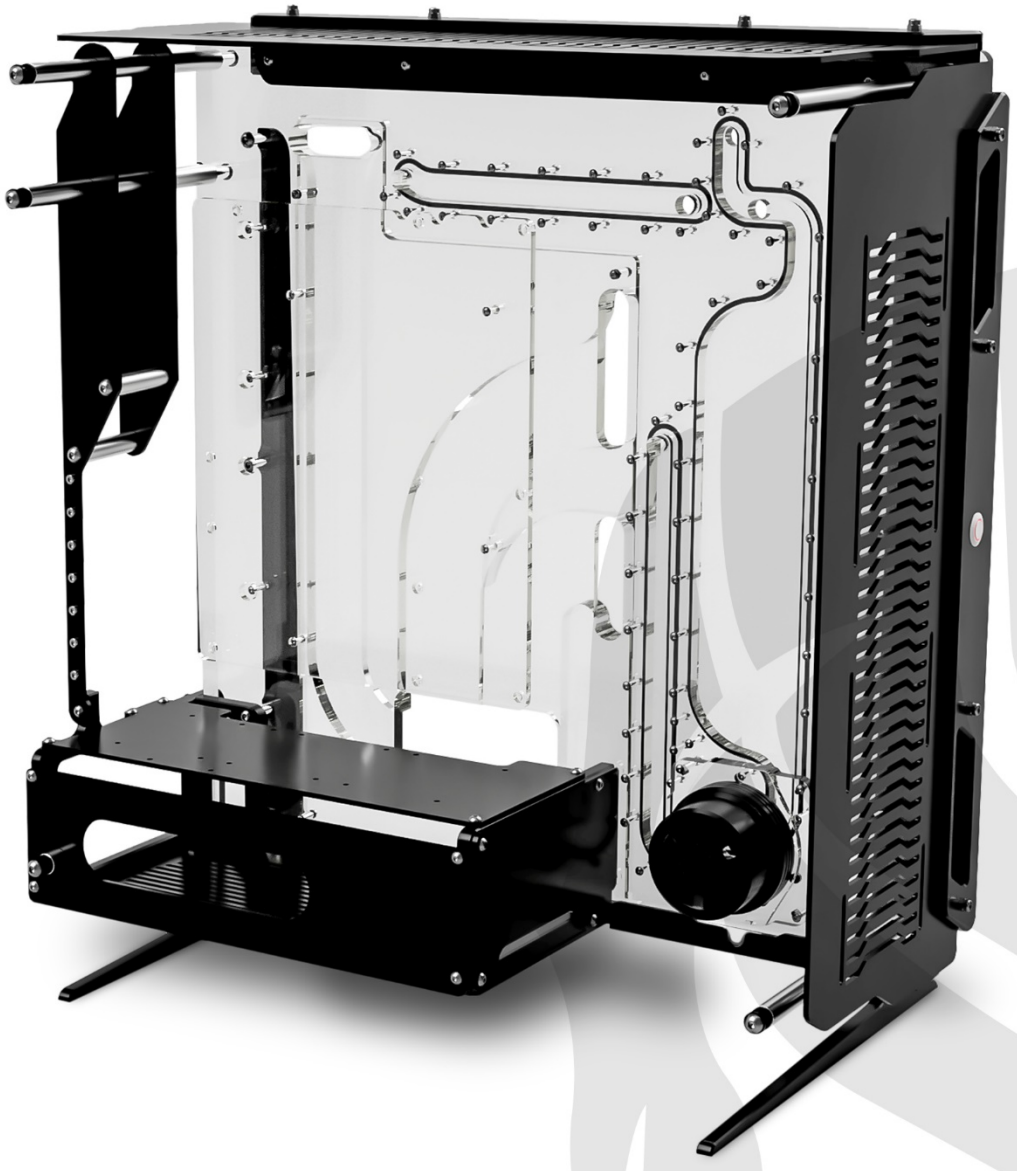
SINGULARITYCOMPUTERS

SPECTRE 2.0



ASSEMBLY MANUAL

Revision 2.11

IMPORTANT: Spectre Warranty

Thank you for your purchase, we look forward to seeing what you do with our creation. Spectre 2.0 introduced a number of new technologies and ideas. With this product we have pioneered liquid cooling integration using a production CNC machined manifold. Anything new requires education and there is an adjustment period.

Spectre 2.0 has a 2-year limited warranty.

Welcome to Singularity Computers and your new Spectre 2.0! We look forward to seeing what you create.

1: The Integrated Liquid Cooling System is pressure tested at the factory, so there is no need to adjust the fasteners on the manifold. Take care not to over tighten any fasteners on the acrylic. As soon as you feel any significant feedback or tension go no more than 1/4th of a turn past it. On the metal parts you can tighten normally. We are not responsible for damage caused by over-tightening the fasteners.

2: Any thread stripping, cross threading or thread damage of any kind will not be covered under our warranty. All threads are pre-tested. We use stainless steel fasteners which are extremely tough.

3: All acrylic is carefully checked for scratches, marks or particles as the manifold is assembled. We are not responsible for mistreatment of the acrylic. Only clean with a microfiber cloth and use nothing except distilled or deionized water for cleaning, or Novus Plastic Cleaner. Damage caused by cleaning agents (particularly alcohols or solvents) is not covered under warranty.

4: Acrylic Surface Guarantee: Marks on acrylic which cannot be wiped away with a microfiber cloth will only be covered under warranty under the following conditions: That they did not occur after the item was shipped from the Singularity Computers Factory or Retailer. If there are more than 10 marks which are beyond 5mm in length and visible when facing perpendicular to the surface. Evidence of this must be photographed in detail and photographs must be taken perpendicular to the surface. Marks must be easily visible in photographs; subtle marks will not be covered.

5: For the latest coolant recommendations please visit http://bit.ly/sc-important-info. We are not responsible for staining of the acrylic, but it has never been an issue with our products. Most staining will be easy to remove by flushing out the loop with distilled water for 24hrs or using Mayhems Blitz. If you are concerned about staining then we suggest Mayhems Non-Stain Dyes.

6: Any damage which occurs after the item leaves the Singularity Computers Factory or our Retailers is not covered under warranty. We are not responsible for shipping damage or mishandling.

Contents

Introduction & Features

Integrated Liquid Cooling Components

Spectre's design is focused on integration of liquid cooling components. The idea was to create a streamlined crossover between liquid cooling and cases. To create something extremely user friendly but also a base for modders to take things to the extreme. To create a substantial cost saving in liquid cooling components. The key was to cancel out the extremely high production costs of a manifold with integration. To create the first standardized production manifold.

Spectre has an integrated reservoir, pump top and half of the tube is also built into channels in the acrylic manifold. It includes a fill and drain port, integrated for ease of use. The integrated cooling system is designed for any D5 pump, two 360mm x 60mm radiators and can handle all of the most high-end components on the market. A second traditional loop can also be added for dual loops. A Singularity Computers Protium D5 Pump Cover is included with the case.

Integrated Cable management

Integrated cable management is another unique and also cost saving feature in Spectre. The cables run through channels similar to the cooling system. The channels also have removable Acrylic cable combs which are compatible with 4mm cables and below. The cable layer can be accessed by removing the rear panel. There are cable channels hidden around the outside of the case for fans, lighting etc. There is plenty of space in the PSU shroud to hide excess cables so stock cables can be used or even extensions.

Advanced Manufacturing Techniques & Quality

This is the first production case ever built using machining for the entire process. The case is entirely built using a CNC Router, CNC Mill and CNC Lathe. This has never before been done because of the extremely high costs which comes with such quality. We were able to use integration to cancel out most of this extra cost. This means access to incredible quality without having to purchase or install half of the liquid cooling system. Build times are also massively decreased, so far, we are finding build times are down below half. For modders, this means more time can go into creativity instead of assembly. The manifold is built from machined layers of cast acrylic sheet of varying thicknesses. The layers represent different parts of the cooling system and cable management, there are two liquid layers and two cable layers. The aluminum panels are all CNC machined billet, there is no folding. There are stainless steel rods which are turned on a lathe which hold the layers together. All of the fasteners in Spectre are stainless steel. There are no threads in the acrylic except for the larger G1/4" threads, the rest are all done with stainless steel inserts. In Spectre, we have used gaskets instead of O-rings for higher reliability. Each manifold is pressure tested during assembly.

Specifications

Motherboard Form Factor	XL-ATX (Max: 320mm x 285mm 7 Expansion Slots, 8th slot fits but component cannot be mounted), E-ATX, ATX, M-ATX, Mini-DTX, Mini ITX.
Case Form Factor	Mid Tower
Case Dimensions	L 533 mm x W 303 mm x H 575 mm
Case Weight	16 kg
Manifold Weight	8 kg
Case Weight in Package	18 kg
Expansion Slots	x7
Storage	2.5″ x3
Radiator Top	360mm (Up to 60mm thick with 1 set of 25mm fans)
Radiator Front	360mm (Up to 60mm thick with 1 set of 25mm fans)
Maximum GPU Length	500mm
Maximum GPU Height	150mm mounted on motherboard (Unlimited height if vertically mounted)
Maximum PSU Length	280mm
Maximum CPU Cooler Height	150mm
Front Panel I/O	No Front I/O. Vandal Switch Power Button 19mm
Ports	x6 G1/4″ BSPP; x1 Fill; x1 Drain
Pump Compatibility	Any D5 pump (Pump not included)
Cables	Integrated Cable Management is for 4mm sleeved cables
Cable Lengths	There is space for excess cable length inside of the PSU shroud. For exact lengths see additional information here.
Fittings	Click Here for more details.
Vertical GPU Mount	x1 included with ribbon cable (2nd Mount can be purchased separately for dual GPUs)
Aquaero 6 LT Mount	Included on Bottom PSU Shroud for mounting inside of the PSU Shroud.
Lighting	Integrated 30cm LED Strip position under top panel (Install during case assembly)
Materials	6061 Aluminium, Cast Acrylic, 304 Stainless Steel
Manufacturing Process	CNC Router, CNC Mill, CNC Lathe
Assembly	Assembled by hand

Tools Required

- M3 Hex Key – Not included
- M4 Hex Key – Not included
- M6 Metric Hex Key – Not included

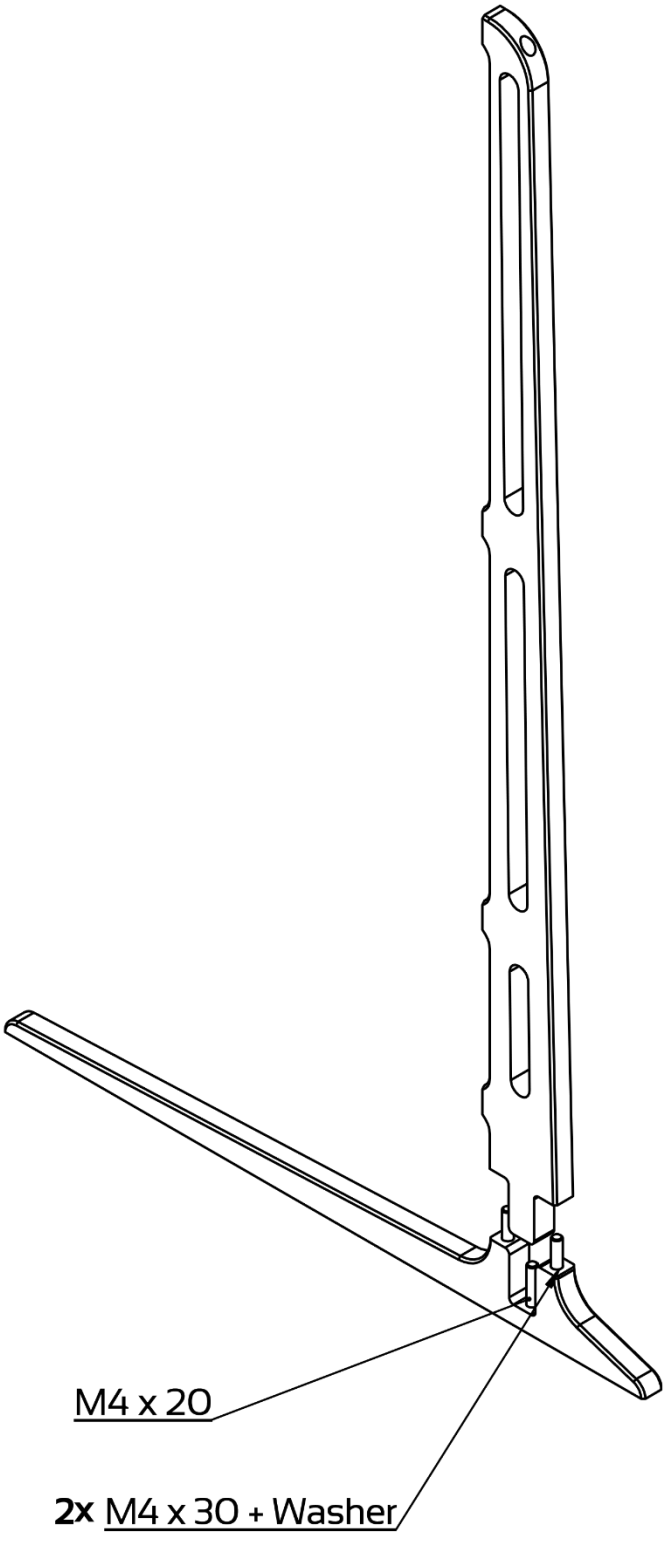
Assembly Note

1. Spectre is built from thick billet alloy parts with very tight tolerances. There is no flex in the metal parts like there is on other cases. The case is designed for all assembly to be done with the screws still slightly loose so that everything can settle into position. Then once the assembly is complete you can go back later and tighten the screws. (Be careful not to over tighten). Any loss of anodizing or paint under the fasteners is a warning that you are going too tight.
2. All fasteners on the manifold are carefully checked for tension during and after pressure testing during assembly at the factory. They are tightened to an exact specification which allows for the many thermal cycles the case will experience during its lifetime. This means that it is possible for 1-3 of the manifold screws to come out during shipping from vibration. If this happens to you replace them carefully and copy the tension from the surrounding fasteners of the same type. This will not void your warranty.

Case Assembly

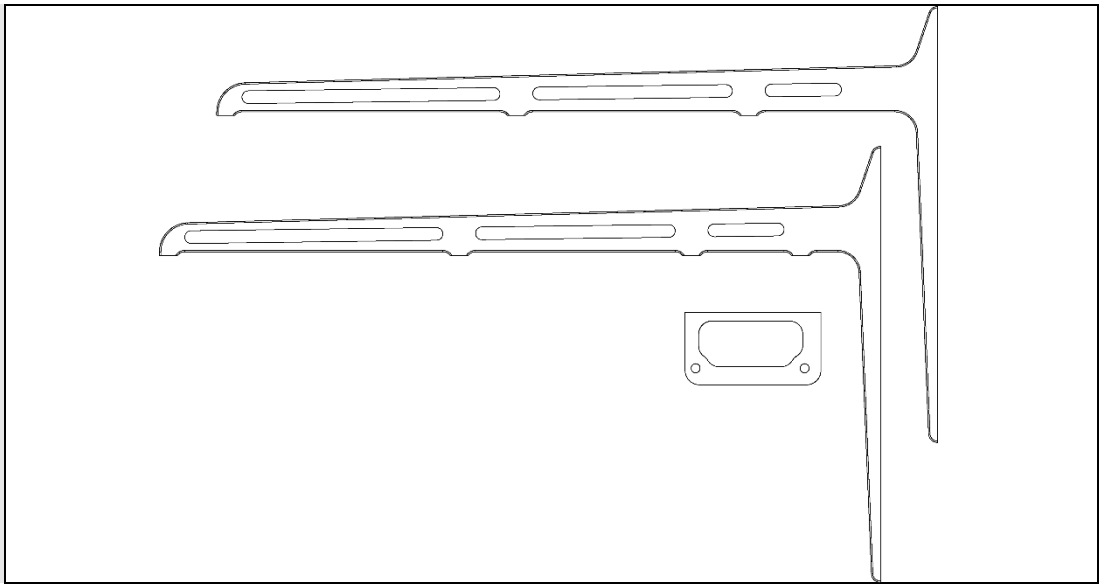
Step 0: Struts Assembly

0	M4 x 20	2 pcs
	M4 x 30 + Washer	4 pcs

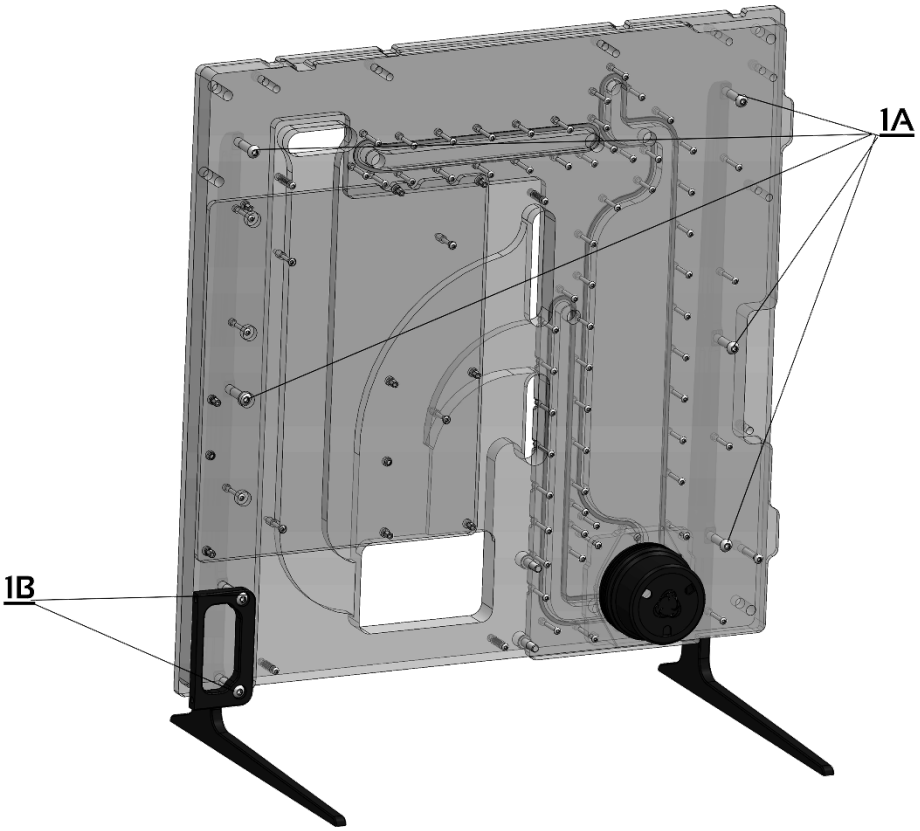


Step 1: Struts to manifold.

Parts in this step

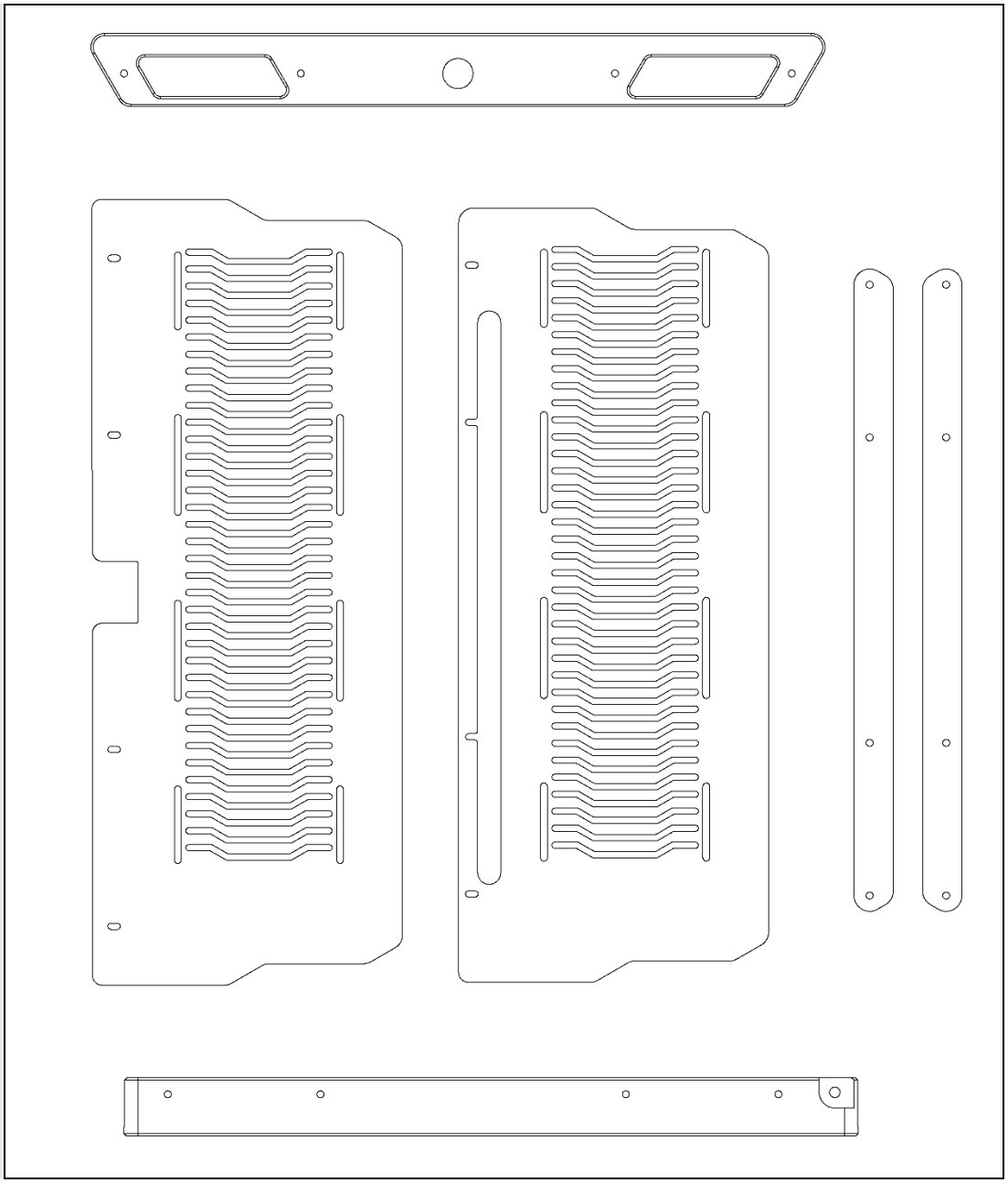


1A	**M6 x 40**	**5 pcs**
1B	**M6 x 50**	**2 pcs**



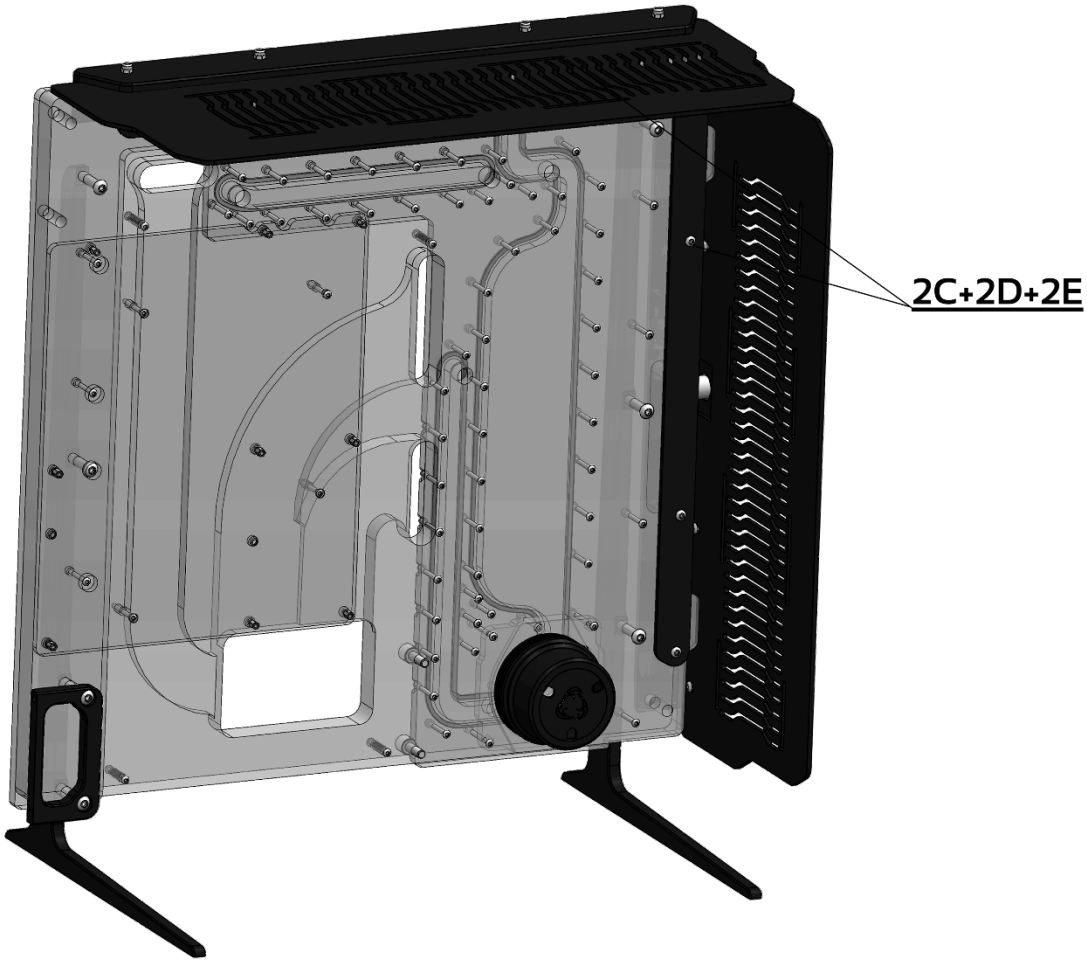
Step 2: Top and Front Plate to Manifold.

Parts in this step



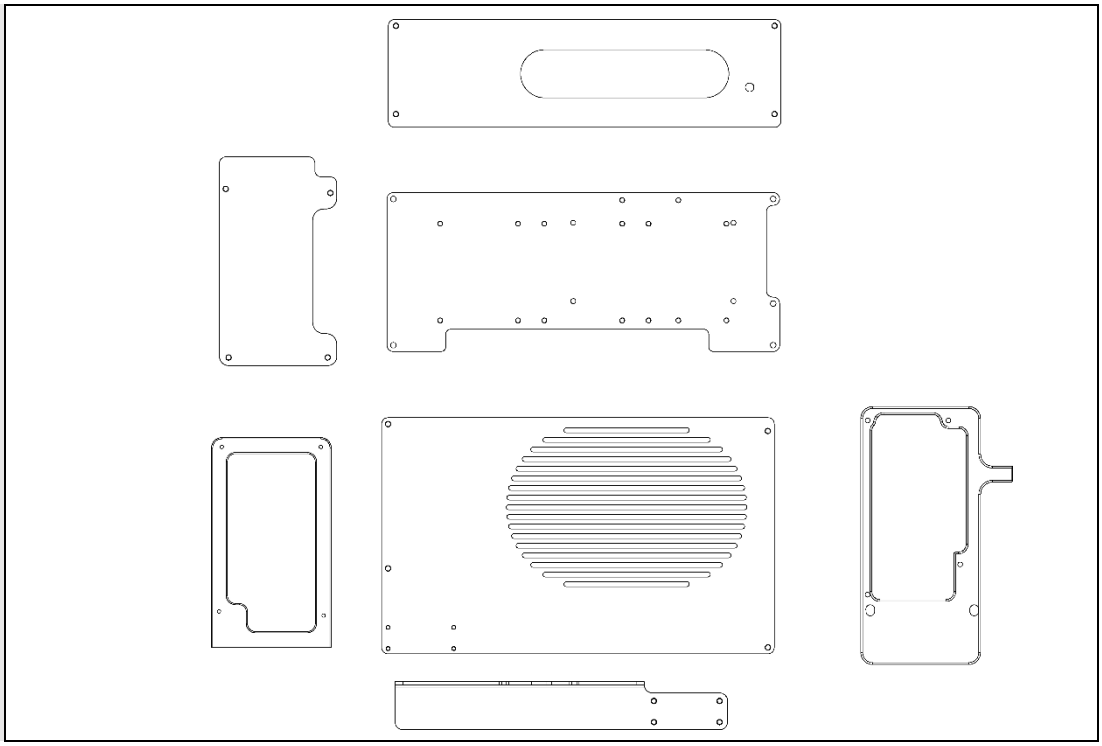
2A	**M4 x 14**	**8 pcs**
2B	**M4 Cap Nut**	**16 pcs**
2C	**M4 x 45**	**8 pcs**
2D	**M4 Washer**	**32 pcs**
2E	**M4 Spring Washer**	**16 pcs**

Insert lighting strip into the cut-out section of the top plate before assembling onto the manifold to achieve Spectre lighting effects.

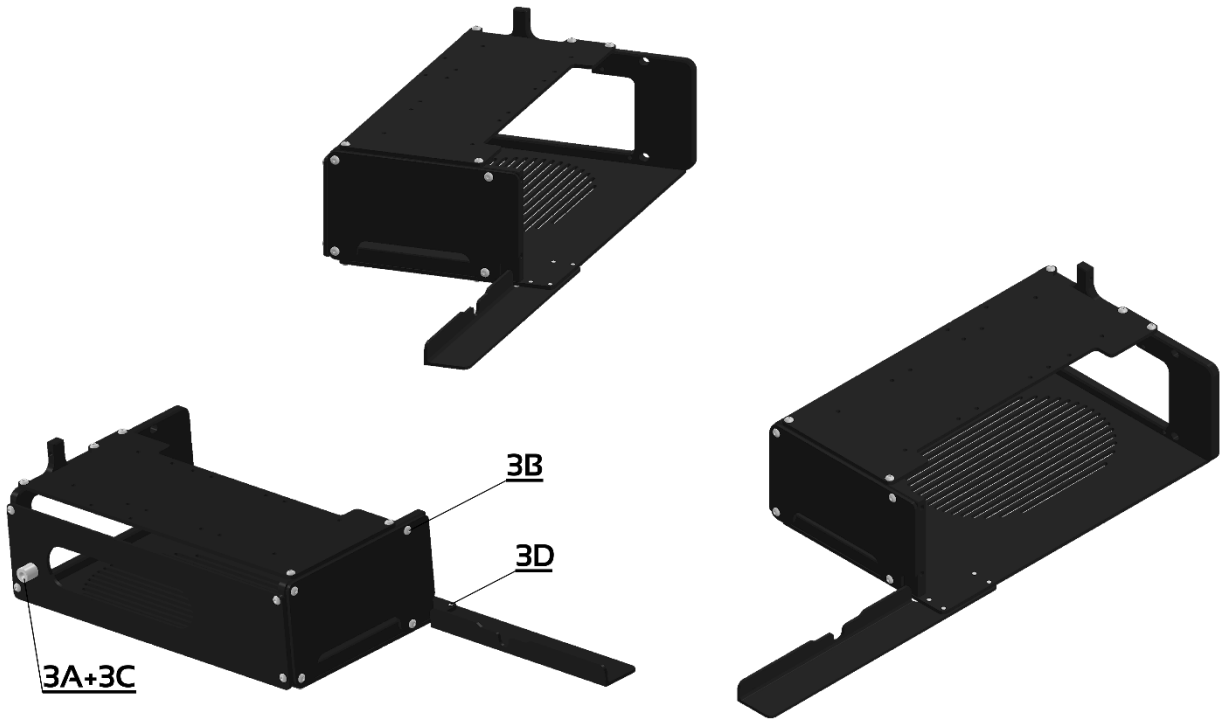


Step 3: PSU Bracket Assembly.

Parts in this step

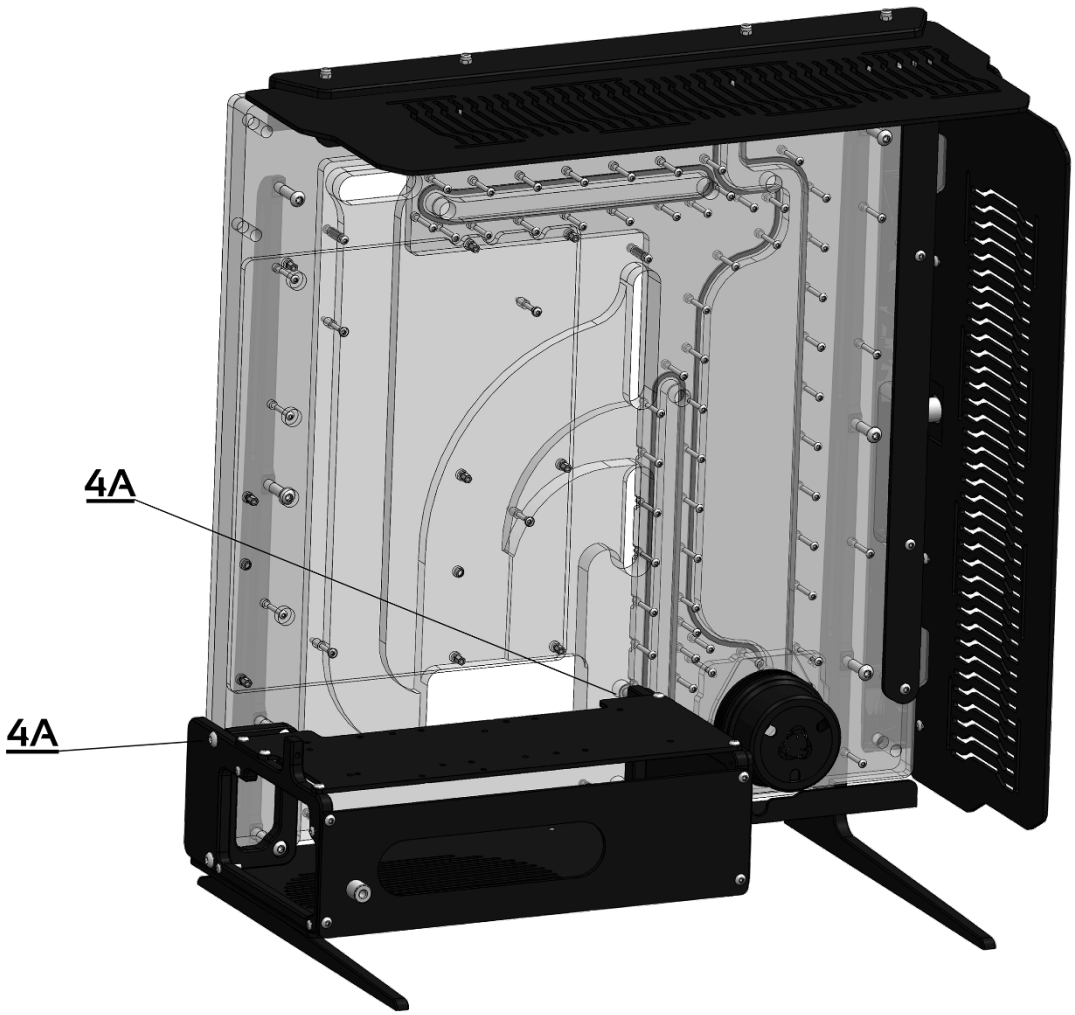


3A + 3C	M6 x 10 + 18mm Stainless Steel Post	1 set
3B	M4 x 8	17 pcs
3D	M4 x 6	4 pcs



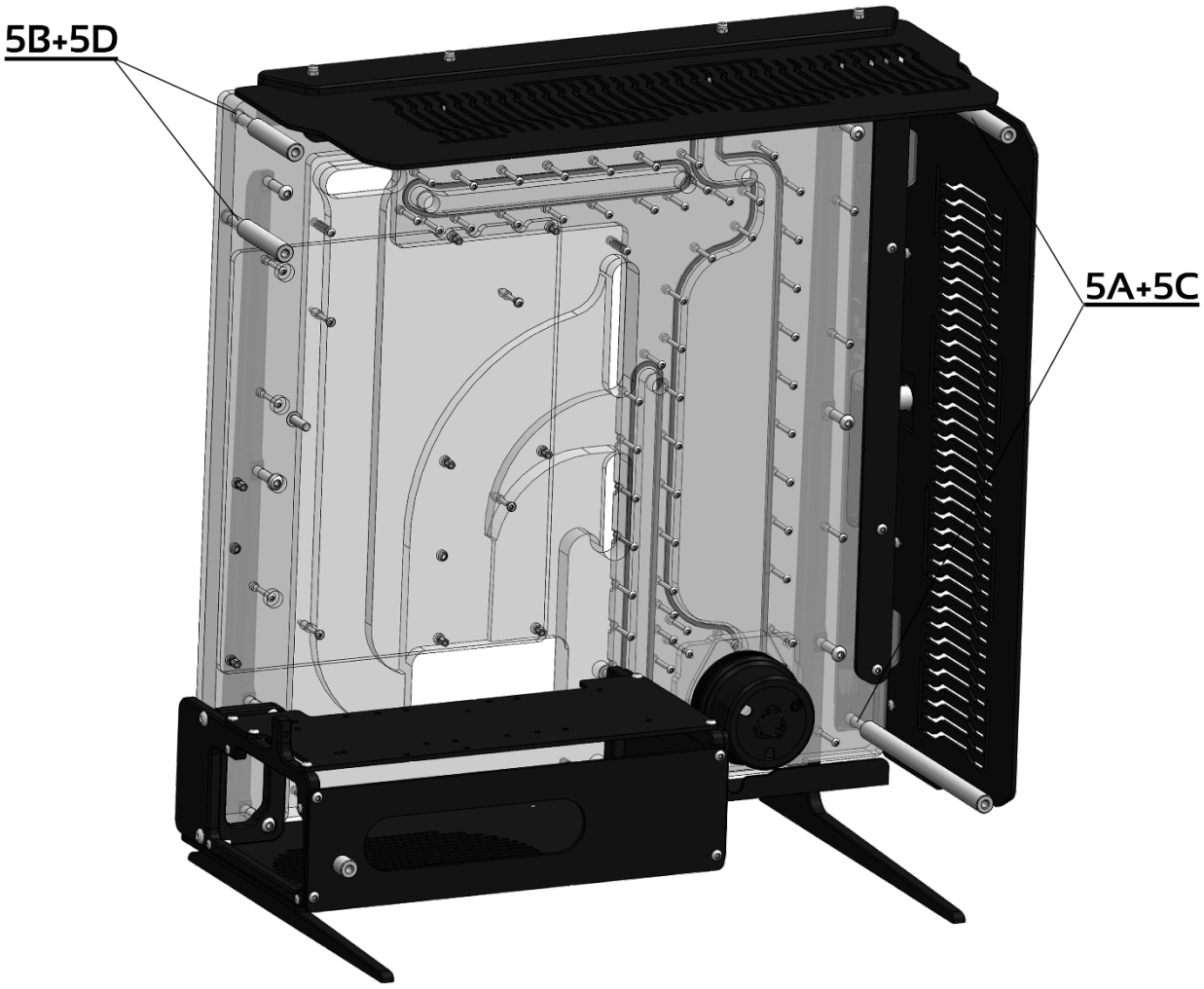
Step 4: PSU Bracket Assembly to Manifold.

4A	**M6 x 20**	**4 pcs**

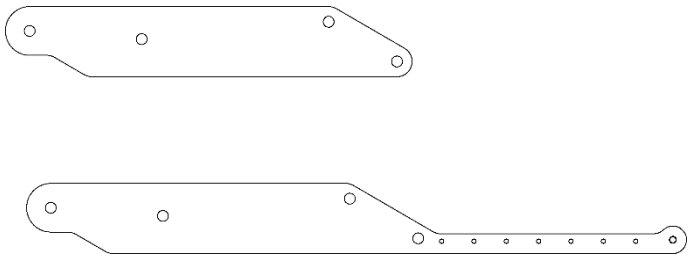


Step 5: Level 1 Stainless Steel Posts.

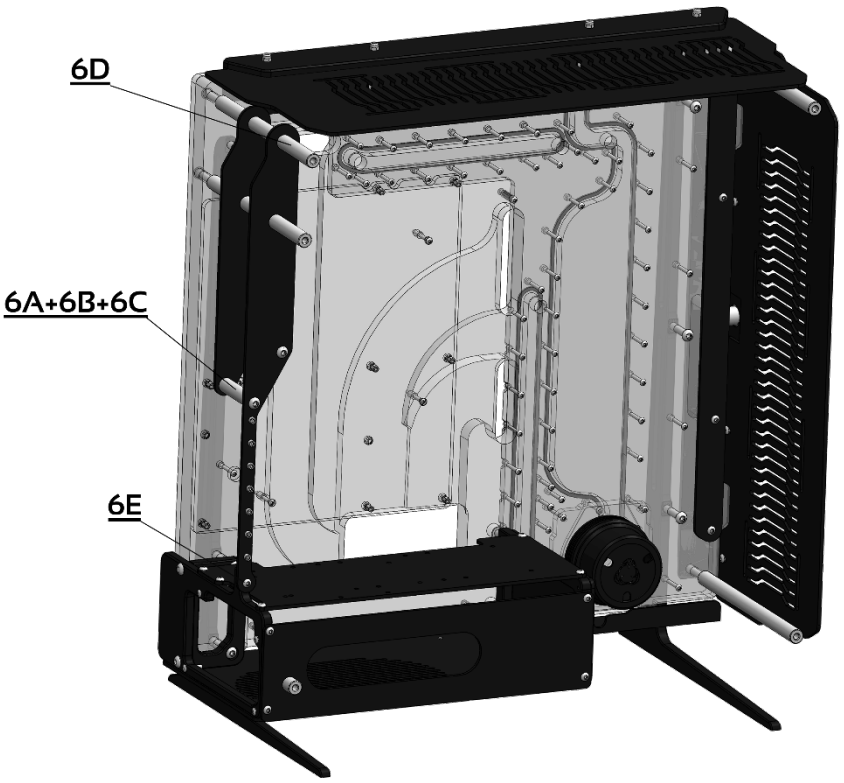
5A	M6 x 50	2 pcs
5B	63mm Level 1 Stainless Steel Posts	2 pcs
5C	180mm Stainless Steel Posts	2 pcs
5D	M6 x 40	2 pcs



Step 6: Level 2 & 3 Rear I/O Assembly.

Parts in this step	

6A	M6 x 20	4 pcs
6B	M6 x 25 Grub Screw	4 pcs
6C	54mm Level 2 Stainless Steel Posts	2 pcs
6D	60mm Level 3 Stainless Steel Posts	2 pcs
6E	M4 x 8	1 pc



Step 7: Attach The Side Panel to The Case.

7A	M6 x 10	5 pcs

Step 8: Vertical GPU Addon

SINGLE	6-32 x 0.25"	2 pcs
DUAL	6-32 x 0.5" + Washer + Nut	2 pcs
M4 x 8	M4 x 8	2 pcs