




# TRENZ ELECTRONIC

## New Products

### Electronic Design Service

Development, Manufacture and Supply  
of FPGA and SoC Modules

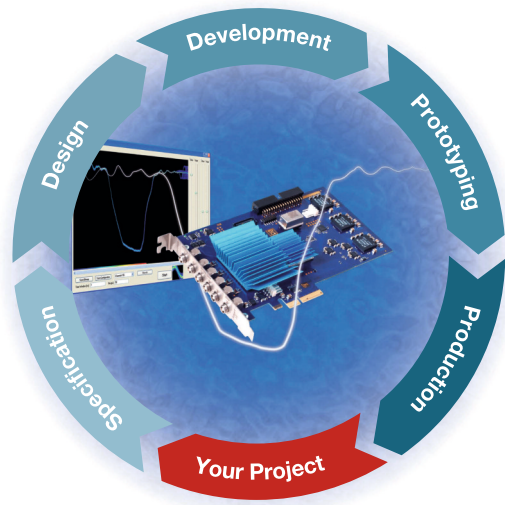
June 2022

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 [shop.trenz-electronic.de](http://shop.trenz-electronic.de)  
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**FPGA** inside



Trenz Electronic GmbH operates as a provider of development services in the electronic industry since 1992. Our services include design-in support as well as turnkey designs which typically covers 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 CPU architectures.

Many of our products are compatible with some widespread form factors. We also provide SoM products for automotive industry and high-end applications.

In the event that an off-the-shelf FPGA board won't fit the customers requirements, the design can be easily adapted by our comprehensive engineering design service.

Our in-house EMS and worldwide supply of FPGA and SoC modules complete the portfolio. All modules produced by Trenz Electronic GmbH are developed and manufactured in Germany.

Other assembly options of our modules for cost or performance optimization plus high volume prices are available on request. Also, cooling solutions and several carrier boards are at hand.

## 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
- USB, PCI-Express, Gigabit Ethernet
- Ultrafast ADC/DAC interfaces

## Software Development

- Device driver and application software development
- Software and Firmware development

- Extended device life cycle
- Rugged for industrial applications
- Automotive grade available
- Small and powerful
- Customizable
- Development and design service
- Rapid Prototyping
- Cooling solutions
- Carrier and testboards
- Free documentation and designs
- Sales worldwide
- In-house EMS
- Developed & produced in Germany



Trenz Electronic is certified partner in the Xilinx Partner Program.



ISO 9001:2015  
(quality management)  
certified



ISO 14001:2015  
(environmental  
management) certified

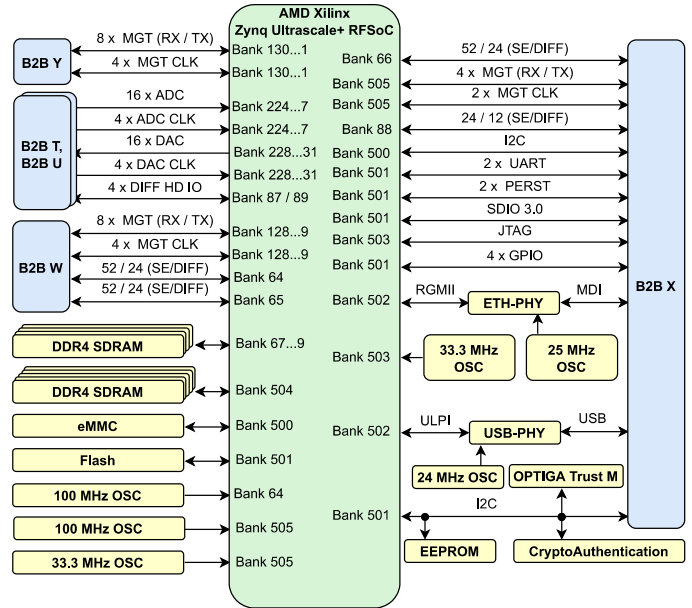
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**NEW AM0070 Andromeda RFSoc Series**  
 Xilinx Zynq UltraScale+ RFSoc, DDR4, Flash, Ethernet



6.4 x 8 cm form factor

<http://trenz.org/am0070-info>



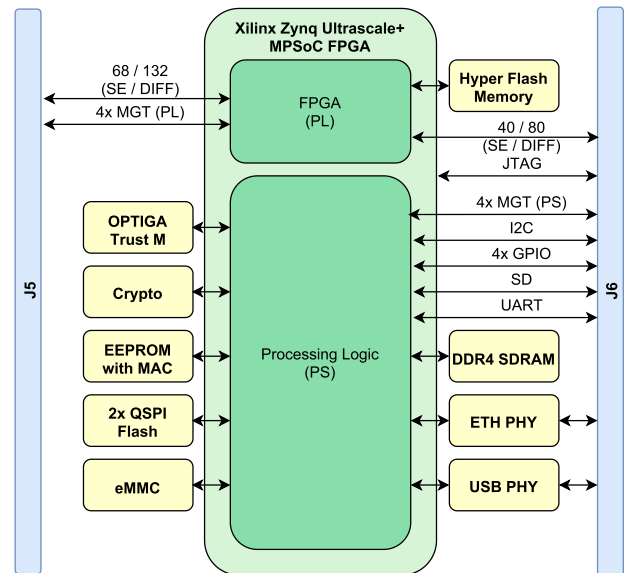
Device list	Connectors	SDRAM max	Flash	e.MMC	Ethernet	USB	Other Features
ZU29DR, ZU39DR, ZU49DR	5 x Samtec ADM6 4 x 60-pin	4 GB DDR4 64-bit (PS) with ECC 8 GB DDR4 64-bit (PL)	2 x 64 MB	8 GB	2 x 1 Gbit	USB2.0	OPTIGA Trust M, Crypto Authentication, Oscillator

**NEW AM0010 Andromeda MPSoC Series**  
 Xilinx Zynq UltraScale+ MPSoC, DDR4, Flash, Ethernet, USB



4 x 5.6 cm form factor

<http://trenz.org/am0010-info>

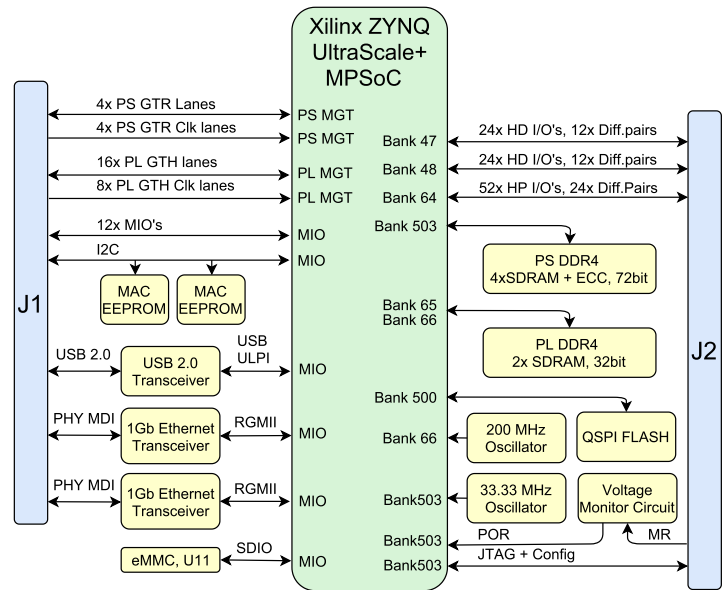


Device list	Connectors	SDRAM max	Flash	e.MMC	Ethernet	USB	Other Features
ZU1CG-ZU5CG, ZU1EG-ZU5EG, ZU4EV, ZU5EV	2 x Samtec ADM6 4 x 60-pin	4 GB DDR4 64-bit (PS) with ECC	2 x 64 MB	8 GB	1 Gbit	USB2.0 OTG	Total I/O: 204, optional HyperRAM, MAC address serial EEPROM with EUI-48 node identity, security controller, Crypto Authentication

**NEW TE0806 Series**  
**Xilinx Zynq UltraScale+ MPSoC, DDR4, Flash, Ethernet, USB, e.MMC**



5.5 x 7.6 cm form factor



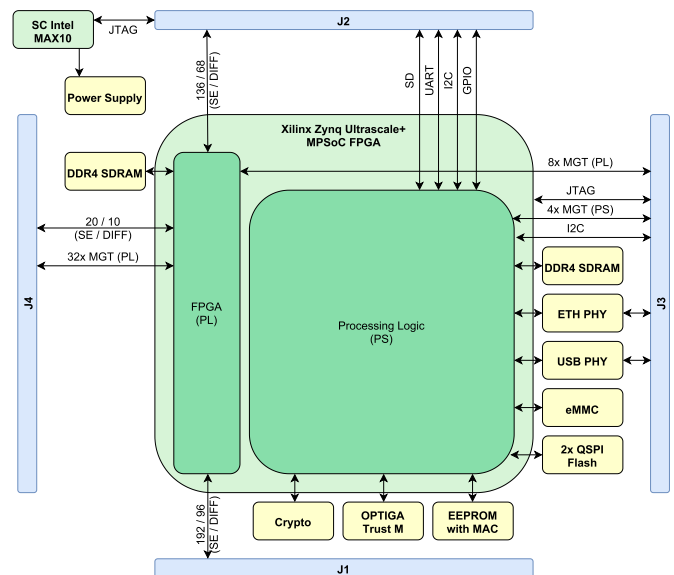
<http://trenz.org/te0806-info>

Device list	Connectors	SDRAM max	Flash max	e.MMC max	Ethernet PHY	USB PHY	Total I/O	Gbit Transceiver	Other Features
ZU4, ZU5, ZU7, CG, EG, EV support, 900 Pin packages	2 x Samtec ADM6 4 x 60-pin	8 GB DDR4 64-bit (PS) with ECC 4 GB DDR4 32-bit (PL)	2 x 64 MB	8 GB	2 x 1 Gbit	USB2.0 OTG	48 PL HD + 52 PL HP 14 MIOs + I2C	4 x GTR + 16 x GTH	Transceiver clock in-/outputs, 2 x MAC address serial EEPROM, single 5-12V power required

**NEW TE0865 Series**  
**Xilinx Zynq UltraScale+ MPSoC, DDR4, Flash, Ethernet, USB**



7.5 x 10 cm form factor

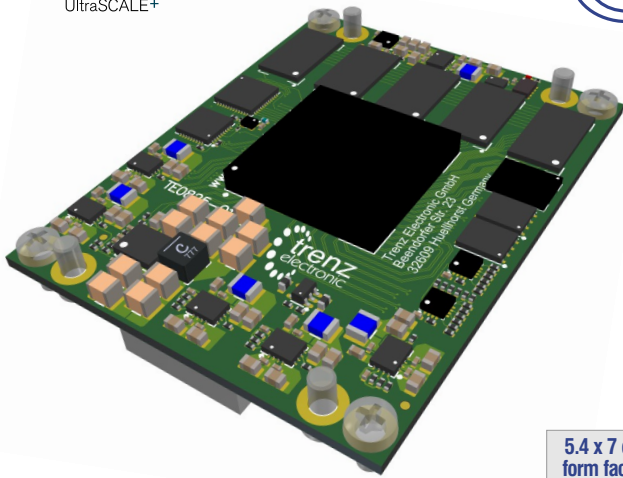


<http://trenz.org/te0865-info>

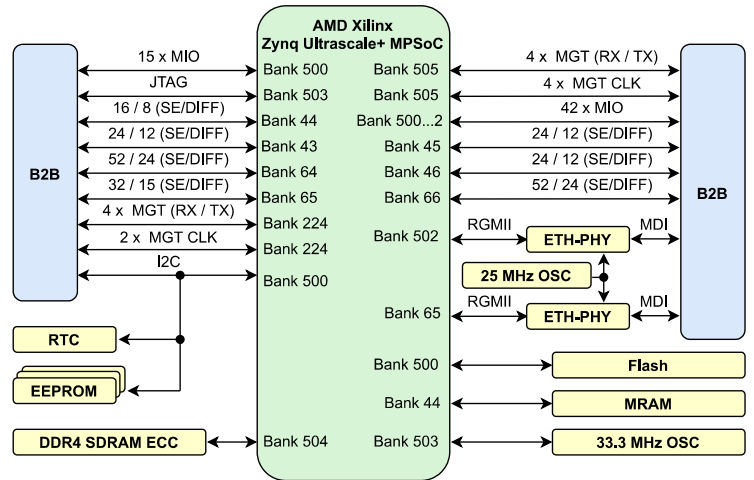
Device list	Pin Packages	Connectors	SDRAM max	Flash	Ethernet PHY	Total I/O	Gbit Transceivers	Other Features
ZU11, ZU17, ZU19	C1760	4 x Samtec ADM6 4 x 60-pin	8 GB DDR4 64-bit (PS) with ECC, 8 GB DDR4 64-bit (PL)	2 x 64 MB	1 Gbit	240 PL HP 96 PL HD 21 MIOs	32 x GTH, 16 x GTY, 4 x GTR	USB PHY, e.MMC, 12V single supply

# NEW TE0825 Series

Xilinx Zynq UltraScale+ MPSoC, Automotive, DDR4, Flash, EEPROM



5.4 x 7 cm form factor

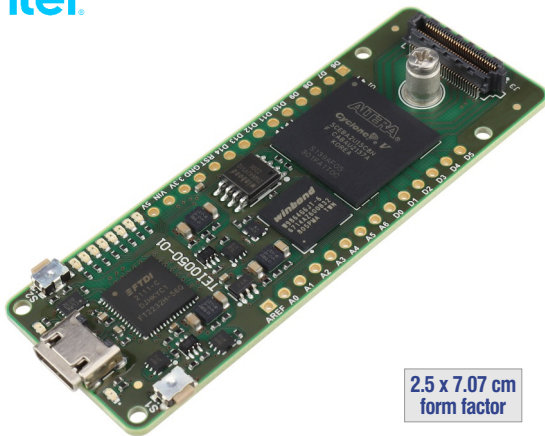


<http://trenz.org/te0825-info>

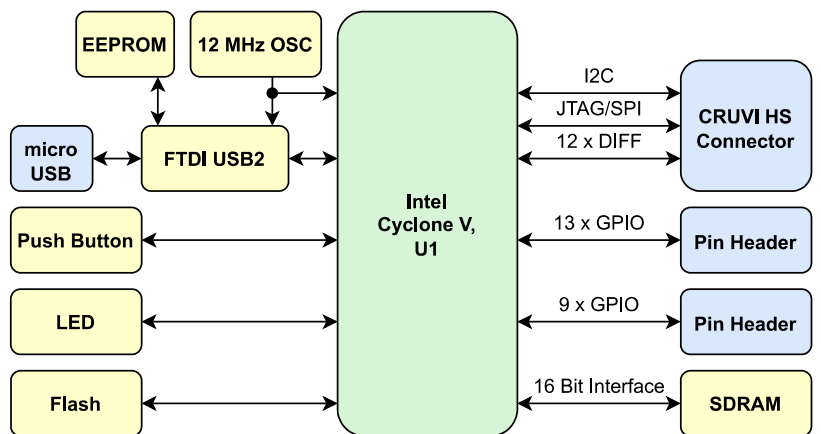
Device list	Connectors	SDRAM	Flash	EEPROM	Ethernet PHY	Total I/O	Gbit Transceiver	Other Features
ZU2, ZU3, ZU4, ZU5	2 x Samtec ADM6, 1 x Samtec UMPT, 4 x 60 pin	8 GB DDR4 with ECC	256 MB	64 kByte, 2 x with MAC address	2 x 1 Gbit	136 PL HP + 88 PL HD 57 PS MIO	4 x GTR + 4 x GTH	real time clock, Oscillator, power connector (UMPT), ETH, JTAG

# NEW TEI0050 Series

Intel Cyclone V, SDRAM, Flash, EEPROM



2.5 x 7.07 cm form factor



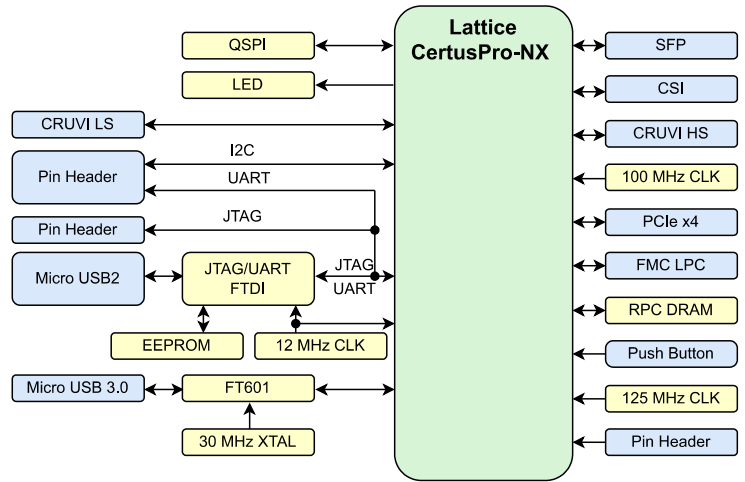
<http://trenz.org/tei0050-info>

Device list	Pin Package	Connectors	SDRAM	Flash	Other Features
Intel Cyclone V	U15 Ultra FineLine BGA 325 Pins	CRUUI, 2 x 14 Pin Header	8 MB	up to 256 MB possible	USB-to-JTAG/GPIO-FTDI, user push buttons and LEDs

**NEW TEL0003 Series**  
**Lattice CertusPro-NX, CRUVI, DRAM, Flash**



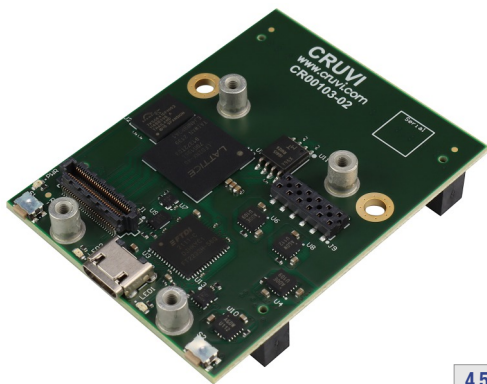
10.7 x 16.8 cm form factor



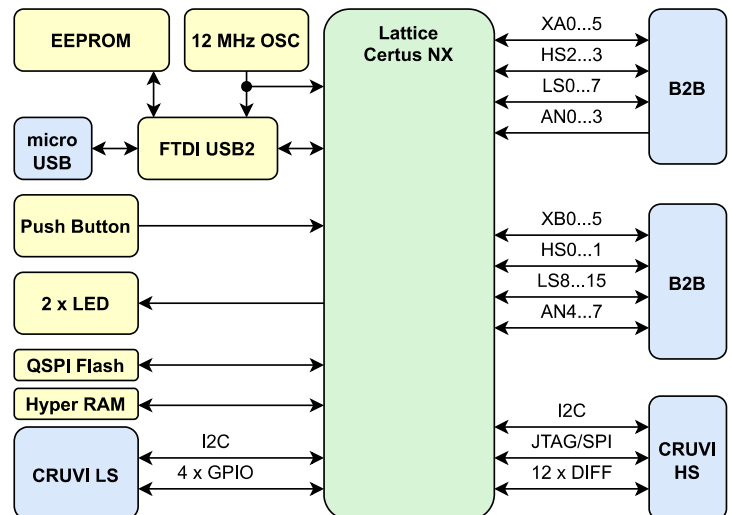
<http://trenz.org/tel0003-info>

Device list	On-Board	DRAM	Flash	Interface	Other Features
CertusPro-NX	USB3.0 to FIFO Bridge USB to FIFO FTDI	2 x 32 MB RPC	32 MB QSPI	CRUVI, PCI x 4, FMC (MGT/GPIO/JTAG/I2C), SFP+, USB3.0, USB2.0 (JTAG+UART), 3 x Pin Header	Oscillator, user LEDs, push buttons, DIP Switch, EEPROM

**NEW CR00103 CRUVI Certus-NX Baseboard**  
**Lattice Certus-NX, HyperRAM, Flash, EEPROM**

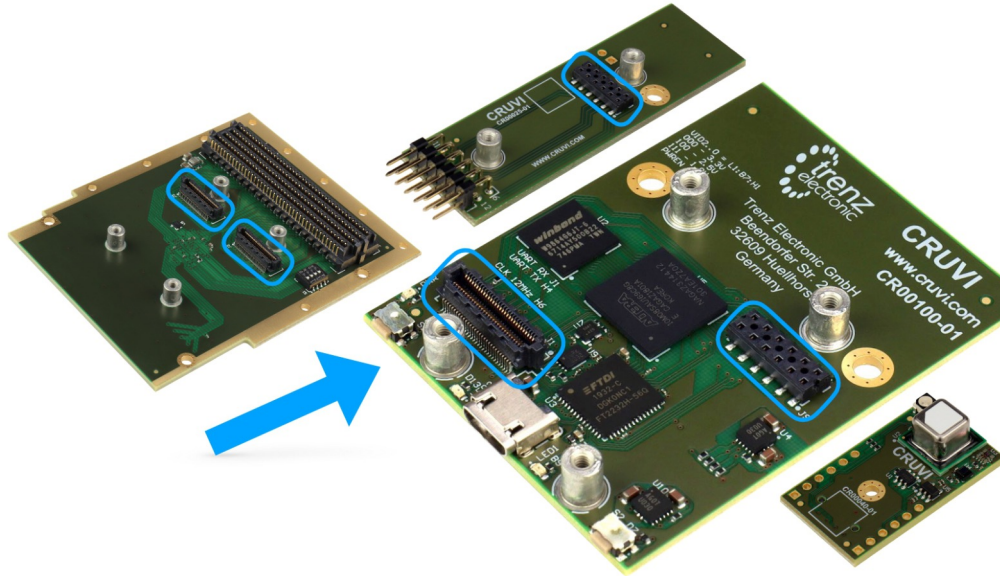


4.5 x 5.7 cm form factor



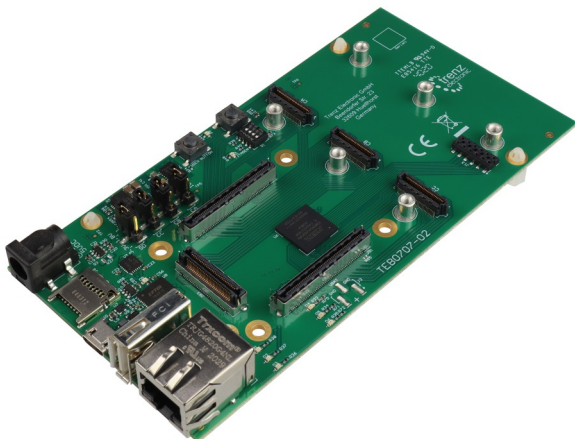
<http://trenz.org/cr00103-info>

Device list	Interface	RAM	Flash	Other Features
Lattice Certus-NX	CRUVI (2 x 34 Pin Header, 1 x High Speed 60 Pin Header, 1 x Low Speed 12 Pin Header), micro USB	8 MB HyperRAM	32 MB	USB to FIFO FTDI (JTAG/GPIO), user LEDs, push buttons



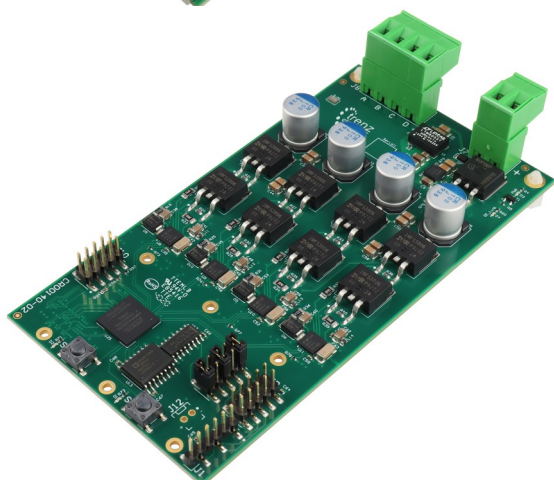
The picture shows FMC to CRUVI-HS, PMoD to CRUVI-LS, CRUVI host with LS and HS slot and CRUVI LS modules. CRUVI fills the space between PMoD and FMC card, it can be smaller and cheaper than SYZGY.

	FMC LPC	SYZGY	CRUVI HS	PMoD	CRUVI LS
Single ended I/O	68	28	37 (28+9)	8	8
Differential I/O pairs	36	10	12	-	-
Management I2C	I2C	SmartVIO	I2C/SMBUS	No	I2C (shared)
Mounting hole(s)	Yes	2 one side	1..6	No	1..6
Power Supply	Adj., 3.3V, 12V	Adj., 3.3V, 5V	Adj., 3.3V, 5V	3.3V	3.3V, 5V
License	VITA \$\$\$	Free	Free	Free	Free



### CRUVI Carrier board with 3 CRUVI slots (3 x HS, 1 x LS)

This board accepts Trenz 4x5 SoM and converts into a CRUVI compatible host carrier board. Three CRUVI slots are provided with HS connector support. One slot supports also LS.



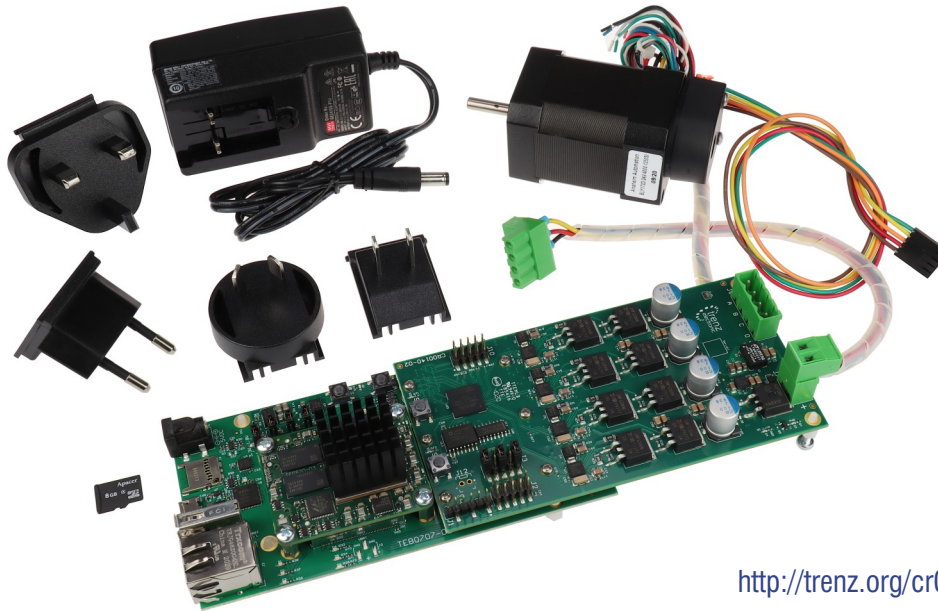
### Industrial Motor controller board with CRUVI connector

This board allows motor control applications with any CRUVI carrier that supports at least one HS slot. IO Voltage range supported 1.2 to 3.3V. There are total 4 phases available for either one 3 phase or two 2 phase motors. Pin headers are available for rotation sensor connections. There is current measurement on two phases and DC link voltage.



# CR00140 Control Development Kit

## Xilinx Zynq-7000



<http://trenz.org/cr00140-info>

### Motor Control Development Kits:

A CRUVI motor driver module CR00140-02, a carrier board TEB0707 and a MPSoC (TE0820/Xilinx UltraScale+) or SoC (TE0720/Xilinx Zynq-7020) module including a heat sink. Supplied with a universal plug-in power supply with four adapters, a DC motor including cable for CRUVI CR00140 and an 8 GB micro SD card.

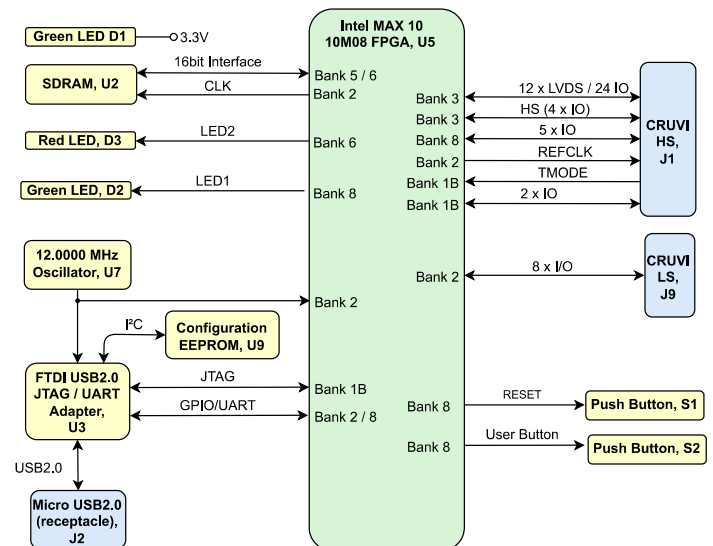
- CR00140-02-K0A with MPSoC TE0820
- CR00140-02-K1A with SoC TE0720

# CR00100 CRUVI Series

## Intel MAX 10 CRUVI, SDRAM, USB



4.5 x 5.7 cm form factor



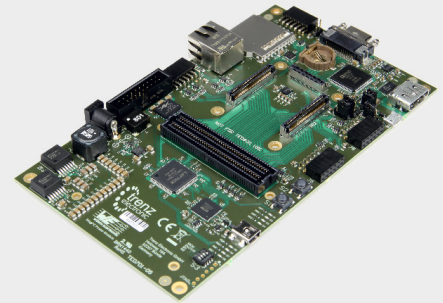
<http://trenz.org/cr00100-info>

Device list	Connectors	SDRAM max	Total I/O	Other Features
Intel MAX 10	CRUVI (1 x HS, 1 x LS), 2 x 34 Pin Header	8 MB	37 + 8	USB2.0, user push button and LEDs

The carrier boards are baseboards 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.

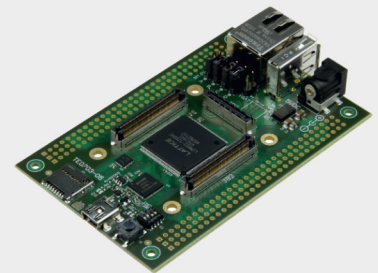
### TE0701

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



### TE0703

- 2 x VG96 connectors (mounting holes and solder pads)
- SDIO port expander with voltage-level translation
- Micro SD card socket
- 4 x user LEDs, 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 5V power supply input
- DCDC step-down converter for 3.3V power supply
- USB JTAG and UART interface

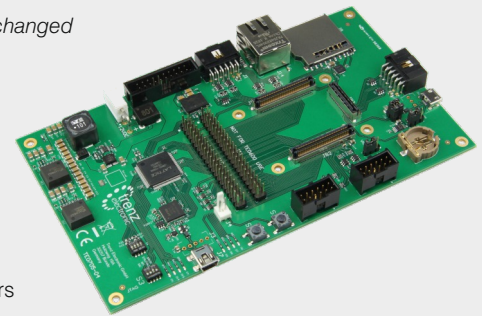


### TE0705

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

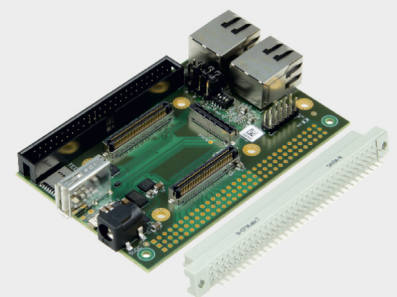
Changes from TE0701

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



### TE0706

- VG96 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
- One user push button, user configurable DIP switch
- Two RJ45 Gigabit Ethernet MagJack
- One Ethernet PHY
- Barrel jack for 5 V power supply input
- DCDC step- down converter for 3.3V power supply
- JTAG pins on 12-pin header
- Three VCCIO selection jumper



### TEB0707

TEB0707 is a carrier board for 4 x 5 Trenz Electronic modules. It provides three high speed and one low speed CRUVI extension connectors.

- Intel MAX 10 FPGA
- FTDI FT2223
- Gigabit RJ45 LAN socket
- MicroSD card socket
- Micro USB2.0 socket
- USB A socket
- 6 x user LEDs (3 x green, 3 x red)
- 5V input power supply



Following carrier boards are baseboards 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

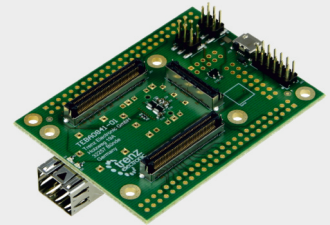
- Mini-ITX form factor
- ATX power supply connector (12V only supply required)
- Optional 12V standard power plug
- USB3.0 with USB3.0 HUB
- FMC HPC slot (1.8V max VCCIO)
- MicroSD card (bootable) and e.MMC (bootable)
- PCIe slot - one PCIe lane (16 lane connector)
- Fan connectors, PC enclosure, FMC fan
- Intel front panel- and HDA audio-connector
- CAN FD transceiver (10 pin IDC connector)
- Displayport Single Lane
- One SATA Connector
- Dual SFP+
- Gigabit Ethernet RJ45
- One Samtec FireFly (4 GT lanes bidir.)
- One Samtec FireFly connector for reverse loopback
- 20 pins ARM JTAG connector (PS JTAG0)
- Size: 170 mm × 170 mm

Designed for Trenz Electronic's TE080x MPSoC series TE0803/0807/0808.



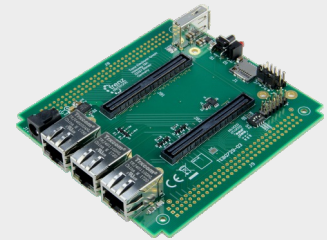
### TEBA0841

- VG96 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
- One user push button, user configurable DIP switch
- Two RJ45 Gigabit Ethernet MagJack
- One Ethernet PHY
- Barrel jack for 5 V power supply input
- DCDC step- down converter for 3.3V power supply



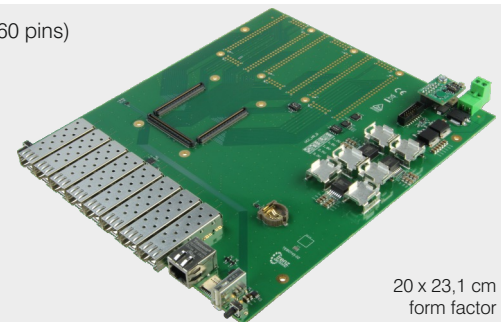
### TEB0729

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



### TEB0745

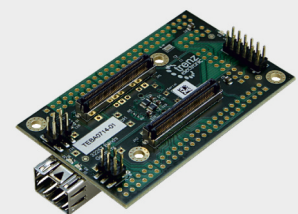
- Trenz Electronic TE0745 module socket (3 x Samtec ST5 connectors 160 pins)
- 24V power supply over ARKZ950/2 connecting terminal
- XMOD (TE0790) Pin Header (JTAG / UART)
- One EMI Network Filter
- MicroSD connector
- RJ45 Ethernet connector
- USB Host connector
- Eight SFP connector
- Six pin header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



20 x 23,1 cm form factor

### TEBA0714

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



# Module series comparison table for Trenz Electronic Modules



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

	Device family	Device list	Form Factor/ size [cm]	Connectors	Programmable logic family	Processing system	SDRAM [MByte] max	Flash [MByte]	EEPROM
AM0010	Zynq UltraScale+	ZU1CG-ZU5CG, ZU1EG-ZU5EG, ZU4EV, ZU5EV	4 x 5.6	2 x Samtec ADM6	UltraScale+	Up to 4 x Cortex A53 + 2 x Cortex R5	8192 DDR4 64-bit (PS) with ECC	2 x 64	1 x MAC
TE0710	Artix-7	35T, 50T, 75T, 100T	4 x 5	2 x Samtec LSHM	Artix-7	MicroBlaze	512 DDR3	32	-
TE0711	Artix-7	35T, 50T, 75T, 100T	4 x 5	2 x Samtec LSHM	Artix-7	MicroBlaze	-	32	-
TE0712	Artix-7	35T, 50T, 75T, 100T, 200T	4 x 5	3 x Samtec LSHM	Artix-7	MicroBlaze	1024 DDR3	32	MAC address
TE0713	Artix-7	15T - 200T	4 x 5	3 x Samtec LSHM	Artix-7	MicroBlaze	1024 DDR3L	32	-
TE0714	Artix-7	15T, 35T, 50T	4 x 3	2 x Samtec LSHM	Artix-7	MicroBlaze	-	16	-
TE0715	Zynq-7000	Z-7015, Z-7030	4 x 5	3 x Samtec LSHM	Z-7015: Artix-7 Z-7030: Kintex-7	2 x Cortex A9	1024 DDR3	32	MAC address
TE0716	Zynq-7000	Z-7020	4.5 x 6.5	2 x FCI Bergstak	Artix-7	2 x Cortex A9	1024 DDR3L	32	1 x MAC + 64 KByte
TE0717	Spartan-7	S6, S15, S25, S50	2.5 x 3.5	1 x Samtec LSHM	Spartan-7	MicroBlaze	-	8	-
TE0720	Zynq-7000	Z-7020	4 x 5	3 x Samtec LSHM	Artix-7	2 x Cortex A9	1024 DDR3	32	MAC address
TE0724	Zynq-7000	Z-7010, Z7020	6 x 4	1 x Samtec ST5	Artix-7	2 x Cortex A9	1024 DDR3L	64	MAC address
TE0825	Zynq UltraScale+	ZU2...ZU5, CG, EG, EV support, automotive support	5.4 x 7	2 x Samtec ADM6 1 x Samtec UMPT	UltraScale+	Up to 4 x Cortex A53 + 2 x Cortex R5	8192 DDR4 with ECC	256	64 KByte
TE0729	Zynq-7000	Z-7020	5.2 x 7.6	2 x Samtec BTE	Artix-7	2 x Cortex A9	512 DDR3	32	3 x MAC address
TE0741	Kintex-7	70T, 160T, 325T, 410T	4 x 5	3 x Samtec LSHM	Kintex-7	MicroBlaze	-	32	-
TE0745	Zynq-7000	Z-7030, Z-7035, Z-7045	5.2 x 7.6	3 x Samtec ST5	Kintex-7	2 x Cortex A9	1024 DDR3L	64	MAC address
TE0782	Zynq-7000	Z-7035, Z-7045, Z-1000	8.5 x 8.5	3 x Samtec QTH	Kintex-7	2 x Cortex A9	1024 DDR3	32	2 x MAC + 16 KByte
TE0783	Zynq-7000	Z-7035, Z-7045, Z-1000	8.5 x 8.5	3 x Samtec QTH	Kintex-7	2 x Cortex A9	2024 DDR3 64-bit (PL) 1024 DDR3 32-bit (PS)	32	1 x MAC + 16 KByte
TE0803/ TE0813	Zynq UltraScale+	ZU2CG-ZU5CG, ZU2EG-ZU5EG, ZU4EV, ZU5EV	5.2 x 7.6	4 x Samtec S15 4 x Samtec ADM6	UltraScale+	Up to 4 x Cortex A53 + 2 x Cortex R5	8192 DDR4	128	-
TE0806	Zynq UltraScale+	ZU4, ZU5, ZU7, CG, EG, EV support	5.5 x 7.6	2 x Samtec ADM6	UltraScale+	Up to 4 x Cortex A53 + 2 x Cortex R5	8192 DDR4 64-bit (PS) with ECC 4096 DDR4 32-bit (PL)	2 x 64	2 x MAC address
TE0807/ TE0817	Zynq UltraScale+	ZU4CG-ZU7CG, ZU4EG-ZU7EG, ZU4EV-ZU7EV	5.2 x 7.6	4 x Samtec S15 4 x Samtec ADM6	UltraScale+	Up to 4 x Cortex A53 + 2 x Cortex R5	8192 DDR4	128	16 KByte
TE0808/ TE0818	Zynq UltraScale+	ZU6EG, ZU9 EG, ZU15EG	5.2 x 7.6	4 x Samtec S15 4 x Samtec ADM6	UltraScale+	Up to 4 x Cortex A53 + 2 x Cortex R5	8192 DDR4	128	16 KByte
TE0812	Zynq UltraScale+	ZU6	9 x 9	2 x Samtec AP6 1 x Samtec LSHM	UltraScale+	Up to 4 x Cortex A53 + 2 x Cortex R5	1024 DDR4	2 x 64	-
TE0820	Zynq UltraScale+	ZU2CG-ZU5CG, ZU2EG-ZU5EG, ZU4EV, ZU5EV	4 x 5	3 x Samtec LSHM	UltraScale+	Up to 4 x Cortex A53 + 2 x Cortex R5	4096 DDR4	128	-
TE0821	Zynq UltraScale+	ZU2CG-ZU5CG, ZU2EG-ZU5EG	4 x 5	3 x Samtec LSHM	UltraScale+	Up to 4 x Cortex A53 + 2 x Cortex R5	4096 DDR4	128	1 x MAC
TE0823	Zynq UltraScale+	ZU2CG-ZU5CG, ZU2EG-ZU5EG	4 x 5	3 x Samtec LSHM	UltraScale+	Up to 4 x Cortex A53 + 2 x Cortex R5	2024 LPDDR4	128	1 x MAC
TE0830	Zynq UltraScale+	ZU11EG, ZU17EG, ZU19EG	12 x 12	2 x 400-pin COM-HPC	UltraScale+	Up to 4 x Cortex A53 + 2 x Cortex R5	16384 DDR4 SODIMM (PL) 8192 DDR4 72-bit SDRAM (PS)	512	MAC address
TE0835	Zynq UltraScale+ RFSoc	ZU25DR	6.5 x 9	2 x Samtec ST5	UltraScale+	Up to 4 x Cortex A53 + 2 x Cortex R5	4096 DDR4	128	1 x MAC
AM0070	Zynq UltraScale+	ZU29DR, ZU39DR, ZU49DR	6.4 x 8	5 x Samtec ADM6	UltraScale+	Up to 4 x Cortex A53 + 2 x Cortex R5	4096 DDR4 64-bit (PS) with ECC 8192 DDR4 64-bit (PL)	2 x 64	1 x MAC
TE0841	Kintex UltraScale	KU35, KU40	4 x 5	3 x Samtec LSHM	UltraScale+	MicroBlaze	4096 DDR4	64	-
TE0865	Zynq UltraScale+	ZU11, ZU17, ZU19	7.5 x 10	4 x Samtec ADM6	UltraScale+	Up to 4 x Cortex A53 + 2 x Cortex R5	8192 DDR4 64-bit (PS) with ECC 8192 DDR4 64-bit (PL)	2 x 64	1 x MAC
TEB0911	Zynq UltraScale+	ZU6, ZU9, ZU15 (CG, EG)	40.6 x 23.43	6 x FMC HPC	UltraScale+	Up to 4 x Cortex A53 + 2 x Cortex R5	8192 64-Bit DDR4 SODIMM (PS)	2 x 64	3 x MAC + 16 KByte
TEB0912	Zynq UltraScale+	ZU11-ZU19	12 x 18	Firefly sockets	UltraScale+	Up to 4 x Cortex A53 + 2 x Cortex R5	4096 DDR4 (PS) 4096 DDR4 (PL)	2 x 64	4 x

# Module series comparison table

## for Trenz Electronic Modules



e.MMC	Ethernet PHY	USB PHY	Total I/O	Gbit Transceiver	Other Features
4-64 GByte	1 Gbit	USB2.0 OTG	PL: 204 MIO: 22	4 x GTR, 4 x GTH	GPU/VCU depending on device, security controller, crypto authentication
-	2 x 100 Mbit	-	112	-	Single supply
-	-	USB2.0 UART/FIFO	178	-	Single supply
-	100 Mbit	-	158	4 x GTP	Programmable clock generator, single supply
-	-	USB3.0	152	4 x GTP	Programmable clock generator, single supply
-	-	-	144	4 x GTP	Differential MEMS osc. for MGT clocking, XADC analog input, GT reference clock input, single supply
-	1 Gbit	USB2.0 OTG	132 + 14 MIO	Z-7015: 4 x GTP Z-7030: 4 x GTX	Programmable clock generator, real time clock, single supply
-	1 Gbit	USB2.0	120 x HR PL	2 x PS MIOs	On board 10 x 12-bit low power SAR ADCs up to 2 MSPS, low power oscillators, USB2.0 to UART/JTAG interface, single supply
-	-	-	72 HR	-	HyperRAM, 100 MHz clock oscillator, red and green LED, single supply
4 - 64 GByte	1 Gbit	USB2.0 OTG	152 + 14 MIO	-	Real time clock, single supply, automotive grad available
-	1 Gbit	-	PL: 80 PS: 20	-	CAN, single supply
-	2 x 1 Gbit	-	PL: 136 +88 PS: 57	-	(Automotive), real time clock, oscillator
4 - 64 GByte	2 x 100 Mbit, 1 Gbit	USB2.0 OTG	136 + 14 MIO	-	Real time clock, single supply
-	-	-	144	8 x GTX	Programmable clock generator, single supply
-	1 Gbit	USB2.0 OTG	250 + 6 MIO	8 x GTX	Real time clock, single supply
4 - 64 GByte	2 x 1 Gbit	2 x USB2.0 OTG	250 + 2 MIO	16 x GTX	Programmable clock generator, real time clock, single supply
4 - 64 GByte	1 Gbit	USB2.0 OTG	166 + 12 MIO + 40 CPLD muxed IO	16 x GTX	Programmable clock generator, real time clock, single supply
-	-	-	156 + 65 MIO	4 x GTR (PS)	GPU/VCU depending on device, programmable clock generator, single supply
4-64 GByte	2 x 1 Gbit	USB2.0 OTG	48 PL HD + 52 PL HP, 14 MIOs + I2C	4 x GTR, 16 x GTH	GPU/VCU depending on device, transceiver clock in-/outputs, single 5-12V power required
-	-	-	204 + 65 MIO	4 x GTR, 16 x GTH	GPU/VCU depending on device, programmable clock generator, single supply
-	-	-	204 + 65 MIO	4 x GTR, 16 x GTH	GPU/VCU depending on device, programmable clock generator, single supply
2 x 128 GByte	2x RGMII (1x Debug) 100 Mbit for SC	-	127	16 (12 x PL, 4 x PS)	2 x 4 MByte MRAM, on board Vorago VA41630, 2 x analog input, UART, 2 x CAN, PPSin/PPSOut, I2C, 12V power supply
8 - 64 GByte	1 Gbit	USB2.0 OTG	132 + 14 MIO	4 x GTR (PS)	GPU/VCU depending on device, programmable clock generator, real time clock, single supply
8 - 64 GByte	1 Gbit	USB2.0 OTG	34 HP, 96 HD + 14 MIO	4 x GTR (PS)	GPU/VCU depending on device, programmable clock generator, single supply
8 - 64 GByte	1 Gbit	USB2.0 OTG	132 HP + 14 MIO	4 x GTR (PS)	GPU/VCU depending on device, programmable clock generator, single supply
64 GByte	1 Gbit	USB2.0 OTG	x32 (15 diff.)	12 x GPIO	SC CLPD Intel MAX 10 & Xilinx Zynq-XC7Z010 on-board, interface: PCIe SMB, PCIe up to 48 lane, 4 x USB2.0, 1 x USB 3.0, 2 x UART, 1 x I2C SMB, 3 x I2C, DDI, Sata
-	1 Gbit	USB2.0 OTG	132 + 14 MIO	4 x GTR (PS)	Programmable clock generator, real time clock, single supply
8 GByte	2 x 1 Gbit	USB2.0	180 + 22 MIO 16 ADC, 16 DAC	4 x GTR 16 x GTY	OPTIGA Trust M, crypto authentication, oscillator
-	1 Gbit	-	144	8 x GTH	Programmable clock generator, single supply
8 GByte	1 Gbit	USB2.0	240 PL HP 96 PL HD 21 MIOs	32 x GTH, 16 x GTY, 4 x GTR	12V single supply
8 GByte	1 Gbit	USB2.0	408	22 x GTH	Active heat sink, GPU/VCU depending on device, M2 PCIe SSD, system controller, DisplayPort, RJ34 ETH + Dual USB3 Combo, Dual Stack SFP+, SD (bootable), USB JTAG/UART ZynqMP, USB JTAG/GPIO FMC, CAN FD (DB9 Connector), SMA (external CLK), 5-pin 24 V power connector
-	2 x Gbit	USB2.0	184	32 x GTH, 16 x GTY	4 x IDC for PL HD IO/LVDS, M2 PCIe SSD, M2 WAN/WLAN slot (PCIe/USB), on-board USB JTAG and UART, CAN, real time clock, single supply

# Official Trenz Electronic Distributor List as of June 2022

Current list with address is online at <http://trenz.org/distri>

## Worldwide

### Digi-Key Electronics

Web: [www.digikey.com](http://www.digikey.com)

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#### ApexPlus Technologies

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FPGA inside

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