



The Babi-LON™ platform offers the most scalable development environment for your IoT applications. It is available under Linux and RTOS. It is the most open solution as it is ISO 14908 (LON) and ISO 16484 (BACnet) compliant.

It does not use a single specific component for long-term sustainability. Compared to the discontinued Neuron® Chip, the Babi-LON platform gives you the resources, scalability and sustainability you need to guarantee the long-term life of your products.

Small footprints with low costs under RTOS or powerful applications under Linux - the choice is yours. AI is supported for all hardware architectures. Media support including the user-friendly and robust Free Topology structure and Powerline provides complete IP networks with simple cabling. Modernise your existing products and systems.



## Features

- Fully compatible with
  - EN 14908-1 (LonWorks)
  - EN 14908-2 (TP-FT10)
  - EN 14908-3 (Powerline)
  - EN 14908-5 (Protocol extension for IP)
  - EN 14908-7 (IP convergence for IoT)
  - ISO 16484-5 (BACnet)
- Hardware solution completely free of special components such as Neuron chip or FT-X transformers - only non-special components are used
- Hardware based on Arm Cortex-M - ideal for products available on a long-term basis
- Low energy consumption: up to 35 % less than other solutions
- Supported media are currently Free Topology, RS-485 and Narrow-Band Powerline
- Application runs on RTOS - high performance and ample resources
- Integrated LON, LON/IP and BACnet/IP stacks provide compatibility with millions of LON and BACnet devices and enable IP access to any Free Topology, RS-485 or PowerLine-based device
- Free Topology (FT) transceiver provides the most cost-effective, easy-to-install, and easy-to-use interface for communication with twisted-pair cables with support for polarity-insensitive free topology star, daisy chain, bus, loop, or mixed topology wiring and very high noise immunity
- Fast firmware and application updates via the network using broadcast mechanisms
- Supports LonMark standardised specifications such as function profiles (SFPT, UFPT), network variables (SNVT, UNVT) and configuration properties (SCPT, UCPT)
- Supports up to 4,096 network variables (NVs), 1,024 aliases and 1,024 address table entries to overcome all previously known limits
- Supports explicit messages and automatic installation
- Can be used for LON communication only (without BACnet)
- Fully backwards compatible to existing LON devices and systems
- BACnet stack has BTL certification
- BACnet functions support Analogue, Binary and Multistate objects as inputs, outputs and values
- BACnet services support Read Property (RP), Read Property Multiple (RPM) and Change of Value (COV)



safesquare offers reliable and safe solutions for networked automation and related engineering services. In the field of room automation, safesquare provides the market with complete solutions for applications such as lighting, blinds, room thermal comfort and fire protection. safesquare also offers a large number of training courses on the different protocols used in BMS. **More information on [www.safesquare.com](http://www.safesquare.com) [www.spega.com](http://www.spega.com)**

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Occitaline is a manufacturer of innovative network infrastructure products used in BMS. Occitaline has real knowledge of BMS protocols and a long experience in the field with the support of manufacturers and integrators. The product range is designed, manufactured and maintained in France. Occitaline also offers a large number of training courses on LON, BACnet, LoRa, IzoT and IP in the cybersecurity approach of BMS protocols. **More information on [www.occitaline.com](http://www.occitaline.com)**

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## Software

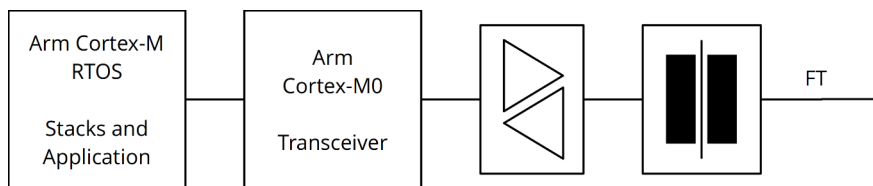
The software uses RTOS or LINUX including the provided stacks for LON and BACnet/IP. BTL certification is available. The application is created on a defined API, which has direct access to both LON and BACnet communication. This allows LON and BACnet solutions to be created very flexibly and independently of each other.

The software tools are based on open source solutions. Additional Babi LON tools are provided for the simple creation of applications in order to create the network interfaces for LON and BACnet. For this purpose, LonMark or own resource files are accessed and the desired elements are selected. The generated source files are then integrated into the user's own software.

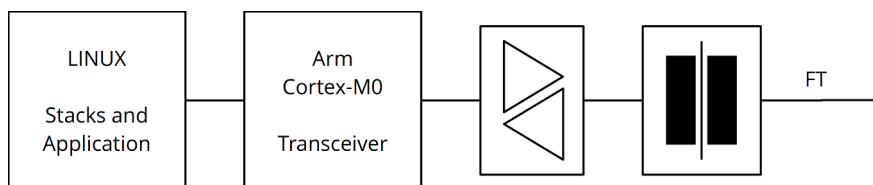
The application and the stack environment are isolated from each other with an internally defined interface. This allows the application to be updated in the target device with or without a complete stack environment. This update takes place either on the device via a USB interface or via the network - also via media for free topology or powerline. In order to effectively update a number of devices, parallel download via broadcast is also supported. The security concept uses certificates to fulfil cyber security requirements. Plug-ins with a user-friendly interface are provided for working in the field.

## Hardware

The architecture consists of the application and stack controller including the operating system. This can be an RTOS (for sensor/actuator components) or a LINUX (for server components). In the transceiver part, an Arm Cortex M0 communicates with the medium via a driver with physical coupling. The architecture for free topology networks is shown below as an example.



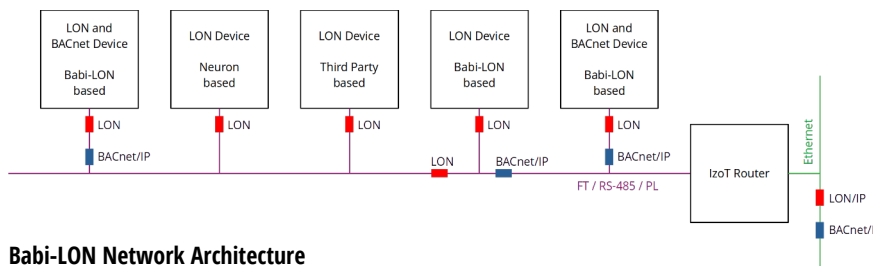
**Babi-LON RTOS Hardware Architecture**



**Babi-LON LINUX Hardware Architecture**

## Network

The network consists of segments of different media such as Free Topology or Powerline. These segments are integrated into the overall network via IzoT routers using a LAN (Ethernet) structure. Within the segments, the devices communicate with each other using LON or BACnet/IP. Older devices, including those in existing systems that are based on e.g. a Neuron chip communicate with Babi-LON devices via LON. This allows existing systems to be made IoT-capable with flexible migration strategies. Within the segments, older devices can be flexibly networked with newer devices as required.



**Babi-LON Network Architecture**

IzoT routers transmit both LON messages to LON/IP messages and BACnet/IP messages on different media to BACnet/IP messages on Ethernet. This means that the infrastructure can be set up seamlessly - both for new and existing systems. BMS accesses the respective end device directly via BACnet/IP without the need for gateways. Babi-LON leads to a clear structure with minimal hardware and engineering effort in the field.