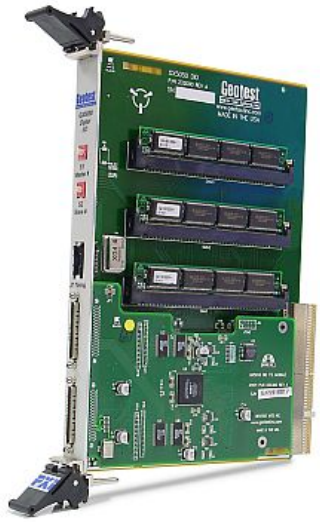
GX5050

DYNAMICALLY CONTROLLED HIGH SPEED DIGITAL I/O PXI CARD

- 32 bi-directional I/O pins (16 cards may be daisy-chained for a total of 512 pins)
- 3 MB or 12 MB of on-board memory
- External and programmable internal clock rates from 5 Hz to 50 MHz
- Dynamically controlled sequencer supports branching,looping, subroutines, & advanced features for UUT synchronization
- Multiple I/O options include TTL, PECL, LVDS, and Programmable levels



DESCRIPTION

The GX5050 is a high speed Dynamic Digital I/O card that provides a full set of features that is comparable to high speed I/O products found in large functional test systems. The card shares an identical architecture with the GC5050, but the GX5050 is a PXI card (6U) and the GC5050 is a PCI card. Both have the ability to operate independently of the host computer when in RUN mode.

FEATURES

The GX5050 provides real-time digital stimulus and capture with 32 pins per card. Up to 16 cards can be daisy-chained for a total of up to 512 pins. The 32 pins can be configured as input or output groups of eight. The direction of each group can be changed dynamically with the sequencer, externally, or via both methods. There is also a 16-bit external bus for triggering and synchronization with external events.

Clock and strobe signals are distributed to the cards via a daisy-chained ribbon cable. These signals can be generated internally or externally. The external control signals allow full synchronization with the unit under test (UUT) and minimize the initialization part of the test.

Algorithmic Sequencer Technology (AST™)
An innovative, state-of-the-art algorithmic sequencer allows users to create loops and branches to manipulate the output vectors. All of the sequencer commands can be conditioned using the External Event bus and may be programmed using the Graphical Vector Editor using Windows® API command or via a script language. This gives the GX5050 the capability to generate test vectors indefinitely at maximum test rates. Internal and external trigger and pause commands are available in several modes.

On-Board Memory
The on-board memory is configurable for 3 MB or 12 MB and is user upgradeable. Separate memories are provided for output data, response data, and test step sequencing commands. The separate memory for response data lets the application read the activity on the UUT pins independent of the bi-directional mode. This is an important feature lacking in most high speed digital I/O instruments.

Compatibility
The GX5050 operates in any 6U PXI slot that provides both 3.3 V and 5 V power supplies and is compatible with the Marvin Test Solutions GT50 and GT25 test vectors. Additionally, firmware can be upgraded using the unique In-System-Programming front panel.

DIGITAL I/O

GX5050

I/O MODULES

The GX5050 offers a variety of I/O modules with input and output levels that meet the requirement of any digital test application, including TTL, PECL, ECL, Programmable Levels, LVDS, and custom modules. I/O module type and memory size must be specified at the time the GX5050 is ordered.

[##
|~
!-I/O Modules-!
!-Channels-!
!-Levels-!
|~
|-TTL-|
|-32-|
|-5 V and 3.3 V logic-|
|~
|-PECL-|
|-32-|
|-Positive ECL-|
|~
|-LVDS-|
|-32-|
|-LVDS-|
|~
|-Programmable Levels-|
|-32-|
|-0.3 V to 9 V-|
##]

CONFIGURATION

The GX5050 can be configured as a Master or as a Slave. The Master provides timing signals for up to 15 Slaves.

PROGRAMMING AND SOFTWARE

The board is supplied with GTDIO/DIOEasy, a software package that includes vector editing, a virtual instrument panel, and 32/64-bit DLL driver libraries and documentation. The virtual panel can be used to interactively program and control the instrument from a window that displays the instrument's current settings and status. In addition, interface files are provided to support access to programming tools and languages such as ATEasy, LabView, C/C++, Microsoft Visual Basic®, Delphi, and Pascal. On-Line help file and PDF User's Guide provides documentation that includes instructions for installing, using and programming the board.

APPLICATIONS

- Automatic Test Equipment (ATE)
- High-speed functional digital test
- Vector capture
- Hybrid and digital device test
- Memory testing
- Event sequencer, logic pattern capture

DIGITAL I/O

GX5050

SPECIFICATIONS

TIMING	
Internal Test Clock	5 Hz to 50 MHz
Resolution	1 Hz or 0.01% (whichever is greater)
Auxiliary Internal Clock B	1 MHz to 100 MHz
Resolution	1 Hz or 0.2% (whichever is greater)
Internal Strobe	10 to 25 ns before next clock
External Test Clock	0 to 50 MHz
Skew	3 ns max on the same card 5 ns max between cards
I/O	
The I/O levels are I/O module dependant. I/O modules support TTL, PECL, LVDS, and Programmable Levels	
Number of I/O Channels	32 per Card
Direction	Input or Output per step (in groups of eight)
Memory	256 Kb to1 Mb per I/O pin (UMbit optional)
Triggering	Software generated trigger External Input trigger override Conditional triggering (Conditioned by one or two sequential external events)
Pause	Software generated pause External Input pause override Conditional pause (Conditioned by an external event) Sequencer Pause command
EXTERNAL CONTROL AND STATUS	
Output Enable	Tri-state control for groups of eight (8) I/O pins
External Clock Enable	Internal, external clock selection
Clock Output	The selected clock
External Strobe	The selected strobe
Pause	External pause override input
Trigger	External trigger override input
Run	Run indicator output
B Clock	Auxiliary clock output
V_{CC}	+5 V_{DC} output

ENVIRONMENTAL	
Operating Temperature	0 °C to +50 °C
Storage Temperature	-20 °C to +70 °C
Vibration	5 g @ 500 Hz
Shock	10 g for 6 ms ½ sine
Size	6U PXI
Weight	1.2 lbs (520 g)
CONNECTIONS	
Timing	68 position SCSI III Type
I/O Module	68 position SCSI III Type
Control	68 position SCSI III Type

Note: Specifications are subject to change without notice

DIGITAL I/O

GX5050

ORDERING INFORMATION

GX5050-256K	Dynamic Digital I/O Master/Slave (PXI), 32 Channels up to 50 MHz w/256Kb Channel Memory and a Mating Cable. Requires one GX59XX I/O Module
GX5050-1M	Dynamic Digital I/O Master/Slave (PXI), 32 Channels up to 50 MHz w/1Mb Channel Memory and a Mating Cable. Requires one GX59XX I/O Module
I/O MODULE (SELECT ONE)	
GX5910	TTL I/O Module
GX5930	Programmable Level I/O Module
GX5940	PECL I/O Module
GX5960	LVDS I/O Module
SOFTWARE	
DIOEasy	Digital I/O Vector Development Software
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	
TS-900e-5G-BMC	Blind mate connectors (one pair), DC - 40 GHz, 2.92mm
GT95015	Connector Interface for all 5xxx/35xx, SCSI to 100 Mil Grid, Differential
GT95021	2 ft. Shielded Cable for all 5xxx/35xx (68 Pin)
GT95022	3 ft Shielded Cable for all 5xxx/35xx (68 Pin)
GT95022E	3 ft Shielded Cable for all 5xxx/35xx (68 Pin) Not Terminated One End
GT95025	Connector Interface, 68-Pin SCSI to TTI Testron 170-Pin Signal Block
GT95028	10 ft shielded cable for 5xxx/35xx products (68 Pin)
GT95031	6 ft Shielded Cable for all 5xxx/35xx (68 Pin)
GT95035E-48	Shielded Flying Lead Cable for all 5xxx/35xx (68 Pin), 48".
GX98604	6U "Wireless" Scout Adapter for GX5050/GX5051 (200-Pin Scout Signal Connectors)
GT95028E	10 ft shielded cable for 5xxx/35xx products (68 Pin) not terminated one end
GT95014	Connector Interface for GT5xxx/GX5xxx/GC5xxx, SCSI to 100 Mil Grid, Single Ended
GT95018	Connector Interface Transition Board