

Marlin Setup with New/Custom Printer

After jerry-rigging an old i3 to work with a spare e3 mainboard, I have a lot of very useful information on setting up a marlin printer from scratch. Firstly, you want to make sure all the hardware is configured correctly and wired properly. This is mainboard-dependent, so make sure you reference relevant documentation for your mainboard of choice.

Some relevant reading material:

- [Marlin Configuration Docs](#)
- [Marlin Troubleshooting Guide](#)

Setup Marlin for Build

1. Install vscode (ew) and make sure you have the following extensions installed:
 - [Platformio](#)
 - [Auto Build Marlin](#)
2. Clone the repo then open in vscode
3. Open Auto Build Marlin
4. Navigate to [Marlin Firmware Configurations](#) and pick a configuration that is similar/matches your hardware
5. Copy the relevant *.h files to Marlin/ in the repository.
6. Build using auto build marlin.
7. Verify It Builds

Configuring Marlin

The following is a list of steps to take when setting up the configuration for your printer. Generally speaking if you have any calibrated values (i.e. extruder Esteps, hotend/bed PID parameters) you should get the values and then edit the ones in firmware so that your calibrated values are the defaults. There also may be need for post-firmware configuration (such as home offsets and zprobe offsets). The following is a general list of stuff to setup and make sure are present (I would hope the printer you are targeting has most of these features).

At a baseline, identify the following characteristics of the printer and change the configs to match:

- Motion System
- Mainboard make/build
- Number of Extruders
- Motor Driver type
- Probes
- Termistors/Heaters
- LCD or display

Generally speaking, if you are running some commercially-available board, there will be a configuration in the examples on the marlin repository. If you are running a custom mainboard, why are you reading this?.

Configuration Checklist:

1. Motion System:

- Style (ie corexy or cartesian?)
- XYZ Steps/mm (use values derived from datasheets FIRST)
- E Steps/mm (usually a post-flash calibration value, favor undershooting if you dont know)
- Sensorless / Endstop Homing (sensorless usually requires setting jumpers on the mainboard)
- Stepper Driver Type (ie TMC2209)

2. Print Volume / Travel

- Bed Size
- Home offsets
- Min/Max XYZ motion

3. Z-Probe

- Type (ie inductive, bltouch, etc)
- Probe is endstop?
- Probe XY Offset to nozzle (Z is usually configured later, keep it at 0 for now)
- Z Safe Homing (this is basically a requirement if your Z endstop is also a probe)
- Temperature Compensation?
- Offset config wizard?

4. Thermal Performance / PID

- Max Hotend & Bed Temps?
- PID control enabled for both Hotend & Bed (i.e. not PID for hotend and bang-bang for bed)
- Autotune PID menu option (otherwise use gcode)
- Thermal Runaway tuning? (only really consider this if PID tuning still causes inaccurate thermal runaway and you have CONFIRMED it is not a hardware issue)

5. ABL

- Bilinear vs UBL
- min 3x3 grid, 2 probes per pt (2nd slowed, grid ideally is 5x5)

6. Miscellaneous Items

- SD Card Reader Functionality
- Printer Stats
- Input shaping (though you should probably just use klipper for this)

Additionally, these are things you want to put in firmware after calibration:

- Probe z offset
- E steps/mm
- Hotend/Bed Kp, Kd, Ki PID values

Slicer Profile (OrcaSlicer)

This is for OrcaSlicer because I like it and it gives you the most granular settings control for the most general set of printers.

From:
<https://memex.kyaruc.moe/> - **kyaruc memex**

Permanent link:
<https://memex.kyaruc.moe/3dp:marlin?rev=1778800246>

Last update: **2026-05-14 Thu 23:10**

