Marlin 2.0 for the Chiron

Firmware Features

Here is a summary of the features enabled in the firmware

All Chiron hardware and front panel features are supported.

Bed Levelling

- Mesh bed Levelling
- Sensor Bed Probing
- Manual level adjustment
- Enhanced single point adjustment
- Automatic mesh loading after homing

Preset Calibration

- Stock Hotend PID tune profile
- Stock Heatbed PID tune profile
- Stock extruder E-Step Calibration

Error Recovery

- Filament out detection and recovery enabled
- Power loss detection and recovery enabled (SD Printing only)
- Auto park head on Pause
- Validated temperature error detection (reduces spurious temperature warnings)

Printing Features

- Marlin Linear Advance enabled (preset K=8.0)
- Marlin Junction Deviation (preset to 0.028)
- Live Z axis baby stepping movement from panel during print

Folder Navigation

The SD card can be navigated like an normal PC folder.
Click a folder name to enter a folder and click .. to go back up to the previous folder.

How do things work?

Bed Levelling

The bed levelling uses the Anycubic Probe which creates a 5 x 5 mesh that is used to adjust the Z axis position during print. The mesh is automatically saved after homing and is automatically loaded and applied every time the printer is homed.

Top Tip! The bed levelling will be more accurate if you probe the bed when it is hot!

Here are the bed levelling steps: **Please follow these steps carefully!**

1) Home the printer

2) From the panel select Tools>More>Level>Probe make sure the probe is fitted then click OK. The printer will now probe the bed.

3) Once probing has finished, the head will park and you should remove the probe.

4) Now you must set the probe offset. Select Tools>More>Level>Advanced Setting

5) Tap red dot number 13 twice and the head will move to the centre of the bed and will be about 2mm above the bed.

6) **Check the 'ALL' box** and place a piece of paper under the head.

7) Use the +/- buttons to lower the head so that is grips the paper. You should be able to pull the paper but not push it. Now click OK.

8) The bed is now levelled!

Mesh Point Adjustment

If you want to check and adjust individual points, go back to the advanced level menu and click any of the red dots twice. The head will move to that point and you can adjust the point using the +/- buttons on the panel.

NOTE: When adjusting the probe offset or an individual mesh points, click OK to save your changes, or click back to cancel and revert to the last saved values.

Filament Runout

When the filament runs out, the printer will beep and the head will park. The old filament will be ejected and the printer will beep then you load the new filament and the print will continue.
The extruder heater will shut down after 3 minutes, and will reheat before attempting to feed in the filament or restart the print. Use the 'Continue' button on the front panel to tell the printer to continue the process.

The filament workflow looks like this:

1) The filament runs out
2) The printer beeps and parks the head and shows a warning on the panel
3) Printer ejects the remaining filament then beeps 5 times and waits
4) Insert the new filament and click continue
5) The printer will slowly feed 50mm of filament
6) It will then accelerate and feed a further 500mm
7) Finally, it will slow down and purge the last 100mm
8) Once the filament starts to come out of the nozzle, click continue and the print will resume.

Power loss Recovery

The printer can automatically recover a failed print during a power loss under the following conditions:

1. **You must be printing from the SD card**
2. **The print file must be in the root folder**
3. **You must leave the front 10cm of the bed clear**

The power loss recovery works like this:

1) The power goes out!
2) Manually move the print head off the print as it my get stuck.
3) Turn on the printer, you will hear an SOS beep to tell you the printer is in recovery mode.
4) Browse the SD card and select the file that failed, then click 'resume'.
5) The printer will home X and Y then will home Z so it should be clear of the print.
6) The bed and hotend will be reheated.
7) The head will then raise to a height 5mm above the point where the print failed.
8) The head will lower onto the print and it will resume where it left off.

If the power fails again, the print will be recovered from the new fail point.

If you wish to cancel recovery, either resume the print then stop it, or select a different file to print.

Live Baby Stepping during print

If you need to nudge the Z axis during a print you can now do this from the Advanced levelling menu.

Baby stepping works like this:

1) During a print Select Tools>More>Level>Advanced Setting
2) **Make sure ALL is selected**, the display will show 0.00
3) Each press of the +/- button will move the head by 0.05 mm
4) If you return to the menu during the print, that value will show how far the Z axis has been nudged.

At the end of the print the nudge value will be cleared. This is a temporary value that is not saved.

WARNING: This feature does not obey end stops so you can push the head into the bed with repeated movements, so use with caution!