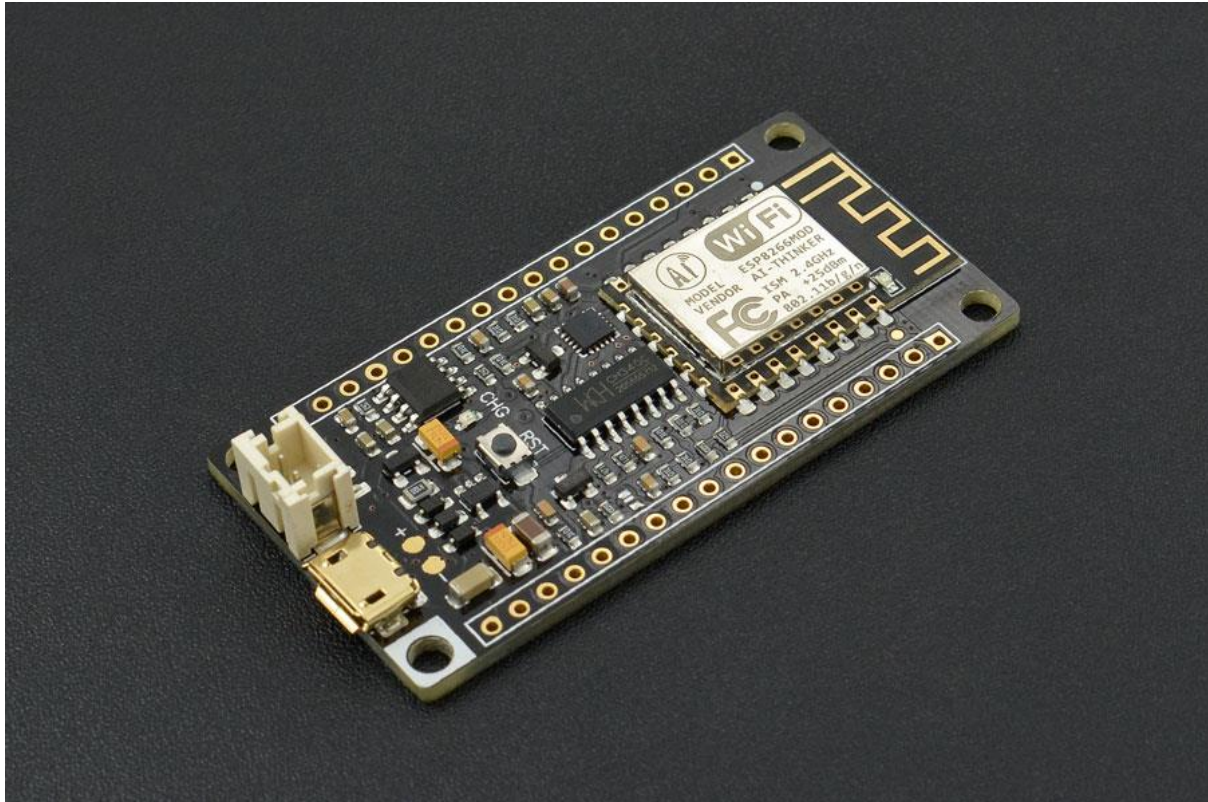# FireBeetle ESP8266 IOT Microcontroller (Supports Wi-Fi)

SKU:DFR0489

INTRODUCTION

DFRobot FireBeetle is a series of low-power-consumption development hardware designed for Internet of Things (IoT). Firebeetle ESP8266 is a development board integrated with IoT WiFi, TCP/IP, 32-bit MCU, 10-bit ADC and multiple interfaces such as HSPI, UART, PWM, I2C and I2S. In DTIM10, the full power consumption to maintain WiFi connection reached to 1.2mW. Equipped with 16MB outer SPI flash memory, ESP8266 is available for programs and firmware storage. Compatible with Arduino programming enables Firebeetle ESP8266 to lower the barrier of programming. Operator can implement Arduino programming codes directly onto ESP8266 to reduce the difficulty of operating and increase the stability of board.

Name	WiDo	Beetle ESP32	FireBeetle ESP8266	FireBeetle ESP32
SKU	DFR0321	DFR0575	DFR0489	DFR0478
Microcontroller	CC3000	ESP32	ESP8266	ESP32
Power supply interface	USB or DC2.1	USB	USB or 3.7V Lipo	USB or 3.7V Lipo
USB Powered or External (V)	7 - 12	3.5 - 6.5	3.3 - 5.0	3.3 - 5.0
Operating Voltage (V)	5V	3.3V	3.3V	3.3V
CPU Frequency (MHz)	16	240	160	240
Flash(M)	-	16	16	16
SRAM(KB)	-	520	50	520
Analog pins	6	4	1	5
Digital pins	14	4	10	10
Wi-Fi protocol	802.11b/g	802.11b/g/n	802.11b/g/n	802.11b/g/n
Frequency range	2.4 GHz	2.4 - 2.5 GHz	2.4 - 2.5 GHz	2.4 - 2.5 GHz
UART	1	1	1	1
I2C	1	1	1	1
I2S	1	1	1	1
SPI	1	1	1	1
Compatible IDE	Arduino IDE 1.6+	Arduino IDE 1.6+	Arduino IDE 1.6+	Arduino IDE 1.6+
Download Mode	Micro USB	Micro USB	Micro USB	Micro USB
Arduino UNO Compatible	√	×	×	×
Lipo Charger Support	×	√	√	√
Dimension(mm)	75*54	35*34	58*29	58*29
Weight (g)	30 g	12 g	24 g	24 g

Key Features	On board 2.4G PCB Antenna and SD card slot.	Integrate a Dual-Core ESP-WROOM-32 module. Support MCU and Wi-Fi &Bluetooth dual-mode communication. V shaped gilded I/O interface, can be sewn on clothes directly.	Arduino、RTOS、microPython Programming Support. Built-in 32-bit Tensilica L106 MCU and 10-bit ADC.	Mobile BLE APP Connection Support. Two way H-bridged Motor Driver with 2A maximum current and wireless socket.

FEATURES

- Compatible with FireBeetle series

- Compatible with Arduino programing

- Built-in 32-bit Tensilica L106 MCU and 10-bit ADC

- Support RTOS SDK in Linux, Arduino IDE and Micropython.

- Support IEEE802.11 b/g/n WiFi (2.4 GHz~2.5 GHz)

- Support TCP / IP

- Support Lithium Battery (The Maximum charge current: 500mA)

- Support Low Power Consumption

- Support OTA Updating

- Support STA/AP/STA+AP

SPECIFICATION

- Operating Temperature: -40°C~+85°C

- Operating Voltage: 3.3V

- Input Voltage (limits): 3.3~5V (Lithium Battery:3.7V & USB:5V)

- Microcontroller: Tensilica L106 (32-bit MCU)

- Clock Speed: 80MHz (Maximum: 160MHz)

- SRAM：50KB

- External Flash Memory: 16MB

- DC Current in the Low-Power-Consumption: 46uA

- Average Operating Current: 80mA

- Maximum Discharging Current: 600mA (LDO-3.3 Output)

- Maximum Charging Current: 500mA

- Digital Pin x10

- Analog Pin x1

- SPI interface x1

- I2C interface x1

- IR interface x1

- I2S interface x1

- Interface: XH2.54mm Pin (No soldering default)

- In Combination of Wi-Fi MAC/ BB/RF/PA/LNA

- WiFi: IEEE802.11 b/g/n (2.4 GHz~2.5 GHz), not support 5GHz WiFi

- Dimension: 58×29(mm)

- Operating Temperature: -10℃~+55℃

- Mounting Hole Dimension: 53 x 24(mm)

- Weight: 24g