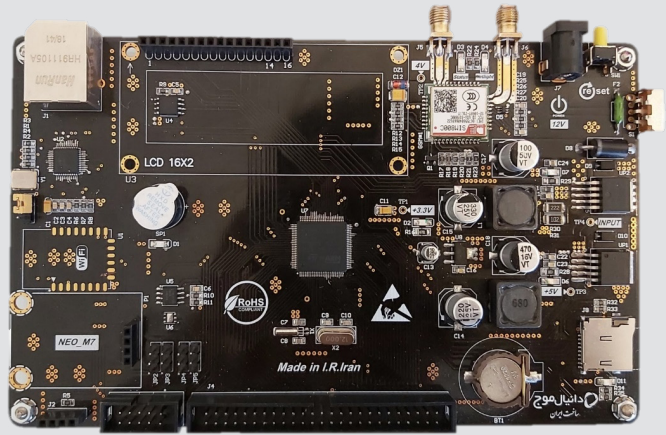


Motherboard



◆ Introduction

This is a multi-purpose powerful motherboard that can easily be configured for any IoT-based application. Having equipped with all necessary and mostly-used communicative ICs and peripherals, this motherboard can address all you need to implement your smart IoT ideas. It can also be used as an evaluation board for the R&D and prototyping phases. Thanks to its powerful 32-bit MCU, it can perform complicated tasks as a standalone unit.

◆ Features

- Character LCD
- SD-card slot for event logging
- Precise onboard temperature sensor
- Onboard humidity sensor
- Backup battery
- GPS
- Powerful ARM (32bit) microprocessor
- Wi-Fi(esp8266) module for wireless communications
- GPS and GPRS module for communications via SMS, Internet, or phone calls
- Bluetooth data transfer
- Network connection via Ethernet or Wi-Fi module
- Deploying different network protocols including SNMP, FTP, UDP, TCP/IP, HTTP, HTTPS

◆ Wi-Fi and Bluetooth module

ESP8266

- Low cost, compact and powerful
- Power Supply: +3.3V
- Current Consumption: 100mA
- I/O Voltage: 3.6V (max)
- I/O source current: 12mA (max)
- Built-in low power 32-bit MCU @ 80MHz
- 512kB Flash Memory
- Can be used as Station or Access Point or both combined
- Supports Deep sleep (<10μA)
- Supports serial communication hence compatible with many development platforms like Arduino
- Can be programmed using Arduino IDE or AT-commands or Lua Script

◆ Character LCD

HD44780

- Operating Voltage is 4.7V to 5.3V
- Current consumption is 1mA without backlight
- Alphanumeric LCD display module, meaning can display alphabets and numbers
- Consists of two rows and each row can print 16 characters.
- Each character is built by a 5x8 pixel box
- Can work on both 8-bit and 4-bit mode
- It can also display any custom generated characters
- Available in Green and Blue Backlight

MCU- STM32F107VCT6

Product Range	STM32 Family STM32F1 Series Microcontrollers
Architecture	ARM Cortex-M3
No. of Bits	32bit
CPU Speed	72MHz
Program Memory Size	256KB, 256KB
RAM Memory Size	64KB
No. of Pins	100Pins
MCU Case Style	LQFP
No. of I/O's	80I/O's
Embedded Interface Type	CAN ENET I2C SPI UART USB
Supply Voltage Min	2V
Supply Voltage Max	3.6V
MCU Family	STM32
MCU Series	STM32F1
RoHS Phthalates Compliant	Yes
MSL	MSL 3 - 168 hours
SVHC	No SVHC (17-Dec-2015)
Clock Frequency	72MHz
Controller Family/Series	STM32
Flash Memory Size	256KB
IC Generic Number	32F107VCT
MPU Core Size	32bit
No. of ADC Inputs	16
No. of PWM Channels	16
No. of Timers	10
Operating Temperature Max	85°C
Operating Temperature Min	-40°C
Operating Temperature Range	-40°C to +85°C
Oscillator Type	External Internal
Peripherals	ADC DAC DMA PWM Timer
Supply Voltage Range	2V to 3.6V
Termination Type	Surface Mount Device

Ethernet Port - DP83848CVV

Data Rate	100Mbps
Ethernet Type	IEEE 802.3u
Supply Voltage Min	3V
Supply Voltage Max	3.6V
Controller IC Case Style	LQFP
No. of Pins	48Pins
IC Interface Type	MII RMII Serial
Operating Temperature Min	0°C
Operating Temperature Max	70°C
Product Range	DP83848C/I/VYB/YB PHYTER

Automotive Qualification Standard	-
MSL	MSL 3 - 168 hours
SVHC	No SVHC (27-Jun-2018)
No. of Channels	1Channels
No. of Ports	1Ports
Operating Temperature Range	0°C to +70°C
Supply Current	92mA
Supply Voltage Range	3V to 3.6V
Termination Type	Surface Mount Device

GPS Module

Model: Neo-m7

- TTL level, compatible with 3.3V/5V systems
- Baud rate 9600 only
- Operating voltage: 2.7V-5.0V (VCC input)
- Operating current: 35mA

Humidity sensor

SHT20

Size	3 x 3 x 1.1 mm
Output	I ² C digital, PWM, SDM
Supply voltage range	2.1 to 3.6 V
Energy consumption	3.2µW (at 8-bit, 1 measurement / s)
RH operating range	0 - 100% RH
T operating range	-40 to +125°C (-40 to +257°F)
RH response time	8 sec (tau63%)

Temperature sensor

DHT22

- Operating Voltage: 3.5V to 5.5V.
- Operating current: 0.3mA (measuring) 60uA (standby)
- Output: Serial data.
- Temperature Range: -40°C to 80°C.
- Humidity Range: 0% to 100%
- Resolution: Temperature and Humidity both are 16-bit.
- Accuracy: ±0.5°C and ±1%

Memory

AT24C02

- Package Type: SOIC
- Operating Temperature Range: -40° C to +85° C
- Interface Type: Serial, I2C
- Base Number: 24
- Memory capacity: 2K bit
- Memory Type: EEPROM
- Memory Configuration: 256 x 8 b
- Supply Voltage Range: 2.7 V - 5.5 V
- Chip label: 24C02
- Mounting Type: Surface Mount