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WEMOS MEGA2560 WIFI R3

(ATMEGA 2560 + ESP8266)



INTRODUCTION

It is a customized version of the classic ARDUINO MEGA R3 board. Full integration of microcontroller Atmel ATmega2560 and IC Wi-Fi ESP8266 with 32 MB flash memory, and USB-TTL converter CH340G on one board. All modules can work together or independently.

SPECIFICATION

Microcontroller	ATmega2560
Wi-Fi Controller	ESP8266
USB-TTL converter / Driver	CH340G
Power Out	5V (1.6A) & 3V (1A)
Power IN. USB	5V (500mA)
Power IN. VIN/DC Jack	7-16V
Power Consumption / Operating	5V 800mA
Logic Level	5V
Wi-Fi	Wi-Fi 802.11 b/g/n 2.4 GHz
Connector	Micro USB
Clock Frequency	16MHz
Digital & Analog I/O	54 / 16
Memory Size	256kb
Data RAM & ROM size	8kb / 4kb
Interface Type	Serial / OTA
Operating temperature	-40C°/+125C°
Length x Width	54 x 101.60mm
Antenna	Built-in + External Port



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PREPARATION

- 1. Micro USB Cable
- 2. Arduino IDE
- 3. CH341 Driver

DIP Switch & Port Configuration

Operation Mode									
GRAY = OFF GREEN = ON			2	3	4	5	6	7	8
CH340 to ESP8266 (Upload Sketch)						ON	ON	ON	NoUSE
CH340 to ESP8266 (Connect)						ON	ON		NoUSE
CH340 to ATmega2560 (Upload Sketch)				ON	ON				NoUSE
CH340 to Mega2560 to ESP8266			ON	ON	ON				NoUSE
Mega2560 + ESP8266		ON	ON						NoUSE
All modules work independent									NoUSE

Operation Mode table



Example DIP Switch 3 & 4 turned on to upload Code to Arduino Mega



Uploading Program Code to Arduino Mega

- 1. Turn ON DIP Switch 3 & 4 (Refer Operation Mode table).
- 2. Open Arduino IDE select Board & "COMxx" (xx depend on your PC) as picture below:



3. **Upload** Blink code to test Arduino Mega functionality. LED will turn ON & OFF every 1s.





Installing ESP8266 into Arduino IDE

 Open Arduino IDE navigate to *File> Preferences*, insert provided link below into "Additional Board Manager URL:" box & Click on OK

(https://arduino.esp8266.com/stable/package_esp8266com_index.json).

Compiler warnings: None 🗸	
Display line numbers	Enable Code Folding
Verify code after upload	Use external editor
Check for updates on startup	Save when verifying or uploading
Use accessibility features	
Additional Boards Manager URLs: 5.com/stable/package_esp8266com_index.	json,https://dl.espressif.com/dl/package_esp32_index.json
More preferences can be edited directly in the file	
C:\Users\TECH\AppData\Local\Arduino15\preferences.txt	
(edit only when Arduino is not running)	
	OK Cancel

2. Navigate to Tool> Board:> Boards Manager to download ESP8266 board.

Soards Manager	×
Type All v esp8266	
esp8266	^
by ESP8266 Community version 2.7.4 INSTALLED Boards included in this package:	
Generic ESP8266 Module, Generic ESP8285 Module, ESPDuino (ESP-13 Module), Adafruit Feather HUZZAH ESP8266, Invent O	ne,
(ESP-12E Module), Olimex MOD-WIFI-ESP8266(-DEV), SparkFun ESP8266 Thing, SparkFun ESP8266 Thing Dev, SparkFun Bly	/nk
Board, SweetPea ESP-210, LOLIN(WEMOS) D1 R2 & mini, LOLIN(WEMOS) D1 mini Pro, LOLIN(WEMOS) D1 mini Lite, WeMos D R1, ESPino (ESP-12 Module), ThaiEasyElec's ESPino, WifInfo, Arduino, 4D Systems gen4 IoD Range, Digistump Oak, WiFiduit	01 no,
Amperka WiFi Slot, Seeed Wio Link, ESPectro Core, Schirmilabs Eduino WiFi, ITEAD Sonoff, DOIT ESP-Mx DevKit (ESP8285).	
More Info	
Select version V Install Remove	
	~
	Close

3. Once Installation complete, ESP8266 Boards should available on 'Board:xx' section.

27	// initi	Board: "Arduino Mega or Mega 2560"	Boards Manager
28 29	<pre>pinMode(}</pre>	Processor: "ATmega2560 (Mega 2560)"	Arduino AVR Boards >
30		Port: "COM5"	ESP32 Arduino >
31	// the loo	Get Board Info	ESP8266 Boards (2.7.4)
32	void loop(
33	digitalW	Programmer: "ArduinoISP"	HIGH :
34	delay(10	- Burn Bootloader	×
	<	bull booloadel	>



Installing Adafruit ESP8266 Library

1. Navigate to *Tools> Manage Libraries...*. Search for Adafruit ESP8266 and Install the latest version of Library.

💿 Library Manager	\times
Type All V Topic All V esp8266	
by ACROBOTIC Library for SSD1306-powered OLED 128x64 displays! This is a library for displaying text and images in SSD1306-powered OLED 128x64 displays; includes support for the ESP8266 SoC! <u>More info</u>	^
Adafruit ESP8266 by Adafruit Example code for ESP8266 chipset Example code for ESP8266 chipset More info)
Adafruit IO Arduino	
by Adafruit Arduino library to access Adafruit IO. Arduino library to access Adafruit IO using the Adafruit AirLift, ESP8266, ESP32, ESP32-S2, M0 WINC1500, WICED, MKR1000, Ethernet, or FONA hardware. <u>More info</u>	
	~
Close	:

2. Once Adafruit ESP8266 Library installed it will show up program examples as below:

File	Edit Sketch	Tools Help			
	New	Ctrl+N			
	Open Open Recent	Ctrl+0		RETIRED	>
	Sketchbook		1 /	Examples for Generic ESP8266 Module	1
	Examples			ArduinoOTA	>
	Close	Ctrl+W		DNSServer	>
	Save	Ctrl+S		EEPROM	>
	Save As	Ctrl+Shift+S		ESP8266	>
	Page Setup	Ctrl+Shift+P		ESP8266AVRISP	>
	Print	Ctrl+P		ESP8266HTTPClient	>
				ESP8266httpUpdate	>
	Preferences	Ctrl+Comma		ESP8266HTTPUpdateServer	>
	Quit	Ctrl+Q		ESP8266LLMNR	>
				ESP8266mDNS	>
				ESP8266NetBIOS	>
				ESP8266SdFat	>
				ESP8266SSDP	>
				ESP8266WebServer	>
				ESP8266WiFi	>
				ESP8266WiFiMesh	>
Boat	rd at null :	is not availa		EspSoftwareSerial	>
Dout	La do nall .			Ethernet(esp8266)	>
				Hash	>
1 _				LittleFS(esp8266)	
				00/ 00/00	



Uploading Program Code to ESP8266

 Select installed ESP8266 Board from Tools> Board:> ESP8266 Boards> Generic ESP8266 Module. Make sure your board configuration same as below (COM port might be varying depend on PC).

				_
Generi	∆ ESP8266 Module	Board: "Generic ESP826	6 Module"	>
Generi	c ESP8285 Module	Upload Speed: "115200"		>
ESPDui	ino (ESP-13 Module)	CPU Frequency: "80 MH	łz"	>
Adafru	it Feather HUZZAH ESP8266	Crystal Frequency: "26 N	MHz"	>
Invent	One	Flash Size: "1MB (FS:64k	(B OTA:~470KB)" mpatible)"	>
XinaBo	x CW01	Flash Frequency: "40MH	Hz"	>
ESPress	so Lite 1.0	Reset Method: "dtr (aka	nodemcu)"	>
ESPress	so Lite 2.0	Debug port: "Disabled"		>
Phoeni	x 1.0	lwlP Variant: "v2 Lower	Memory"	>
Phoeni	ix 2.0	VTables: "Flash"		>
NodeN	1CU 0.9 (ESP-12 Module)	Exceptions: "Legacy (ne	w can return nullptr)"	>
NodeN	ICU 1.0 (ESP-12E Module)	Erase Flash: "Only Sketc	h" Ik 2 2 1, 100 (100702)"	>
Olimex	MOD-WIFI-ESP8266(-DEV)	SSL Support: "All SSL cij	ohers (most compatible)"	>
SparkF	un ESP8266 Thing	Port: "COM6"		>
SparkF	un ESP8266 Thing Dev	Get Board Info		

2. Open sample code from *File> Examples> ESP8266WiFi> WiFiScan* & Upload the code.

File	Edit Sketch	Tools Help		BearSSL_CertStore
	New	Ctrl+N		BearSSL_MaxFragmentLength
	Open	Ctrl+O	▲ (1)	BearSSL_Server
	Open Recent	: 3	LiquidCrystal	BearSSL ServerClientCert
	Sketchbook	etchbook SD	SD	- BearSSL Sessions
	Examples	3	Stepper	BearSSI Validation
	Close	Ctrl+W	Temboo	EarlyDicableWiEi
	Save	Ctrl+S	RETIRED	LITTEP
	Save As	Ctrl+Shift+S		
	ource and	curro micro	Examples for Generic ESP8266 Module	HTTPSRequestAxTLS
	Page Setup	Ctrl+Shift+P	ArduinoOTA	HTTPSRequestCACertAxTLS
	Print	Ctrl+P	DNSServer	IPv6
		01.0	EEPROM	NTPClient
	Preferences	Ctrl+Comma	ESP8266	RangeExtender-NAPT
	Quit	Ctrl+Q	ESP8266AVRISP	StaticLease
17	acres(ro)	·/·	ESP8266HTTPClient	Udp
16	Serial	rintln("Setur	ESP8266httpUpdate	WiFiAccessPoint
17	}	Linoin(beoup	ESP8266HTTPUpdateServer	WiFiClient
18			ESP8266LLMNR	WiFiClientBasic
	<		ESP8266mDNS	WiFiEvents
			ESP8266NetBIOS	WiFiHTTPSServer
			ESD02665dE-+	WiEiManualWohSonver
Has	h of data v	erified.		Wirnvariuarwebserver
Lea	ving		E54820055DP	wifilviulti
Har	d resetting	via RTS pin.	ESP8266WebServer	WiFiScan
<			ESP8266WiFi	WiFiTeInetToSerial



3. Open **Serial Monitor** to check the result. This code will scan all available WiFi AP around. Example: -

© COM6 —		×	
		Send	
1: IPCZ68B2013092794 (-80) 2: Synacorp-2.4G (-62)* 3: printer-AP (-66) 4: NVR083a2f14381c (-76)* 5: NVR083a2f117c39 (-71)*			^
<pre>scan start scan done 7 networks found 1: IPCZ68B2013092794 (-78) 2: synacorptech (-81)* 3: printer-AP (-69)</pre>			
4: Synacorp-2.4G (-60)* 5: CT-1 Hotspot (-71)* 6: NVR083a2f14381c (-72)* 7: NVR083a2f117c39 (-72)*			~
Autoscroll Show timestamp Newline v 115200 baud v	Clear	output	



