SPECTRE 3.0
INTEGRA

SPECTRE 3.0
INTEGRA UMBRA
LIMITED EDITION

SPECTRE 3.0
INTEGRA UMBRA
CHROME ELITE LIMITED EDITION

Assembly Manual

Revision 2.6

SINGULARITYCOMPUTERS

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Introduction

Spectre 3.0 Integra

The next generation of Spectre has arrived with a new level of integration. Spectre 3.0 Integra has much of the water-cooling loop integrated with a completely new distribution plate design, with further enhancements to performance, filling and draining compared to previous Spectre versions. It has a fully integrated solution/replacement for cables with the Singularity Computers PowerBoard. Previously we have created PowerBoards for existing cases, but for Integra we have developed the PowerBoard and case together. This means that both have become far more streamlined, meaning more features and compatibility. The PowerBoard supports the most high-end components with x4 8pin EPS and x6 8pin PCIE. The case has more support for larger and wider motherboards than previous Spectre 3.0 versions. The PowerBoard has a range of new features, including built in filter capacitors, more integrated LEDs facing inwards and outwards, integrated direct connect SATA, power, and reset buttons, and a touch activated power button. There is now no rear access needed to the distribution plate layer due to the fully integrated PowerBoard, so all cables can be connected from the front and little to no cable management is needed. Black sleeved linking cables are included with the case, so no cables need to be purchased separately. Custom colored sleeved linking cables can be purchased separately if desired. Integra has improved lighting features with integrated PowerBoard LEDs facing inwards towards the motherboard tray and outwards towards the distribution plate. There are two separate sets of LEDs for ARGB or UV, and they can be switched on or off, or from UV to ARGB via two switches on the PowerBoard.

Spectre 3.0 Integra Umbra Limited Edition

Umbra Definition:
The fully shaded inner region of a shadow cast by an opaque object, especially the area on the earth or moon experiencing the total phase of an eclipse.

Spectre 3.0 Integra Umbra Limited Edition is the final case in the Eclipse series which includes Penumbra and Antumbra. Umbra is the darkest of the three cases and is a whole new case design based on the new Spectre 3.0 Integra platform. The design is inspired by fighter aircraft and spacecraft. Umbra has a more complex and high-end distribution plate compared to the standard Spectre 3.0 Integra with unique 3-layer design which uses different thicknesses on the same layer. It has a clear front layer and motherboard tray, grey tinted central layer, clear rear distribution plate layer and a satin black rear layer which is split into multiple parts. The motherboard tray has etching which is lit up by the PowerBoard ARGB and/or UV LEDs, the etching includes a star system coordinate which is unique for each of the 48 cases. The limited-edition number glows and appears on the rear of the distribution plate. Umbra also has a different glowing PSU Side shroud with etching to match the motherboard tray.

Spectre 3.0 Integra Umbra Chrome Elite Limited Edition

In contrast to the dark themed Umbra, we have created an extremely limited silver mirror chrome version. There will only be three of these cases made due to the complexity involved in chrome plating each of the 23 metal parts of the case. Each 6061 CNC machined aluminium component first needs to be manually polished before it can be chrome plated which takes many hours. The distribution plate is different to the Umbra distribution plate with an extra layer. It has a clear front layer and motherboard tray, grey tinted central layer, clear rear distribution plate layer and two rear chrome layers facing forwards and backwards. The two mirrored layers create reflections from both the inside and outside of the case. There are also reflections all around from the case panels. The mirrored distribution plate layer reflects the light from the integrated PowerBoard LEDs out towards all the case panels. The limited-edition number glows on the rear of the distribution plate, and on the motherboard tray we will etch the coordinates to a star system of your choosing (please add this to the notes on your order). A special Umbra version glowing PSU Side Shroud is also included which is clear frosted and chrome.

Spectre 3.0 Integra Features

- **Integrated Liquid Cooling Features**
  Reservoir, D5 Pump Top, D5 Pump Cover, Fill Port, Drain Port, parts of the cooling loop.

- **PowerBoard Integration**
  The PowerBoard is a PCB integrating 24pin, PCIE and EPS along with PWM and ARGB Hubs, SATA and Power and Reset Buttons. The Spectre 3.0 Integra PowerBoard also has an integrated touch sensing Power Button. The PowerBoard has x20 ARGB LEDs positioned around the external and internal perimeter to optimally light up the distribution plate. Essentially the PowerBoard is a distribution plate for cables also integrating other features and functions. It is a new method for cables allowing standardization of cable lengths and making cable management no longer necessary. Spectre 3.0 Integra comes included with a standard set of black sleeved linking cables including 24pin x1, 8pin EPS x2, 8pin PCIE x3 meaning that these cables don't have to be purchased separately.

- **Reduced build time due to integration**
  With the pump, reservoir, fill and drain ports, half of the water-cooling loop, the core component cables, PWM and ARGB hubs all integrated there is less assembly to be done. Also, less fittings and tube are needed. No cable management for the core component cables thanks to the PowerBoard integration.

- **Integration Cost Component**
  A large portion of the case cost is due to the integration. These are components you do not have to purchase for your build. The pump top, reservoir, cables, hubs, less fittings, less tube, no cable combs, or cable management components.

- **Compatibility**
  Theoretically the more integration the less compatibility. For Spectre Integras integration, each port and connector were positioned based on an average of a vast range of components.

- **Integration & Optimization**
  With the integration we did not just develop a case, we also developed all the integrated components. This meant that we could focus more on optimization than would normally be possible. The integrated loop routes in Spectre allow for more flow than 16mm tubes. The pump top was designed for the D5 pump, maximizing flow to and from the distribution plate. The reservoir was designed to remove air as quickly as possible making the loop easier to fill. The fill port is at the highest point on the back for the case and the drain point at the lowest point.

- **High End Components**
  Spectre 3.0 Integra fits XL-ATX motherboards and has 8 expansion slots. It is designed for fit the largest high-end GPUs. It can fit the largest PSUs up to 220mm. For the water-cooling

system it can fit 2x 360mm radiators 60mm thick with a single set of fans or 2x 360mm radiators 40mm thick with two sets of fans, and the D5 pump. The PowerBoard can handle the most high-end PSUs and components.

- **Radiator Adjustment**
  The radiator mounting panels have a large range of adjustment to help with port alignment to the distribution plate.

- **Storage**
  Spectre 3.0 Integra has 7x 2.5" Drive positions. Two are on the top of the PSU shroud, four inside of the PSU shroud and there is one integrated on the PowerBoard. The two on top of the PSU shroud cannot be used with vertically mounted GPUs.

Design & Engineering
We are all experienced system builders at Singularity Computers having built high end water-cooled systems for over 15 years. Our approach to product development begins with a need for our own builds and so the origin is always function. From there we start to build ideas around this function and the aesthetics and everything else follows. The original idea for Spectre came from our years of building highly customized, high end water-cooled systems and trying to reduce the exceptionally long build times and complexity. Our approach to development is hands on, we are using our own products every day.

The aesthetics of Spectre originate from its function with one of the main aesthetic features (the distribution plate lighting) being something only made possible by the integration. We wanted the case to look skeletal and almost transparent enough to (in a way) disappear around the components. The metal components have been designed to enhance this with an extreme focus on detailed and complex multi sided CNC machining.

Manufacturing & Quality
Every component of Spectre is CNC machined from a solid block of material. With the level of transparency and being an open case, we wanted it to be a celebration of the raw materials. There is no hidden or back side, and this also goes for the components being installed. Due to this we selected the most high-end materials manufacturing process. The Distribution Plate is machined on a CNC router built from thick sheets of cast acrylic. It is hand assembled with silicone gaskets and stainless-steel fasteners, and pressure tested. The metal components are machined with Extreme Precision from solid blocks of 6061 aluminum on a CNC mill then sand blasted and anodized.

Spectre 3.0 Integra Specifications

Water-cooling Integration	Reservoir, Pump Top, Pump Cover, Fill Port, Drain Port, Parts of water-cooling loop.
Ports	6x G1/4" BSPP | 1x Fill Port | 1x Drain Port
Pump	Compatible with all D5 pumps (Not included)
Electronics Integration	Core Component Cable Connections: 24pin x1 | 8pin PCIe x6 | 8pin EPS x4 (As many inputs must be used as outputs). Hubs: PWM: x6. ARGB: x10 (Single input for each). LEDs: x20 Integrated ARGB 90-degree LEDs and x15 UV 90-degree LEDs facing around the internal and external perimeter of the PowerBoard There are two switches on the PowerBoard one switches the ARGB on or off and the other switches the UV on or off. Touch sensing Power Button. Extra Power and Reset Buttons. PowerBoard LED on/off switch. (Requires reboot for setting to take effect). PowerBoard 2.5" SATA 3.0 6Gb/s Direct Mount x1.
Cables	PowerBoard Linking Cables Standard Set: 24pin x1| 8pin EPS x2| 8pin PCIe x3 18AWG Black Heatshrinkless Sleeve. Linking cables and PSU Side Cables available here. Adaptors for motherboards with 90-degree connectors available here. PWM Female to Female 50cm Black Sleeved x1. ARGB Female to Female 50cm Black Sleeved x1.
LED strips	Integra: 2x 50cm ARGB LED Strips with 50cm cables. Integra Umbra (all variants): 3x 50cm ARGB LED Strips with 50cm cables. (1x 30cm LED strip pre-installed into PSU Side Shroud.) Attach to case panels on specific mounting points for front and top panel glow.
Motherboard Form Factor	XL-ATX (Up to: 285mm Wide & 343.5mm High) E-ATX, ATX, Mini-DTX, Mini-ITX.
Expansion Slots	8x
Case Form Factor	Mid Tower
Package Dimensions & Weight	640 mm(L) x 620 mm(W) x 110 mm(H) (Flat-packed Case | Partial assembly required) | 17 Kg
Case Dimensions & Weight	545 mm(L) x 254 mm(W) x 595 mm(H) | 15 Kg
Storage	7x 2.5" Drive x2 are on top of the PSU shroud and cannot be used when the GPUs are vertically mounted. x4 are inside of the PSU Shroud. x1 is on the PowerBoard behind the PSU.
Radiators	360mm x 60mm with x1 set of standard 25mm fans. Or 360mm x 40mm with x2 sets of standard 25mm fans (Push/Pull).
Maximum GPU Length	500 mm
Maximum GPU Height	170 mm in standard orientation | Unlimited in vertical orientation

Maximum CPU Cooler Height	170 mm
Maximum PSU Length	220mm (Space allowed for cables inside of PSU shroud).
Front Panel I/O	No Front I/O | Vandal Switch 16mm | White LED
Vertical GPU Mount	x2 with 3 slots (60mm) spacing. x1 is included. 2nd Vertical GPU Mount Available Separately here. Riser cable not included, compatible with Linkup PCIE 4.0 Riser Cables.
Materials	6061 Aluminum Anodized. Cast Acrylic | Stainless Steel | PCB
Manufacturing Process	CNC Mill, CNC Lathe, CNC Router, PCB.
Assembly	Distribution Plate Assembled by Hand. Metal Components need to be assembled and attached to the distribution plate by the customer.
Testing/Validation	All Distribution Plates are factory pressure tested and precise fastener tension is applied.

Included Items

Items	Spectre 3.0 Integra	Spectre 3.0 Integra Umbra Limited Edition	Spectre 3.0 Integra Umbra Chrome Elite Limited Edition
Spectre 3.0 Integra Case	1	1	1
Distribution Plate Integrated Components:			
• Reservoir	1	1	1
• Pump Top	1	1	1
• Pump Cover	1	1	1
PowerBoard Integrated Components:			
• Core Component Cables:			
○ 24pin	1	1	1
○ 8pin PCIe	6	6	6
○ 8pin EPS	4	4	4
(As many inputs must be used as outputs.)			
• Hubs:			
○ PWM	6	6	6
○ ARGB (Single input for each)	10	10	10
• LEDs			
○ Integrated ARGB 90-degree LEDs	20	20	20
○ Integrated UV 90-degree LEDs	15	15	15
• Touch sensing Power Button	1	1	1
• Extra Power and Reset Buttons	1	1	1
Cables:			
• PowerBoard Linking Cables Standard Set:			
○ 24pin	1	1	1
○ 8pin PCIe	3	3	3
○ 8Pin EPS	2	2	2
Linking Cables & PSU Adaptors for motherboards with 90° connectors available here.			
• PWM Female to Female 50cm	1	1	1
• ARGB Female to Female 50cm	1	1	1
• PowerBoard LED +-, Power & Reset Linking Cables 20cm	1	1	1
Case Components:			
• Distribution Plate	1	1	1
• Clear Cast Acrylic Side Panel Window	1	1	1
• Protium 2.0 ARGB D5 Cover	1	1	1
• Case Panel Set	23	23	23
• Vertical GPU Mount & Angle Bracket with Fasteners	1	1	1
Accessories:			
• Hex Keys			
○ M3	1	1	1
○ M4	1	1	1
○ M6	1	1	1
• Microfiber Cloth	1	1	1
• Stop Fittings	2	2	2
• 5V ARGB LED Strip 50cm	2	3 (1x pre-installed)	3 (1x pre-installed)
• PSU Shroud Mount Spacer	1	1	1

Warranty

Spectre 3.0 Integra, Integra Umbra Limited Edition & Integra Umbra Chrome Elite Limited Edition 2-Year Limited Warranty:

1: The Integrated Water-cooling system is pressure tested at the factory, there is no need to adjust the fasteners on the distribution plate. Take care not to over tighten any of the fasteners particularly on the acrylic, stop as soon as you feel feedback or tension on the fastener. 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 will not be covered under our warranty. All threads are pre-tested. We use stainless steel fasteners which are extremely durable.

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 5 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.

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.

Table of Fasteners & Panels

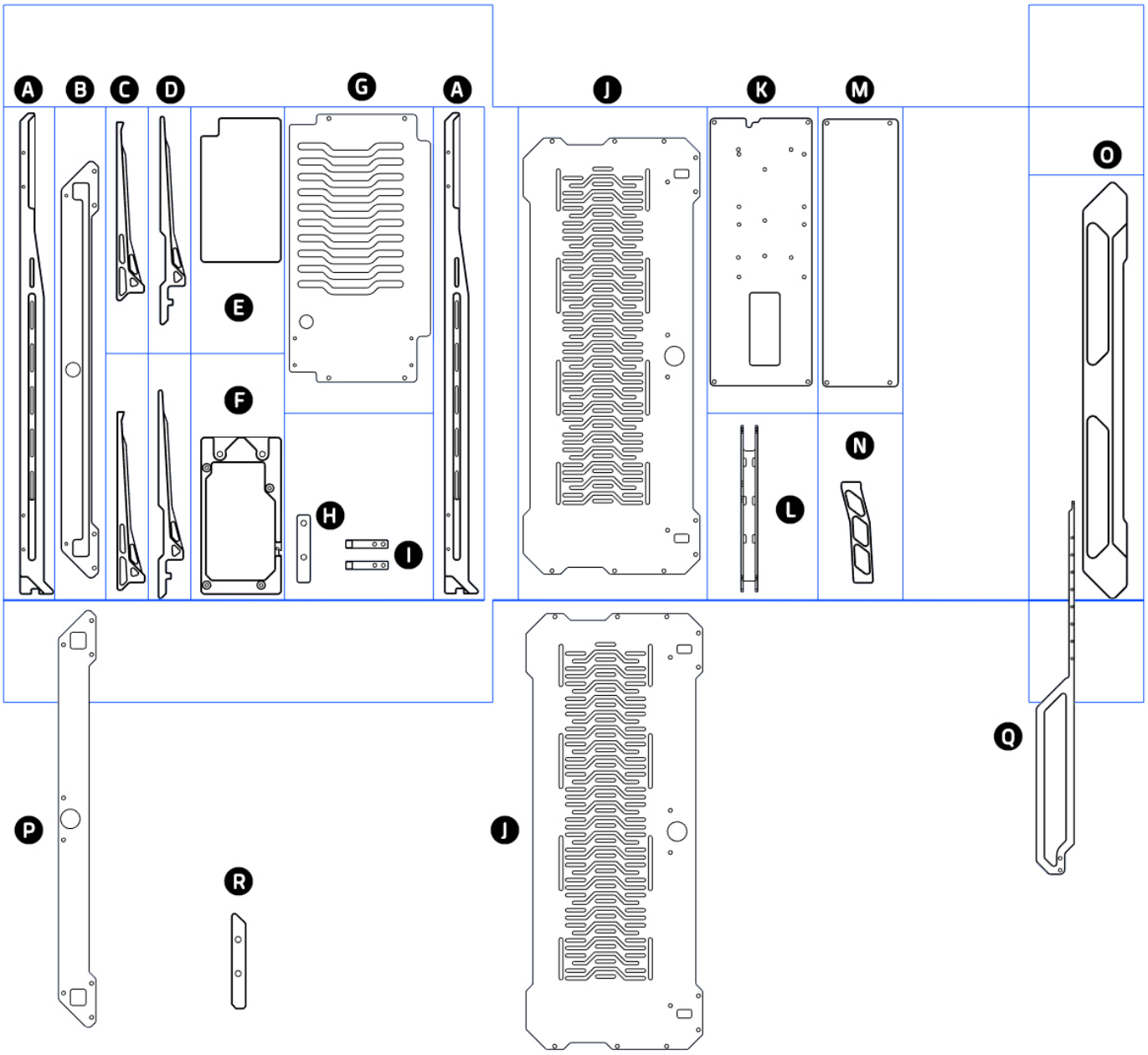
Fasteners

Type	Quantity	Used in Step(s)
M3x6mm Phillips Head	9	Mounting Motherboard
M3x6mm	16	11
M4x6mm	22	5, 7
M4x8mm	3	8
M4x10mm	18	3, 4, 9
M4x16mm	2	4
M4x20mm	8	4, 7

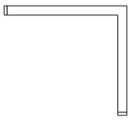
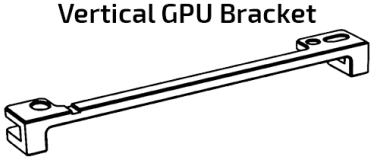
Type	Quantity	Used in Step(s)
M4x35mm	2	8
M4 Springwasher	12	4
M6x20mm	5	6, 8
M6x30mm	6	6
6-32 Thumbscrew	8	Mounting PCIe Devices
MB SO M3-M4 x6x6	9	Mounting Motherboard Panels

Panels

	Name	Quantity	Used in Step(s)
A	Strut	2	4
B	LED Cover Front	1	1, 2, 3, 4
C	Top Radiator Panel Support	2	4, 6, 7
D	Feet	2	4, 6
E	PSU Front Bracket	1	5, 8
F	PSU Rear Bracket	1	5, 8
G	PSU Bottom Panel	1	5, 8
H	PSU Shroud Mount	1	6, 8
I	Side Panel Window Bracket	2	5, 8
J	Radiator Panel	2	1, 3, 7, 8
K	PSU Top Panel	1	5, 8
L	Cable Shroud	1	8
M	PSU Side Panel	1	5, 8
N	Rear IO Support	1	8
O	LED Cover Top	1	1, 3
P	LED Diffuser	2	1, 3
Q	Rear IO Panel	1	8
R	PSU Shroud Mount Spacer	1	6



Vertical GPU Included list

Vertical GPU Included Items	Vertical GPU Angle  Vertical GPU Bracket  Fasteners : M3 x 10mm x2 | M3 Nuts x2 | M3 Washers x6 | 6-32 0.25" x2

Assembly Manual

Assembly Note

Spectre is built from thick and strong CNC Machined aluminum components with tight tolerances. There is no flex in the metal parts like there is on other cases. Due to this we have had to build tolerances into all the mounting holes on Spectre 3.0 Integra. If something does not align then loosen all related fasteners on the surrounding panels to let the component settle in, then tighten the fasteners again.

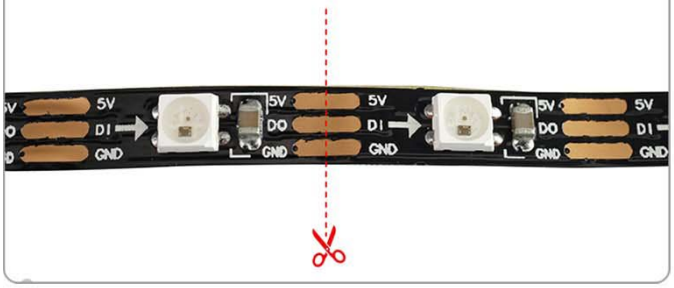
Step 1: Install ARGB 50cm LED Strips.

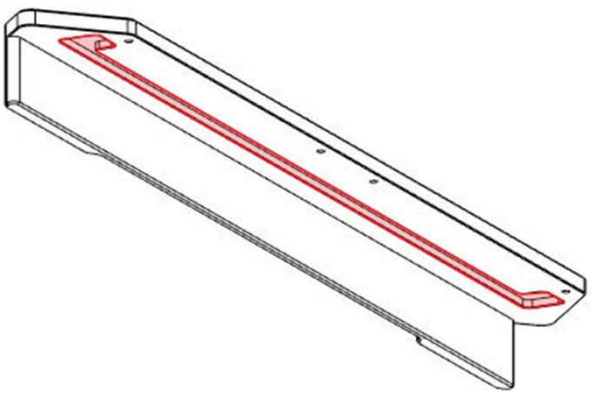
Pieces Involved		
	• 2x 50cm ARGB LED Strips	• O Led Cover Top
	• B LED Cover Front	• J Radiator Panels

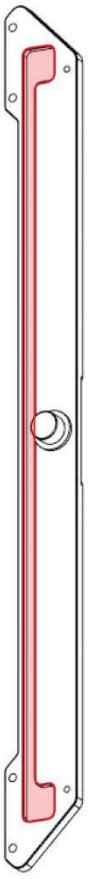
Remove the adhesive covers on the LED strips and stick them onto the positions marked in the diagrams below. Make sure to put the cables in the correct orientation for the best cable management, which depends where you plan on connecting them in your build. There should be one LED strip installed onto the inside of LED Cover Front, another installed inside of LED Cover Top and another installed on the inside of the top Radiator Panel.

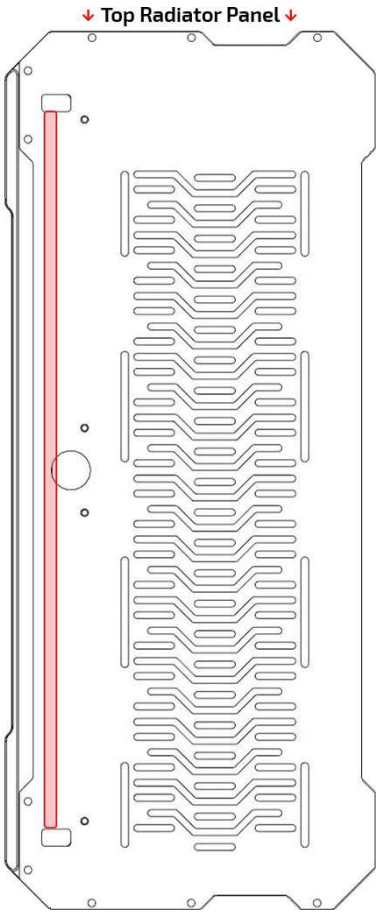
IMPORTANT: All three LED Strips need to be cut to length to fit into position. If you plan on using the individually LED Strip functions then you need to know how many LEDs are remaining on each LED Strip after you cut them. When you cut them, count how many LEDs are remaining on each LED Strip and remember which header you will plug each one into. The Spectre 3.0 Integra LED Strips each have 30 LEDs before they are cut.

Cut LED Strips on the sections marked in the diagram below.





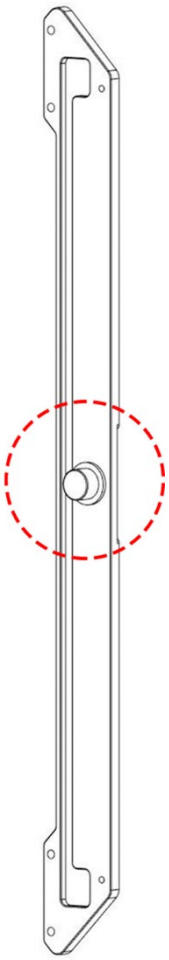




Step 2: Install Power Button.

Pieces Involved	• B LED Cover Front	• Power Button

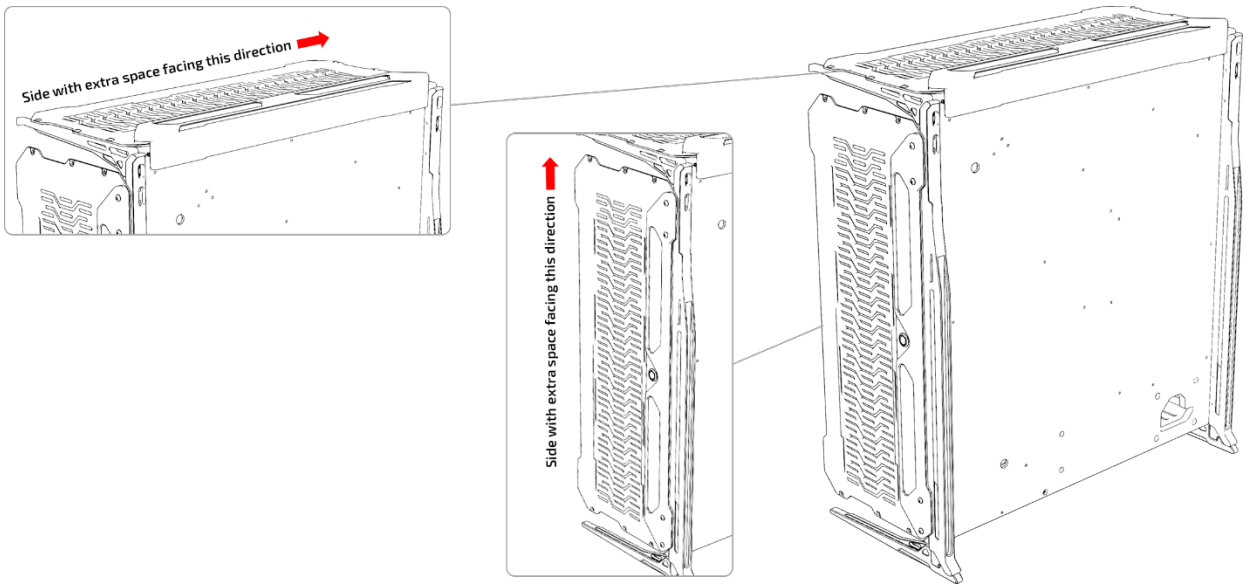
Remove the Power Button retention ring and O-ring. Thread the cable through from the front of the Front LED Cover until the Power Button is in position. Install the O-ring onto the Power Button and then tighten the retention ring to hold it in position. The O-ring prevents the Power Button from coming loose.



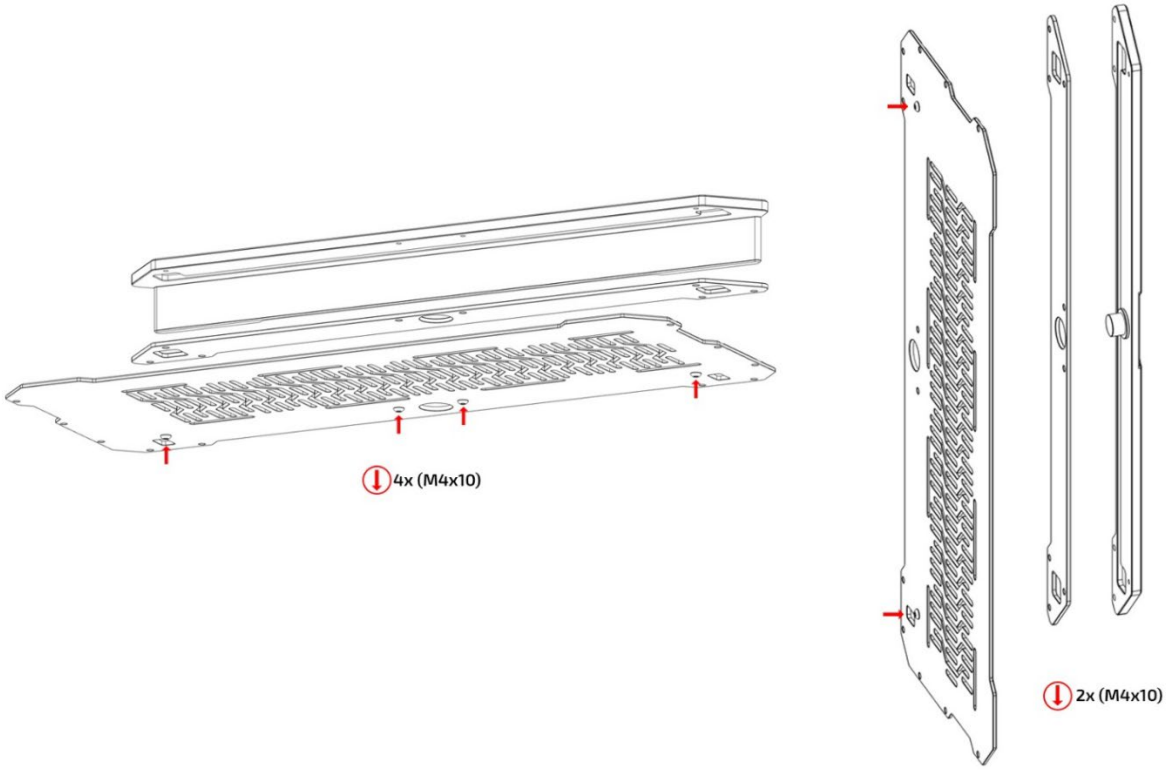
Step 3: Install LED Covers onto Radiator Panels.

Pieces Involved		
	• B LED Cover Front	• P LED Diffuser
	• O Led Cover Top	• Fasteners – 6x M4 x 10mm
	• J Radiator Panels	

Note: The radiator panels have more space on one side for the radiator ports. Face the extra space in the direction you will put your radiator ports, the default directions are marked in the diagram below.



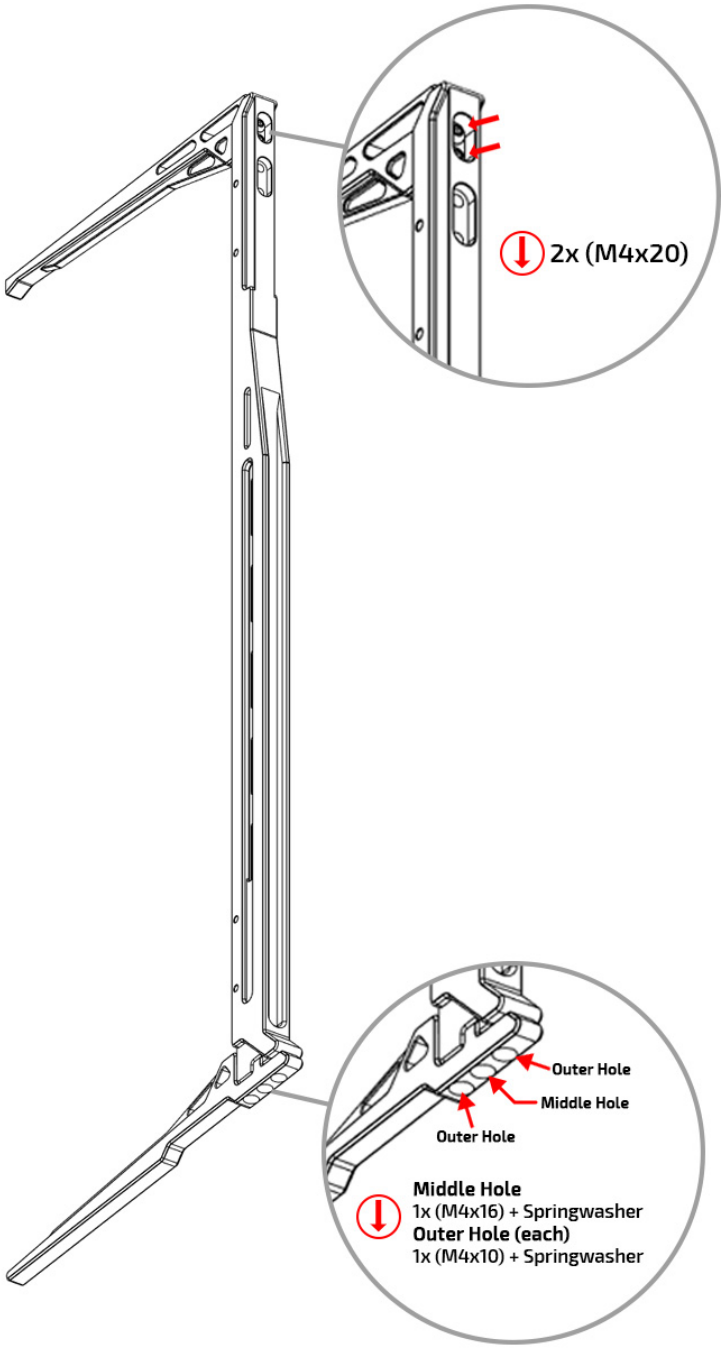
Attach the Radiator Panels to the LED Covers with the LED Diffusors sandwiched in between. The assembly for the top is slightly different to the front, the top needs x4 M4 x10mm fasteners but the front only needs x2 M4 x 10mm fasteners. Do not over tighten fasteners on acrylic.



Step 4: Assemble Legs.

Pieces Involved	• A 2x Struts • D 2x Feet • C 2x Top Radiator Panel Supports	• Fasteners – 4x M4 x 10mm • Fasteners – 4x M4 x 20mm • Fasteners – 2x M4 x 16mm • Fasteners – 10x M4 Spring Washers

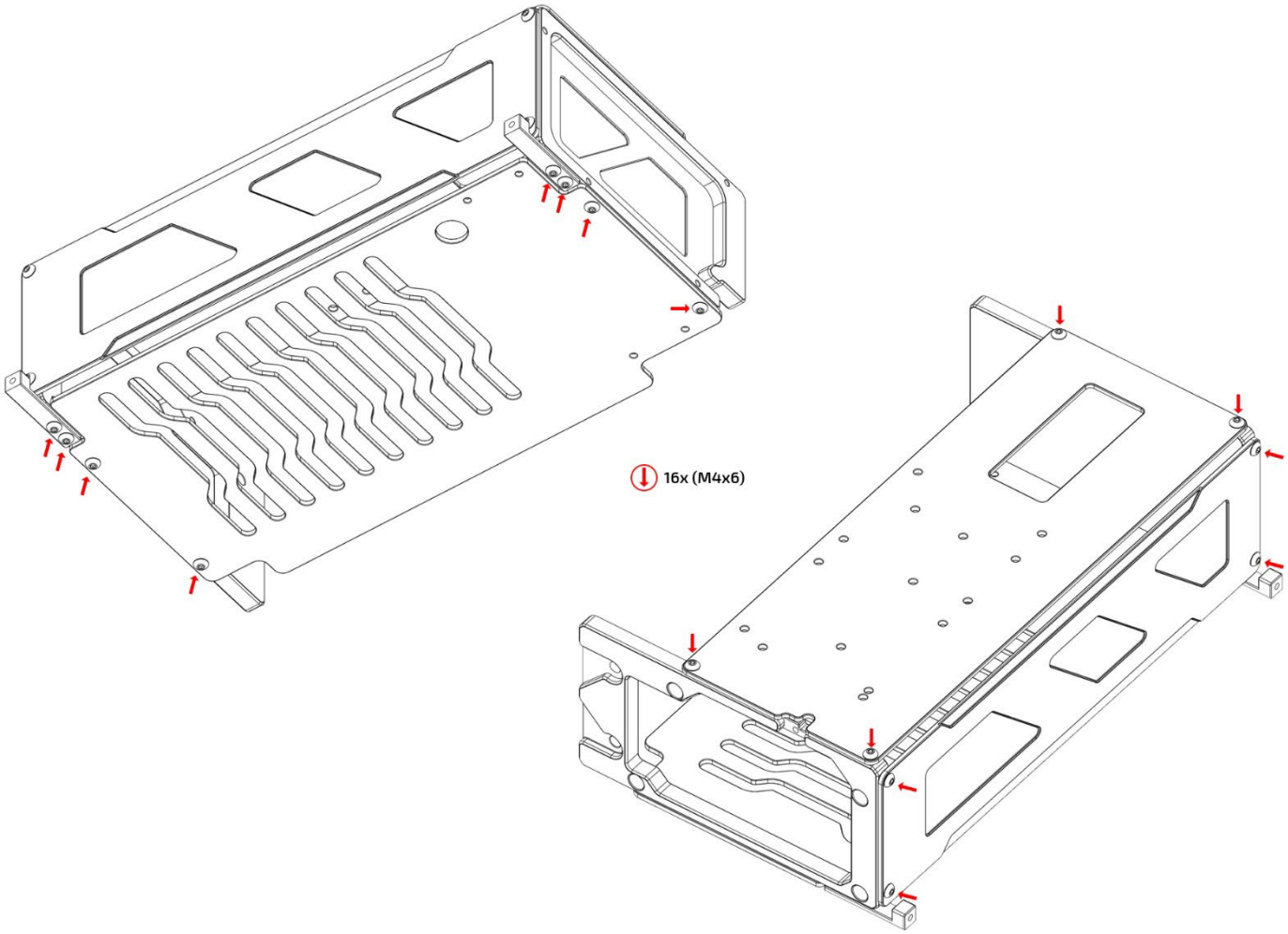
Attach the Feet to the Struts with 1x M4 x 14mm Fastener and 1x M4 Spring Washer per leg in the middle hole and 2x M4 x 10mm + 2x M4 Spring Washers in the outer two holes per leg.
Attach the Top Radiator Panel Supports to the Struts with 2x M4 x 20mm and 2x M4 Spring Washers per leg.



Step 5: Assemble PSU Shroud.

Pieces Involved	
	• F PSU Rear Bracket • E PSU Front Bracket • K PSU Top Panel • M PSU Side Panel • G PSU Bottom Panel • I 2x Side Panel Window Bracket • Fasteners – 16x M4 x 6mm

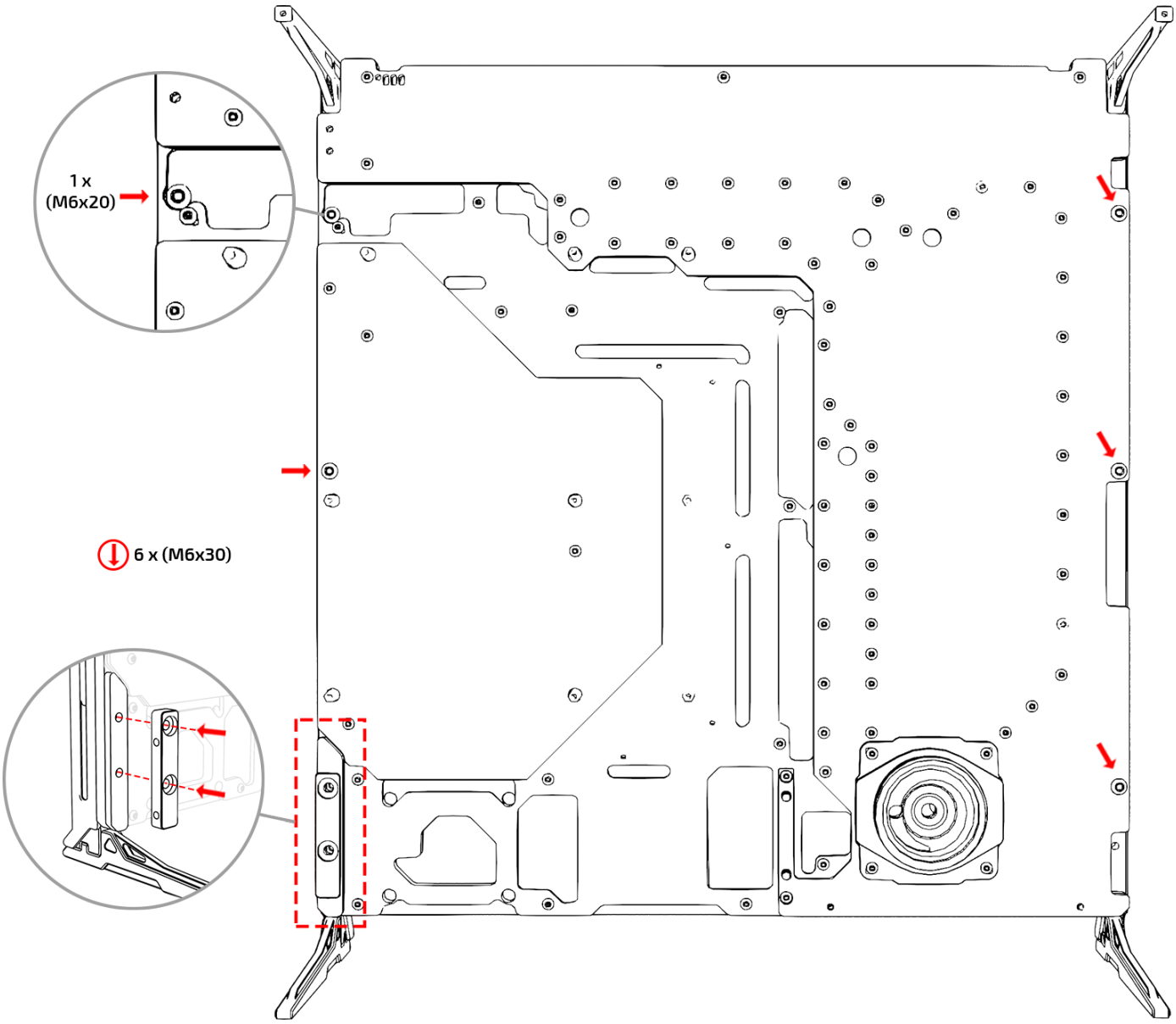
Attach the PSU Top Panel, PSU Side Panel and PSU Bottom Panel to the PSU Rear Bracket and PSU Front Bracket using the x16 M4 x 6mm Fasteners. Then attach the Side Panel Window Brackets to the bottom of the PSU Shroud. Carefully review the diagram below for the orientation of all the pieces. If you have any fastener alignment issues you will need to loosen related fasteners to allow the built-in tolerances to settle everything into position.



Step 6: Install Legs onto Distribution Plate.

Pieces Involved		
	• Distribution plate	• R PSU Shroud Mount Spacer
	• A B C Legs	• Fasteners – 6x M6 x 30mm
	• H PSU Shroud Mount	• Fasteners – 1x M6 x 20mm

Lay the legs down so that the main Struts are horizontal with a solid flat surface such as a table, and the Feet and Top Panel Supports are vertical. Space the legs so that they are aligned with the mounting holes on the distribution plate, you will need to estimate this. Lay the distribution plate on top of the Legs and move the legs and distribution plate until the holes line up (be careful not to scratch the acrylic). Align one leg and install the fasteners then move onto the second leg. Do not fully tighten the fasteners until all the fasteners are in the holes and the threads started. Install the PSU Shroud Mount on top of the PSU Shroud Mount Spacer, onto the lower left corner (see diagrams below). Attach the distribution plate to the Legs using the 6x M6 x 30mm Fasteners and in the top left corner use the 1x M6 x 20mm Fastener.

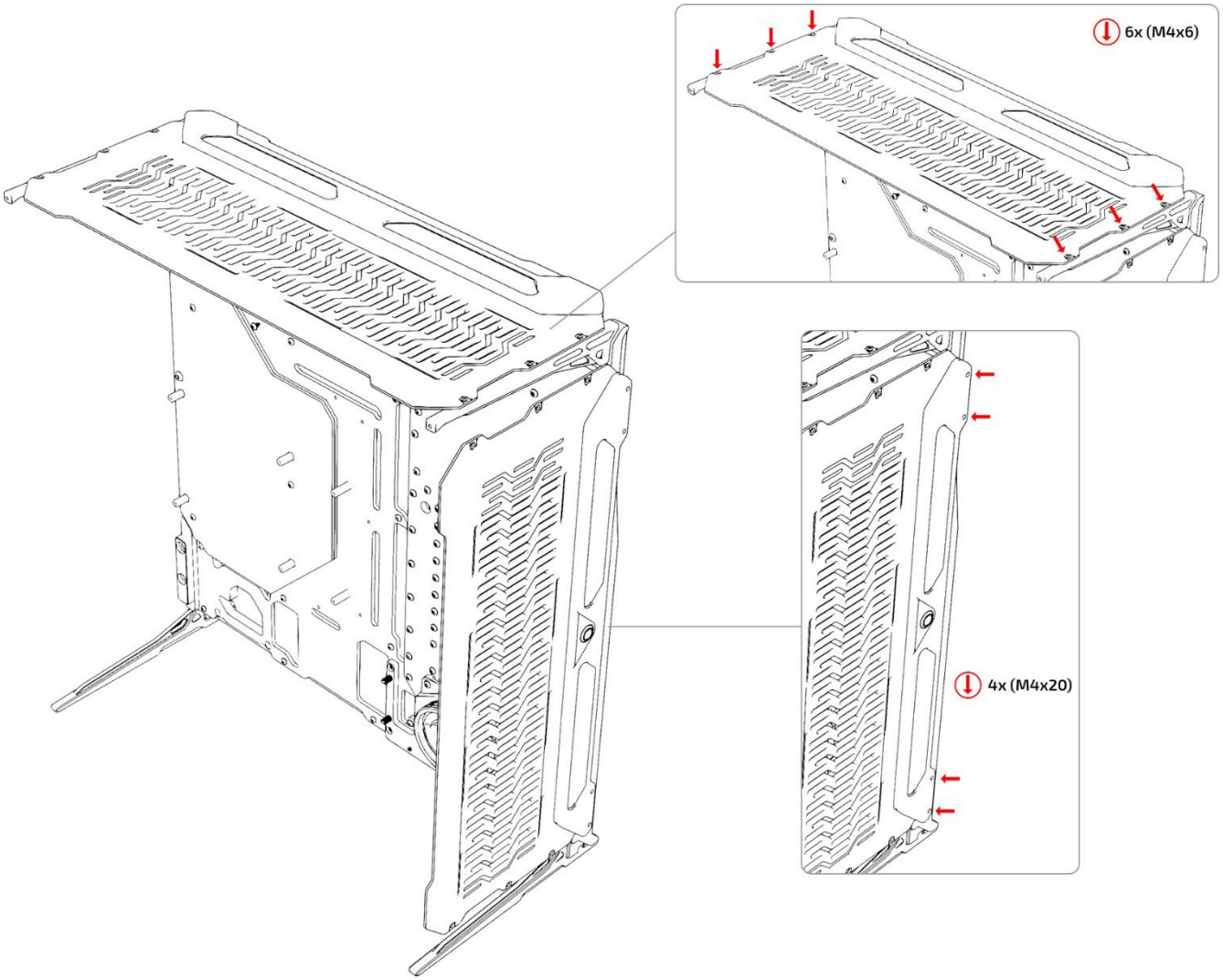


Step 7: Install Radiator Panels onto Legs.

Pieces Involved		
	• Spectre 3.0 Integra Case • B J P Radiator Panel Assembly Front • J O P Radiator Panel Assembly Top	• Fasteners – 6x M4 x 6mm • Fasteners – 4x M4 x 20mm

Attach the Top Radiator Panel assembly to the Legs using 6x M4 x 6mm Fasteners. Attach the Front Radiator Panel assembly to the front Leg using 4x M4 x 20mm Fasteners.

If you have any fastener alignment issues you will need to loosen related fasteners to allow the built-in tolerances to settle everything into position.



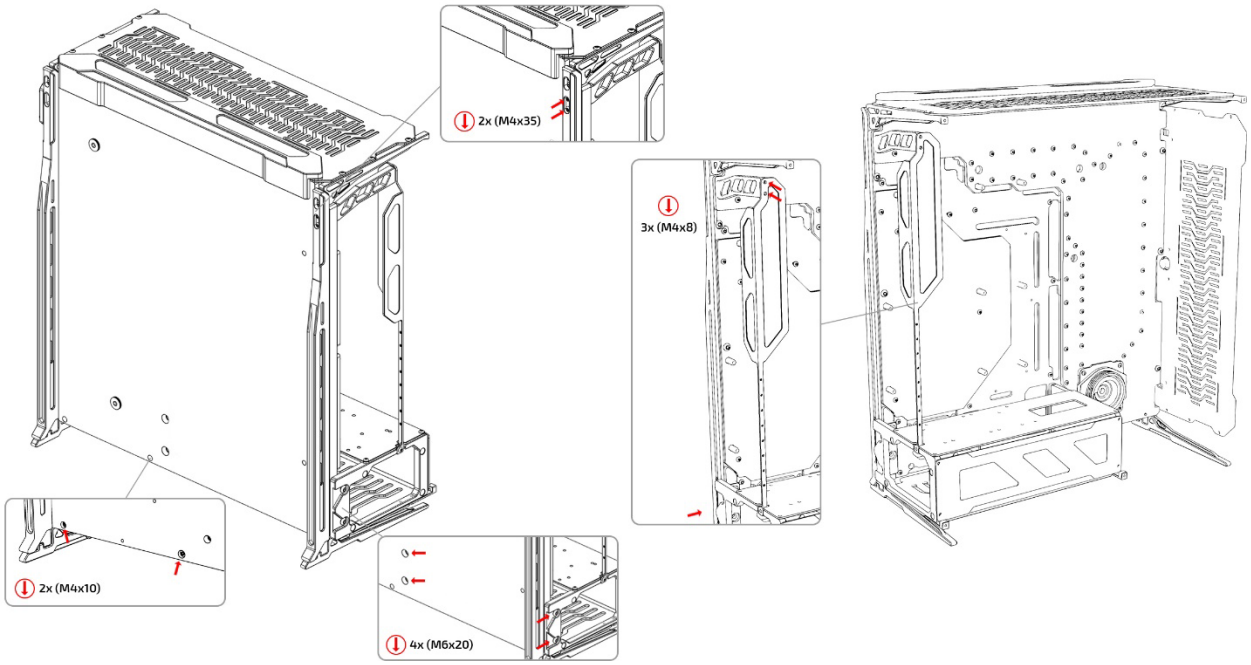
Step 8: Install PSU Shroud, Cable Shroud & Rear IO.

Pieces Involved		
	• Spectre 3.0 Integra Case • F E K M G I PSU Shroud • H PSU Shroud Mount • J Radiator Panels • L Cable Shroud • Q Rear I/O Panel	• N Rear I/O Support • Fasteners – 4x M6 x 20mm • Fasteners – 2x M4 x 10mm • Fasteners – 3x M4 x 8mm • Fasteners – 2x M4 x 35mm

PSU Shroud Installation:
Begin by installing the PSU Shroud to the PSU Shroud Mount with 2x M6 x 20mm Fasteners. Then align the PSU Shroud to the Distribution Plate and install the two fasteners through the Distribution Plate to hold the PSU Shroud at the front. If you have any fastener alignment issues you will need to loosen related fasteners to allow the built-in tolerances to settle everything into position. Do not over tighten fasteners on acrylic.

Cable Shroud Installation:
Install the Cable Shroud onto the Case. It fits onto the bottom of the Distribution Plate underneath the D5 Pump Top. Use the 2x M4 x 10mm Fasteners to attach it, the fasteners install from the back of the Distribution Plate. Do not over tighten fasteners on acrylic.

Rear IO Installation:
Install the Rear IO Support onto the case, it fits onto the front of the Distribution Plate and the fasteners go all the way through from the back sandwiching everything together. Use the 2x M4 35mm fasteners with one M4 Spring Washer per fastener. Then install the Rear IO Panel, first installing the 2x M4 8mm fasteners at the top which go into the Rear IO Support, then the M4 8mm fastener at the bottom which goes into the PSU Rear Bracket. If you have any fastener alignment issues you will need to loosen related fasteners to allow the built-in tolerances to settle everything into position. Do not over-tighten fasteners on acrylic.

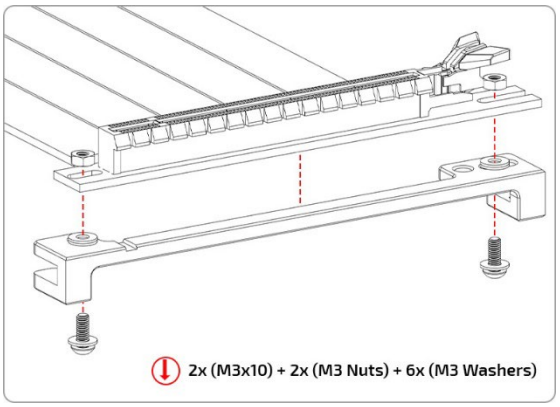


Step 9: Install PCIe 4.0 Vertical GPU Mount.

Pieces Involved	
	• Spectre 3.0 Integra Case • PCIe 4.0 Vertical GPU Bracket • Vertical GPU Angle • Fasteners – 2x 6-32 x 0.25" • Recommended Vertical GPU Riser Cable (Not Included) • Fasteners – 2x M4 x 10mm • Fasteners – 2x M3 x 10mm • Fasteners – 2x M3 Nuts • Fasteners – 6x M3 Washers

Step 1: Install Riser Cable.

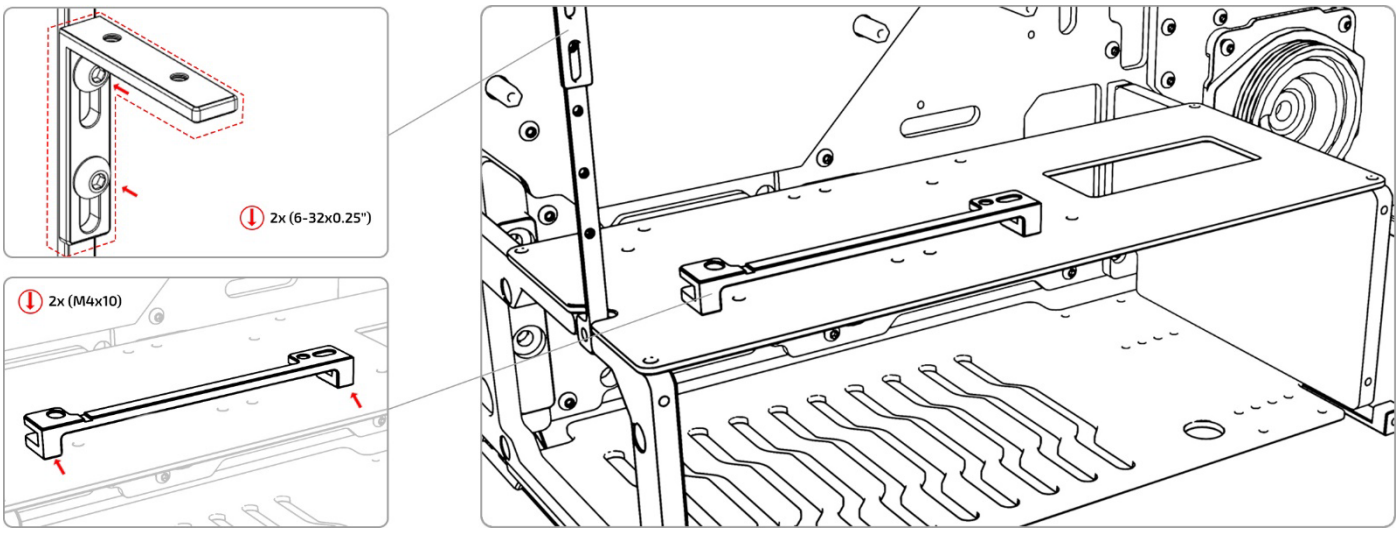
Install the PCIe Riser Cable (not included). Check you have the correct orientation (see diagram to the right). The cutout side of the Vertical GPU Bracket PCIE 4.0 needs to line up with the protruding plastic cover under the Vertical GPU Riser Cable. Install the Vertical GPU Riser Cable onto the PCIE 4.0 Vertical GPU Bracket using the 2x M3 x 10mm Fasteners, 2x M3 Nuts and 6 x M3 Washers (see the diagram to the right for fastener orientation).



Step 2: Install PCIe 4.0 Vertical GPU Mount.

Remove the PSU Side Panel to gain access into the PSU Shroud. Install the Vertical GPU Bracket PCIe 4.0 to the PSU Top Panel using the 2x M4 x 10mm Fasteners. The fasteners are installed from underneath the PSU Top panel. There are several holes in the PSU Top Panel also for the 2nd Vertical GPU Mount PCIe 4.0 and SSD Mounting so be careful to select the correct mounting holes. Install the Vertical GPU Angle using the x2 6-32 x 0.25" Fasteners. Be careful to select the correct position on the Rear IO Panel so that the angle is at the correct height for your GPU.

Note: You may need to adjust the position of the Riser Cable on the PCIE 4.0 Vertical GPU bracket for correct GPU alignment.



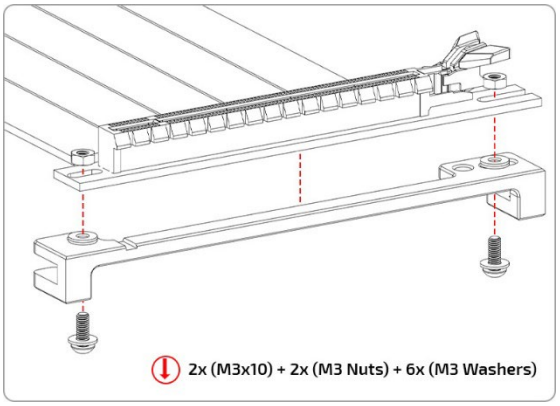
Step 10: Install PCIe 4.0 2nd Vertical GPU Mount.

(This add-on needs to be purchased separately; it is not included with the case).

Pieces Involved	• Spectre 3.0 Integra Case • PCIe 4.0 2nd Vertical GPU Bracket • Vertical GPU Angle • Vertical GPU 2nd Angle • Recommended Vertical GPU Riser Cable (Not Included)	• Fasteners – 2x M4 x 10mm • Fasteners – 2x M3 x 10mm • Fasteners – 2x M3 Nuts • Fasteners – 6x M3 Washers • Fasteners – 2x 6-32 x 0.25" • Fasteners – 2x 6-32 Nuts

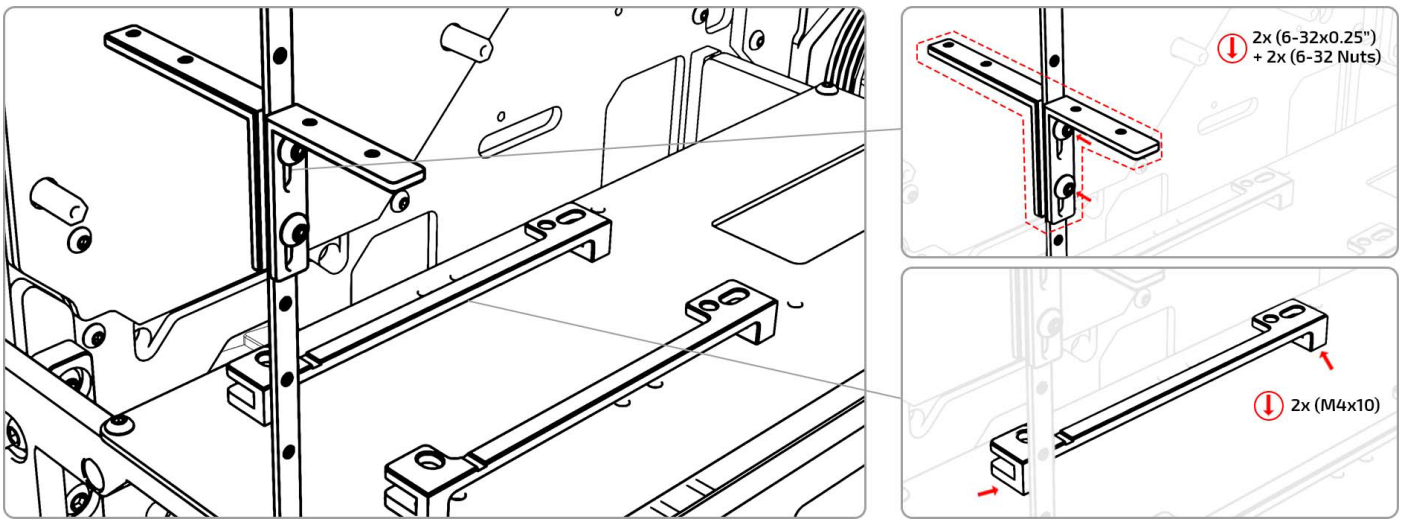
Step 1: Install Riser Cable.

Install the PCIe Riser Cable (not included). Check you have the correct orientation (see diagram to the right). The cutout side of the Vertical GPU Bracket PCIE 4.0 needs to line up with the protruding plastic cover under the Vertical GPU Riser Cable. Install the Vertical GPU Riser Cable onto the PCIE 4.0 Vertical GPU Bracket using the 2x M3 x 10mm Fasteners, 2x M3 Nuts and 6 x M3 Washers (see the diagram to the right for fastener orientation).



Step 2: Install 2nd PCIe 4.0 Vertical GPU Mount.

Remove the PSU Side Panel to gain access into the PSU Shroud. Install the PCIe 4.0 2nd Vertical GPU Bracket to the PSU Top Panel using the 2x M4 x 10mm Fasteners. The fasteners are installed from underneath the PSU Top panel. There are several holes in the PSU Top Panel also for SSD Mounting so be careful to select the correct mounting holes.Remove the Vertical GPU Angle if it is already installed. When installing the 1st and 2nd Vertical GPU Mounts both angle pieces are installed with the same fasteners at the same time. These fasteners are included with the 2nd Vertical GPU Mount and are not included with the case. Use the 2x 6-32 x 0.5" Fasteners to mount the Vertical GPU Angle and the Vertical GPU 2nd Angle. These are both attached to opposite sides of the Rear IO Panel facing opposite directions. Tighten the 2x 6-32 x 0.5" fasteners and then use the 2x 6-32 Nuts to fix the Vertical GPU Second Angle in position. Be careful to select the correct position on the Rear IO Panel so that the height is correct for your GPU.



Step 11: Install SSD Tray into PSU Shroud.

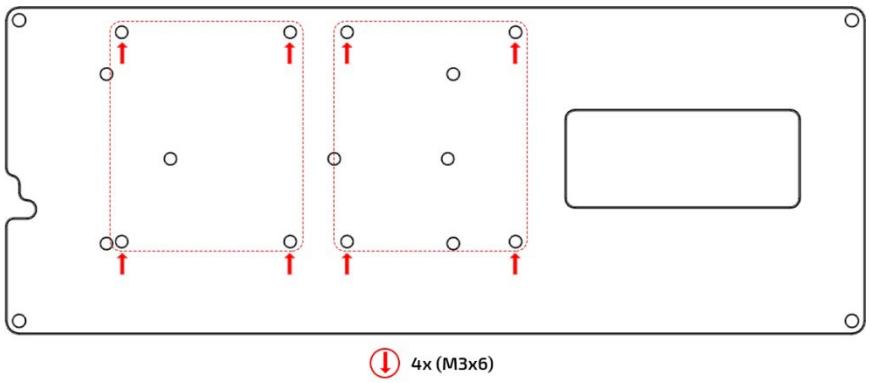
Pieces Involved		
	• Spectre 3.0 Integra Case • (K) PSU Top Panel	• Fasteners – 16x M3 x 6mm

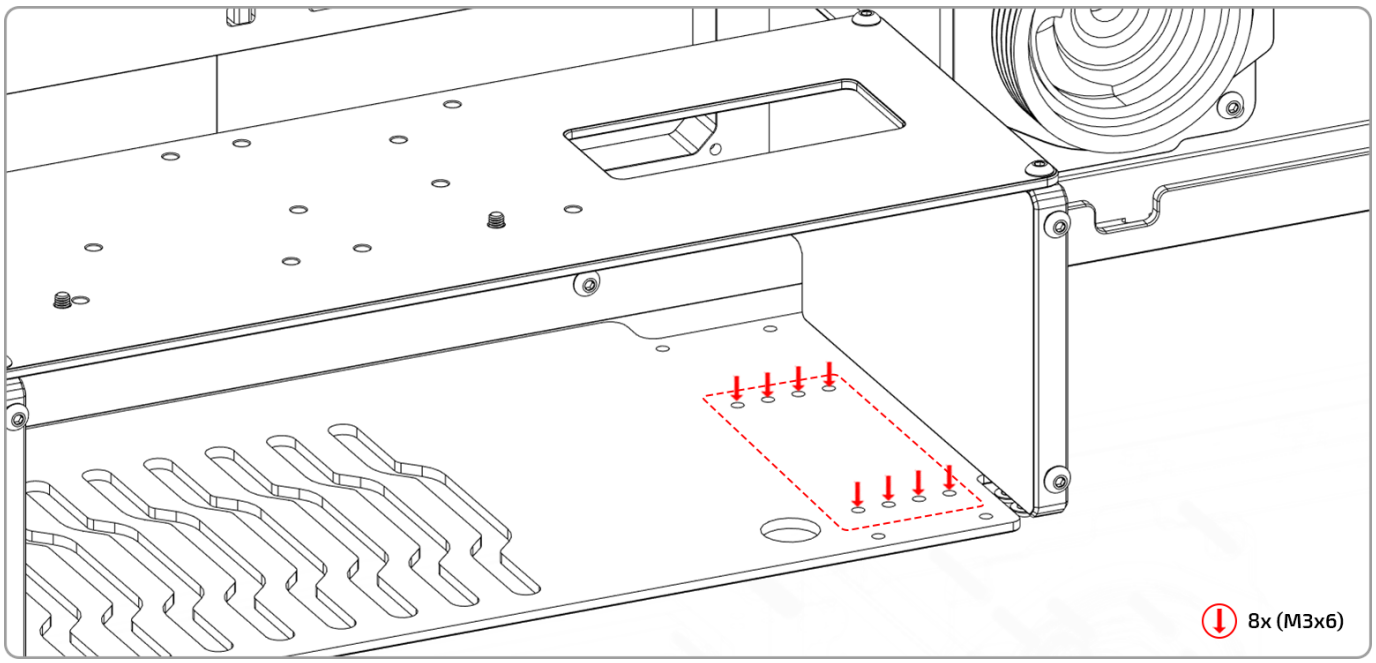
4x 2.5" drives can be installed into Spectre 3.0 Integra. There are two locations to install 2.5" drives, the PSU Bottom Shroud or the PSU Top Panel. The PSU Bottom Shroud has 4x 2.5" side mounted drive positions and it fits inside of the PSU shroud. The PSU Top Panel has 2x 2.5" drive mounting positions which are blocked when the Vertical GPU Mount/s are used. The Spectre 3.0 Integra integrated SATA Data cable management can fit a maximum of 4x SATA Data cables.

See the diagrams below for the 2.5" drive mounting locations:

Note

PSU Top Shroud SSD mounting locations cannot be used with Vertical GPU mounts.

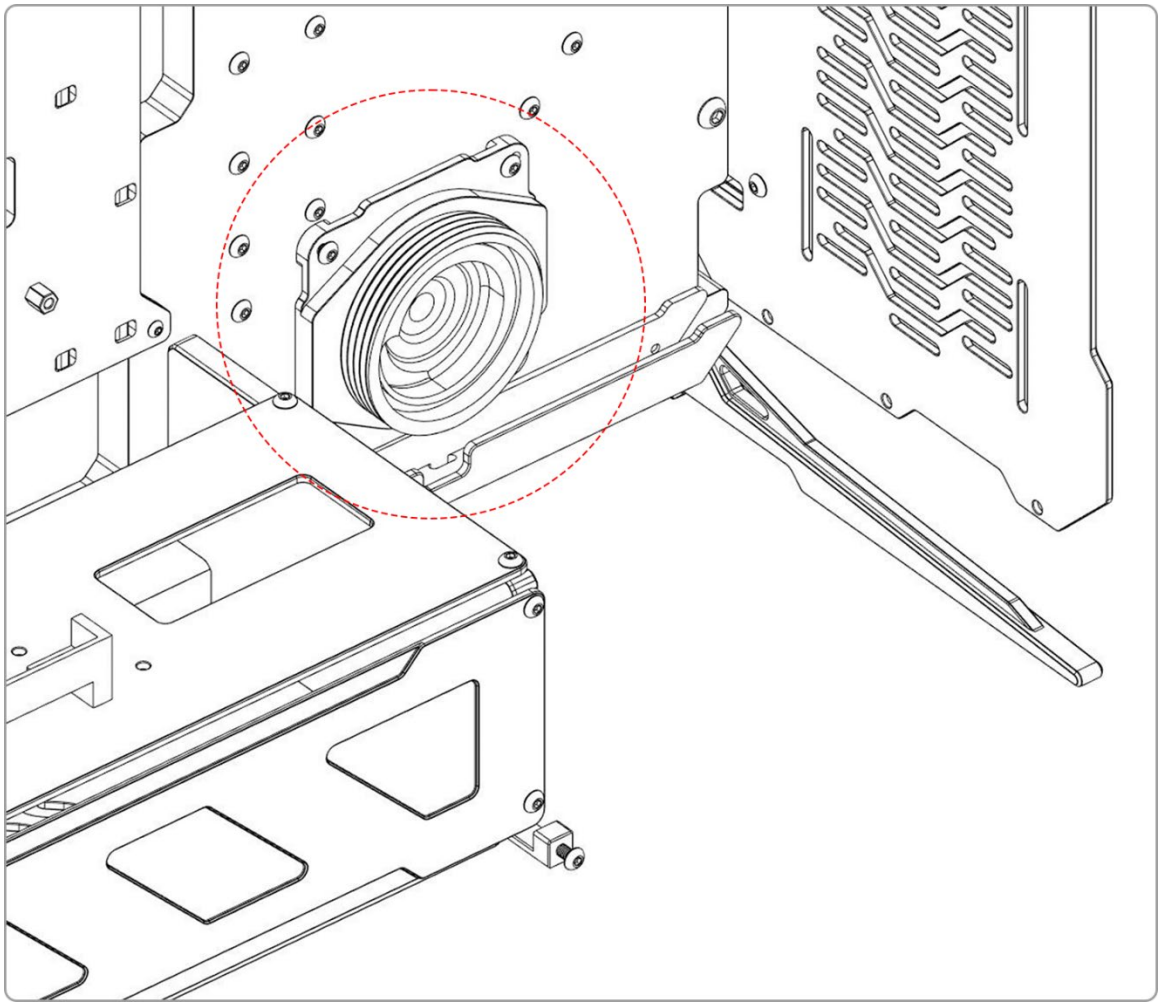




Step 12: Install D5 Pump (Not included).

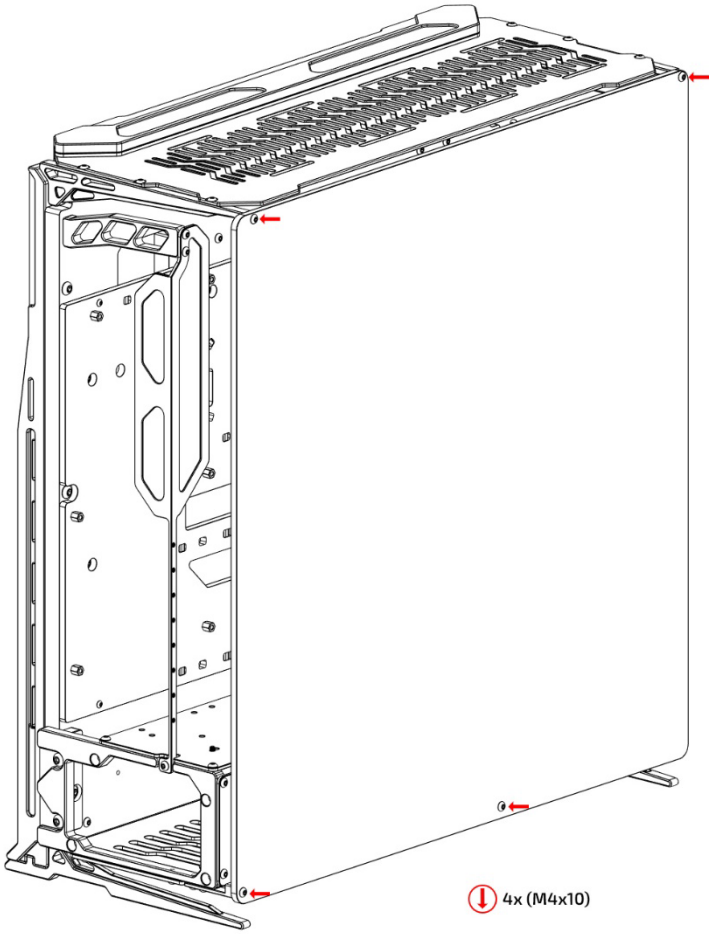
Pieces Involved		
	• Spectre 3.0 Integra Case • D5 Pump Cover	• D5 O-Ring • D5 Pump (Not Included)

It is easier to do this when the Case or Distribution Plate is horizontal because then you can sustain downward pressure on the pump while tightening the pump cover to prevent the O-ring moving out of position.
Position the O-ring in the D5 Pump Top O-ring Groove, make sure that it is not twisted, kinked, or damaged. Push the pump into the pump top and twist side to side until you feel the O-ring has settled into the O-ring groove. Then tighten the pump cover firmly onto the pump. Position the pump cables where you need to for the best cable routing.



Step 13: Install Side Panel Window.

Install the Side Panel Window using 4x M4 x 10mm Fasteners. Place the Side Panel Window in front of the case, pick up one corner and align it with the first hole. Install the fastener but do not fully tighten it. Then move onto the other side and install the next fastener.



Step 14: Filling & Draining The Loop.

Recommended Items	• Air Pressure Tester • Long Fill Tube	• External Power Supply for D5 Pump

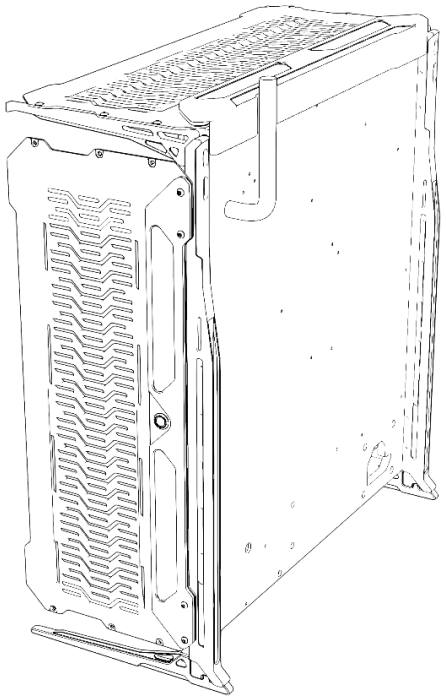
Filling the Loop:

To fill the loop, we strongly recommend a long fill tube. We use a 90-degree fitting with a barb fitting and a 200mm length of soft tube. This prevents spilling and helps to remove the air faster. Spectre Builds will usually take 1.2-1.5L of fluid but allow 2L.

We recommend air pressure testing before filling any loop. Air pressure should not surpass 0.6 bar.

Use an external PSU for your pump or jump start your PSU. Do not boot your system to fill the loop.

Fill the reservoir 100% and run the pump until the reservoir is almost empty (do not run the pump dry). Keep repeating until you have full circulation. Give some time for the final air to come out, it can take 30min to 48hrs depending on your build. Keep the fill tube on until all the air is out and then seal up the reservoir with a stop fitting.



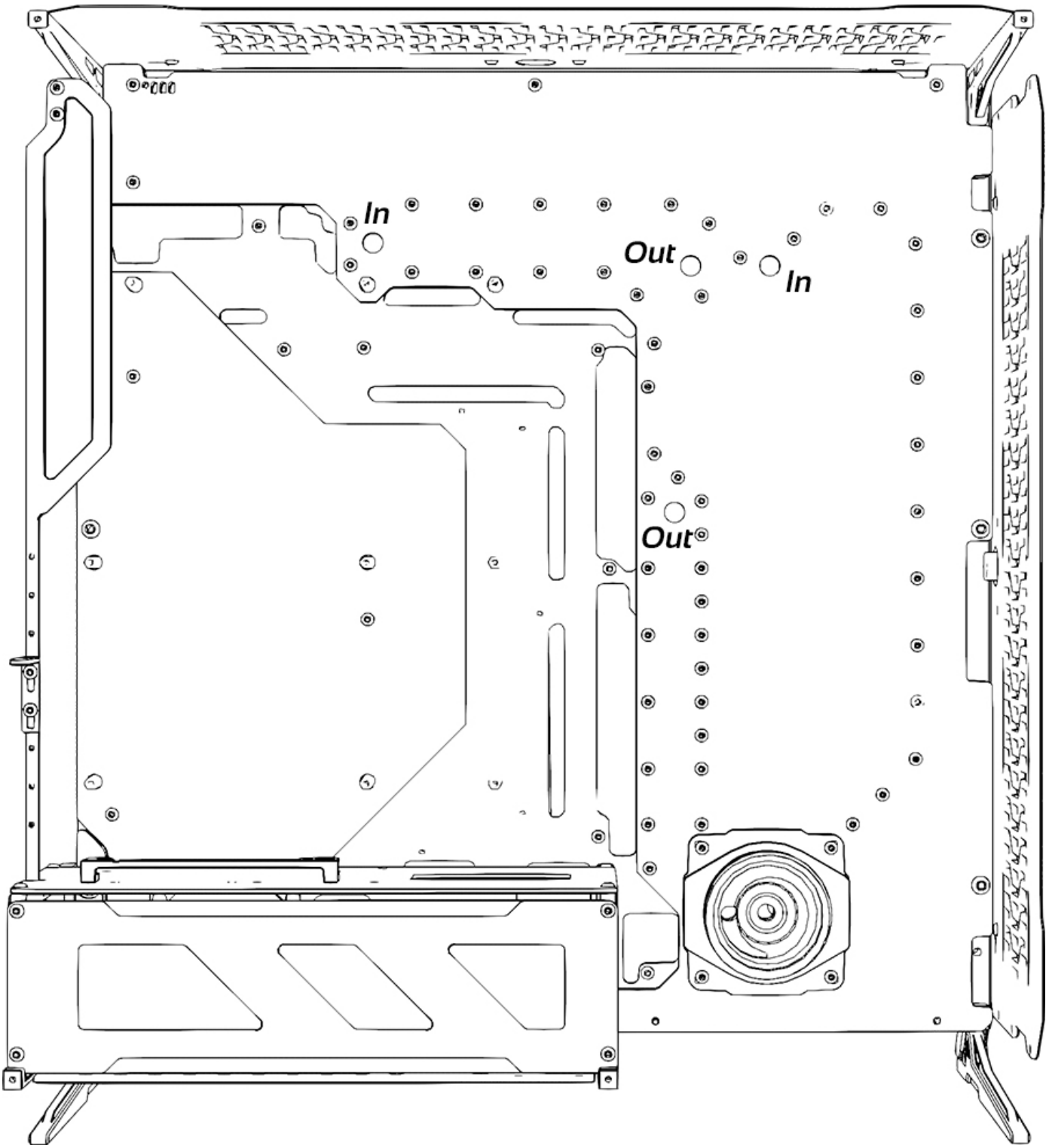
Draining the Loop:

There are various options for drain valves. For Spectre 3.0 Integra it is in quite a visible location around the back of the case, so we suggest something visually appealing. We like to use no spill quick disconnects but any high-quality drain valve will work. No drainage system will ever drain a loop 100%. The only way trapped coolant can be removed is the hard way in any build, dismantling the loop and individually draining each section.

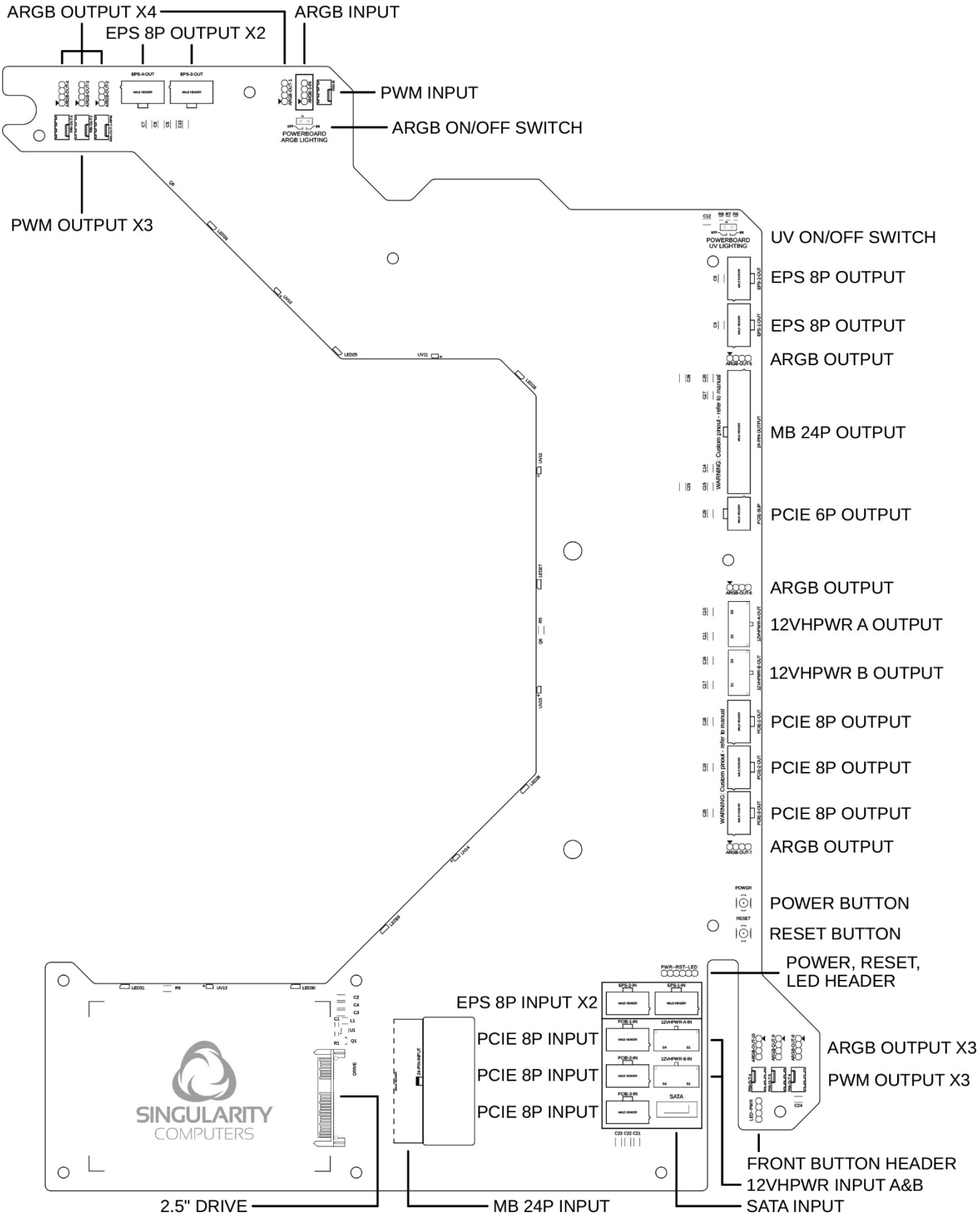
Installing Radiators

The radiator panels have sliding adjustment. Use this to position your radiators so that the ports are optimally aligned with the ports on the Distribution Plate.

Liquid Cooling System Layout



Spectre 3.0 Integra PowerBoard



⚠ All PowerBoards need PowerBoard Linking Cables.

PowerBoard PSU Cables:
The stock cables that come with every power supply can be used, plug in as many cables as input connectors are available. Do not use components that have more connectors than Your power supply has cables for. For example, if Your power supply comes with a single 8pin EPS (4+4) plug and Your motherboard has 2X 8pin EPS connectors, then a better power supply needs to be used.

Singularity Computers offers custom sleeved and shorter PSU cable kits that are a better fit in the PSU shroud area than stock cables.

PowerBoard Linking Cables:
Spectre 3.0 Integra comes with a standard kit of PowerBoard Linking Cables which includes 24pin MB x1, 8pin EPS x2 and 8pin PCIE x3. The pinout of these Linking cables is mirrored and the lengths are custom to achieve an arch. The connectors are also female on both sides (refers to the pin and not to the connector housing). PWM and ARGB linking cables are also included to connect from your motherboard or controller to the PowerBoard PWM and ARGB inputs. Use our Cable setup guide if making custom Linking cables.

Power Connectors:
The input and output connectors are not wired directly together but they are shared, so if EPS-1-IN is plugged in then any of the EPS outputs can be used, it is not limited to EPS-1-OUT. The same applies to the PCIE inputs, they can be mixed and matched. The exception is the 12VHPWR connectors, as there are communication lines in them where the power supply communicates to the graphics card of how much power it can supply to it, so if the 12VHPWR-A-IN is used on the input side then 12VHPWR-A-OUT must be used on the output side, same applies to 12VHPWR-B.
There is a PCIE 6P connector located next to the MB 24P connector for motherboards that have a supplementary PCIE 6P connector for additional power.

ARGB Connectors:
The PowerBoard has built-in ARGB lighting and acts as an ARGB hub. An ARGB source, like a motherboard ARGB header, must be connected to the ARGB-IN header on the PowerBoard. The input header is marked with a white rectangle around it for easier identification. The PowerBoard uses this ARGB signal to light up the built-in LEDs and splits this signal to all ARGB outputs. What signal goes into the input will be displayed on the built-in LEDs and all LED strips attached to the ARGB outputs, in parallel. The PowerBoard does not show up as an individual component in ARGB controlling software, but it can be controlled by controlling the motherboard ARGB header, which will show up in software. The PowerBoard LEDs and headers are powered by the power supply 24pin connection, so they will only light up when the system is turned on, but not when the system is turned off or in stand-by mode. The ARGB headers are conveniently located where they are expected to be used, next to radiator mounts, GPU, and CPU waterblocks and close to Elite kits. Do not plug a 4pin/12V RGB device into the PowerBoard, only 3pin/5V ARGB/DRGB (addressable/digital RGB) devices are compatible.

ARGB On/Off Switch:
This switch connects/disconnects the ARGB control signal from the built-in LEDs on the PowerBoard. When turned ON, the LEDs will immediately light up. When turned OFF, the LEDs will not light up from the next time the system is turned ON from a cold boot but will display the last colour they were displaying before the switch was turned OFF. After turning the switch OFF, turn off the system, wait 5 seconds and turn the system ON again. This switch does not control ARGB headers, only the built-in LEDs on the PowerBoard.

UV On/Off Switch:
This switch turns the built-in UV LEDs on the PowerBoard ON/OFF. It is a live switch, and the UV lighting should immediately turn ON or OFF based on the position of the switch. There is no need to reboot the system.

PWM/Fan Connectors:
The PowerBoard acts as a powered PWM/Fan hub. A PWM source, like a motherboard CPU Fan header, must be connected to the FAN-IN header on the PowerBoard. The PowerBoard shares this PWM signal to all PWM outputs. What signal goes into the input will be the same control signal sent to every fan connected to the PowerBoard. The PowerBoard does not show up as an individual component in fan controlling software, but it can be controlled by controlling the motherboard CPU Fan header, which will show up in software. The PowerBoard PWM headers are powered by the power supply, so there is less strain on the motherboard. Only FAN-1-OUT-RPM monitors the speed of a connected fan which is reported back to the motherboard. If no fan is connected to this header, the motherboard will see zero RPM even if all other headers have fans connected to them, so populate FAN-1-OUT-RPM first with a fan that You would like to monitor the RPM of. The PWM headers are conveniently located where they are expected to be used, close to radiator mounts.

Power, Reset, LED Header:
Connect the motherboard front panel headers to this header to enable functionality of the touch button on the back side of the PowerBoard, the POWER and RESET buttons on the front side and the header for the front panel button on the case. Refer to the motherboard's manual for the pinout of its front panel header:

Connect PWR_BTN (motherboard) with POWER SW cable to PWR (PowerBoard) Polarity matters, although it varies by motherboard maker. If it is wired the wrong way then the system will automatically turn ON and then OFF, repeatedly. It is the same behaviour from holding the power button indefinitely. If this is the case, turn the power supply main switch to OFF and reverse the connector polarity of the POWER SW cable either on the motherboard or on the PowerBoard side.

Connect RESET (motherboard) with RESET SW cable to RST (PowerBoard). +/- Polarity does not matter.

Connect POWER_LED (motherboard) with POWER LED+/- cable to LED (PowerBoard) +/- Polarity does not matter.

FRONT BUTTON HEADER: connect the main power button from the front panel here:
POWER SW cable to PWR (PowerBoard), polarity does not matter.
POWER LED+/- to LED (PowerBoard), polarity does not matter.

Powering on the system:
There are up to 4 ways to turn the system on. The first is the main power button that's installed onto the front of the case. Second is the built-in buttons on the PowerBoard. Third is the touch button on the back side, bottom right corner area of the PowerBoard inside the acrylic cut out, touch the Singularity Computers logo to turn the system on. Fourth is the power button built into the motherboard, it depends on the model whether it has it or not.

SATA Connector:
Connect this SATA input into a SATA output on the motherboard and install a 2.5" drive into the PowerBoard. There is no need to connect a SATA power cable to the 2.5" drive, it is powered directly from the PowerBoard.