

Marlin 2.0 firmware guide (Revo Micro)

 Willi - E3D

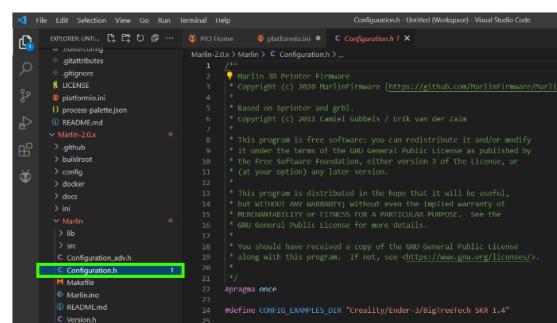
Getting started

This is a generic guide for getting started with Revo Micro on Marlin 2.0 Firmware.

Visual Studio Code is used to compile Marlin 2.0 Firmware with the help of the PlatformIO extension. This guide will take you through the process of installing these as well as setting up your Firmware specifically for Revo Micro.

Note:
You can load higher resolution versions of images by clicking on them

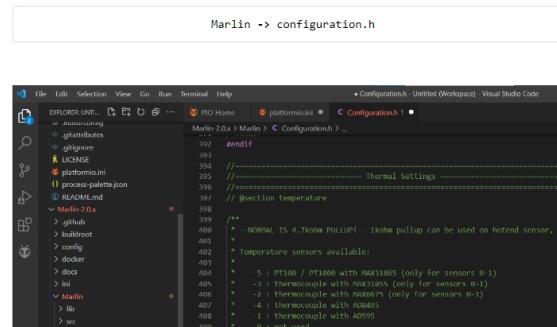
1. If you do not have Visual Studio code installed or a Marlin source firmware to work from, you should work through [this guide](#) first.



```
File Edit Selection View Go Run Terminal Help Configuration.h - Untitled (Workspace) - Visual Studio Code
EXPLORER: Untitled
gitattributes
gitignore
LICENSE
platformio.ini
process-palette.json
README.md
Marlin-2.0.x
github
buildroot
config
docker
docs
ini
Marlin
src
lib
Configuration.h
```

```
1 //*
2 * Marlin 3D Printer Firmware
3 * Copyright (c) 2009 MarlinFirmware [https://github.com/MarlinFirmware/Marlin]
4 *
5 * Based on Sprinter and grbl.
6 * Copyright (c) 2011 Camiel Gubbels / trid van der Zaaij
7 *
8 * This program is free software: you can redistribute it and/or modify
9 * it under the terms of the GNU General Public License as published by
10 * the Free Software Foundation, either version 3 of the License, or
11 * (at your option) any later version.
12 *
13 * This program is distributed in the hope that it will be useful,
14 * but WITHOUT ANY WARRANTY; without even the implied warranty of
15 * MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
16 * GNU General Public License for more details.
17 *
18 * You should have received a copy of the GNU General Public License
19 * along with this program. If not, see https://www.gnu.org/licenses/.
20 */
21 #pragma once
22
23 #define CONFIG_EXAMPLES_DIR "CreativityUnderJ/BigTreeTech SKR 1.4"
24
```

2. Locate 'configuration.h' in the explorer tab and open it:

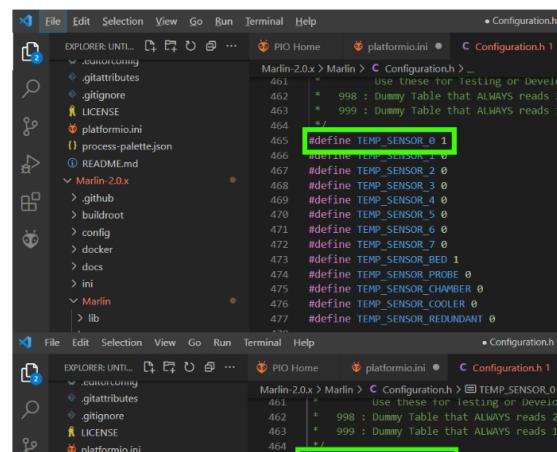


```
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src
lib
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```

```
393 #endif
394 //-----
395 //----- Thermal Settings -----
396 //----- Section Temperature -----
397
398 /**
399 * - NORMAL IS 4.7kOhm PULLUP - 1kOhm pullup can be used on hotend sensor, with
400 * - 1 : PT100 / PT1000 with MAX31855 (only for sensors 0-1)
401 * - 2 : Thermocouple with MAX31856 (only for sensors 0-1)
402 * - 3 : Thermocouple with MAX31855 (only for sensors 0-4)
403 * - 5 : PT100 / PT1000 with MAX31855 (only for sensors 0-1)
404 * - 7 : Thermocouple with AD595
405 * - 8 : Thermocouple with AD595
406 * - 9 : Thermocouple with AD595
407 * - 4 : Thermocouple with AD595
408 * - 1 : Thermocouple with AD595
409 */
410 #define TEMP_SENSOR_0 1
411 #define TEMP_SENSOR_1 0
412 #define TEMP_SENSOR_2 0
413 #define TEMP_SENSOR_3 0
414 #define TEMP_SENSOR_4 0
415 #define TEMP_SENSOR_5 0
416 #define TEMP_SENSOR_6 0
417 #define TEMP_SENSOR_7 0
418 #define TEMP_SENSOR_BED 1
419 #define TEMP_SENSOR_PROBE 0
420 #define TEMP_SENSOR_CHAMBER 0
421 #define TEMP_SENSOR_COOLER 0
422 #define TEMP_SENSOR_REDUNDANT 0
```

3. Scroll through 'configuration.h' until you find the 'Thermal Settings' section or use **Ctrl+F**.

Note:
Using **CTRL+F** on your keyboard and then typing in a keyword (Eg. Thermal Settings) can help to speed up navigation. It's worth knowing that your line numbers won't always match up with the ones in the guide so it is better to look for keywords rather than line numbers.



```
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Marlin
src
lib
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```

```
461 #define TEMP_SENSOR_0 1
462 #define TEMP_SENSOR_1 0
463 #define TEMP_SENSOR_2 0
464 #define TEMP_SENSOR_3 0
465 #define TEMP_SENSOR_4 0
466 #define TEMP_SENSOR_5 0
467 #define TEMP_SENSOR_6 0
468 #define TEMP_SENSOR_7 0
469 #define TEMP_SENSOR_BED 1
470 #define TEMP_SENSOR_PROBE 0
471 #define TEMP_SENSOR_CHAMBER 0
472 #define TEMP_SENSOR_COOLER 0
473 #define TEMP_SENSOR_REDUNDANT 0
```

```

463 //defining TEMP_SENSOR_0
464 #define TEMP_SENSOR_0 1
465 //defining TEMP_SENSOR_1
466 #define TEMP_SENSOR_1 0
467 #define TEMP_SENSOR_2 0
468 #define TEMP_SENSOR_3 0
469 #define TEMP_SENSOR_4 0
470 #define TEMP_SENSOR_5 0
471 #define TEMP_SENSOR_6 0
472 #define TEMP_SENSOR_7 0
473 #define TEMP_SENSOR_BED 1
474 #define TEMP_SENSOR_PROBE 0
475 #define TEMP_SENSOR_CHAMBER 0
476 #define TEMP_SENSOR_COOLER 0
477 #define TEMP_SENSOR_REDUNDANT 0

```

4. For Revo Hemera with HeaterCore, change:

#define TEMP_SENSOR_0 1

to:

#define TEMP_SENSOR_0 5

Note:

Changing the definition here changes the type of thermistor that the board is expecting input from.

Warning:

If the Temperature Sensor type is not changed, this may result in incorrect temperature readings.

```

File Edit Selection View Go Run Terminal Help Configuration.h - Untitled (Workspace)
EXPLORER: UNIT... PIO Home platformio.ini C Configuration.h
Marlin-2.0.x > Marlin > C Configuration.h > HEATER_0_MINTEMP
534 #define CHAMBER_MINTEMP 5
535 // Above this temperature the heater will be
536 // This can protect components from overheating
537 // (see MINTEMP for thermistor short/failure
538 // protection)
539 #define HEATER_0_MAXTEMP 300
540 #define HEATER_1_MAXTEMP 275
541 #define HEATER_2_MAXTEMP 275
542 #define HEATER_3_MAXTEMP 275
543 #define HEATER_4_MAXTEMP 275
544 #define HEATER_5_MAXTEMP 275
545 #define HEATER_6_MAXTEMP 275
546 #define HEATER_7_MAXTEMP 275
547 #define BED_MAXTEMP 125
548 #define CHAMBER_MAXTEMP 60
549

```

5. Next we must locate the MAXTEMP values, you can set this value to 300.

Change:

#define HEATER_0_MAXTEMP 275

to:

#define HEATER_0_MAXTEMP 300

```

File Edit Selections View Go Run Terminal Help Configuration.h - Untitled (Workspace)
EXPLORER: UNIT... PIO Home platformio.ini C Configuration.h
Marlin-2.0.x > Marlin > C Configuration.h > HEATER_0_MINTEMP
518 #define TEMP_SENSOR_REDUNDANT_SOURCE 1 // the sensor
519 #define TEMP_SENSOR_REDUNDANT_TARGET 0 // the sensor
520 #define TEMP_SENSOR_REDUNDANT_MAX_DIFF 10 // (°C) temperature difference
521 #endif
522 // Below this temperature the heater will be switched off
523 // because it probably indicates a broken thermistor wire.
524 #define HEATER_0_MINTEMP 5
525 #define HEATER_1_MINTEMP 5
526 #define HEATER_2_MINTEMP 5
527 #define HEATER_3_MINTEMP 5
528 #define HEATER_4_MINTEMP 5
529 #define HEATER_5_MINTEMP 5
530 #define HEATER_6_MINTEMP 5
531 #define HEATER_7_MINTEMP 5
532 #define BED_MINTEMP 5
533 #define CHAMBER_MINTEMP 5
534

```

6. To ensure the safety triggers work, double-check that Heater 0 MinTemp is set to 5.

#define HEATER_0_MINTEMP 5

Note:

If you are printing in a particularly cold environment where the temperature might drop below 5°C, then you may want to decrease this value or heat the environment you will be printing in prior to printing.

```

1695 // Manually set the home position. Leave these undefined for automatic settings.
1696 // For DELTA this is the top-center of the Cartesian print volume.
1697 // #define MANUAL_X_HOME_POS 0
1698 // #define MANUAL_Y_HOME_POS 0
1699 // #define MANUAL_Z_HOME_POS 0
1700 // #define MANUAL_I_HOME_POS 0
1701 // #define MANUAL_J_HOME_POS 0
1702 // #define MANUAL_K_HOME_POS 0
1703

```

7. To maximise your build area and ensure no space is lost, you may need to adjust your manual home position settings.

For example:

Let's say that you've finished installing your Revo Micro and go to 'home' the printer. You find that the Nozzle is no longer in the same position as it was before. It is 12mm out in X and 16mm out in Y. If this isn't accommodated for in the firmware, you will lose 12mm of Build Area in X and 16mm in Y. By adjusting the manual home positions to -12 in X and -16 in Y, you can accommodate for the discrepancy and the nozzle will end up in the same position as it was prior to your Revo Micro upgrade.

For example:

```
1694
1695 // Manually set the home position. Leave these undefined for automatic settings,
1696 // For DELTA this is the top-center of the Cartesian print volume.
1697 #define MANUAL_X_HOME_POS -12
1698 #define MANUAL_Y_HOME_POS -16
1699 // #define MANUAL_Z_HOME_POS 0
1700 // #define MANUAL_I_HOME_POS 0
1701 // #define MANUAL_J_HOME_POS 0
1702 // #define MANUAL_K_HOME_POS 0
1703
```

Warning:

The discrepancy in your home position before and after the upgrade will vary from user to user as a result of your machine and your choice of mount.

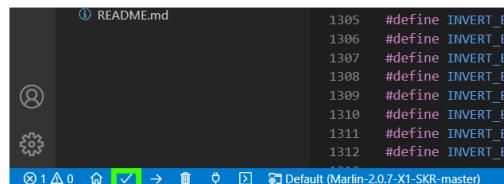
Unless you know what the exact offset between your old and new nozzle will be, it is a good idea to skip this step and come back to it once you've completed the upgrade and have homed the machine. That way you will be able to measure the distance yourself and make adjustments accordingly.

Warning:

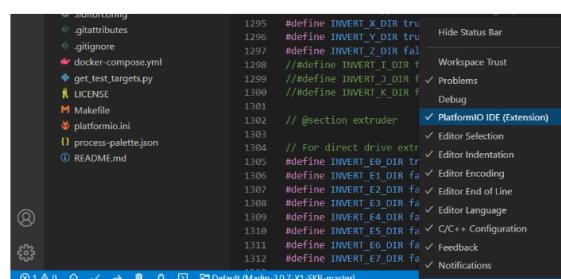
In order for changes to the home position values to take effect, you must uncomment them. You do this by removing the two forward slashes (//) that come before '#define'.

Compiling the Firmware

Before the firmware can be uploaded, it must be successfully compiled.



10. You should be able to see a small tick on the left of the blue ribbon at the bottom of your screen.



If you can't, you can bring it up by right-clicking on the blue ribbon and selecting 'PlatformIO IDE (Extension)'

11. Click on the tick and the compiling process should begin. The process shouldn't take more than a couple of minutes.



You should be greeted with a 'SUCCESS' message similar to this.

Note:

If it fails, it is most likely to be caused by a mismatch between your board and your default environment. Return to the guide linked in step 1 and double-check the environment is correct.

Uploading the Firmware

The final step is to take your newly compiled firmware and upload it to your printers mainboard.

Name	Date modified	Type	Size
github	07/09/2021 10:19	File folder	
<input checked="" type="checkbox"/> .pio	13/09/2021 14:34	File folder	
vscode	07/09/2021 10:20	File folder	
buildroot	07/09/2021 10:19	File folder	
config	07/09/2021 10:19	File folder	
data	07/09/2021 10:19	File folder	
docs	07/09/2021 10:19	File folder	
Marlin	13/09/2021 14:48	File folder	
editorconfig	07/09/2021 10:19	EDITORCONFIG file	1 KB
gitattributes	07/09/2021 10:19	GITATTRIBUTES file	1 KB
.gitignore	07/09/2021 10:19	GITIGNORE File	3 KB
LICENSE	07/09/2021 10:19	File	35 KB
platformio	13/09/2021 14:32	Configuration setti...	46 KB
process-palette.json	07/09/2021 10:19	JSON File	11 KB
README.md	07/09/2021 10:19	MD File	7 KB

12. Navigate back to the main Marlin-2.0.x folder. Open up the .pio file.

Name	Date modified	Type	Size
<input checked="" type="checkbox"/> build	13/09/2021 14:34	File folder	
libdeps	13/09/2021 14:34	File folder	

Click on build.

Name	Date modified	Type	Size
<input checked="" type="checkbox"/> LPC1768	13/09/2021 14:48	File folder	
project.checksum	13/09/2021 14:34	CHECKSUM File	1 KB

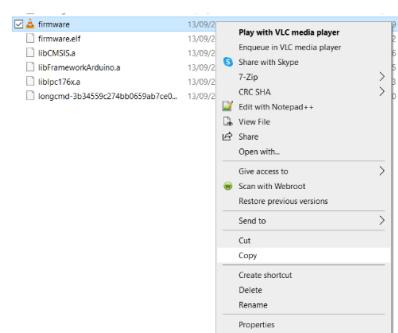
Click on LPC1768.

Name	Date modified	Type	Size
CMSIS	13/09/2021 14:35	File folder	
FrameworkArduino	13/09/2021 14:35	File folder	
lib87a	13/09/2021 14:35	File folder	
lib276	13/09/2021 14:35	File folder	
lib308	13/09/2021 14:35	File folder	
lpc176x	13/09/2021 14:35	File folder	
src	13/09/2021 14:34	File folder	
.gcc_path	13/09/2021 14:34	GCC PATH file	1 KB
scsconsnUtilite	13/09/2021 14:48	DBLITE File	3,900 KB
<input checked="" type="checkbox"/> firmware	13/09/2021 14:35	Video File	219 KB
firmware.elf	13/09/2021 14:35	ELF File	23,832 KB
libCMSIS.a	13/09/2021 14:35	A File	1,166 KB
libFrameworkArduino.a	13/09/2021 14:35	A File	2,105 KB
liblpc176xa	13/09/2021 14:35	A File	573 KB
longcmd-2b34559c274bb0659ab7e0...	13/09/2021 14:35	File	10 KB

You should find a '.bin' file in this folder.

Note:
VLC media player is installed on the computer being used for this guide and is viewing the file as a video file, to make sure it is a .bin file, right-click and check the file properties.

Note:
If you have compiled the firmware a number of times, you may be greeted with multiple .bin files. Make sure to choose the one with the most recent 'Date modified' if in doubt.



13. Copy the file.

14. Paste the file onto the SD or MicroSD card that fits into either your Mainboard or LCD screen.

Warning:
The "randomness" (timestamp) of the file name is required here, if you are tempted to rename the file make sure that you use a unique file name for each firmware flash you attempt. If you

I reuse an old name the screen might remain blank when restarting.

15. Make sure the printer is turned off, insert the SD card back into the printer, then power on.

The screen may remain black for a few seconds but should boot up with the new firmware.

16. You should complete a PID tune before starting your first print. You can find a guide for PID tuning with Pronterface [here](#).

If unsure about any of the steps, please contact our Support Team.



Have more questions? [Submit a request](#)

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