

# TECHBASE's first industrial gateways series based on new ESP32 chips

The newest addition to **TECHBASE's Industrial IoT Ecosystem** is a lightweight, but powerful energy-efficient and fully capable automation controller series, called **Moduino** - an industrial computer for remote data control and management, equipped with latest **ESP32** compute module, wide range of serial, digital and analog inputs/outputs and wireless communication interfaces. This cost effective solution is perfect for end-point devices.



Moduino is powered by **ultra-low power Dual-Core Tensilica LX6 240 MHz processor** with 512KB RAM (up to 4MB) and 4MB SPI flash memory on-board. Integrated Wi-Fi/BLE modem and extra wireline/wireless interfaces make the **Moduino** micro-computer a versatile addition to Industrial IoT solutions offered by TECHBASE company. For more complex installations and for those, who need high integration capabilities, the **Moduino** devices can easily work remotely with existing **ModBerry** gateway for data accumulation and monitoring, to perform specific actions before sending the data to cloud services. The **Moduino-ModBerry** installation can work as standalone Ecosystem (for example via MQTT), providing **fog-computing** to any installation.

## Wireless solution

Both **Moduino X1 & X2** offer built-in Wi-Fi & Bluetooth 4.2 and support for LoRa, Sigfox, LTE cat. M1, NarrowBand-IoT (LTE cat. NB1) modems. Currently the support of ZigBee modems is under development. Moduino is equipped with standard **U.FL (IPEX) external antenna connectors**, allowing the device to reach up to 1km range (for Wi-Fi modem) and expanding the range for other wireless interfaces.

## Battery and AC powered

Two multi-sized units **X1** and **X2** represent diversified approach to IIoT installations for remote data access & management. The main difference between **Moduino X1** and it's larger brother **Moduino X2**, apart from size, is a battery power support for X1 due to lower energy demand, making it independent from local power grid - perfect for remote installations and scattered objects monitoring. Both solutions can be powered by regular power supply with UPS support (LiPo & Supercapacitor batteries), offer wide range of serial, digital and analog inputs/outputs assisted with support of wireless communication interfaces.



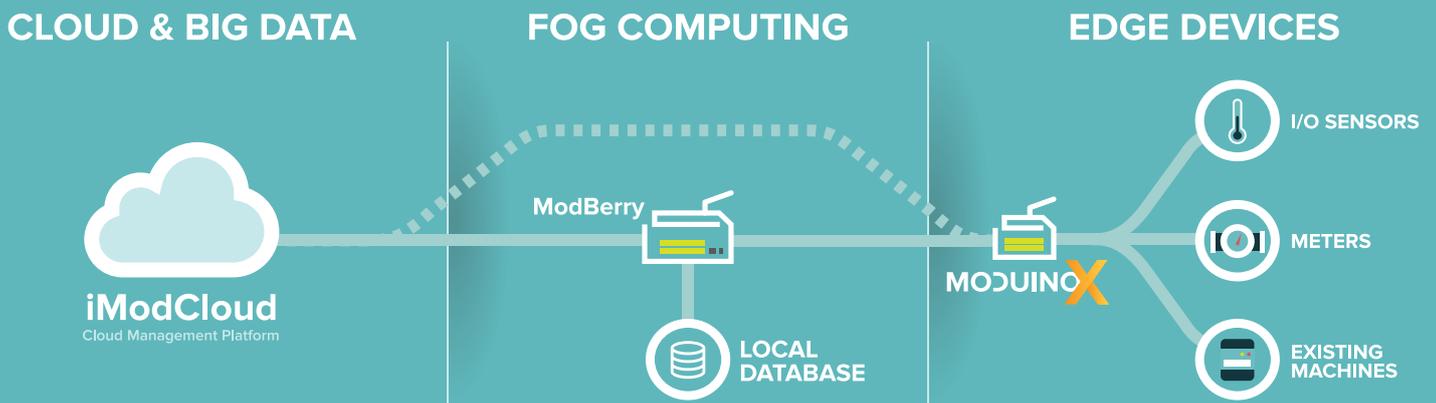
## Operating systems & software

Use of **ESP32-WROVER** compute module adds the support for real-time operating systems (compared to most Raspberry Pi based Linux and Windows OS versions), and openness of the Espressif's platform to **Moduino** industrial automation controller. Thanks to enormous community of ESP32 and Arduino users and developers, the **Moduino** can now adapt existing software solutions, tools and programming environments, for example:

- ESP-IDF (Espressif IoT Development Framework)
- Zephyr Project (scalable RTOS)
- Arduino (C++)
- MicroPython
- Mongoose OS
- etc.

## End-point sensors

The Moduino device is a comprehensive end-point controller for variety of sensors located throughout any installation. It fully supports temperature and humidity sensors and new ones are currently developed, e.g. accelerometer, gyroscope, magnetometer, etc.



## First ESP32 industrial computer

**TECHBASE** is a first company in the world, that developed and manufactured an Industrial IoT solution based on Raspberry Pi. First device, **ModBerry 500**, powered by first gen. **Compute Module from Raspberry Pi Foundation** revolutionized the market of industrial automation. Newest ModBerry 500 M3 is an upgraded ModBerry 500 industrial computer series, utilizing latest **Compute Module 3** from Raspberry Pi, increasing the device's performance up to ten times, maintaining low power consumption and optimal price of this solution.

Now TECHBASE expands to ESP32 platform to ensure real-time OS support, access to vast Arduino & ESP32 community and bring lightweight wireless gateways to Industrial IoT Ecosystem.

## Read more

<http://moduino.techbase.eu/>

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