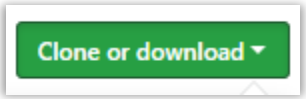
BIGTREETECH/BIQU SKR V1.1 instruction guide

All official information like firmware and hardware about this 32 bits 3D printer mainboard can be found on the BIGTREETECH official GITHUB site.

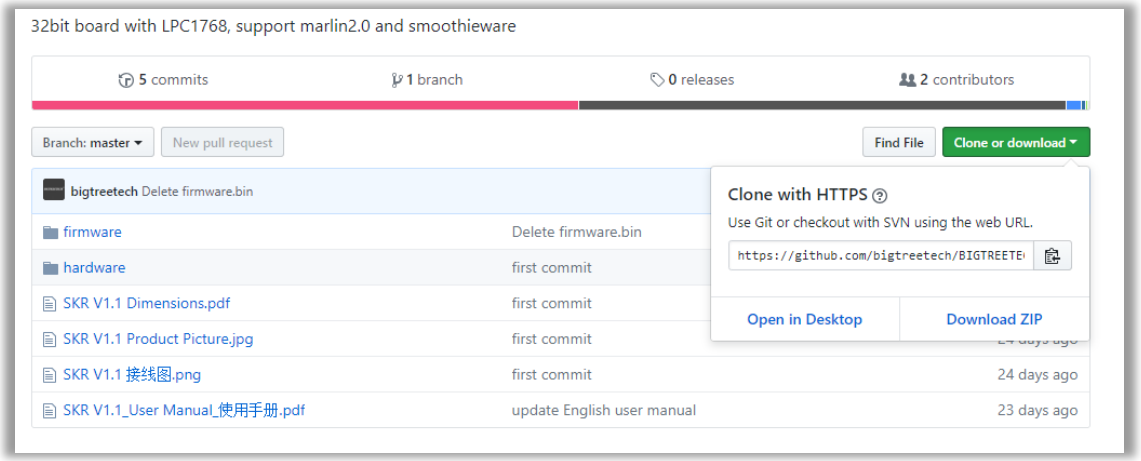
You can use VSCode + PlatformIO to compile Marlin 2.0 to BIGTREETECH/BIQU SKR V1.1

Intended for use with a Graphical Discount 128x64 LCD display

1.Download the Marlin2.0 firmware: from BIGTREETECH official GITHUB site and click.

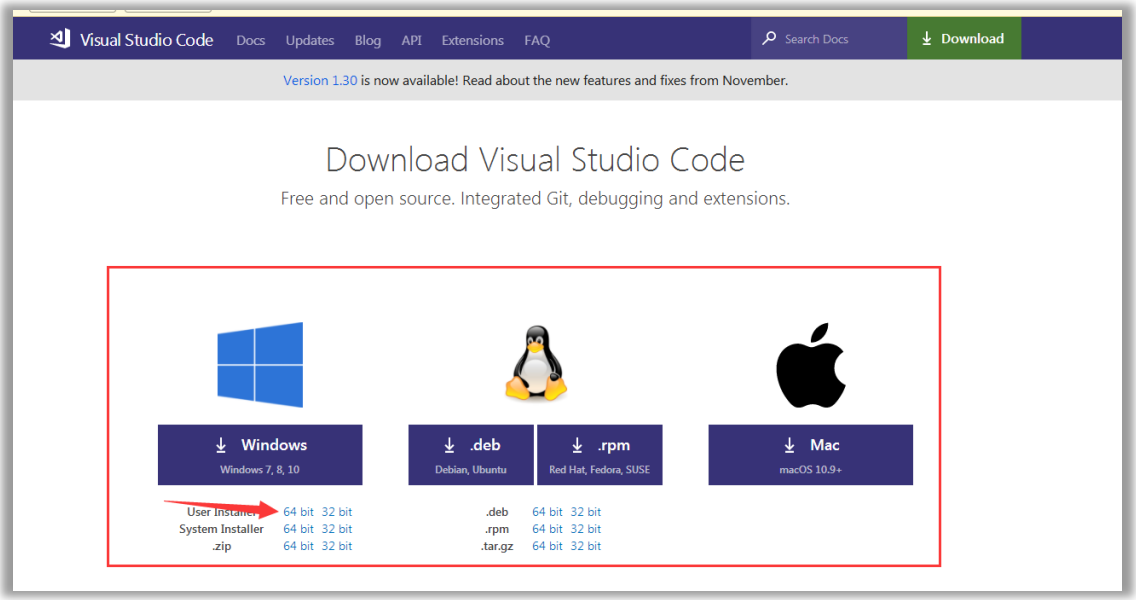


Click “Download ZIP”



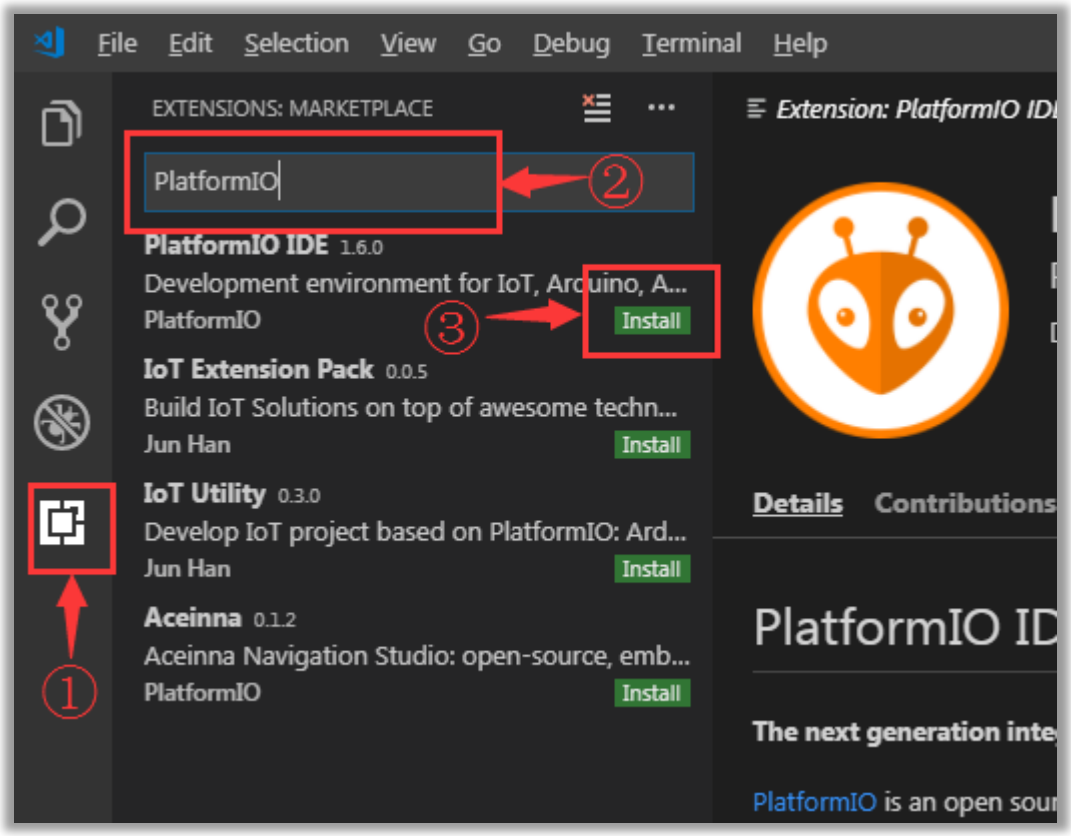
When the download is complete, unzip the file to a known place.

2.Download the Vscode from https://code.visualstudio.com/Download. Choose the version which is compliant with your PC operating system.

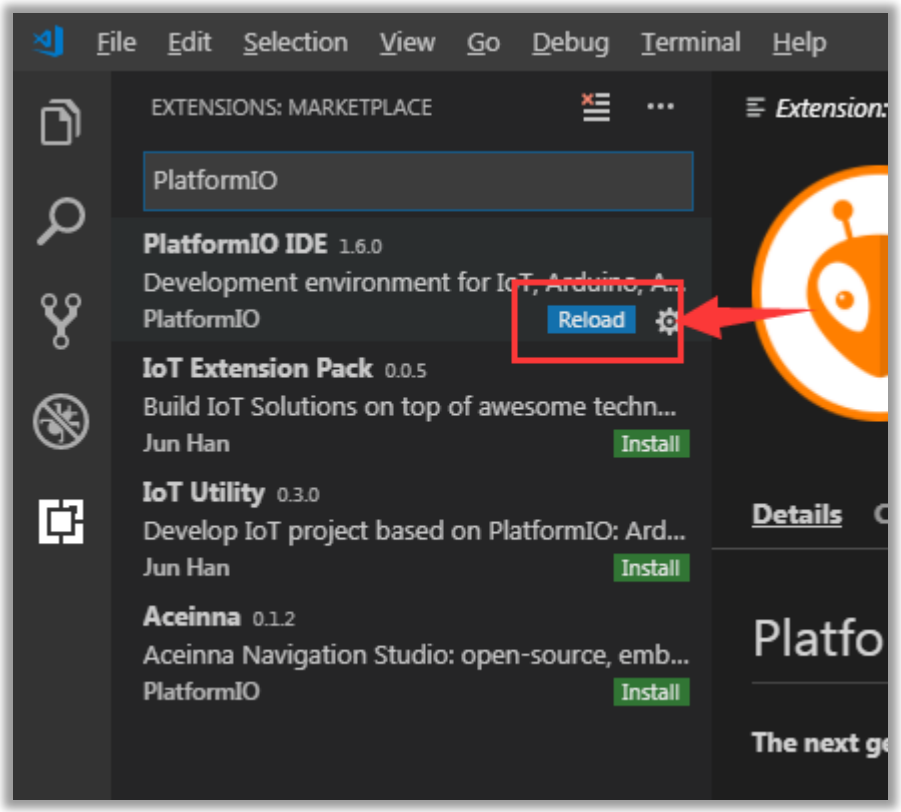


After the download is completed, double-click the installation. After the installation, open VSCode.

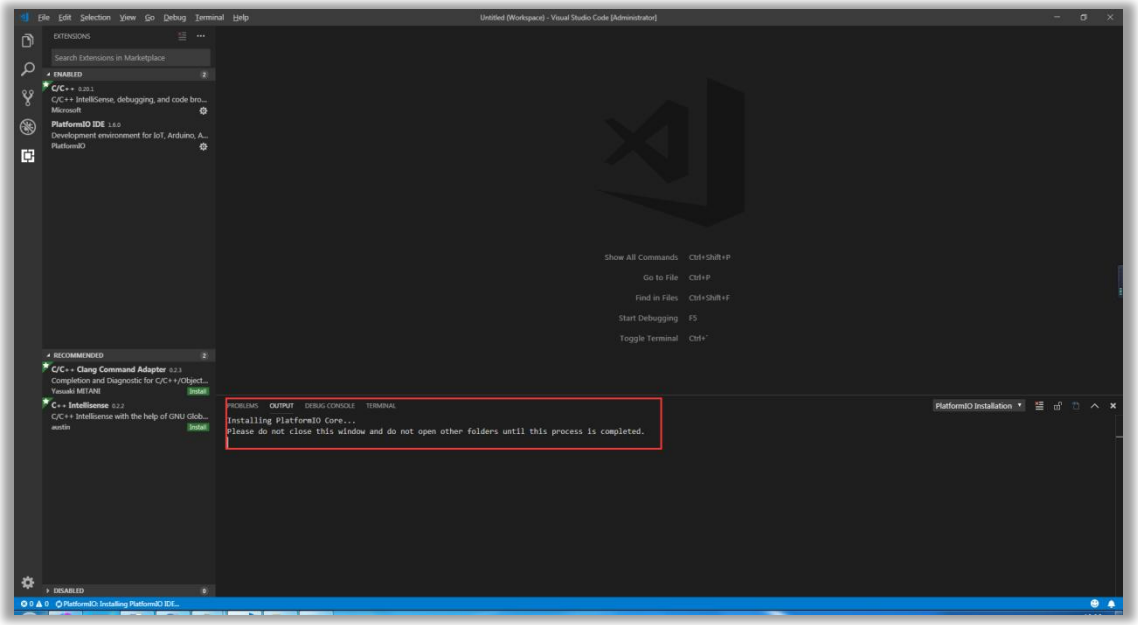
3.You also need to install the PlatformIO plugin, click on the steps below . Click on the step 1 in the figure below, enter PlatformIO in step 2 and click step 3 Install to install.



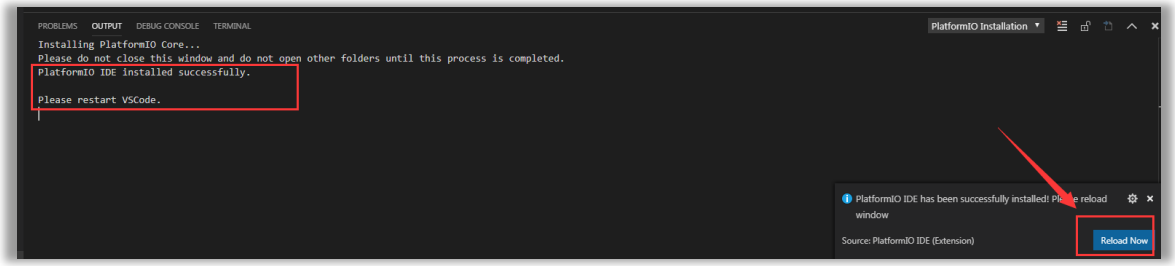
After the download is complete, you need to Reload.



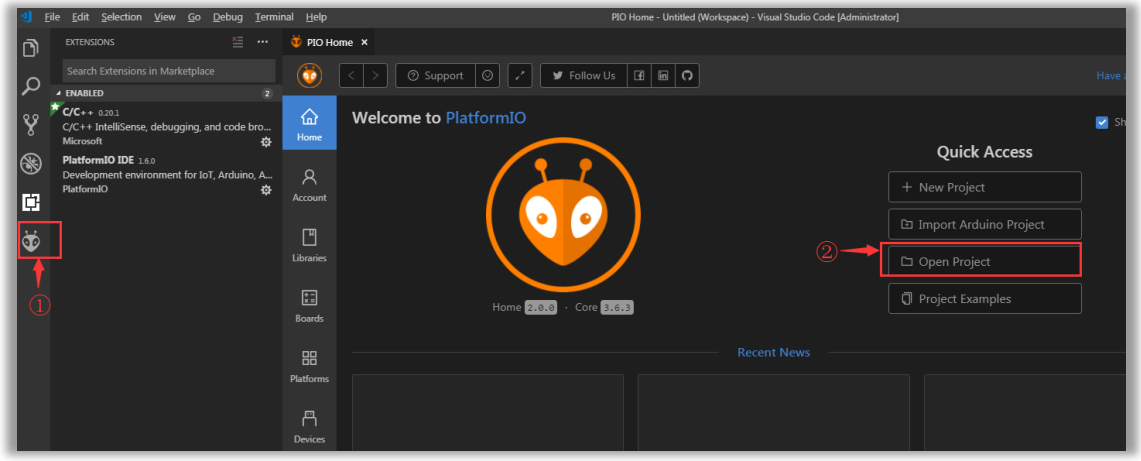
After Reload, you will be prompted to install PlatformIO Core. Please wait.



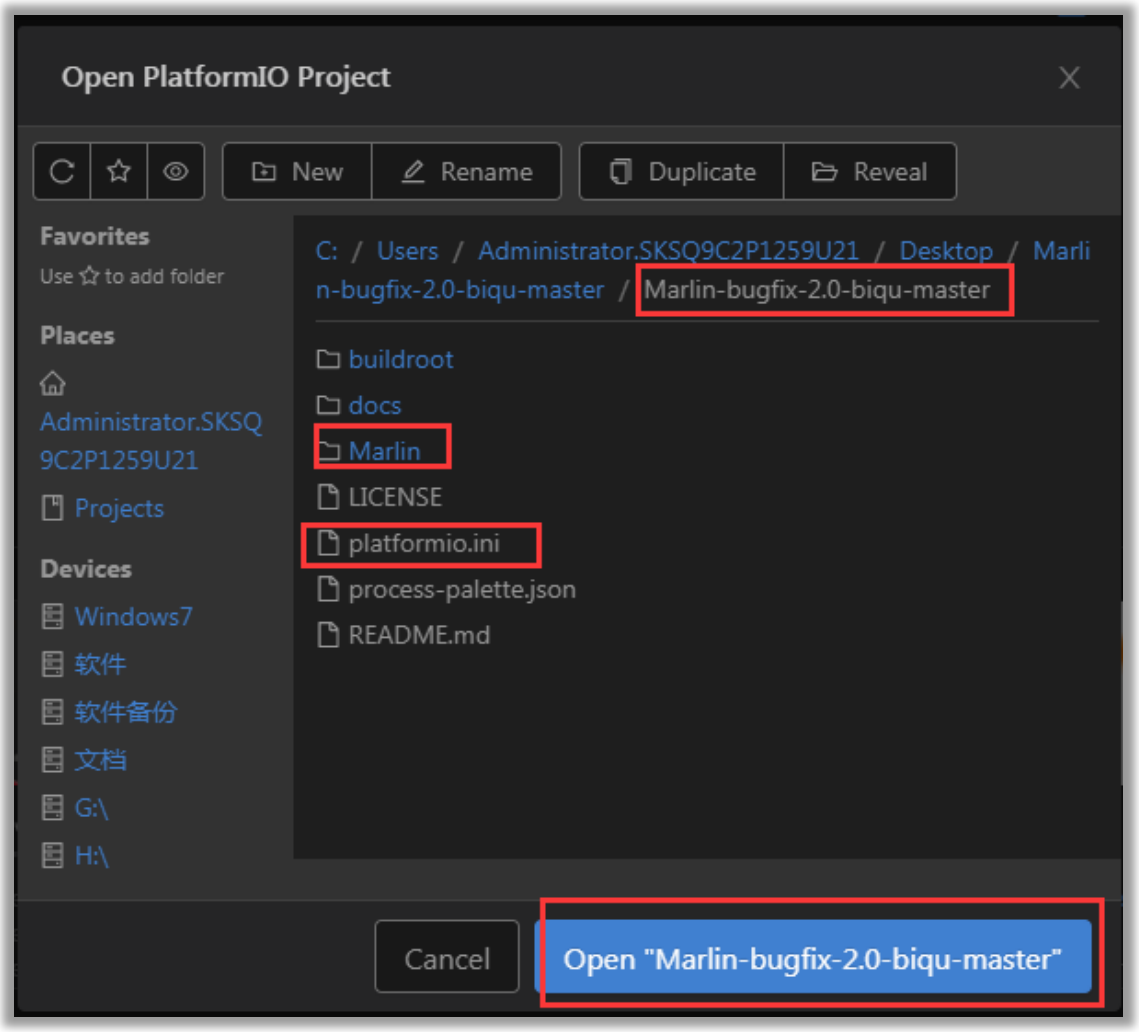
After the installation is successful, you need to Reload it again, and then PlatformIO is installed.



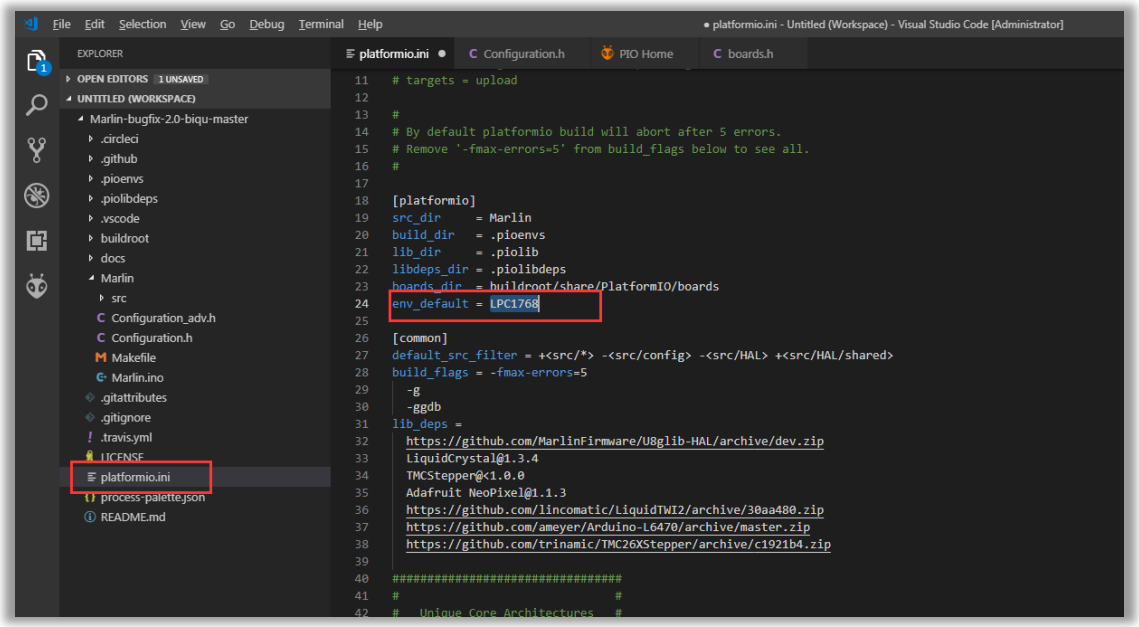
4.In the lower left corner of VSCode, you can see the icon (1), which is PlatformIO plug-in. Click (2) Open Project to Open the Project.



Find the marlin2.0 source directory where you extracted in the very first step, and click Open.



After opening the project, go to the PlatformIO.ini file and change the default environment from megaatmega2560 to LPC1768, env_default = LPC1768. The next steps might be already done.



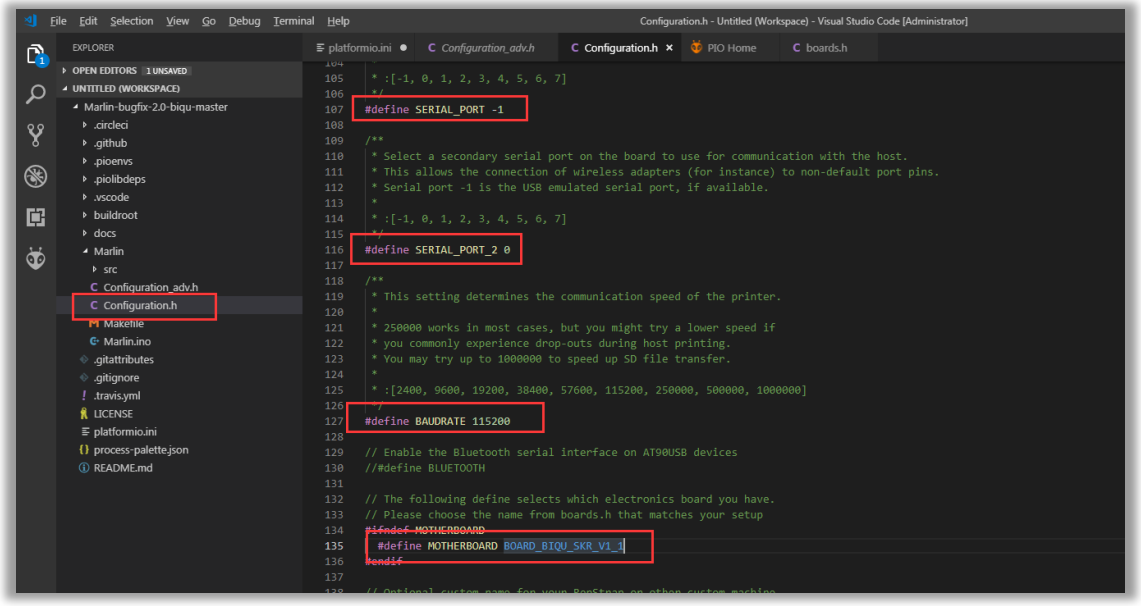
Then go to the configuration.h file and if not yet done modify it to

#define SERIAL_PORT -1

#define SERIAL_PORT_2 0

#define BAUDRATE 115200

#define MOTHERBOARD BOARD_BIQU_SKR_V1_1



If you like to use a BL-touch you have to change some code.

In the same Configuration.h

Modify the following lines:

//#define BLTOUCH and change to
#define BLTOUCH

//#define AUTO_BED_LEVELING_BILINEAR and change to
#define AUTO_BED_LEVELING_BILINEAR

// #define Z_SAFE_HOMING and change to
#define Z_SAFE_HOMING

// #define ENCODER_PULSES_PER_STEP 4 and change to
#define ENCODER_PULSES_PER_STEP 4

// #define ENCODER_PULSES_PER_STEP 4 and change to
#define ENCODER_PULSES_PER_STEP 4

// #define REVERSE_ENCODER_DIRECTION and change to
#define REVERSE_ENCODER_DIRECTION

If you like to activate Babystepping switch to Configuration_adv.h

//#define BABYSTEPPING and change to
#define BABYSTEPPING

//#define DOUBLECLICK_FOR_Z_BABYSTEPPING and change to
#define DOUBLECLICK_FOR_Z_BABYSTEPPING

//#define BABYSTEP_ZPROBE_OFFSET and change to
#define BABYSTEP_ZPROBE_OFFSET

//#define BABYSTEP_ZPROBE_GFX_OVERLAY and change to
#define BABYSTEP_ZPROBE_GFX_OVERLAY

#define BABYSTEP_MULTIPLICATOR 1 and change to
#define BABYSTEP_MULTIPLICATOR 20

Switch to pins_BIQU_SKR_V1.1 and change

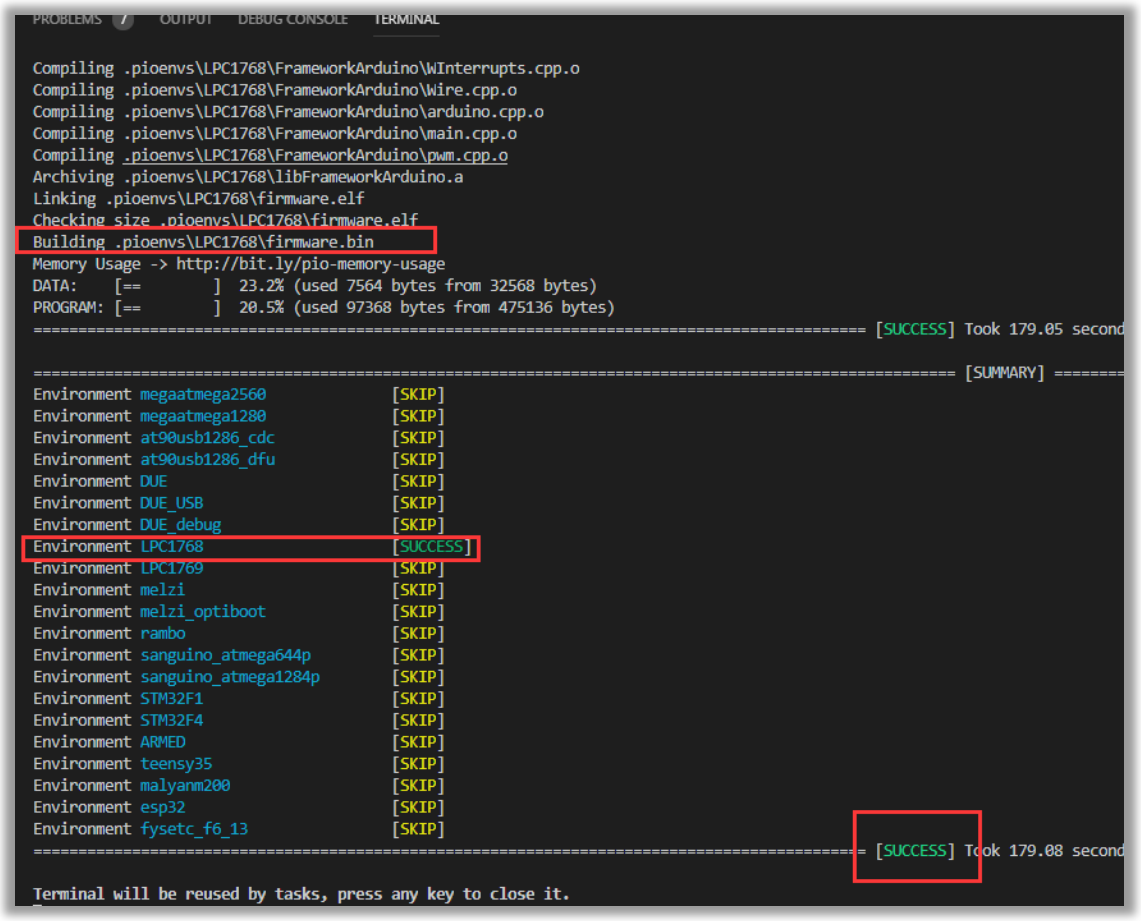
#define Z_MAX_PIN   P1_24 and change it to
//#define Z_MAX_PIN   P1_24

Add following code:
#if ENABLED(BLTOUCH)
  #define SERVO0_PIN   P1_24
// take care pinconfiguration is different for Zmax (+)(-)(puls) <> (-)(+)(puls) for BL-Touch
#endif

If your original BL-touch, clone TL-touch or clone BT-touch is dropping the pin during printing switch to Marlin/scr/inc/conditionals_LCD.h and change the following code:

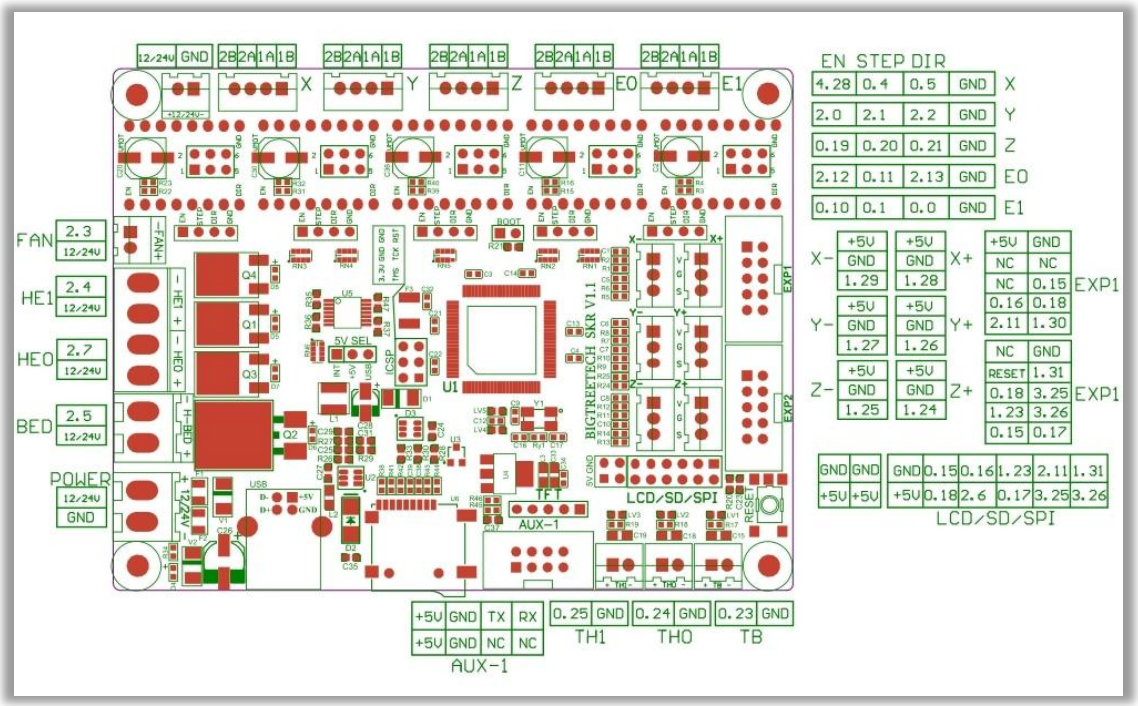
#define BLTOUCH_STOW   100 // was 90
#define BLTOUCH_SELFTEST 130 // was 120

After the modification is completed, press Ctrl+Alt+B.
PlatformIO will automatically download the compile component and then compile.

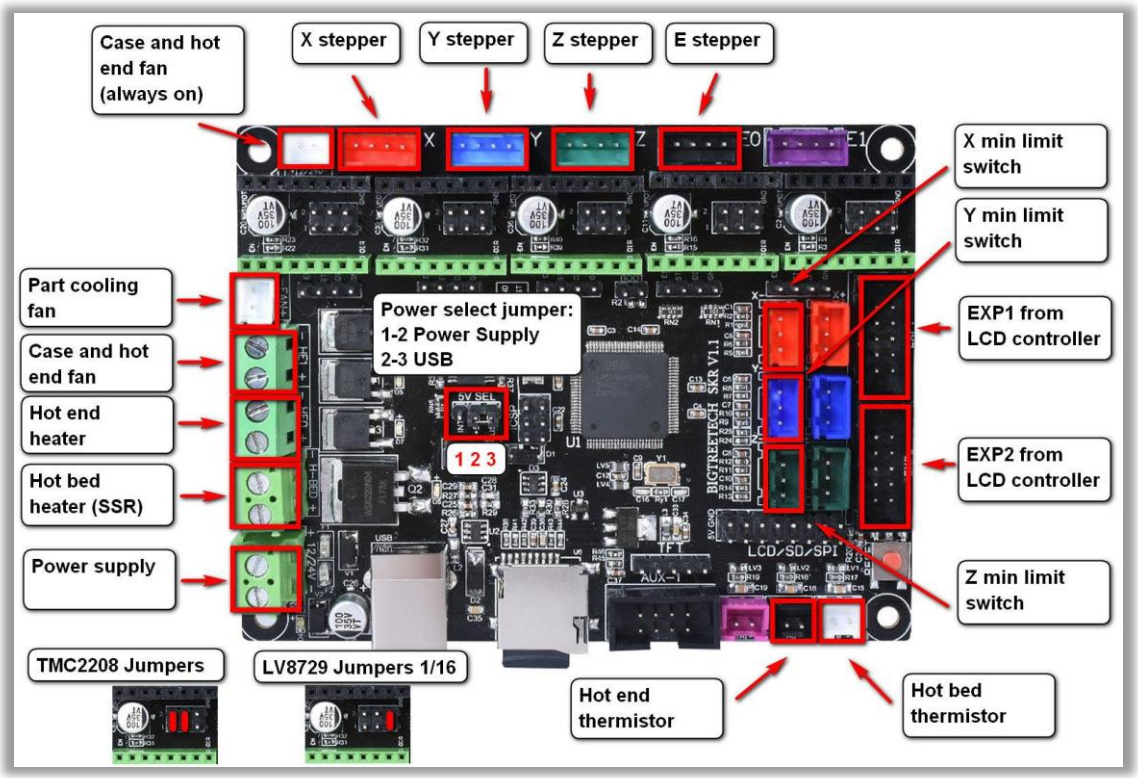


After the compilation is successful, a “firmware.bin” file will be generated in the .pioenvs\LPC1768 directory. Copy this file to the TF card of the motherboard and reset the motherboard, so that the firmware is burned into the motherboard.

Pin diagram by BIGTHREETECH



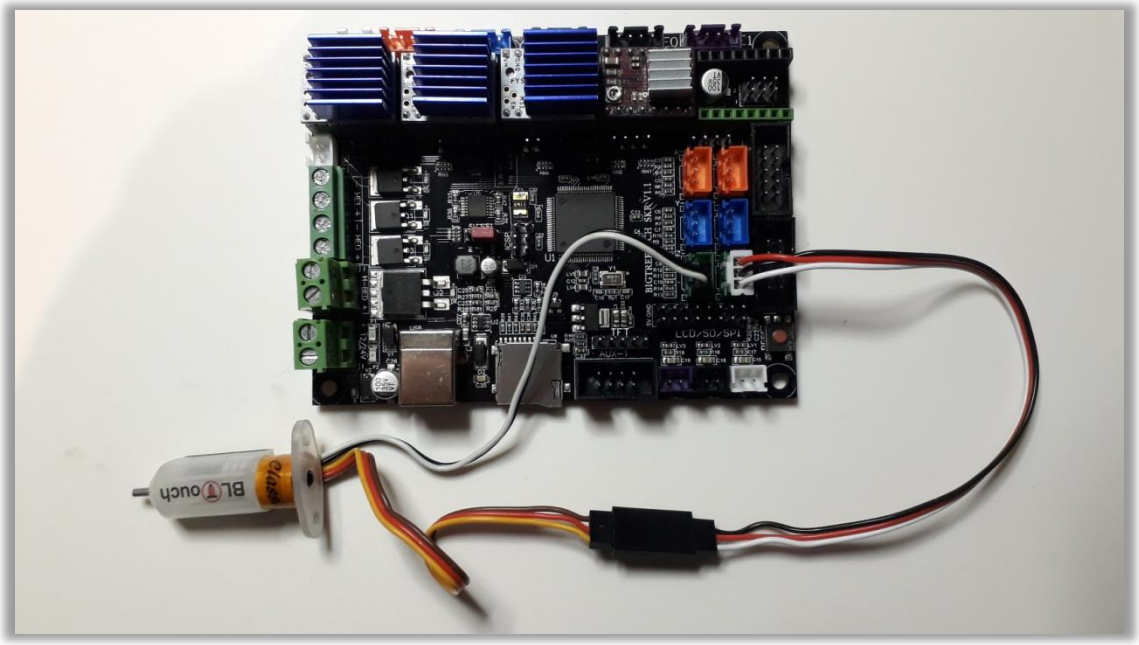
Connector names by [Krešimir Horvat]



BL-Touch

The SKR V1.1 board has no dedicated Servo port so the reassigned spare Green Z-Max connector can now be used as Servo0 port.

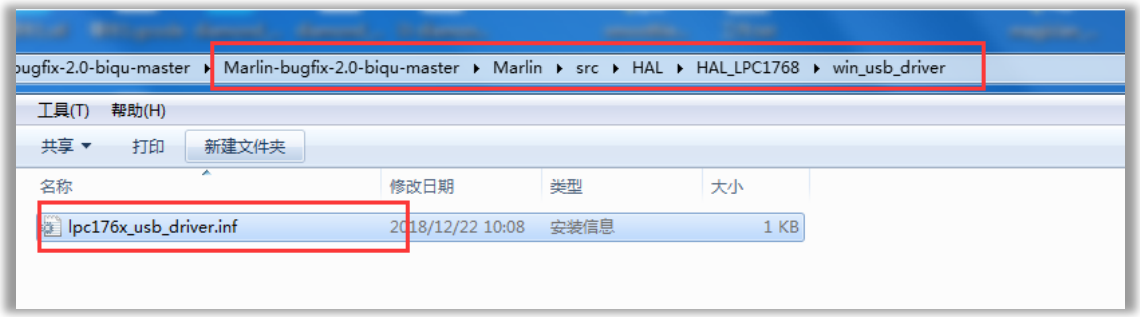
For connecting the BL-touch three wire cable to the Green Z-Max connector take care that the wire order is different.
SKR Board Green Z-Max >(+)(-)(puls)< and BL-touch >(-)(+)(puls)<
Positive and Minus need to be swapped. In this picture an intermediate connection cable is used to connect the BL-Touch 3 wire servo cable. The black/white BL-Touch cable goes straight to the pins GND/Z-Min(1.24) of the Green Z-min connector.



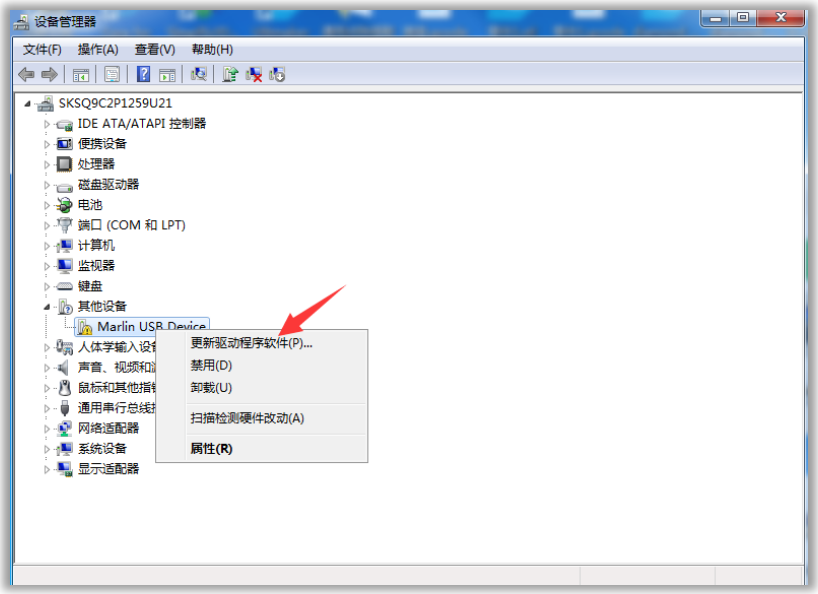
LCD

If your REPRAP DISCOUNT SMART CONTROLLER LCD is not working remove the lock tab from the EXP1 and EXP2 connectors at one side so you can place them reversed in the connector. You cannot blow the board or LCD this way.

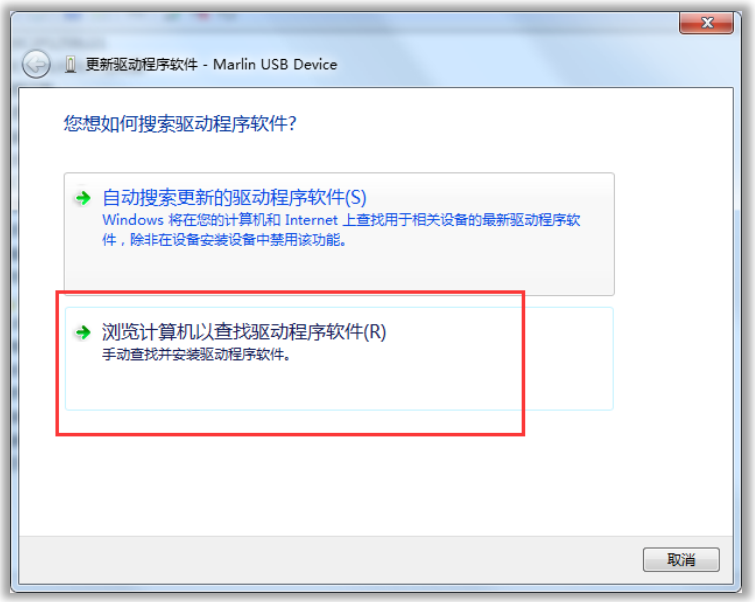
5. Online printing by USB, the first installation of Marlin 2.0, the computer identification motherboard needs to install USB to serial port driver, in the directory of the firmware as shown below. Because its path is too long, copy it to an easy to find location like to the desktop.



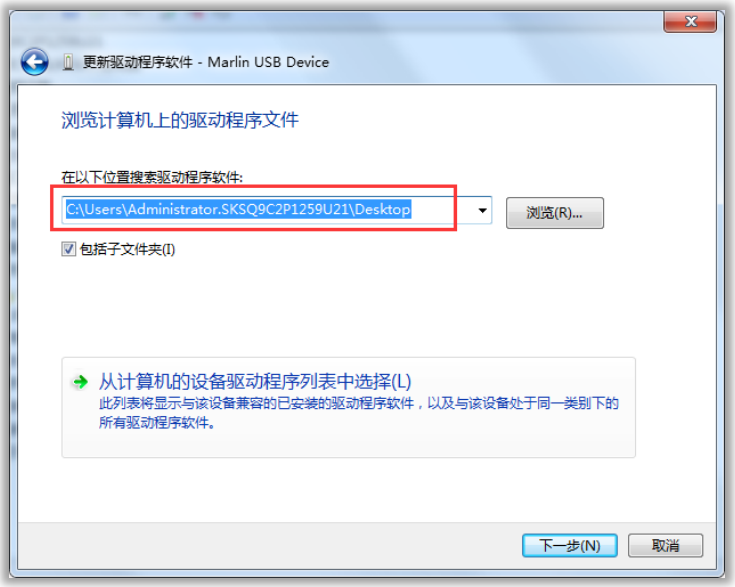
Open the Device manager, you can see that there is an unrecognized Marlin USB Device, click to update the driver software.



Browse the computer to find the driver software.

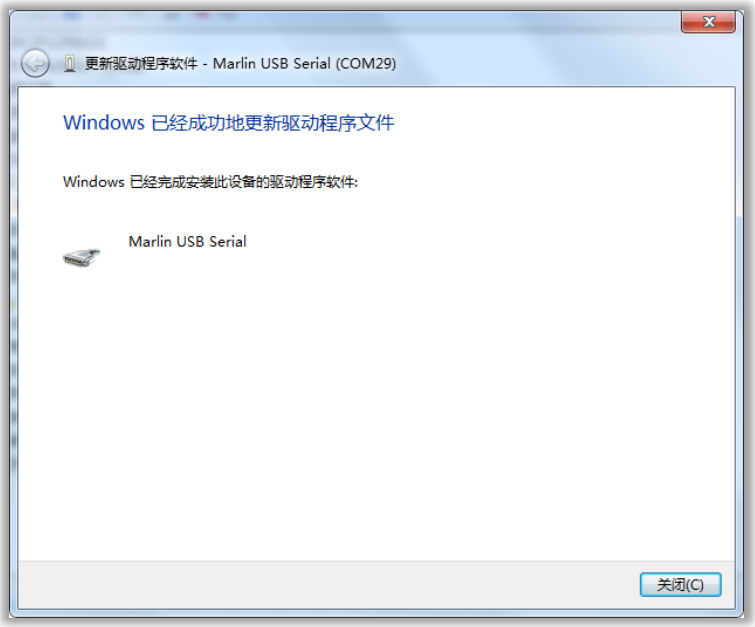


Select the path as the directory where the lpc176x_usb_driver.inf driver is located. We copied it to the desktop before, so select the desktop location: C:\Users\(Users Name)\Desktop and click Next. Check with the below picture.



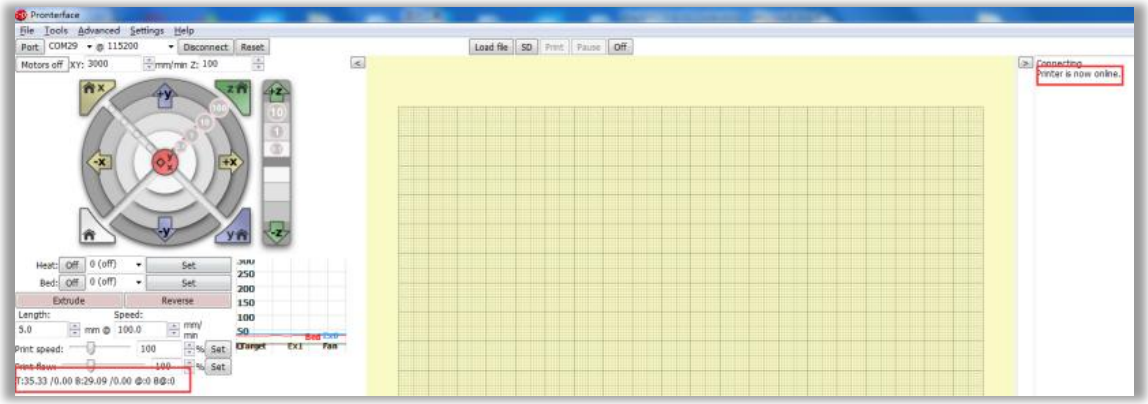
If you have firewall alerts, choose to always install this driver software.

If the install was successful, then the driver has been selected successfully. Remember the port number.



Open the Printrun/Pronterface online printing software as an example, select your com Port @115200, and then click Connect. Your COM port may be a different number.

On the right, you can see the printer is now online. This means that you have successfully connected to the printer. Now you can use your computer to control the printer



Driver jumper settings for standalone usage (No UART or SPI)

TMC2100	steps	MS1	MS2	MS3	Interpolation	Mode
	Full	0	0	Open	No	Spreadcycle
	1/2	1	0	Open	No	Spreadcycle
	¼	Open	1	Open	1/256	Spreadcycle
	1/16	0	1	Open	No	Spreadcycle
	1/4	1	1	Open	No	Spreadcucle
	¼	Open	1	Open	1/256	Spreadcycle
	1/16	0	1	Open	1/256	Spreadcycle
	¼	1	Open	Open	1/256	Stealthchop1
	1/16	Open	Open	Open	1/256	Stealthchop1

TMC2208	steps	MS1	MS2	MS3	Interpolation	Mode
	1/2	1	0	Open	1/256	Stealthchop2
	¼	0	1	Open	1/256	Stealthchop2
	1/8	0	0	Open	1/256	Stealthchop2
	1/16	1	1	Open	1/256	Stealthchop2

TMC2130	steps	MS1	MS2	MS3	Interpolation	Mode
	Full	0	0	Open	No	Spreadcycle
	½	1	0	Open	No	Spreadcycle
	½	Open	1	Open	1/256	Spreadcycle
	¼	0	1	Open	No	Spreadcycle
	1/16	1	1	Open	No	Spreadcycle
	¼	Open	1	Open	1/256	Spreadcycle
	1/16	0	Open	Open	1/256	Spreadcycle
	¼	1	Open	Open	1/256	Stealthchop1
	1/16	Open	Open	Open	1/256	Stealthchop1

A4988	steps	MS1	MS2	MS3	Interpolation	Mode
	Full	0	0	0	No	None
	½	1	0	0	No	None
	¼	0	1	0	No	None
	1/8	0	1	0	No	None
	1/16	1	1	0	No	None

DRV8825	steps	MS1	MS2	MS3	Interpolation	Mode
	Full	0	0	0	No	None
	½	1	0	0	No	None
	¼	0	1	0	No	None
	1/8	1	1	0	No	None
	1/16	0	0	1	No	None
	1/32	1	1	1	No	None

ST820	steps	MS1	MS2	MS3	Interpolation	Mode
	Full	0	0	0	No	None
	½	0	0	1	No	None
	¼	1	0	0	No	None
	1/8	0	1	1	No	None
	1/16	1	0	0	No	None
	1/32	1	0	1	No	None
	1/128	1	1	0	No	None
	1/256	1	1	1	No	None

LV7829	Steps	MS1	MS2	MS3	Interpolation	Mode
	Full	0	0	0	No	None
	½	0	0	1	No	None
	¼	1	0	0	No	None
	1/8	0	1	1	No	None
	1/16	1	0	0	No	None
	1/32	1	0	1	No	None
	1/64	1	1	0	No	None
	1/128	1	1	1	No	None

Windows 10: Disable Signed Driver Enforcement

How can I install drivers that are not digitally signed?

Windows 10 enforces driver signatures by default. This can be disabled to install drivers that are not digitally signed. Use the following steps to disable driver signature enforcement.

1. Click the **Start** **menu** and select **Settings**.
2. Click **Update and Security**.
3. Click on **Recovery**.
4. Click **Restart now** under **Advanced Startup**.
5. Click **Troubleshoot**.
6. Click **Advanced options**.
7. Click **Startup Settings**.
8. Click on **Restart**.
9. On the Startup Settings screen press 7 or F7 to disable driver signature enforcement.

Your computer will restart and you will be able to install non-digitally signed drivers. If you restart your computer again the driver signature enforcement will be re-enabled.

If you are the creator of part of this document and you like your content to be removed please report.