

本手册适用于中科创达设计生产的 TT_M3HQ、TT_M4G9 开发板，在本文中简称开发板。
关于 TT_M3HQ 和 TT_M4G9，详情请参考以下链接

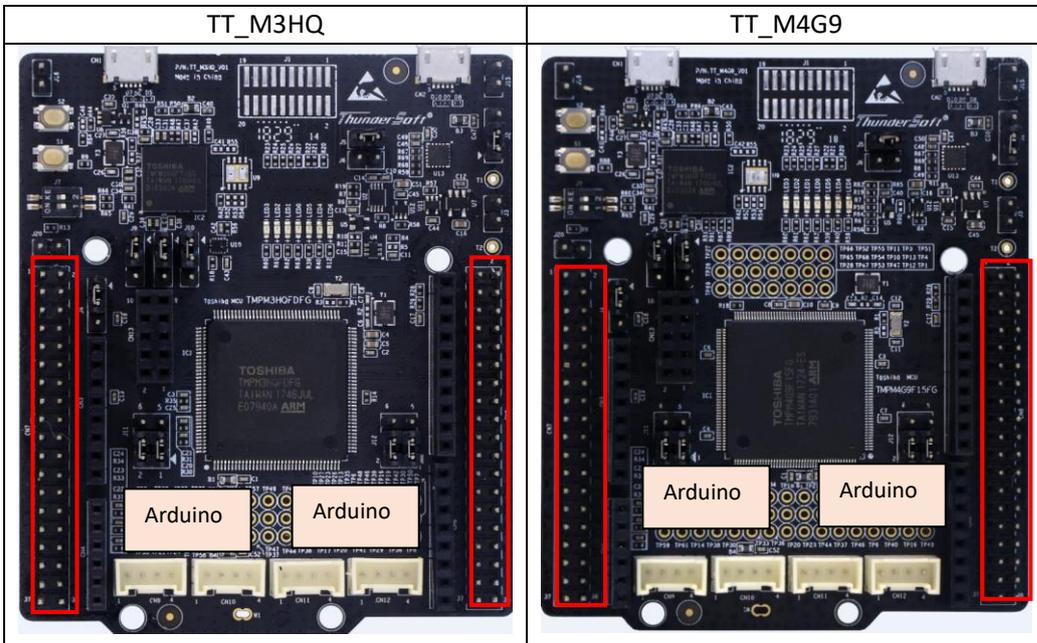
官网	TT_M3HQ	https://www.thundersoft.com/index.php/iot/kit/m3hq/3-126
	TT_M4G9	https://www.thundersoft.com/index.php/iot/kit/m4g9/3-127
mbed	TT_M3HQ	https://os.mbed.com/platforms/TT-M3HQ/
	TT_M4G9	https://os.mbed.com/platforms/TT-M4G9/

关于本手册中使用的 Shield Board X-NUCLEO-IKS01A2,具体请参照以下链接，
本文中简称 Shield Board.

ST 官网	https://www.st.com/content/st_com/en/products/ecosystems/stm32-open-development-environment/stm32-nucleo-expansion-boards/stm32-ode-sense-hw/x-nucleo-iks01a2.html
mbed	https://os.mbed.com/components/X-NUCLEO-IKS01A2/

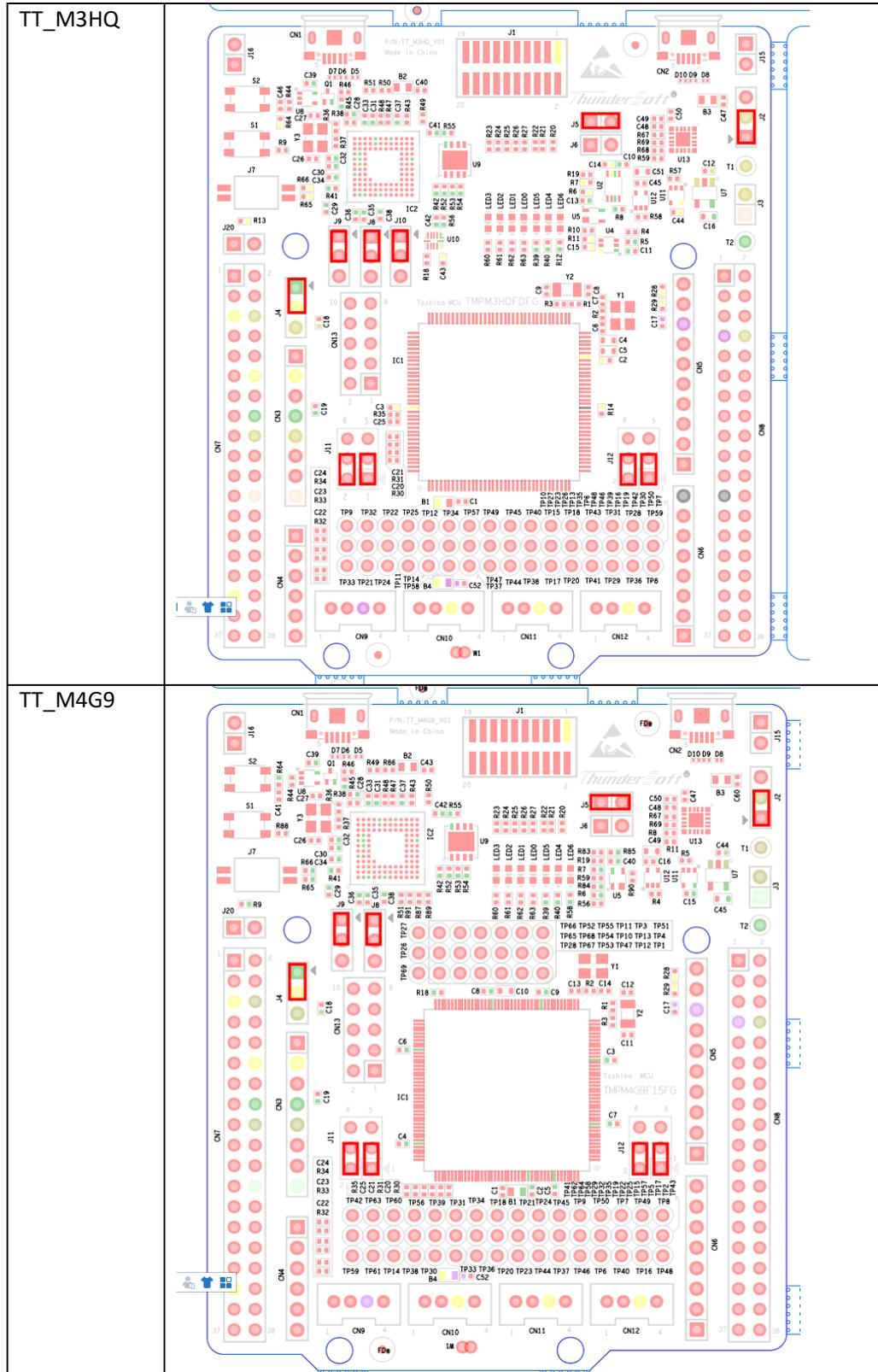
注意事项 1:

出厂版开发板没有配置如下 Extension Connectors，如需使用，请自行焊接或者飞线。



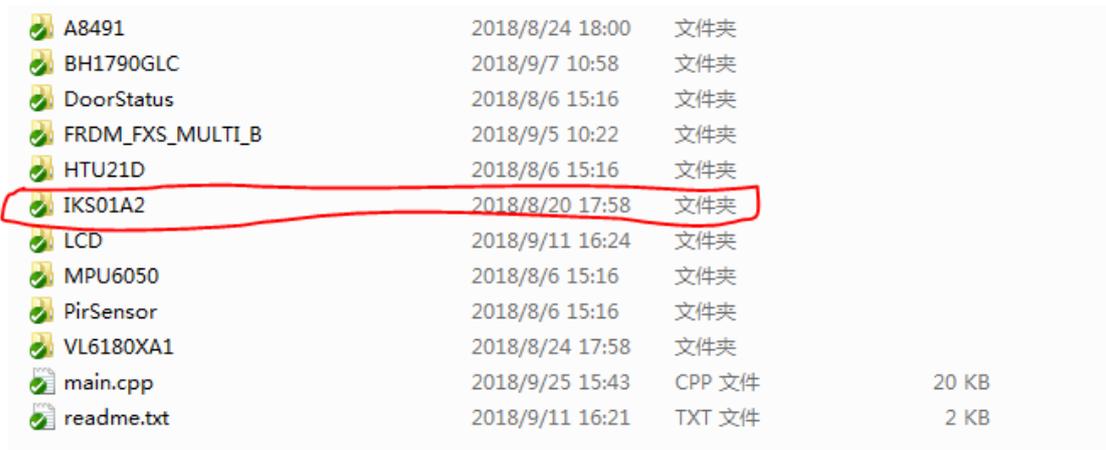
注意事项 2:

在使用前请先确认跳线帽安装是否正确。（开发板出厂前已经按照默认状态安装了跳线帽，但是用户使用过程中可能会有跳线帽脱落的情况发生，导致无法启动）



操作步骤:

Step1: 从官网或者 mbed 网站下载对应的测试代码,如下图。



📁 A8491	2018/8/24 18:00	文件夹	
📁 BH1790GLC	2018/9/7 10:58	文件夹	
📁 DoorStatus	2018/8/6 15:16	文件夹	
📁 FRDM_FXS_MULTI_B	2018/9/5 10:22	文件夹	
📁 HTU21D	2018/8/6 15:16	文件夹	
📁 IKS01A2	2018/8/20 17:58	文件夹	
📁 LCD	2018/9/11 16:24	文件夹	
📁 MPU6050	2018/8/6 15:16	文件夹	
📁 PirSensor	2018/8/6 15:16	文件夹	
📁 VL6180XA1	2018/8/24 17:58	文件夹	
📄 main.cpp	2018/9/25 15:43	CPP 文件	20 KB
📄 readme.txt	2018/9/11 16:21	TXT 文件	2 KB

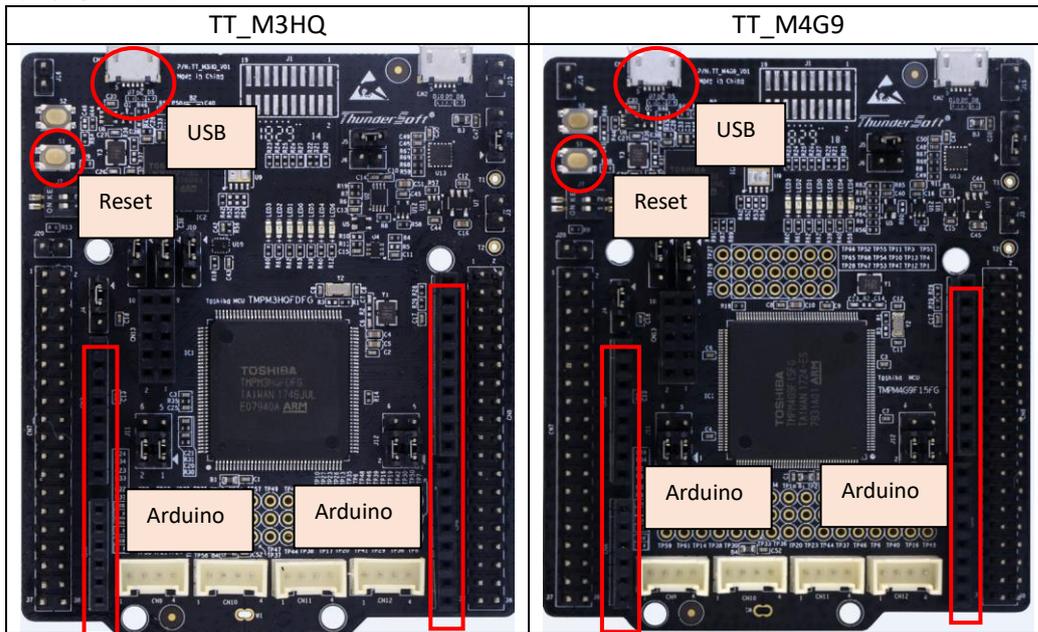
Step2:编译源码

开发者可在命令行工具中用以下命令编译代码

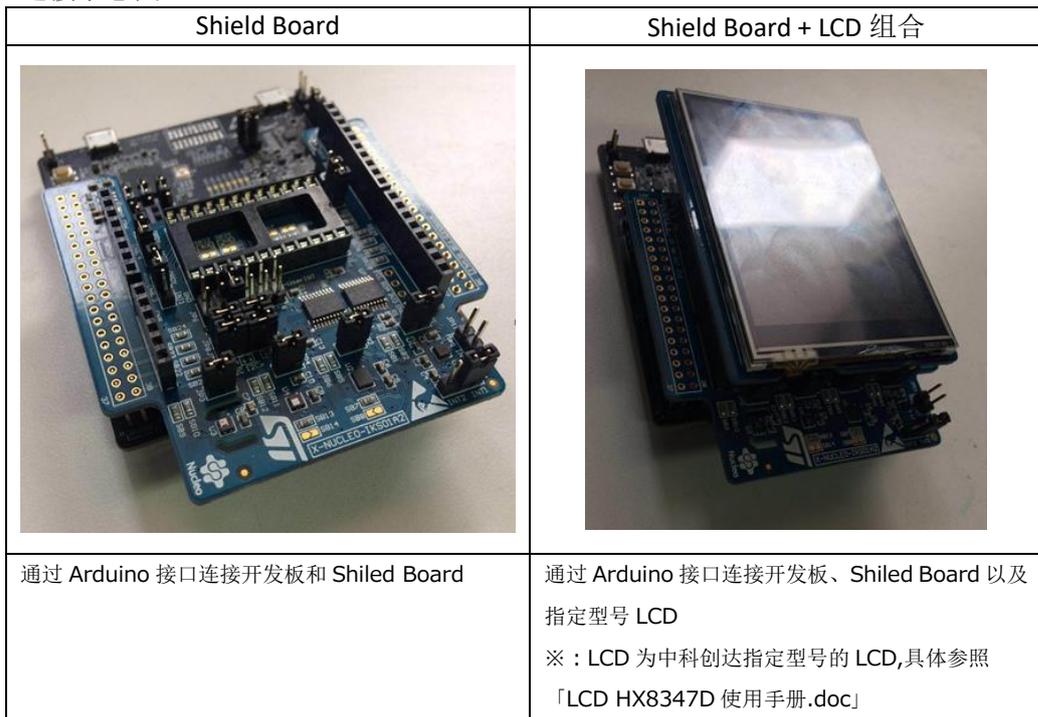
TT_M3HQ	mbed compile -t GCC_ARM -m TT_M3HQ -D TEST_IKS01A2
TT_M4G9	mbed compile -t GCC_ARM -m TT_M4G9 -D TEST_IKS01A2

Step3:连接开发板、Shield Board(以及 LCD 屏)

开发板平面示意图:



连接示意图:



Step4:烧写.bin 文件:

通过 USB 连接开发板和 PC, 会显示如下盘符



然后将 Step2 中编译的.bin 文件拖拽（或者拷贝）到对应的盘符中，拖拽（拷贝）完成后，按下 reset 键，会有如下输出。

	串口 Log 输出	LCD 输出
输出格式	<pre> Welcome to Thundersoft TT_M3HQ sensor1 id = 0xxx sensor2 id = 0xxx sensor3 id = 0xxx sensor1 data = sensor2 data = sensor3 data = </pre>	<pre> Welcome to Thundersoft TT_M3HQ sensor1 id = 0xxx sensor2 id = 0xxx sensor3 id = 0xxx sensor1: data sensor2: data sensor3: data </pre>
输出例	<pre> Welcome to Thundersoft TT_M3HQ LSM6DSL Sensor ID = 0x6a LSM303AGR_ACC_Sensor ID = 0x33 LSM303AGR_MAG_Sensor ID = 0x40 HTS221Sensor ID = 0xbc LPS22HBSensor ID = 0xb1 LSM6DSL X Axes = -12, -28, 1019 LSM6DSL G Axes = -1890, 2450, 140 LSM303AGR [acc/mg] = 16, 8, 948 LSM303MAG [mag/mgauss] = 250, -229, -940 HTS221Sensor humidity = 39.200001, temperature = 28.799999 LPS22HBSensor pressure = 0.000000, temperature = 30.200001 LSM6DSL X Axes = -11, -28, 1017 LSM6DSL G Axes = -1890, 2450, 140 LSM303AGR [acc/mg] = 4, 12, 971 LSM303MAG [mag/mgauss] = 255, -229, -937 HTS221Sensor humidity = 38.299999, temperature = 28.600000 LPS22HBSensor pressure = 0.000000, temperature = 30.100000 LSM6DSL X Axes = -13, -28, 1015 LSM6DSL G Axes = -1890, 2450, 140 LSM303AGR [acc/mg] = 12, -3, 963 LSM303MAG [mag/mgauss] = 253, -235, -937 HTS221Sensor humidity = 38.000000, temperature = 28.400000 LPS22HBSensor pressure = 0.000000, temperature = 30.000000 LSM6DSL X Axes = -11, -28, 1019 LSM6DSL G Axes = -1890, 2380, 140 LSM303AGR [acc/mg] = 16, 0, 971 LSM303MAG [mag/mgauss] = 255, -240, -942 HTS221Sensor humidity = 37.799999, temperature = 28.299999 </pre>	

开发者在取得代码后，也可通过 IAR/KEIL 编译烧写程序至开发板，关于 IAR 和 KEIL 的用法，本文中不做介绍，请开发者自行调试。