

GX5292e

DYNAMICALLY CONTROLLED, HIGH SPEED DIGITAL I/O PXI EXPRESS CARD

- 32 input / output channels, dynamically configurable on a per channel basis
- 256 MB of on-board vector memory
- Supports 1.5 V, 1.8 V, 2.5 V, 3.3 V, and 5 V TTL/LVTTL interfaces
- Supports LVDS, M-LVDS, LVDM interfaces
- 100 MHz vector rate
- Stimulus / Response & Real Time Compare modes
- Operates as a stand-alone card or with up to seven additional synchronous slave boards



DESCRIPTION

The GX5292e is a high performance, cost-effective 3U PXI Express dynamic digital I/O boards offering 32 TTL or LVDS input or output channels with dynamic direction control. The GX5292e also supports deep pattern memory by offering 256 MB of on-board vector memory with dynamic per pin direction control and with test rates up to 100 MHz. The single board design supports both master and slave functionality without the use of add-on modules.

FEATURES

The GX5292e supports selectable I/O levels of 1.5 V, 1.8 V, 2.5 V, or 3.3 V (TTL, LVTTTL, CMOS, LVCMOS). In addition, the GX5292e supports 32 differential channels for LVDS, M-LVDS, or LVDM logic families. The TTL / LVTTTL interface utilizes a programmable voltage source, which sets the output logic levels from 1.4 V to 3.6 V. Programmable thresholds of 1.5 V, 1.8 V, 2.5 V or 3.3 V (5 V compatible) are supported for input signals. Recommended operating input voltage range is from 0 V to 5.5 V.

A windowing method is utilized for PCI memory accesses, which limits the required PCI memory space for each board to only 16 MB, thus preserving test system resources. A direct mode, for continuous data transfer between the test system controller and the I/O pins of the GX5292e is also supported.

The GX5292e offers 256 Mb of vector memory, with 64 Mb per channel. Programmable I/O width allows trading vector width for vector depth. Under software control, the GX5292e's vector memory can be configured to support channel widths of 32, 16, 8, 4, 2 and 1 with corresponding vector depths of 64 Mb, 128 Mb, 256 Mb, 512 Mb, 1024 Mb, and 2048 Mb per channel.

The GX5292e provides programmable TTL/LVTTTL output clocks and strobes, and supports external clock and strobe. A programmable PLL (phase locked loop) provides configurable clock frequencies and delays. An LVDS input and output clock is also provided.

The GX5292e's sequencer can halt or pause on a defined address or loop through the entire memory as well as loop on a defined address range or through a defined block of memory, address range or through a defined block of memory. Two modes digital test are also supported – a Stimulus / Response and a RealTime Compare mode. The Stimulus / Response mode is used for driving and capturing data. Alternatively, for digital tests requiring long test vectors, the Real-Time Compare mode can be used to significantly shorten overall test times by comparing in real-time, expected test results and logging only failed vectors and resultant test results (pass or fail).

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PROGRAMMING AND SOFTWARE

The GX5292e is supplied with DIOEasy, which provides powerful graphical vector development / waveform display tools as well as a virtual instrument panel, 32-bit DLL driver libraries, and documentation. The virtual panel can be used to interactively adjust and control the instrument from a window that displays the instrument's current settings and status. In addition, various interface files provide access to the library for programming tools and languages such as ATEasy, C/C++, Microsoft Visual Basic®, Delphi, and LabVIEW.

Optionally, DtifEasy is available for use with the GX5292e. DtifEasy offers a complete LASAR post-processor and test execution environment for post-processing and executing of LASAR generated .tap files.

APPLICATIONS

- Semiconductor test
- Displays, printers, and disk drive testing
- ASIC testing
- A/D and D/A testing
- Video acquisition / playback applications
- High speed, bi-directional bus testing / emulation

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SPECIFICATIONS

INPUT / OUTPUT CHANNEL FEATURES	
Logic Families	TTL / LVTTTL / CMOS / LVCMOS (1.5 V, 1.8 V, 2.5 V, 3.3 V, or 5 V), LVDS / LVDM / M-LVDS
I/O Levels	TTL / LVTTTL / CMOS / LVCMOS: Programmable Output Voltage Level 1.4 V (min); 3.6 V (max) Input Threshold 1.5 V, 1.8 V, 2.5 V, or 3.3 V (5 V tolerant) Recommended Operating Conditions 0 V (min); 5.5 V (max) LVDS / LVDM / M-LVDS: Recommended Operating Conditions Voltage Output: -1.4 V (min); 3.8 V (max) Voltage Input: 0.05 V (min); 3.3 V (max)
Channel Timing Skew	1 ns same card, 1 ns between cards
Number of Channels	32 I/O, direction and configuration is dynamically configurable on a per vector and per channel basis
Memory Depth Per Channel	64 Mb to 2 Gb
TEST MODES	
Stimulus / Response	Drive / Capture data, up to 64 Mb per channel
Real-Time Compare	Drive / Compare data against expected data pattern Expect & mask data on a per cycle basis
Real Time Compare Record Memory	1024 x 64 bits of record memory Records compared data and address
Real Time Compare Stop Modes	Stop on defined count errors (max is 1024) Stop when detected failures equal defined number of failures Stop on defined comparison data value Stop on defined program counter value

TIMING	
Internal Test Clock	
Frequency Range	5 Hz (min); 100 MHz (max)
Accuracy	Greater of (± 1 Hz or $\pm 0.02\%$ of programmed value) + accuracy of reference clock (PXI 10 MHz or external reference clock)
Jitter	± 20 mUI of internal clock frequency, max
Reference	PXI 10 MHz or XClk (external clock) input
Internal B Clock Output (TTL / LVTTTL)	
Frequency Range	300 KHz (min); 100 MHz (max)
Accuracy	Greater of (± 1 Hz or $\pm 0.5\%$ of programmed value) + accuracy of reference clock
Internal C Clock Output (LVDS / LVDM / M-LVDS)	
Frequency Range	3000 KHz (min); 100 MHz (max)
Accuracy	Greater of (± 1 Hz or $\pm 0.5\%$ of programmed value) + accuracy of reference clock
External Test Clock Input	
Frequency Range (Configured as Sample Clock)	0 Hz (min); 100 MHz (max)
Frequency Range (Configured as Input to PLL)	8 MHz (min); 10.5 MHz (max)
Pulse Width	40% (min), 60% (max)
Input Level	User selectable I/O level: 1.5 V, 1.8 V, 2.5 V, or 3.3 V (5 V tolerant)
External Strobe Clock Input	
Frequency Range	0 Hz (min); 100 MHz (max)
Logic Levels	TTL / LVTTTL / CMOS / LVCMOS Input Threshold 1.5 V, 1.8 V, 2.5 V, or 3.3 V (5 V tolerant)
POWER	
3.3 V _{DC}	200 mA (min); 4 A (max)
12 V _{DC}	0.03 mA (min); 0.1 mA (max)
ENVIRONMENTAL	
Operating Temperature	0 °C to +50 °C
Storage Temperature	-20 °C to +70 °C
Size	3U PXI
Weight	200 g

Note: Specifications are subject to change without notice

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ORDERING INFORMATION

GX5292e	PXle Dynamic Digital I/O (3U), 32 ch., per-pin control, 100 MHz w/256 MB memory & LVDS
SOFTWARE	
DIOEasy	Digital I/O control software including a vector generator and vector comparison
DIOEasy-FIT	DIOEasy file import tool kit converts STIL, WGL, VCD/EVCD files to Marvin Test Solutions digital file formats for the GX529x and GX5055 digital I/O cards
DIOEasy-FIT-UG	Upgrade for DIOeasy file import tool kit
DIOEasy-DS	2 days DIOEasy training at Marvin Test Solutions (Irvine, CA) for 1-3 persons. Call for larger groups.
DIOEasy-DS2	On-site, 2-days DIOEasy training seminars for 1-3 persons. Call for larger groups.
ACCESSORY	
GT95014	Connector Interface for GT5xxx/GX5xxx/GC5xxx, SCSI to 100 Mil Grid, Single Ended
GT95015	Connector Interface for all 5xxx/35xx, SCSI to 100 Mil Grid, Differential
GT95021	2' shielded cable for 5xxx/35xx products (68 Pin)
GT95022	3' shielded cable for 5xxx/35xx products (68 Pin)
GT95022E	3' shielded cable for 5xxx/35xx products (68 Pin) not terminated one end
GT95025	Connector Interface, 68-Pin SCSI to TTI Testron 170-Pin Signal Block
GT95028	10' shielded cable for 5xxx/35xx products (68 Pin)
GT95031	6' shielded cable for 5xxx/35xx products (68 Pin)
GT95032	6" Shielded Cable for all 5xxx/35xx (68 Pin)
GT95032-8	8" Shielded Cable for all 5xxx/35xx (68 Pin)
GT95032-12	12" Shielded Cable for all 5xxx/35xx (68 Pin)