



GigaBee XC6SLX100-2 with 2 x 512 MByte SDRAM, industrial Micromodule

Order number: TE0600-03BM



Product information "GigaBee XC6SLX100-2 with 2 x 512 MByte SDRAM, industrial Micromodule"

Trenz Electronic GigaBee XC6SLX series are industrial FPGA micromodules integrating a Xilinx Spartan-6 LX FPGA, Gigabit ethernet transceiver (physical layer), two independent banks of 16-bit-wide 512 MBytes DDR3 SDRAM, 16 MBytes SPI Flash memory for configuration and operation, and powerful switch-mode power supplies for all on-board voltages. A large number of configurable I/O's is provided via robust board-to-board (B2B) connectors.

The production of this module is only started after an order and is therefore not always available in stock.

All this on a tiny footprint, smaller than a credit card, at the most competitive price. Free and open reference designs are available for download.

All parts are at least industrial temperature range of -40°C to $+85^{\circ}\text{C}$. The module operating temperature range depends on customer design and cooling solution. Please contact us for options.

Sample Applications

- Cryptographic hardware module
- Digital signal processing
- Embedded educational platform
- Embedded industrial OEM platform
- Embedded system design
- Emulation platforms
- FPGA graphics
- Image processing
- IP (intellectual property) cores
- Low-power design
- Parallel processing
- Rapid prototyping
- Reconfigurable computing
- System-on-Chip (SoC) development

Key Features

- High performance Xilinx Spartan-6 LX FPGA, depending on model: LX45, LX100 or LX150
- FPGA Design Security Solution
- 10/100/1000 tri-speed GBit Ethernet transceiver (PHY)
- 2 independent 4 GBit (512 MByte) DDR3 SDRAM in 2 banks
- 128 MBit (16 MByte) SPI Flash memory (for configuration and operation)
- JTAG port (SPI indirect)
- FPGA configuration through:
 - B2B connector
 - TAG port
 - SPI Flash memory
- Plug-on module with 2×100 -pin high-speed hermaphroditic strips
- Up to 52 differential, up to 109 single-ended (+ 1 dual-purpose) FPGA I/O pins available on B2B strips
- High-efficiency DC-DC switching regulators
- 125 MHz reference clock signal
- Single-ended custom oscillator (option)
- eFUSE bit-stream encryption (LX100 or larger)
- 1 user LED
- Evenly-spread supply pins for good signal integrity

Specifications

- Xilinx Spartan-6 LX FPGA
- 10/100/1000 GBit Ethernet transceiver (physical layer) Marvell Semiconductor 88E1111
- 128 MBit (16 MByte) serial Flash memory with dual/quad SPI interface
- 48-bit node address chip Maxim Integrated Products DS2502-E48 (contains valid MAC adress)
- 2 x fine-pitch (0.5 mm) 100-pin high-speed (up to 10.0 GHz / 20 Gbps) hermaphroditic strips LSHM-150-04.0-L-DV-A-S-K-TR
- Up to 52 differential FPGA input/output pins available on B2B strips
- Up to 109 single-ended (+ 1 dual-purpose) FPGA input/output pins available on B2B strips
- Ethernet (PHY), JTAG and SPI pins available on B2B strips
- 4.0 A high-efficiency DC-DC switching regulator for power rail 1.2 V
- 1.5 A high-efficiency DC-DC switching regulator for power rail 1.5 V
- 2 x 800 mA DC-DC linear regulator for power rails 2.5 V and VCCAUX
- Processor supervisory circuits with power-fail and watchdog Texas Instruments TPS3705-33
- 125 MHz clock signal (system + user)
- Footprint for custom single-ended oscillator (option)
- Power supply voltage: 3.3 V
- Dimensions: 50 mm × 40 mm (20 cm²)
- Stacking height: 8 mm
- Maximum height on carrier board surface: 12 mm (standard connectors)
- Weight: 17.2 ± 0.1 g

Other assembly options for cost or performance optimization plus high volume prices available on request.

Recommended Software

- Xilinx ISE Design Suite (required)
- To use Trenz Electronic reference designs, you need one of the following Xilinx software licenses:
 - Xilinx WebPACK + EDK (Embedded Development Kit) stand-alone (TE0630 LX45 and LX75 only)
 - Xilinx ISE Design Suite - Embedded Edition
 - Xilinx ISE Design Suite - System Edition

Development Support

There are different base boards available for this module.

Latest documentation, design support files and reference designs with source files are available for download free of charge.

Package Content

- 1 x GigaBee module TE0600-03BM