FlyportPRO ETHERNET

System on module

- Ethernet
  - BaseT 10/100
- Microchip PIC 24FJ256GB206 16 bit processor
- Connectivity Services
- Web server (customizable)
- TCP
- FTP
- UDP
- SNTP
- SMTP
- FOTA: Firmware upgrade over Internet
- 16Mbit Flash Memory for web server and FOTA
- EEPROM
- USB OTG
- RTCC
- Remappable pins at runtime
- Digital I/Os, PWM
- 10 Analog Inputs (10 bits ADC and precise voltage reference)
- 4 UARTs, 1 SPI, 2 I2C
- Serial bootloader onboard
- 3.3V power supply
- Easy development with openPicus free IDE. Open source framework based on freeRTOS

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

Introduction

FlyportPRO Ethernet is a miniature **web server module** featuring a fully integrated LAN Base-T 10/100 interface and several interfaces to the 'real world'.

The module integrates a powerful **16 bit processor** which runs custom applications and an **Ethernet transceiver** which handles the connectivity. An RJ45 connector with magnetic is just needed on a carrier board.

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 FlyportPRO supports dynamic web pages.

The module has the same form factor of FlyportPRO Wi-Fi and FlyportPRO GPRS and the pinout is compatible.

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.

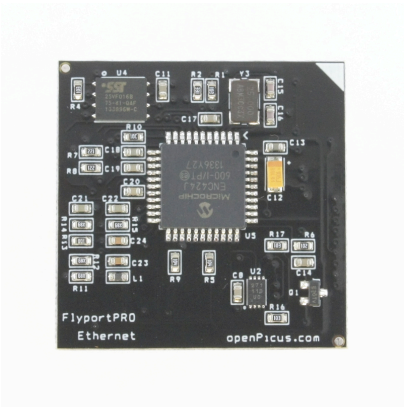
Features

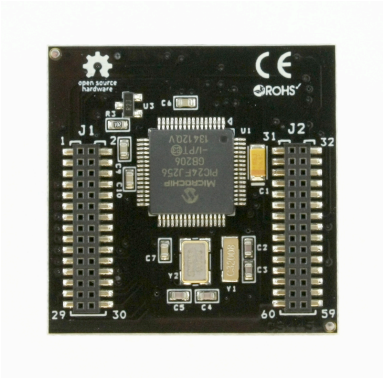
16 Bit Processor	PIC24FJ256GB206 - 256K Flash – 96K Ram – 16 Mips
Transceiver	ENC424J600
Power Supply	3,3V
USB	On the Go (OTG)
Integrated RTC	32,768 Khz quartz onboard
Digital I/O	up to 32, remappable at Runtime
Analog In	10 channels - 10bits ADC - Voltage ref onboard 2,048V
Communication	up to 4 UARTs, SPI, I2C
Flash	16 Mbit
Eeprom	64 Kbit
Connectors	2*30 ways, pitch 1.27mm female pin header
Dimensions	34 x 34 x 9 mm, 10 grams

Introduction

FlyportPRO Ethernet is powered by openPicus framework and mounts a 256K Flash 16bit processor from Microchip that runs the TCP/IP Stack and the application layer. This means that you have full control of connectivity and 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).

FlyportPRO has an extra 16Mbit Flash memory onboard to store web server pages and for Firmware upgrade over Internet.





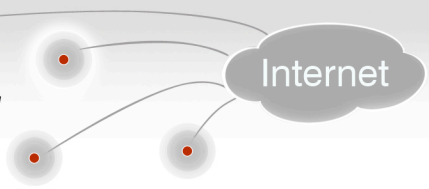
Available onboard:
SPI, I2C, UART and embedded Real Time clock.
I/O : analog and digital and PWM.

Remappable pinout:
Special functions such as SPI,UART,PWM and Interrupts can be assigned to any remappable pin at runtime.

Programming:
We provide the free IDEpro with each StarterKit.

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

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



Electrical characteristics

VOLTAGE RATINGS

+3.3V DC Voltage input (pin 4)	MIN:+3,0V MAX:+3,3V

CURRENT CONSUMPTION Power supply 3.3V, Ambient temperature 25°C

Micro ON and LAN not connected	91 mA
Micro ON and LAN connected	143 mA

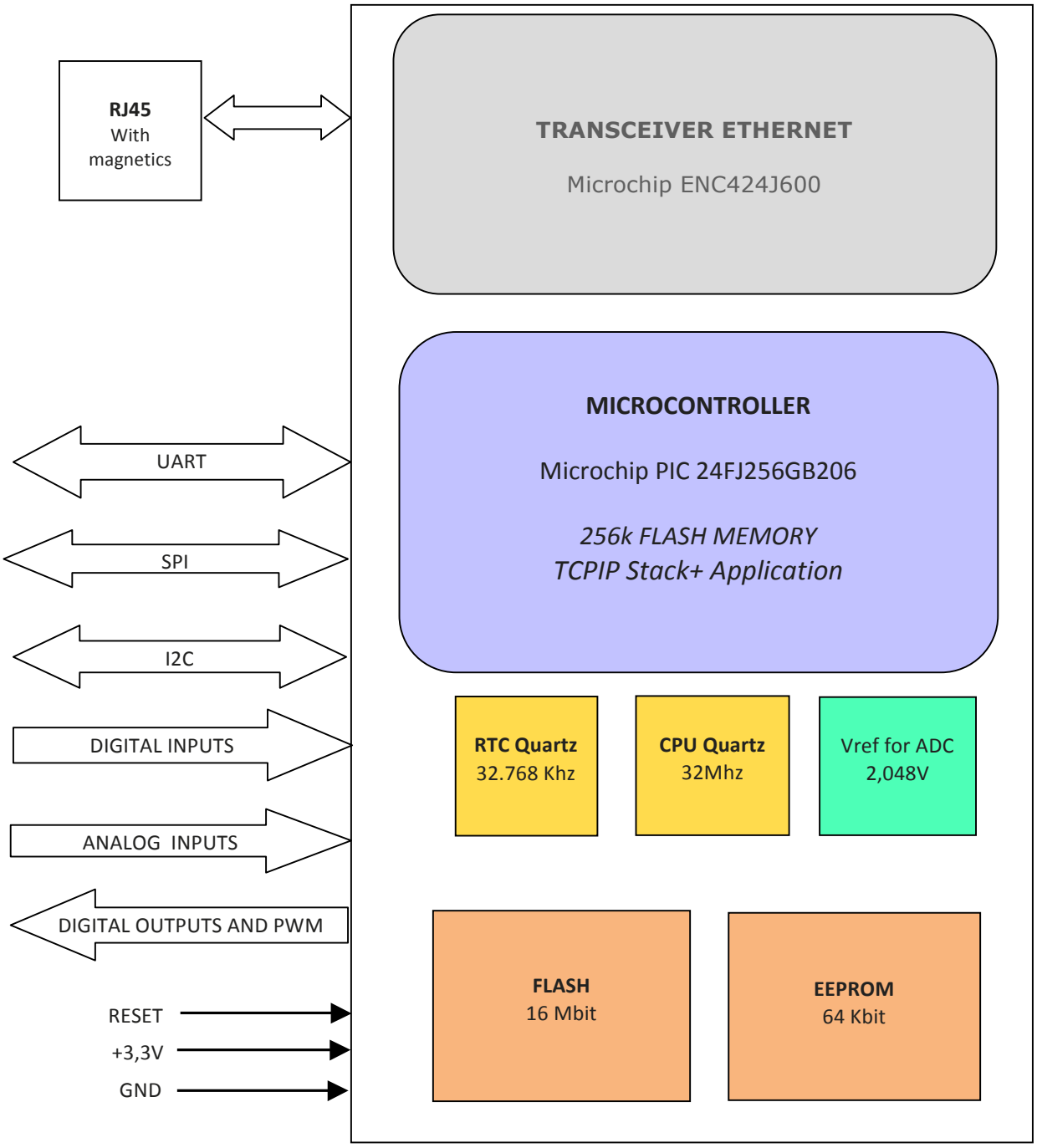
Mechanical info

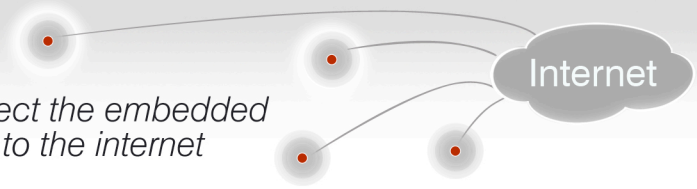
Dimensions (L*L*h)	34*34*9 mm
Weight	10 grams

Temperature range

Operating range	MIN: -20°C MAX: +85°C

Block Diagram

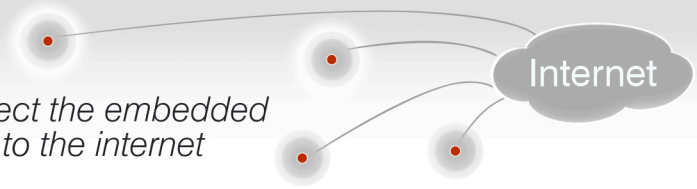




J1 Connector

FLYPORTPRO modules are based on Microchip PIC processor and offer **remappable pins function.** User can customize the hardware configuration by firmware.

Pin	Description	Special Function	5V tolerant	Remap
p1	GPIO	ADC #0	NO	YES
p2	RESET (active low)		NO	NO
p3	GPIO	ADC #1	NO	YES
p4	VDD (+3.3V input)		NO	NO
p5	GPIO	ADC #2	NO	NO
p6	GND		NO	NO
p7	GPIO	ADC #3	NO	YES
p8	GPIO (ICSP – PGD)	ADC #5	NO	YES
p9	GPIO		NO	NO
p10	GPIO (ICSP – PGC)	ADC #4	NO	YES
p11	GPIO		YES	NO
p12	GPIO	ADC #6	NO	YES
p13	GPIO		YES	YES
p14	GPIO		YES	YES
p15	GPIO	Interrupt #0	YES	YES
p16	GPIO	ADC #7	NO	NO
p17	GPIO		YES	YES
p18	GPIO	ADC #8	NO	NO
p19	GPIO	I2C #1 – SDA	YES	YES
p20	GPIO	ADC #9	NO	YES
p21	GPIO	I2C #1 – SCL	YES	YES
p22	UART #1 TX (output) – for programming		NO	YES
p23	UART #1 RX (input) – for programming		YES	YES
p24	I2C #2 – SDA signal (shared with onboard EEPROM)		NO	YES
p25	GPIO	USB D+	NO	NO
p26	I2C #2 – SCL signal (shared with onboard EEPROM)		NO	YES
p27	GPIO	USB D-	NO	NO
p28	GPIO	USBID	YES	YES
p29	USB Vusb		NO	NO
p30	GPIO	USB Vbus	YES	NO

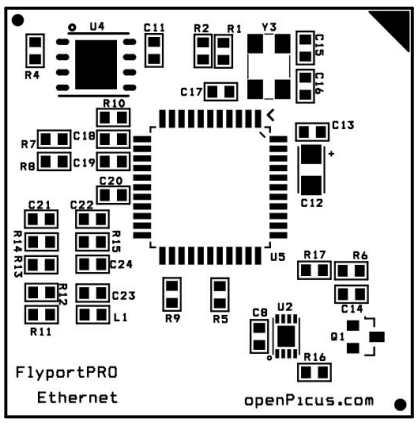


J2 Connector

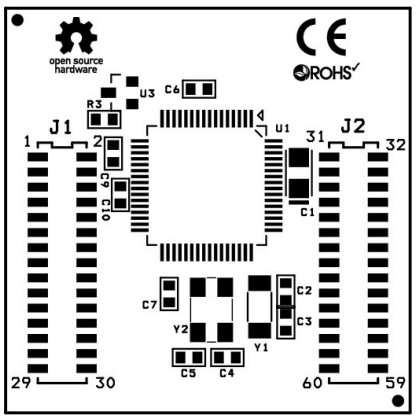
Pin	Description	Special function	5V tolerant	Remap
p31	GPIO		YES	NO
p32	GPIO		YES	NO
p33	Not connected		NO	NO
p34	Not connected		NO	NO
p35	Not connected		NO	NO
p36	Not connected		NO	NO
p37	Not connected		NO	NO
p38	Not connected		NO	NO
p39	Vref output (2,048V)		NO	NO
p40	Not connected		NO	NO
p41	RD+	RJ45	NO	NO
p42	LED1	RJ45	NO	NO
p43	RD-	RJ45	NO	NO
p44	LED2	RJ45	NO	NO
p45	TCT	RJ45	NO	NO
p46	TD+	RJ45	NO	NO
p47	RCT	RJ45	NO	NO
p48	TD-	RJ45	NO	NO
p49	Not connected		NO	NO
p50	Not connected		NO	NO
p51	Not connected		NO	NO
p52	Not connected		NO	NO
p53	Not connected		NO	NO
p54	Not connected		NO	NO
p55	Not connected		NO	NO
p56	Not connected		NO	NO
p57	Not connected		NO	NO
p58	Not connected		NO	NO
p59	GND		NO	NO
p60	VDD (+3.3V input)		NO	NO

Module overview

TOP VIEW



BOTTOM VIEW



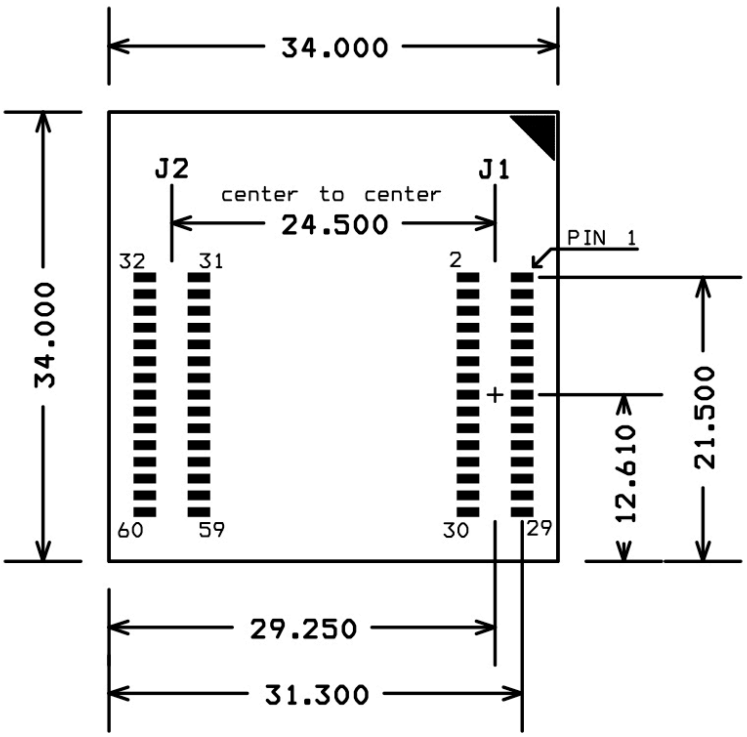
Footprint and dimensions

On your carrier board we suggest to use 2*15 ways pitch 1.27mm Male pin header connectors such as:

TH: SAMTEC **FTSH–115–04–F–D**
SMT: SAMTEC **FTSH–115–04–F–DV**

NOTE: The following view is made in transparency from TOP. On the right corner there's a triangle sign on the silkscreen to identify where is J1.

TOP VIEW



Ordering information

Code OP014102 STARTERKIT PRO ETHERNET
1 Evaluation board and 1 FlyportPRO ETHERNET

Code OP014021 FLYPORTPRO ETHERNET

How to start development

Contact us to receive the free IDEpro.

On www.openpicus.com you find a getting started guide, tutorials, libraries and code examples.

Each FLYPORT Module has a serial bootloader onboard.