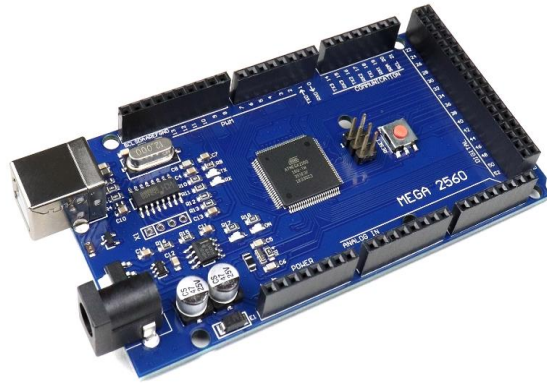


Arduino Mega 2560-CH340 Board



The ATmel MCU ATMEGA16U2 MEGA 2560 R3 Improved Version CH340G Board is a micro-controller board base on the ATmega2560. It has a USB host interface to connect with Android based phones, based on the MAX3421e IC.

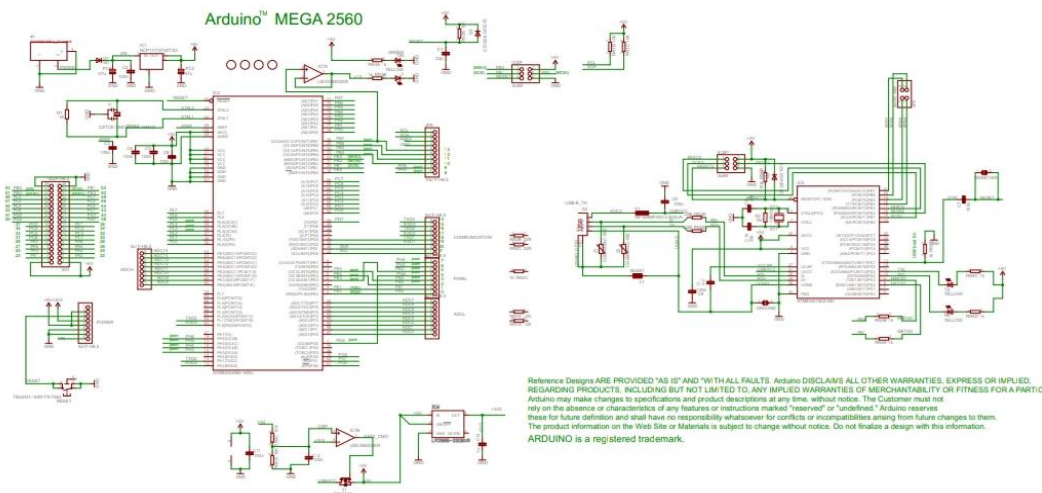
It has 54 digital input/output pins (of which 15 can be used as PWM outputs); 16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator; a USB connection, a power jack, an ICSP header, and a reset button. The MEGA ADK is base on the Mega 2560. Similar to the Mega 2560 and Uno, it features an ATmega8U2 program as a USB-to-serial converter. Revision 3 of the Mega ADK board has a resistor pulling the 8U2 HWB line to ground, making it easier to put into DFU (Device Firmware Upgrade) mode.

SPECIFICATION:

- Model Type: Arduino MEGA 2560
- Microcontroller Chip: ATmega2560
- Operating Voltage: 5
- Input Voltage (Recommended): 7V to 12V
- Input Voltage (limit): 6V-20V
- Analog I/O Pins: 16
- Digital I/O Pins: 54 (of which 15 provide PWM output)

- Clock Speed: 16 MHz
- Flash Memory: 256 KB of which 8 KB used by bootloader
- SRAM: 8 KB
- EEPROM: 4 KB
- DC Current for 3.3V Pin: 50 mA
- DC Current per I/O Pin: 40 mA
- Weight (gm): 34

SCHEMATIC DIAGRAM:



The schematic diagram of ATmel MCU ATMEGA16U2 MEGA 2560 R3 Improved Version CH340G Board is as shown in fig.

- The maximum length and width of the Mega R3 Android Accessory Development Kit (ADK) PCB are 4 and 2.1 inches respectively; with the USB connector and power jack

extending beyond the former dimension. Three screw holes allow the board to be attached to a surface or case. Note that the distance between digital pins 7 and 8 is 160 mil (0.16"); not an even multiple of the 100 mil spacing of the other pins.

- The Mega R3 Android Accessory Development Kit (ADK) has a number of facilities for communicating with a computer, another Arduino, or other micro-controllers. The ATmega2560 provides four hardware UARTs for TTL (5V) serial communication. An ATmega8U2 on the board channels one of these over USB and provides a virtual com port to software on the computer (Windows machines will need a .inf file, but OSX and Linux machines will recognize the board as a COM port automatically. The Arduino software includes a serial monitor which allows simple textual data to be sent to and from the board.
- The RX and TX LEDs on the board will flash when data is being transmitted via the ATmega8U2/16U2 chip and USB connection to the computer (but not for serial communication on pins 0 and 1). A Software-serial library allows for serial communication on any of the MEGA ADK's digital pins. The ATmega2560 also supports TWI and SPI communication. The Arduino software includes a Wire library to simplify the use of the TWI bus, For SPI communication, use the SPI library.
- The USB host interface given by MAX3421E IC allows the Arduino MEGA ADK to connect and interact to any type of device that has a USB port. For example, allows you to interact with many types of phones, controlling Canon cameras, interfacing with keyboard, mouse and games controllers as Wiimote and PS3
- The Mega R3 Android Accessory Development Kit (ADK) can be the program with the Arduino software (download). The ATmega2560 on the MEGA ADK comes preburn with a boot-loader (the same on Mega 2560) that allows you to upload new code to it without the use of an external hardware programmer. It communicates using the original STK500v2 protocol (reference, C header files). It can also bypass the bootloader and program the microcontroller through the ICSP (In-Circuit Serial Programming) header using Arduino ISP or similar; see these instructions for details. The ATmega8U2 firmware source code is available in the Arduino repository. The ATmega8U2 is load with a DFU bootloader, which can be activated by:

On Rev1 boards: connecting the solder jumper on the back of the board (near the map of Italy) and then resetting the 8U2.

PIN FUNCTION:

- **Power:** The external power regulator can supply up to 1500mA. 750mA is available for the phone and MEGA ADK board. An additional 750mA is allocated for any actuators and sensors attached to the board. A power supply must be capable of providing 1.5A to use this much current. The board can operate on an external supply of 5.5 to 16 volts. If supply with less than 7V, however, the 5V pin may supply less than five volts and the board may be unstable. If using more than 12V, the voltage regulator may overheat and damage the board. The recommended range is 7 to 12 volts. The power pins are as follows:

VIN: The input voltage to the Arduino board when it's using an external power source (as opposed to 5 volts from the USB connection or another regulated powersource). You can supply voltage through this pin, or, if supplying voltage via the power jack, access it through this pin.

- **Memory:** The Mega R3 Android Accessory Development Kit (ADK) has 256 KB of flash memory for storing code (of which 8 KB is used for the bootloader); 8 KB of SRAM and 4 KB of EEPROM (which can be read and written with the EEPROM library).
- **Input and Output:** Each of the 50 digital pins on the Mega R3 Android Accessory Development Kit (ADK) can be used as an input or output; using `pinMode()`, `digitalWrite()`, and `digitalRead()` functions. They operate at 5 volts. Each pin can provide or receive a maximum of 40 mA . has an internal pull-up resistor

(disconnect by default) of 20-50 kOhm. In addition, some pins have specialized functions:

Serial: 0 (RX) and 1 (TX), Serial 1: 19 (RX) and 18 (TX), Serial 2: 17 (RX) and 16 (TX), Serial 3: 15 (RX) and 14 (TX). Use to receive (RX) and transmit (TX) TTL serial

data. Pins 0 and 1 are also connected to the corresponding pins of the ATmega8U2 USB-to-TTL Serial chip.

- **MAX3421E:** The Mega R3 Android Accessory Development Kit (ADK) has 16 analog inputs, each of which provides 10 bits of resolution (i.e. 1024 different values). By default, they measure from ground to 5 volts, though it is possible to change the upper end of their range using the AREF pin and `analogReference()` function. There are a couple of other pins on the board:

AREF: Reference voltage for the analog inputs. Use with `analogReference()`.

