

Arduino mega / Arduino Uno / Nucleo 64
Arduino Uno pin compatible

Pinout diagram for the Arduino Mega 2560 Shield. The diagram shows the connection of various components to the shield's pins. On the left, a voltage divider circuit is shown with a 5V supply, a 10k resistor (R1), a 1k resistor (R2), and a 100nF/20V capacitor (C1) connected to the HW_VERSION pin. The main pinout table lists pins 0-53 and their functions. Pins 0-13 are digital pins with various protocols (I2C, SPI, UART, etc.). Pins 14-19 are power pins (VDD, GND, VIN). Pins 20-25 are power pins (VDD, GND, VIN). Pins 26-29 are power pins (VDD, GND, VIN). Pins 30-33 are power pins (VDD, GND, VIN). Pins 34-37 are power pins (VDD, GND, VIN). Pins 38-41 are power pins (VDD, GND, VIN). Pins 42-45 are power pins (VDD, GND, VIN). Pins 46-49 are power pins (VDD, GND, VIN). Pins 50-53 are power pins (VDD, GND, VIN). The diagram also shows the connection of a buzzer to pin 46 and a potentiometer to pins 14, 15, and 16.

Pin	Function
0	D0 RX0
1	D1 TX0
2	D2 INT0
3	D3 INT1
4	D4
5	D5
6	D6
7	D7
8	D8
9	D9
10	D10
11	D11
12	D12
13	D13
14	D14
15	D15
16	D16
17	D17
18	D18
19	D19
20	D20
21	D21
22	D22
23	D23
24	D24
25	D25
26	D26
27	D27
28	D28
29	D29
30	D30
31	D31
32	D32
33	D33
34	D34
35	D35
36	D36
37	D37
38	D38
39	D39
40	D40
41	D41
42	D42
43	D43
44	D44
45	D45
46	D46
47	D47
48	D48
49	D49
50	D50
51	D51
52	D52
53	D53

Arduino_Mega2560_Shield

Power

The Power section circuit diagram includes the following components and connections:

- Battery (J1):** Connected to the circuit via a switch (SW1, SW_SPDT).
- PMOS Transistor (Q1, NDT452AP):** Used for current measurement. Its gate is connected to the battery, and its source is connected to the load resistor (R7, 0.01R).
- Current Measurement:** The load resistor (R7) is connected to the +5V supply. The current through R7 is measured by the PMOS transistor.
- 5V Regulator (U1, INA169):** A precision centaur voltage detector. Its non-inverting input (+) is connected to the +5V supply, and its inverting input (-) is connected to the load resistor (R7). The output (OUT) is connected to the +5V supply.
- Feedback Resistor (R8, 68k):** Connected between the output of U1 and its inverting input.
- 12V Regulator (U2, UA78M05IDCY):** A 5V voltage regulator. Its input (IN) is connected to the +12V supply, and its output (OUT) is connected to the +5V supply.
- Passive Components:**
 - Resistors:** R3 (9.1k), R4 (3.6k), R5 (OR NI), R6 (100k), R7 (0.01R), R8 (68k), R9 (1k), R10 (OR NI).
 - Capacitors:** C2 (100nF/20V), C3 (1uF/20V), C4 (0.33uF/20V), C5 (100nF/20V).
 - Diode (D1, 4.7V):** Connected in parallel with the +5V supply.
- Output:** The +5V supply is connected to the +5V pin of the module.

Bluetooth module

Bluetooth module

JP1
Jumper_4_Open

RX

TX

BLUETOOTH_TX

BLUETOOTH_RX

J2
HC-05 Bluetooth module

+3.3V

GND

Buzzer

Buzzer

R14
OR NI

R15
10K

BZ1
Buzzer

Q2
DWN2050L

+5V

GND

The schematic diagram illustrates the I2C module's internal connections. It features four connectors: J3 (MPU-6050_Module), J4 (OLED_I2C), J5 (RTC_I2C), and J6 (GP_I2C). The module is powered by +3.3V lines connected to resistors R16 (10k) and R17 (10k). The I2C_SCL and I2C_SDA lines are shown, with J3 pin 1 connected to SCL and J3 pin 2 connected to SDA. J4 pins 1, 2, 3, 4, and 5 are connected to +3.3V, GND, +3.3V, GND, and +3.3V respectively. J5 pins 1, 2, 3, and 4 are connected to +3.3V, GND, +3.3V, and GND respectively. J6 pins 1, 2, 3, and 4 are connected to +3.3V, GND, +3.3V, and GND respectively. The OLED_RST line is connected to J4 pin 3. The module is labeled I2C at the top left.

Left motor

Wiring diagram for the left motor assembly:

- 12V Motor Driver (J7):**
 - M_EN (Pin 1) to Motor Driver Pin 1
 - L_FORWARD (Pin 2) to Motor Driver Pin 2
 - L_REVERSE (Pin 3) to Motor Driver Pin 3
 - GND (Pin 4) to Motor Driver Pin 4
- 5V Power Supply (J8):**
 - +5V (Pin 1) to Motor Driver Pin 2 (L_POWER)
 - GND (Pin 2) to Motor Driver Pin 4
- Encoder (J9):**
 - L_ENCODER_A (Pin 1) to Encoder Pin 1
 - L_ENCODER_B (Pin 2) to Encoder Pin 2
 - GND (Pin 3) to Encoder Pin 3

Right motor

Wiring diagram for the right motor:

- Motor Driver Header (J10):
 - Pin 1: M_EN
 - Pin 2: R_FORWARD
 - Pin 3: R_REVERSE
 - Pin 4: GND
- Power Header (J11):
 - Pin 1: +12V
 - Pin 2: GND
- Encoder Header (J12):
 - Pin 1: R_ENCODER_A
 - Pin 2: R_ENCODER_B
 - Pin 3: GND
 - Pin 4: GND

Decoupling

The diagram illustrates the decoupling of two components, INA169 and MCU, from a common ground. The INA169 component is connected to a +5V supply through a decoupling capacitor C6 (100nF/20V). The MCU component is connected to a VDD supply through a decoupling capacitor C7 (100nF/20V). Both components are connected to a common ground, which is also connected to a +5V supply through a decoupling capacitor C8 (100nF/20V).