

ELEC 3300 Introduction to Embedded System

MINI-V3 Development Board

MINI-V3 is a development board for Cortex-M3 Series MCU design. It is using STM32F103VET6 from ST Microelectronics as the core MCU controller.



Figure 1: MINI-V3 Development Board

Highlighted Features

- 3.2" 320x240 Color LCD
- ESP8266 WiFi Module
- TTL, CAN, USB interfaces
- One 8MB SPI Flash
- One 2k-bit EEPROM
- One RGB LED
- Micro SD Card socket that support max 32GB SD Card

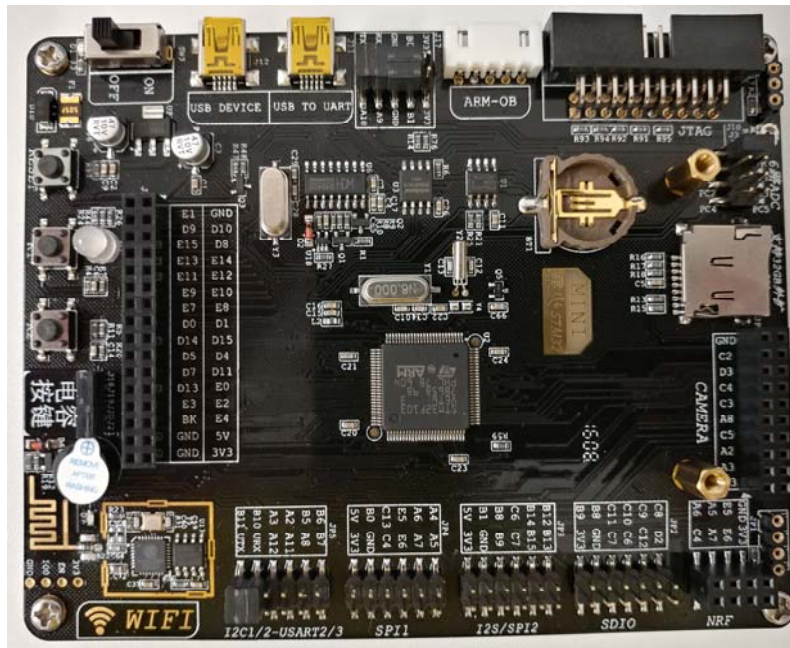


Figure 2: MINI-V3 Development Board without LCD

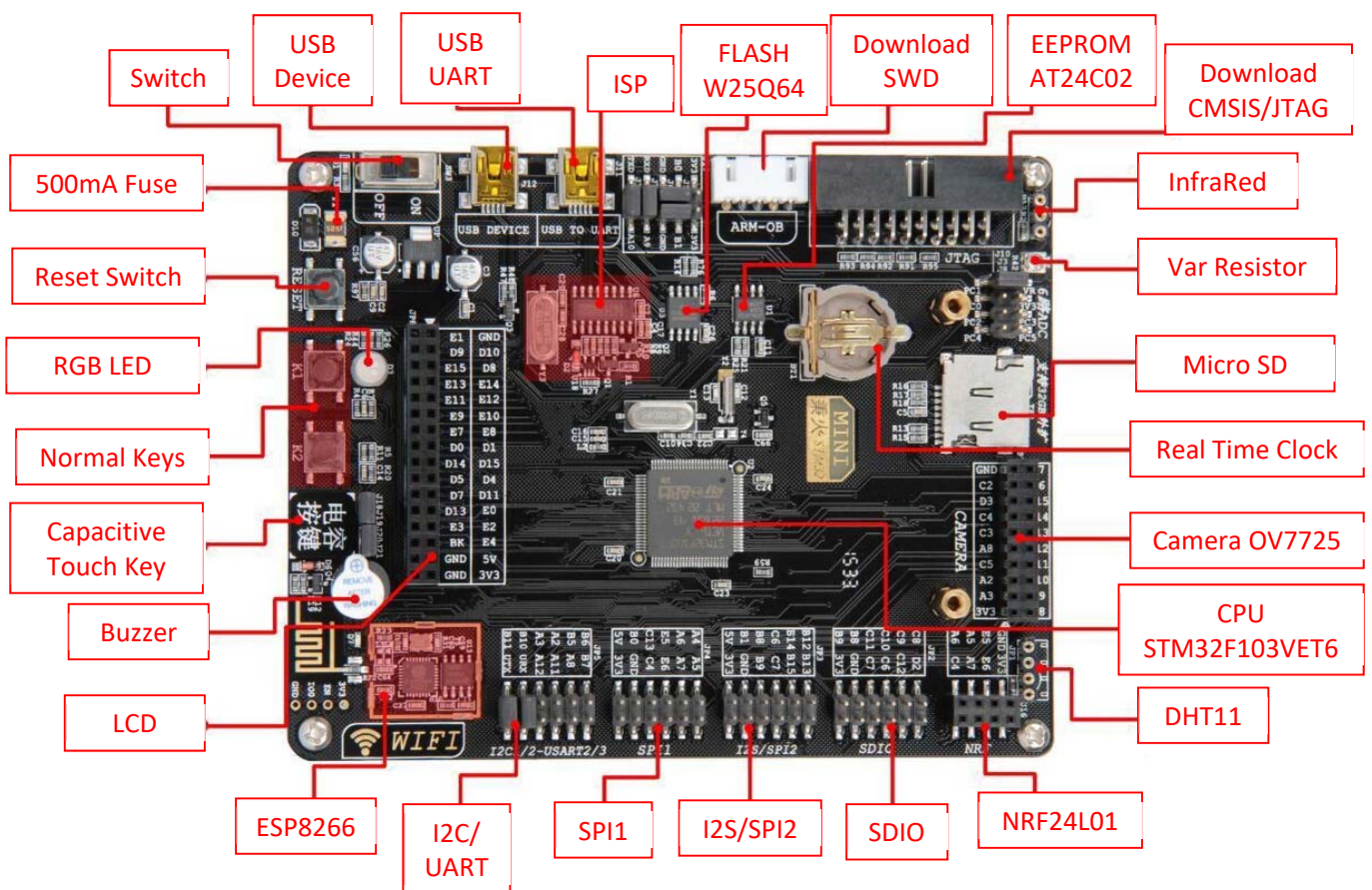


Figure 3: MINI-V3 Features

(Acknowledgement. Figure 3 is extracted and modified from the Manufacturer's image)

Detailed Features

System

- Main MCU: STM32F103VET6, 512kB Flash, 64kB SRAM, 72MHz Clock, LQFP100 Package

Communication

- WiFi : ESP8266, on board antenna
- USB to Serial : CH340, with mini USB connector
- USB : mini USB connector
- Infra-red : 1838 Infra-red connector
- 2.4G : NRF24L01 connector

Interface

- Display : FSMC support (1) 3.2" 240x320 resolution (2) 5" 800x480 resolution
- LED : One Full Color RGB LED
- KEY : Three tradition Keys and ONE Capacitive Key
- Buzzer : One Buzzer

Storage

- SPI Flash : One W25Q64, 8MB
- EEPROM : One AT24C02, 2k-bit
- SD Card : Micro SD, max support 32GB

Program Download

- JTAG Connector : Support JLink, ULink, STLink
- SWD Connector : Support ARM-OB
- ISP Download Connector : i.e. USB to Serial connector, support download via Serial Port

Sensor

- Variable Resistor : On board 100k VR
- Temp/Humidity Connector : Support DHT11/DS18B20
- Camera Connector : Support OV7725 Camera

Power

- 5V Supply: Two MicroUSB connectors, can be used to supply power.

Jumper Setting

There are few jumpers for connections and easy setting.

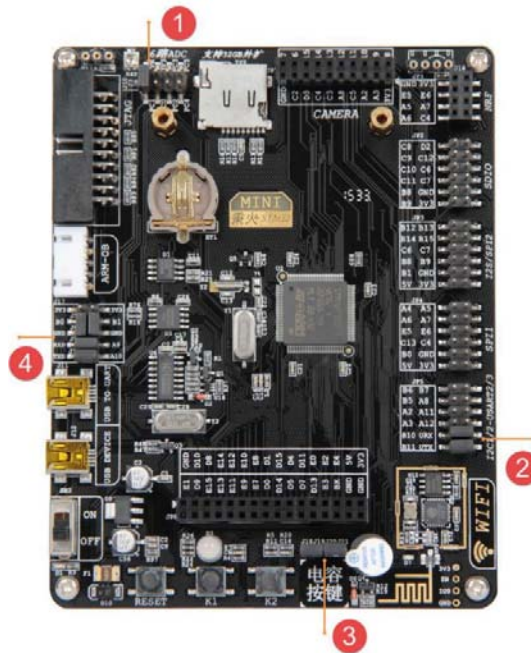

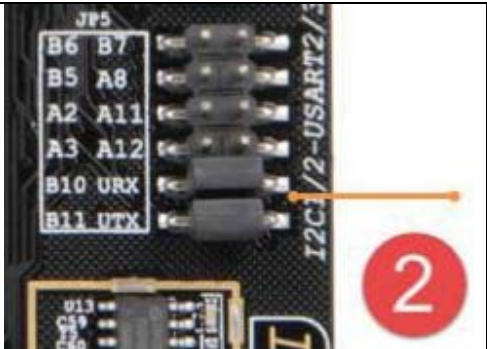




Figure 4: MINI-V3 Jumper Setting

(Acknowledgement. Figure 4 is extracted from the Manufacturer's image)

<p>Jumper Location 1.</p> <p>Left most jumper. Default as shown.</p> <p>PC1 <-----> VR</p> <p>By default connects PC1 to on board VR.</p> <p>If PC1 have other use, the jumper needs to be removed.</p>	
<p>Jumper Location 2.</p> <p>Bottom two jumpers. Default as shown.</p> <p>PB10 <-----> URX</p> <p>PB11 <-----> UTX</p> <p>By default connects PB10, PB11 to ESP8266.</p> <p>If PB10, PB11 connects to Camera and interfered by ESP8266, these jumpers need to be removed.</p>	

<div>Jumper Location 3</div> <div>Default as shown</div> <div>Left <J18-J19> PA1 <-----> Cap T_KEY Right <J20-J21> PA8 <-----> Buzzer</div> <div>By default connects PA1 to Cap T_KEY, if PA1 has other use, the jumper needs to be removed.</div> <div>By default connects PA8 to Buzzer, if PA8 has other use, the jumper needs to be removed.</div>													
<div>Jumper Location 4</div> <div>Default as shown</div> <div>PA10 <-----> TXD PA9 <-----> RXD B0(Boot0) <-----> GND B1(Boot1) <-----> GND</div> <div>By default PA10, PA9 connect to CH340, USB to TTL, for serial port I/O. If PA10, PA9 has other use, the jumpers need to be removed.</div> <div>B0, B1 is used for System Boot Up select</div> <table><tr><th>Boot0</th><th>Boot1</th><th>Boot Select</th></tr><tr><td>0</td><td>X</td><td>Internal Flash</td></tr><tr><td>1</td><td>0</td><td>System Memory / ISP</td></tr><tr><td>1</td><td>1</td><td>Embedded SRAM</td></tr></table> <div>By default Boot0, Boot1 connect to GND, so that it would start from Flash. If there is other needs, the jumpers need to be set according to above table.</div>	Boot0	Boot1	Boot Select	0	X	Internal Flash	1	0	System Memory / ISP	1	1	Embedded SRAM	
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