Introduction

FLYPORT is a professional, slim, wireless module ready for integration in brand new or existing electronic products.

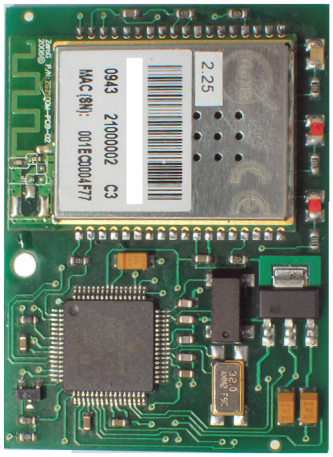
Based on Microchip PIC **24F256FJ106GA** 16 bits processors and the Microchip WIFI module **MRF24WB0MA/RM** that's compatible 802.11 b/g/n

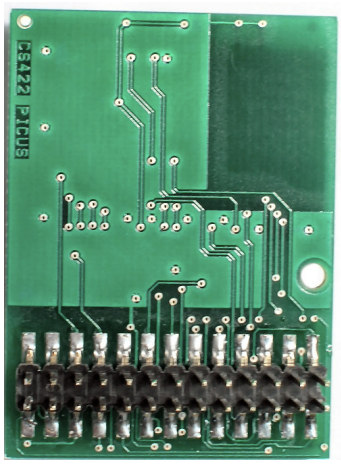
Module runs TPC-IP stack (Microchip certified) and application layer.

Module has preloaded BRUTUS (serial bootloader based on DS30) to let you download or upgrade firmware using a serial connection

Module includes a PCB antenna with a RF range up to 400 meters

Dimensions:	35 x 48 x 7 mm
Connector:	26 pins, 2*13, pitch 2.54mm, Male pinstrip
Power supply:	5V or 3,3V





Pinout

On a standard 2*13 Male pin header 2.54mm connector are:

#5 Digital Inputs	5V Tolerant - For ex. D1_in
#5 Digital Outputs	4 can be used as PWM, 3,3V level - For ex. D5_out
#4 Analog Inputs	10bits ADC, VRef=2,048V 1bit=2mV - For ex. A3_in
#1 UART	
#1 SPI	
#1 I2C	
#1 Reset	Active Low

Benefits

- Easy to setup
- Easy to manage and use
- Low power
- Zero Time for development
- Open source

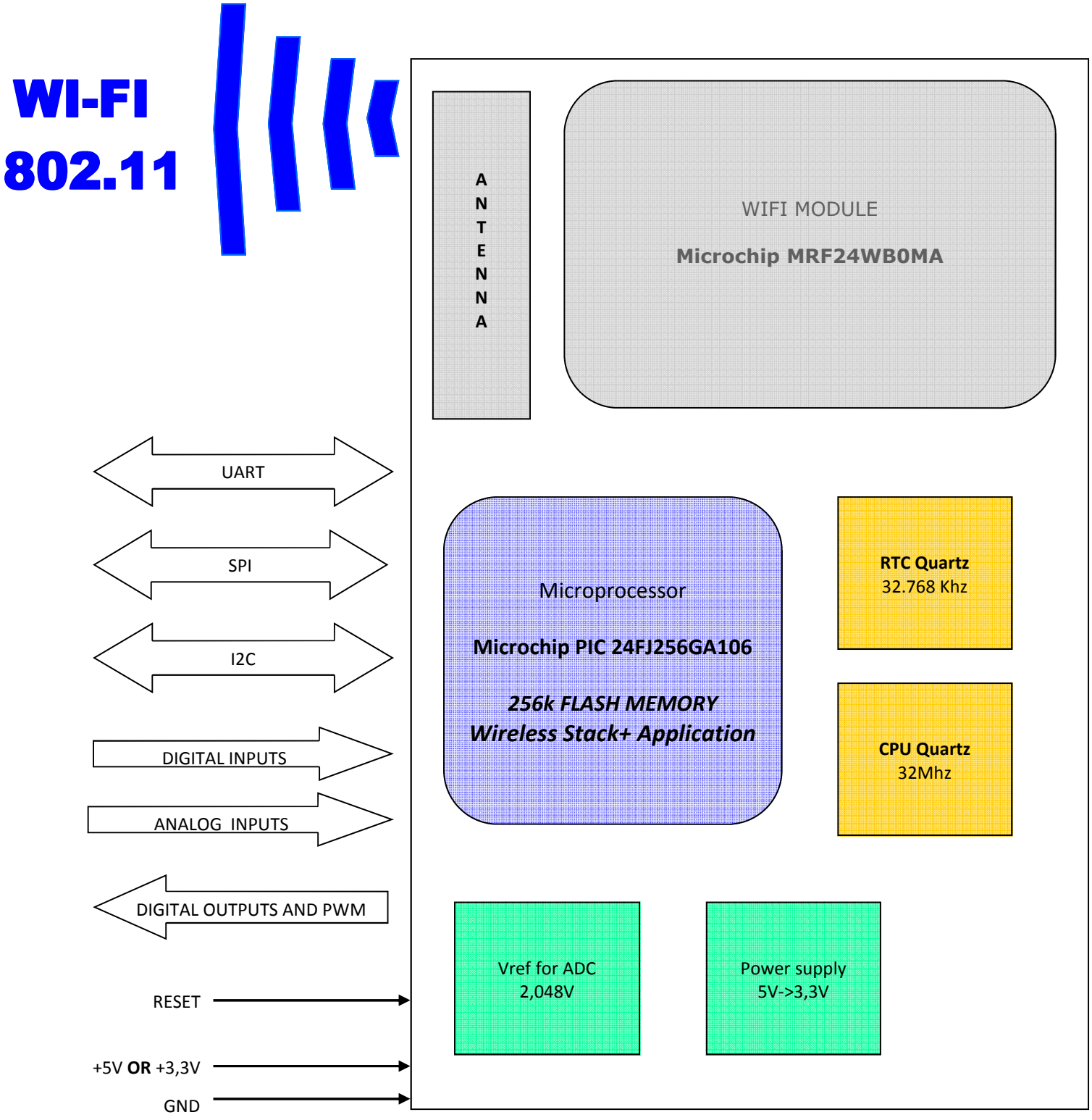
Applications

- Serial to Wi-Fi
- Wi-Fi sensors
- Wi-Fi automation
- Internet of things
- Wi-Fi enterteinment
- Wireless security

Features

- OpenPicus FREE IDE compatible
- 802.11 b/g/n WIFI
- Microchip PIC 24F 16 bit processor
- Microchip Wi-Fi Module MRF24WB0MA/RM
- Wireless stack and application run on the microcontroller
- Preloaded Brutus serial bootloader
- TCP/IP webserver, Socket, email client
- 5V or 3,3V power supply
- RTC Onboard (not battery)
- #5 Digital inputs 5V tolerant
- #5 Digital outputs 4 can be PWM, 3.3V
- #4 Analog inputs ADC 10 bits 1bit=2mV Integrated 2,048 Vref
- #1 UART
- #1 SPI
- #1 I2C
- 400m Range

Block diagram



Introduction

FLYPORT is the first module of the openPICUS opensource family. The goal of the project is to make programmable modules with integrated standard wireless connection.

FLYPORT has a powerful 256K Flash 16bit processor from Microchip that runs the Wireless Stack and the application layer. This means that you have full control of the wireless part (very important for energy saving) and the application.
So the PIC can processing data coming from an analog sensor and send this data to a webserver, or send by email or let you connect using the embedded webserver.

Available pins:
SPI, I2C, UART and embedded Real Time clock.
I/O : analog and digital and PWM.

Programming:
C/C++ competences are needed. No programming tool is needed since the Brutus serial bootloader allows you to download firmware using a simple serial cable.
In the openPICUS website there are code examples and ready software and all you need to start your development.

Technical Informations

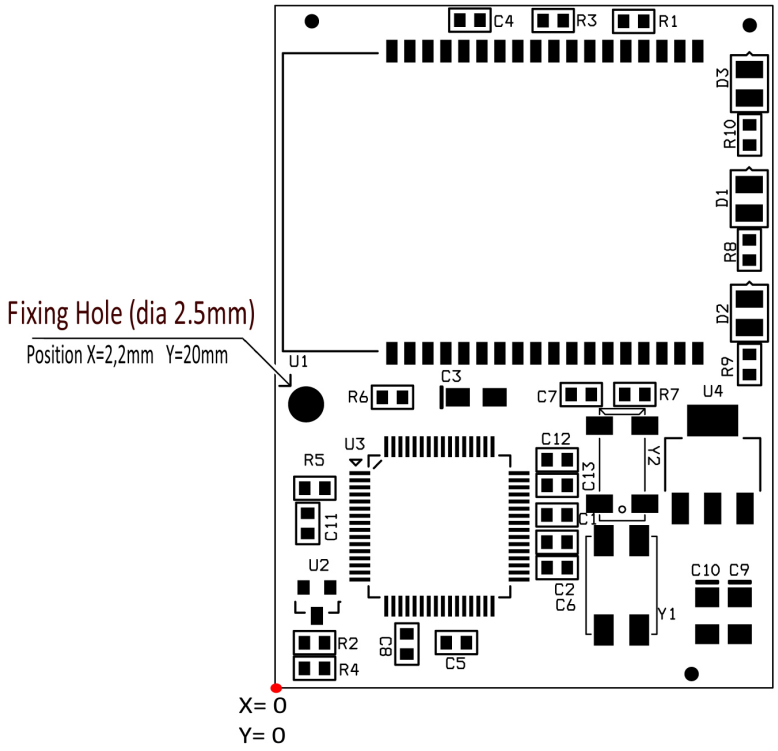
Electrical			**802.11 WIFI**	
Power supply	5V or 3,3V		Compatibility	b/g/n networks
Current consumpion	TX 154mA	RX 85mA	Output power	10dBm
	SLEEP 250µA	IDLE 0.1µA	Sensitivity	-91dBm
			Max Data Rate	2 Mbit
Mechanical			**Certifications**	
Operating Temperature	0..70°C		Radio regulation certification for United States (FCC), Canada (IC), Europe (ETSI) and Japan (ARIB)	
Dimensions	35*48*7mm		Wi-Fi® certified (WFA ID: WFA7150)	

Mechanical info

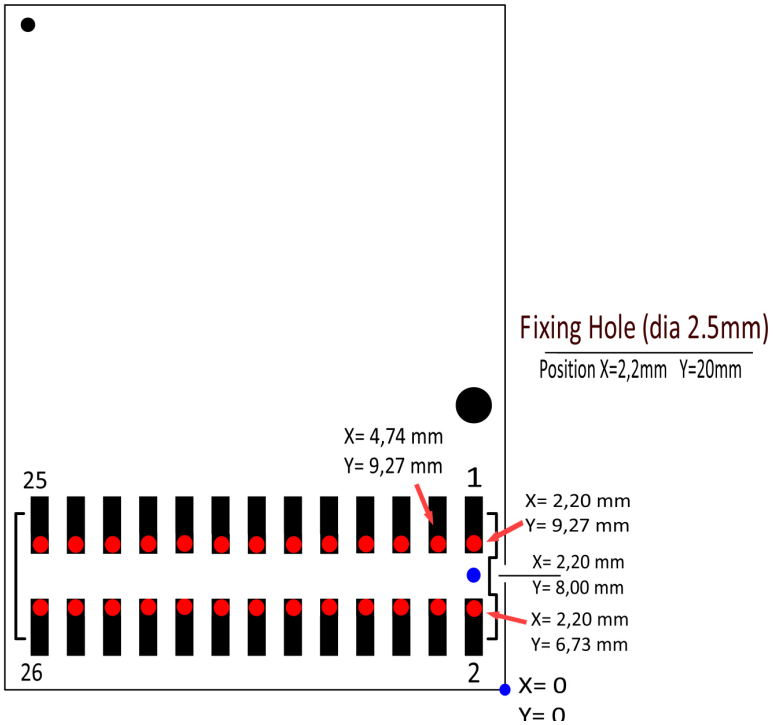
FLYPORT has a 2.5mm hole to fix the module against vibrations.

The module connector is on the bottom side and it's a standard 2*13 ways 2.54mm Male Pin header connector.

It's compatible with standard female pin-headers or directly with a Flat cable IDC connector.



Bottom View



Pin Description

Pin	Name on PCB	I/O	Description	CODE example
1	I2C_clk	O	I2C bus Clock signal	I2CStart
2	D5_in	I	Digital input #5	IOGet(d5in)
3	I2C_data	O	I2C bus Data signal	I2CStart
4	D1_in	I	Digital input #1	IOGet(d1in)
5	D/pwm1_out	O	Digital output #1 (or PWM)	IOPut(d1out) or PWMOn(d1out,1)
6	D/pwm2_out	O	Digital output #2 (or PWM)	IOPut(d2out) or PWMOn(d2out,1)
7	D2_in	I	Digital input #2	IOGet(d2in)
8	SPI_clk	O	SPI bus Clock signal	
9	D3_in	I	Digital input #3	IOGet(d3in)
10	SPI_out	O	SPI bus Out signal	
11	D4_in	I	Digital input #4	IOGet(d4in)
12	SPI_in	I	SPI bus In signal	
13	uRX_in	I	UART RX input	UARTWrite(1,"hello world!")
14	SPI_cs	O	SPI bus chip select signal	
15	uTX_out	O	UART TX output	UARTWrite(1,"hello world!")
16	+5V	I	Power input. See note 1.	
17	D/pwm3_out	O	Digital output #3 (or PWM)	IOPut(d3out) or PWMOn(d3out,1)
18	PGC/A4_in	I	Analog input #4 (note 2)	ADCVal(4)
19	D/pwm4_out	O	Digital output #4 (or PWM) connected on red Led D1	IOPut(d3out) or PWMOn(d3out,1)
20	PGD/A3_in	I	Analog input #3 (note 2)	ADCVal(3)
21	D5_out	O	Digital output #5 connected on red Led D2	IOPut(d5out)
22	GND	I	Ground	
23	A1_in	I	Analog input #1	ADCVal(1)
24	+3,3V	I/O	Power input/output. See note 1.	
25	A2_in	I	Analog input #2	ADCVal(2)
26	Reset	I	Reset (Active Low)	Reset

Note 1. If the module is powered by 5V on pin 16, pin 24 is the output of integrated regulator (max 100mA). Module can be powered using single 3,3V on pin 24 as well, in this case leave pin 16 unconnected!

Note 2. Pins 16-18-20-22-24-26 are pin to pin compatible with the Microchip PicKit programmers.

Note on CODE: for an easier programming D5_out becomes d5out on code, don't use the underscore symbol.

Applications development

You find on www.openpicus.com all the information to start programming your Apps on this module

USB Nest is suggested in order to download firmware using one USB port of your PC.