Trenz Electronic GmbH - TE0741-02-160-2C1 Datasheet

Welcome to E-XFL.COM

Understanding Embedded - Microcontroller, Microprocessor, FPGA Modules

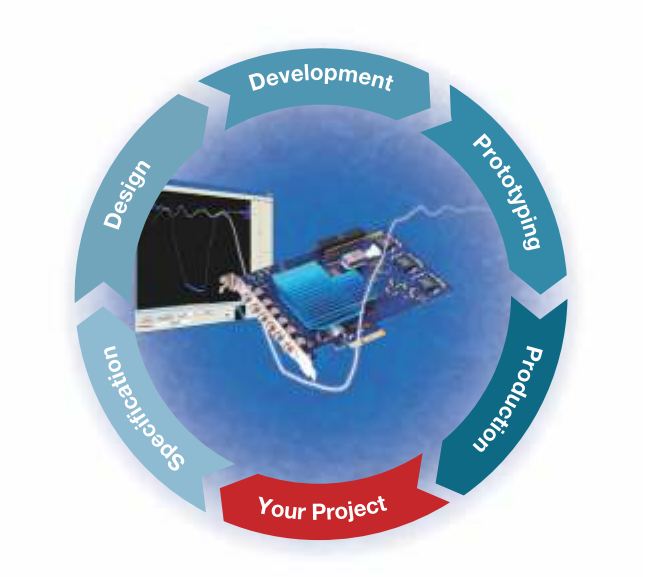
Embedded - Microcontroller, Microprocessor, and FPGA Modules are fundamental components in modern electronic systems, offering a wide range of functionalities and capabilities. Microcontrollers are compact integrated circuits designed to execute specific control tasks within an embedded system. They 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	Discontinued at Digi-Key
Module/Board Type	FPGA Core
Core Processor	Kintex-7 160T
Co-Processor	-
Speed	200MHz
Flash Size	32MB
RAM Size	-
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/te0741-02-160-2c1

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

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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.

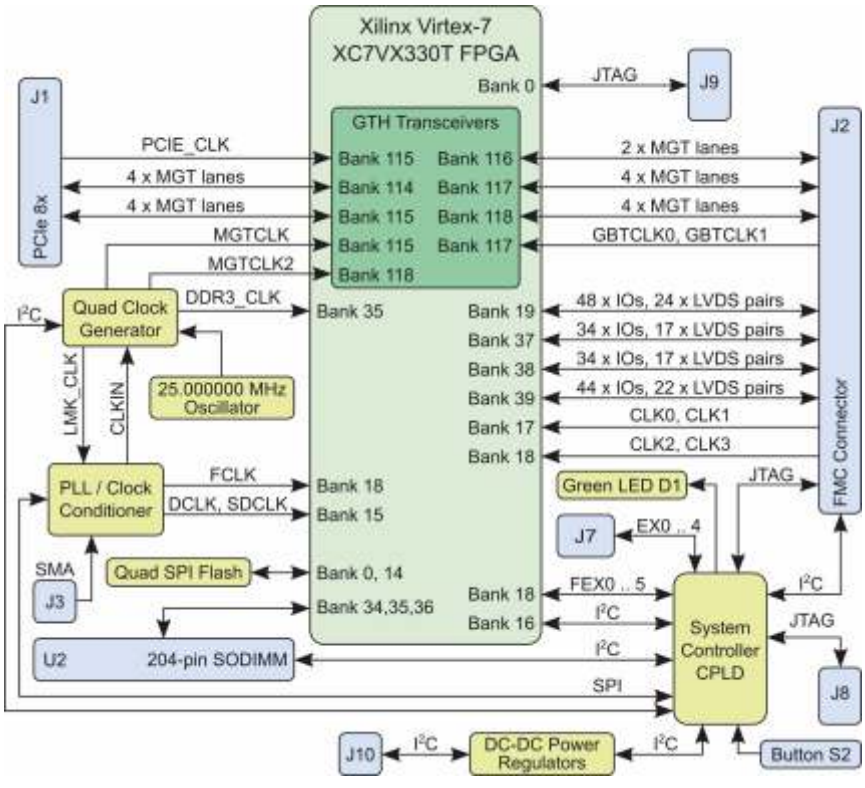
All modules produced by Trenz Electronic are developed and manufactured in Germany.

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.



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

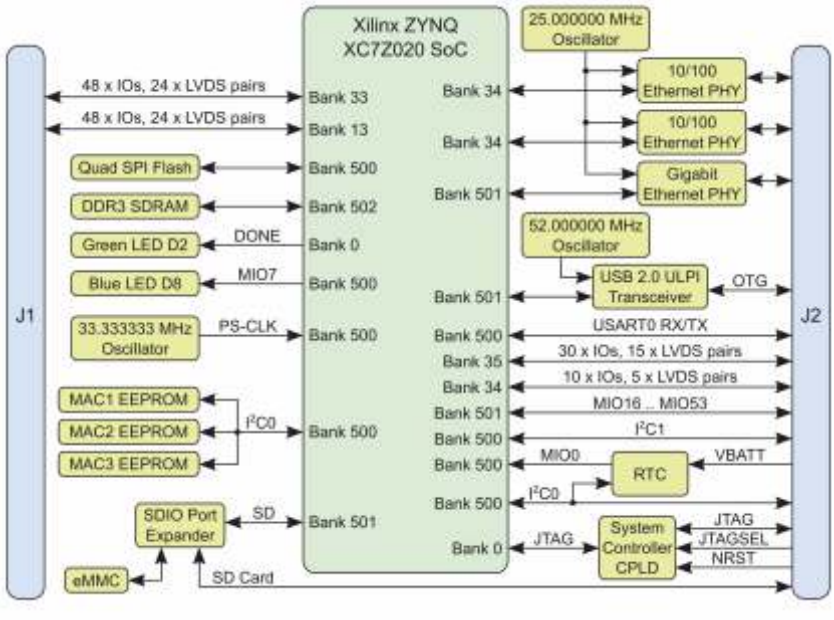
XILINX ALL PROGRAMMABLE™

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

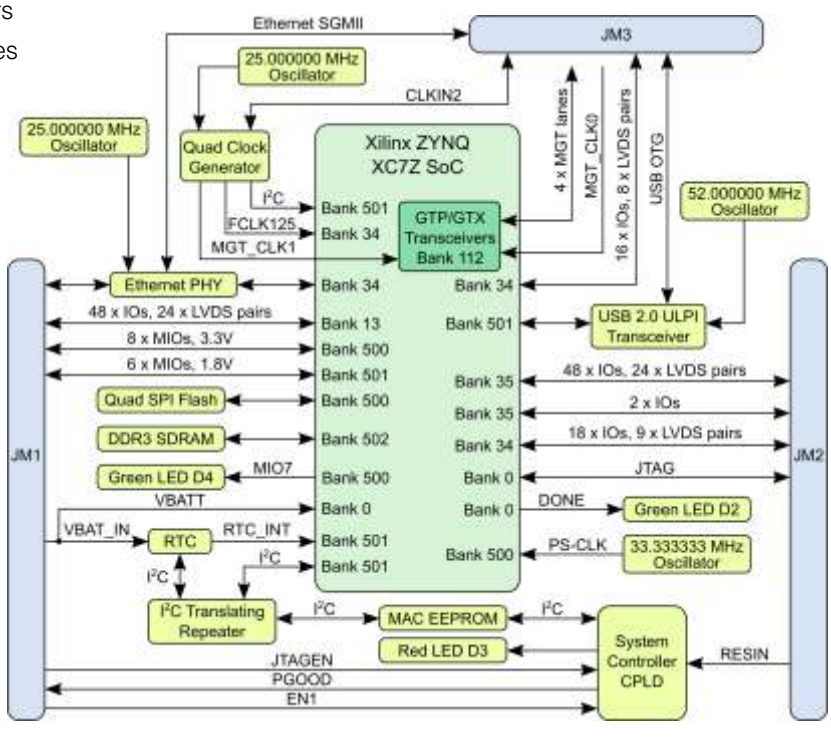
XILINX ALL PROGRAMMABLE™

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

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

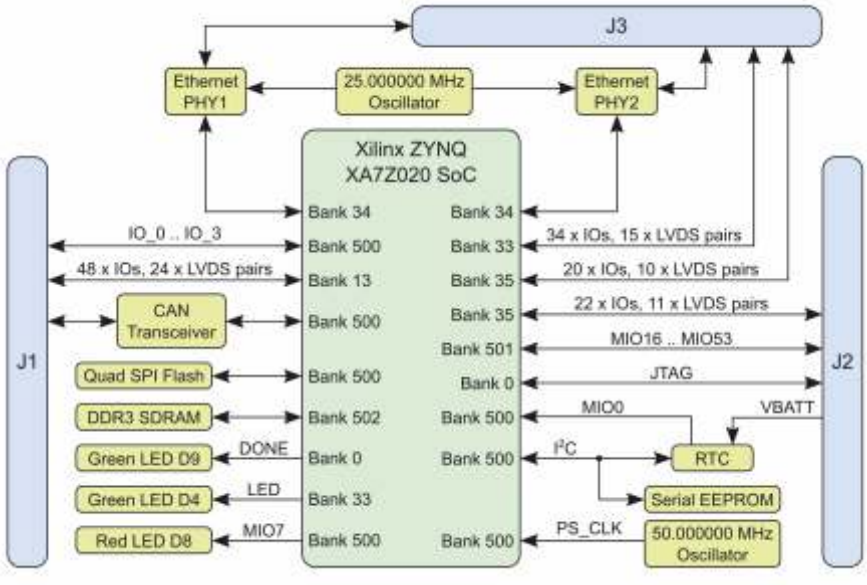
XILINX ALL PROGRAMMABLE™

ZYNQ™

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

TE0841 Series
Xilinx Kintex UltraScale, DDR4, Flash, 8 x Transceiver

Overview

The Trenz Electronic TE0841 is an industrial-grade FPGA module integrating a Xilinx Kintex UltraScale KU35 or KU40, max. 4 GByte 16-Bit width DDR4, max. 256 MByte QSPI Flash 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.

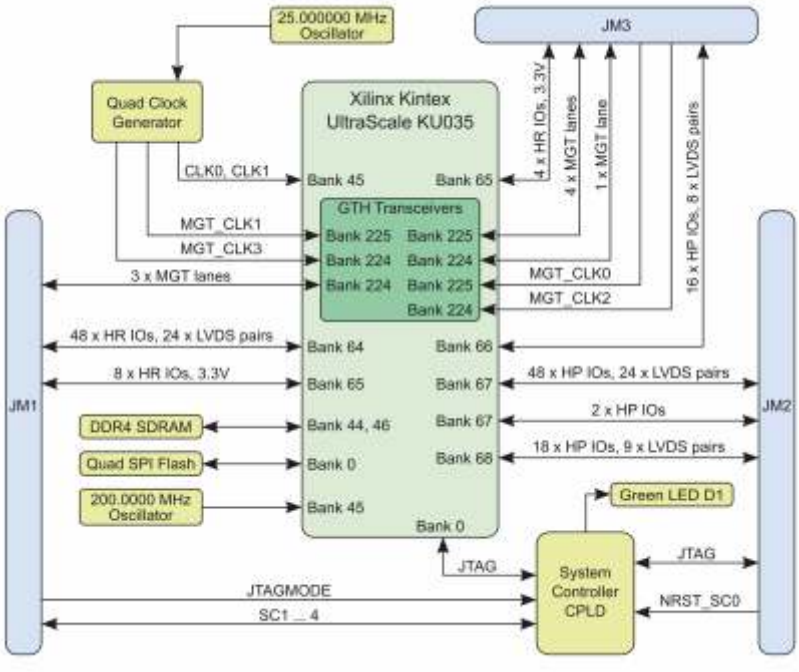
Extended device life cycle

Rugged for industrial applications

Key Features

- Xilinx Kintex UltraScale KU35 or KU40 FPGA
- Rugged for industrial application
- max. 4 GByte 16-bit wide DDR4
- max. 256 MBit (32 MByte) SPI Boot Flash
- Size: 40 x 50 mm
- 3 mm mounting holes for skyline heat spreader
- B2B Connectors: 3 x Razor Beam, total 260 terminals
  - User I/O: HR 12, HP 132
  - Serial transceiver: GTH 8 lanes (all)
  - GT clock inputs: 2
- Clocking
  - Si5338 - 4 output PLL, GT and PL clocks
  - 200 MHz LVDS oscillator
- All power supplies on board, single supply operation supported.
- Evenly spread supply pins for good signal integ

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



www.trenz-electronic.de/te0841

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.

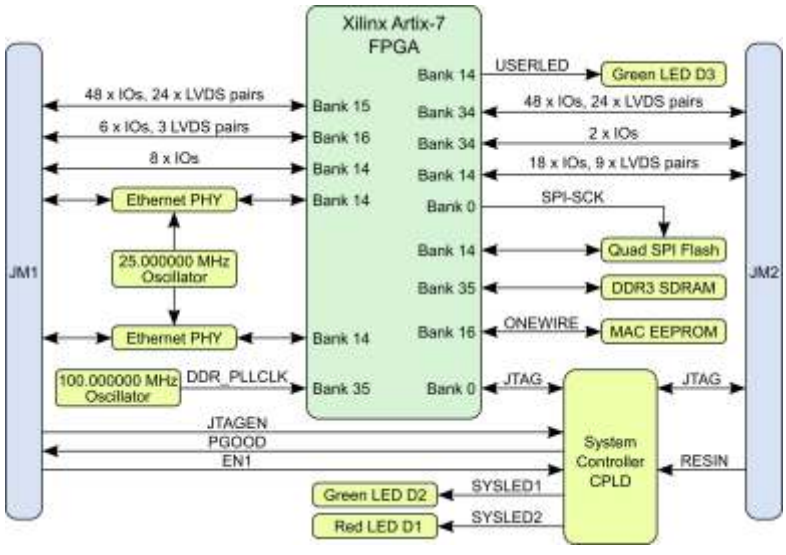
Key Features

- 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



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.

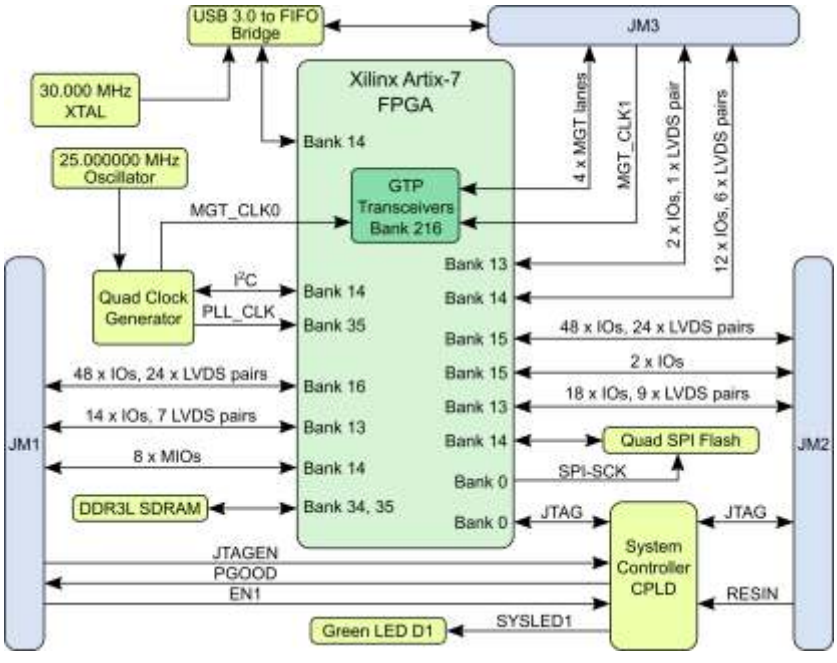
Extended device life cycle

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.



www.trenz-electronic.de/te0713

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

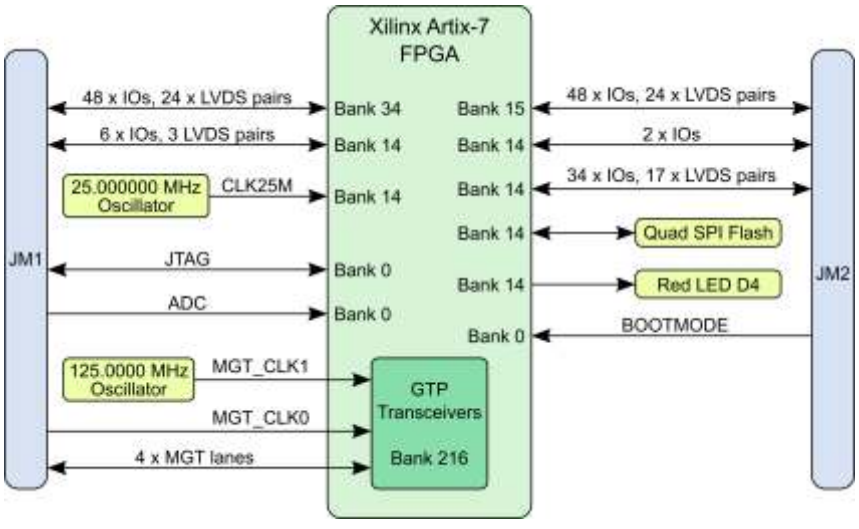
Rugged for industrial applications

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.



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

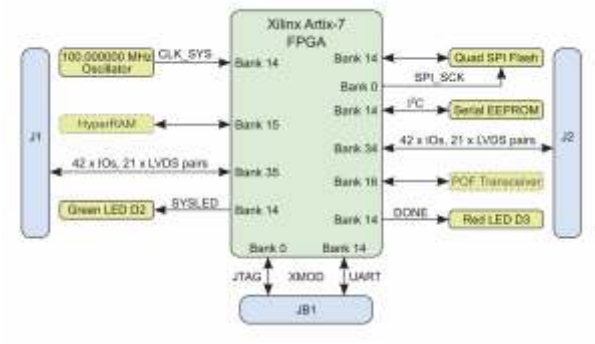
Extended device life cycle

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

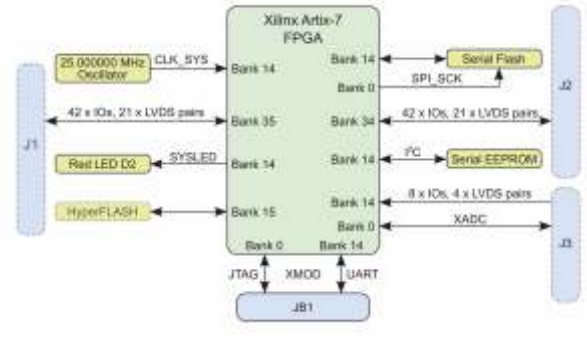
Extended device life cycle

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.

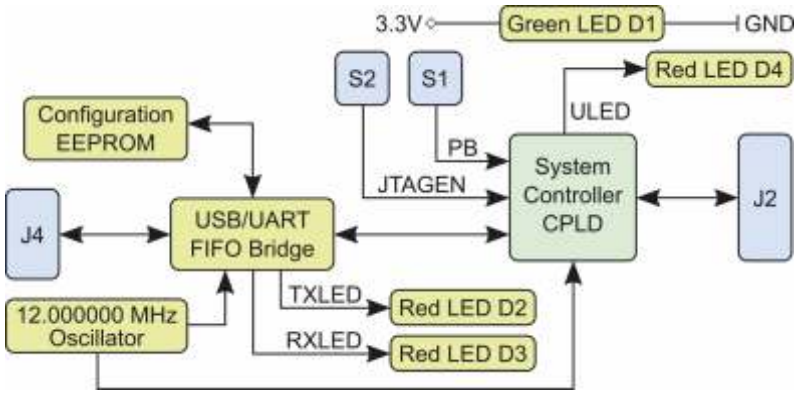
In the consigned default configu-ration Port A is JTAG and Port B is a serial interface. FT2232H port A and B are connected to small on-board programmable CPLD to allow flexible application specific remappings of FT2232H functions into 8 user I/O pins of single Xmod 12 x 8 Module.

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

Module series comparison table

	TE0710	TE0711	TE0712	TE713	TE0714	TE0715	GigaZee TE0720
Device family	ARTIX-7	ARTIX-7	ARTIX-7	ARTIX-7	ARTIX-7	ZYNQ	ZYNQ
Device list	35T 50T 75T 100T	35T 50T 75T 100T	35T 50T 75T 100T 200T	15T - 200T	15T 35T 50T	Z-7015 Z-7030	Z-7020
Form factor/size	4 X 5	4 X 5	4 X 5	4 X 5	4 X 3	4 X 5	4 X 5
Connectors	2 × Samtec LSHM	3 × Samtec LSHM	3 × Samtec LSHM	3 x Samtec LSHM	2 x Samtec LSHM	3 × Samtec LSHM	3 x Samtec LSHM
Programmable logic family	Artix-7	Artix-7	Artix-7	Artix-7	Artix -7	Z-7015: Artix-7 Z-7030: Kintex-7	Artix-7
Processing system	MicroBlaze	MicroBlaze	MicroBlaze	MicroBlaze	MicroBlaze	2 x Cortex A9	2 x Cortex A9
SDRAM capacity [MByte] max	512 DDR3	-	1024 DDR3	1024 DDR3L	-	1024 DDR3	1024 DDR3
Flash [MByte]	32	32	32	32	16	32	32
EEPROM	-	FTDI User EEPROM	MAC	-	-	MAC	MAC
eMMC	-	-	-	-	-	-	4 - 64 GByte
Ethernet PHY	2 x 100 MBit	-	100 MBit	-	-	1 GBit	1 GBit
USB PHY	-	USB 2 UART/FIFO		USB 3.0	-	USB 2.0 OTG	USB 2.0 OTG
Total I/O	112	178	158	152	144	132 + 14 MIO	152 + 14 MIO
GBit transceivers	-	-	4 x GTP	4 x GTP	4 x GTP	Z-7015: 4 x GTP Z-7030: 4 x GTX	-
Other features	-	-	Programmable Clock Generator	Programmable Clock Generator	-	Programmable Clock Generator, RTC	RTC

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

EMC²-DP

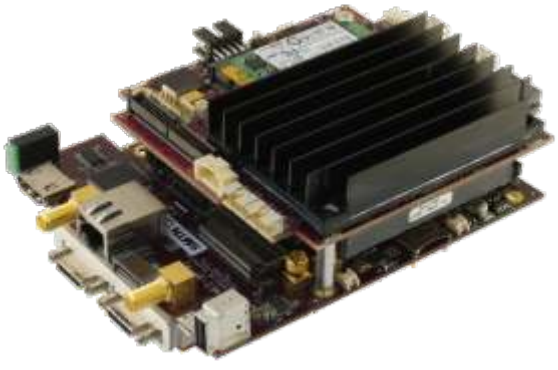
PC/104 OneBank Carrier for SoC Modules

www.sundance.technology/emc2-dp/

Providing the base for all of our PC/104 integrated systems the EMC²-DP is a PCIe/104 OneBank® Carrier for a Trenz compatible SoC Module and also has expansion for a VITA57.1 FMC™ LPC I/O board. It has I/O pins, using a 100-way Samtec RazorBeam connector system. The add-on board, called "Sundance External Interface Connector – SEIC" contains LEDs, RS232, USB2.0, HDMI, 1Gb Ethernet and SATA . The SEIC can be customized for individual applications with bespoke connectors.

The PCIe/104 OneBank® design enables the EMC²-DP to be added to robust and rugged installations for various commercial, medical, industrial and military uses.

- PCIe/104 OneBank® Carrier for Trenz SoC Modules
- PCI Express Gen 2 compatible and integrated PCI Express switch
- A number of EMC²-DP can be stacked for large I/O solutions
- Expandable with any VITA57.1 FMC I/O Module for more flexibility
- 96mm x 90 mm PC/104 Form-Factor with cable-less break-out PCB connector



oi110 - DUAL CAMERALINK

www.sundance.technology/oi110/

A dual lane CameraLink camera interface card (SMT-FMC521) and the EMC²-DP.
The integrated Xilinx FPGA allows any CameraLink format to connected to the oi110. Additional SATA-3 expansions allow connection to large storage for future processing.

- Dual CameraLink Ports
- Dual Single SATA-3 Ports
- PoCL (Power over Camera Link) support
- Up to 85MHz data rate
- Dual Base, Single Medium Base
- Single Extended Full CL Base

oi115 - HDMI IN / OUT

www.sundance.technology/oi115/

An HDMI in/out module and the EMC²-DP. As such this system gives you HDMI in and out on a one bank PC/104 FPGA carrier card.

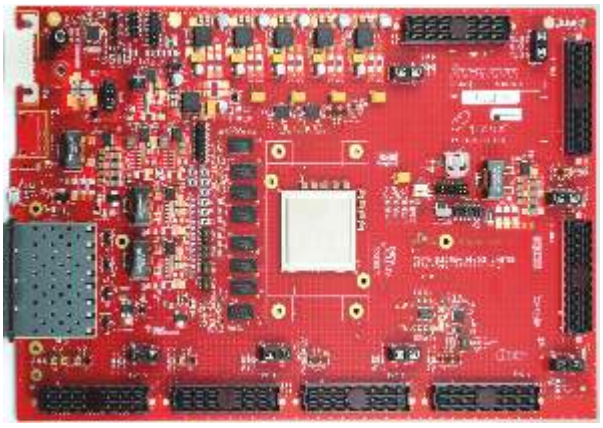
- HDMI input/output FMC module (FMC-IMAGEON)
- HDMI input
- HDMI output
- Interface for ON Semiconductor VITA image sensor modules
- Video clock synthesizer

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.

cronologic

cronologic GmbH & Co. KG

cronologic offers a family of high-resolution high-throughput PCIe analog-to-digital converters (ADCs)

All models share these characteristics:

- 4 analog input channels
- Additional digital trigger and/or gating inputs
- PCIe x4 or x8 half-size boards
- Gross DMA-bandwidth of 1 Gbyte/s or 2 Gbyte/s
- Arbitrary board combinations can be synchronized
- LEMO 00 series input connectors (adapter cabels to SMA connector available)
- The DC-offset can be shiftet to make optimal use of the ADC range for either positiv or negative pulses

	Ndigo5G-10			Ndigo5G-8			Ndigo250M-14	Violet250M-14	Violet125M-14	unit
PCIe lanes	4			4			8	8	8	-
PCIe Bandwidth	800			800			1400	1400	1400	MB/s
Analog channels	4	2	1	4	2	1	4	4	4	-
Max. Sampling Rate	1250	2500	5000	1250	2500	5000	250	250	125	Msps
Max. Bandwidth	1000			1000			120 or 700	120 or 700	60 or 450	MHz
Max. individual sample length	26	26	26	26			32	hours	hours	µs
THD	58	58	58	58			73	73	86	dBc
SNR	51	50	50	45			64	64	74	dBc
SFDR incl.	61	60	60	58			74	74	86	dBc
SFDR excl.	74	64	63	57			76	76	TBD	dBc
SINAD	50	48	48	45			64	64	72	dBc
ENOB	8.0	7.7	7.7	7.2			10.3	10.3	11.0	-
Input type and coupling	AC single ended			AC single ended			DC single ended	DC single ended	DC single ended	-

Ndigo Series

It has been designed to aquire trains of pulses at high repetition rates. Employing an onboard zero supression, the pulse data is recorded with pre- and post-cursors, omitting the data inbetween to reduce the requirements on bandwidth and pulse processing or averaging. There is no deadtime between samples as long as the sustained rate is lower than the available PCIe bandwidth. The first available instances of this series provide 5 Gsps at 10-bit resolutuion and 250 Msps at 14-bit resolution.

These boards are ideally suited for applications like

- Mass Spectrometry
- Photon Counting
- Lidar
- NMR

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.

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