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## TE0720-03-1CFA-S Starter Kit

- **Order number:** TE0720-03-1CFA-S

### Product information "TE0720-03-1CFA-S Starter Kit"

The Trenz Electronic Starter Kit TE0720-03-1CFA-S consists of a TE0720-03-1CFA module on a TE0703-05 carrier board including heatsink. Supplied with a 5 V power supply, two VG96 connectors (DIN 41612), a 16 GB micro SD card and a USB cable.

## TE0720-03-1CFA

The Trenc Electronic TE0720-03-1CFA are SoC modules with commercial temperature range integrating a Xilinx Zynq-Z020, a gigabit Ethernet transceiver, 1 GByte DDR3 SDRAM, 8 GByte e.MMC, 64 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.

### TE0720-03-1CFA Key Features

- Xilinx XC7Z020-1CLG484C
- Rugged for high shock and vibration
- ARM dual-core Cortex-A9 MPCore
- 10/100/1000 tri-speed Gigabit Ethernet transceiver (PHY), SGMII accessible on a board-to-board connector
- USB 2.0 high speed ULPI transceiver
- 32-Bit-wide 1 GByte DDR3 SDRAM
- 32 MByte QSPI Flash memory (for configuration and operation)
- 8 GByte e.MMC (up to 32 GByte)
- Plug-on module with 2 × 100-pin and 1 x 60-pin high-speed hermaphroditic strips
- 152 FPGA I/O's (75 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
- System management and power sequencing
- eFUSE bit-stream encryption
- AES bit-stream encryption
- Valid MAC Address and 2K serial EEPROM
- SHA-256 authentication chip with unique serial number
- RTC, temperature compensated
- 3 user LED
- Evenly-spread supply pins for good signal integrity

### Recommended Software

Vivado HL WebPACK Edition (free version)

The Vivado Design Suite HL WebPACK Edition is the FREE version of the design suite. Vivado HL WebPACK delivers instant access to some basic Vivado features and functionality at no cost.

Overview of all editions of Vivado Design Suite

## TE0703-05 base board

The Trenc Electronic TE0703-05 carrier board offers an economical way to connect every Trenc Electronic 4 x 5 cm SoC micromodule and connect it with your own circuits.

### TE0703-05 Key Features

- 2 x VG96 Connectors (Mounting Holes and Solder Pads)
- SDIO Port Expander with Voltage-Level Translation
- Micro SD Card Connector - Zynq SDIO0 Bootable SD port
- 4 x User LEDs
  - D1 and D2 are connected to the Carrier Controller, their function depends on the Firmware
  - D3 and D4 are connected to the 4x5 Module B2B Connector pins, and are directly controlled by the module
- Mini USB Connector (USB JTAG and UART Interface)
- 1 x User Push Button
  - Connected to "intelligent Carrier Controller (iCC)" and can be used as module reset button. Other usage possible, actual function depend on the code loaded into iCC.
- RJ45 GbE Connector
- USB Host Connector
- Barrel jack for 5V\* Power Supply
- 4A High-Efficiency Power SoC DC-DC Step-Down Converter with Integrated Inductor (Enpirion EN6347) for 3.3V Power Supply
- Trenc 4x5 Module Socket (3x Samtec LSHM Series Connectors)
- USB JTAG and UART Interface (FTDI FT2232H), compatible with Xilinx Tools (also with many other tools)
- 4 User DIP Switches
  - Enable/disable update of the "intelligent Carrier Controller"
  - MIO0 (readable signal by iCC and Module)
  - 2 "Mode" bits

### Package Content TE0720-03-1CFA-S Starter Kit

- 1 x TE0720-03-1CFA SoC Micromodule with Xilinx Zynq-7020 XC7Z020-1CLG484C
- 1 x TE0703-05 carrier board for Trenc Electronic modules with 4 x 5 cm form factor
- 1 x Pre-installed heatsink for TE0720, spring-loaded
- 2 x VG96 Connectors (DIN 41612)
- 1 x Power supply 5V with 4000 mA current
- 1 x 16 GB Class 4 microSDHC card
- 1 x USB cable, Typ A to Typ B Mini, 2 meter length

**Important Notes** All VCCIO Jumpers are set for 3.3 V IO supply in this Starter Kit.