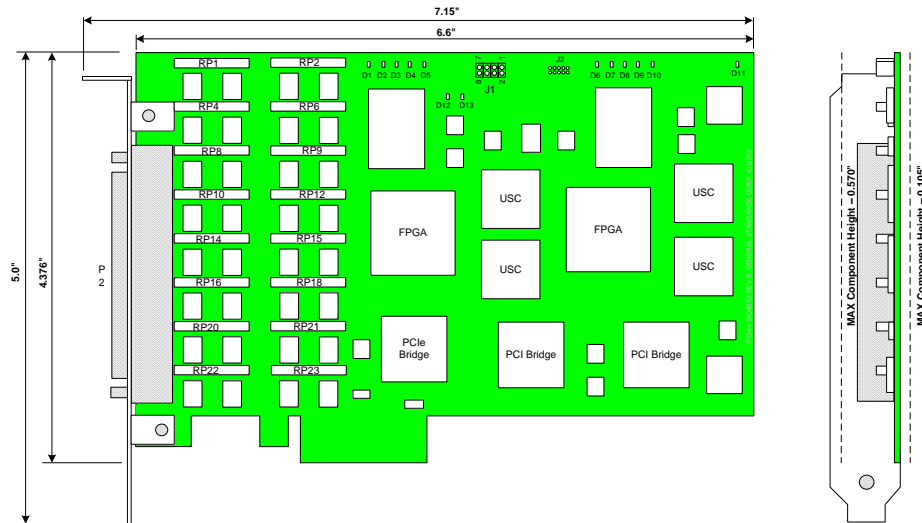
- PCI Express Base Specification (Revision 1.1)
- 4 lane PCIe support
- 512byte maximum payload support
- Lane reversal and lane polarity inversion
- End-to-end CRC (ECRC) check and generation
- Up to four outstanding memory reads
- Four, 128-byte read completion buffers
- ASPM L0s link state power management
- Legacy interrupt signaling and MSI interrupts

Physical Characteristics:

Conforms to PCIe Short Card Specification

Length: 167.65 mm (6.600")

Width: 111.15 mm (4.376")



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:

PCIe4 – SIO8BX2 - <Temperature>

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

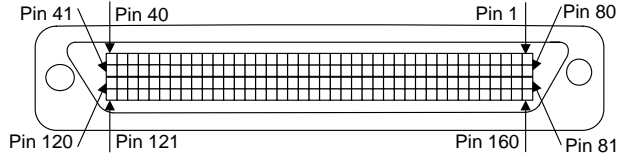
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 8302A Whitesburg Drive · Huntsville, AL 35802
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System I/O Connections:

User Interface Connector: 160-pin LFH connector (female) - P2.
 Part Number: Molex 51-24-1040.
 Mating Connector: Molex 70984-4009 (contacts – qty 4)
 Molex 71624-3000 (housing).



Note: RS422/RS485 mode or RS232 mode is set on a per channel basis

Pin	RS422/RS485		RS232		Pin	RS422/RS485		RS232	
	DTE	DCE	DTE	DCE		DTE	DCE	DTE	DCE
1	TXC1+	RXC1+	Unused (Hi)		80	TXD1+	RXD1+	Unused (Hi)	
2	TXC1-	RXC1-	TXC1	RXC1	79	TXD1-	RXD1-	TXD1	RXD1
3	RXC1+	TXC1+	Unused (Hi)		78	RXD1+	TXD1+	Unused (Hi)	
4	RXC1-	TXC1-	RXC1	TXC1	77	RXD1-	TXD1-	RXD1	TXD1
5	AUXC1+		Unused (Hi)		76	DCD1+		Unused (Hi)	
6	AUXC1-		AUXC1		75	DCD1-		DCD1	
7	Unused		Unused		74	CTS1+	RTS1+	Unused (Hi)	
8	Unused		Unused		73	CTS1-	RTS1-	CTS1	RTS1
9	RTS1+	CTS1+	Unused (Hi)		72	SGND1		SGND1	
10	RTS1-	CTS1-	RTS1	CTS1	71	Unused		Unused	
11	TXC2+	RXC2+	Unused (Hi)		70	Unused		Unused	
12	TXC2-	RXC2-	TXC2	RXC2	69	SGND2		SGND2	
13	RXC2+	TXC2+	Unused (Hi)		68	TXD2+	RXD2+	Unused (Hi)	
14	RXC2-	TXC2-	RXC2	TXC2	67	TXD2-	RXD2-	TXD2	RXD2
15	AUXC2+		Unused (Hi)		66	RXD2+	TXD2+	Unused (Hi)	
16	AUXC2-		AUXC2		65	RXD2-	TXD2-	RXD2	TXD2
17	Unused		Unused		64	DCD2+		Unused (Hi)	
18	Unused		Unused		63	DCD2-		DCD2	
19	RTS2+	CTS2+	Unused (Hi)		62	CTS2+	RTS2+	Unused (Hi)	
20	RTS2-	CTS2-	RTS2	CTS2	61	CTS2-	RTS2-	CTS2	RTS2
21	TXC5+	RXC5+	Unused (Hi)		60	TXD5+	RXD5+	Unused (Hi)	
22	TXC5-	RXC5-	TXC5	RXC5	59	TXD5-	RXD5-	TXD5	RXD5
23	RXC5+	TXC5+	Unused (Hi)		58	RXD5+	TXD5+	Unused (Hi)	
24	RXC5-	TXC5-	RXC5	TXC5	57	RXD5-	TXD5-	RXD5	TXD5
25	AUXC5+		Unused (Hi)		56	DCD5+		Unused (Hi)	
26	AUXC5-		AUXC5		55	DCD5-		DCD5	
27	Unused		Unused		54	CTS5+	RTS5+	Unused (Hi)	
28	Unused		Unused		53	CTS5-	RTS5-	CTS5	RTS5
29	RTS5+	CTS5+	Unused (Hi)		52	SGND5		SGND5	
30	RTS5-	CTS5-	RTS5	CTS5	51	Unused		Unused	
31	TXC6+	RXC6+	Unused (Hi)		50	Unused		Unused	
32	TXC6-	RXC6-	TXC6	RXC6	49	SGND6		SGND6	
33	RXC6+	TXC6+	Unused (Hi)		48	TXD6+	RXD6+	Unused (Hi)	
34	RXC6-	TXC6-	RXC6	TXC6	47	TXD6-	RXD6-	TXD6	RXD6
35	AUXC6+		Unused (Hi)		46	RXD6+	TXD6+	Unused (Hi)	
36	AUXC6-		AUXC6		45	RXD6-	TXD6-	RXD6	TXD6
37	Unused		Unused		44	DCD6+		Unused (Hi)	
38	Unused		Unused		43	DCD6-		DCD6	
39	RTS6+	CTS6+	Unused (Hi)		42	CTS6+	RTS6+	Unused (Hi)	
40	RTS6-	CTS6-	RTS6	CTS6	41	CTS6-	RTS6-	CTS6	RTS6

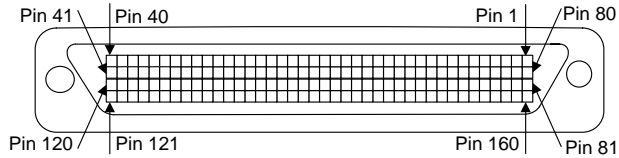
Table 1- Front Panel (P2) IO Connections

General Standards Corporation
 8302A Whitesburg Drive · Huntsville, AL 35802
 Phone: (256)880-8787 or (800)653-9970
 FAX: (256)880-8788
 Email: sales@generalstandards.com

General Standards Corporation

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System I/O Connections (cont):



Note: RS422/RS485 mode or RS232 mode is set on a per channel basis

Pin #	RS422/RS485		RS232		Pin #	RS422/RS485		RS232	
	DTE	DCE	DTE	DCE		DTE	DCE	DTE	DCE
81	TXD3+	RXC3+	Unused (Hi)		160	TXC3+	RXC3+	Unused (Hi)	
82	TXD3-	RXC3-	TXD3	RXD3	159	TXC3-	RXC3-	TXC3	RXC3
83	RXD3+	TXC3+	Unused (Hi)		158	RXC3+	TXC3+	Unused (Hi)	
84	RXD3-	TXC3-	RXD3	TXD3	157	RXC3-	TXC3-	RXC3	TXC3
85	DCD3+		Unused (Hi)		156	AUXC3+		Unused (Hi)	
86	DCD3-		DCD3		155	AUXC3-		AUXC3	
87	CTS3+	RTS3+	Unused (Hi)		154	Unused		Unused	
88	CTS3-	RTS3-	CTS3	RTS3	153	Unused		Unused	
89	SGND3		SGND3		152	RTS3+	CTS3+	Unused (Hi)	
90	Unused		Unused		151	RTS3-	CTS3-	RTS3	CTS3
91	Unused		Unused		150	TXC4+	RXC4+	Unused (Hi)	
92	SGND4		SGND4		149	TXC4-	RXC4-	TXC4	RXC4
93	TXD4+	RXD4+	Unused (Hi)		148	RXC4+	TXC4+	Unused (Hi)	
94	TXD4 -	RXD4-	TXD4	TXD4	147	RXC4-	TXC4-	RXC4	TXC4
95	RXD4+	TXD4+	Unused (Hi)		146	AUXC4+		Unused (Hi)	
96	RXD4-	TXD4-	RXD4	TXD4	145	AUXC4-		AUXC4	
97	DCD4+		Unused (Hi)		144	Unused		Unused	
98	DCD4-		DCD4		143	Unused		Unused	
99	CTS4+	RTS4+	Unused (Hi)		142	RTS4+	CTS4+	Unused (Hi)	
100	CTS4-	RTS4-	CTS4	RTS4	141	RTS4-	CTS4-	RTS4	CTS4
101	TXD7+	RXD7+	Unused (Hi)		140	TXC7+	RXC7+	Unused (Hi)	
102	TXD7-	RXD7-	TXD7-	RXD7-	139	TXC7-	RXC7-	TXC7	RXC7
103	RXD7+	TXD7+	Unused (Hi)		138	RXC7+	TXC7+	Unused (Hi)	
104	RXD7-	TXD7-	RXD7-	TXD7-	137	RXC7-	TXC7-	RXC7	TXC7
105	DCD5+		Unused (Hi)		136	AUXC7+		Unused (Hi)	
106	DCD7-		DCD7		135	AUXC7-		AUXC7	
107	CTS7+	RTS7+	Unused (Hi)		134	Unused		Unused	
108	CTS7-	RTS7-	CTS7	RTS7	133	Unused		Unused	
109	SGND7		SGND7		132	RTS7+	CTS7+	Unused (Hi)	
110	Unused		Unused		131	RTS7-	CTS7-	RTS7	CTS7
111	Unused		Unused		130	TXC8+	RXC8+	Unused (Hi)	
112	SGND8		SGND8		129	TXC8-	RXC8-	TXC8	RXC8
113	TXD8+	RXD8+	Unused (Hi)		128	RXC8+	TXC8+	Unused (Hi)	
114	TXD8-	RXD8-	TXD8	RXD8	127	RXC8-	TXC8-	RXC8	TXC8
115	RXD8+	TXD8+	Unused (Hi)		126	AUXC8+		Unused (Hi)	
116	RXD8-	TXD8-	RXD8	TXD8	125	AUXC8-		AUXC8	
117	DCD8+		Unused (Hi)		124	Unused		Unused	
118	DCD8-		DCD8		123	Unused		Unused	
119	CTS8+	RTS8+	Unused (Hi)		122	RTS8+	CTS8+	Unused (Hi)	
120	CTS8-	RTS8-	CTS8	RTS8	121	RTS8-	CTS8-	RTS6	CTS6

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

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General Standards Corporation
 8302A Whitesburg Drive · Huntsville, AL 35802
 Phone: (256)880-8787 or (800)653-9970
 FAX: (256)880-8788
 Email: sales@generalstandards.com