About Core Module

The **Core Module** is the key element of every **BigClown**

node. It has a **32-bit ARM microcontroller** with 192 kB of flash memory and 20 kB of RAM. Besides the **integrated sub-GHz radio** for the 868/915 MHz band, it also features a digital temperature sensor, 3D accelerometer, and security chip.

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Schematic Drawing

You can upload firmware by a Micro USB cable using the **BigClown Firmware Tool** (works on Windows, macOS, and Linux). It is easy to start development on this platform using the **BigClown Firmware SDK** (Software Development Kit). The SDK offers clean and consistent APIs which allow event-driven programming. These APIs are designed for **low-power and battery-operated applications**. If you need to debug your application and the logging API is not sufficient, you can use an SWD debugger and the onboard 10-pin connector.

The **Core Module** can communicate wirelessly with another **Core Module**, or you can create your wireless network using the **USB Dongle**.

Features

- ARM Cortex M0+ 32-bit MCU STM32L083CZ (ST)
- 192 kB Flash / 20 kB RAM
- Radio module (868/915 MHz) based on SPIRIT1 (ST)
- Security chip ATSHA204A (Microchip)
- Digital temperature sensor TMP112 (TI)
- 3-axis accelerometer LIS2DH12 (ST)
- Red color LED
- Push button RESET and BOOT (BOOT is available to MCU)
- Easily programmable via USB (DFU bootloader)
- 10-pin SWD connector for debugging
- Micro-USB for host communication and/or power
- 18x GPIO (completely free for application)
- 3x UART, 2x I^{2}C, 1x SPI, 5x ADC, 2x DAC
- Deep sleep mode: < 5 µA
- Operating voltage range: 2.0 V to 3.6 V
- Operating temperature range: -20 to 70 °C

- Mechanical dimensions: 33 x 55 mm
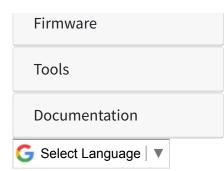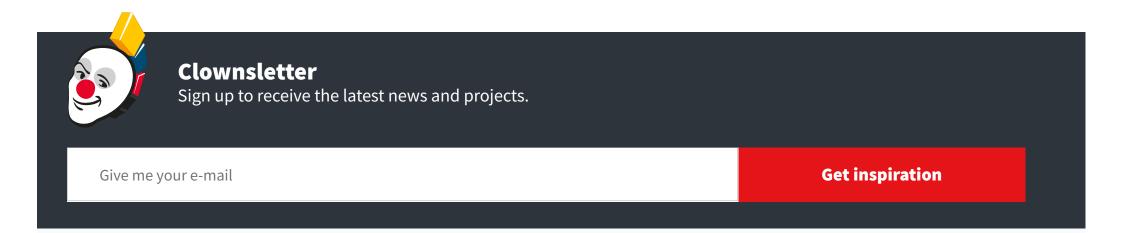
Resources

- **Documentation**
- **Schematic drawing**

Firmware Projects

- **Generic firmware**
- **BigClown gateway (readme)**
- **Wireless Push Button Kit (documentation)**
- **Wireless Climate Monitor Kit (documentation)**
- **Wireless Motion Detector Kit (documentation)**
- **Flood Detector Kit (documentation)**
- **Wireless LCD Thermostat Kit**
- **Wireless CO2 Monitor Kit (documentation)**
- **Wireless Power Controller Kit and LED strip (documentation)**

Do you have a question, anything was not clear in this article or did you find a mistake? Please feel free to use our **Discourse Forum** or **GitHub Issues** to let us know.

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