

2.8" TFT Touch Shield



Spice up your Arduino project with a beautiful large touchscreen display shield with built in microSD card connection. This TFT display is big (2.8" diagonal) bright (4 white-LED backlight) and colorful (18-bit 262,000 different shades)! 240x320 pixels with individual pixel control. It has way more resolution than a black and white 128x64 display. As a bonus, this display has a resistive touchscreen attached to it already, so you can detect finger presses anywhere on the screen.

Product Link: <http://www.adafruit.com/products/376>

Libraries: **TFT:** install both <https://github.com/adafruit/TFTLCD-Library> and <https://github.com/adafruit/Adafruit-GFX-Library>
Touch: <https://github.com/adafruit/Touch-Screen-Library>

Tutorial: <http://learn.adafruit.com/2-8-tft-touch-shield>

Plug-and-Play Compatible Boards

Before using the shield with any Arduino, the library file Adafruit_TFTLCD.h must be edited to enable (un-comment) the following line:

```
#define USE_ADAFRUIT_SHIELD_PINOUT
```

The 2.8" TFT Touch Shield is then fully compatible with the following boards:

- **Arduino Uno** (all revisions)
- **Arduino Duemilanove and Diecimila** w/ATmega328 chip
- **Adafruit Menta**

Incompatible or Partially-Compatible Boards

This shield may work with other boards with some additional steps:

Arduino Leonardo: graphics-only sketches (such as tftpaint_shield) will work without modification. Code that accesses the SD card (such as tftbmp_shield) requires editing the stock Arduino SD card library: in utility/Sd2Card.h, add this line at the very top:

```
#define SOFTWARE_SPI
```

Arduino Mega 2560, Mega ADK: graphics-only sketches (such as tftpaint_shield) will work without modification. Code that accesses the SD card (such as tftbmp_shield) requires editing the stock Arduino SD card library: in utility/Sd2Card.h, change this line:

```
#define MEGA_SOFT_SPI 0
```

to:

```
#define MEGA_SOFT_SPI 1
```

IMPORTANT: some iterations of Mega 2560 R3 boards are NOT COMPATIBLE with this shield unless modifications are made to the Arduino itself. This requires fine soldering and is a **warranty-voiding operation**. Not recommended for the inexperienced.

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A problem board can be identified by the large solid white area silkscreened on the back. Other versions of the Mega 2560 (such as the R2 and ADK) are not affected by this problem; easy to spot, they have different silkscreens.

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Solder a 0.1 μ F capacitor across the unpopulated pads shown here. This usually requires a surface-mount capacitor, but you might be able to get creative with tacking down the leads on a through-hole part.

If your board already has a capacitor here, no modification is needed; it's ready to go.

Arduino Due: this should be regarded as “experimental only” at this stage. Simple graphics-only sketches *may* work. The examples using the touchscreen and the SD card do not yet work.

Arduino Duemilanove and Diecimila w/ATmega168 chip: simple graphics-only sketches *may* work, but code accessing the SD card is too large for the available program space on these boards; upgrade to an ATmega328 chip.

Pin Reference

The shield uses the following pins:

- +5V
- GND
- Digital pins 4, 6–11, 13 (communication with TFT and SD card, touchscreen)
- Digital pin 5 (SD card select)
- Digital pin 12 (SD card communication)
- Analog pins A0-A3 (TFT control lines, touchscreen)

This shield can be stacked with others (including those using SPI), provided that each has a unique Chip Select pin, and that other pins don't interfere. This can be difficult; the shield uses nearly everything. Digital pins 2 and 3 are untouched, as are Analog 4 and 5 — this shield will not interfere with I²C operation on most Arduino boards.

Untested Boards and Other Notes

Arduino Mega 1280: compatibility should be similar to the Mega 2560; MEGA_SOFT_SPI must be set in the SD library to use the SD card.

Arduino NG or older: simple graphics-only sketches *may* work, but code accessing the SD card is too large for the available program space on these boards.

If you have specific experience with this shield on the above boards or others, please use the Feedback & Corrections link at left. Thanks!

If experiencing trouble with a board listed as “compatible,” review the [introduction \(http://adafru.it/czv\)](http://adafru.it/czv) for tips and visit the [Adafruit Forums \(http://adafru.it/cer\)](http://adafru.it/cer) for assistance.



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