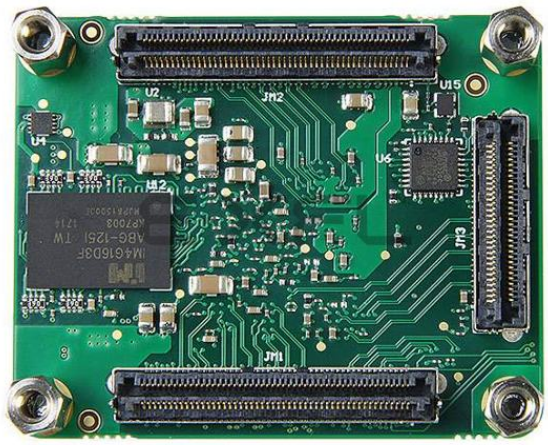


Welcome to E-XFL.COM

Understanding Embedded - Microcontroller, Microprocessor, FPGA Modules

Embedded - Microcontroller, Microprocessor, and FPGA Modules are fundamental components in modern electronic systems, offering a wide range of functionalities and capabilities. Microcontrollers are compact integrated circuits designed to execute specific control tasks within an embedded system. They typically include a processor, memory, and input/output peripherals on a single chip. Microprocessors, on the other hand, are more powerful processing units used in complex computing tasks, often requiring external memory and peripherals. FPGAs (Field Programmable Gate Arrays) are highly flexible devices that can be configured by the user to perform specific logic functions, making them invaluable in applications requiring customization and adaptability.

Applications of Embedded - Microcontroller,

Details	
Product Status	Obsolete
Module/Board Type	MCU, FPGA
Core Processor	ARM Cortex-A9
Co-Processor	Zynq-7000 (Z-7012S)
Speed	766MHz
Flash Size	32MB
RAM Size	1GB
Connector Type	Samtec LSHM
Size / Dimension	1.97" x 1.57" (50mm x 40mm)
Operating Temperature	0°C ~ 70°C
Purchase URL	https://www.e-xfl.com/product-detail/trenz-electronic/te0715-04-12s-1c

Index

Overview

The Trenz Electronic TE0803 is an industrial-grade MPSoC module integrating a Xilinx Zynq UltraScale+ with up to 8 GByte 64-Bit width DDR4 SDRAM, and max. 512 MByte SPI Boot 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 rugged high-speed stacking connections.

All this in a compact 5.2 x 7.6 cm form factor, at the most competitive price.

All modules produced by Trenz Electronic are developed and manufactured in Germany.

Extended device life cycle

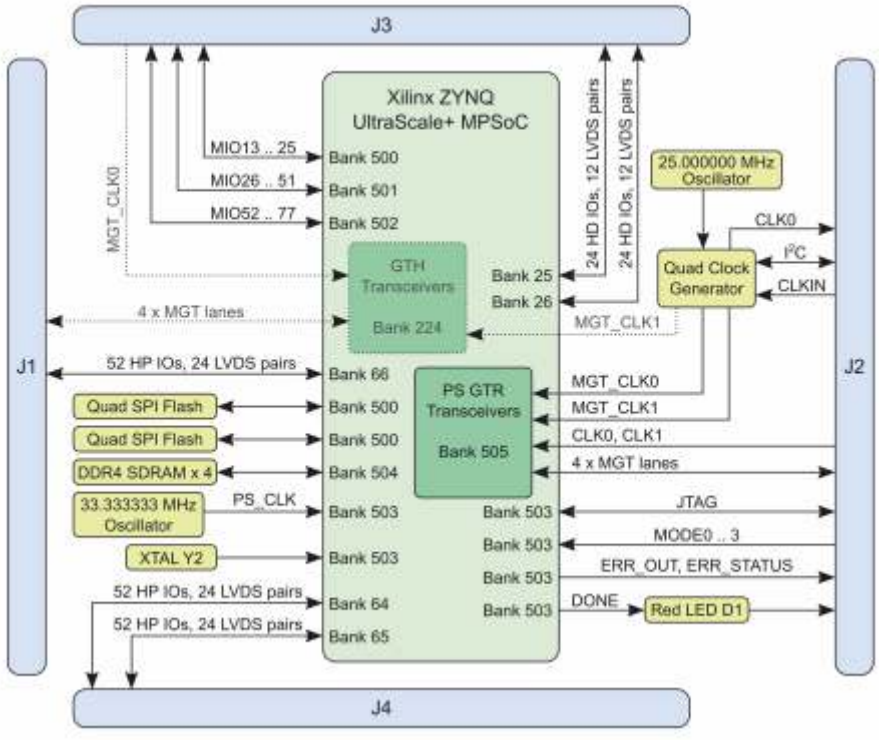
Rugged for industrial applications

XILINX ALL PROGRAMMABLE™

ZYNQ UltraSCALE+

Key Features (preliminary)

- Xilinx Zynq UltraScale+ MPSoC 784 pin package (ZU3EG, optional ZU5EV)
- Memory:
  - 64-Bit DDR4 - 8 GByte max
  - SPI Boot Flash dual parallel - 512 MByte max
- B2B connectors:
  Plug-on module with 4 x 160-pin connectors
  - 65 x MIO, 156 I/O's x HP (3 banks)
  - Serial transceiver: PS GTR 4, PL GT 4 (ZU4, ZU5 only)
  - GT Reference clock input
  - PLL for GT Clocks (optional external reference)
- Size: 52 x 76 mm
- All power supplies on board.
- Other assembly options for cost or performance optimization plus high volume prices available on request.



TEB0911 Series
Xilinx Zynq UltraScale+, 6 FMC Solts, Gigabit Ethernet

Key Features

- Zynq UltraScale+ MPSoC - 1156 Package ZU9 (ZU6, ZU9, ZU15 Possible as assembly option)
- 64-Bit DDR4 SODIMM (PS connected)
- PS-GTR
  - M2 PCIe SSD (internal, 1-Lane)
  - 2 x USB3 Host (from 4 port internal HUB)
  - 2 Lane DisplayPort output - Monitor
- RJ45 GbE Ethernet PS connected, 88E1512 PHY
- 4 x FMC-HPC connector front
  - 4 GTH
  - 1 GT Clock
  - 68+4 HP or HD I/O
- FMC-HPC connector Back
  - 4 GTH
  - 1 GT Clock
  - 12 I/O
- FMC-HPC connector Back
  - 1 GTH
  - 1 GT Clock
  - 12 I/O
- 2 x SFP+ connected to 2 PL GTH,
- 1 x SFP+ connected to PL GTH
- Power: 24V

Overview

The Trenz Electronic TEB0911 "UltraRack+" is a high performance Zynq UltraScale+ MPSoC board with 6 FMC slots and Gigabit Ethernet.

All modules produced by Trenz Electronic are developed and manufactured in Germany.

XILINX ALL PROGRAMMABLE™

ZYNQ® UltraSCALE+

TE0808 UltraSOM+ Series
Xilinx Zynq UltraScale+, DDR4, Flash, 20 x Transceiver

5.2 form X factor 7.6

Overview

The Trenz Electronic TE0808 is an industrial-grade MPSoC module integrating a Xilinx Zynq UltraScale+, max. 8 GByte DDR4 SDRAM with 64-Bit width, max. 512 MByte Flash memory for configuration and operation, 20 Gigabit transceivers, and powerful switch-mode power supplies for all on-board voltages. A large number of configurable I/O's is provided via rugged high-speed stacking connections.

All this in a compact 5.2 x 7.6 cm form factor, at the most competitive price.

All modules produced by Trenz Electronic are developed and manufactured in Germany

Key Features

- SoC: ZYNQ UltraScale+ ZU9EG 900 pin package
- Memory
  - 4 x 512 MByte 64-Bit DDR4 (8 GByte max.)
  - 2 x 32 MByte SPI Boot Flash dual parallel (512 MByte max.)
- User I/O
  - 65 x MIO, 48 x HD (all), 156 x HP (3 banks)
  - Serial transceiver: GTR 4 (all) + GTH 16 (all)
  - GT clocks, I2C
  - PLL clock inputs and outputs
- Size: 52 x 76 mm
- 3 mm mounting holes for skyline heat spreader
- B2B connectors: 4 x 160 pin
- Si5345 - 10 output PLL
- All power supplies on board, single 3.3V Power required
  - 14 on-board DC/DC regulators and 13 LDO's
  - LP, FP, PL separately controlled power domains
- Support for all boot modes (except NAND) and scenarios
- Support for any combination of PS connected peripherals

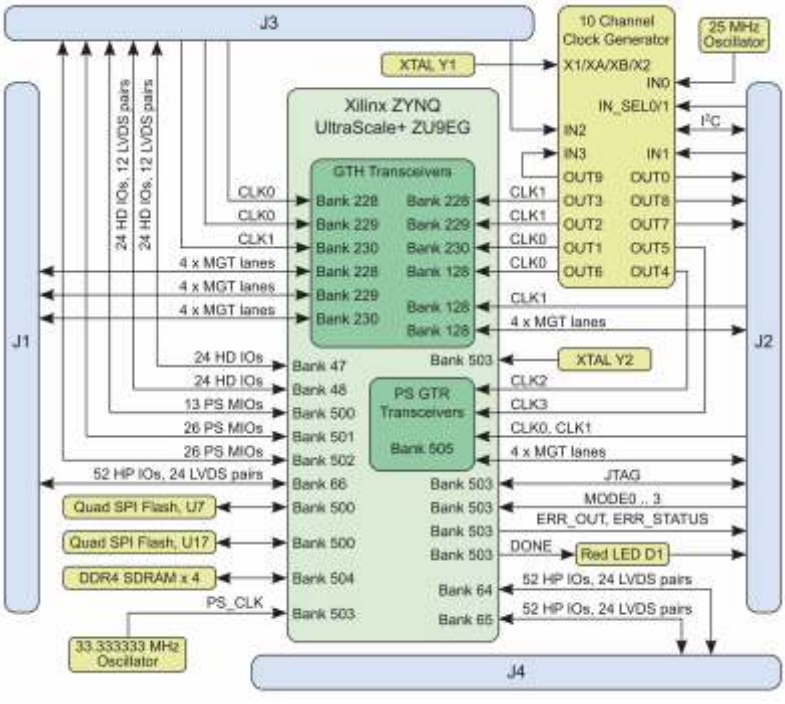
Other assembly options for cost or performance optimization plus high volume prices available on request.

Extended device life cycle

Rugged for industrial applications

XILINX ALL PROGRAMMABLE™

ZYNQ UltraSCALE+



TEC0330 Virtex-7 PCIe FMC Carrier

Overview

Trenz Electronic TEC0330 is an 8 lanes PCIe GEN2 Card integrating a high performance Xilinx Virtex-7 330T FPGA with 32 MByte Flash memory for configuration and operation, DDR3 SODIMM Socket and full FMC HPC connector for FPGA Mezzanine Cards.

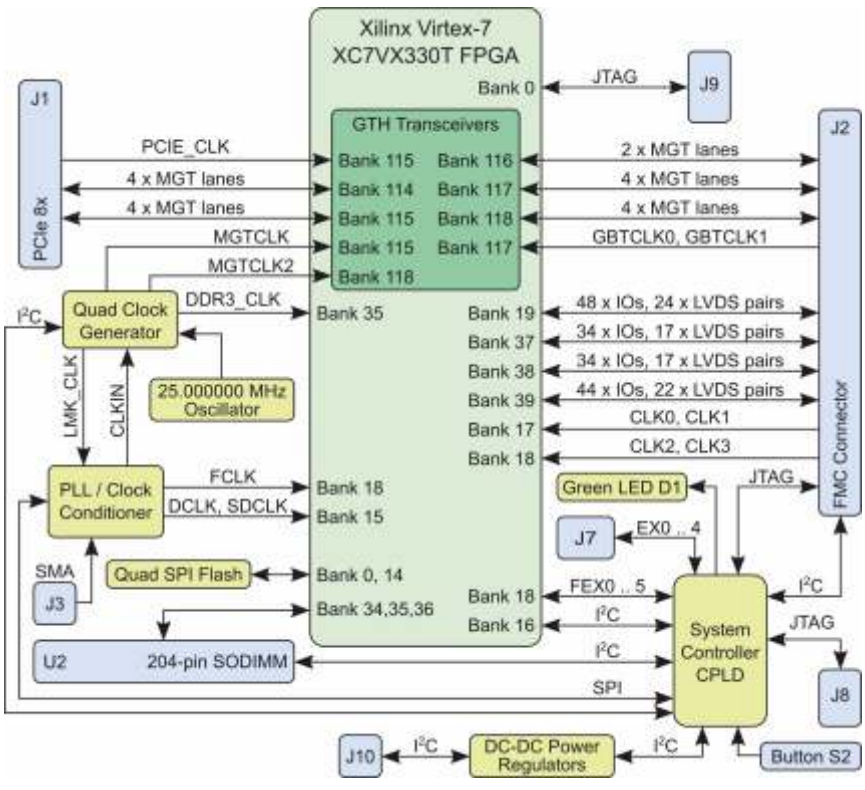
All modules produced by Trenz Electronic are developed and manufactured in Germany.

XILINX ALL PROGRAMMABLE™ VIRTEX 7

Key Features

- FMC HPC
- 8 lane PCIe Gen 2 capable
- Xilinx Virtex-7 XC7VX330T-2FFG1157C
- DDR3 SODIMM Socket
- 32 MByte SPI Flash
- LMK04828B Clock Synthesizer
- External Clock Input

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



www.trenz-electronic.de/tec0330

TE0745 Series
Xilinx Zynq, 1 GByte DDR3, 32 MByte Flash, 1 GBit Ethernet

5.2 x 7.6 form factor

Overview

The Trenz Electronic TE0745 is an industrial-grade SoC module integrating a Xilinx Zynq-7 (Z-7030, Z-7035, Z-7045), 1 GByte 32-Bit wide DDR3/L, 32 MByte 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 rugged high-speed stacking strips.

All this on a tiny footprint, smaller than a credit card, at the most competitive price.

All modules produced by Trenz Electronic are developed and manufactured in Germany.

Extended device life cycle

Rugged for industrial applications

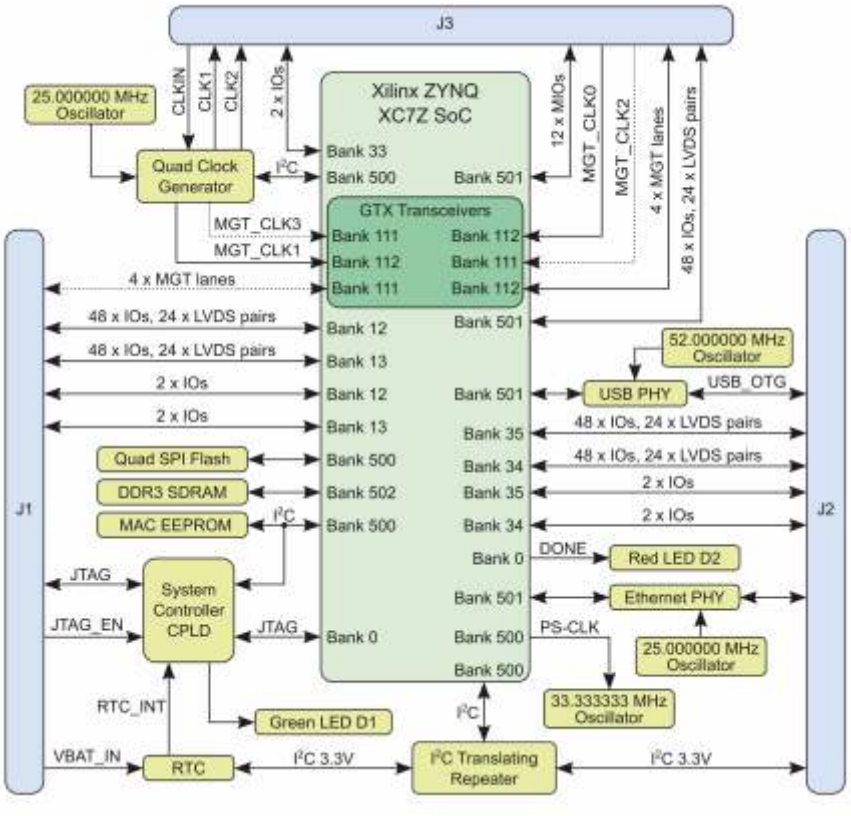
XILINX ALL PROGRAMMABLE™

ZYNQ™

Key Features

- Xilinx Zynq 7030/7035/7045
- Rugged for shock and high vibration
- 1 GByte 32-Bit wide DDR3/L
- 32 MByte SPI Flash
- Dimensions: 5.2 x 7.6 cm
- B2B Connectors with 3 x 160 pin
  - 250 I/O's, all HR and HP I/O
  - 1 GBit Ethernet PHY,
  - USB 2.0 OTG PHY
  - 8 x GTX (7030: 4 GT)
  - 2 GT Reference Clock inputs (7030: 1 REFC
  - Reference clock input for PLL (optional)
  - 2 x PLL outputs
  - I2C
  - 6 MIO
- Real Time Clock
- MAC Address EEPROM
- Evenly spread supply pins for good signal integrity

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



TE0729 Series

Xilinx Zynq, 1x Gig ETH, 512 MByte DDR3, 2x 100MBit ETH, 4 GByte eMMC, 3.3V Only

5.2 form X factor 7.6

Overview

The Trenz Electronic TE0729 is an industrial-grade SoC module integrating a Xilinx Zynq-7020 with a Gigabit Ethernet transceiver, 2 x 100 MBit Ethernet, 512 MByte DDR3 SDRAM, 32 MByte 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 rugged high-speed stacking strips.

All modules produced by Trenz Electronic are developed and manufactured in Germany.

Extended device life cycle

Rugged for industrial applications

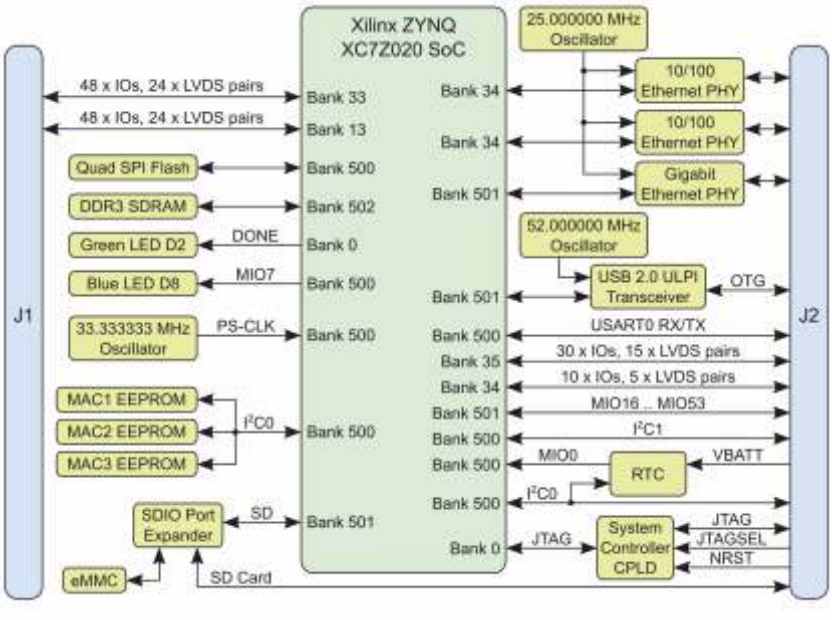
XILINX ALL PROGRAMMABLE™

ZYNQ™

Key Features

- Zynq XC7Z020-2CLG484I
- Rugged for shock and high vibration
- 2 x ARM Cortex-A9
- 1 x 10/100/1000 Mbps Ethernet transceiver PHY
- 2 x 10/100 Mbps Ethernet transceiver PHYs
- 3 x MAC-Address EEPROMs
- 16-Bit wide 512 MByte DDR3 SDRAM
- 32 MByte QSPI-Flash-Memory
- 4 GByte e-NAND-Flash-Memory (embedded eMMC Memory)
- USB 2.0 high-speed ULPI transceiver
- Plug-on module with 2 x 120-pin high-speed hermaphroditic strips
- 136 FPGA I/O's (58 LVDS pairs possible) and 14 MIO's available on
- board-to-board connectors
- On-board high-efficiency DC-DC converters
  - 4.0 A x 1.0 V power rail
  - 1.5 A x 1.5 V power rail
  - 1.5 A x 1.8 V power rail
  - 1.5 A x 2.5 V power rail
- System management
- eFUSE bit-stream encryption
- AES bit-stream encryption
- Temperature compensated RTC (real-time clock)
- User LED
- Evenly spread supply pins for good signal integrity
- 3 mm mounting holes for Skyline heat spreader
- Cooling Solution available

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



www.trenz-electronic.de/te0729

TE0715 Series

Xilinx Zynq, Cortex-A9, DDR3, Flash, GBit Ethernet, 4 x Transceiver

Overview

Trenz Electronic TE0715 are industrial-grade SoC modules integrating a Xilinx Zynq-7000 SoC, a gigabit Ethernet transceiver (physical layer), 1 gigabyte DDR3 SDRAM with 32-Bit width, 32 megabyte Flash memory for configuration and operation, 4 transceivers, a USB ULPI transceiver, and powerful switch-mode power supplies for all onboard voltages. A large number of configurable I/O's is provided via rugged high-speed stacking strips. All modules in 4 x 5 cm form factor are mechanically compatible.
All this on a tiny footprint, smaller than a credit card, at the most competitive price.

All modules produced by Trenz Electronic are developed and manufactured in Germany.

Extended device life cycle

Rugged for industrial applications

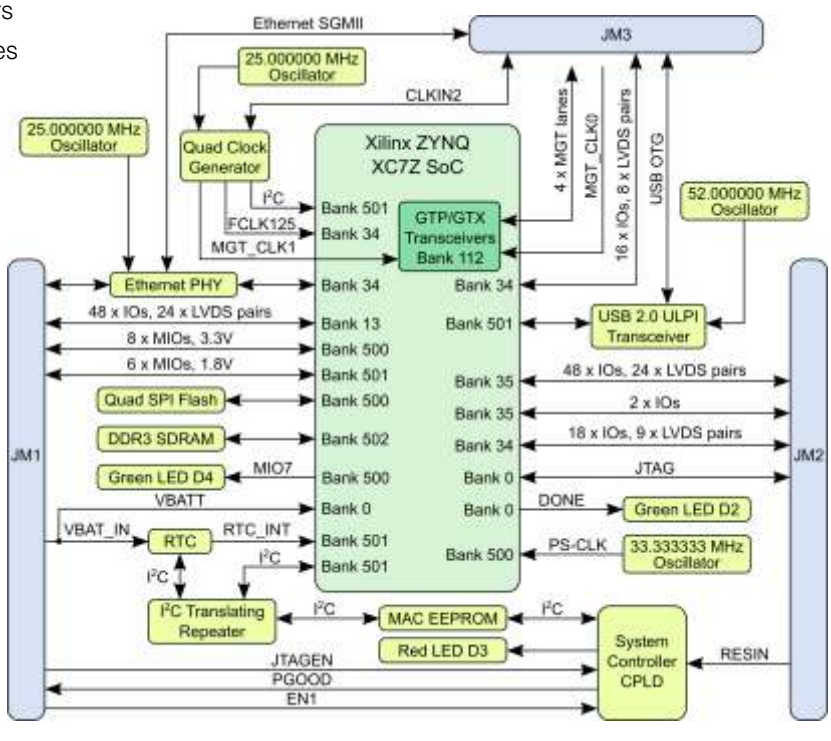
XILINX ALL PROGRAMMABLE™

ZYNQ™

Key Features

- Industrial-grade Xilinx Zynq-7000 (Z-7015, Z-7030) SoM , supported by the free Xilinx Vivado WebPACK tool
- Rugged for shock and high vibration
- ARM dual-core Cortex-A9
- 10/100/1000 tri-speed gigabit Ethernet transceiver (PHY) with SGMII
  - MAC Address EEPROM
- 32-Bit-wide 1 GByte DDR3 SDRAM
- 32 MByte QSPI Flash memory (with XiP support)
- Programmable clock generator
  - Transceiver clock (default 125 MHz)
- Plug-on module with 2 × 100-pin and 1 × 60-pin high-speed hermaphroditic strips
- 132 FPGA I/O's (65 LVDS pairs possible) and 14 PS-MIO available on board-to-board connectors
- 4 GTP/GTX (high-performance transceiver) lanes GTP/GTX (high-performance transceiver) clock input
- USB 2.0 high-speed ULPI transceiver
- On-board high-efficiency DC-DC converters
  - 4.0 A x 1.0 V power rail
  - 1.5 A x 1.5 V power rail
  - 1.5 A x 1.8 V power rail
- System management
- eFUSE bit-stream encryption
- AES bit-stream encryption
- Temperature compensated RTC (real-time clock)
- User LED
- Evenly spread supply pins for good signal integrity

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



www.trenz-electronic.de/te0715

TE0720 Series

Xilinx Zynq, 2 × Cortex-A9, DDR3, Flash, GBit Ethernet, USB

Overview

Trenz Electronic TE0720 are industrial-grade SoC modules integrating a Xilinx Zynq-7000 SoC, a gigabit Ethernet transceiver, 1 gigabyte DDR3 SDRAM with 32-Bit width, 32 megabyte Flash memory for configuration and operation, a USB ULPI transceiver, and powerful switch-mode power supplies for all on-board voltages. A large number of configurable I/O's is provided via rugged high-speed stacking strips. All modules in 4 x 5 cm form factor are mechanically compatible.
All this on a tiny footprint, smaller than a credit card, at the most competitive price.

All modules produced by Trenz Electronic are developed and manufactured in Germany.

Extended device life cycle

Rugged for industrial applications

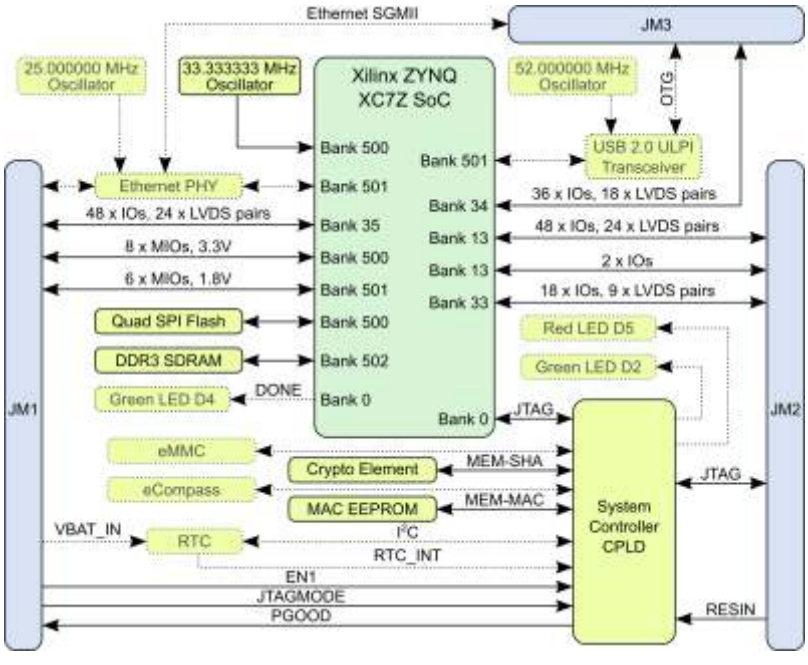
XILINX ALL PROGRAMMABLE™

ZYNQ™

Key Features

- Industrial-grade Xilinx Zynq 7020 SoM, supported by the free Xilinx Vivado WebPACK tool
- Rugged for shock and high vibration
- ARM Dual Core Cortex-A9
- 10/100/1000 tri-speed gigabit Ethernet transceiver (PHY) with SGMII
  - MAC Address EEPROM
- 32-Bit-wide 1 GByte DDR3 SDRAM
- 32 MByte QSPI Flash memory (with XiP support)
- 4 GByte (up to 32 GB) e-NAND
- Plug-on module with 2 × 100-pin and 1 × 60-pin high-speed hermaphroditic strips
- 152 FPGA I/O's (75 LVDS pairs possible) and 14 PS-MIO available on board-to-board connectors
- USB 2.0 high-speed ULPI transceiver
- On-board high-efficiency DC-DC converters
  - 4.0 A x 1.0 V power rail
  - 1.5 A x 1.5 V power rail
  - 1.5 A x 1.8 V power rail
- System management and power sequencing
- eFUSE bit-stream encryption
- AES bit-stream encryption
- Temperature compensated RTC (real-time clock)
- 3 user LEDs
- Optional MEMS sensor (3D accelerometer and 3D magnetometer)
- Evenly spread supply pins for good signal integrity

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



TE0728 Series

Xilinx Zynq, 2 × Cortex-A9, DDR3, Flash, 2 × Ethernet, CAN, Automotive

Overview

The Trenz Electronic TE0728-04-1Q is a SoC module integrating a Xilinx Automotive Zynq-7020, 512 MByte DDR3 SDRAM with 16-Bit width, 16 MByte Flash Memory for configuration and operation, two 100 Megabit Ethernet transceivers, and powerful switch-mode power supplies for all on-board voltages. A large number of con?gurable I/O's is provided via rugged high-speed stacking strips.

Within the complete module only Automotive components are installed. All this in a compact 6 x 6 cm form factor, at the most competitive price.

All modules produced by Trenz Electronic are developed and manufactured in Germany.

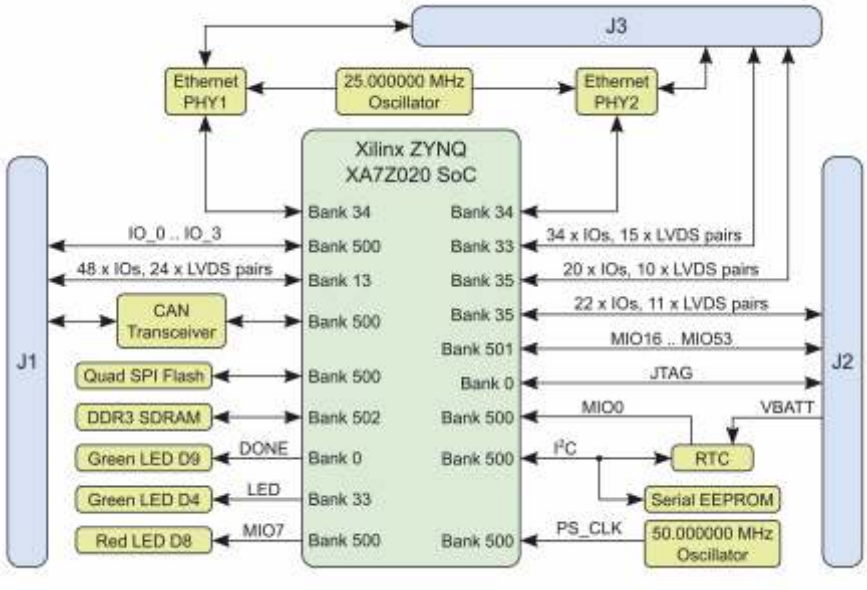
Extended device life cycle

Rugged for automotive applications

Key Features

- Xilinx Zynq XA7Z020-1CLG484Q (Automotive)
- Rugged for shock and high vibration
- 2 x ARM Cortex-A9 MPCore
- 2 x 100 MBit Ethernet transceiver (PHY)
- 16-Bit-wide 512 MByte DDR3 SDRAM
- 16 MByte QSPI Flash memory (with XiP support)
- Plug-on module with 3 x 80-pin high-reliability high-speed strips
- 76 single ended I/O, 24 LVDS pairs (48 I/O) and 42 MIO available on
- board-to-board connectors
- Board-to-board connectors
- CAN transceiver (PHY)
- Temperature compensated RTC (real-time clock)
- 12 V power supply with watchdog
- On-board high-efficiency DC-DC converters
- System management and power sequenci
- eFUSE bit-stream encryption
- AES bit-stream encryption
- 3 user LEDs
- Evenly spread supply pins for good signal integrity

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



www.trenz-electronic.de/te0728

TE0782 Series

Xilinx Zynq, 2 × Cortex-A9, DDR3, Flash, 2 × GBit Ethernet, 2 × USB, 16 × Transceiver

8.5 form X factor 8.5

Overview

The Trenz Electronic TE0782 are industrial-grade SoC modules integrating a Xilinx Zynq-7 XC7Z035, XC7Z045 or XC7Z100, 1 GByte DDR3 SDRAM, 4 GByte eMMC, 16 GTX high-performance transceiver lanes, 32 MByte QSPI 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 rugged high-speed stacking strips. All this in a 8.5 x 8.5 cm form factor at the most competitive price.

All modules produced by Trenz Electronic are developed and manufactured in Germany.

Extended device life cycle

Rugged for industrial applications

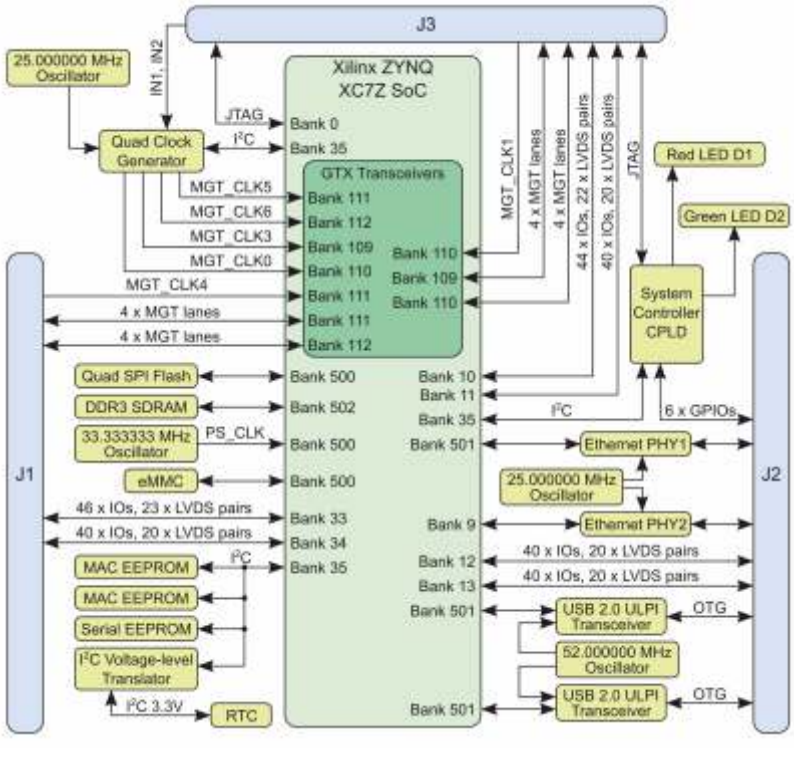
XILINX ALL PROGRAMMABLE™

ZYNQ™

Key Features

- Industrial-grade Xilinx Zynq-7 XC7Z035, XC7Z045 or XC7Z100 SOM
- Rugged for shock and high vibration
- Dual ARM Cortex-A9 MPCore
- Real Time Clock
- 2 x Hi-Speed USB2.0 ULPI Transceiver PHY
- 2 x Gigabit Ethernet Transceiver PHY
- 2 x Ethernet MAC Address EEPROM
- 1 GByte DDR3 SDRAM
- 32 MByte QSPI Flash memory
- 4 GByte eMMC (optional up to 64 GByte)
- Optional 2 x 8 MByte HyperRAM (max 2 x 32 MByte HyperRAM)
- Si5338 PLL for GTX clocking
- Plug-on module with 3 x 160-pin high-speed strips
- 16 GTX high-performance tranceiver lanes , GTX high-performance
- Transceiver clock input
- 254 FPGA I/O's (125 LVDS pairs possible) available on board-to-board connectors
- On-board high-efficiency DC-DC converters
- System management and power sequencing
- eFUSE bit-stream encryption
- AES bit-stream encryption
- Evenly spread supply pins for good signal integrity

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



www.trenz-electronic.de/te0782

TE0726 Series

Xilinx Zynq, 512 MByte DDR3L SDRAM, 16 MByte Flash, 100 MBit Ethernet RJ45

Overview

The Trenz Electronic TE0726 is a Rasberry Pi compatible FPGA module integrating a Xilinx Zynq-7010, 512 MByte DDR3L SDRAM, 4 USB ports, an Ethernet port and 16 MByte Flash memory for configuration und operation.

All modules produced by Trenz Electronic are developed and manufactured in Germany.

Extended device life cycle

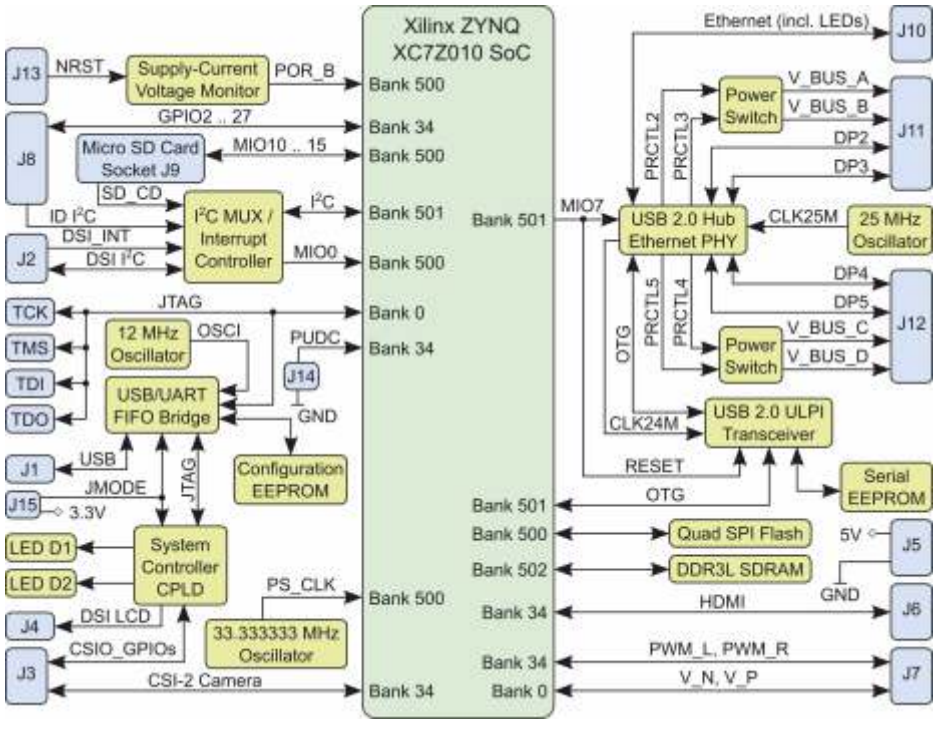
"Ideal for Maker" Make:

XILINX ALL PROGRAMMABLE™ ZYNQ™

Key Features

- Xilinx Zynq XC7Z010-1CLG225C
  - 512 MByte DDR3L SDRAM
  - 16 MByte Flash
- LAN9514 USB Hub with Ethernet
  - 4 x USB with power switches
  - 100 MBit Ethernet RJ45
- Micro SD card slot
- HDMI Typ A
- DSI Connector (Display)
- CSI-2 Connector (Camera)
- Micro USB
  - power input
  - USB UART
  - JTAG ARM- und FPGA-Debug
- 3.5 mm audio plug (PWM Audio output only)
- Raspberry Pi Model 2 form faktor
- HAT header with 26 I/O's

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



www.trenz-electronic.de/te0726

TE0710 Series

Xilinx Artix-7 T, DDR3, Flash, 2 × 100 MBit Ethernet

Overview

Trenz Electronic TE0710 are industrial-grade FPGA modules integrating a Xilinx Artix-7 T FPGA, two MBit Ethernet transceivers (physical layer), 512 Mbyte DDR3 SDRAM with 8-Bit width, 32 MByte 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 rugged high-speed stackingstrips.

All modules in 4 x 5 cm form factor are mechanically compatible.

All modules produced by Trenz Electronic are developed and manufactured in Germany.

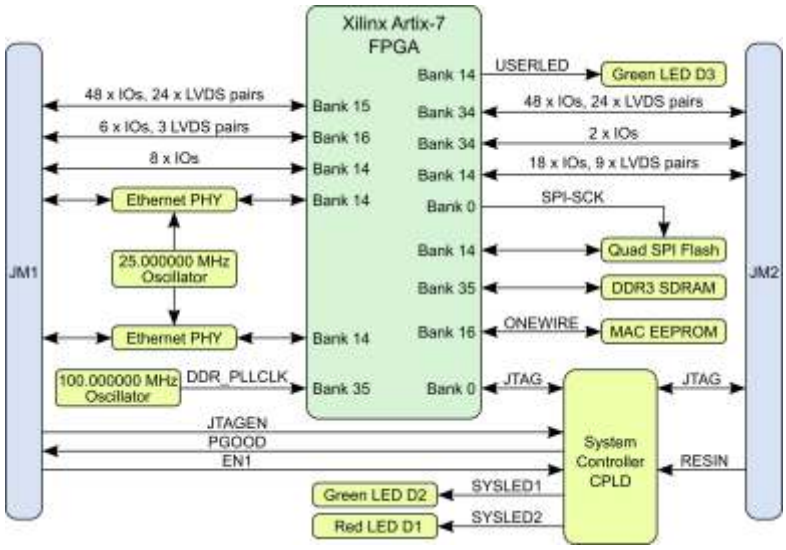
Key Features

- Industrial-grade Xilinx Artix-7 (15T to 100T) SoM, supported by the free Xilinx Vivado WebPACK tool
- Rugged for shock and high vibration
- 512 MByte DDR3 SDRAM
- Dual 100 MBit Ethernet PHY
- MAC Address EEPROM
- 32 MByte QSPI Flash memory (with XiP support)
- 100 MHz programmable MEMS oscillator
- Plug-on module with 2 × 100-pin high-speed hermaphroditic strips
- 112 FPGA I/O's (51 differential pairs) available on board-to-board connectors
- On-board high-efficiency DC-DC converters
  - 4.0 A x 1.0 V power rail
  - 1.0 A x 1.8 V power rail
  - 1.0 A x 1.5 V power rail
- System management and power sequencing
- eFUSE bit-stream encryption
- AES bit-stream encryption
- User LED
- Evenly spread supply pins for good signal integrity

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

Extended device life cycle

Rugged for industrial applications



TE0712 Series

Xilinx Artix-7 T, DDR3, Flash, 100 MBit Ethernet, 4 x Transceiver, High pin count

Overview

Trenz Electronic TE0712 are industrial-grade FPGA modules integrating a Xilinx Artix-7 T FPGA, a Megabit Ethernet transceiver (physical layer), 1 Gigabyte DDR3 SDRAM with 32-Bit width, 32 Megabyte 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 rugged high-speed stacking strips. All modules in 4 x 5 cm form factor are mechanically compatible.
All this on a tiny footprint, smaller than a credit card, at the most competitive price.

All modules produced by Trenz Electronic are developed and manufactured in Germany.

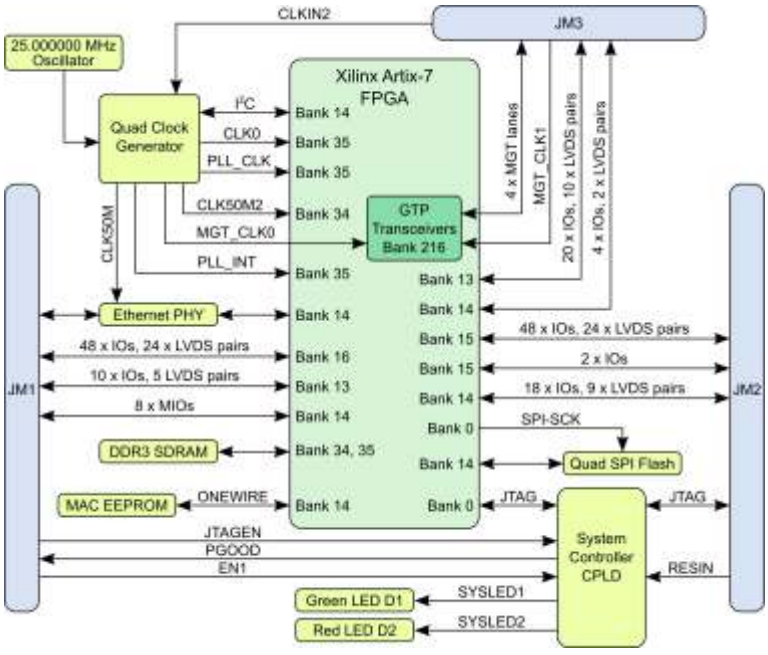
Extended device life cycle

Rugged for industrial applications

Key Features

- Industrial-grade Xilinx Artix-7 (15T to 200T) SoM, supported by the free Xilinx Vivado WebPACK tool
- Rugged for shock and high vibration
- 1 GByte DDR3 SDRAM
- 100 MBit Ethernet PHY
  - MAC Address EEPROM
- 32 MByte QSPI Flash memory (with XiP support)
- Programmable clock generator
  - Transceiver clock (default 125 MHz)
  - Fabric clock (default 200 MHz)
- Plug-on module with 2 × 100-pin and 1 × 60-pin high-speed hermaphroditic strips
- 158 FPGA I/O's (78 differential pairs) available on board-to-board connectors
- 4 GTP (high-performance transceiver) lanes
  - GTP (high-performance transceiver) clock input
- On-board high-efficiency DC-DC converters
  - 12 A x 1.0 V power rail
  - 1.5 A x 1.8 V power rail
  - 1.5 A x 1.5 V power rail
- System management and power sequencing
- eFUSE bit-stream encryption
- AES bit-stream encryption
- User LED
- Evenly spread supply pins for good signal integrity

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



www.trenz-electronic.de/te0712

TE0713 Series

Xilinx Artix-7 T, DDR3L, USB 3.0, 4 GTP lanes

Overview

The Trenz Electronic TE0713 is an industrial-grade FPGA module integrating a Xilinx Artix-7 FPGA, USB 3.0 to FIFO bridge, 1 GByte of DDR3L SDRAM, 32 MByte Flash memory for configuration and operation, and powerful switching-mode power supplies for all on-board voltages. Numerous configurable I/O's are provided via rugged high-speed strips. Modules in 4 x 5 cm form factor are fully mechanically and largely electrically compatible among them. All this on a tiny footprint, smaller than a credit card, at the most competitive price.

All modules produced by Trenz Electronic are developed and manufactured in Germany.

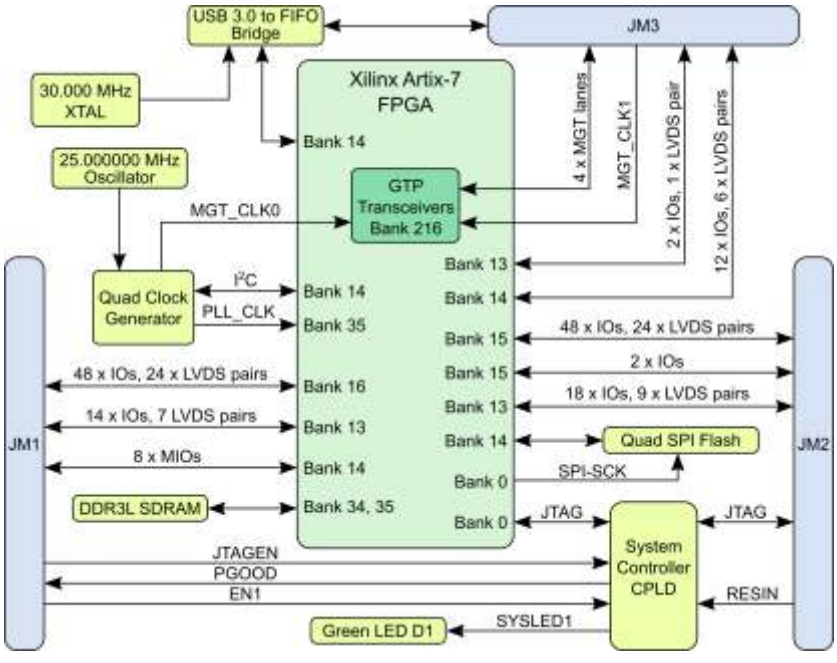
Extended device life cycle

Rugged for industrial applications

Key Features

- Xilinx Artix-7 (15T to 200T) SoM
- Both industrial and commercial temperature ranges available
- Rugged for high shock and high vibration resistance
- 1 GByte DDR3L 32-bit SDRAM
- 32 MByte QSPI Flash memory (with XiP support)
- USB 3.0 to FIFO interface bridge
- Programmable clock quad generator
  - GTP transceiver clock (default 125 MHz)
  - Fabric clock (default 200 MHz)
- Plug-on module with 2 x 100-pin and 1 x 60-pin high-speed hermaphroditic strips
- 152 FPGA I/O's (75 differential pairs) available via B2B connectors
- 4 GTP (multi Gigabit transceiver) lanes
- External clock input for GTP transceivers via B2B connector
- On-board high-efficiency DC-DC converters
- System management and power sequencing
- eFUSE bit-stream encryption
- AES bit-stream encryption
- User configurable LED
- Evenly spread supply pins for good signal integrity.

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



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Overview

Xmod-USB-X is a universal USB adapter with 2 channels based on FTDI FT2232H USB2 HS Interface chip.

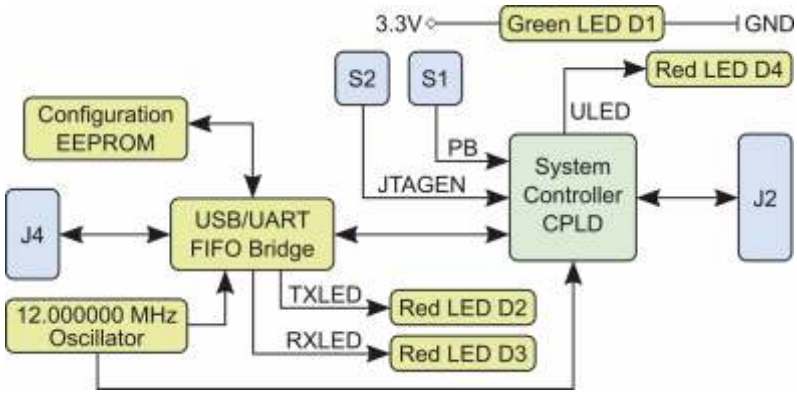
In the consigned default configu-ration Port A is JTAG and Port B is a serial interface. FT2232H port A and B are connected to small on-board programmable CPLD to allow flexible application specific remappings of FT2232H functions into 8 user I/O pins of single Xmod 12 x 8 Module.

Minimum PCB area on base board to support JTAG function 5 x 10 mm (does not include mounting hole space).
TE0790 is compatible with Xilinx Tools in contrast to the TE0790-01L, that can be used flexibly.

All modules produced by Trenz Electronic are developed and manufactured in Germany.

Key Features

- Xmod form-factor
  - Supported base slots: 6 x 2, 8 x 4, 10 x 6, 12 x 8, 5 x 2, 5 x 3
  - Size: 20 x 25 mm
  - M3 mounting hole
- FT2232H
  - Channel B RX/TX LED's (on top, not visible from front)
  - Mini-USB connector (more rugged then micro-USB)
  - 93C56 EEPROM
- Lattice XO2-256 CPLD
  - On board programmable using Lattice tools
  - 8 universal I/O pins
  - VCCIO either 3.3 V or user supplied (1.8 to 3.3V)
  - Red user LED (front visible)
  - 12 MHz clock from on-board Oscillator
- LDO for optional USB power
- Green Power-on LED (front visible)
- User button (front accesible)
- 4 position DIP switch
  - Choose CPLD program mode
  - FTDI EEPROM disable (not implemented in PCB REV 1)
  - Use VIO same as VCC
  - Use VCC from USB



TE Carrier Boards
built for Trenz Electronic micromodules with 4 x 5 cm form factor

The Trenz Electronic Carrier Boards are base-boards for 4 x 5 SoMs, which exposes the modules B2B-connector-pins to accessible connectors and provides a whole range of on-board components to test and evaluate Trenz Electronic 4 x 5 SoMs.

TE0701

- Overvoltage-, undervoltage- and reversed- supply-voltage-protection
- Barrel jack for 12 V power supply
- Carrier Board System-Controller CPLD
- Mini CameraLink connector
- RJ45 Gigabit Ethernet MagJack
- FPGA Mezzanine Card (FMC) connector
- USB JTAG- and UART interface with Mini-USB connector
- HDMI transmitter with HDMI connector
- 8 x user LED's, 2 x user push buttons, 2 x DIP switch
- PMOD connectors, Micro SD card socket and Micro-USB interface

TE0703

- 2 x VG96 backplane connectors (mounting holes and solder pads)
- SDIO port expander with voltage-level translation
- Micro SD card socket
- 4 x user LED's, 1 x user-push button, 2 x user configurable DIP switches
- Mini USB connector (USB JTAG and UART interface)
- RJ45 Gigabit Ethernet socket with 4 integrated LED's.
- USB host connector
- Barrel jack for 5 V power supply input
- DC-DC step-down converter for 3.3 V power supply
- USB JTAG and UART interface

TE0705

TE0705 is a "downgraded" version of TE0701. As little as possible has been changed in functionality except the functionality that was removed.

Changes from TE0701

- PMOD connectors changed to IDC headers
- HDMI removed
- CL connector removed
- USB connector position changed
- 5 pin header support added on both USB interfaces
- 12 V DC power input connector changed to different type
- FMC connector removed and replaced by two dual row 100 mil pin headers

TE0706

- VG96 backplane connector and 50-pin IDC male connector socket
- SDIO port expander with voltage-level translation
- Micro SD card socket and a USB type A connector
- 1 x user push button, user configurable DIP switch
- 1 x RJ45 Gigabit Ethernet MagJack
- 1 x Ethernet PHY
- Barrel jack for 5 V power supply input
- DC-DC step- down converter for 3.3 V power supply
- JTAG pins on 12-pin header
- 3 x VCCIO selection jumper

TEBA0841

Mainly for the use with TE0841 and TE0741 modules.

- XMOD (TE0790) pin header
- SFP connector
- Micro USB
- 1 x pin header 16 pol. (JTAG, MGT-CLK, boot mode, RST, IOs)
- 1 x pin header 10 pol. (SD IOs)
- 2 x pin headers 50 pol. (FPGA bank IOs and power)
- 1 x pin header for FPGA bank power VCCIOA and 1 x for VCCIOD
- LDO voltage regulator 3.3 V to 2.5 V
- 2 x user LED's (Red/Green)

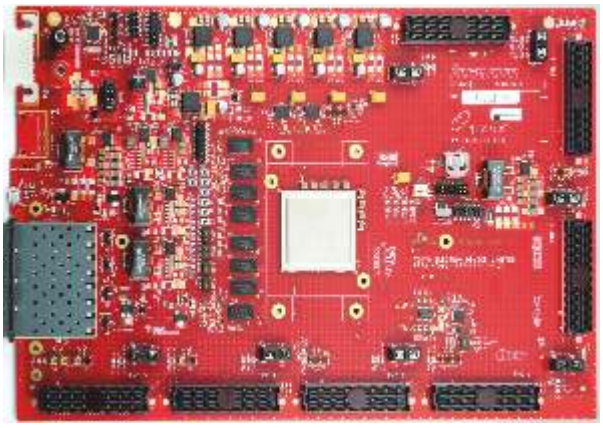
www.trenz-electronic.de/te-baseboards

Since 1965, Tokyo Electron Device Limited (TED) has been focused on the semiconductor distribution business. Leveraging 40 years of industry experience, in 2004, TED began offering FPGA solutions under the “inrevium” brand name.
Today, inrevium offers FPGA platform solutions, market specific IP, technical support, and design services to customers worldwide. Inrevium's domain-specific expertise, market knowledge, and pre-qualified solutions, resulted in inrevium being adorned with the prestigious Xilinx Alliance Program Member designation.

With design and development centers in Japan, China, and Canada, and a global network of sales offices, inrevium remains uniquely positioned to provide high-value design services. In addition to services, the development centers also create market-specific multi-million gate LSI devices, FPGA evaluation boards, FMC option cards, ASIC prototyping boards, drivers, firmware, and IP, to support a wide range of worldwide applications.

FPGA Evaluation Platforms

The inrevium Xilinx FPGA Evaluation Kits are special-purpose FPGA kits intended for use by design professionals, innovating and delivering stunning 3D, Organic Light Emitting Diode (OLED), Quad HD (4K2K resolution) and many other digital display technologies, as well as 3D TV broadcasting.



KINTEX UltraSCALE : 8K4K Image Evaluation Platform

FPGA Mezzanine Card (FMC) Standard

Developed by a consortium of companies ranging from FPGA vendors to end users, the FPGA Mezzanine Card is an ANSI standard that provides a standard Mezzanine Card form factor, connectors and modular interface to an FPGA located on a base board.

FMC is VITA 57 standard, provides a specification describing an I/O mezzanine module with connection to an FPGA or other device with reconfigurable I/O capability.

USB3.0 FMC Connectivity mezzanine card

These are just selected examples of a wide variety of FPGA boards and FMC cards from inrevium.
Please have a look in our online shop or contact us at sales@trenz.biz
to get a quote for any available inrevium product.

Violet Series

It has been designed to continously stream samples data to host computer main memory at full rate. These boards are ideal for any applications that require unusally long samples at rates up to 250 Msps at a resolution of 14 bits.

Examles are:

- Software Defined RadioHigh Precision FFT Spectrum Analyzers

Time Tagger

Cronologic presents a new series of low cost, mid resolution time-to-digital converters.
Two new board are available featuring 500ps to 1ns single shot resolution at highest data bandwidths.
Time Taggers are ideally suitable in applications that do not require highest single shot timing resolution, but high data acquisition rates and lowest multiple hit deadtime. These include certain types of mass spectroscopy, time correlated single photon counting (TCSPC) and frequency counting applications.

Ndigo Crate

With the Ndigo Crate it is possible to use up to 8 PCIe boards with a PC. The connection of the external chassis to the PC happens over PCIe 2 x16 for a full duplex bandwidth of 2x 8GByte/s.

The enclosure was specifically designed to operate multiple synchronized cronologic digitizer boards to create a high speed data acquisition system. It can also be used to house other DAQ cards, GPUs for high performance computing, storage adapters or networking equipment.

The extension is fully transparent. The operating system can't distinguish between boards in the PCIe expansion box and boards inside the PC itself. No drivers are required.

The slot covers are on the front side of the enclosure to easily see status information and plug in cables during operation.

The crate is delivered as a set with cable and PC link board.

Facts	Crate	Crate-3	Crate-5
Connection to Host	PCIe 2.0 x 16	PCIe 2.0 x 16	PCIe 2.0 x 16
Bandwidth to Host	8 GByte/s	8 GByte/s	8 GByte/s
Performace relative to 10Gbps Thunderbolt link	8x	8x	8x
PCIe3 16x slots with 8 lanes	-	2	2
PCIe3 16x slots with 4 lanes	-	3	3
PCIe2 16x slots with 4 lanes	8	-	-
PCI slots 5V, 32 Bit, 33MHz	-	-	2
PCI slots 3V, 32 Bit, 66MHz	-	2	-
Availability	now	now	now
Cable and link boards	included	included	included
Cable Length	3 meters (1m, 2m and 5m upon request)		