# PCI-SIO8BXS-SYNC

## High Speed Eight Channel Synchronous Serial to Parallel Controller
### *Featuring Multi-Protocol Serial I/O with Software Configurable Cable Transceivers and Deep FIFO Buffers (up to a total of 512 KB)*
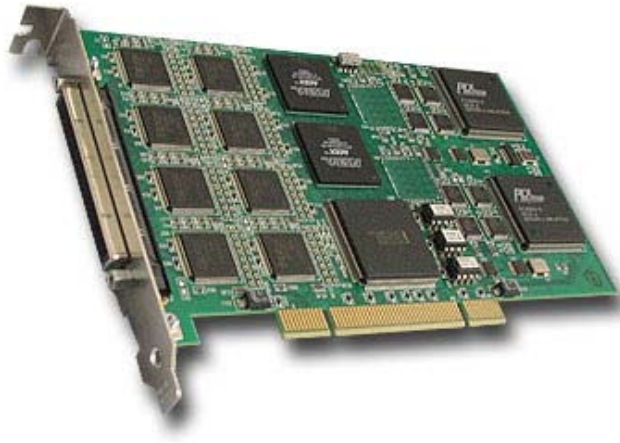


The PCI-SI08BXS-SYNC board is an eight channel serial interface card which provides a simple synchronous serial interface capability for PCI applications. The PCI-SIO8BXS-SYNC combines a flexible parallel/serial converter and 16 external FIFOs to provide eight fully independent synchronous serial channels. These features, along with a high performance PCI interface engine, give the PCI-SIO8BXS-SYNC unsurpassed performance in a serial interface card. The PCI-SIO8BXS-SYNC features software configurable cable transceivers (RS422, RS232 and others).

Features:
- Eight Independent Synchronous Serial Channels
- Serial Data Rates up to 10 Mbits/sec
- Low Force Helix (LFH) type 160 pin front edge I/O Connector with optional cable adapter to eight DB25 connectors.
- Independent Transmit and Receive FIFO Buffers for each Serial Channel – Up to 32k Deep Each
- Multi-protocol Transceivers support RS422 (V.11)/RS485, RS423 (V.10), RS232 (V.28), V.35, RS530A, as well as other Mixed Protocol modes.
- Fast RS422/RS485/V.35 Differential Cable Transceivers Provide Data Rate up to 10Mbps
- RS423 and RS232 Cable Transceivers Provide Data Rate up to 230kbps
- Programmable Transmit Bit Counts allow for various transmit word lengths
- Selectable Transmit Gap Bit Counts allow for a programmed number of clocks between words
- Unused Serial Channels can be programmed to provide General Purpose IO capability.
- Dual PCI DMA Engine to speed transfers and minimize host I/O overhead
- Two On-Board Programmable Oscillators provide increased flexibility for exact Baud Rate Clock generation
- A variety of device drivers are available, including VxWorks, WinNT, Win2000, Windows XP, Linux, and Labview

## Applications Include:

- LAN/WAN Networking
- Telecommunications
- Serial Interface

## Functional Diagram:

The PCI-SIO8BXS-SYNC is based on the four channel SIO4BX-SYNC product line from General Standards Corporation. In order to maintain software compatibility, the PCI-SIO8BXS-SYNC is implemented as two independent four channel SIO4BXS-SYNC cards. The following diagram shows the PCI-SIO8BXS-SYNC setup.
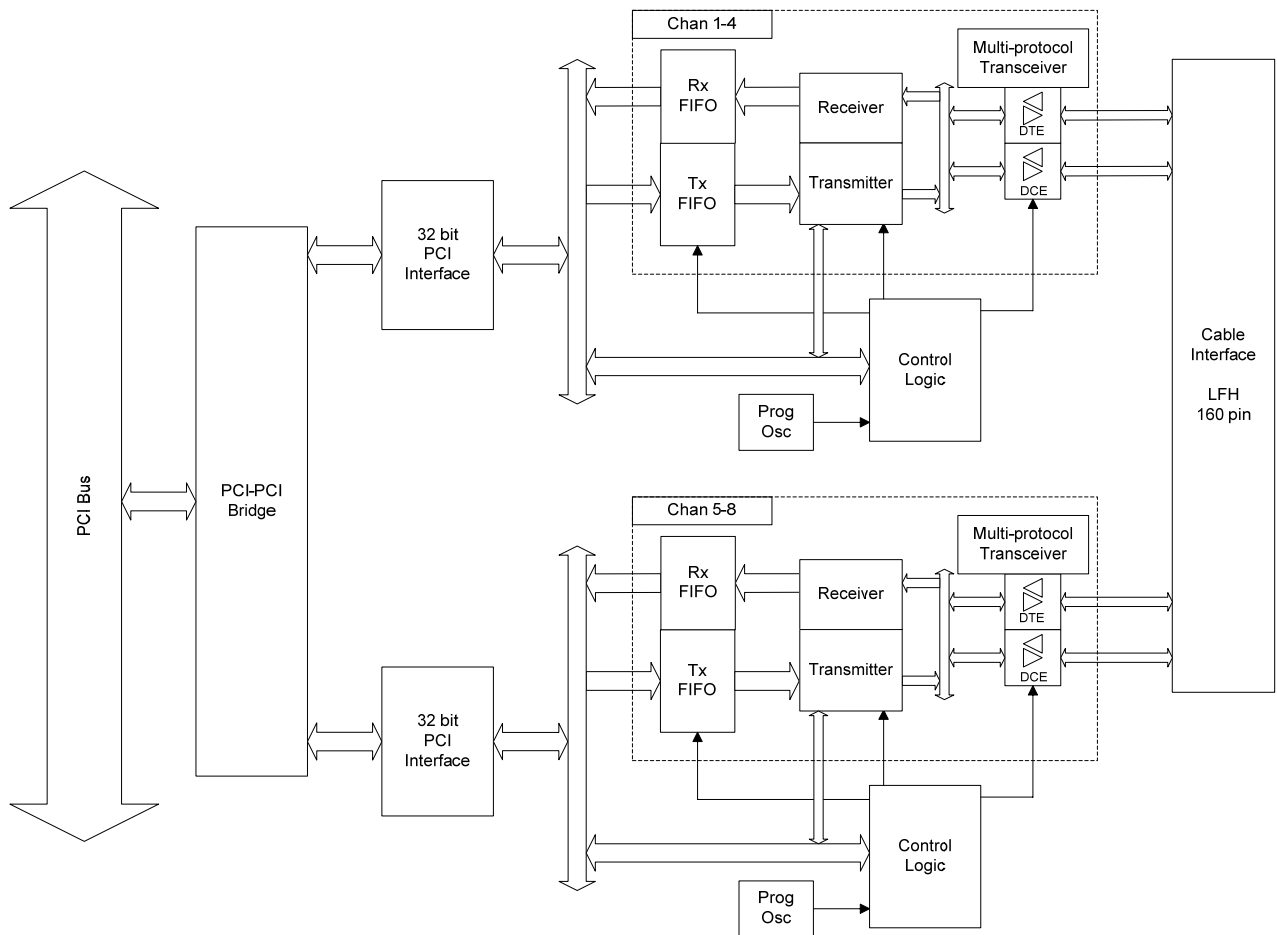
## Mechanical and Environmental Specifications:

### PCI Interface:

- Conforms to PCI Specification 2.1, with D32 read/write transactions.
- Supports "plug-n-play" initialization.
- Provides a single multifunction interrupt.
- Supports FIFO DMA transfers as bus master.

The PCI interface of the PCI-SIO8BXS-SYNC is implemented using three PCI bridge devices. The PCI-PCI bridge is an industry standard Intel 21152. This PCI-PCI bridge allows the SIO8BXS-SYNC to be implemented as two SIO4BX-SYNC boards, each with its own local PCI interface. An industry standard PCI9080 bridge chip from PLX Technology is used to implement PCI Specification 2.1. The PCI9080 provides the 32bit, 33MHz (132MBit/sec) interface between the PCI bus and the Local 32 bit bus.

### Electrical Characteristics:

- Power Requirements: +5VDC ± 0.2 VDC at 5 Amps Max (typical 1.4 – 2.0 Amps)
- Typical Power Dissipation: PCI-SIO8BXS-8KLC: ~8.85 W @ power up, ~7.00 – 9.5W under test
- Typical Power Dissipation: PCI-SIO8BXS-512K: ~9.83 W @ power up, ~8.25 – 10.5W under test
- At +25 $^O$C, with specified operating voltages

### Physical Characteristics:
The PCI-SIO8BXS matches the dimensions of the standard PCI "short" card specification.

### Environmental Specifications:

| | | |
|---|---|---|
| Ambient Temperature Range: | Operating: | 0 to +55 degrees Celsius |
| | Storage: | -40 to +85 degrees Celsius |
| 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:
The SIO8BXS-SYNC can accept FIFOs with depths ranging from 512 bytes to 32k bytes. Larger FIFO depth is important for faster interfaces to reduce the risk of data loss due to software overhead. The PCI-SIO8BXS-SYNC can be ordered with the following FIFO depths: 512 bytes, 8kbytes, or 32kbytes. Note that the FIFO size option in the board part number refers to the total FIFO size for all 8 channels, not the FIFO size of a single FIFO. For example, PCI-SIO8BXS-SYNC-64K would contain eight 8k deep FIFOs. Please consult our sales department for pricing and availability. . Please consult our sales department with your application requirements to determine the correct ordering option at quotes@generalstandards.com .

# General Standards Corporation
## High Performance Bus Interface Solutions

*System I/O Connections:*

| GSC PCI-SIO8BX-SYNC 160 LFH Connector Pin-out, Rev A: | | | |
|---|---|---|---|
| **1** TXC1+ | **80** TXD1+ | **81** TXD3+ | **160** TXC3+ |
| **2** TXC1- | **79** TXD1- | **82** TXD3- | **159** TXC3- |
| **3** RXC1+ | **78** RXD1+ | **83** RXD3+ | **158** RXC3+ |
| **4** RXC1- | **77** RXD1- | **84** RXD3- | **157** RXC3- |
| **5** AUXC1 | **76** DCD1+ | **85** DCD3+ | **156** AUXC3+ |
| **6** AUXC1- | **75** DCD1- | **86** DCD3- | **155** AUXC3- |
| **7** (DTR1+) | **74** CTS1+ | **87** CTS3+ | **154** (DTR3+) |
| **8** (DTR1-) | **73** CTS1- | **88** CTS3- | **153** (DTR3-) |
| **9** RTS1+ | **72** SGND1 | **89** SGND3 | **152** RTS3+ |
| **10** RTS1- | **71** Unused | **90** Unused | **151** RTS3- |
| **11** TXC2+ | **70** Unused | **91** Unused | **150** TXC4+ |
| **12** TXC2- | **69** SGND2 | **92** SGND4 | **149** TXC4- |
| **13** RXC2+ | **68** TXD2+ | **93** TXD4+ | **148** RXC4+ |
| **14** RXC2- | **67** TXD2- | **94** TXD4- | **147** RXC4- |
| **15** AUXC2+ | **66** RXD2+ | **95** RXD4+ | **146** AUXC4+ |
| **16** AUXC2- | **65** RXD2- | **96** RXD4- | **145** AUXC4- |
| **17** (DTR2+) | **64** DCD2+ | **97** DCD4+ | **144** (DTR4+) |
| **18** (DTR2-) | **63** DCD2- | **98** DCD4- | **143** (DTR4-) |
| **19** RTS2+ | **62** CTS2+ | **99** CTS4+ | **142** RTS4+ |
| **20** RTS2- | **61** CTS2- | **100** CTS4- | **141** RTS4- |
| **21** TXC5+ | **60** TXD5+ | **101** TXD7+ | **140** TXC7+ |
| **22** TXC5- | **59** TXD5- | **102** TXD7- | **139** TXC7- |
| **23** RXC5+ | **58** RXD5+ | **103** RXD7+ | **138** RXC7+ |
| **24** RXC5- | **57** RXD5- | **104** RXD7- | **137** RXC7- |
| **25** AUXC5+ | **56** DCD5+ | **105** DCD7+ | **136** AUXC7+ |
| **26** AUXC5- | **55** DCD5- | **106** DCD7- | **135** AUXC7- |
| **27** (DTR5+) | **54** CTS5+ | **107** CTS7+ | **134** (DTR7+) |
| **28** (DTR5-) | **53** CTS5- | **108** CTS7- | **133** (DTR7-) |
| **29** RTS5+ | **52** SGND5 | **109** SGND7 | **132** RTS7+ |
| **30** RTS5- | **51** Unused | **110** Unused | **131** RTS7- |
| **31** TXC6+ | **50** Unused | **111** Unused | **130** TXC8+ |
| **32** TXC6- | **49** SGND6 | **112** SGND8 | **129** TXC8- |
| **33** RXC6+ | **48** TXD6+ | **113** TXD8+ | **128** RXC8+ |
| **34** RXC6- | **47** TXD6- | **114** TXD8- | **127** RXC8- |
| **35** AUXC6+ | **46** RXD6+ | **115** RXD8+ | **126** AUXC8+ |
| **36** AUXC6- | **45** RXD6- | **116** RXD8- | **125** AUXC8- |
| **37** (DTR6+) | **44** DCD6+ | **117** DCD8+ | **124** (DTR8+) |
| **38** (DTR6-) | **43** DCD6- | **118** DCD8- | **123** (DTR8-) |
| **39** RTS6+ | **42** CTS6+ | **119** CTS8+ | **122** RTSC8+ |
| **40** RTS6- | **41** CTS6- | **120** CTS8- | **121** RTS8- |

The user interface connector on the SIO8BXS-SYNC is a 160-pin LFH connector (female) mounted to the front edge of the board (P2). The part number for this 160-pin LFH connector is Molex 51-24-1040. The mating cable connector is Molex 51-25-1040 or equivalent. Please see the PCI-SIO8BXS-SYNC User's Manual, available on our website, for more detailed pin-out descriptions, including pin-out charts for different modes of operation.

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