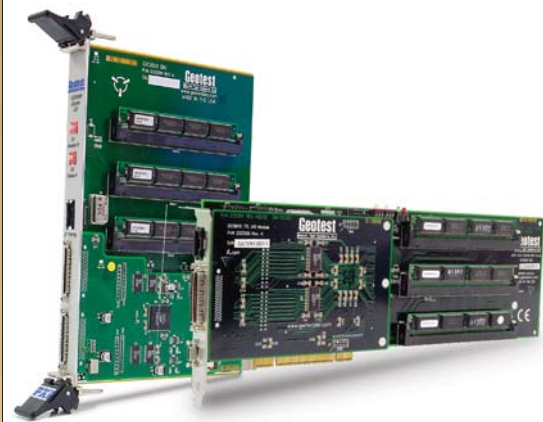


GX5050 / GC5050

DYNAMICALLY CONTROLLED HIGH SPEED DIGITAL I/O

- 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 using opcodes and conditional logic block for branching, looping, subroutines, and more providing advanced features for UUT synchronization
- Sequencer opcodes include conditional/unconditional jump, loop, call, return, pause, and halt
- Multiple I/O options include TTL, PECL, LVDS, and Programmable levels
- Geotest graphical vector development environment (DIOEasy) for generating, editing, capturing, and comparing complex digital patterns
- Supports up to 50 MHz clock frequency per channel for a total of 1.6 GB of data per second
- 6U PXI (GX5050) or PCI (GC5050) Plug and Play (PnP) boards



DESCRIPTION

The GX5050 and GC5050 are high speed Dynamic Digital I/O cards that provide a full feature set comparable to high speed I/O products found in large functional test systems. Both cards share an identical architecture, 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/GC5050 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 both. 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/GC5050 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 from 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 applications.

Compatibility

The GX5050/GC5050 operates in any full size PCI or 6U PXI slot that provides both 3.3 V and 5 V power supplies and are compatible with the Geotest GT50 and GT25 boards Test vectors. Additionally, firmware can be upgraded using the unique In-System-Programming front panel.

I/O MODULES

The GX5050/GC5050 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, Frequency Doubler, LVDS, and custom modules. I/O module type and memory size must be specified at the time the GX5050/GC5050 is ordered.

I/O MODULE	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

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CONFIGURATION

The GX5050/GC5050 can be configured as a Master or as a Slave. The Master provides timing signals for up to 15 Slaves.

SOFTWARE

The GX5050/GC5050 is supplied with DIOEasy, a software package that includes vector editing, virtual instrument panel, which includes the 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 current instrument settings and measurements. In addition, various interface files provide access to the library for programming tools and languages such as ATEasy, Microsoft® and Borland® C/C++, Microsoft Visual Basic®, Borland Delphi, and Pascal.

APPLICATIONS

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

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 Kbit to 1 Mbit 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
EXTERNAL EVENT BUS	16-bit input bus for monitoring events used for conditional commands
EXTERNAL CONTROL AND STATUS (CONT'D)	
PAUSE	External pause override input
TRIGGER	External trigger override input
RUN	Run indicator output
B CLOCK	Auxiliary clock output
VCC	+5 V _{DC} output
ENVIRONMENTAL	
OPERATING TEMPERATURE	0 to 50° C
STORAGE TEMPERATURE	-20° C to +70° C
VIBRATION	5 g at 500 Hz
SHOCK	10 g for 6 ms ½ sine
PHYSICAL DIMENSIONS	
SIZE	Full size PCI slot (GC5050); 6U PXI (GX5050)
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 (GX5050) 14 position SCSI III Type (GC5050)

Note: Specifications are subject to change without notice.

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PIN ASSIGNMENT

CONTROL CONNECTOR (GC5050)			
GND	1	8	SDIN
OEN0	2	9	SSYNC
OEN1	3	10	JA
OEN2	4	11	XOE0
OEN3	5	12	XOE1
SCLK	6	13	XOE2
SDOUT	7	14	XOE3

CONTROL CONNECTOR (GX5050)			
GND	1	35	GND
N/C	2-5	36-39	N/C
GND	6	40	GND
N/C	7-10	41-44	N/C
GND	11	45	GND
N/C	12-13	46-47	N/C
SCLK	14	48	GND
SSYNCCC	15	49	GND
EXT15	16	50	GND
SDIN	17	51	GND
GND	18	52	GND
OEN0	19	53	GND
OEN1	20	54	GND
OEN3	21	55	GND
GND	22-23	56-57	GND
XOE0	24	58	GND
XOE1	25	59	GND
XOE2	26	60	GND
XOE3	27	61	GND
GND	28	62	GND
JA	29	63	GND
N/C	30	64	GND
5V	31-32	65-66	GND
VTHI	33	67	VTHI
VTLO	34	68	VTLO

UUT I/O DATA CONNECTOR, J5			
IO0+	1	35	IO0-
IO1+	2	36	IO1-
IO2+	3	37	IO2-
IO3+	4	38	IO3-
IO4+	5	39	IO4-
IO5+	6	40	IO5-
IO6+	7	41	IO6-
IO7+	8	42	IO7-
IO8+	9	43	IO8-
IO9+	10	44	IO9-
IO10+	11	45	IO10-
IO11+	12	46	IO11-
IO12+	13	47	IO12-
IO13+	14	48	IO13-
IO14+	15	49	IO14-
IO15+	16	50	IO15-
IO16+	17	51	IO16-
IO17+	18	52	IO17-
IO18+	19	53	IO18-
IO19+	20	54	IO19-
IO20+	21	55	IO20-
IO21+	22	56	IO21-
IO22+	23	57	IO22-
IO23+	24	58	IO23-
IO24+	25	59	IO24-
IO25+	26	60	IO25-
IO26+	27	61	IO26-
IO27+	28	62	IO27-
IO28+	29	63	IO28-
IO29+	30	64	IO29-
IO30+	31	65	IO30-
IO31+	32	66	IO31-
MS	33	67	MS
MS	34	68	MS

TIMING TO UUT CONNECTOR, J2			
EXT0	1	35	GND
EXT1	2	36	GND
EXT2	3	37	GND
EXT3	4	38	GND
EXT4	5	39	GND
EXT5	6	40	GND
EXT6	7	41	GND
EXT7	8	42	GND
EXT8	9	43	GND
EXT9	10	44	GND
EXT10	11	45	GND
EXT11	12	46	GND
EXT12	13	47	GND
EXT13	14	48	GND
EXT14	15	49	GND
EXT15	16	50	GND
GND	17	51	GND
ORUN	18	52	GND
GND	19	53	GND
BCLK	20	54	GND
GND	21	55	GND
OCLK	22	56	GND
GND	23	57	GND
OSTB	24	58	GND
GND	25	59	GND
XTRIG	26	60	GND
XPAUSE	27	61	GND
XCLKEN	28	62	GND
XSTBEN	29	63	GND
GND	30	64	GND
XCLK	31	65	GND
XSTB	32	66	GND
VCC	33	67	VCC
GND	34	68	GND

GX5050 / GC5050

ORDERING INFORMATION

PXI DYNAMIC DIGITAL I/O	
GX5050-256	Dynamic Digital I/O Master/Slave (PXI), 32 channels up to 50 MHz w/256 K channel memory, DIOEasy, 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/1M channel memory, DIOEasy, and a mating cable. Requires one GX59xx I/O module
GX5910	TTL I/O Module (PXI)
GX5930	Programmable Levels I/O Module (PXI)
GX5940	PECL I/O Module
GX5960	LVDS I/O Module (PXI)
DIOEASY	Digital I/O control software including a vector generator and vector comparison
PCI DYNAMIC DIGITAL I/O	
GC5050-256K	Dynamic Digital I/O Master/Slave (PCI), 32 channels up to 50 MHz w/256K channel memory, DIOEasy, and a mating cable. Requires one GC59xx I/O module
GC5050-1M	Dynamic Digital I/O Master/Slave (PCI), 32 channels up to 50 MHz w/1M channel memory, DIOEasy, and a mating cable. Requires one GC59xx I/O module
GC5910	TTL I/O Module (PCI)
GC5930	Programmable Levels I/O Module (PCI)
GC5960	LVDS I/O Module (PCI)
DIOEASY	Digital I/O control software including a vector generator and vector comparison
ACCESSORIES	
GT5006	256K Memory Module for 50 MHz applications
GT5001	1M Memory Module for 50 MHz applications
GT5002	2M Memory Module for 50 MHz applications
GT5004-40	4M Memory Module for 40 MHz applications
GT95014	Connector Interface for GT5xxx/GX5xxx5/GC5xxx, SCSI to 100 Mil grid, Single Ended
GT95015	Connector Interface for GT5xxx/GX5xxx5/GC5xxx, SCSI to 100 Mil grid, Differential
GT95018	Connector Interface Transition Board
GT95020	Connector I/F for GT5xxx/GX5xxx5/GC5xxx, SCSI to 100 Mil Grid, Single Ended (both 64 & 14 pin)
GT95021	2' Shielded Cable for GT5xxx/GX5xxx/GC5xxx (68 pin)
GT95022	3' Shielded Cable for GT5xxx/GX5xxx/GC5xxx (68 pin)
GT95031	6' Shielded Cable for GT5xxx/GX5xxx/GC5xxx (68 pin)
GT95028	10' Shielded Cable for GT5xxx/GX5xxx/GC5xxx (68 pin)