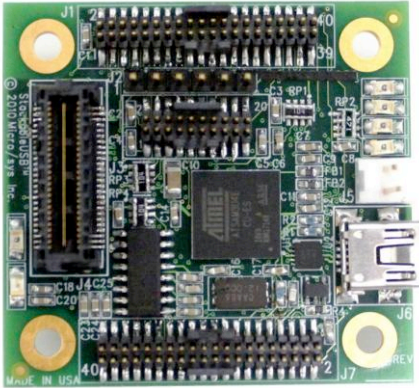# Universal FPGA Interface for StackableUSB™ FPGAUSB-2280

Features

- ✓ 60MHz System Clock
- ✓ Excellent design security (no bitstream)
- ✓ In-field logic updates
- ✓ Reconfigurable SRAM based logic
- ✓ Easy development with Lattice Diamond IDE
- ✓ Small 1.85" x 1.74" board
- ✓ -40° to +85°C operation

The FPGAUSB-2280 provides ultimate flexibility for applications requiring off-the-shelf "customized" I/O. Combining the central processing capability of Atmel's USB bridge with Lattice Semiconductor programmable logic device, the FPGAUSB-2280 enables infinitely reconfigurable, plug-and-play I/O boards.

By simply adding this small 1.85" x 1.74" module to any StackableUSB Host or PC, developers gain a platform for custom circuitry. A range of general purpose I/O such as timers, digital I/O, serial-parallel interfaces, or state-machines can be designed into the FPGAUSB-2280 by simply programming that

circuit into the Lattice Semiconductor MachXO reconfigurable Programmable Logic Device.

In addition, the FPGAUSB-2280 expands the control features to include a 2280LUTs, two Analog PLL's, four programmable LED's, and 59 digital I/O. Lattice's Diamond IDE software simplifies programming and development of the FPGAUSB-2280, and because the Lattice CPLD is non-volatile, one's programming will not be lost, even if the board loses power. The FPGAUSB-2280 comes equipped with a Mini-B USB port for easy access to one's desktop PC during development.
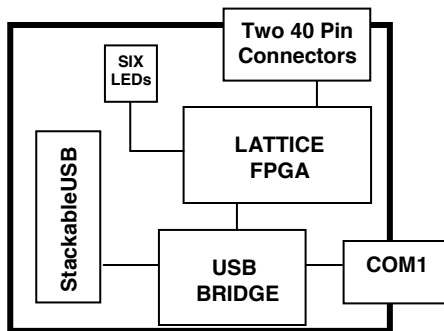
Software/Driver Support	Compatible Hardware	Mounting/Packaging
Windows XP, Vista *Lattice Diamond, ispVM* *USB Client stack* *Sample FPGA Projects*	*StackableUSB Host single board computer and microcontrollers* *PC Host desktops and laptops* *UART*	*¼-size 104™ Form Factor Standoffs, STDOFFUSB*

Specifications:

Mechanical:
- ❑ 1.85" x 1.74" StackableUSB
- ❑ ¼-size 104™ Form Factor

Power Requirements:
- ❑ No external Power Supply source required
- ❑ Uses VBUS supply from USB connection via USB Host

Environmental:
- ❑ -40 to +85°C operating
- ❑ -40° to +85°C storage
- ❑ 5%-95% relative humidity, non-condensing

LEDs/Switches:
- ❑ Four (4) programmable user LEDs
- ❑ One (1) configuration LED
- ❑ One (1) power LED

USB Bridge Features:
- ❑ USB 2.0 Compliant Full-Speed Controller
- ❑ USB has a Dedicated DMA Channel

FPGA/CPLD Features:
- ❑ Available on-board clock at 60MHz
- ❑ Non-volatile, Instant ON, powers up in microseconds
- ❑ Single Chip, no external configuration memory required
- ❑ Two (2) Analog PLL's
- ❑ Supports wide range of interfaces like LVTTL, PCI, LVDS, Bus LVDS and more
- ❑ 2280 LUT4's
- ❑ Clock Multiply / divide / phase shifting
- ❑ Four (4) External Interrupt Pins
- ❑ High-Speed I/O Pins Capable of Toggling at Up to 80MHz
- ❑ High-Current Sink/Source (18 mA/18 mA) on All I/O Pins
- ❑ Configurable Open-Drain Output on Digital I/O Pins
- ❑ IEEE Std 1149.2 Compatible (JTAG) Boundary Scan

External Connections:
- ❑ StackableUSB
- ❑ Mini-B USB
- ❑ 59 User I/O's
- ❑ 6-pin JTAG port
- ❑ Two 40-pin headers for I/O and peripherals

Internal Electrical Interface:
- ❑ StackableUSB
- ❑ USB 1.1 & 2.0 compatible, full-speed

Development Kit:
- ❑ Base module
- ❑ Complete cable set
- ❑ Documentation and sample software

Ordering Information:

OEM Modules:

FPGAUSB-2280-ST   Universal FPGA Interface with StackableUSB stack-through connector and Mini-B USB connector for PC connection

FPGAUSB-2280-PC   Universal FPGA Interface with Mini-B USB connector for PC connection

Related Products:

STDOFFUSB   StackableUSB Standoff Kit

Development Board Kits*

DKFPGA-2280-ST   FPGAUSB-2280-ST development kit

DKFPGA-2280-PC   FPGAUSB-2280-PC development kit

See Development Kit Specifications