

FLYPORT Wi-Fi

System on module

Introduction

FLYPORT Wi-Fi is a miniature **web server module** featuring a fully integrated 802.11 b/g/n Wi-Fi interface and several interfaces to the 'real world'.

The module integrates a powerful **16 bit processor** which runs custom applications and a **Wi-Fi certified transceiver** which handles the connectivity. 2 versions are available: one with PCB antenna and the other with uFL connector for an external antenna.

The module provides the embedded world with a powerful 'Internet engine' to a browser-based interface over Internet, in a small footprint, at low power and low cost. Real time data can be both displayed and/or updated from a standard web browser, even on smartphone or tablets, because FLYPORT supports dynamic web pages.



FLYPORT is powered by openPicus framework based on FreeRTOS. The free IDE allows to create applications, to import web pages and to compile and download code to the module.

Features

| | |
|------------------|--|
| 16 Bit Processor | PIC24FJ256,256K Flash,16K Ram,16Mips@32Mhz |
| Transceiver | 802.11 b/g/n Wi-Fi certified MRF24WB0MB |
| Power Supply | 5V or 3,3V, integrated LDO |
| Integrated RTC | 32,768 Khz quartz onboard |
| Digital I/O | up to 18, remappable at Runtime |
| Analog In | up to 4, 10bits ADC, Vref=2,048V |
| Communication | up to 4 UARTs, SPI, I2C |
| Connector | 26 ways, 2 rows, standard 2.54mm male pin header |
| Dimensions | 35 x 48 x 15 mm, 11 grams |

- 802.11 b/g/n WIFI
- Microchip PIC 24F 16 bit processor
- Wi-Fi Module Microchip MRF24WB0MA/RM with Pcb Antenna or uFL connector
- Easy development with openPicus free IDE
- Open source openPicus based on freeRTOS
- Serial bootloader onboard
- Webserver (customizable)
TCP Socket
UDP Socket
SNTP
SMTP
- 5V or 3.3V power supply
- RTCC onboard
- Remappable pins at runtime
- Digital I/O
- Analog Inputs
- 4 UARTs, 1 SPI,1 I2C
- 35*48*15mm (11 gr)

Applications

- Webserver based user interfaces to the embedded
- Sensors and automation
- Internet of Things
- Audio over IP
- Building automation and remote control
- Industrial/process management

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Introduction

FLYPORT Wi-Fi is powered by openPicus framework and mounts a 256K Flash 16bit processor from Microchip that runs the Wireless Stack and the application layer. This means that you have full control of the connectivity (extremely important for energy saving) and the application (for ex. the PIC microcontroller onboard can process data coming from an analog sensor and display these data on the integrated webserver, or send by email or save to a remote FTP server).

Available pins:

SPI, I2C, UART and embedded Real Time clock.

I/O : analog and digital and PWM.

Most of pins are remappable at runtime.

Programming:

C programming skills are needed. No expansive programmer is needed since a serial bootloader on module allows you to download the firmware using just a serial cable.

On www.openpicus.com you can find examples, libraries and tools to start to develop immediately.

Technical Information

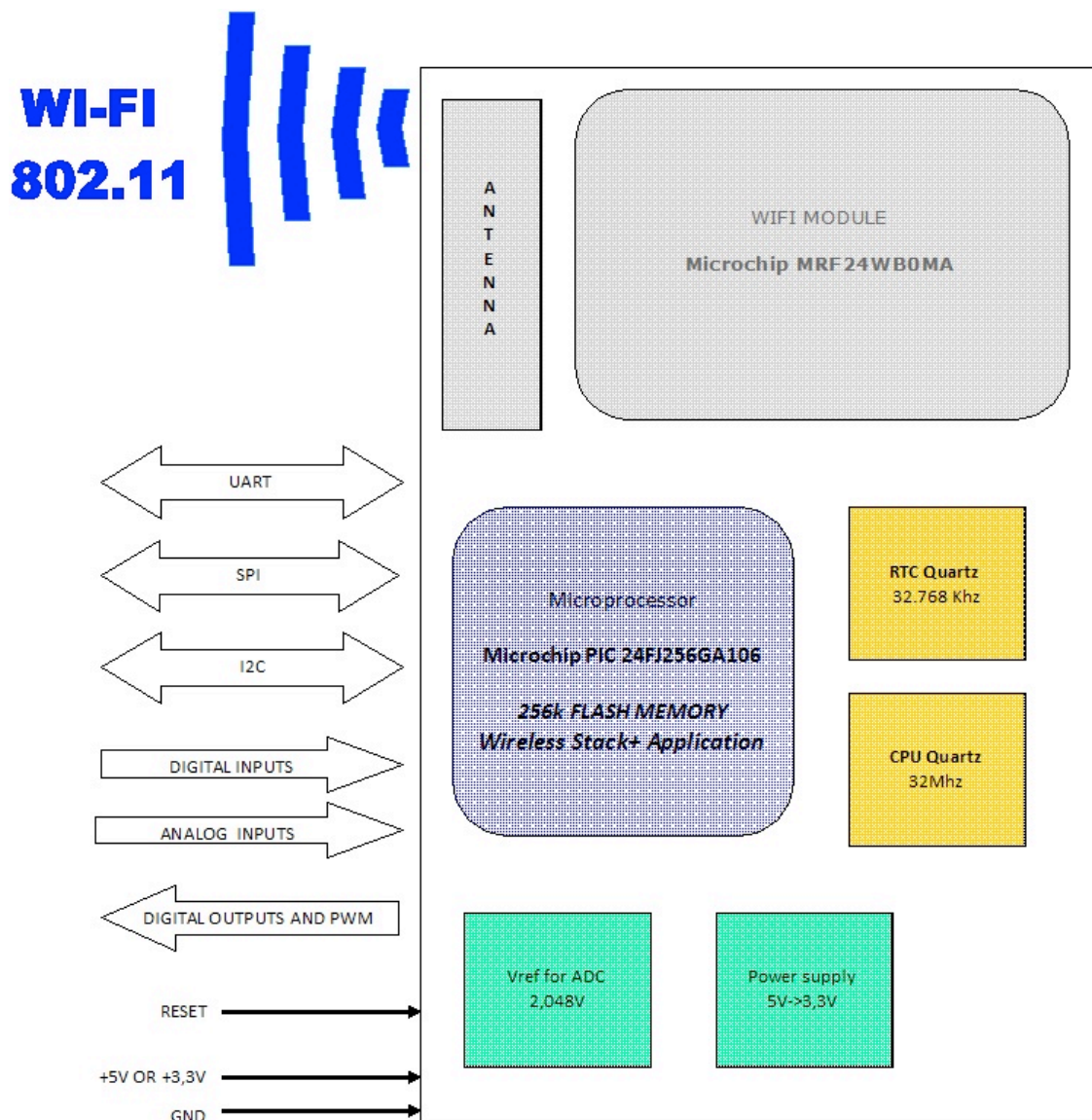
| Electrical | | 802.11 WiFi | |
|--|---|---|----------------|
| Power supply | 5V or 3.3V | Compatibility | b/g/n networks |
| Current consumption (External 3.3V supply And LDO not used) | Wi-Fi connected 127.5mA HIBERNATION 38.5mA transceiver OFF SLEEP 11uA PIC micro OFF Transceiver OFF Led and LDO OFF | Output power | 10dBm |
| | LED current 7mA each LDO current 80uA | Sensitivity | -91dBm |
| | | Max Data Rate | 2 Mbit |
| Mechanical | | Certifications | |
| Operating Temperature | -20..+85°C | Radio regulation certification for United States (FCC), Canada (IC), Europe (ETSI) and Japan (ARIB) | |
| Dimensions | 35*48*15mm | Wi-Fi® certified (WFA ID: WFA7150) | |

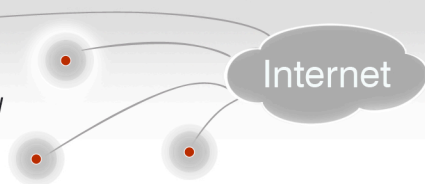
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Block Diagram





JP1 Connector

JP1 is the main and common connector of each module of the FLYPORT family (Wi-Fi, Ethernet).

FLYPORT modules are based on Microchip PIC processor and offer **remappable pins function**. User can customize the hardware configuration by firmware. It means that you can have up to 4 UARTs , up to 18 Digital I/Os and 9 independent PWMs.

| Pin | Pin Name | Description (default setting) | 5V Tolerant | Remappable |
|-----|----------|--|-------------|------------|
| 1 | p1 | GPIO (I2C bus Clock signal by default) | Yes | No |
| 2 | p2 | GPIO (input by default) | Yes | Yes |
| 3 | p3 | GPIO (I2C bus Data signal by default) | Yes | No |
| 4 | p4 | GPIO (output by default) | Yes | Yes |
| 5 | p5 | GPIO (input by default) | Yes | Yes |
| 6 | p6 | GPIO (output by default) | Yes | Yes |
| 7 | p7 | GPIO (input by default) | Yes | No |
| 8 | p8 | GPIO (SPI bus Clock SCLK by default) | Yes | Yes |
| 9 | p9 | GPIO (input by default) | Yes | Yes |
| 10 | p10 | GPIO (SPI bus Out SDO by default) | Yes | Yes |
| 11 | p11 | GPIO (input by default) | Yes | Yes |
| 12 | p12 | GPIO (SPI bus In SDI by default) | Yes | Yes |
| 13 | p13 | UART RX input | Yes | Yes |
| 14 | p14 | GPIO (SPI bus chip select CS by default) | Yes | Yes |
| 15 | p15 | UART TX output | Yes | Yes |
| 16 | p16 | +5V Power supply input (<i>note 1</i>) | - | - |
| 17 | p17 | GPIO (output by default) | No | Yes |
| 18 | p18 | Analog input #4 (<i>note 2</i>) | No | Yes |
| 19 | p19 | GPIO (output by default - connected on red Led OUT4) | No | Yes |
| 20 | p20 | Analog input #3 (<i>note 2</i>) | No | Yes |
| 21 | p21 | GPIO (output by default - connected on red Led OUT5) | No | No |
| 22 | p22 | GND (<i>ground</i>) | - | - |
| 23 | p23 | Analog input #1 (<i>note 2</i>) | No | Yes |
| 24 | p24 | +3.3V (<i>see note 1</i>) | - | - |
| 25 | p25 | Analog input #2 (<i>note 2</i>) | No | Yes |
| 26 | p26 | Reset (<i>Active Low</i>) | No | Yes |

Note 1. FLYPORT Wi-Fi can be powered at 5V or at 3.3V. If the module is powered by 5V on pin 16, pin 24 is the output of integrated LDO (max output current available:100mA). If powered using a single 3,3V on pin 24, leave pin 16 unconnected!

Note 2. FLYPORT has a precise voltage reference for analog 2,048V: this is the max voltage readable by these pins

Pins 16-18-20-22-24-26 are directly compatible with the Microchip Pickit programmer connector

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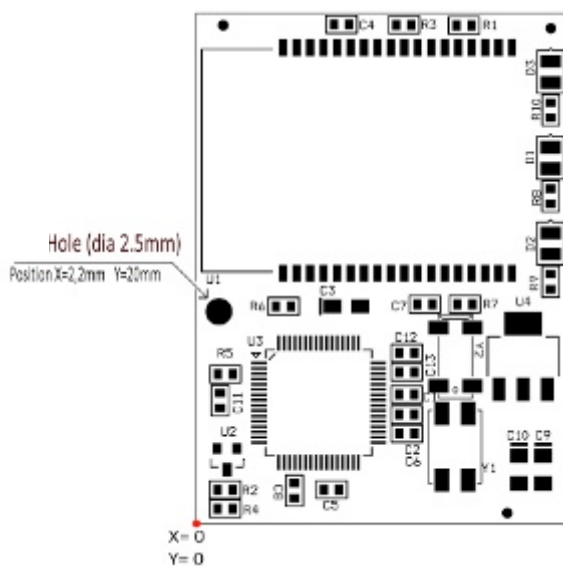
Mechanical Information

The connector JP1 is on the bottom side and it's a standard 2*13 ways 2.54mm male pin header connector (SAMTEC TSM-113-01-F-DV). It is compatible with standard female pin headers or directly with a IDC connector on flat cable.

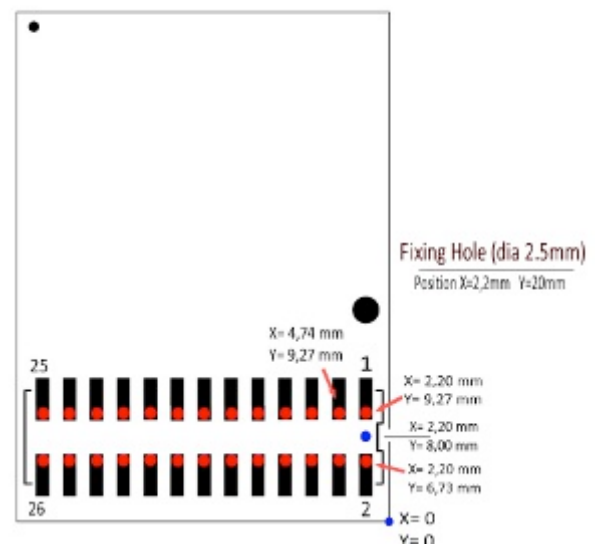
Suggested Female connector:

| | |
|--------|----------------|
| SAMTEC | SSW-113-01-T-D |
| FCI | 65781-013 |

The 2.5mm diameter hole may be used for mechanical fastening.



Bottom View



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Ordering informations

Buy online from our store or through our resellers and distributors.

Code 015350 FLYPORT Wi-Fi module with PCB Antenna
Code 015353 FLYPORT Wi-Fi module with uFL connector for external Antenna

How to start development

Visit our website **www.openpicus.com** to download the IDE, a getting started guide and application notes, examples and libraries.

The **suggested starter kit** is composed by:

- | | |
|---|----------------------------|
| • miniUSB PROGRAMMER (to download firmware) | Code 015371 |
| • Proto NEST | Code 015376 |
| • FLYPORT Wi-Fi module | Code 015350 or Code 015353 |

Each FLYPORT Module has a serial bootloader onboard.

Mouser Electronics

Authorized Distributor

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