

PingPong

IoT Development Board



- < Wi-Fi/Bluetooth
- < I/O and Serial Board
- < Iridium Satellite
- < ISM/RF
- < NFC/RFID
- < LoRa
- < Sigfox

Product Description

The Round Solutions PingPong is a modular IoT Hardware Platform for Firmware Developers. The platform supports extension boards that add unlimited capabilities. It can be used to easily make physical devices connect to the web. It's literally plug, push and play.

PingPong comes with both wired and wireless connectivity. The device is available in two open-source SW versions: The RTOS version running in C/C++ and the Linux version for even more functionality and applications. Both versions come with the world's fastest 32-bit microcontroller by Microchip. *PingPong* base circuit boards also have a high speed Telit cellular module, a high accuracy positioning component for the Global Navigation Satellite System (GNSS), Ethernet, USB, CANBUS among other items. The Evaluation Kit comes with a dedicated M2M/IoT SIM card and connectivity to a cloud platform.

Key Benefits

- Easy to integrate with other devices & sensors using USB HS, UART, Ethernet and user definable GPIOs
- Increased connectivity performance with 2G/3G/4G, Wi-Fi and Bluetooth
- Ideal platform for m2m applications and mobile data and computing devices with ultra-compact design and extended operating temperature range
- Combines high-speed wireless connectivity with embedded multi-constellation high-sensitivity positioning GPS + GLONASS receiver
- Internet friendly with integrated TCP/IP and UDP/IP stacks
- Simple drop-in migration and technology design reuse path to 2G, 3G and 4G² with any Telit xE910 cellular module
- Over-the-Air firmware update
- Wide range power supply input 9-60 V DC

Modular Concept

The base circuit board can be extended by one or more extension boards like Wi-Fi, Bluetooth, I/O, Iridium Satellite communication, Radio Frequency, NFC/RFID and Camera interface boards. It is a Plug'n'Play Solution that works, as soon as the extension board is plugged onto the base board. Through hardware extensions, as well as customised firmware variants, the *PingPong* can be used for a wide range of IoT/M2M applications, e.g. a sensor reading device, an asset tracking, a router, a metering/telemetry device and security surveillance devices to name a few.

Additional Services

Round Solutions also offers **open source Firmware and Software** for the *PingPong* board which enables S/W developers to promptly develop custom firmware for the device thus speeding up the time to market. The collected data can easily be sent to an IoT Cloud, offering many ways for tools to monitor, visualise, remotely maintain and control the *PingPong* board. The graphical user interface of the **IoT Cloud** is available through any web browser or mobile through smartphones and tablets.

With the **m2mAIR SIM cards** the stable data transfer between *PingPong* and the Cloud is guaranteed. Through automatically Roaming in both home country and international, it's always network active with the best performance.

So *PingPong* can be used in nearly all industries such as industrial automation, food industry, automotive, chemical, consumer goods, security and so on...

Available for

- EMEA
- North America
- Latin America*
- APAC*
- Korea
- Australia

Extension Boards

- Wi-Fi/Bluetooth
- I/O & Serial Board
- Iridium Satellite
- ISM/RF
- NFC/RFID
- LoRa
- Sigfox

Complete, Ready to Use Access to the Internet of Things



Telit Modules + m2mAIR Mobile Value-Added Services including Connectivity



* 4G soon available

PingPong

Product Features

- IoT Gateway with wired and wireless communication channels and interfaces
- Extendable through an unlimited number of Plug'n'Play hardware extension boards
- Wireless communication: Telit xE910 cellular family
 - 2G, 3G and 4G²
- High Performance GNSS: Telit SL869
 - GPS, Glonass, Galileo
 - For Tracking, Timing³ and Dead Reckoning³
- 2x SIM card holder and SIM on chip
- Hardware Watchdog for the microcontroller
- Configurable over Ethernet, USB and/or SMS
- Out of the box connectivity with
 - Cumulocity IoT Cloud Platform
 - Telit m2mAIR Cloud
- TCP and UDP Data Protocols
- Accelerometer on board
- Magnetometer on board (for the detection of geographically north)
- RTOS Version:
 - World's fastest 32-bit Microcontroller with 200 MHz, 512 KB RAM and 2 MB Flash Memory (Microchip PIC32MZ)
 - Additional 4 MB Flash Memory
- Linux Version:
 - Using Microchip's PIC32MZ DA
 - Specifications to be announced

Interfaces

- 2 x Connectors for unlimited stackable extension boards. These connectors feature:
 - UART
 - SPI
 - CAN
 - I²C
- 1 x Ethernet interface
- 1 x USB interface
- 1 x CAN interface
- 2 x Frequency inputs
- 2 x Analog inputs
- 4 x Three state logic inputs (Dig.Inputs)
- 4 x NMOSFET outputs (Dig.Outputs)
- 2 x Current measurement inputs (24 bits resolution with galvanic isolation)
- 1 x 1-Wire interface
- Antenna Connectors
 - GSM: U.FL Connector
 - GNSS: U.FL Connector

² LTE version, ³ optional, our sales team will consult,
*coming soon for 4G

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Firmware & Software

The RTOS version uses C/C++ and Python and comes with USB CDC Bootloader. The Linux version offers even wider possibilities such as Open VPN, IPSEC tunnels e.g. for Router functionality. Both versions are available as open source software and compatible with MPLAB Harmony.

Round Solutions offers ready-made software Packages and libraries for the PingPong boards:

- Remote Metering
- Asset Tracking
- Wi-Fi/Bluetooth Gateway
- MODbus over TCP
- MODbus over RS485

Data

LTE

- Uplink up to 50 Mbps
- Downlink up to 100 Mbps

HSPA+

- Uplink up to 5.75 Mbps
- Downlink up to 42.0 Mbps

UMTS

- Uplink/Downlink up to 384 kbps

GSM/GPRS

- Uplink/Downlink up to 9.6 kbps

Environmental

- PCB Dimensions 85 x 52 x 23mm
- Extended temperature range -40°C to +85°C
- Enclosures (optional)
 - IP53
 - IP67
- Power Management
 - 9-60V DC input
 - 3.6V AUX output
- Max. current consumption
 - 900mA
- Approvals
 - CE



Extension Boards

The PingPong Board has two extension connectors: One that provides power (3.3V / 3.8V) and one communication buses connector. The Communication buses are: UART, SPI, CAN and I²C.

Just stack one or more of the following extension boards on top of the base board and the device is ready to use.

- Wi-Fi/Bluetooth: with webserver on board
- I/O & Serial Board: 10 digital/10 analog/4 frequencies, RS485, RS232
- Satellite communication: Iridium
- ISM/RF: 433MHz/868MHz/915MHz/2.4GHz
- NFC/RFID: Protocol EPCglobal Gen 2 (ISO 18000-6C)
- Sigfox/LoRa: Ultra low power transceiver
- Still image and video camera

Order Code

- RTOS Version **EVK-PCB-HEDGN-R1501**
- Linux Version **EVK-PCB-HEDGN-L1501**

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