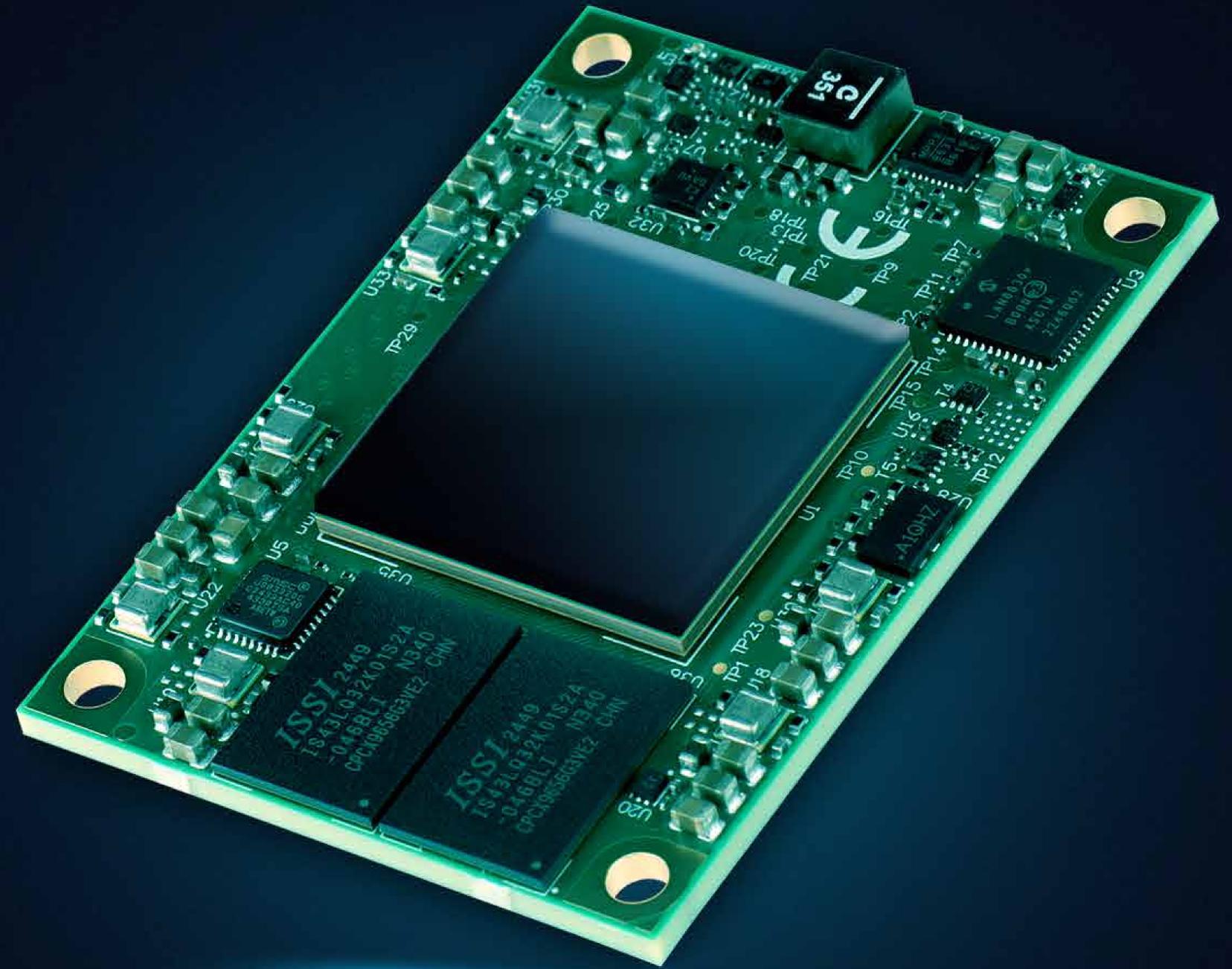




What's next? A Roadmap.



Agenda

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TE0825 AMD Zynq™ UltraScale+™

SoC

- AMD Zynq UltraScale+
- Device: XCZU1, ZU2, ZU3, ZU4, ZU5 (Industrial grade), XAZU1, ZU2, ZU3 (Automotive grade)
- Engine: CG / EG
- Speedgrade: -1 / -2 / -3
 - L2E support being considered (Tj up to +110°C)
- Temperature Range: Industrial / Automotive
- Package: SFVC784

RAM / Storage

- up to 72 bit 8 GByte PS SDRAM with ECC
- QSPI Flash 256 Mbyte
- SPI dual MRAM 4 Mbit
- I2C dual 2kbit MAC EEPROM, single 512Kbit user EEPROM

On-Board Peripherals

- Real Time Clock
- LED „Done“
- User LEDs

Interface

- Dual Samtec BGA Connector ADM6 (4 x 60 Pins)
- 232 SE PL IO (111 diff. pairs)
- 43 PS MIO
- 4 high speed PS GTR transceivers
- 4 high speed PL GTH transceivers
- 1000 BASE-T/X Ethernet PHY
- 1000 BASE-T1 Ethernet PHY
- I2C bus
- JTAG

Power

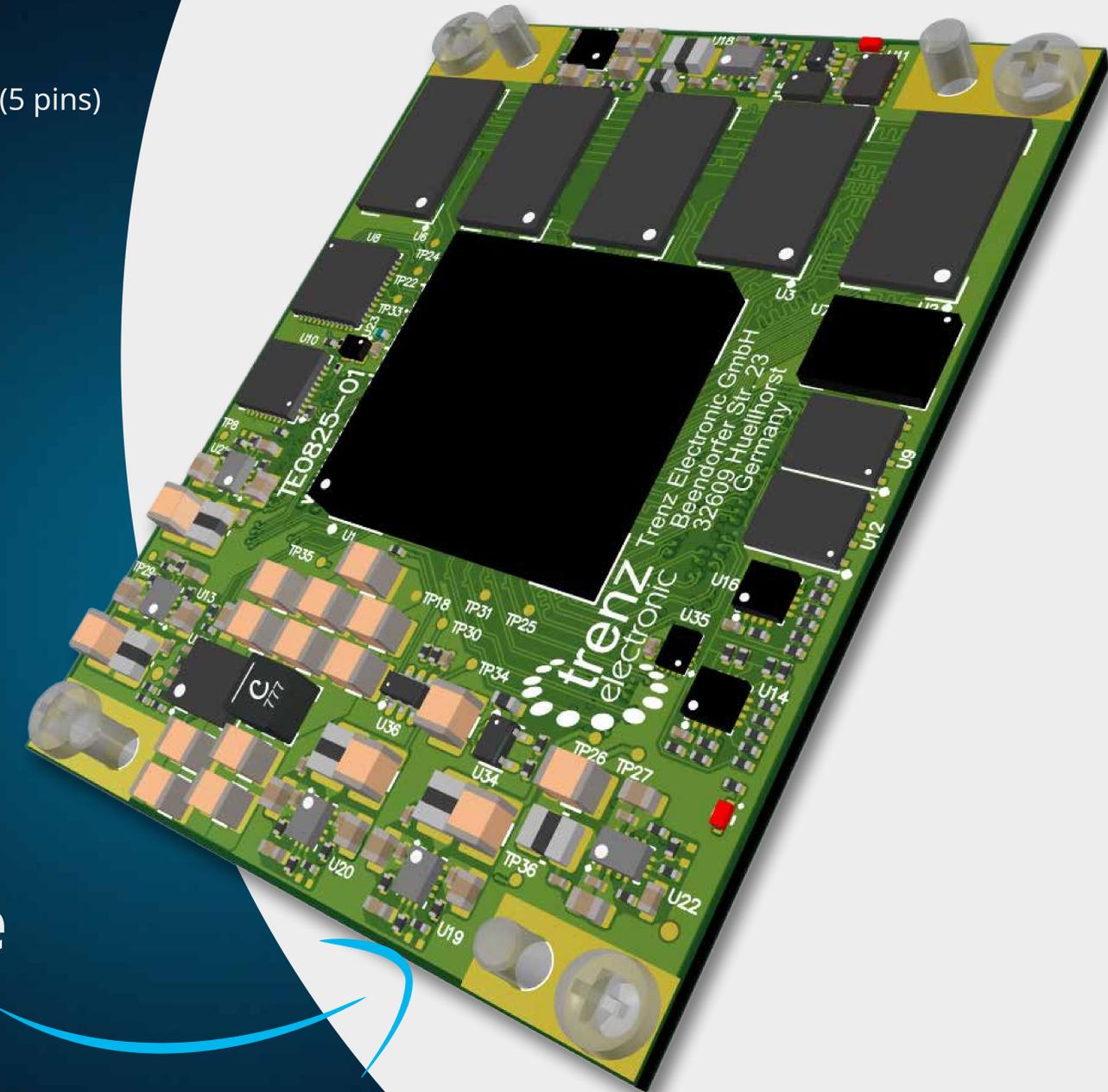
- Samtec Power Connector UMPT (5 pins)
- 5 V ... 12 V power input
- 1.8 V power output
- 3.3 V power output

Dimension

- 54 x 70 mm



**Automotive
compatible**



TE0836 RFSoc

SoC

- AMD Zynq UltraScale+ RFSocS XCZU25DR-1FFVE1156E
- FVE1156E possible variants: ZU25DR, ZU27DR, ZU28DR, ZU42DR, ZU43DR, ZU47DR, ZU48DR
- Speedgrade: -1 / -2
- Temperature Range: Extended / Industrial

RF

- 8 x ADC (12-bit RF-ADC)
- 8 x DAC (14-bit RF-DAC)

RAM / Storage

- DDR4 4GByte
- Dual QSPI 128MByte
- I2C MAC EEPROM 2Kbit

IO Resources

- Transceivers 8 PL-GTY, 4 PS-GTR
- MIO: 33x
- HP: 48x SE / 24x diff.
- HD: 20x SE / 10x diff.

Clock Source

- Programmable Clock Generator PLL SI5395A-A-GM

On-Board Peripherals

- USB2.0 PHY
- Gigabit Ethernet PHY
- TPM 2.0 chip
- FPGA System Oscillator
- 4 x user LEDs

System Controller

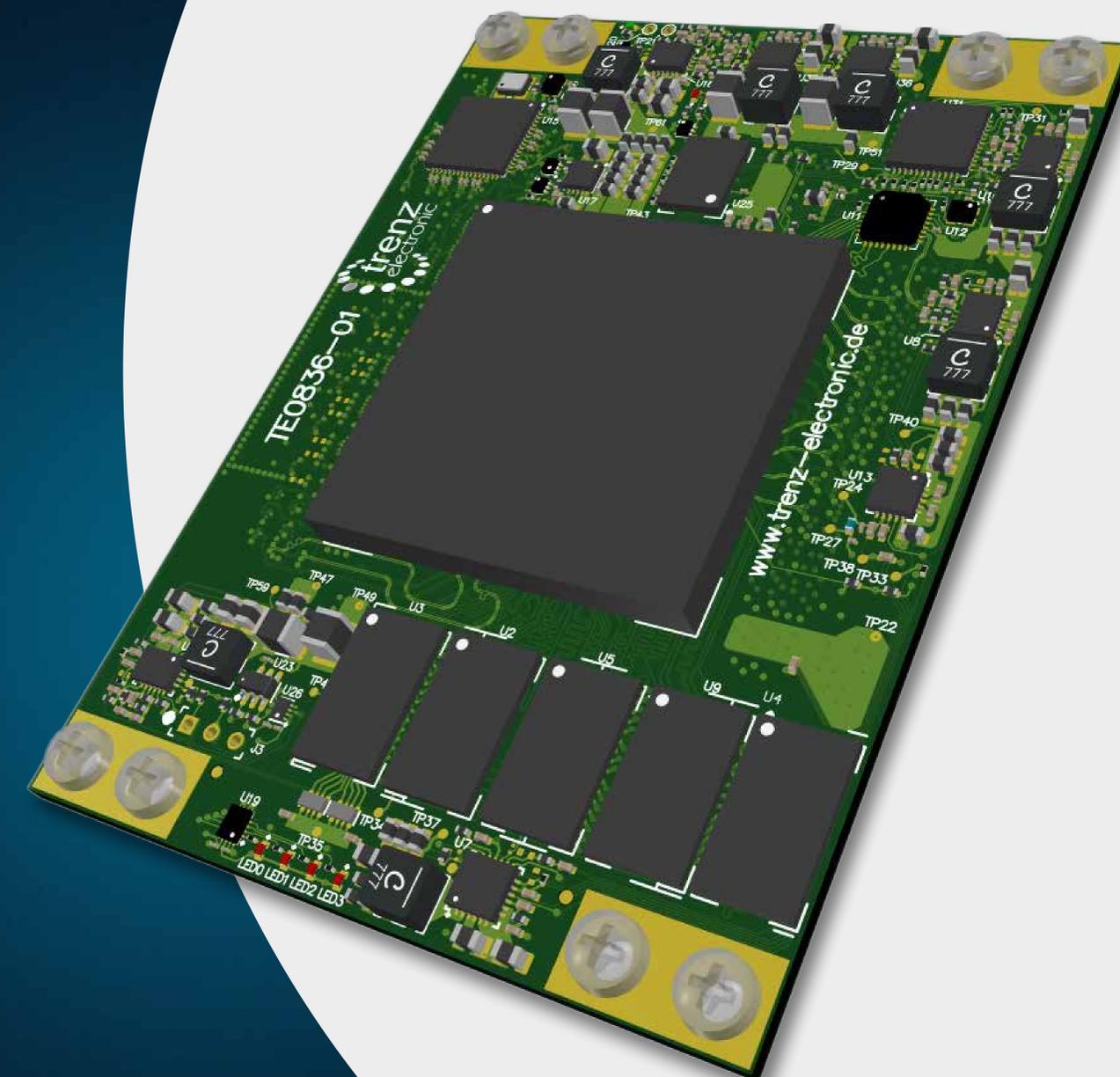
- CPLD LCMXO2-640HC-4SG48I

Power

- 5 V ...12 V Input Supply Voltage

Dimension

- 90 x 65 mm



TE0860 AMD Zynq™ UltraScale+™

SoC

- AMD Zynq UltraScale+
- Device: ZU4 / ZU5 / ZU7
- Engine: CG / EG / EV
- Speedgrade: -1 / -2 / -3
- Temperature Range: Extended / Industrial
- Package: FBVB900

Memory

- Up to 8 GByte 72-Bit DDR4 SDRAM with ECC (PS domain)
- Up to 2 GByte 32-Bit DDR4 SDRAM (PL domain)
- Up to 512 MByte QSPI Boot Flash (dual parallel)
- Up to 64 GByte eMMC (Boot capable)
- 2 x 2Kbit I2C EEPROM with EUI-48 node identity

On-Board Peripherals

- 2 x Gigabit Ethernet PHY transceiver
- Hi-Speed USB 2.0 ULPI transceiver with full OTG support
- Built-in TPM 2.0 (Trusted Platform Module) protection
- RFID module (optional)

Interface via 3 x Samtec ADM6 240 pin B2B connector

- Multigigabit interface
 - Transceivers:
 - 4 x GTR
 - 16 x GTH
 - Clocks
 - 4 x GTR
 - 8 x GTH

User available IOs:

- Processing Side
 - 12 x MIO
 - I2C MIO
- Programmable Logic:
 - HP Banks: 52 SE / 24 diff.
 - HD Banks: 48 SE / 24 diff.

Interfaces

- 2 x Ethernet
- USB 2.0

Configuration:

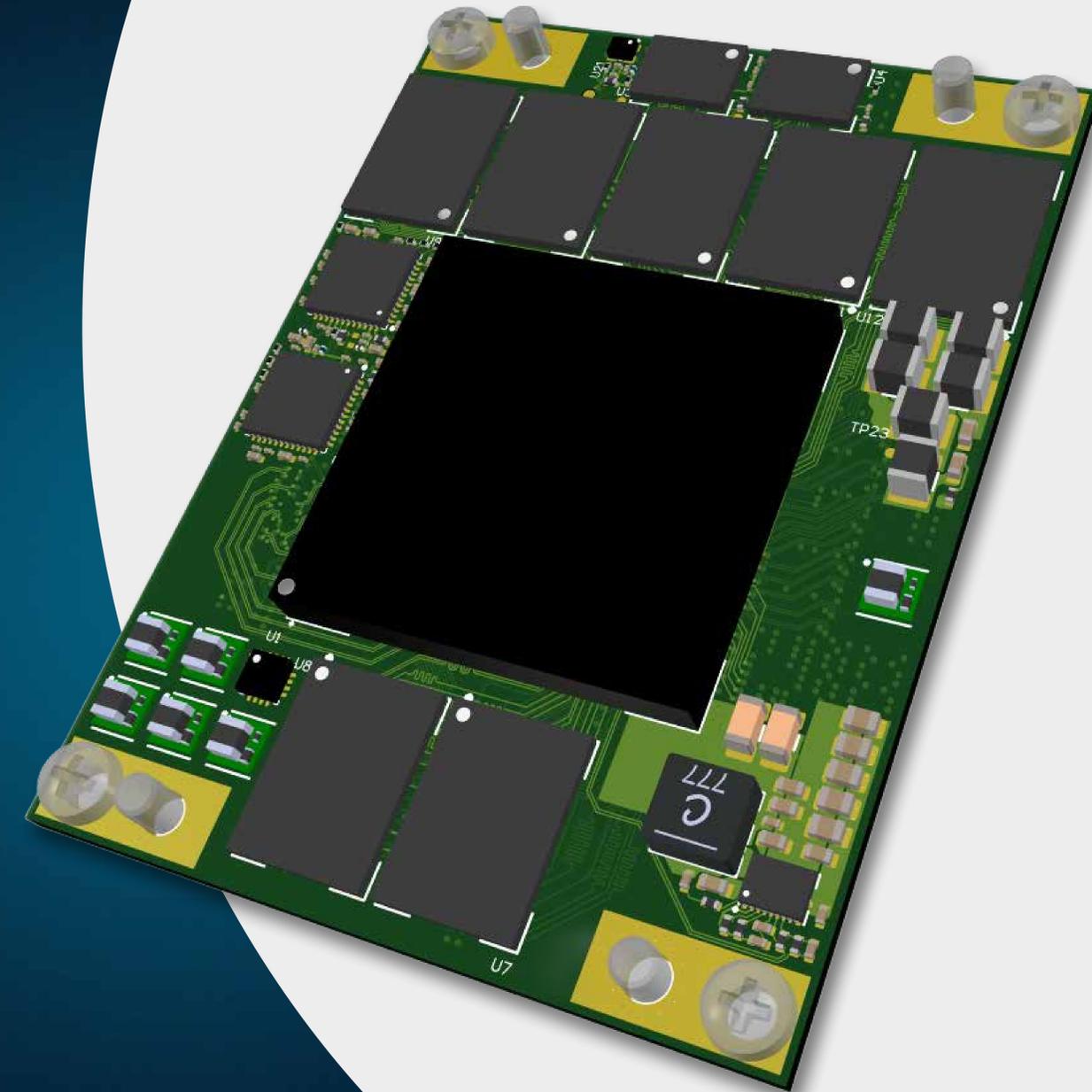
- JTAG
- Boot mode selection

Power

- All power supplies are on board.
- Single 5 V ... 12 V power input
- 1.8 V and 3.3 V power outputs are available on B2B connector

Dimension

- 55 x 74 mm



TE0861 AMD Zynq™ UltraScale+™

SoC

- AMD Zynq UltraScale+
- Device: ZU6 / ZU9 / ZU15
- Engine: CG / EG
- Speedgrade: -1 / -2 / -3
- Temperature Range: Extended / Industrial
- Package: FFVC900

Memory

- Up to 8 GByte 72-Bit DDR4 SDRAM with ECC (PS domain)
- Up to 512 MByte QSPI Boot Flash (dual parallel)
- Up to 64 GByte eMMC (Boot capable)
- 2 x 2Kbit I2C EEPROM with EUI-48 node identity

On-Board Peripherals

- 2 x Gigabit Ethernet PHY transceiver
- Hi-Speed USB 2.0 ULPI transceiver with full OTG support
- Built-in TPM 2.0 (Trusted Platform Module) protection
- 3 x Oscillator (for MPSoC, Ethernet, USB)
- RFID module (optional)

Interface via 3 x Samtec ADM6 240 pin B2B connector

- Multigigabit interface
 - Transceivers:
 - 4 x GTR
 - 16 x GTH
 - Clocks
 - 4 x GTR
 - 8 x GTH

User available IOs:

- Processing Side
 - 12 x MIO
 - I2C MIO
- Programmable Logic:
 - HP Banks: 156 SE / 72 diff.
 - HD Banks: 48 SE / 24 diff.

Interfaces

- 2 x Ethernet
- USB 2.0

Configuration:

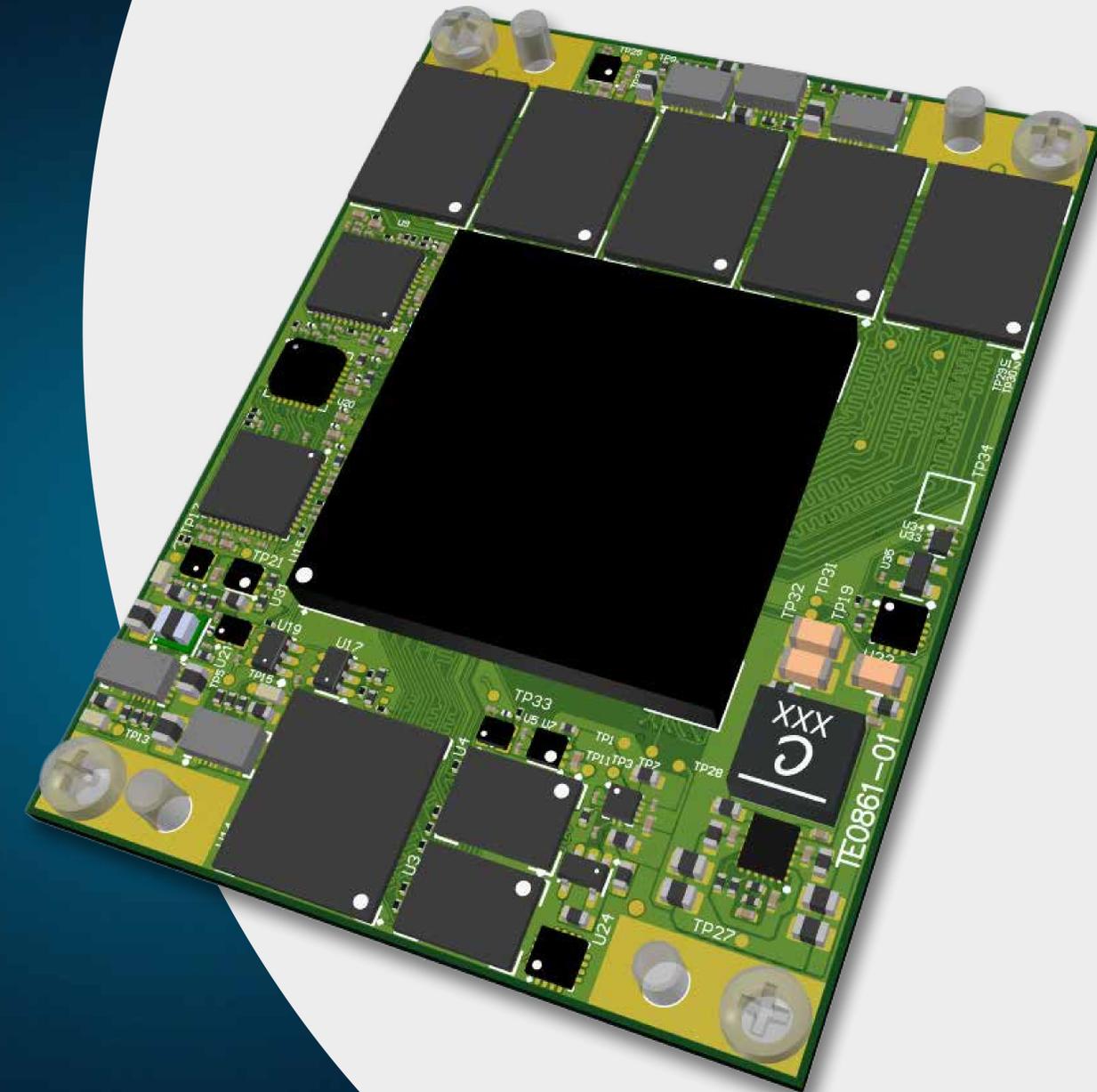
- JTAG
- Boot mode selection

Power

- All power supplies are on board.
- Single 5 V ... 12 V power input
- 1.8 V and 3.3 V power outputs are available on B2B connector

Dimension

- 55 x 74 mm



TE0873 AMD Spartan™ UltraScale+™

SoC

- AMD Spartan UltraScale+
- FPGA: XCSU35P (optional: SU10P, SU25P)
- Package: SBVB625

Memory

- QSPI Flash 256 Mbit
- SDRAM 512 MB
- EEPROM 128Kbit

On-Board Peripherals

- USB to UART bridge
- 100 MHz Clock generator
- User LEDs and LED „Done“
- B2B Connectors: 3 x Samtec LSHM

IO Resources

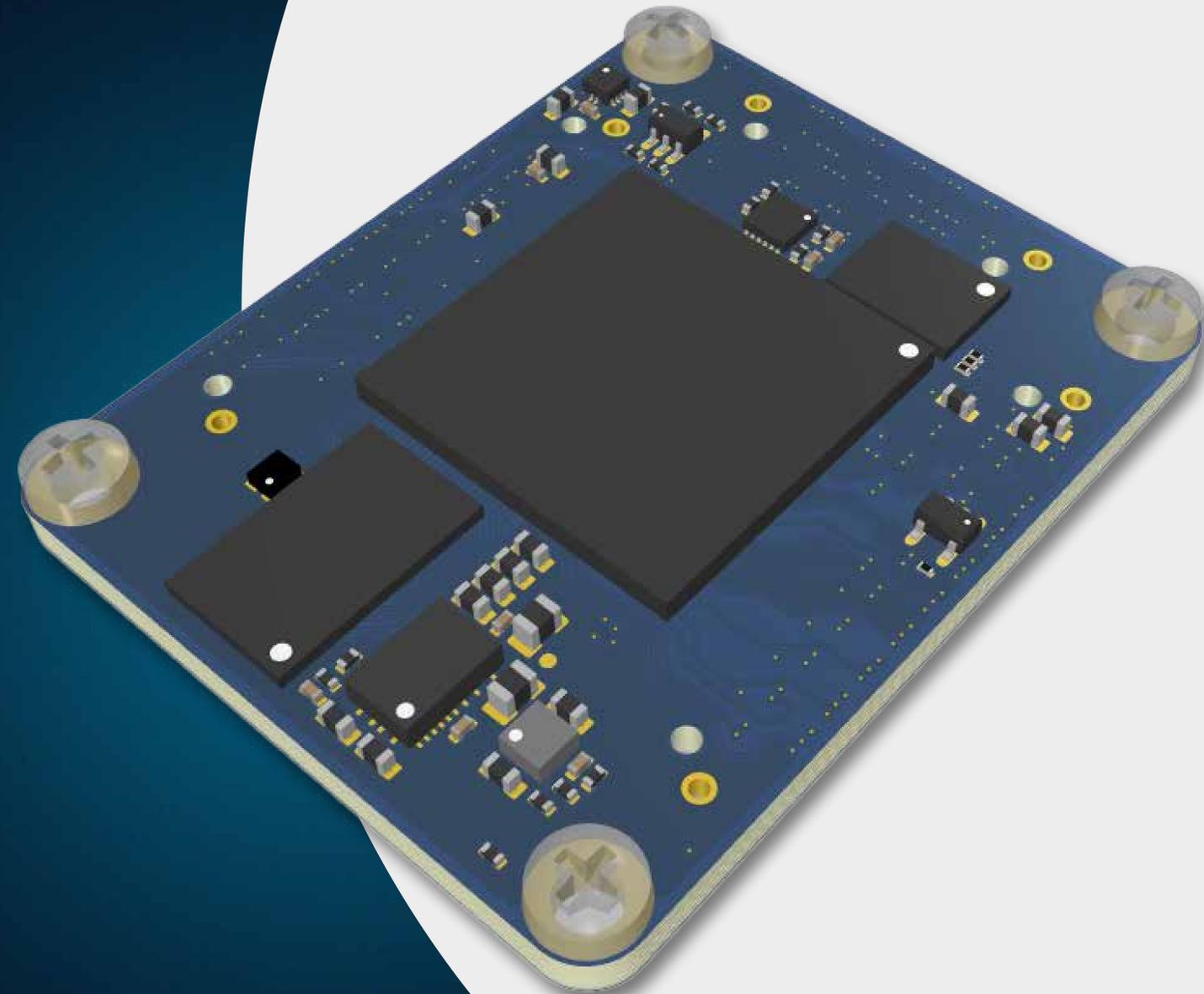
- PL IO 50 SE 24 diff. (B47 HP) + 8/3 (B45 HD) + 42/21 (B65 HD) + 20/10 (B66 HD) + 40/20 (B67 HD) + 18/9 (B68 HD)

Power

- Power supply: Single 3.3 V or Dual 3.3/5V

Dimension

- 40 x 50 mm



TE0878 AMD Spartan™ UltraScale+™

SoC

- AMD Spartan UltraScale+
- FPGA: XCSU200P-1SBVA1024I
- Possible variants: SU65P, SU100P, SU150P, SU200P

Memory

- 1 x QSPI Flash
- 1 x LPDDR5 32 bit

On-Board Peripherals

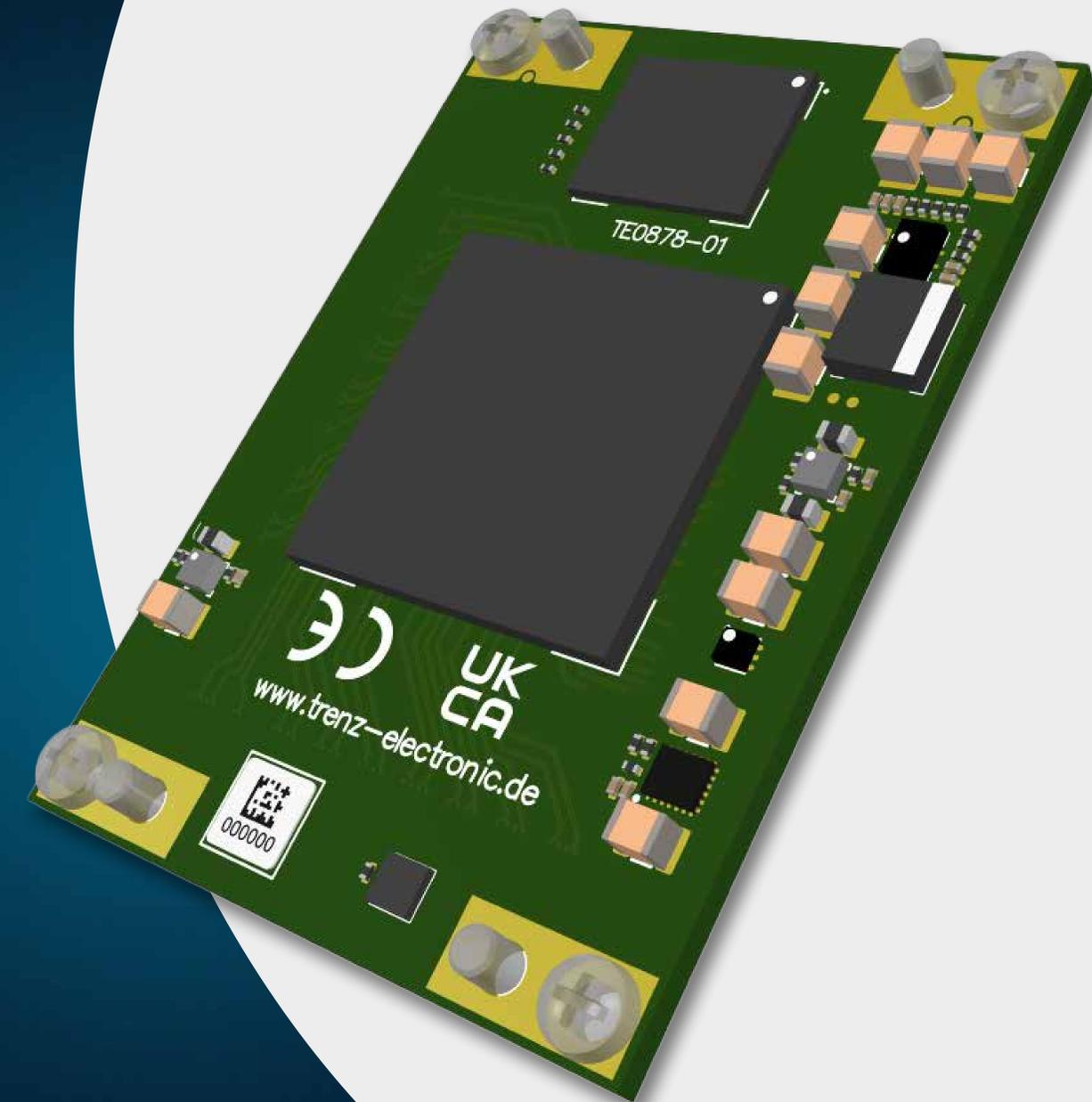
- Clock oscillator

IO Resources

- Up to 8x GTH MGT IO
- 66 x SE (33x diff.) PL XP5IO
- 294 x SE (147x diff.) PL HD IO
- Up to 104x SE (52x diff.) PL HP IO
- 4 x B2B Connectors Samtec ADM6

Dimension

- 55 x 74 mm



TE0965 AMD Versal™ AI Edge Gen 2

SoC

- AMD Versal AI Edge Gen 2: SSVA2112 package
 - SSVA2112 possible variants

RAM / Storage

- OSPI Flash
- 4 x 32-bit LPDDR5
- 2 x EEPROM (Ethernet MAC EEPROM + User Data EEPROM)

IO Resources

- PL: 20 x GTYP Transceivers + Clocks;
PS: 4 x GTYP Transceivers + Clocks, 4x PS-GTR Transceivers + Clocks
- X5IO: 62 diff. / 114 SE I/Os (MIPI ready)
- HDIO: 22 diff. / 44 SE I/Os
- MIO (SD3.0, UART, I2C, CAN)

On-Board Peripherals

- Ethernet PHY
- USB2.0 PHY
- 10 x Output Clock Generator

Interface

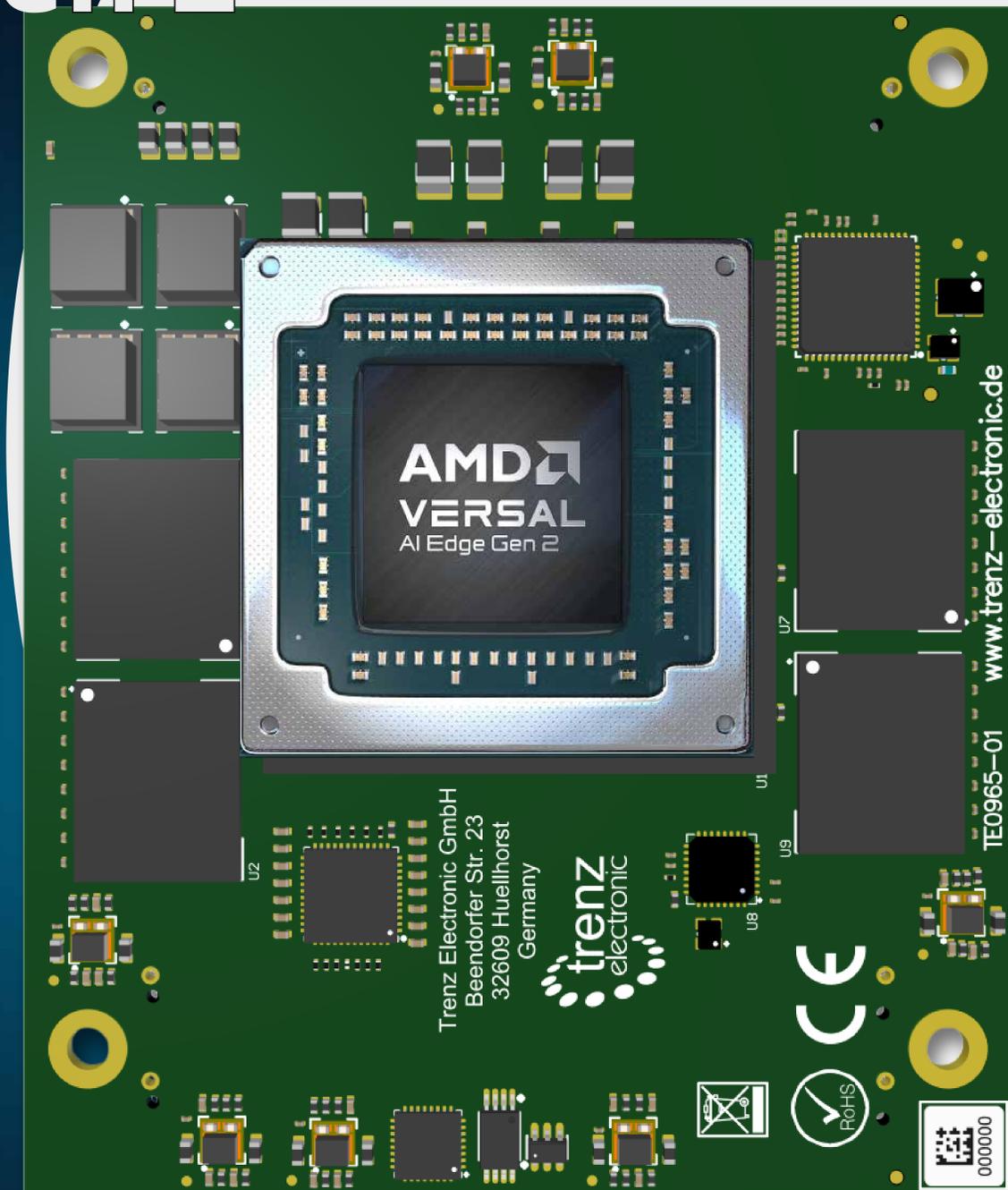
- 2 x Samtec ADF/ADM (320pin) B2B connectors + 1 x Samtec APM6/APF6 (320pin) B2B connector
- Connector-based Harmonized FPGA Module: oHFM.c-L

Power

- Single 12 V power supply

Dimension

- 75 x 90 mm



TEB0865 Baseboard

Supported SoM

- Trenz Electronic high-performance MPSoC module **TE0865** with AMD Zynq™ UltraScale+™

B2B Connectors

- 4 x B2B Samtec ADF6-60-03.5-L-4-2-FR

IO Resources

- 1 x staked zQSFP+ (2x zQSFP+)
- 2 x staked SFP+ (4x SFP+)
- Displayport TX 2 Lanes
- 1 x RJ45 stacked with 2x USB3.0 Type A
- 1 x Push-Push microSD
- 2 x FMC+ (16x DP + 18x LA)
- 1 x FMC (8x DP + 34x LA)
- M.2 SSD Socket Connector Key M PCIe
- 2 x LS CRUVI
- 1 x HS CRUVI
- 2 x GT CRUVI
- MIPI CSI-2 4 Lanes (22 pins connector)
- JTAG via USB type C + FTDI FT2232H-56Q
- Samtec FireFly (4 Lanes)
- 1 x USB Type E

Clock Source

- 2 x PLL SI5338A-B-GMR

On-Board Peripherals

- 1 x 128Kbit EEPROM 24LC128-I/ST
- 2 x 8Kbit EEPROM M93C66-RMC6TG
- 2 x 512Kbit EEPROM CAT24C512WI-GT3
- 5 x DIP Switches
- 7 x Push Buttons
- 27 x Green LEDs + 4 x Red Leds

System Controller

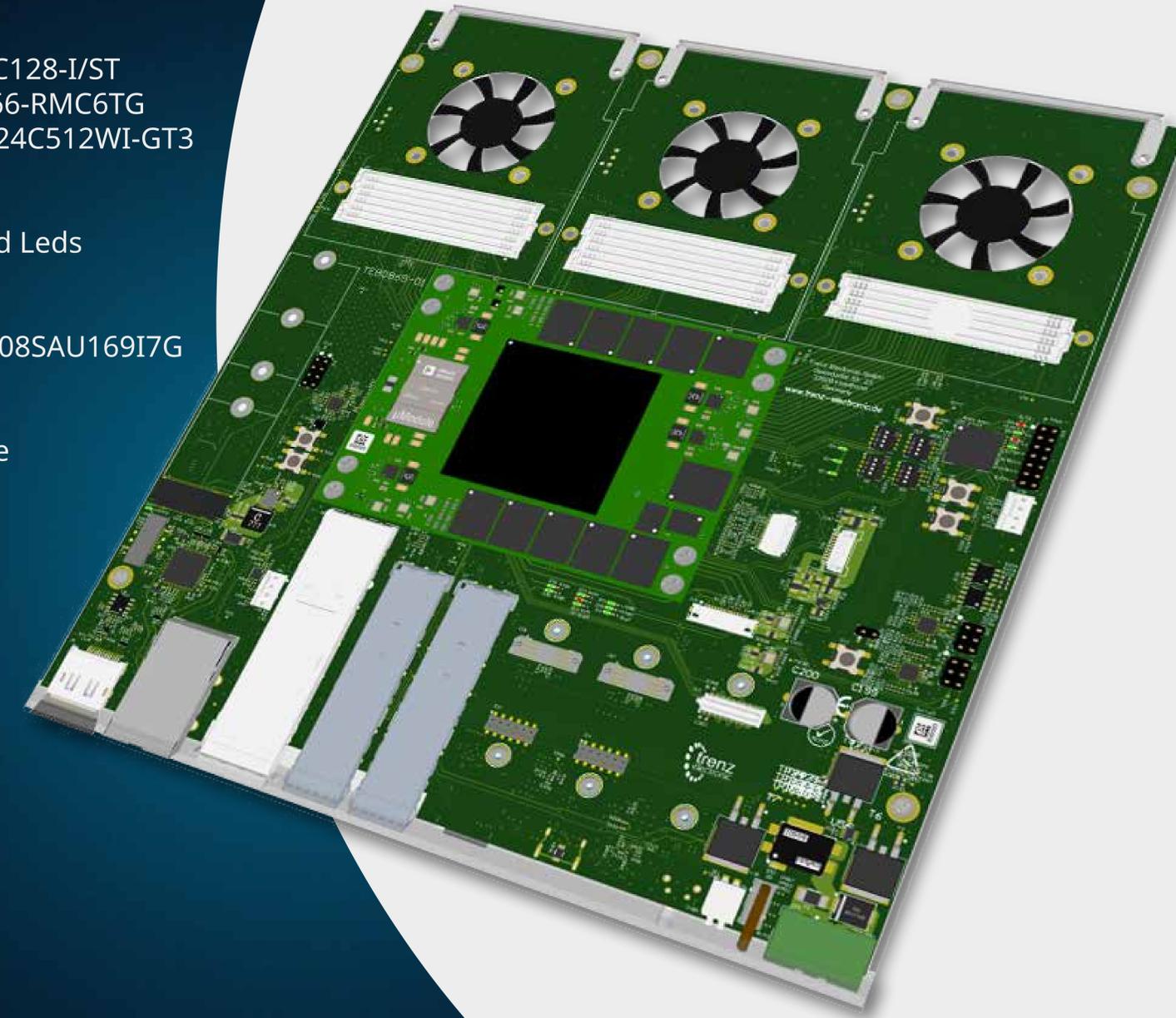
- Altera MAX 10 FPGA 10M08SAU169I7G

Power

- 12 V Input Supply Voltage

Dimension

- 231 x 213 mm



TEB0100 Baseboard

Supported SoM

- AMD Ultrascale+ RFSoc KRM-2ZUXXDR

RF Analog Input / Output

- 8 x RF ADC (2.95 GSps)
- 2 x RF ADC (5.9 GSps)
- 8 x RF DAC (10 GSps)

SoM B2B Connectors

- 2 x ADF6-60

IO Resources

- Transceivers
- Connectors

Clock Source

- LMK04828B
- Clock synchronization inputs and outputs (vertical SMP connectors on PCB)

On-Board Peripherals

- MIO Peripherals Board
- NVMe Adapter Board
- Edge PCIe x8 connector

System Controller

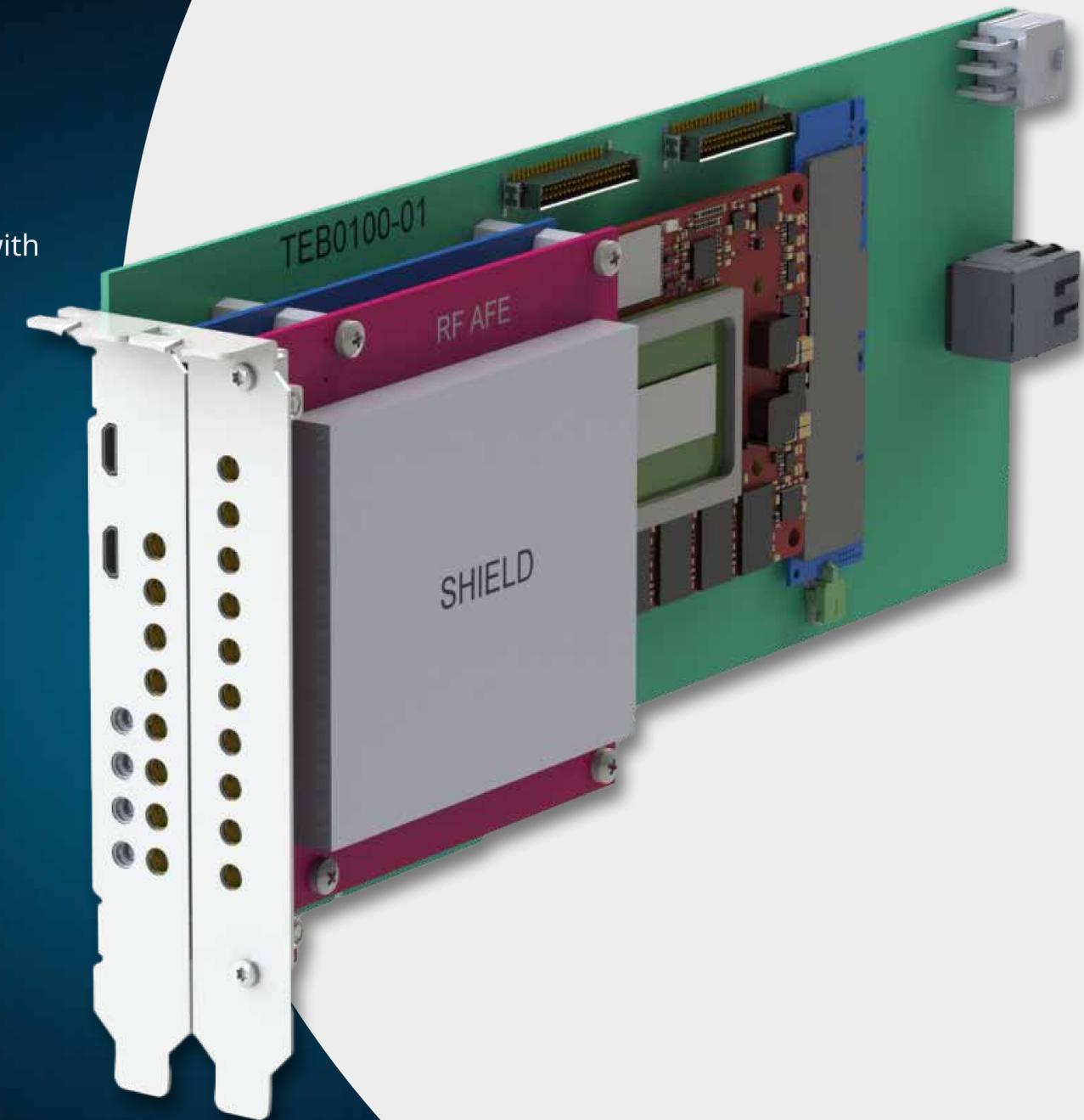
- EFM8BB31F64G -2 pcs.

Power

- 12 V power supply, compatible with ATX or 2.5 mm Power Jack

Dimension / Form Factor

- PCIe Gen 4 (112 x 254 mm)



TEI0135 Altera® Agilex™ 3

SoC

- Altera Agilex 3 SoC C-Series, W-code, package B23C (931 pin)
 - Possible variants: A3C 100, 135

RAM / Storage

- QSPI Flash, single; 256 Mbit (32 MByte) (up to 1 Gbit (128 MByte))
- LPDDR4 SDRAM (32 Bit) HPS; 1 GByte (up to 4 GByte)
- eMMC (selectable eMMC or SDIO); 8 GByte (up to 64 GByte)
- 2 x EEPROM 2kbit with MAC address

IO Resources

- Gigabit transceivers: 4 (support HIP PCIe x4 Gen3), 12.5 Gbit/s
- HSIO: 24 diff. / 48 SE + MIPI D-PHY (4 Data+ CLK + REF CLK)
- HVIO: 120 single ended
- HPS: 12 I/O (SD3.0/eMMC, UART, I2C, I3C etc.)

On-Board Peripherals

- Ethernet (HPS): 1x Gigabit PHY (RGMII)
- Ethernet (FPGA): 1x Gigabit PHY (RGMII)
- USB: 1x, USB2.0 PHY (ULPI), USB3.1 Support 5Gbps (using XCVR)
- Security: Trusted Platform Module TPM 2.0
- Clock: 25 MHz (SDM), 25 MHz (HPS), 200 MHz (LPDDR4), diff. CLKs from B2B

Interface

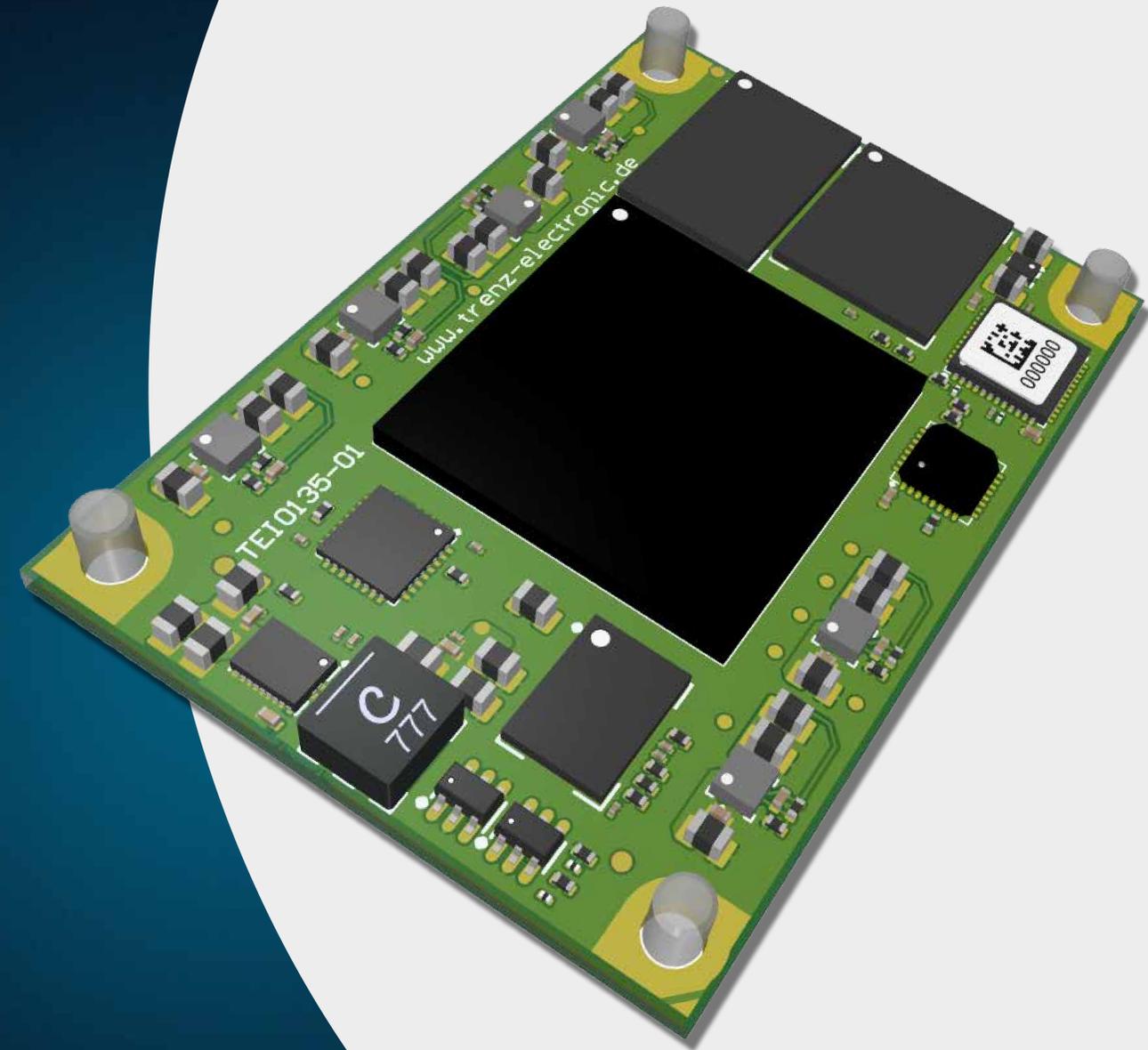
- 2 x 240-pin Samtec AccelerateHD ADM6 connector

Power

- 5 V ... 12 V power supply

Dimension

- 40 x 56.4 mm



TEI0140 Altera® Agilex™ 3

SoC

- Altera Agilex 3 SoC C-Series, W-code, package B23C (931 pin)
 - Possible variants: A3C 025 (no LPDDR4), 050, 065, 100, 135

RAM / Storage

- QSPI Flash, single; 256 Mbit (32 MByte) (up to 1 Gbit (128 MByte))
- LPDDR4 SDRAM (16 Bit) HPS; 512 MByte (up to 2 GByte)
- 3 x EEPROM 4kbit for FTDI, 2kbit, 128kbit

IO Resources

- HVIO: 84 single ended

On-Board Peripherals

- Security: Trusted Platform Module TPM 2.0
- Clock: 12 MHz (FTDI), 25 MHz (SDM), 200 MHz (LPDDR4)
- LEDs: 2 x RGB LED, 1 x LED
- Push Buttons: 1 x User
- USB Programmer: USB Blaster III (JTAG + UART of FIFO Interface)

Interface

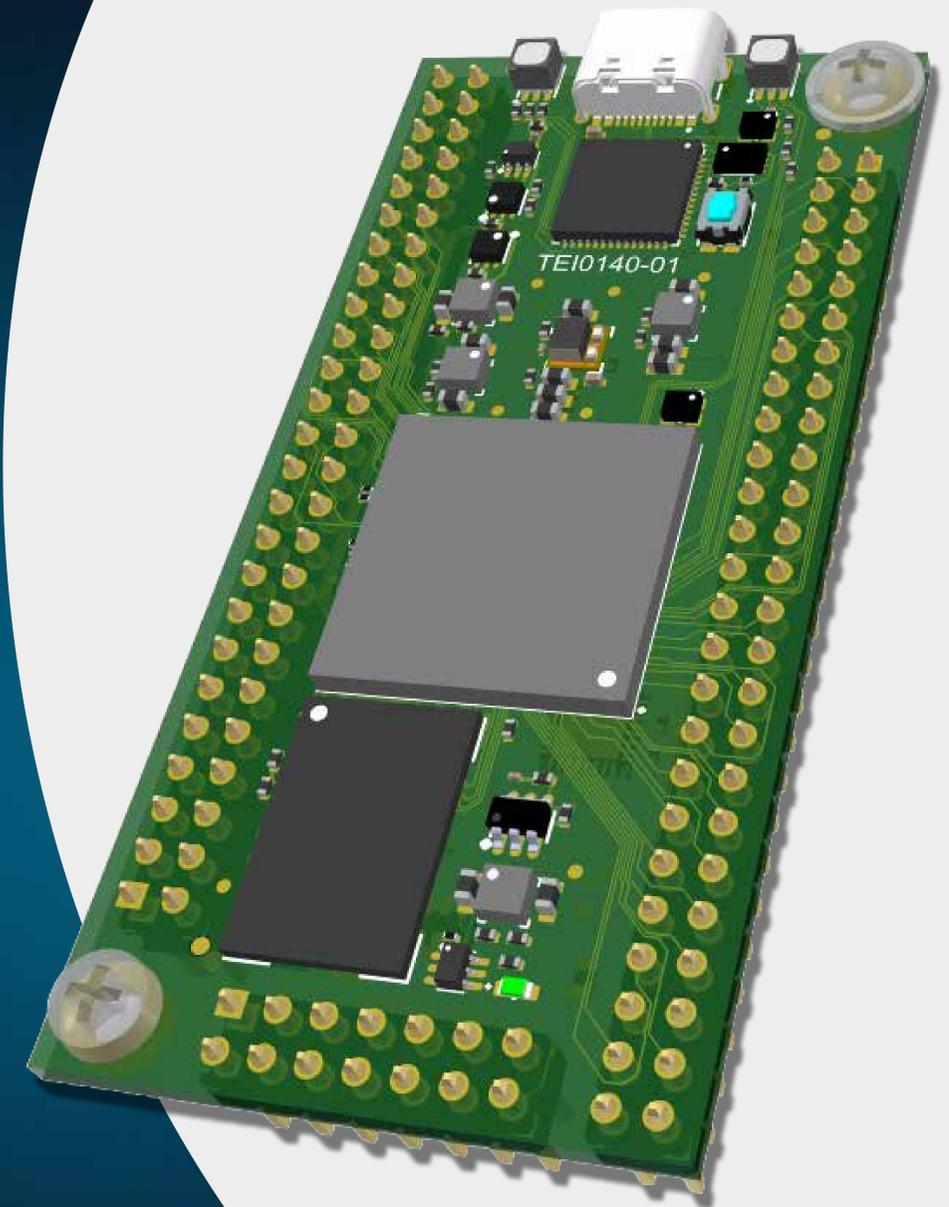
- 2x 50 pin-header connectors, 1x 14 pin-header connector

Power

- USB-C: 5 V

Dimension

- 35 x 73 mm



TEI0186 Altera® Agilex™ 5

SoC

- Altera Agilex 5 SoC E-Series Device Group B (A5ED028BB32AE4S)
 - Package B32A; compatible device:
 - Device Group A, Specification C,D: A5E 013A, A5E 028A
 - Device Group B, Specification A,B,C,D,E: A5E 008B, A5E 013B, A5E 028B (default)
 - Assembly variants possible on request

RAM / Storage

- 1 x QSPI Flash, 32MB (Expandable up to 256MB)
- 1 GB LPDDR4 SDRAM (32 Bit) for HPS (Expandable up to 4 GB)
- 8 GB eMMC (Expandable up to 64 GB)
- 1 x 2Kbit & 1 x 128Kbit EEPROMs Memory

IO Resources

- MGT*: up to 12 x transceivers (up to 28 Gbit/s)
- HSIO: 96 diff. / 192 SE + MIPI D-PHY (4 Data+ CLK + REF CLK)
- HVIO: 200 single ended
- HPS IO: 19 I/O (SDIO, UART, I2C, I3C, GPIOs)
 - * depends on FPGA assembly variants, IO resources could be changed

On-Board Peripherals

- Gigabit Ethernet PHY (RGMII)
- USB2.0 PHY (ULPI), Support USB3.1 Gen1 5Gbps (use 1 transceiver)
- Security: Trusted Platform Module TPM 2.0
- Clocks for LPDDR4 SDRAM, GigE PHY, USB PHY, SDM FPGA
- SD3.0 (optional)

Interface

- 3 x 240-pin Samtec Accelerate HD (ADM6) connectors

Power

- 5 V ... 12 V power supply

Dimension

- 52 x 76 mm

