



# TE0803-03-3BE11-AS Starter Kit with Zynq UltraScale+ FPGA Module

- **Order number:** TE0803-03-3BE11-AS



## Product information "TE0803-03-3BE11-AS Starter Kit with Zynq UltraScale+ FPGA Module"

This Starter Kit is the replacement of the TE0803-02-03-1EA-S.

The Trenz Electronic Starter Kit consists of a TE0803-03-3BE11-A MPSoC module on a TEBF0808-04 base board including a pre-assembled heatsink, in a black Core V1 Mini-ITX Enclosure. Supplied with a Be Quiet! 400W power supply for the enclosure, two mounted XMOD FTDI JTAG Adapter, an 8 GB micro SD card, an USB cable, screws and bolts.

## The Module: TE0803-03-3BE11-A

The Trenc Electronic TE0803-03-3BE11-A is an industrial-grade MPSoC module integrating a Xilinx Zynq UltraScale+. This module is equipped with 2 GByte DDR4 SDRAM, 128 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 are provided via rugged high-speed stacking connections. All this on a footprint of 5.2 x 7.6 cm, smaller than a credit card.

This product is or has been in development until recently. For this reason it is possible that no complete documentation is stored yet.

### Key Features

- Xilinx Zynq UltraScale+ XCZU3EG-1SFVC784E
- ZU3EG, 784 Pin Packages
- Dimensions: 5.2 x 7.6 cm
- Plug-on module with 4 x 160 pin B2B connectors
- Rugged for shock and high vibration.
- 3 mm mounting holes for skyline heat spreader
- 2 GByte 64-Bit width DDR4 SDRAM
- 128 MByte SPI Boot Flash dual parallel
- 2 KBit Serial EEPROM for MAC Address
- 48 High-density (HD) I/O's (2 banks)
- Graphic Processing Unit (GPU)
- User I/O
  - 65 x multi-use I/O's (MIO)
  - 156 high-performance (HP) I/O's (3 banks)
  - Serial transceiver: PS GTR 4; PL GTH 4
  - Programmable 4-channel PLL clock generator
- All power supplies on board, single 3.3V power source required
- Evenly spread supply pins for good signal integrity.

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

### Recommended Software

#### [Vivado Design Suite - HLx Edition Download](#)

Vivado Design Suite HLx Editions include Partial Reconfiguration at no additional cost with the Vivado HL Design Edition and HL System Edition. In-warranty users can regenerate their licenses to gain access to this feature.

#### [Overview of all Editions of Vivado Design Suite Editions](#)

## The Base Board: TEBF0808-04

The Trenc Electronic TEBF0808 UltraITX+ base board has been developed individually for the TE0808 UltraSOM+ MPSoC.

### Key Features

- Mini-ITX form factor, PC enclosure compatible
- ATX-24 power supply connector
- Optional 12V standard power plug
- Headers
- Intel 10-pin HDA Audio
- Intel 9-pin Power-/Reset-Button, Power-/HD-LED
- PC-BEEPER
- On-board Power- / Reset-Switches
- 2 x Configuration 4-bit DIP-switches
- 2 x Optional 4-wire PWM fan connectors
- PCIe Slot - one PCIe lane (16 lane connector)
- CAN FD Transceiver (10 Pin IDC connector and 6-pin header)
- 4 x On-board configuration EEPROMs (1x Microchip 24LC128-I/ST, 3x Microchip 24AA025E48T-I/OT)
- Dual SFP+ Connector (2x1 Cage)
- 1 x DisplayPort (single lane)
- 1 x SATA Connector
- 2 x USB3.0 A Connector (Superspeed Host Port (Highspeed at USB2.0))
- 1 x USB3.0 on-board connector with two ports
- FMC HPC Slot (FMC\_VADJ max. VCCIO)
- FMC Fan
- Gigabit Ethernet RGMII PHY with RJ45 MagJack
- All carrier board peripherals' I<sup>2</sup>C interfaces muxed to MPSoC's I<sup>2</sup>C interface
- Quad programmable PLL clock generator SI5338A
- 2x SMA coaxial connectors for clock signals
- MicroSD- / MMC-Card Socket (bootable)
- 32 Gbit (4 GByte) on-board eMMC flash (8 banks a 4 Gbit)
- 2 x System Controller CPLDs Lattice MachXO2 1200 HC
- 1 x Samtec FireFly (4 GT lanes bidirectional)
- 1 x Samtec FireFly connector for reverse loopback
- 2 pre-assembled TE0790 JTAG/UART header ('XMOD FTDI JTAG Adapter'-compatible) for programming MPSoC and SC CPLDs
- 20-pin ARM JTAG Connector (PS JTAG0)
- 3 x Pmod connector (GPIO's and I<sup>2</sup>C interface to SC CPLDs and MPSoC module)
- On-board DC-DC PowerSoCs

## PC Enclosure Accessible I/O

- PCIe
- FMC
- Dual SFP+
- RJ45 Gigabit Ethernet
- 2x USB3 Host
- Displayport
- microSD
- Two LEDs
- CAN FD (using DB9 to IDC10 Cable)

## Core V1 Mini-ITX Enclosure - Technical Features

- Dimensions: 260 x 276 x 316 mm (B x H x T)
- Material: Steel
- Colour: Black
- Drive Slots: 2 x 3,5 Zoll (intern, 3,5 Zoll) and 2 x 2,5 Zoll (intern, 2,5 Zoll)
- Expansion slots: 2
- I/O-Panel: 2 x USB 3.0 and 1 x Audio In/Out each
- Maximum graphic card length: 255 mm (inner enclosure)
- Maximum graphic card length: 285 mm (outer enclosure)
- Maximum CPU cooler height: 140 mm
- Maximum length power supply: 200 mm

## Starter Kit - Scope of Delivery

- 1 x Core V1 Mini-ITX Enclosure- black with viewing window and removable sled walls
- 1 x Power supply Be quiet! Pure Powr, 400 Watt, 12V, ATX 2.3 with fan
- 1 x TE0803-03-3BE11-A MPSoC module with ZU3EG
- 1 x TEBF0808-04 base board
- 1 x mounted Heatspreader MaxiGrip 23 x 23 x 19.5 mm
- 1 x TE0790-02 XMOD FTDI JTAG adapter, mounted (compatible with Xilinx-Tools)
- 1 x TE0790-02L XMOD FTDI JTAG adapter, mounted (independent from Xilinx-Tools)
- 1 x 8 GB Class 4 microSDHC card
- 1 x USB cable, Type A to Type B Mini, 2 meter length
- 2 x Phillips screws, M3 x 6, pan head, zinc coated
- 2 x Spacer bolts, M3, 10 mm

## Additional Information

- Manufacturer's article number: TE0803-02-03-1EA-S Starter Kit
- [Trenz Electronic TE0803 Starter Kit Wiki](#)
- [Support Forum](#)

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