Welcome to E-XFL.COM

Understanding Embedded - Microcontroller, Microprocessor, FPGA Modules

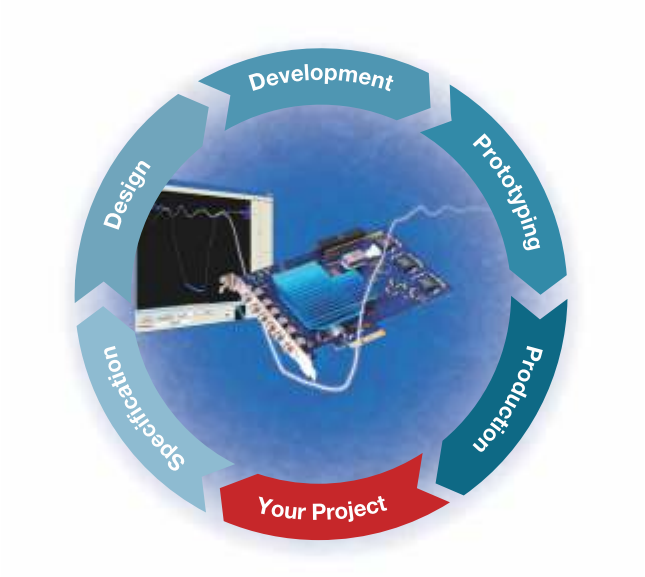
Embedded - Microcontroller, Microprocessor, and FPGA Modules are fundamental components in modern electronic systems, offering a wide range of functionalities and capabilities. Microcontrollers are compact integrated circuits designed to execute specific control tasks within an embedded system. They 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-7030)
Speed	125MHz
Flash Size	32MB
RAM Size	1GB
Connector Type	Samtec LSHM
Size / Dimension	1.97" x 1.57" (50mm x 40mm)
Operating Temperature	-40°C ~ 85°C
Purchase URL	https://www.e-xfl.com/product-detail/trenz-electronic/te0715-04-30-1i3

Company Profile

Since 1992, Trenz Electronic GmbH successfully operates as a development service enterprise in the electronics branch. Our services include design-in support as well as turnkey design which typically cover all steps from product specification, hardware and software design up to prototyping and production.



We are particularly specialized in the design of high-speed data acquisition, high-accuracy measurement and embedded digital signal processing systems based on FPGA and ARM architectures.

We maintain long-term customer relationships, characterized by flexibility and technical competence.

Hardware Design

- System Architecture and Design
- Hardware Integration (Design-In)
- Ultrafast Digital Logic
- Analog and Mixed Signal
- Digital Signal Processing
- Schematic Capture and PCB Layout

HDL Design

- FPGA and System-On-Chip Design
- System Design and Synthesis
- HDL Design (VHDL,Verilog)
- Integration of Soft-Cores (Xilinx MicroBlaze, ARM Cortex …)
- USB, PCI-Express, Gigabit Ethernet
- Ultrafast ADC/DAC Interfaces

Software Development

- Device Driver and Application Software development
- Software and Firmware development

ISO 9001 REGISTERED FIRM

ISO 9001:2008 (quality management) certified

ISO 14001 REGISTERED FIRM

ISO 14001:2004 (environmental management) certified

Trenz Electronic GmbH

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TE0820 Series
Xilinx Zynq UltraScale+, DDR4, SPI Boot Flash, eMMC

Overview

The Trenz Electronic TE0820 are 4 x 5 standard footprint MPSoC modules integrating a Xilinx Zynq UltraScale+ with up to 4 GByte 32-Bit 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 strips.

All 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.

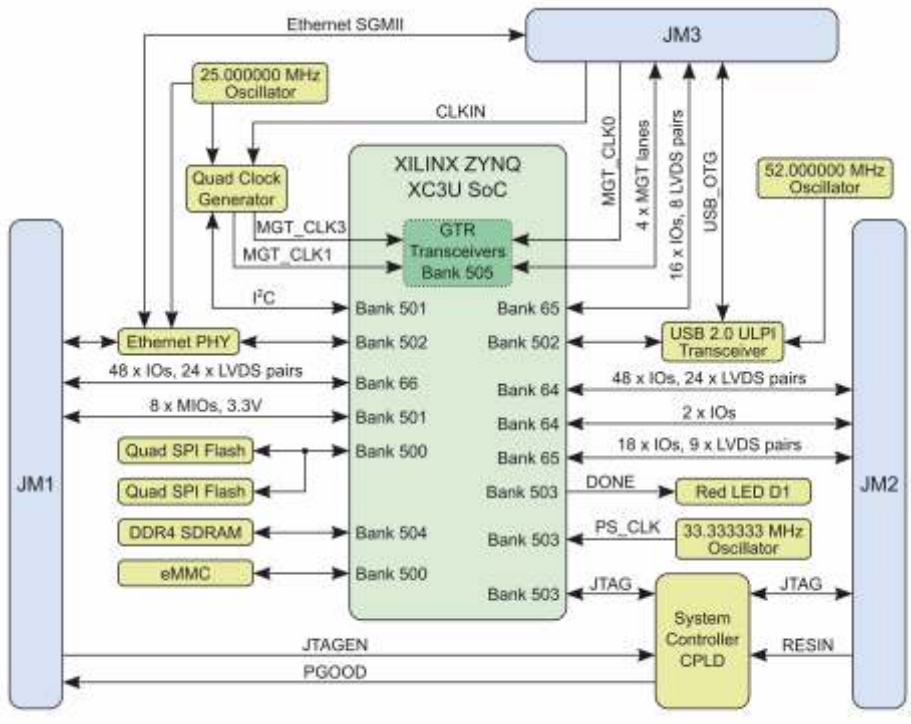
Extended device life cycle

Rugged for industrial applications

Key Features (preliminary)

- Xilinx Zynq UltraScale+ MPSoC 784 pin package (ZU3EG, option ZU5EV)
- Memory:
  - 32-Bit DDR4 - 4 GByte max
  - SPI Boot Flash dual parallel - 512 MByte max
  - 4 GByte eMMC (up to 64 GByte)
- B2B connectors:
  Plug-on module with 2 x 100-pin and 1 x 60-pin high-speed hermaphroditic strips
  - 14 x MIO, 132 I/O's x HP (3 banks)
  - Serial transceiver: PS GTR 4
  - GT Reference clock input
  - PLL for GT Clocks (optional external reference)
  - 1 GBit Ethernet PHY
  - USB 2.0 OTG PHY
  - Real Time Clock
- Size: 40 x 50 mm
- All power supplies on board.

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



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

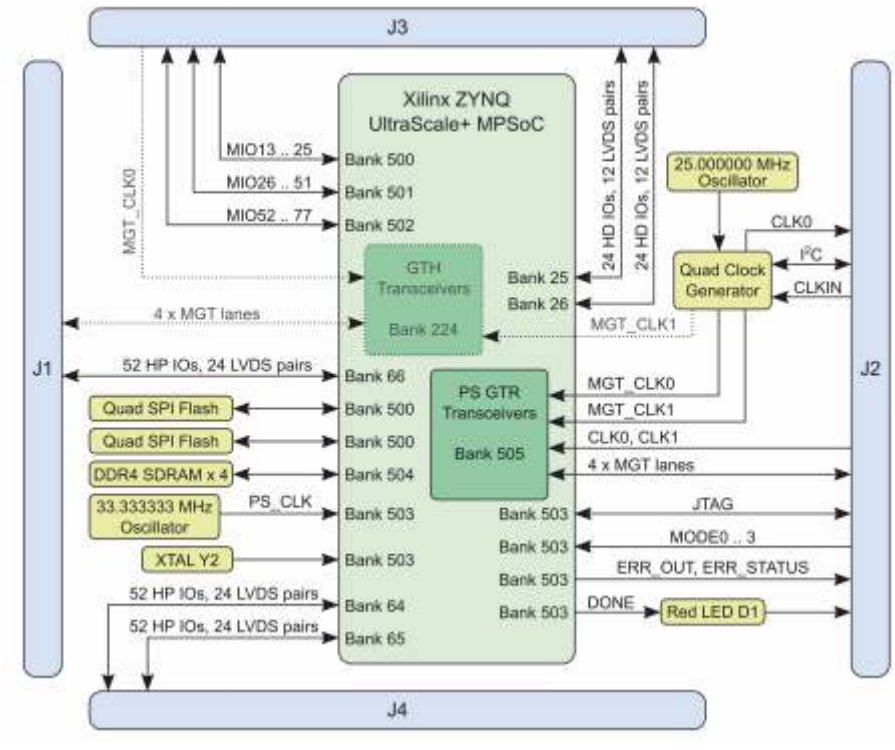
Rugged for industrial applications

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+

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.

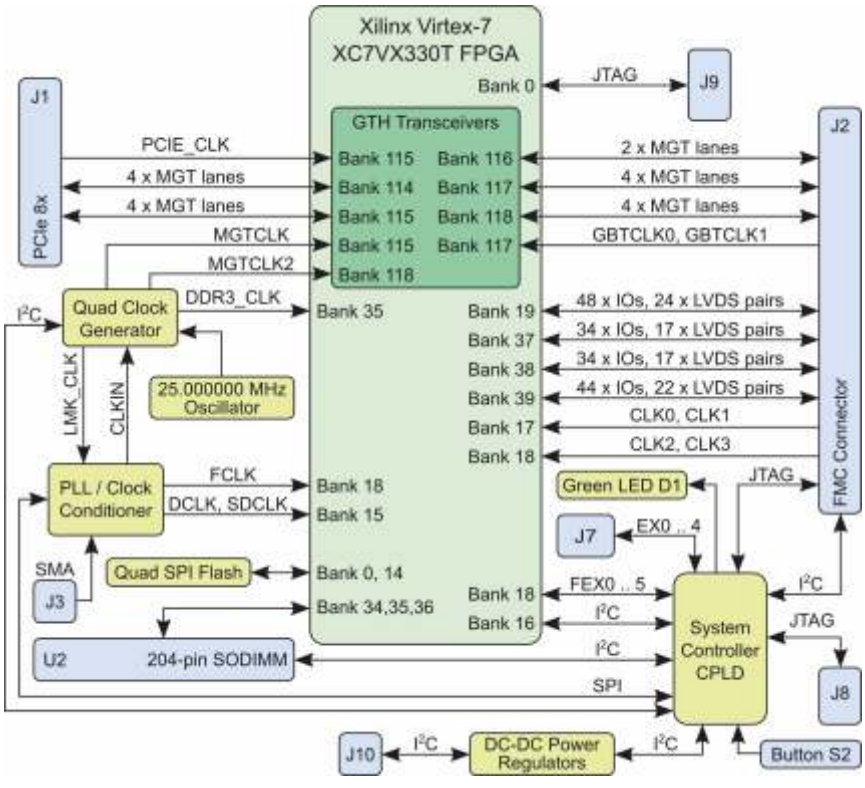
All modules produced by Trenz Electronic are developed and manufactured in Germany.

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.



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

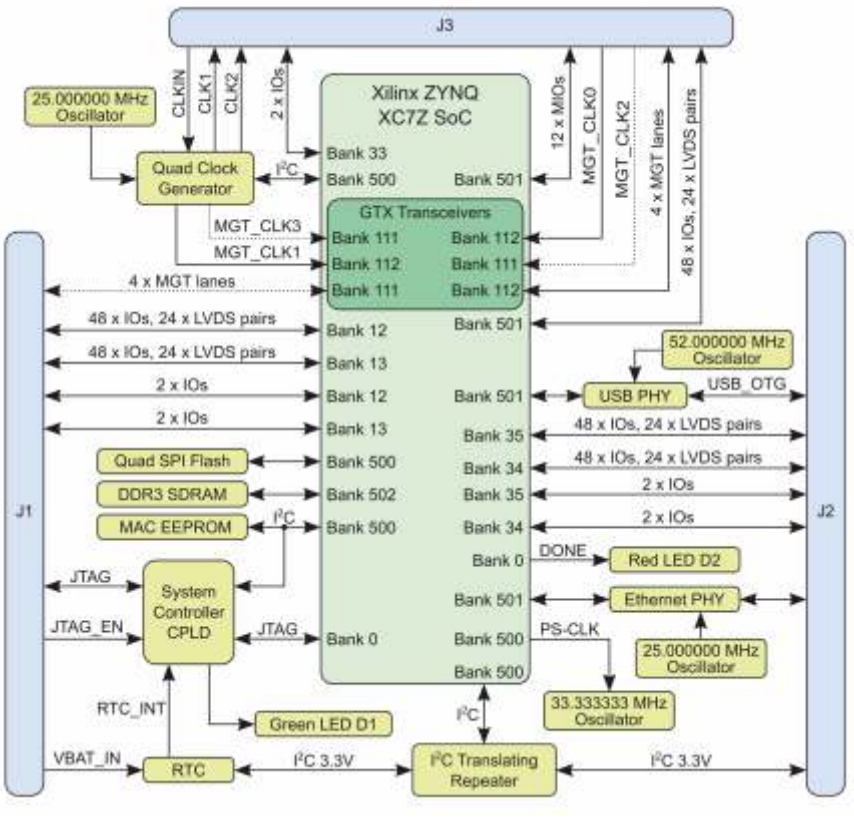
XILINX ALL PROGRAMMABLE™

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.



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

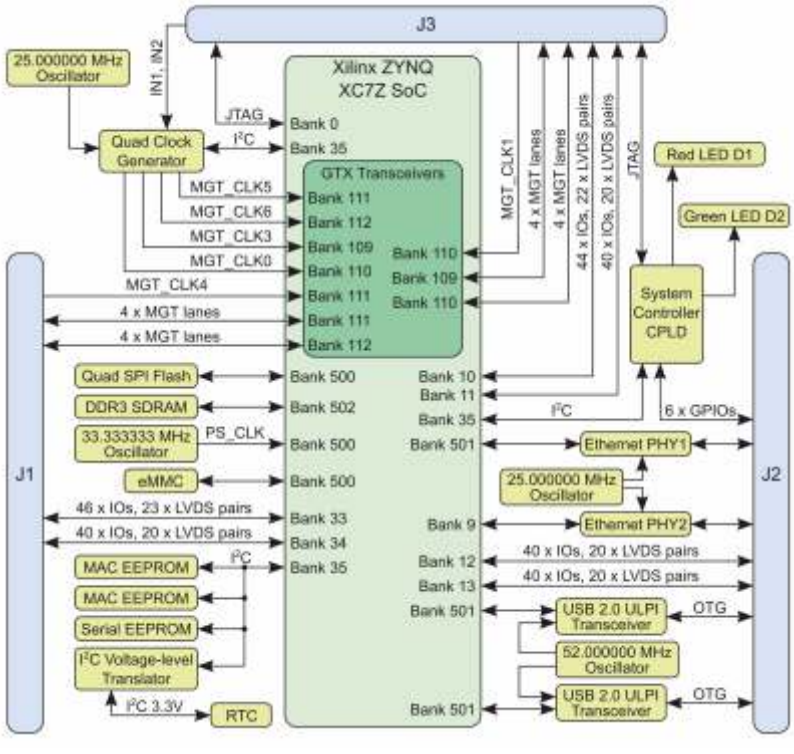
XILINX ALL PROGRAMMABLE™

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

TE0723 Series

Xilinx Zynq, 2x ARM Cortex A9, DDR3L Memory, USB OTG, On-board USB JTAG and UART

Overview

The Trenz Electronic TE0723 is a Arduino compatible FPGA module integrating a Xilinx Zynq-7010, 512 MByte DDR3L, and 16 MByte SPI Flash Memory for configuration and operation.
The "ArduZynq" is the lowest cost, Linux ready solution to use the latest FPGA: the Xilinx 7 series. Use it as a FPGA development platform, or run Linux on the Cortex A9 cores.

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

Extended device life cycle

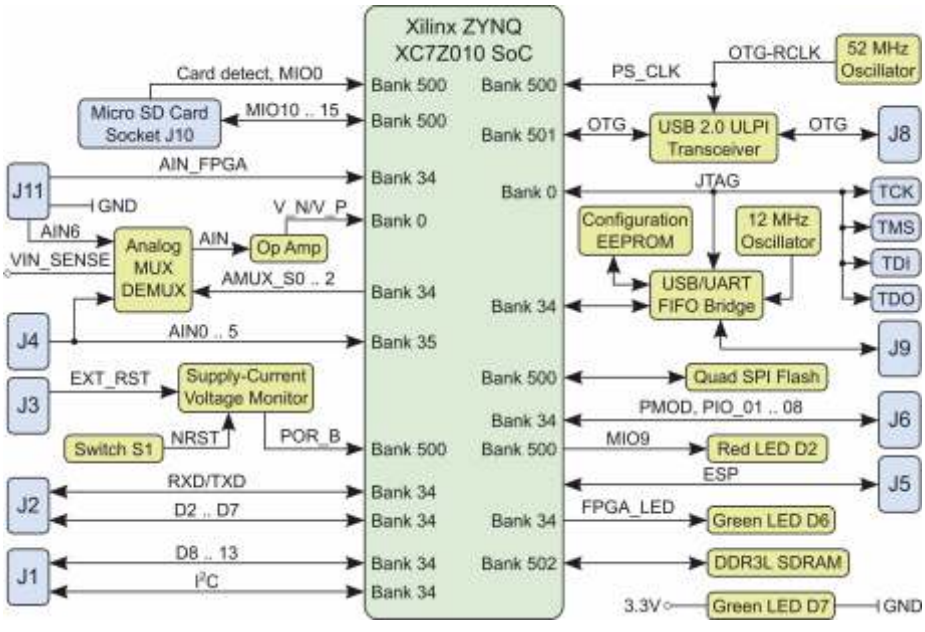
"Ideal for Maker" Make:

XILINX ALL PROGRAMMABLE™ ZYNQ™

Key Features

- Xilinx XC7Z010-1CLG225C
- Form Factor: Arduino Shield
- Dual ARM Cortex-A9
- Up to 512 MByte DDR3L
- 16 MByte SPI Flash memory
- 12 MHz MEMS Oscillator low power consumption
- Hi-Speed USB2.0 ULPI Transceiver
- 23 FPGA I/O's available on board-to-board connectors
- MicroSD Card socket
- Micro USB OTG
- RGB LED (PL I/O connected)
- "Done" LED (inverted polarity)
- On-board USB JTAG and UART
- CERN Open Hardware Licence 1.2

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



www.trenz-electronic.de/te0723

TE0722 Series

Xilinx Zynq, Dual Core ARM A9+, 16 MByte SPI Flash, DIP40 Form Factor

1.8 form X factor 5.1

Overview

The DIPFORTy1 "Soft Propeller" is based on the Xilinx Zynq-7000, a System on Chip which contains a FPGA and a Dual Core ARM A9+ processor with enough logic gates to become a Propeller. The board also has 16 MByte of Flash used for configuration and everything fits on a Propeller-compatible DIP 40 pinout.
DIPFORTy1 "Soft-Propeller" is the lowest cost Zynq based module ever made and the first Zynq module that can use existing bases and project boards (Parallax Propeller chip compatibility). All this in a compact 1.8 x 5.1 cm form factor, at the most competitive price.

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

Extended device life cycle

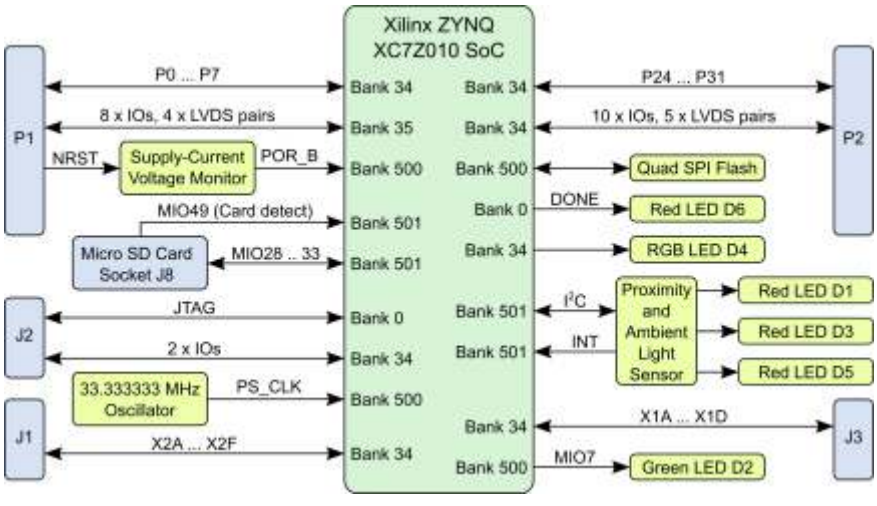
"Ideal for Maker" Make:

XILINX ALL PROGRAMMABLE™ ZYNQ™

Key Features

- Xilinx Zynq-7: XC7Z010-CLG225
  - 16 MByte SPI Flash (primary boot)
  - 33.333 MHz Clock (MEMS Oscillator)
- Dual Core ARM A9+
- DIP40 form factor
  - 2 x 20 holes for socket pins or pin-header
  - Size: 18 x 51 mm
- Total user accessible PL I/O: 46 (+3 Input only)
  - DIP40 header pins: 34 I/O
  - XMOD J1: 6 I/O
  - XMOD J2: JTAG + 2 I/O (or 3 input + 2 I/O)
  - XMOD J3: 4 I/O
- 3.3V single supply
- RGB LED (PL I/O connected)
- "Done" LED (inverted polarity)
- User LED (ARM CPU MIO GPIO)
- MicroSD Card socket (MIO, ZYNQ secondary boot media)
- Sil1143 Proximity and ambient light sensor

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



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.

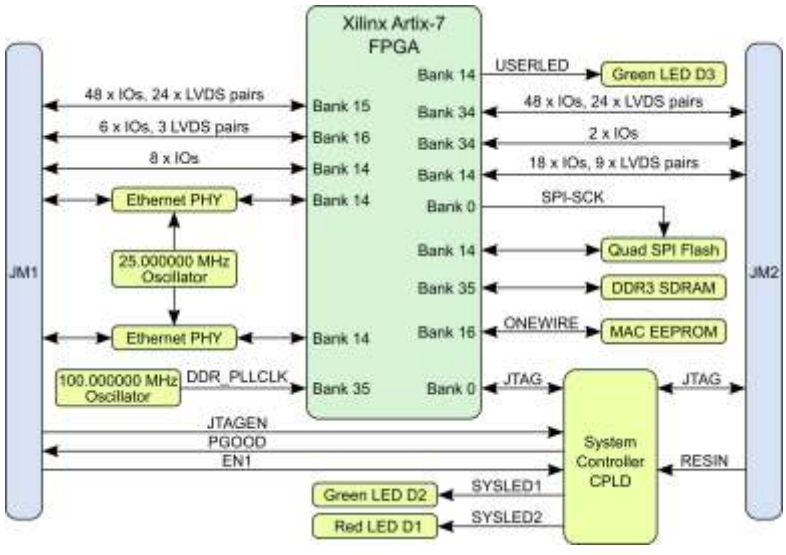
Key Features

- 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



TE0711 Series

Xilinx Artix-7 T, Flash, USB, high pin count, low cost

Overview

Trenz Electronic TE0711 are industrial-grade FPGA modules integrating a Xilinx Artix-7 T FPGA, 32 MByte Flash memory for configuration and operation, and powerful switch-mode power supplies for all on-
number of board voltages.A large 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.

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
- 32 MByte QSPI Flash memory (with XiP support)
- 100 MHz programmable MEMS oscillator
- Plug-on module with 2 × 100-pin and 1 × 60-pin high-speed hermaphroditic strips
- 178 FPGA I/O's (84 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
- System management and power sequencing
- eFUSE bit-stream encryption
- AES bit-stream encryption
- 3 user LEDs
- FTDI USB to UART/FIFO bridge
- Evenly-spread supply pins for good signal integrity

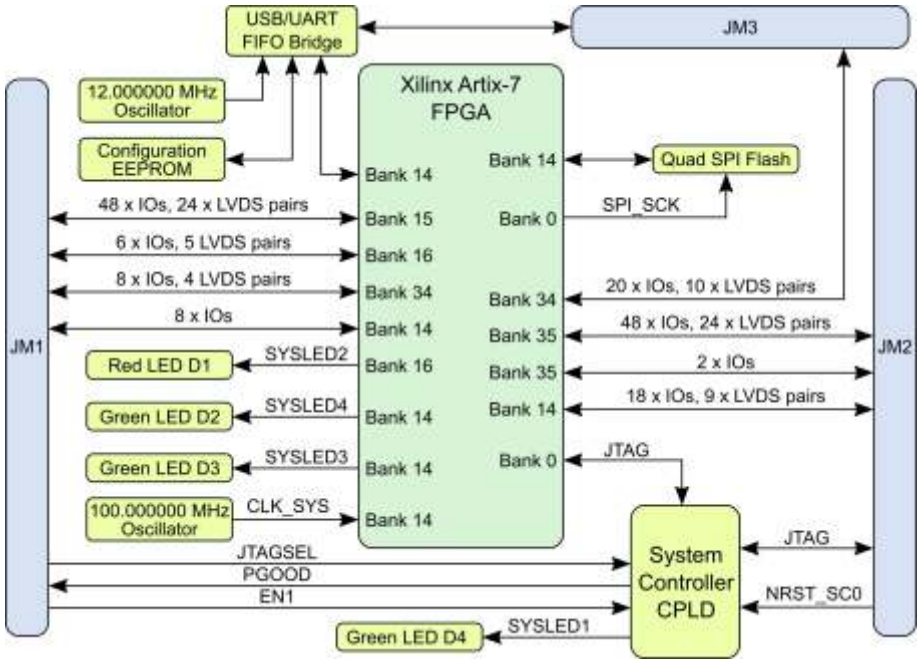
Other assembly options for cost or performance optimization plus high volume prices available on request.

Extended device life cycle

Rugged for industrial applications

XILINX ALL PROGRAMMABLE™

ARTIX 7™



www.trenz-electronic.de/te0711

TE0714 Series

Xilinx Artix-7, 16 MByte Flash, 4 x GTP Transceiver

Overview

The Trenz Electronic TE0714 is an industrial-grade FPGA module integrating a Xilinx Artix-7 (A15T, A35T, A50T), 16 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 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

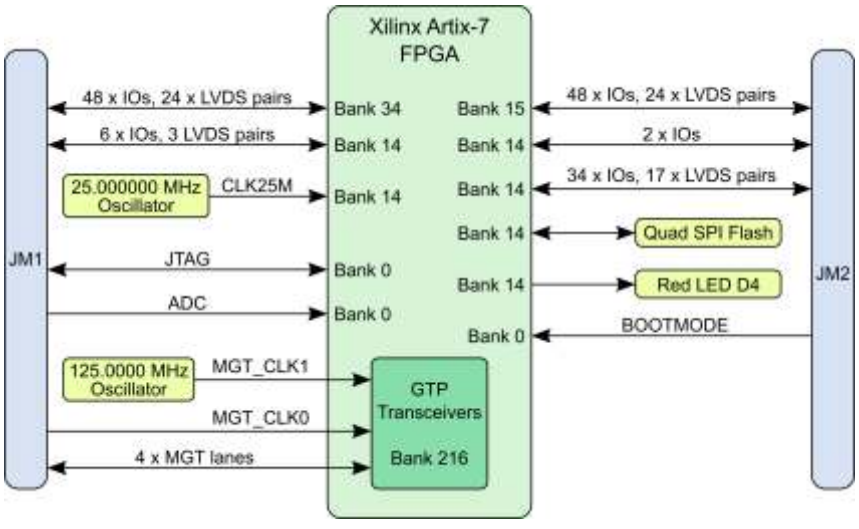
Rugged for industrial applications

XILINX ARTIX 7

Key Features

- Xilinx Artix-7 (A15T, A35T, A50T)
- Rugged for shock and high vibration
- 16 MByte QSPI Flash memory
- Dimensions: 4 x 3 cm
- Differential MEMS Oscillator for GT Clocking
- MEMS Oscillator for PL Clocks (option)
- Plug-on module with 2 × 100-pin high-speed hermaphroditic strips
  - 144 FPGA I/O's (max 68 differential)
  - XADC Analog Input
  - 4 GTP (high-performance transceiver) lanes
  - GT Reference Clock input
  - Optimized I/O and power pins for good signal integrity
- On-board high-efficiency DC-DC converters
- eFUSE bit-stream encryption (AES)
- One user LED

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



www.trenz-electronic.de/te0714

TE0725 Series

Xilinx Artix-7, 32 MByte Flash, 87 IO's, 2x 50 Pin Headers 2.54 mm Pitch

Overview

The Trenz Electronic TE0725 is a low cost small-sized FPGA module integrating a Xilinx Artix-7 (15T - 100T) and 32 MByte Flash memory for configuration and operation. The 2 x 50 pin header with a 2.54 mm standard pitch fits perfect on a breadboard.

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

XILINX ALL PROGRAMMABLE. ARTIX 7

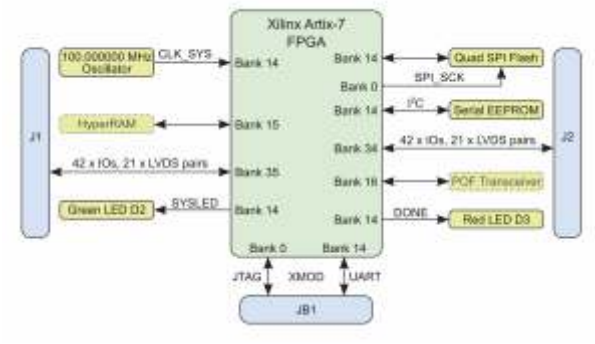
Extended device life cycle

Rugged for industrial applications

Key Features

- Xilinx Artix-7 15T up to 100T
- commercial temperature grade (industrial on request)
- 32 MByte Flash memory
- 2 x 50 pin headers with 2.54 mm pitch, ideal for breadboard use
- 87 IO's (42 + 42 + 3)
- 100 MHz system clock
- I2C EEProm
- 3.3V single supply with on board voltage regulators
- Size 73 x 35 mm
- JTAG connector
- 2 LEDs
- optional HyperRAM (8 to 32 MByte)
- optional Fiber Optic module

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



TE0725LP

Xmod Form-Factor, FT2232H, Lattice XO2-256 CPLD, 4 Position DIP Switch

Overview

The Trenz Electronic TE0725LP-01-100-2C is a low cost small-sized FPGA module integrating a Xilinx Artix-7 (15T - 100T) and 32 MByte Flash memory for configuration and operation. The 2 x 50 pin headers with a 2.54 mm standard pitch are perfect for bread-board or low cost dual layer PCB.

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

XILINX ALL PROGRAMMABLE. ARTIX 7

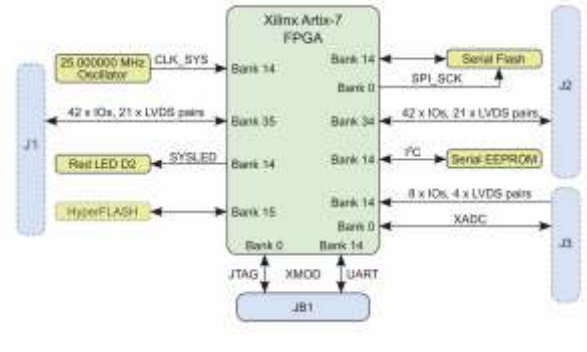
Extended device life cycle

Rugged for industrial applications

Key Features

- Xilinx Artix-7 XC7A100T
- commercial temperature grade (industrial on request)
- 32 MByte Flash memory
- 2 x 50 pin headers with 2.54 mm pitch, ideal for breadboard use
- 3.3 V or optional 1.8 V single supply with on board voltage regulators
- 95 I/O's (42 + 42 + 3 + 8)
- 25 MHz system clock (100 MHz can be customized on request)
- I2C EEPROM
- JTAG/UART connector
- One user LED
- 7.3 x 3.5 cm form factor
- Optional HyperRAM (8 - 32 MByte) or HyperFlash

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



Overview

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

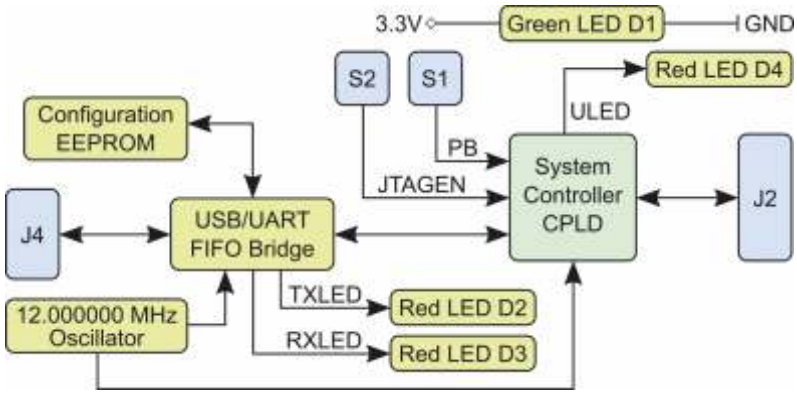
In the consigned default configu-ration Port A is JTAG and Port B is a serial interface. FT2232H port A and B are connected to small on-board programmable CPLD to allow flexible application specific remappings of FT2232H functions into 8 user I/O pins of single Xmod 12 x 8 Module.

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

TE Carrier Boards
custom built for specific Trenz Electronic micromodules

Following Trenz Electronic Carrier Boards are custom-built base boards for specific Trenz Electronic SoMs, which exposes the module's B2B-connector-pins to accessible connectors and provides a whole range of on-board components to test and evaluate Trenz Electronic SoMs.

TEBF0808

- Mini-ITX form factor
- ATX power supply connector (Important 12 V only supply required)
- optional 12 V standard power plug
- USB 3.0 with USB 3.0 HUB
- Gigabit Ethernet RJ45
- MicroSD Card (bootable) and eMMC (bootable)
- PCIe slot - one PCIe lane (16 Lane connector)
- Displayport Single Lane
- One SATA Connector
- Dual SFP+
- FMC HPC slot (1.8 V max VCCIO)
- Fan connectors, PC enclosure, FMC fan
- Intel front panel- and HDA audio-connector
- CAN FD transceiver (10 pin IDC connector)
- 20 pins ARM JTAG connector (PS JTAG0)
- One Samtec FireFly (4 GT lanes bidir)
- One Samtec FireFly connector for reverse loopback

TEB0728

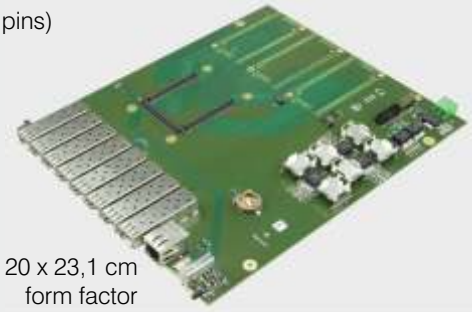
- Trenz TE0728 module socket (3 x Samtec SEM connectors 80 pins)
- 2 x RJ45 Ethernet
- SD card slot
- Power supply with DC jack
- 3 x user LED's (red/yellow/green)
- User push button

TEB0729

- Trenz TE0729 module socket (2 x Samtec BTE/BSE connectors 120 pins)
- 5 V board supply via DC jack
- 3 x RJ45 Ethernet
- 1 x MicroUSB and 1 x SD card connector
- 1 x 128K I2C CMOS Serial EEPROM
- 1 x 2K I2C Serial EEPROM
- XMOD (TE0790) pin header
- 2 x pin header FPGA bank power supply
- 1 x VBat pin header and 2 x VG96 pin header
- 1 x user push button, 1 x LED (red), user switch FPGA boot mode

TEB0745

- Trenz TE0745 module socket (3 x Samtec ST5 connectors 160 pins)
- 24 V power supply over ARKZ950/2 connecting terminal
- XMOD (TE0790) Pin Header (JTAG / UART)
- 1 x EMI Network Filter
- microSD connector
- RJ45 Ethernet connector
- USB Host connector
- 8 x SFP connector
- 6 x pin header 50 pol. (FPGA bank I/O's and power)
- 6 x pin header 12 pol. (FPGA bank I/O's and power)



20 x 23,1 cm
form factor

TEBA0714

- Trenz TE0714 module socket (2 x Samtec LSHM connectors 100 pins)
- XMOD (TE0790) pin header
- 1 x pin header 16 pol. (JTAG, MGT-CLK, boot mode, XADC, I/O's)
- 1 x pin header 10 pol. (I/O's)
- SFP connector
- LDO voltage regulator 3.3 V to 2.5 V
- 2 x user LED's (red/green) and 1 x LED (red)
- 2 x pin headers 50 pol. (FPGA bank I/O's and power)
- 1 x pin header for FPGA bank power VCCIO34 (1.8 VOUT, 2.5 V, 3.3 VOUT)
- 1 x pin header for FPGA bank power V_CFG (1.8 VOUT, 2.5 V, 3.3 VOUT)

TE0728	TE0729	TE0741	TE0745	TE0782	TE803	TE0808 „UltraSOM+“	TE820	TE0841
ZYNQ	ZYNQ	KINTEX 7	ZYNQ	ZYNQ	ZYNQ UltraSCALE+	ZYNQ UltraSCALE+	ZYNQ UltraSCALE+	KINTEX UltraSCALE
Z-7020 (automotive)	Z-7020	70T 160T 325T 410T	Z-7030 Z-7035 Z-7045	Z-7035 Z-7045 Z-7100	ZU3EG, ZU5EV, (ZU2CG-ZU5CG, ZU2EG-ZU5EG, ZU4EV, ZU5EV)	ZU9EG (ZU6CG, ZU9CG, ZU6EG, ZU9EG, ZU15EG)	ZU3EG, ZU5EV, (ZU2CG-ZU5CG ZU2EG-ZU5EG ZU4EV, ZU5EV)	KU35 KU40
6 form X factor 6	5.2 form X factor 7.6 *	4 form X factor 5	5.2 form X factor 7.6 *	8.5 form X factor 8.5	5.2 form X factor 7.6	5.2 form X factor 7.6	4 form X factor 5	4 form X factor 5
3 x Samtec SEM	2 x Samtec BTE	3 × Samtec LSHM	3 x Samtec ST5	3 x Samtec QTH	4 x Samtec ST5	4 x Samtec ST5	3 x Samtec LSHM	3 x Samtec LSHM
Artix-7	Artix-7	Kintex-7	Kintex-7	Kintex-7	UltraScale+	UltraScale+	UltraScale+	UltraScale
2 × Cortex A9	2 × Cortex A9	MicroBlaze	2 x Cortex A9	2 x Cortex A9	4 x Cortex A53+ 2 Cortex R5	4 x Cortex A53 + 2 Cortex R5	4 x Cortex A53+ 2 Cortex R5	MicroBlaze
512 DDR3	512 DDR3	-	1024 DDR3/L	1024 DDR3	8192 DDR4	8192 DDR4	4096 DDR4	4096 DDR4
16	32	32	32	32	64	64	64	32
8 KByte	3 x MAC	-	MAC	2 x MAC + 16 KByte	-	16 KByte	-	-
	4 - 64 GByte	-	-	4 - 64 GByte	-	-	4 - 64 GByte	-
2 x 100 MBit	2 x 100 MBit, 1 GBit	-	1 GBit	2 x 1 GBit	-	-	4 - 64 GByte	1 GBit
-	USB 2.0 OTG PHY	-	USB 2.0 OTG PHY	2 x USB 2.0 OTG	-	-	USB 2.0 OTG	-
124 + 34 MIO	136 + 14 MIO	144	250 + 6 MIO	250 + 2 MIO	156 + 65 MIO	204 + 65 MIO	132 + 14 MIO	144
-	-	8 x GTX	8 x GTX	16 x GTX	PS GTR 4	4 x GTR, 16 x GTH	PS GTR 4	8 x GTH
Automotive, RTC, CAN	RTC, Cooling Solution available	Programmable Clock Generator	RTC	Programmable Clock Generator, RTC, eMMC	Programmable Clock Generator	System Monitor, Programmable Clock Generator	Programmable Clock Generator, Real Time Clock, eMMC	Programmable Clock Generator

*modules with form factor 5.2. x 7.6 cm are not compatible with each other

Xilinx development boards and kits provide an out-of-the box design solution to accelerate development time and time-to-market. Xilinx offers kits complete with evaluation boards, the Vivado Design Suite tools, IP cores, reference designs and FPGA Mezzanine Card (FMC) support – so application development begins immediately out of the box.

The Vivado Design Suite delivers a SoC-strength, IP-centric and system-centric, next generation development environment that has been built from the ground up to address the productivity bottlenecks in system-level integration and implementation.

Xilinx Zynq UltraScale+ MPSoC ZCU102 Evaluation Kit

The ZCU102 Evaluation Kit enables designers to jumpstart designs for Automotive, Industrial, Video and Communications applications. This kit features a Zynq UltraScale+™ MPSoC device with a quad-core ARM® Cortex-A53, dual-core Cortex-R5 real-time processors, and a Mali-400 MP2 graphics processing unit based on Xilinx's 16nm FinFET+ programmable logic fabric. The ZCU102 supports all major peripherals and interfaces enabling development for a wide range of applications.

Key Features & Benefits

- Optimized for quick application prototyping with Zynq Ultrascale+ MPSoC
- DDR4 SODIMM – 4GB 64-bit w/ ECC attached to Processor Subsystem (PS)
- DDR4 Component – 512MB 16-bit attached to Programmable Logic (PL)
- PCIe Root Port Gen2x4, USB3, Display Port & SATA
- 4x SFP+ cages for Ethernet
- 2x FPGA Mezzanine Card (FMC) interfaces for I/O expansion including 16 x 16.3 Gb/s GTH transceivers and 64 user defined differential I/O signals

This is just one example of our wide variety of Boards and Kits from Xilinx. Please have a look in our online shop for a wider selection or ask for a quote at sales@trenz.biz.

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)		