Creality Ender 3 S1

Unboxing, assemble, initial leveling, print video:
https://www.youtube.com/watch?app=desktop&v=Z2n3ATTNQpc&ab_channel=Pergear
https://www.youtube.com/watch?v=AghQEvW-4JQ

Replacing Filament mid-print: https://www.youtube.com/watch?v=tCDtsEs51D8

Materials

Material settings: PLA 60C Hotbed, 200C Nozzle, for long narrow prints use 65-70C Hotbed temp ABS 100C Hotbed, 240C Nozzle, ensure no drafts during print

Warping on long models:

Set to 60 to 65 degree and im am cooling it down after first layer by 3-8 degree to 57°). Also tried reduce the temperature from the bed to 50-55 but Amazon Basic PLA (which is known for bed layer adhesion…) don't seem to stick well with this setting.

I reduced the fan speed and i enable the fan at layer 3 instead of 2 (also read that some people start fan at layer 5). This seems to work for now….

In general i would suggest to reduce bed heat as much as possible and maybe reduce the z-offset so that the first layer is literally pressed onto the bed. (Attention to not scratch your build plate) - (Check with first layer calibration prints which z-offset is the minimum to still have a nice first layer)

Webcam holder

Note that the standard webcam/tripod/camera mount screw is 1/4-20 UNC = 6.35mm with 20 thread size. An M5/M6 screw does NOT fit.

Ender 3 s1 Modular webcam mount by Taylorthomas https://www.thingiverse.com/thing:5414618

https://www.printables.com/model/328522-ender-3-s1-webcam-mount
https://www.thingiverse.com/thing:5199333 https://www.thingiverse.com/thing:5349102
https://www.printables.com/model/273755-ender-3-s1-universal-webcam-mount Gantry Camera Mount for Ender-3 S1 by Superman889 https://www.thingiverse.com/thing:5476426
https://printingatoms.com/how-to-connect-camera-to-ender-3/

Ender 3 Raspberry Pi Camera Mount https://www.thingiverse.com/thing:3188580

Official Creality LED Light bar

https://www.amazon.co.uk/Creality-Official-3D-Printer-Upgrade/dp/B09VH3NMHP

The instructions are quite bad, so here are a couple pointers:

- It doesn't matter which LED power plug goes into the switch on the right hand side
- To screw it in, remove the blind plastic pieces at the top of the Z Axis
- for cable routing use the same path as the filament sensor cable. The blind snaps off and back on:
  https://www.youtube.com/watch?v=LifRM4gGVi0

Ender 3 S1 Light Bar Cable Cover by kaimimue https://www.thingiverse.com/thing:5968849

S1/ S1 Pro parts

Ender 3 S1/Pro extruder cable holder/guide by Bananenminister
https://www.thingiverse.com/thing:5532813
https://www.printables.com/de/model/297182-ender-3-s1-pro-extruder-cable-holder-curaprofiles

Ender-3 S1 Easy Space Saver Control Mount - Easy Print (S1 Pro & V2 as well) *new version 1.02 link in notes by Zakor https://www.thingiverse.com/thing:5368309

Ender 3-S1 Tray Organizer Insert https://www.thingiverse.com/thing:5971430 or: Creality Ender 3-S1 - tray insert/Organizer By-N_G by N_G4ever https://www.thingiverse.com/thing:5499212

Needs to be printed in ABS, bottom part and motor cover: Ender 3 S1 Bed Cable Angle by MrPiouPiou https://www.thingiverse.com/thing:5417098 and remix of top part: Ender 3 S1 Bed Cable Angle by Phipsi12 https://www.thingiverse.com/thing:5531129/files About 1-2mm of overhang from the original connector needs to be removed to prevent the connector from catching the Z Axis motor.

Hinge bed cable connector: https://www.thingiverse.com/thing:5953410

Ender 3 S1 Flexible flat cable holder by Alei100 https://www.thingiverse.com/thing:5244810

Ender 3 S1 Cable Guide by chewduh https://www.thingiverse.com/thing:5754766

to check:

Ender 3 s1-things - Search
https://www.thingiverse.com/search?q=Ender+3+s1&page=25&type=things&sort=relevant

Ender 3 S1 Pro Filament Spool Clip by hayden-t https://www.thingiverse.com/thing:5418824

Ender 3 S1 - Torre de Temperatura - PRUSA Slicer by MatuKing
https://www.thingiverse.com/thing:5418757

Bed Handle

Ender 3 S1 bed handle by DontKickTrees https://www.thingiverse.com/thing:5784354

Ender 3 S1 Handle for Bed by DevaZ https://www.thingiverse.com/thing:5746990

Cable Chains

Ender 3 s1 cable chain by GreySid https://www.thingiverse.com/thing:5574037

Ender 3 S1 Pro Cable Chain by Selinuahs https://www.thingiverse.com/thing:5916206

Ender 3 S1 / Neo x Micro Swiss Direct Drive Cable Chain & right side carriage mount by hviet17 https://www.thingiverse.com/thing:5708954

Ender 3 S1 Pro - Heat Cable Chain by krebstiago https://www.thingiverse.com/thing:5800678

Ender 3 S1 Bed Cable Chain by Achaios https://www.thingiverse.com/thing:5834115

Ender 3 S1 Pro - Extruder Cable Chain by krebstiago https://www.thingiverse.com/thing:5800864

Bed Level Lock

Bed screw locks https://www.thingiverse.com/thing:6070269

Ender 3 S1/S1 pro - Locking Bed Level Knob by ajcam44 https://www.thingiverse.com/thing:5908385

Sensor mount

Ender 3 S1 and S1 Pro filament sensor bracket by mddatthngvrs https://www.thingiverse.com/thing:5419960

Sensormount - Creality Ender 3 S1 by jodill https://www.thingiverse.com/thing:5571665

Ender 3 S1 Filament Sensor Mount / Holder Rotated Version by joaolsneto https://www.thingiverse.com/thing:5332875

Ender 3 S1 runout sensor bracket by beefdrip https://www.thingiverse.com/thing:5905176

Display mount

Ender 3 S1 display bracket display mount by KennethBernal https://www.thingiverse.com/thing:5407497

Rotatable screen for Ender 3 s1 and s1 Pro by JohannBreid https://www.thingiverse.com/thing:5863301

Display Holder for ALL ender 3 s1 screens (knob and touchcreen) (Separate from printer) by HankTank109_ https://www.thingiverse.com/thing:5626066

Sonic Pad

Enable root access: How to find the root password for Creality Sonic Pad:

1. Select “Other Settings” from the Creality Sonic Pad interface.
2. Select “Advanced Options”
3. Select “Root Account”

root pw: cxsw-sonic_2023

root@spad-3858:/mnt/UDISK/printer_config# vi moonraker.conf

create .ssh/config entry and add something like the following

```
Host spad
    HostName 192.168.1.13
    Port 22
    User root
    HostKeyAlgorithms=+ssh-rsa
    PubkeyAcceptedKeyTypes +ssh-rsa
```

Transfer ssh id to host either by editing/creating /etc/dropbear/authorized_keys or using copy_ssh_id

```
ssh-copy-id -oHostKeyAlgorithms=+ssh-rsa root@192.168.1.13
```

For OctoPrint, enable compat mode in moonraker.conf

Resonance Measurement / Input shaping: Bracket holder STL files are on the provided usb stick for round or flat sensor cable.

configure → other settings → Advanced options → Measuring Resonances Select printer (moving print bed or static print bed) connect sensor to sonic pad Connect sensor to print head via bracket Test takes about 3 minutes detach sensor from print head and connect to print bed sonic pad will reboot

disable slicer acceleration control (cura etc)

klipper added input_shaper section in printer.cfg

[resonance_tester] # accel_chip: adxl345 # accel_per_hz: 70 # probe_points: # 117.5,117.5,10

[input_shaper] #shaper_type_x = mzv #shaper_freq_x = 56.4 #shaper_type_y = mzv #shaper_freq_y = 36.2

https://m.youtube.com/watch?v=LGsbYTR7shk https://m.youtube.com/watch?v=TKInn-KMe9g https://m.youtube.com/watch?v=B_zB5UHMZws https://m.youtube.com/watch?v=Kr2R5b8Z1y0

Cura and Klipper/Sonic Pad

https://www.creality.com/pages/download-creality-sonic-pad

https://all3dp.com/2/cura-klipper-tutorial/ - disable coasting in cura (interferes with klipper's pressure advance) - disable acceleration control and jerk control in speed settings tab - set Cura's retraction distance to 0.75 or 0.8 mm

Addons from marketplace: **arc welder**

moonraker connection

1. Install and restart cura
2. Go to "Settings > Printer > Manage Printer" and select "Connect Moonraker".
3. Now configure the URL for your Klipper-Moonraker instance using the IP address including port i.e. http://192.168.1.13:7125 and http://192.168.1.16 of fluidd web interface
4. Optionally add the identifiers of any powered devices you've configured in Klipper (e.g. LED lights), and add a camera URL if installed.
5. Choose to upload G-code or UFP files. Configuration settings are saved when this window is closed.

After slicing a model, the usual file save options will now include the prompt "Upload to <Printername>" that pops up a window where you can change file names and set other details. It's as simple as that!

Official Cura profiles - note the bed dimensions in the instructions for the S1 are incorrect! https://www.creality.com/pages/download-creality-sonic-pad

tuyaplug moonraker

Requires "Moonraker Tuya Generic HTTP Service" as docker or on other system: https://github.com/teejo75/mtghs

Add the configuration for the power plug to moonraker.conf

moonraker.conf

```
[secrets]

#  Add as many sections as needed for the devices you want to control.
[power tuyaplug]
type: http
#  In the below urls, <name> should be replaced with your device name
per names.json, devices.json/snapshot.json
#  <service> should be replaced with the hostname and port of the
service.
on_url: http://192.168.1.2:7126/on/3D-Printer
off_url: http://192.168.1.2:7126/off/3D-Printer
status_url: http://192.168.1.2:7126/status/3D-Printer
request_template:
    {% if command in ["on", "off"] %}
        {% do http_request.set_method("PUT") %}
        {% do http_request.add_header("api_key", "%s" %
"ah2CTGhxONWEb76I1O5qZvM7yacCKmhf" ) %}
```

```
        {% do http_request.set_body({}) %}
    {% endif %}
    {% do http_request.send() %}
response_template:
  {% set resp = http_request.last_response().json() %}
  {resp["status"]}

off_when_shutdown: False
#   If set to True the device will be powered off when Klipper enters
#   the "shutdown" state.  This option applies to all device types.
#   The default is False.
# off_when_shutdown_delay: 0
#   If "off_when_shutdown" is set, this option specifies the amount of
time
#   (in seconds) to wait before turning the device off. Default is 0
seconds.
on_when_job_queued: True
#   If set to True the device will power on if a job is queued while
the
#   device is off.  This allows for an automated "upload, power on, and
#   print" approach directly from the slicer, see the configuration
example
#   below for details. The default is False.
locked_while_printing: True
#   If True, locks the device so that the power cannot be changed while
the
#   printer is printing. This is useful to avert an accidental shutdown
to
#   the printer's power.  The default is False.
restart_klipper_when_powered: True
#   If set to True, Moonraker will schedule a "FIRMWARE_RESTART" to
command
#   after the device has been powered on. If it isn't possible to
immediately
#   schedule a firmware restart (ie: Klippy is disconnected), the
restart
#   will be postponed until Klippy reconnects and reports that startup
is
#   complete.  Prior to scheduling the restart command the power device
will
#   always check Klippy's state.  If Klippy reports that it is "ready",
the
#   FIRMWARE_RESTART will be aborted as unnecessary.
#   The default is False.
restart_delay: 8.
#   If "restart_klipper_when_powered" is set, this option specifies the
amount
#   of time (in seconds) to delay the restart.  Default is 1 second.

# This enables a power button in mainsail.
bound_services: klipper
```

create a moonraker.secrets file containing the api/passwords. This doesn't appear to work properly though

moonraker.secrets

```
[mtghs]
api_key: ah2CTGhxONWEb76I1O5qZvM7yacCKmhf
```

Pause at layer

Setting pause at height in Cura:

```
o Extensions -> Post Processing -> "Pause at height"
o Set Pause at Layer Number to layer to pause at
o Set to Malin (M0)
o Park Print Head at 190,190 (back right)
o Retract 1-2mm
```

Prerequisite to support the M0 command in klipper/Sonicpad: ssh into sonicpad

```
vi /mnt/UDISK/printer_config/printer.cfg
```

add

```
[gcode_macro M0]
gcode:
    PAUSE
```

then reboot sonic pad