Symmetricom

PCI-SG 2U

Multi-Function Time and Frequency PCI Plug-in Card

KEY FEATURES

- IRIG A, B or 1 PPS Input
- IRIG B and 1 PPS Outputs
- 1 PPS to 1 MPPS Programmable Rate Synthesizer Output/Interrupt
- 1, 5, 10 MPPS Rate Generator Output/Interrupt
- External Event Input/Interrupt
- Programmable Time Compare Input/Interrupt
- Real Time Clock Backup
- Windows Control Panel Interface Software
- Optional Windows Software Developer's kit
- Zero Latency Time Reads
- 3.3V and 5.0V Universal Signaling

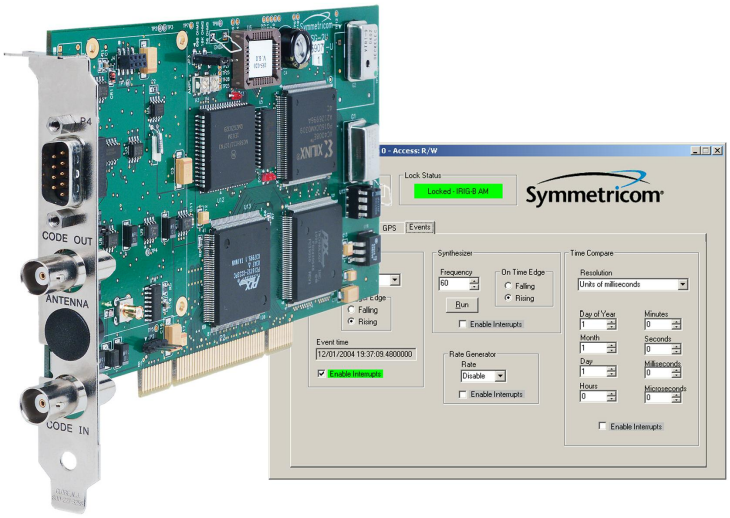
The PCI-SG 2U provides precise time to computers that have PCI expansion slots. The time is derived from an IRIG A or B time code input or the internal oscillator in the standalone generator mode. The frequency of the internal oscillator is precisely disciplined to that of the external synchronization input. Synchronization to an external 1 PPS is also possible.

Time, microseconds through years, and status information is supplied on demand over the 32-bit PCI bus. In addition to time and status, the PCI-SG 2U provides a 1 PPS pulse rate, a programmable time-compare register, a programmable frequency pulse rate, an external event time capture, and an IRIG B serial time code output.

Rear panel BNC connectors are used for the IRIG code input/output. A rear panel mounted multipin connector provides the 1 PPS pulse rate output, the programmable pulse rate output, the external event input signal and the input/output connections for the RS-422 versions of the input/output IRIG time code. You can also configure the analog input code with various input impedance choices.

The PCI-SG 2U automatically supports both the 3.3V and 5.0V signaling of the PCI bus. Information provided over the PCI bus includes time, status, and the time of occurrence of the external event. Interrupts generated by the programmable rate generator, the rate synthesizer, the occurrence of an external event input, and the time compare occurrence are also provided. Depending upon the operating mode, you can program the hours offset from UTC, leap second, year and daylight savings time. An on-board, capacitor-powered clock maintains time during a power failure condition for up to 48 hours.

Integration of the module is easily facilitated with the optional driver developer's kit for Windows®.



PCI-SG 2U Time & Frequency Processor

PCI-SG 2U Specifications

SYNCHRONIZED GENERATOR MODE

- Analog input code: IRIG A or B
  - Modulation ratio: 2:1 to 5:1
  - Input amplitude: 0.5 – 10 Vpp
  - Impedance: 50-600-10kΩ, selectable
  - Connector: BNC
  - Timing accuracy: 3 microseconds
- RS-422 input code: IRIG A or B
  - Timing accuracy: 1 microsecond
  - Connector: 9 pin D subminiature, selectable to BNC
- Error bypass: Factory set to three frames
- External 1 PPS input[1]: 1 microsecond timing accuracy (uses external event input port)

STAND-ALONE GENERATOR MODE

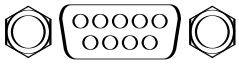
- Allows the user to preset, start and stop the PCI-SG 2U over the PCI bus.

ELECTRICAL SPECIFICATIONS

- IRIG B Serial code output (analog)
  - Amplitude: 3 Vpp into 600Ω
  - Ratio: 3:1
  - Connector: BNC
- IRIG B Serial code output (RS-422)
  - Amplitude: RS-422 levels
  - Input termination: Selectable,120Ω or none
  - Connector: 9 pin D subminiature, selectable to BNC (ACMOS)
- Oscillator
  - Accuracy: 5x10E-8 (when disciplined to IRIG Code)
  - Stability: 2.5 PPM, 0°C to +50°C, unlocked
- 1 PPS Pulse rate output
  - Amplitude: 0 – 5 Vdc[2], positive edge on time, 50% duty cycle
  - Connector: 9 pin D subminiature, selectable to BNC
- Pulse rate generator output
  - Rates: 1 PPS, 10 PPS, 100 PPS, 1 kPPS, 10 kPPS, 100 kPPS, 1 MPPS, 5 MPPS, 10 MPPS
  - Outputs: Interrupt and pulse, 0 – 5 Vdc[2]
  - Connector: 9 pin D subminiature, selectable to BNC
- Pulse rate synthesizer output
  - Rates: 1 PPS to 1 MPPS, step size 1 PPS
  - Outputs: Interrupt and pulse, 0 – 5 Vdc[2]
  - Connector: 9 pin D subminiature, selectable to BNC
- External event time capture
  - Resolution: 100's ns-years
  - Output: Interrupt
  - Event input: Selectable positive or negative edge of 2 – 5 Vdc pulse into approximately 2kΩ
  - Connector: 9 pin D subminiature
- Time compare output
  - Resolution: 100's ns – years
  - Outputs: Interrupt and pulse at compare time
  - Amplitude: +5 Vdc[2] on compare
  - Connector: 9 pin D subminiature
- Real time clock
  - Bus request resolution: 100's ns
  - Latency: Zero
  - Time format: BCD

MECHANICAL/ENVIRONMENTAL SPECIFICATIONS

- Connector
  - Code out: BNC
  - Code in: BNC
  - P4-module I/O: 9-pin D



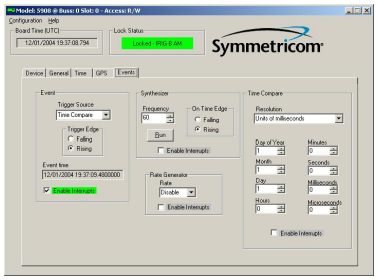
Pin	Direction	Signal
1	input	External Event/ 1 PPS
2	n/a	GND
3	Input +	DC Reference Code or TTL
4	Input -	DC Reference Code
5	Output	1 PPS
6	Selectable:	Time Compare or Rate Synthesizer
7	Output	Rate Generator
8	Output +	DC Generator Code or TTL
9	Output -	DC Generator Code

- PCI local bus™
  - Specification: PCI Local Bus™
    - 2.2 compliant
    - 2.3 compatible: does not provide interrupts at system start-up and therefore does not support the PCI Local Bus Specification Revision 2.3 feature of software disable of interrupts at start-up
    - PCI-X compatible
    - Not compatible with dual core processors
- Size: Single-width (4.2" x 6.875")
- Device type: PCI Target, 32 bit, 5V universal signaling
- Data transfer: Byte, Half Word, Word
- Power: +12VDC @ 100 mA
-12VDC @ 50 mA
+5VDC @ 1300 mA
- Operating temperature: 0°C to +50°C
- Storage temperature: -17°C to +85°C
- Humidity: To 95%, noncondensing
- Certification: FCC, CE, UR
- Real time clock: On board capacitor-powered clock maintains time during power fail conditions for up to 48 hours

- Complete specifications can be found in the manual located at http://www.symmttm.com/pdf/Bus/um_PCI-2U.pdf

SOFTWARE

The PCI-SG 2U includes the Symmetricom PCI_Panel application program Windows NT/2000/XP. Using this program you can review the PCI-SG 2U card status and adjust board configuration and output parameters. The program can also operate as a background task keeping the host computer clock synchronized to the PCI-SG 2U card.



PRODUCT INCLUDES

- PCI-SG 2U Time & Frequency card, PCI_Panel application program, Windows .dll and .sys drivers, manual, 9-pin D connector kit, one year warranty

OPTIONS

- Windows Software Developer's Kit
- For GPS synchronization, see the GPS-PCI 2U data sheet
- Transformer Coupled Input Code (single-ended or balanced)
- Transformer Coupled Output Code (balanced)

[1] When external 1 PPS is used as sync input, the external event is not available.

[2] 5 Vdc outputs have ACMOS levels.

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