



USB controlled, FPGA configurable I/O system

- Altera/Intel Cyclone IV FPGA
- TTL/CMOS buffered logic inputs/outputs
- Soft configuration via USB
- Linux 32/64 bit

Features

- USB-to-FPGA interface IP included
- No firmware development required
- Toolchains available free of charge

Applications

- Configurable digital control systems
- Parallel and Serial digital I/O
- FPGA coprocessing for C/C++ programs



Overview

The FAB-3226 system connects a user defined FPGA logic design with a user defined application program running on a computer system (PC or embedded). The FAB-3226 hardware is connected to the computer via an USB connection. In order to communicate with the application, the logic implements a set of registers. The application exchanges data with these registers by read and write requests respectively. This way the application can control the logic.

No firmware development is required as the FAB kit contains all the necessary drivers.

The FPGA logic is soft, i.e. the application initializes the FPGA upon each start. The FPGA is de-initialized (reset) when the application terminates. By use of an server application the FPGA logic might persist even when a single client terminates.

Hardware

- Altera/Intel Cyclone IV FPGA connected to an USB interface and 16 buffered TTL/CMOS compatible I/O lines
- compact and robust die-cast aluminium housing



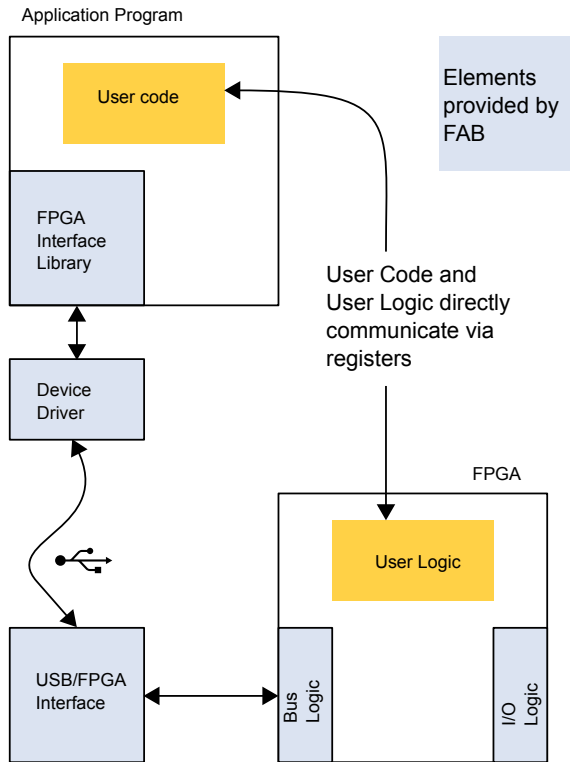
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- Standard 25-pin D-SUB female connector
- High Retention USB connector allows for 50% more retention force than the standard USB preventing accidental disconnect
- two status LED

Software

FAB Architecture



FAB-3226 Signal by Pin

Signal	Pin	Connector View	Pin	Signal	
3,3V	1		14	GND	
IO15	2		15	IO14	
GND	3		16	IO13	
IO12	4		17	GND	
IO11	5		18	IO10	
GND	6		19	IO09	
IO08	7		20	GND	
IO07	8		21	IO06	
GND	9		22	IO05	
IO04	10		23	GND	
IO03	11		24	IO02	
GND	12		25	IO01	
IO00	13				

Specifications

Logic

FPGA: EP4CE6F17C8 (Cyclone IV E)

Electrical Data

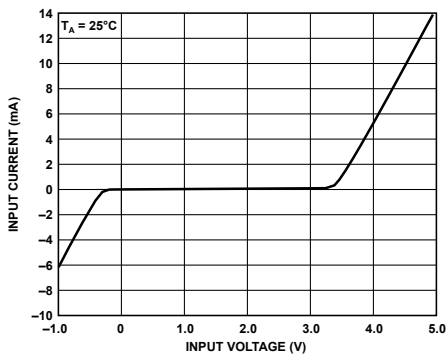
Supply Voltage (USB): $5V \pm 5\%$

Supply Current (USB): 150 mA max.

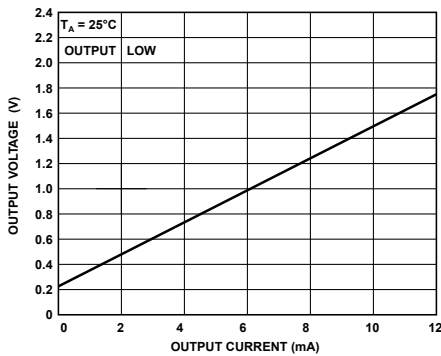
Overvoltage Protection (permanent, all inputs): $-5.0V \dots +8.7V$

Overvoltage Protection (peak, max. 10 ms, 2% duty cycle): $\pm 20V$

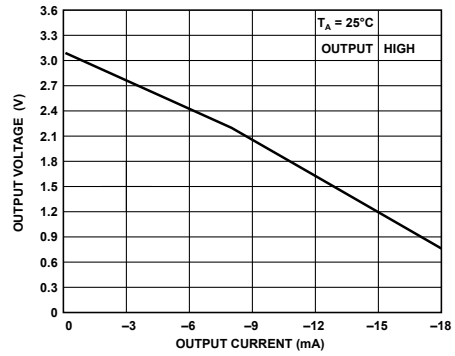
Input Characteristics (Pull-down $33k\Omega$ at each input):
Logic L $\leq 0.8V$, Logic H $\geq 2.0V$



Output Characteristics (low):



Output Characteristics (high):



Environmental and Physical

Size (excluding connectors): 111 mm L x 76 mm W x 29 mm H

Weight: 160 g

Operating ambient temperature: $0 \dots 50^{\circ}C$

Storage temperature: $-20 \dots 80^{\circ}C$

Relative humidity: $5 \dots 95\%$, noncondensing

USB connector: Extraction force $\geq 15N$, Mating force $\leq 35N$

Ordering Information

FAB-3226 - Instrument, USB cable (1m), Software Download Card

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