

# UTFT

Multi-Platform Universal TFT display library

## Requirements

The logo for Rinky-Dink Electronics features the company name in a stylized, glowing cyan font with a 3D effect. The text is set against a dark background that includes a close-up of a green printed circuit board (PCB) with various electronic components and traces visible.

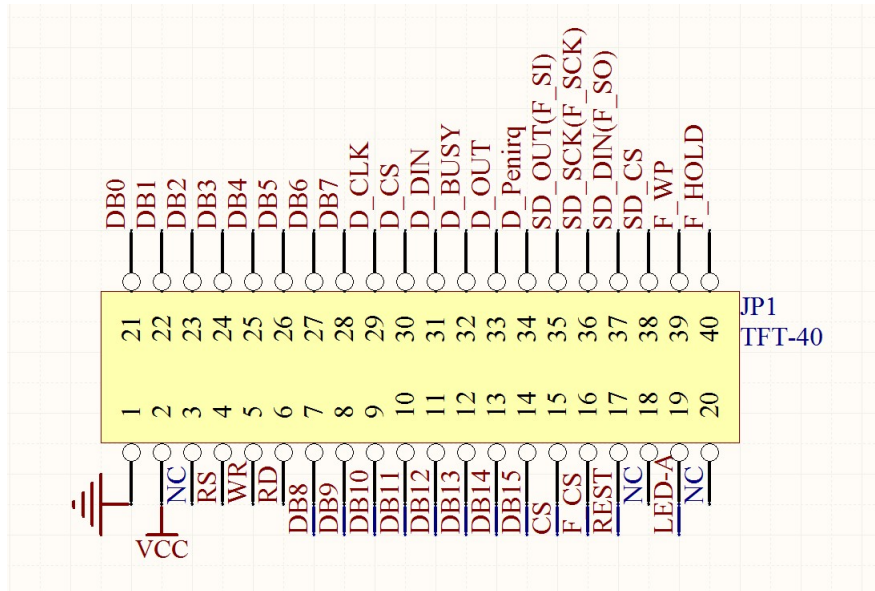
Rinky-Dink Electronics

**IMPORTANT:** Most display modules are 3.3v devices. Running a 5v signal directly into any pin on such a display module may damage your display module. Check with your vendor if your display module can tolerate 5v signals. If not you will have to shift the signal voltage down to an acceptable level. I will not be held responsible for any damaged display modules due to incorrect signal levels.

The library require the following connections for 8 bit and 16 bit<sup>1</sup> display modules (the serial display modules does not have any required pins):

Signal	TFT Module pin	Arduino		Bobuino	Teensy 3.x <sup>2</sup>	chipKit		TI LaunchPad
		2009 Uno Leonardo	Mega Due <sup>3</sup>			Uno32 uC32 <sup>4</sup>	Max32 <sup>5</sup>	CC3200 <sup>6</sup>
DB0 <sup>7</sup>	21	D8	D37	D8	D16	D3	D3	D27
DB1 <sup>7</sup>	22	D9	D36	D9	D17	D5	D5	D29
DB2 <sup>7</sup>	23	D10	D35	D10	D19	D6	D6	D9
DB3 <sup>7</sup>	24	D11	D34	D11	D18	D9	D9	D10
DB4 <sup>7</sup>	25	D12	D33	D12	D0	D10	D10	D4
DB5 <sup>7</sup>	26	D13	D32	D13	D1	D34	D39	D3
DB6 <sup>7</sup>	27	A0 (D14)	D31	A0 (D14)	D32	D36	D47	D7
DB7 <sup>7</sup>	28	A1 (D15)	D30	A1 (D15)	D25	D37	D77	D14
DB8	7	D0	D22	D0	D2	D26	D37	D30
DB9	8	D1	D23	D1	D14	D27	D36	D12
DB10	9	D2	D24	D2	D7	D28	D35	D23
DB11	10	D3	D25	D3	D8	D29	D34	D2
DB12	11	D4	D26	D4	D6	D30	D33	D6
DB13	12	D5	D27	D5	D20	D31	D32	D24
DB14	13	D6	D28	D6	D21	D32	D31	D5
DB15	14	D7	D29	D7	D5	D33	D30	D8
RS	4	Any free pin						
WR	5	Any free pin						
RD	6	Must be pulled high (3.3v)						
CS	15	Any free pin						
REST	17	Any free pin						

Please note that these requirements are for the default shields. If you are using a shield that require a certain #define to be activated the required pinout will change.



Common TFT module pinout

<sup>1</sup> 16 bit Latched has its own requirements. See the next page.

<sup>2</sup> The library has only been tested with Teensy 3.1

<sup>3</sup> Pin-out is slightly different when using the CTE TFT LCD/SD Shield for Arduino Due. Please see the "hardware/arm/HW\_ARM\_defines.h" file.

<sup>4</sup> To use a 16 bit display module with a chipKit Uno32/uC32 you **MUST** place the JP4 jumper in the PWM/RD4 position (jumper over the two pins closest to the USB connector.)

<sup>5</sup> Pin-out is slightly different when using the AquaLEDSources shield. Please see the "hardware/pic32/HW\_PIC32\_defines.h" file.

<sup>6</sup> To use an 8- or 16-bit display module with a CC3200 LaunchPad you **MUST** place the UART jumpers in the BoosterPack position.

<sup>7</sup> Connect DB0-DB7 to GND for 8bit display modules

The 16 bit latched display shield has its own requirements:

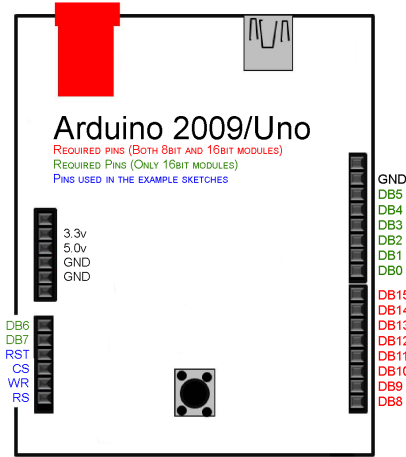
Signal	Shield pin	Arduino	Bobuino
		2009/Uno/Leonardo/Mega	
DB0	D0	D0	D0
DB1	D1	D1	D1
DB2	D2	D2	D2
DB3	D3	D3	D3
DB4	D4	D4	D4
DB5	D5	D5	D5
DB6	D6	D6	D6
DB7	D7	D7	D7
CS	A0	Any free pin	Any free pin
RS	A1	Any free pin	Any free pin
WR	A2	Any free pin	Any free pin
RST	A3	Any free pin	Any free pin
ALE	A5	Any free pin	Any free pin

Development boards not listed are not supported for this display shield.

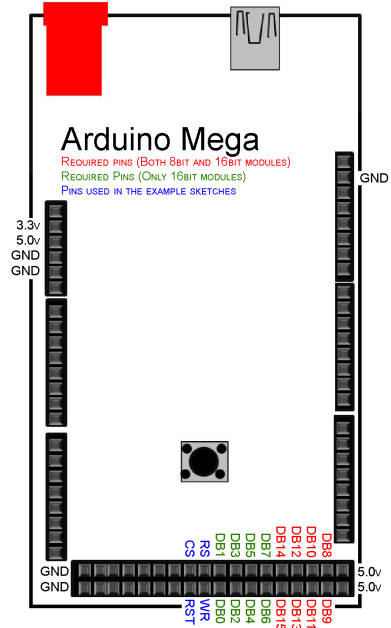
Since some serial display modules use non-standard names for the signals I have included a quick table to show some of the most common names used:

UTFT	SPI	Other names
SDA	MOSI	SDI
SCL	SCLK	SCK, CLK, CLOCK
CS	SS	CE
RST	<i>Not a SPI signal</i>	RESET
RS	<i>Not a SPI signal</i>	D/C, A0
<i>Not used by UTFT</i>	MISO	SDO

Arduino pin-mapping:

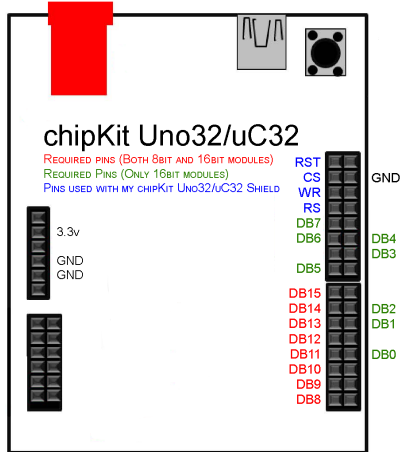


Valid for Arduino 2009/Uno/Leonardo and Bobuino

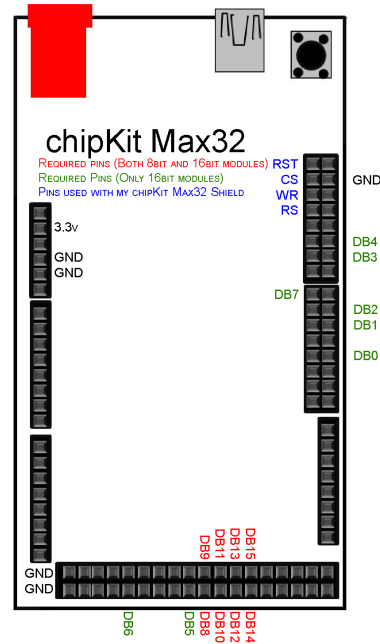


Valid for Arduino Mega/Due<sup>1</sup>

chipKit pin-mapping:



Valid for chipKit Uno32/uC32

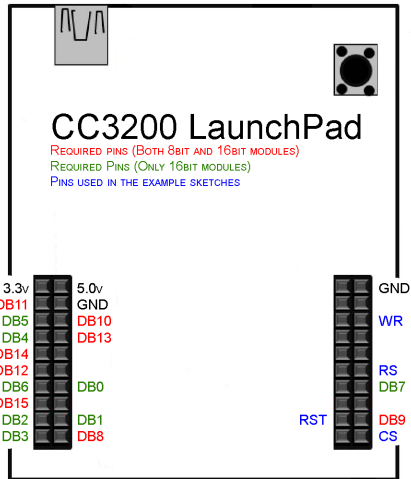


Valid for chipKit Max32<sup>2</sup>

<sup>1</sup> Pin-out is slightly different when using the "CTE TFT LCD/SD Shield for Arduino Due" or the "ElecHouse TFT LCD/SD Shield for Arduino Due".

<sup>2</sup> Pin-out is slightly different when using the "AquaLEDSouce shield".

**TI LaunchPad pin-mapping:**



Valid for CC3200 LaunchPad