

## Preface:

This manual is suitable for TT\_M3HQ and TT\_M4G9 development boards designed and manufactured by Thunder Software Technology Co., Ltd.

In this paper, TT\_M3HQ and TT\_M4G9 development boards are referred to as development boards. For TT\_M3HQ and TT\_M4G9, please refer to the following links for details.

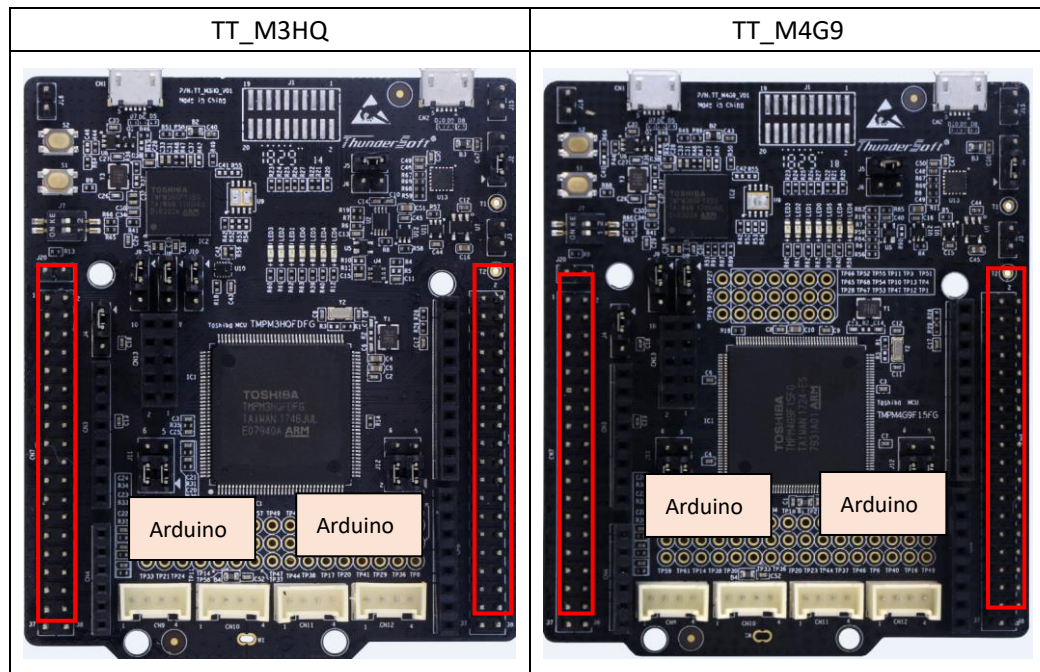
Official	TT_M3HQ	<a href="https://www.thundersoft.com/index.php/iot/kit/m3hq/3-126">https://www.thundersoft.com/index.php/iot/kit/m3hq/3-126</a>
	TT_M4G9	<a href="https://www.thundersoft.com/index.php/iot/kit/m4g9/3-127">https://www.thundersoft.com/index.php/iot/kit/m4g9/3-127</a>
mbed	TT_M3HQ	<a href="https://os.mbed.com/platforms/TT-M3HQ/">https://os.mbed.com/platforms/TT-M3HQ/</a>
	TT_M4G9	<a href="https://os.mbed.com/platforms/TT-M4G9/">https://os.mbed.com/platforms/TT-M4G9/</a>

For the LCD Display HX8347D used in this manual, please refer to the following links. This article will be referred to as LCD.

Purchase address	<a href="https://www.waveshare.com/wiki/2.8inch_TFT_Touch_Shield">https://www.waveshare.com/wiki/2.8inch_TFT_Touch_Shield</a>
	<a href="https://item.taobao.com/item.htm?spm=2013.1.0.0.11ed5241sWQcFP&amp;id=44816546835">https://item.taobao.com/item.htm?spm=2013.1.0.0.11ed5241sWQcFP&amp;id=44816546835</a>

## Precautions No.1:

The final version of the development board is not equipped with the following extension connectors. If you need to use them, please solder the extension connectors or jump wire by yourself.

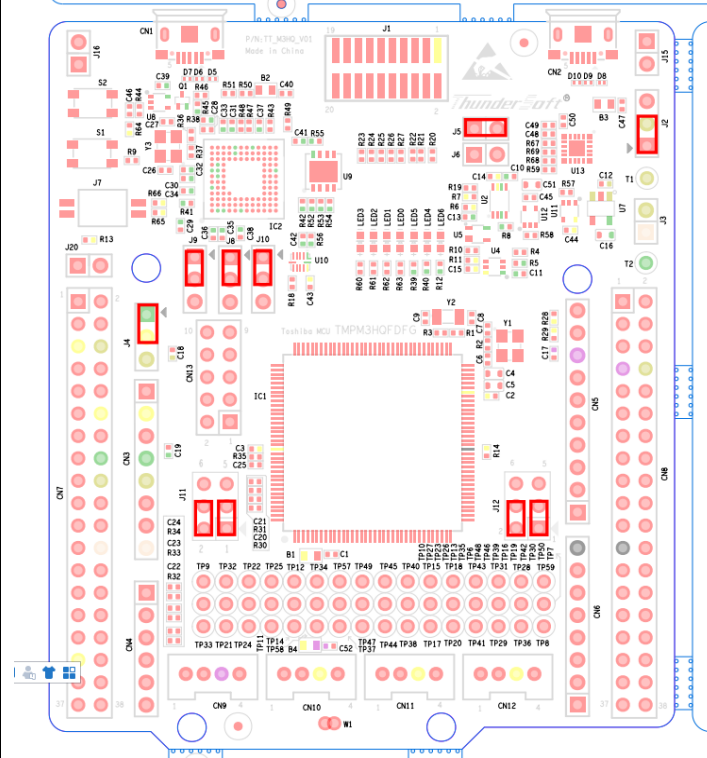


Precautions No.2:

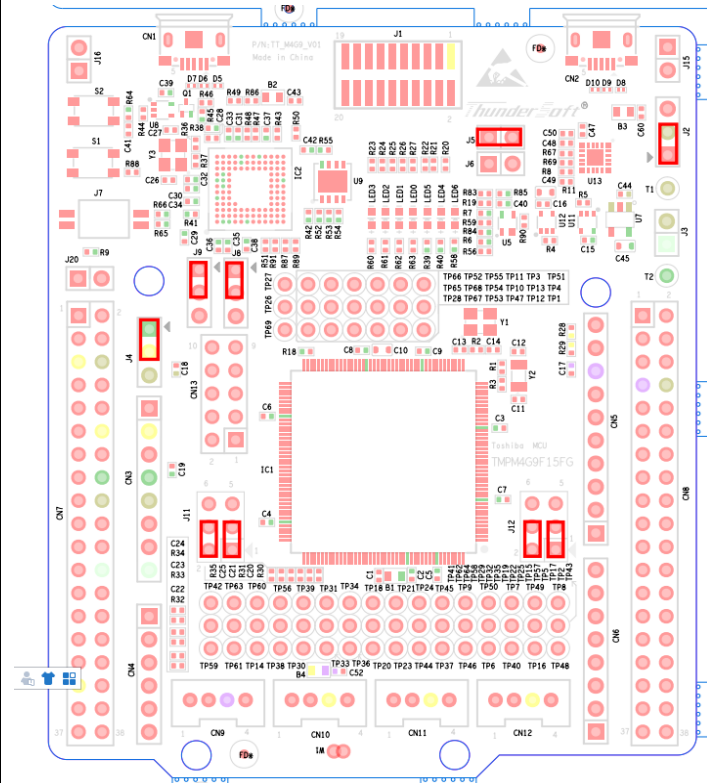
Please confirm that the jumper caps are installed correctly as below before use.

(The jumper caps are installed according to the default state in factory. However, the jumper caps may fall off during use, which may cause the board to fail to start.)

TT\_M3HQ



TT\_M4G9



Points for attention when using LCD:

Because of the hardware design, this LCD cannot be used directly on the development board, nor can it be combined with other Shield Board. The hardware of this LCD needs to be modified as follows.

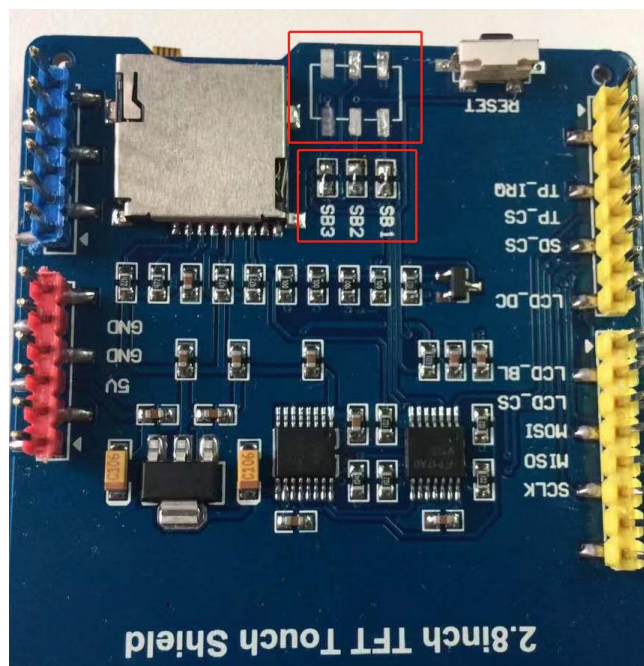
The original picture is as follows:















Step1: Reform LCD



You need to remove the yellow base of the red frames and connect the SB1, SB2 and SB3 in the red frames with 0 ohm resistance. The final figure is as follows:



Step2: Download the corresponding test code from the official website or mbed website, as shown below.

	A8491	2018/8/24 18:00
	BH1790GLC	2018/9/7 10:58
	DoorStatus	2018/8/6 15:16
	FRDM_FXS_MULTI_B	2018/9/5 10:22
	HTU21D	2018/8/6 15:16
	IKS01A2	2018/8/20 17:58
	LCD	2018/9/11 16:24
	MPU6050	2018/8/6 15:16
	PirSensor	2018/8/6 15:16
	VL6180XA1	2018/8/24 17:58
	main.cpp	2018/9/25 15:43
	readme.txt	2018/9/11 16:21

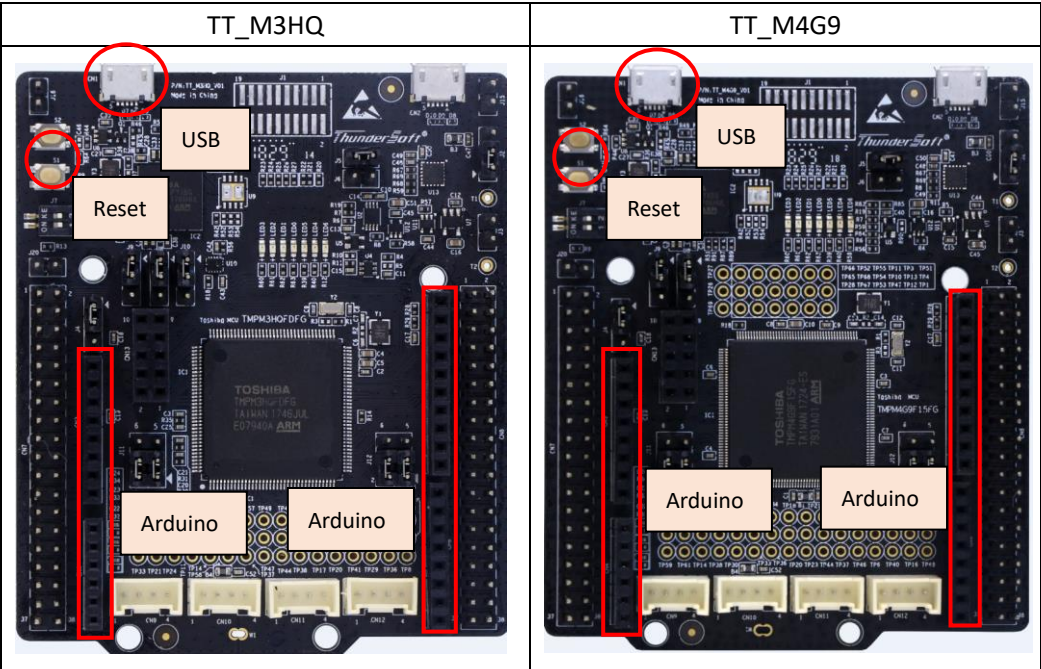
Step3: Compile source code

Developers can compile code in command line tools with the following commands.

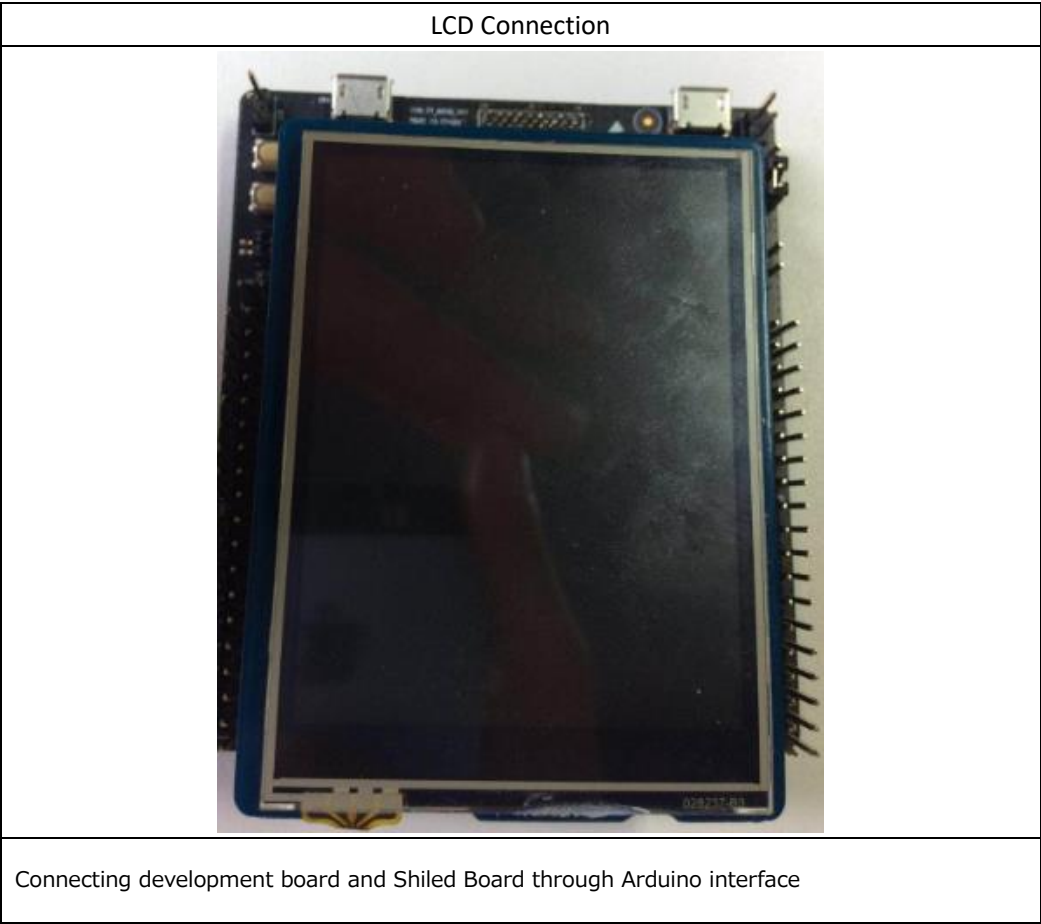
TT_M3HQ	mbd compile -t GCC_ARM -m TT_M3HQ
TT_M4G9	mbd compile -t GCC_ARM -m TT_M4G9

Step4: Connect development board and LCD.

Schematic diagram of development board:

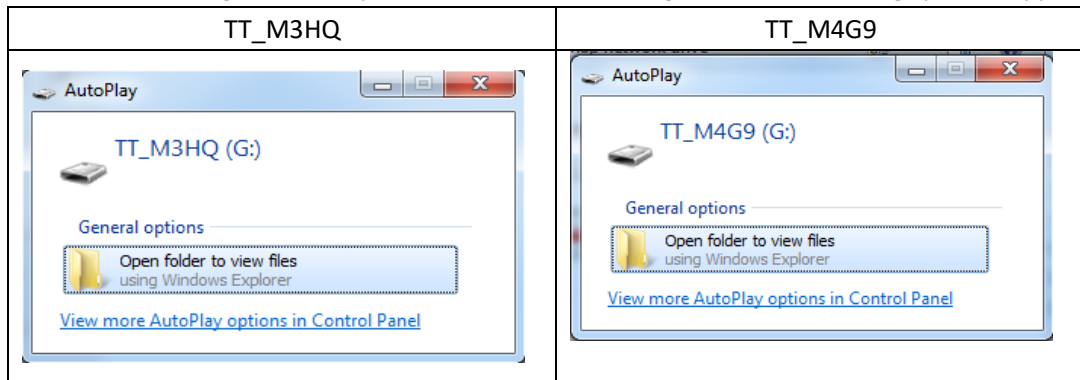


Schematic diagram of connection::



Step5: Burn .bin file:

After connecting the development board and PC through USB, the following symbols appear.



Then drag and drop (or copy) the .bin file compiled in Step3 to the corresponding symbols.  
After the drag and drop (copy) is completed, press the reset key, and the following output will appear.

	LCD output
Output format	Welcome to Thundersoft TT_M4G9
Output example	

The developer can compile and write the program to the development board through IAR / KEIL after getting the code. This article will not introduce the use of IAR and KEIL, so the developer can debug it by himself.