NEToem : Industrial Networking

Seamless integration of Reliable Ethernet capabilities in your equipment

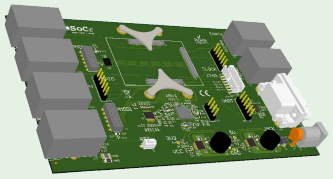
General Description

- **NEToem** is a pluggable module designed to enable easy integration of Reliable Ethernet Networks in equipments for Electric Power, Transportation, and Industrial Automation sectors.
- This powerful module allows the implementation of custom routers, switches or end-equipments with powerful networking capabilities. Network frame processing can be performed by hardware using specific IPs and it can be combined with a Microblaze (soft-processor) based SoPC system. TCP/IP functionalities can be easily added using lwIP stack or Linux.

- **NEToem** has been designed to host **SoCe HSR-PRPSwitch** IP core, however it can be used for other implementations in the FPGA designed by the customer. **SoCe** provides Reference Designs for this purpose.
- **SoCe** offers a carrier, **NETCarrier** , that can be used by the customers as a reference to design their own one or to include **NEToem** in their equipments.

Key Features

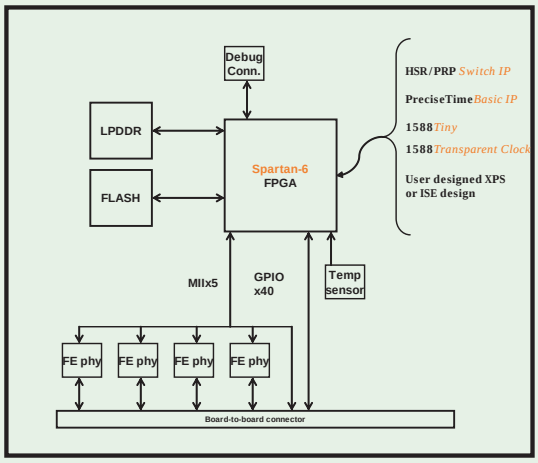
- **Spartan-6 Xilinx FPGA:** This family provides leading system integration capabilities. XC6SLX45 Industrial Grade device is mounted on the standard version.
- **512 Mb LPDDR:** Fast SDRAM memory to store software applications, protocols stacks or large buffers.
- **128 Mb Quad SPI Flash:** Memory for firmware and bitstream storage.
- **EEPROM with unique MAC integrated:** This feature simplifies MAC management policy reducing the time-to-market of the customer product.
- **Size:** 50x35mm.
- **Temperature Sensor:** Each module is provided with a I2C temperature sensor mounted on the PCB.
- **Leds indicador:** 1 Power up led, 1 FPGA done led and 2 General purpose LEDs.



- **4x Ethernet Phyters:** Provide Fast Ethernet signals ready to be connected to Ethernet connectors provided with integrated transformers.
- **Generic GPIOs:** Up to 20 GPIOs ready to be used in the carrier and 19 additional GPIOs that can be used if the Ethernet Switch chip is not mounted in the carrier.
- **Additional MII Ethernet link:** Think for the connection with an Ethernet Switch on the carrier or with a CPU.
- **Debug connector:** Easy accessible connector on the top of the module that accepts stand-alone powering, JTAG, I2C and SPI.
- **3x High-reliability board-to-board connectors:** Attach **NEToem** module to the customer carrier. This robust connection is enhanced with the two metallic triangles that covers the module from the top and ensures the best behavior in rugged environments.

SoCe

NEToem Block Diagram



NEToem module

Applications

NEToem may be used in a wide range of products and applications. A simple way to introduce redundancy capacities. Thanks to the utilization of Reconfigurable Logic, the module allows full upgradeability and the combination of different protocols

- Energy market products
- Power electric protections
- Substations interconnection (IEC 61850)
- Industrial Networking
- Transport
- Defence and Aerospace
- Education and R&D

About the company

SoCe offers specialized design services of FPGAs, SoPCs, IPs and embedded systems. It focuses on FPGA based Ruggedized Systems, Industrial Networking and Video processing.

Ordering information and contact

For any further question, ordering information or quotation contact **SoCe**:

soceindustrial@soc-e.com

System-on-Chip *engineering*

Zitek Bilbao (ETSI)
Alameda Urquijo s/n
48013 Bilbao SPAIN
Tlf: +34 944420700

SoCe