

# periCORE Development Kit

## Full Featured Firmware Development Setup



The periCORE Development Kit provides a fully equipped development environment. It is used for application-specific firmware development for the periCORE Single Pair Ethernet (SPE) communication module. Due to its modular hardware design, the periCORE Development Kit supports all interfaces of the periCORE module in a variety of combinations. The modular hardware makes it easy to extend the periCORE Development Kit with customer-specific interfaces, e.g. for dedicated sensors. The kit is delivered with hardware and software components. Develop customized IoT applications without the hardest parts of firmware development.

### Key Features

- periCORE Development Board with periCORE module (Figure 1)
- 100BASE-T1 Single Pair Ethernet Interfaces (multiple connectors)
- 100BASE-TX Fast Ethernet Interface
- Various Peripheral Interfaces for sensor/actuator development
- Easy extensible modular hardware design
- Containerized bare-metal C++ Toolchain
- JTAG Debugger
- Integrated with Visual Studio Code
- Extensible firmware examples
- Remote development via periMICA
- powered (24V) via SPE hybrid cable or supply connector
- Compliance: RoHS and WEEE
- patent-protected

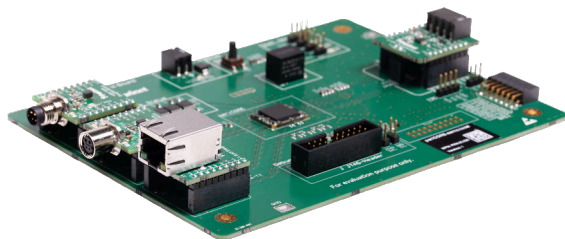


Figure 1: The periCORE Development Board.

### Targeted Applications

- periCORE Firmware Development
- Rapid Prototyping
- Continuous Integration
- Remote Development
- Network Interface Evaluation

### Network Interfaces

- 1 x 100BASE-T1 M8-hybrid-male
- 1 x 100BASE-T1 M8-hybrid-female
- 1 x 100BASE-T1 HARTING T1 Industrial Jack
- 2 x 100BASE-T1 T1H 4x METZ Spring clamp for building automation
- 1 x 100BASE-TX RJ45 connector
- 1 x 100BASE-TX HARTING *ix Industrial*®

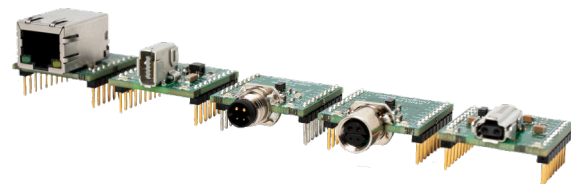


Figure 2: The network daughter boards.

## Peripheral Interfaces

- 1 x terminal block for 0-10V based sensor
- 1 x terminal block for Pt100 3-wire sensor
- 1 x terminal block for 2x 24V GPIO
- 1 x MicroE SHT temperature sensor
- I2C pin header
- UART pin header

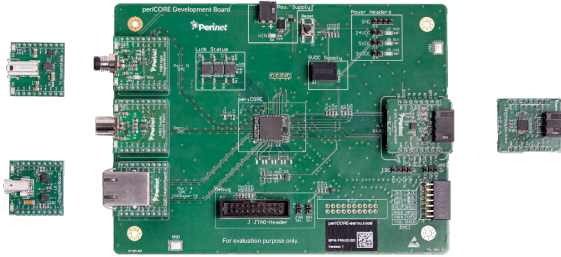


Figure 3: The modularity of the periCORE Development Board.

## General Interfaces

- GND pin header
- 24V pin header
- 5V pin header
- 3V3 pin header
- 24V power connector

## Operational Parameters

- Operating voltage: 24 VDC.
- Additional 5V supply accessible on sensor daughterboard.
- 3.3V Voltage domain for interface signals.

## Software Library *libperiCORE*

- Rapid firmware development with *periCORE Development Kit* (see Figure 4)
- mDNS/LLMNR for name resolving
- DNS-SD for automated service discovery
- TCP/UDP endpoints
- TLS-based secure communication endpoints
- RESTful API
- Secure MQTT-client for publishing sensor values or subscribing to actuator commands
- HTTPs server including Web based UI
- Product lifecycle features
- C++20 standard conform

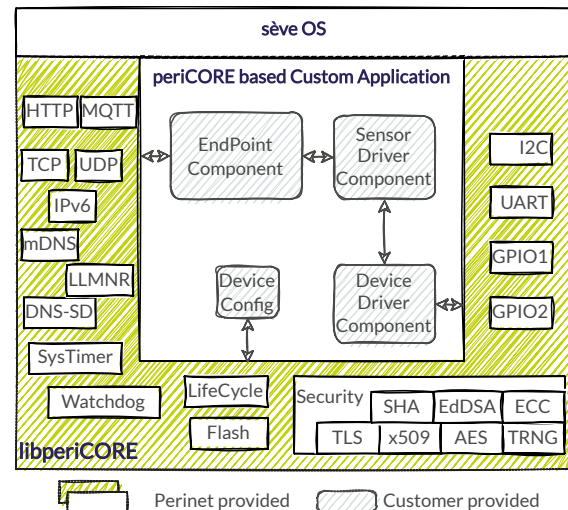


Figure 4: The software architecture with Custom Application template, provided by Perinet.

## Ordering Information

Ordering Code	Product Name	Description
PRN.000.001	periCORE	periCORE single pair ethernet communication module.
PRN.000.019	periCORE Development Board	Minimal firmware development setup.
PRN.000.020	periCORE Development Kit	Full featured firmware development setup.