



Framework Station — Modular Mini- Tower & UPS SFF Case (Framework Laptop 12)



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Summary

Modular mini-tower & UPS case with 50Wh battery support for Framework Laptop 12 Mainboard. 100% support-free.

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> ⚠ **DISCLAIMER & IMPORTANT NOTICE:**

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> **1. I do not physically own the Framework Laptop 12 Mainboard.** This project was engineered purely as a digital CAD concept modeled with sub-millimeter precision around Framework Computer Inc.'s official 2D technical drawings and 3D reference CAD files. It has not yet been physically test-printed or test-fitted with a real board (untested conceptual prototype). Feedback, makes, and fitment photos in the Makes section are highly appreciated and welcome!

> 2. **Hero Images:** The photorealistic desk showcase images are **AI-generated conceptual visualizations** to demonstrate the intended setup, look, and ergonomics. Exact technical CAD renders and exploded assembly views of the actual 3D printed geometry are included in the gallery.

Framework Station — Modular Mini-Tower & UPS SFF Enclosure for Framework Laptop 12

Designed for the **Printables Contest: Framework Laptop 12 Mainboard Re-Use**.

The **Framework Station** transforms your Framework Laptop 12 Mainboard into a sleek, modular desktop workstation, home lab server, or portable mini-PC. Whether you are repurposing a board after an upgrade or building a dedicated SFF machine, the Framework Station brings workstation-grade aesthetics, zero-support printability, and genuine practical innovation.

Key Highlights & Features

1. Two Editions — One Modular Design

Slim Edition: An ultra-compact desktop case (227 × 129 × 16 mm) designed for the Mainboard alone. Perfect for a minimalist desktop computer, Plex/Jellyfin home server, or network appliance.

UPS / Battery Edition: An extended chassis that accommodates both the Framework 12 Mainboard **and** the official **Framework 50Wh Li-Ion Battery** (FRACFDB001). This provides a built-in Uninterruptible Power Supply (UPS) for home servers, or allows fully portable, cable-free computing on the go!

2. Vertical Desktop Tower Stand

Includes a custom-molded desktop cradle that props the enclosure vertically.

Takes up a tiny footprint on your desk while optimizing chimney-effect passive convection.

Chamfered front lip and rear cable relief for clean desk cable management.

3. Compliant Spring-Loaded Mechanical Power Button

Zero soldering or auxiliary wires required!

A built-in 3D-printed flexure spring cantilever with an actuation plunger aligns with precision to the onboard SMD tactile switch (*SW1** at X=104.0 mm, Y=30.0 mm).

Delivers a satisfying, crisp tactile click directly from the exterior case.

4. Full 4x Framework Expansion Card Compatibility

Preserves the full modularity of the Framework ecosystem: 2 bays on the left, 2 bays on the right (31.2 × 8.0 mm openings).

Fully supports official Framework Expansion Cards (USB-C, USB-A, HDMI, DisplayPort, MicroSD, Ethernet) or direct USB-C cable pass-through.

5. High-Flow Thermal Engineering

Direct Fan Intake: 50 mm circular hexagonal mesh positioned directly over the mainboard centrifugal blower for maximum intake volume and whisper-quiet airflow.

Exhaust Louvers: Angled perimeter vent arrays align with the heatsink fins to expel heat efficiently without thermal throttling, even during continuous multi-threaded workloads.

6. 100% Support-Free Printing

Every bevel, overhang, standoff, and port cutout has been parametrically modeled with self-supporting angles ($\leq 45^\circ$ or bridged spans under 8 mm).

All STLs are pre-oriented for your build plate: Bottom Chassis prints upright on its base; Top Cover prints exterior-face down on the bed (achieving a gorgeous textured surface on PEI).

Bill of Materials (BOM)

Item Qty Notes

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3D Printed Parts 2-3 Chassis, Top Cover, and optional Vertical Stand

Corner Screws 4 M3 × 16 mm (Socket head or Button head)
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Mainboard Screws 4-5 M2.5 × 5 mm or M2 × 5 mm (matches official Framework standoffs)

| **Rubber Bumper Feet** (Optional) | 4 | 8-10 mm adhesive silicone feet for horizontal orientation |

Recommended Print Settings

Printer Compatibility: Fits on standard 235 × 235 mm beds (Prusa MK3/ MK4, Prusa CORE One, Ender 3, Bambu Lab X1/P1/A1).

Material:

PETG or **ABS/ASA** (Recommended for higher temperature resistance around the heatsink exhaust).

PLA also works well if ambient temperatures are moderate.

Layer Height: 0.20 mm (STRUCTURAL or QUALITY preset).

Perimeters / Walls: 3 to 4 (gives rigid walls and strong screw threads).

Infill: 15% - 20% (Gyroid, Honeycomb, or Grid).

Supports: NONE (0%) — 100% support-free design!

Bed Surface: Textured PEI sheet gives the top cover and chassis an incredible matte cast-aluminum look.

Assembly Guide

1. Print the Parts:

For the **Slim Edition**: Print Framework_Station_Chassis_Slim.stl and Framework_Station_Top_Cover_Slim.stl.

For the **UPS / Battery Edition**: Print Framework_Station_Chassis_UPS.stl and Framework_Station_Top_Cover_UPS.stl.

Print Framework_Station_Vertical_Stand.stl if you want the vertical tower setup.

2. Mount the Mainboard:

Lower the Framework Laptop 12 Mainboard onto the 5 dedicated mounting standoffs in the chassis.

Secure using four M2.5 × 5 mm screws.

3. Install Battery (UPS Edition only):

Seat the 50Wh battery into the lower compartment and connect the ribbon cable to the mainboard battery header.

4. Attach Top Cover:

Place the Top Cover over the chassis. Ensure the compliant power button aligns naturally over the switch on the board.

Fasten the 4 corner M3 × 16 mm screws.

5. Insert Expansion Cards & Power On:

Slide your choice of 4 Framework Expansion Cards into the side ports.

Press the integrated power button — your Framework Station is ready to go!

Files Included

Printable Models STLs/):

Framework_Station_Chassis_Slim.stl

Framework_Station_Top_Cover_Slim.stl

Framework_Station_Chassis_UPS.stl

Framework_Station_Top_Cover_UPS.stl

Framework_Station_Vertical_Stand.stl

CAD / Engineering Source Files STEP_CAD/):

Individual STEP files for all parts for easy remixing and CAD customization.

Framework_Station_Slim_Assembly.step &
Framework_Station_UPS_Assembly.step (complete assemblies with simulated board fitment).

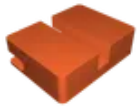
Designed with pride for the Printables community. Open source, remixable, and engineered with precision.

Model files

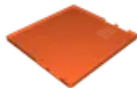


STEP

7 files



framework_station_vertical_stand.step



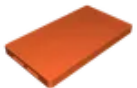
framework_station_chassis_ups.step



framework_station_chassis_slim.step



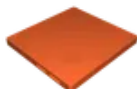
framework_station_top_cover_slim.step



framework_station_slim_assembly.step



framework_station_top_cover_ups.step

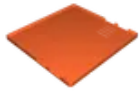


framework_station_ups_assembly.step



STL

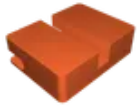
5 files



framework_station_chassis_ups.stl



framework_station_top_cover_slim.stl



framework_station_vertical_stand.stl



framework_station_chassis_slim.stl



framework_station_top_cover_ups.stl

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