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› HiLetgo Stackable SD Card and TF Card Shield for Arduino UNO R3 and Mega 2560 User Manual

HiLetgo 3-01-0060-A

HiLetgo Stackable SD Card and TF Card Shield User Manual

1. INTRODUCTION

This manual provides instructions for the HiLetgo Stackable SD Card and TF Card Shield, designed for use with Arduino UNO R3 and Arduino Mega 2560 boards. This shield enables your Arduino project to utilize SD and Micro SD (TF) cards for data storage.

The shield supports standard SD, Micro SD, and SDHC cards. Its stackable design allows for integration with other Arduino shields, provided they do not conflict with the SPI pins. The board uses the Arduino hardware SPI interface, supporting SPI mode SD/TF cards.

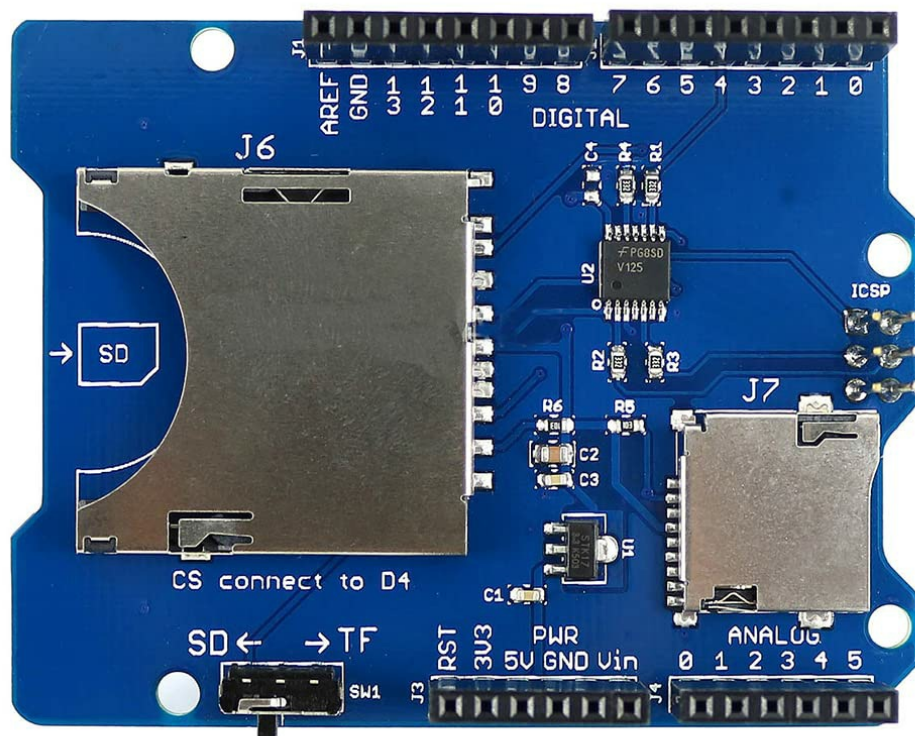


Figure 1: Top-down view of the HiLetgo Stackable SD Card and TF Card Shield.

2. SETUP AND INSTALLATION

Follow these steps to properly set up and install your SD Card Shield with an Arduino board.

2.1 Voltage Selection

Locate the **3.3V/5V selector switch** on the shield. Set this switch to '**3.3V**' as SD cards operate at 3.3V. Incorrect voltage can damage the SD card.

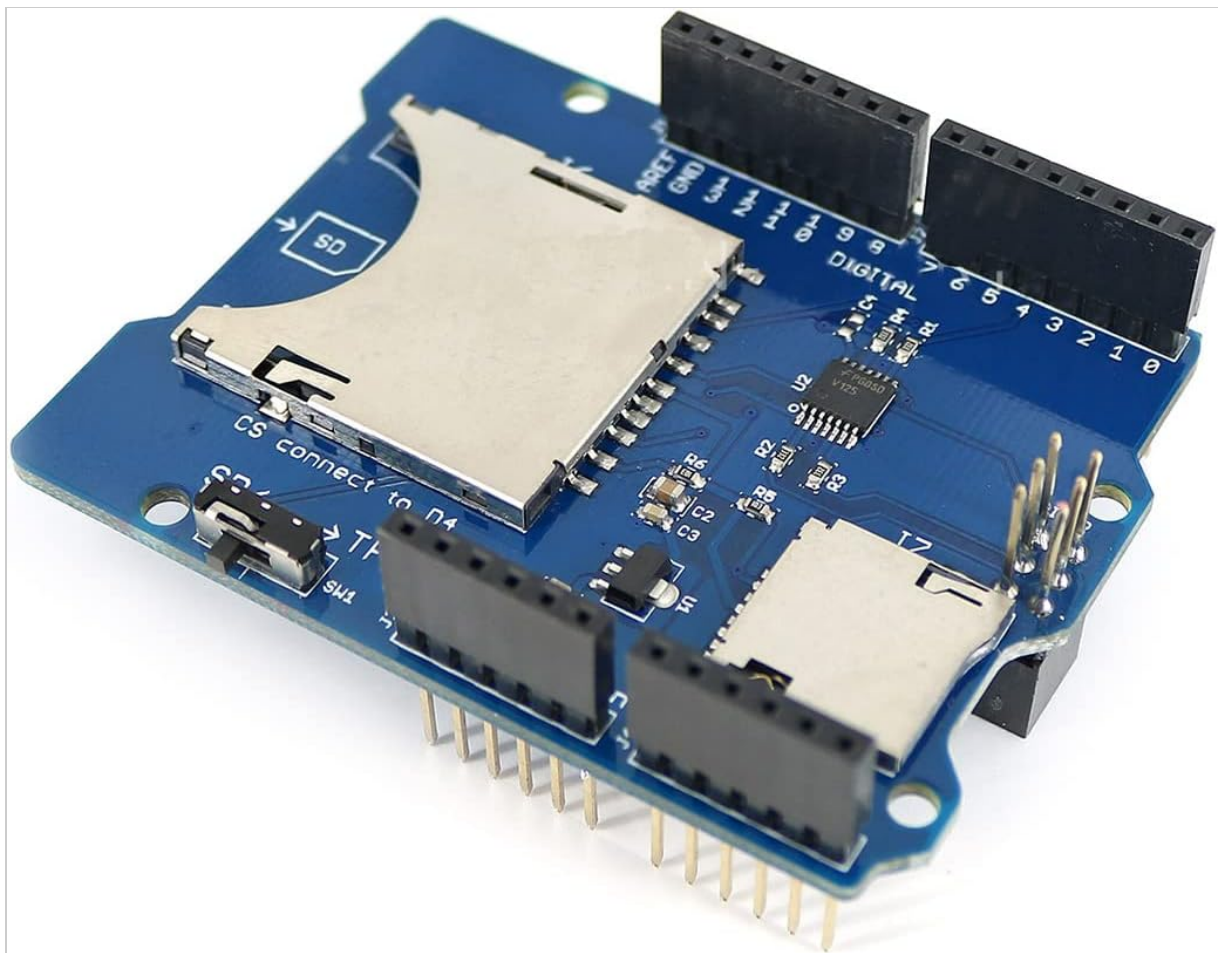


Figure 2: Front view of the shield, highlighting the SD/TF card slots and the voltage selector switch.

2.2 Pin Alignment and Jumper Settings

Carefully align the shield's pins with the corresponding pins on your Arduino board (e.g., Arduino UNO R3 or Mega 2560). Ensure all pins are correctly seated.

- **For Arduino UNO R3 (and similar boards):** The shield typically uses digital pins D10 (Chip Select - CS), D11 (MOSI), D12 (MISO), and D13 (SCK). The default Chip Select (CS) pin in Arduino SD examples is often D4, but for this shield, it is typically D10. Verify and adjust your code accordingly.
- **For Arduino Mega 2560:** The SPI pins on the Mega 2560 differ from the UNO. The Mega uses pins D50 (MISO), D51 (MOSI), D52 (SCK), and D53 (SS/CS). If using the shield with a Mega, you may need to jumper pins D10, D11, D12, D13 on the shield to D53, D51, D50, D52 respectively on the Mega. Additionally, the Chip Select pin in your code must be changed from D10 (or D4) to D53.
- **SPI Jumpers (for Arduino DUE and some MEGA configurations):** For certain Arduino boards like the Arduino DUE, or specific MEGA configurations, it may be necessary to remove the three adjacent SPI jumpers on the top of the board. Refer to the iTEAD wiki for specific compatibility details for your Arduino model. For Arduino DUE, remove these jumpers and keep the switch on 3.3V.

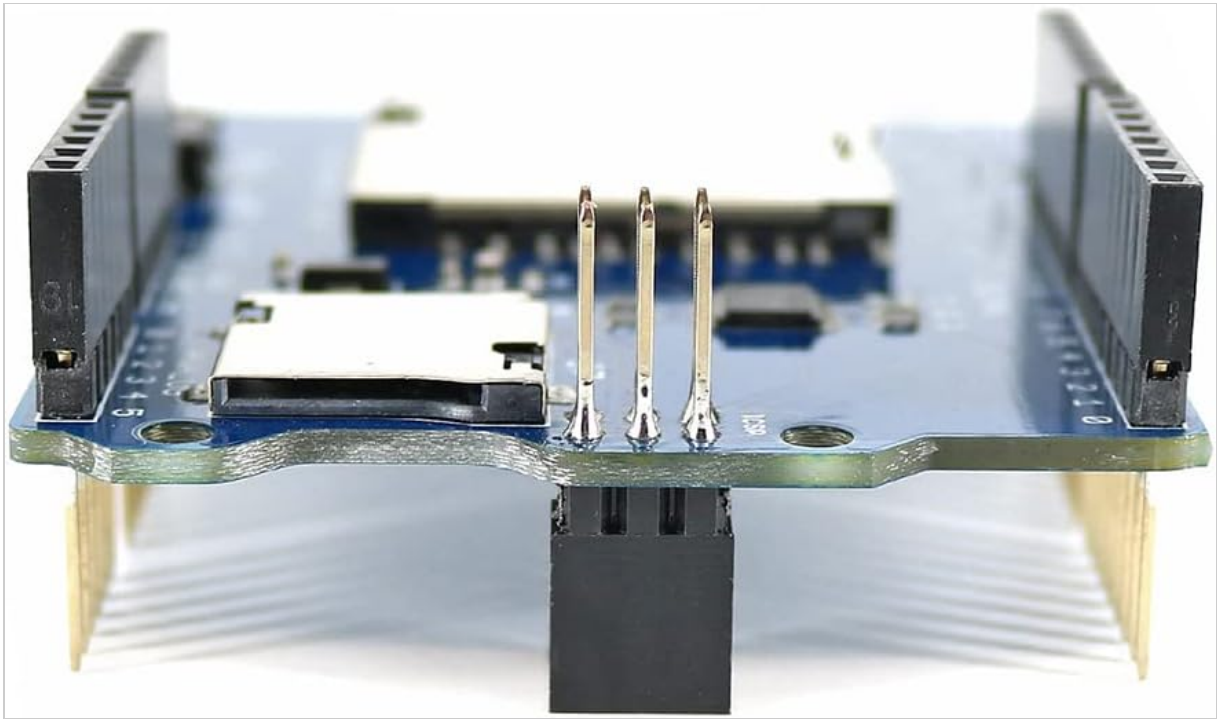


Figure 3: Side view illustrating the stackable design and pin headers.

2.3 Software Setup

1. Open the Arduino IDE.
2. Navigate to **File > Examples > SD > Cardinfo**. This example sketch reads the SD card information.
3. Before compiling, ensure you select the correct target board in the Arduino IDE (**Tools > Board**).
4. Modify the `chipSelect` pin in the `Cardinfo` example sketch to match your setup (e.g., `const int chipSelect = 10;` for UNO, or `const int chipSelect = 53;` for Mega if jumpered).
5. Upload the sketch to your Arduino board.
6. Open the Serial Monitor to view the SD card information.

2.4 SD Card Insertion

Insert a compatible SD or Micro SD card into the appropriate slot on the shield. Ensure it is inserted correctly and fully seated until it clicks into place.

3. OPERATION

The shield facilitates reading from and writing to SD/TF cards using the Arduino SPI interface.

- For basic file operations, you can use the provided TinyFAT file system library, which supports FAT16 formatted cards (e.g., 1GB cards).
- For FAT32 support and more advanced functionalities, utilize the official Arduino SD library.
- Ensure the correct Chip Select (CS) pin is defined in your Arduino sketch for proper communication with the SD card.

4. MAINTENANCE

- Keep the shield clean and free from dust and moisture.
- Avoid applying excessive force when inserting or removing SD cards to prevent damage to the card slot.
- Ensure proper voltage selection (3.3V) to prevent damage to the SD card.

5. TROUBLESHOOTING

- **Issue:** SD card not detected or 'Cardinfo' example fails.

- **Solution:** Verify the 3.3V/5V switch is set to '3.3V'.
 - **Solution:** Check pin connections between the shield and Arduino. Ensure all pins are correctly aligned and seated.
 - **Solution:** Confirm the `chipSelect` pin in your Arduino sketch matches the physical connection (D10 for UNO, D53 for Mega if jumpered).
 - **Solution:** For Arduino Mega, ensure SPI pins are correctly jumpered if necessary (D10-D53, D11-D51, D12-D50, D13-D52).
 - **Solution:** Ensure the correct board is selected in the Arduino IDE (**Tools > Board**).
 - **Solution:** Try a different SD card. Ensure the card is formatted correctly (FAT16 for TinyFAT, FAT32 for official SD library).
 - **Solution:** If using an Arduino DUE or specific MEGA, check if the SPI jumpers on the shield need to be removed as per iTEAD wiki instructions.
- **Issue: SD card easily pulls out.**
 - **Solution:** Exercise caution when handling the shield with an SD card inserted. Ensure the card is fully latched into the slot.
- **Issue: SCL and SDA pins are covered by the shield.**
 - **Solution:** If I2C communication is required, you can use Analog pins A4 and A5 on the Arduino for SCL and SDA respectively, as these are typically available even when the shield is stacked.

6. SPECIFICATIONS

Brand	HiLetgo
Model Name	3-01-0060-a
Compatible Flash Memory Types	Micro SD, SD, SDHC
Compatible Devices	Arduino UNO R3, Arduino Mega 2560, Personal Computer
Additional Features	Stackable design
Media Speed	Up to 20 MB per second (SPI limited)
Hardware Connectivity	SPI (via SDHC interface)
Item Weight	Approximately 0.05 Pounds (22.7 grams)
Dimensions (D x W x H)	53mm x 47mm x 53mm (approximate, including pins)
Color	Blue
Manufacturer	iTead
UPC	610708262626
ASIN	B006LRR0IQ

7. WARRANTY AND SUPPORT

This product comes with a **Limited Warranty**.

For technology support or any issues with our products, please contact HiLetgo support:

Email: support@hilego.com



Figure 4: Product packaging with support contact information.