

GX3500

3U PXI FLEX DIO – FPGA CARD

- User configurable, on-board Altera Cyclone III FPGA device
- Module software is fully compatible with Altera object files
- No proprietary FPGA design tools required
- Compatible with Altera's free web-based Quartus II design tools.
- 160 digital I/O signals available for application support
- Accommodates application specific expansion boards for custom applications



DESCRIPTION

The GX3500 is a user configurable FPGA 3U PXI card which offers 160 digital I/O signals for specific application needs. The card employs the Altera Cyclone III FPGA which can support clock rates up to 150 MHz and features over 55,000 logic elements and 2.34 Mb of memory. The GX3500 can also accept an expansion card assembly which can be used to customize the interface to the UUT – eliminating the need for additional external boards which are cumbersome and physically difficult to integrate into a test system. The design of the FPGA is done by using Altera's free Quartus II Web Edition tool set. Once the user has compiled the FPGA design, the image can be loaded into the FPGA via the PXI bus interface or via an on-board EEROM.

FEATURES

The GX3500's four banks of 40 digital I/O signals can be selectively isolated from the I/O connectors under software control. The signals are 5 volt tolerant and can be configured to support differential or single-ended operation. Logic families supported by the I/O interface include LVTTTL and LVCMOS. The FPGA device supports up to four phase lock loops for clock synthesis, clock generation and for support of the I/O interface. An on-board 80 MHz oscillator is available for use with the FPGA device or alternatively, the PXI 10 MHz clock can be used as a clock reference by the FPGA.

The FPGA has access to all of the PXI bus resources including the PXI 10 MHz clock, the local bus, and the PXI triggers, allowing the user to create a custom instrument which incorporates all of the PXIbus' resources. Control and access to the FPGA is provided via the GX3500's driver which includes tools for downloading the compiled FPGA code as well as register read and write functionality.

SOFTWARE

The GX3500 is supplied with a complete driver for controlling and accessing user defined FPGA registers. A virtual panel is also included to help facilitate interactive design, debug and deployment of the module. Various interface files are provided to support a variety of programming tools and languages such as ATEasy, Microsoft® and Borland® C/C++, Microsoft Visual Basic®, Borland Delphi, and LabVIEW.

APPLICATIONS

- Automatic Test Equipment (ATE)
- Semiconductor test
- Custom interface emulation
- Custom instrumentation

GX3500

SPECIFICATIONS

DIGITAL I/O CHANNELS	
LOGIC FAMILIES	LVTTL and LVCMOS, 5 volt compatible
OUTPUT CURRENT	+/- 4.0 mA
INPUT LEAKAGE CURRENT	+/- 10 uA
POWER ON STATE	Programmable by line, default is disconnect at power on
NUMBER OF CHANNELS	4 banks of 40 I/O signals. Direction is configurable on a per pin basis Disconnect on a per bank basis
PROTECTION	Overvoltage: -0.5V to 7.0V (input) Short circuit: up to 8 outputs may be shorted at a time
CONNECTOR	(4) SCSI III, VHDCI type, 68 pin female
EXPANSION BOARD INTERFACE	
BOARD ID	4 bits
DIGITAL I/O	160, each bank of 40 can be configured to bypass or access the expansion board
FPGA FLEX I/O	4 signals
MASTER CLEAR	From PXI interface
POWER	+/- 12 volts, +5 volts, +3.3 volts, +2.5 volts, +1.2 volts
TIMING SOURCE	
PXI 10 MHZ	PXI bus
INTERNAL	80 MHz oscillator, +/- 20 ppm
FPGA	
FPGA TYPE	Cyclone III, EP3C55 F484
NUMBER OF PLLS	Four
LOGIC ELEMENTS	55,856
INTERNAL MEMORY	2.34 Mb
POWER	
3.3 VDC	400 mA (typ.); 1 A (Max.)
5 VDC	300 mA (typ.); 1.2 A (Max.)
12 VDC (FOR EXPANSION BOARD)	1 A (Max.)
ENVIRONMENTAL	
OPERATING TEMPERATURE	0 to 50° C
STORAGE TEMPERATURE	-20° C to 70° C
SIZE	3U PXI
WEIGHT	200 g

Note: Specifications are subject to change without notice.

ORDERING INFORMATION

GX3500	FPGA Flex DIO Board
ACCESSORIES	
GT95021	2' shielded cable (68-pin SCSI)
GT95022	3' Shielded cable (68-pin SCSI)
GT95028	10' Shielded cable (68-pin SCSI)
GT95031	6' Shielded cable (68-pin SCSI)