

1 General Description

AEMICS Pyggi boards are MicroPython modules perfect for controlling embedded devices. The Pyggi is based on the STM32WB55 microprocessor making the module very powerful and versatile. Equipped with 2.4GHz radio this module provides wireless communication features through a.o. Bluetooth.

Python is a programming language developed for easy-to-read code and has access to advanced data structures. This makes programming of clear user applications possible. The board is provided with a micropython kernel (www.micropython.org), this is a python variant optimised for embedded devices.

A new python application can be transferred to the board in several different ways. Via the USB mass storage device, to the internal flash memory or by writing it to the external μSD card. Besides, the Python REPL (read-evaluate-print loop) via USB serial communication is available for testing purposes.

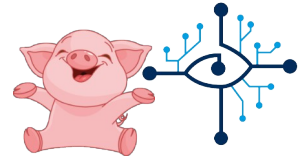
Power can be provided via break-out pins, USB or battery. The wide input-range of the external power supply is 4.2 – 10 Volt. The board is equipped with a battery controller chip for Lithium Polymer or Ion batteries. This chip takes care of charging the battery with a customizable current up to 2.5 Amps.

Hardware drivers and features are available right now! Make use of the hardware and software examples to design your own devices quick and easy. (Coming soon)

Micropython kernel and Python examples are available on github¹. Manuals, tutorials and schematics are available on the AEMICS website².

1) <https://github.com/orgs/AEMICS>

2) <https://www.aemics.nl/en/pyg-boards/>



2 Features

- STM32WB55 microprocessor with
 - 32 bit ARM Cortex-M4 CPU with floating-point unit. 80 DMIPS and DSP instructions
 - 32 bit ARM Cortex-M0+ CPU for realtime radio layer
- Bluetooth 5® Low Energy
- Memory
 - 256 KB internal SRAM
 - 1 MB interne Flash memory for MicroPython kernel and application
 - µSD Card slot for expansion of data and application memory
- Communication interfaces available at breakout pins: Quad SPI, SPI, I2C, USB, PWM, SAI (Serial Audio Interface)
- Input/Output pins of which many 5 Volt tolerant
- RGB LED
- User definable switch
- Temperature sensor (LM75)
- Analog functions
 - 12-bit Analog/Digital converter
 - 2 Comparators
- USB interface
 - Serial connection for REPL
 - Mass storage device with access to internal flash and µSD card.
 - DFU bootloader for updating µPython firmware
- Power
 - Suitable for external power (4.2 – 10 Volt)
 - Power via microUSB connector
 - BQ24160Y charging controller for Single cell Lithium Ion/Polymer battery. Fully customizable via I2C interface
 - 3.3 Volt power output for break-out board (max. 500mA)
- Clock sources
 - External 32 MHz crystal for accurate timing
 - External 32.768 KHz crystal for low-power real-time clock
- LCD (Liquid Crystal Display) controller
- Touch sensing controller