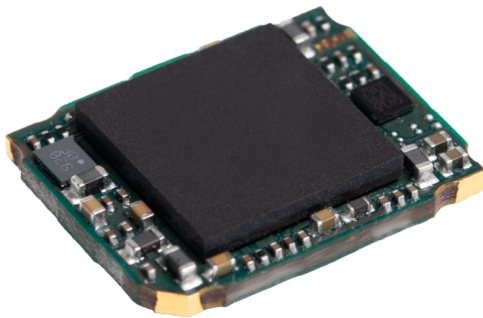


periCORE

Single Pair Ethernet communication module



periCORE is an Ethernet communication module, which is designed to be integrated into sensor and actuator devices. It will provide networking capability to these devices both in hardware and in software, so that it can be easily integrated. It allows turning formerly passive sensors and actuators into intelligent devices, which can preprocess data and can operate event based, while all the network stuff, including state-of-the-art security and firmware management, is pre-implemented and ready to use. Further, it allows rebranding and customization for your devices with minimal development efforts. Everyone can create a customized Firmware for the periCORE with the supplementary development kit.

Targeted Applications

- Industrial sensors
- Industrial control
- IoT / IIoT
- Remote sensor access
- Building automation

Interfaces

- 2 x 100BASE-T1 Phy (IEEE 802.3bw)
- 1 x Combined 100BASE-T1/TX Phy
- 1 x MAC to arm processor core (Figure 1)
- 1 x UART
- 1 x I2C
- 2 x GPIO

Key Features

- Fully qualified Industrial IoT module
- Firmware development framework
- Provided TCP/IPv6 stack
- Event-based minimal operating system
- arm Cortex®-R4 250MHz processor core
- 32-MBit flash memory for persistent storage
- Up to 3x 100BASE-T1 Single Pair Ethernet Phys (IEEE 802.3bw compatible)
- Integrated Ethernet switching core
- Compact form factor
- Operated with 24V
- Integrated 3V3 power supply

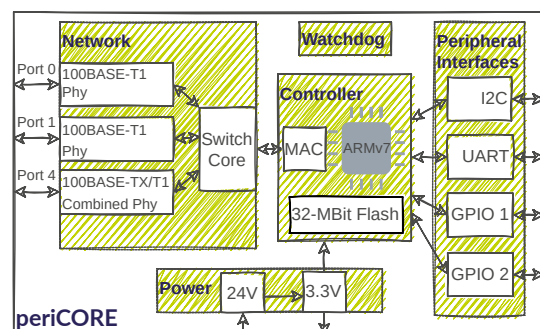


Figure 1: periCOREs hardware blocks.

Operational Parameters

- Operating voltage: 24 VDC
- Power supply: 3.3 VDC (up to 100mA)
- Temperature range: -40°C to +85°C
- Power consumption: 0.6 W

Package

Dimensions: 16.7 x 13 x 3.8 mm
(Figure 2)

Mounting: Solder pads, 73 LGA-Pads, Pattern 13 x 10, Pitch 1.27 mm

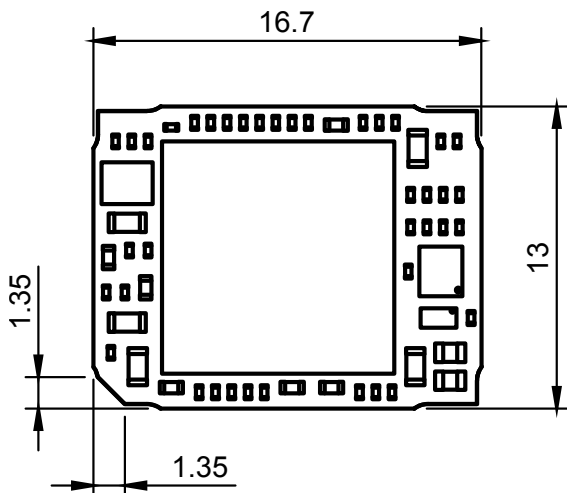


Figure 2: periCOREs dimensions in mm.

Compliance

- RoHS
- WEEE

Security

- NIST compliant TLS implementation
- Role Based Access Control (RBAC)
- Certificate based client authentication
- AES encryption algorithm
- X.509 certificates and PKIX path validation
- Elliptic Curve Cryptography (ECC)

Software Library *libperiCORE*

- Rapid firmware development with *periCORE Development Kit* (see Figure 3)
- 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

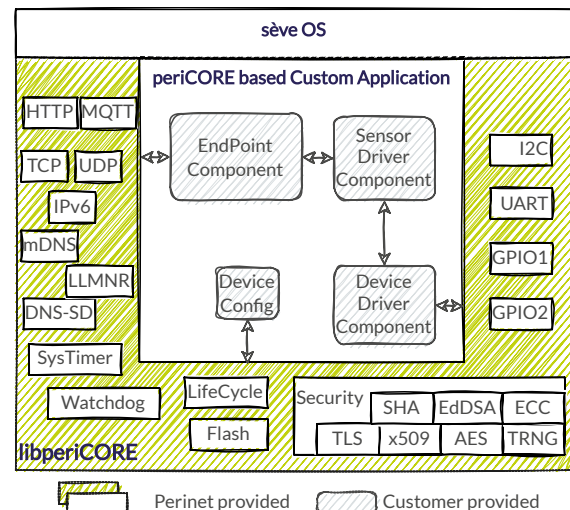


Figure 3: The software architecture with Custom Application template, provided by Perinet.

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.