



DB4

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IMPORTANT NOTICE

Passively cooled products can get hot to the touch, especially when systems are running at high loads for extended periods. This is a normal part of their operation and they have been tested to run safely under these conditions. Please take their operational temperature into consideration when positioning and handling.

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A Message from the Team

In a market dominated by generic and uninspired products, we are on a mission to break the mold, not only of design, but materials and finish. This is a value that is not easily conveyed in an industry preoccupied with specs and numbers, so your choice shows an appreciation and understanding of what makes our products different, and we sincerely thank you for that.






Every care has been taken to ensure that this product meets the highest quality and standards we strive for. If anything about this product falls short of your expectations or you have any questions that are not covered in this user guide, please do not hesitate to get in touch online. We respond to every question received and your feedback is a critical part of our ongoing product development and refinement.

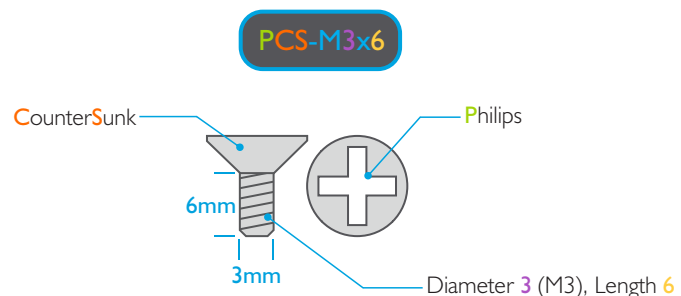
From everyone in the team, we hope that you enjoy using our product!

Introduction to Assembling Your Case

It's not rocket science, but our cases can be a little challenging to assemble at first because of the non traditional design and the materials used. Passive cooled cases have an added layer of complexity because of the heat pipe assembly/hardware requirements, so please take the time to read the user guide and become familiar with the components and assembly procedure. Additional information is also available on our website 'system build guide' page, and of course from our online support team are always happy to help.

The guide indicates which screws should be used and their corresponding fixing location. Screws are defined by head type, e.g. 'hex countersunk' and by thread and length e.g. M3x10, and will be labeled accordingly, e.g. HCS-M3x10. Two screw head types are used throughout the case, Philips and HEX, and we provide an allen key for the HEX screws, but you will require a Philips Screwdriver.

-  Hex Countersunk Screw (HCS)
-  Philips Thin Cheese Head Screw (PTC)
-  Philips Countersunk Screw (PCS)
-  Hex Cheesehead Screw (HCS)
-  Thumbscrew (HTS)

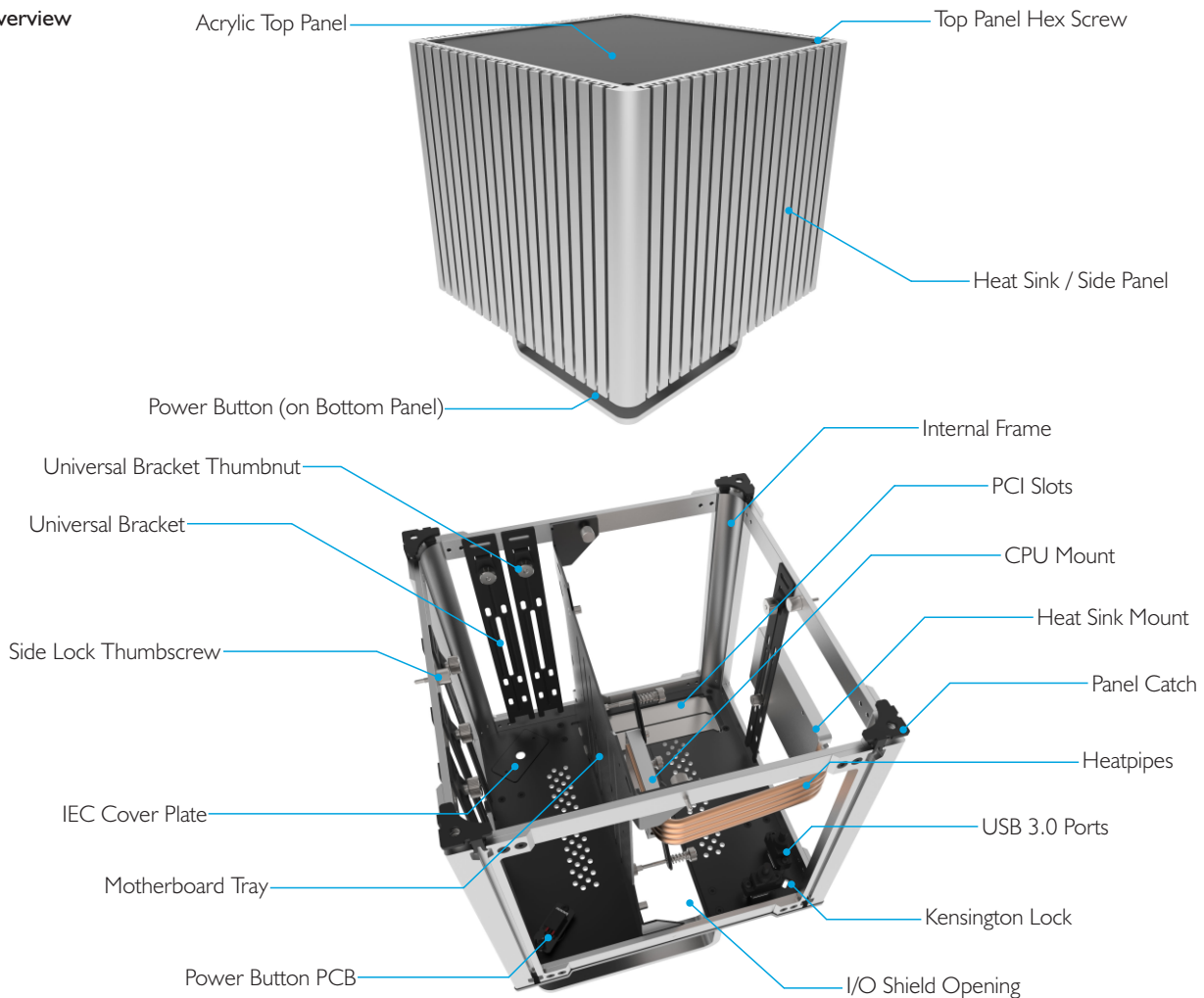


Specification

Construction Material	Premium Grade Aluminum (6063)
Available Colours	Silver / Black - Anodized & Sandblasted Finish
Motherboard Compatibility	Mini-ITX
Hard Drive Support	Up to 5 x 3.5" or 12 x 2.5", & Multiple Combinations
Optical Drive Support	Optional Kit for 12.7mm Slimline Slot Loading Drive*
CPU Cooling Solution	4 x 6mm Heatpipes rated @ 65W / Side Panel, Expandable to 105W with Additional Heat Pipe Kit*
Additional Ports	2 x USB3.0 on Bottom Panel
Expansion Slot	Dual Slot Full Height Expansion Card (Max 200mm Length, 116mm Height**)
Dimensions	260 x 260 x 270mm (WxDxH, Including Feet)
Power Supply Support	NanoPSU or ZF240*
Net Weight	7.5KG

* Not Supplied With Case
** Including AUX Power Connector

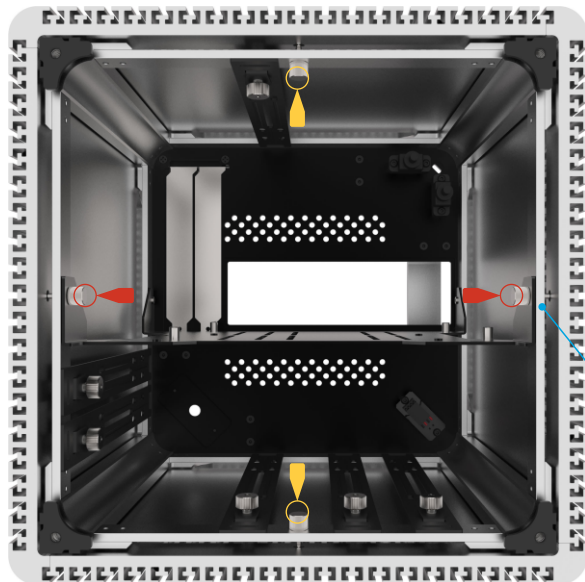
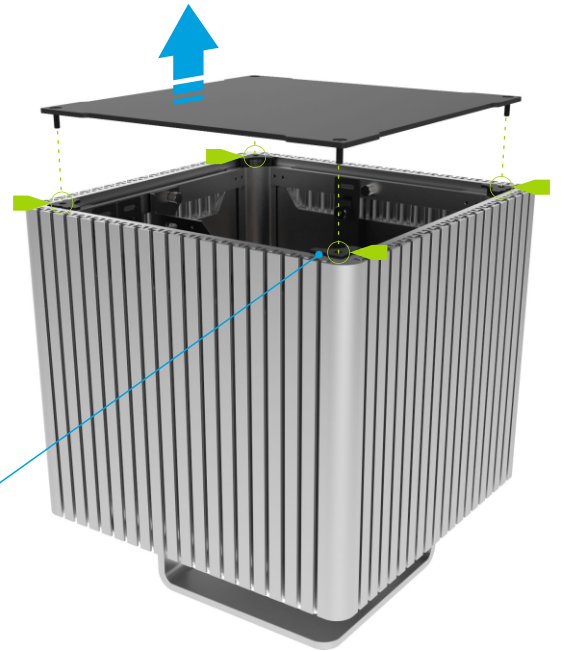
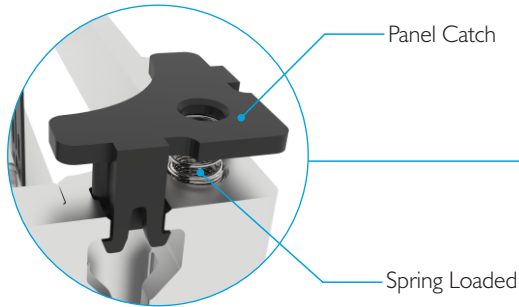
Case Overview



Removing the Top Panel

The top panel is secured in place by 4 HEX screws accessible from the top of the case. The screws are retained by the top panel so you don't lose them. Below each one is a Panel Catch that is spring loaded and will lift the top panel above the edge of the side panels so it can be easily removed. When in the down position, the Panel Catch also serves a secondary function of locking the side panels in place.

Unscrew the 4 HEX Screws, you will feel each corner spring upwards when they are released, then lift the top panel away from the case.



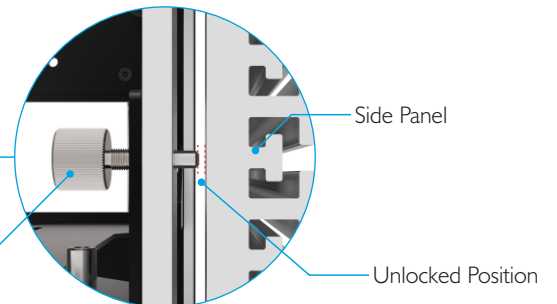
Unlock the Side Panels

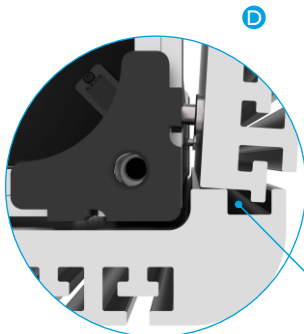
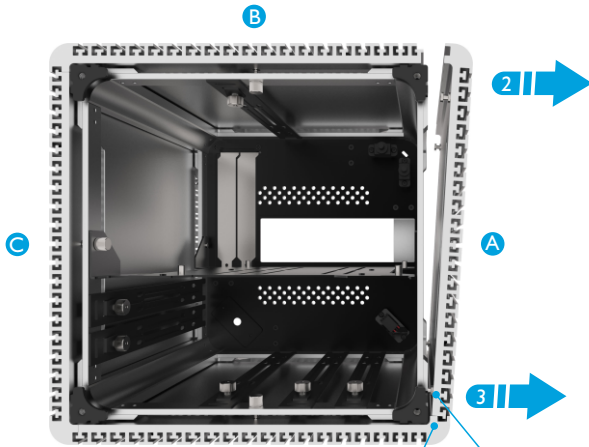
In addition to the panel catch, each of the 4 side panels also has a single thumbscrew securing it to the frame. This allows the system to be serviced with the top panel removed but without the worry of the side panels coming free. The left and right thumbscrews (in red) serve the additional function of fixing the motherboard tray to the frame.

Remove all 4 thumbscrews to release the side panels. Note that they do not need to be fully removed from the frame, just loosened to the point where they clear the side panels. The motherboard tray thumbscrews will need to be fully removed in order to release the tray.

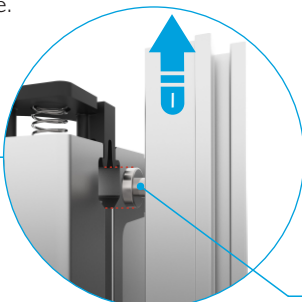


Side Lock Thumbscrew





Optimal Angle and Position for Removing Side Panel



Side Panel Screw Post

Remove the Side Panels

With the thumbscrews removed (or loosened to the unlock position), the side panels are now free to be removed. This is fairly easy once you know the correct procedure but the key is learning to removing the first panel as it requires the correct angle for the screw post to clear the frame. Carefully slide the side panel upwards until it reaches a stop, then away from the frame but with the right side angled first. The left side should then be pulled away from the frame and clear the edge of the side panel to the left. **DO NOT** force the panel out, doing so could damage the screw posts. Note how the side panels secure to the frame using screw posts which slot in/out of the cutouts. This will be important when replacing the side panels so you locate them correctly. The remaining 3 side panels do not need to be angled if removing them in a counter clockwise direction, i.e. A>B>C>D.

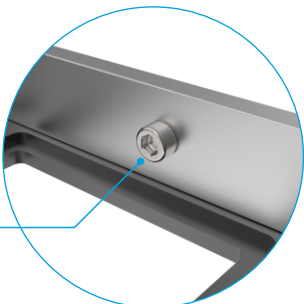
The side panels are identical so you don't need to be concerned about which one fits to which side of the frame.

Remove the Motherboard Tray

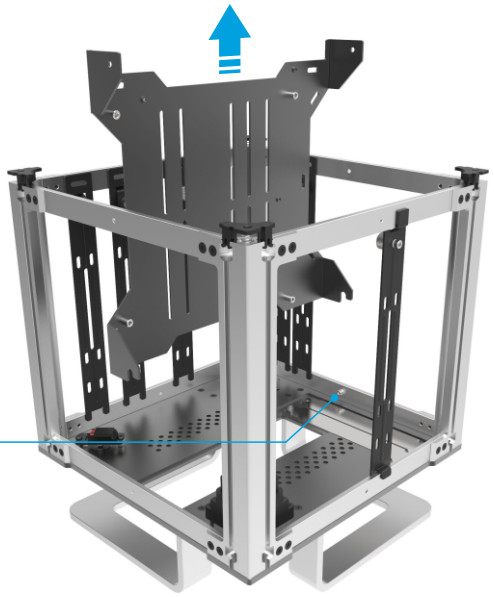
The DB4 features a removable motherboard tray which allows the motherboard to be easily assembled outside of case. The tray can also accommodate additional 1 x 3.5" or 2 x 2.5" drives on the rear side. This can be useful if the side panels are fully utilized for additional CPU or GPU cooling.

Ensuring that the side lock thumbscrews which secure the tray have been fully removed from the frame then slide the tray upwards and away from the case.

The lower side of the tray is anchored by a single guide screw each side of the frame which should not be removed.



Motherboard Tray Guide Screw



Fitting Components to the Motherboard Tray

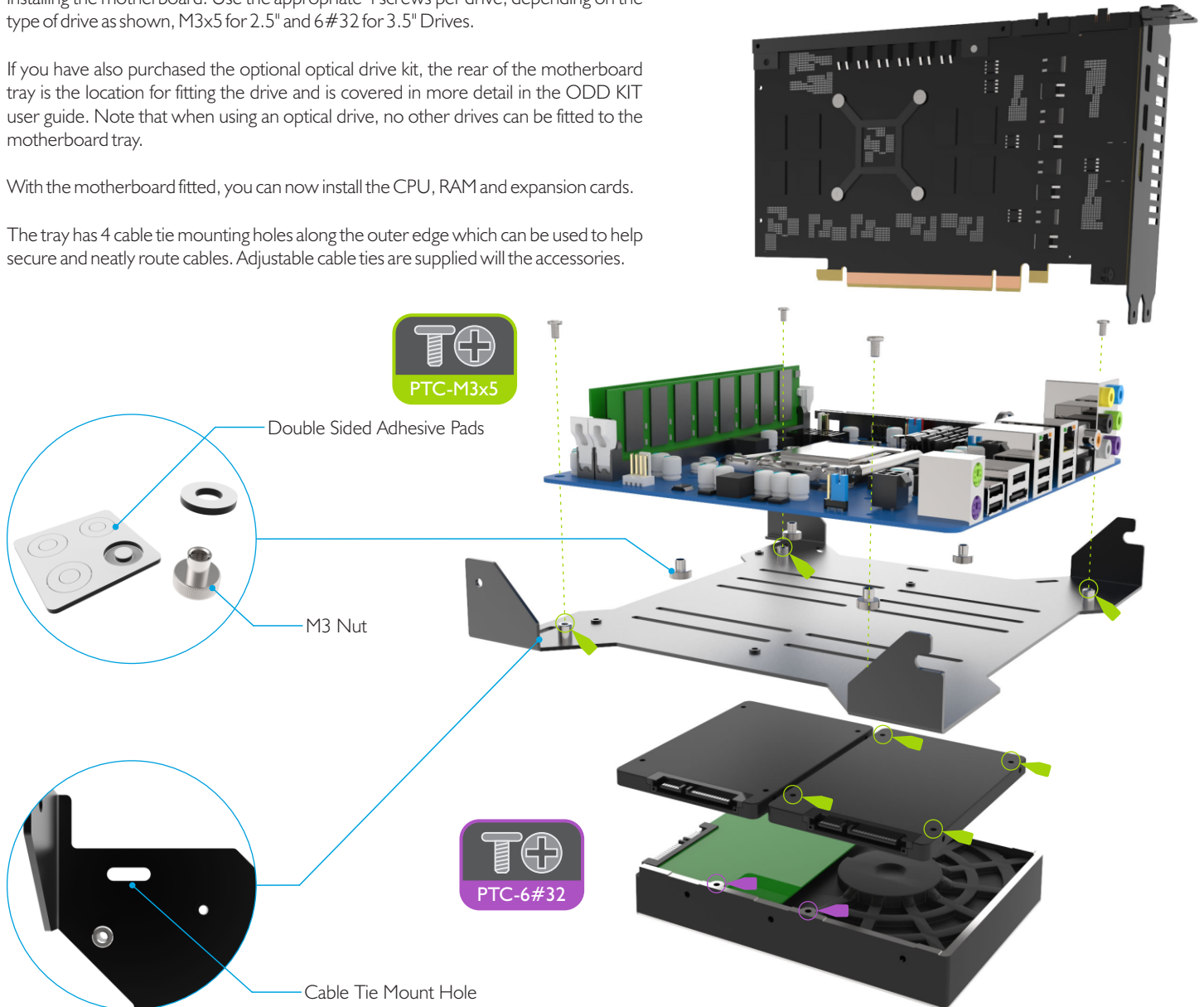
Prior to installing to the tray, M3 nuts must be stuck to the underside of the motherboard, through the CPU cooler mounting holes. The M3 nuts are supplied with double sided adhesive pads which should first be applied to the M3 nuts. A spare set of adhesive pads are included should you need to change your motherboard in future. Once the nuts are fitted, align the motherboard with the 4 stand-offs on the tray and secure it using 4 x PTC-M3x5 screws as shown.

If you are planning to fit drives to the motherboard tray, they must be fitted prior to installing the motherboard. Use the appropriate 4 screws per drive, depending on the type of drive as shown, M3x5 for 2.5" and 6#32 for 3.5" Drives.

If you have also purchased the optional optical drive kit, the rear of the motherboard tray is the location for fitting the drive and is covered in more detail in the ODD KIT user guide. Note that when using an optical drive, no other drives can be fitted to the motherboard tray.

With the motherboard fitted, you can now install the CPU, RAM and expansion cards.

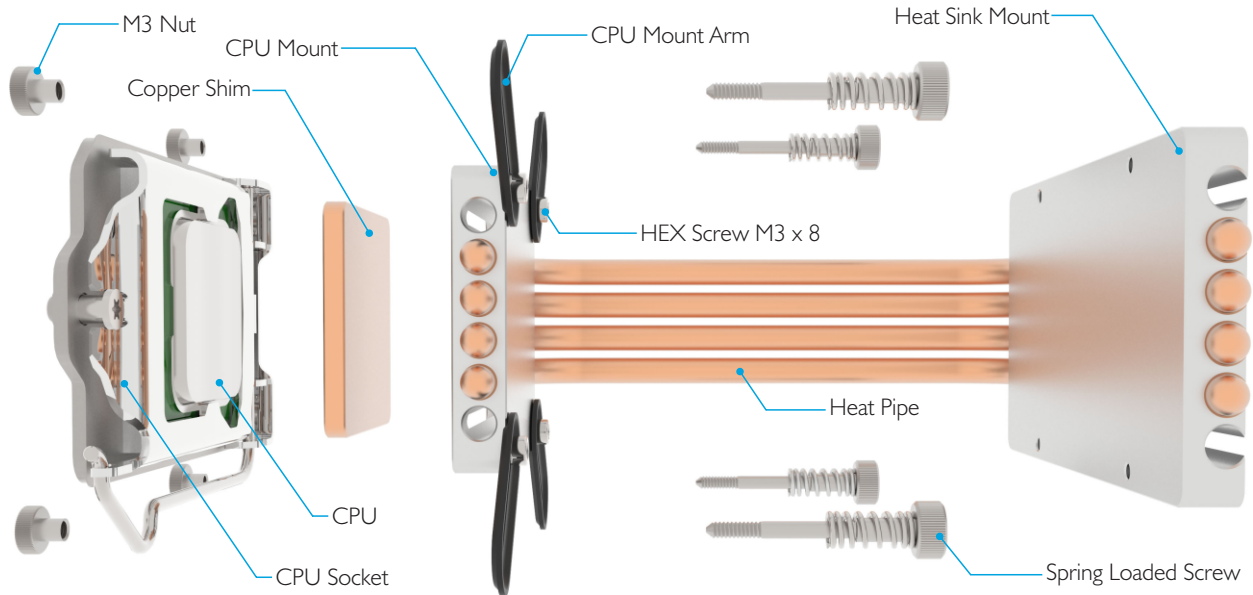
The tray has 4 cable tie mounting holes along the outer edge which can be used to help secure and neatly route cables. Adjustable cable ties are supplied with the accessories.



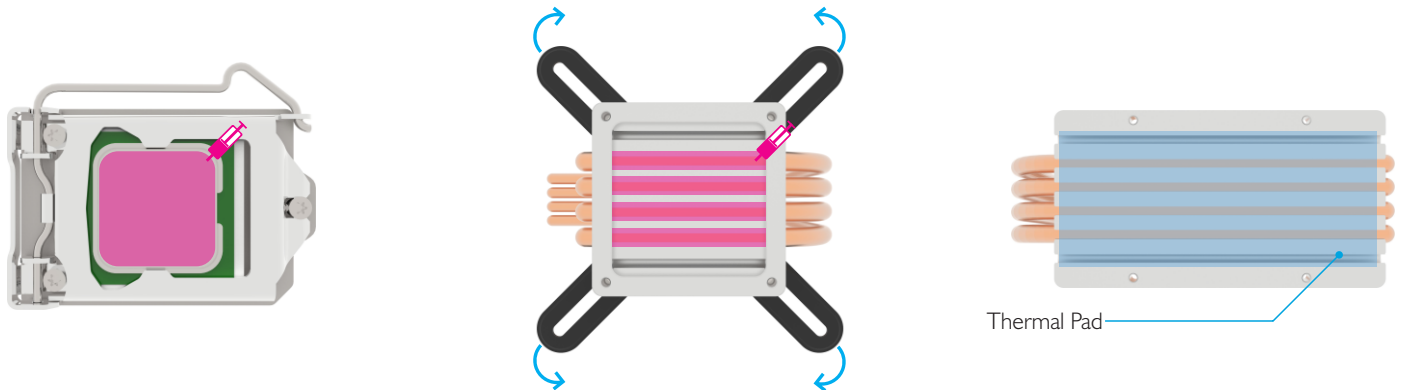
CPU Cooler Assembly Overview

Below is an overview of the DB4 CPU cooler assembly which comprises of 3 main groups. **1 - The CPU mount assembly** (copper shim, CPU mount, and arms) which secure the heat pipes to the CPU / motherboard using the spring loaded screws. **2 - The heat sink mount** that secures the heat pipes to the case side panel (heat sink). **3 - The heat pipes** that transfer the heat from the CPU to heat sink. The parts are individually packed for protection and require assembly.

The arms come pre-assembled to CPU mount with HEX screws, slightly loosen them so they can pivot outwards and be correctly orientated to align with the motherboard CPU cooler mounting holes when fitting. Carefully slot the heat pipes (the shorter side) into the CPU mount holes until they slightly protrude, being careful not to bend or damage them. The other side of the heat pipes can now be slotted into the heat sink mount, again being careful not to bend or damage them.



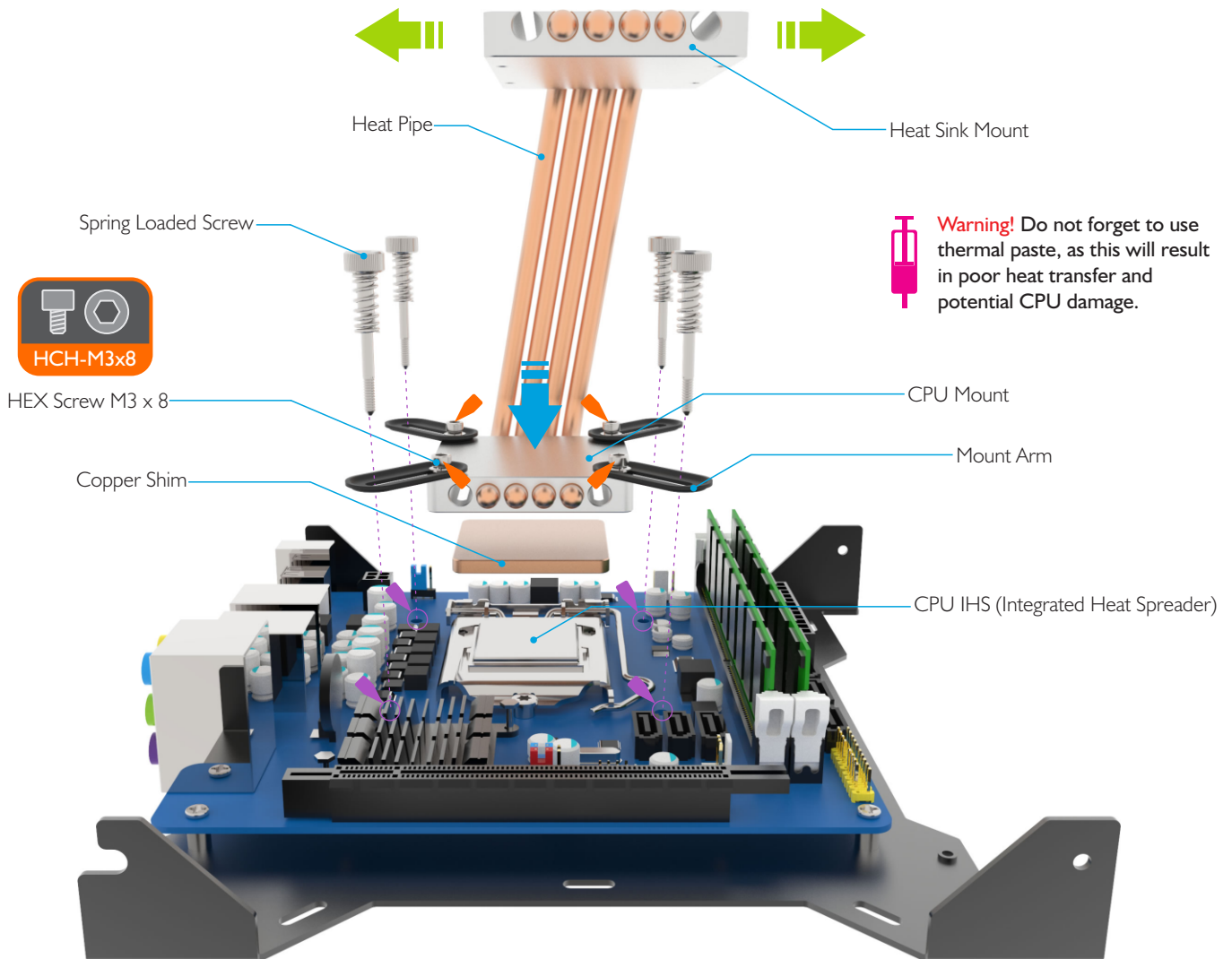
The use of thermal paste and pads is **ESSENTIAL** to ensure efficient heat transfer and should be applied to **ALL** the surfaces indicated below. Thermal paste is messy and hard to clean, so don't apply the paste until just before fixing the CPU mount to the motherboard. A thermal pad will be used between the heat sink mount and side panel/heatsink of the case. Care should also be taken when handling the thermal pads to ensure they do not get damaged.



Fitting the CPU Cooler Assembly to the Motherboard

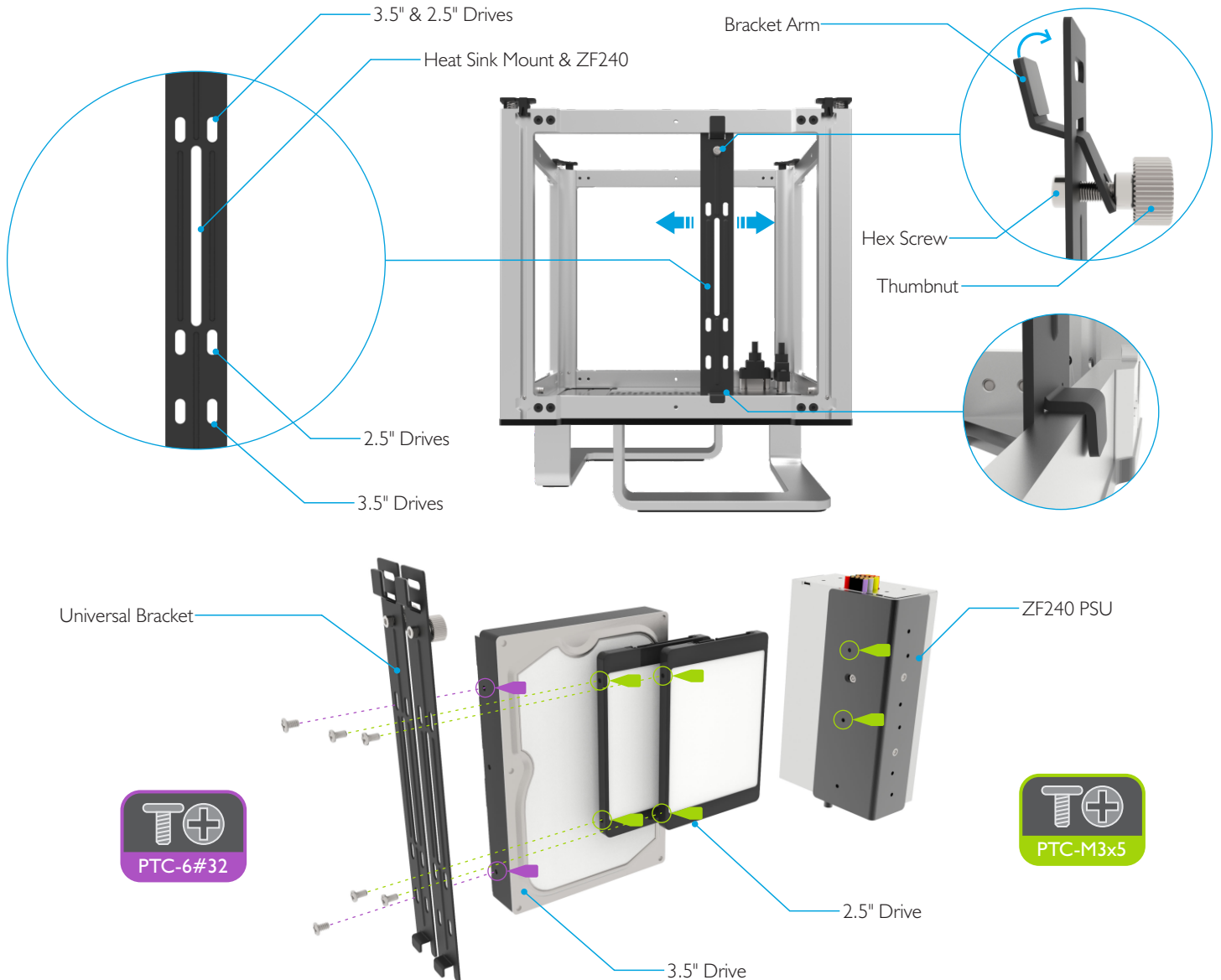
Apply thermal paste to the CPU IHS, then carefully place the copper shim onto the centre. Apply thermal paste to the heat pipes visible through the slots inside the bottom of the CPU mount then lower the cooler assembly (CPU mount, heat pipes, and heat sink mount) onto the copper shim ensuring it slots into CPU mount. The arms should be adjusted so that they line up with the M3 nuts in the motherboard, and the entire assembly is centred to the CPU. The HEX screws which fix the arms to the CPU mount should also be fully tightened to lock their angle and orientation. Secure the assembly to the motherboard using the spring loaded screws through the mount arms ensuring the equal pressure is applied to all 4 arms. Do not over tighten the screws otherwise too much pressure will be applied to the motherboard causing it to bend.

Note that the heat pipes and heat sink mount can pivot/move up and down, parallel to the motherboard. This will be important when fitting the tray back into the case and for the final adjustments to fit the attach the heat sink mount to the side panel.



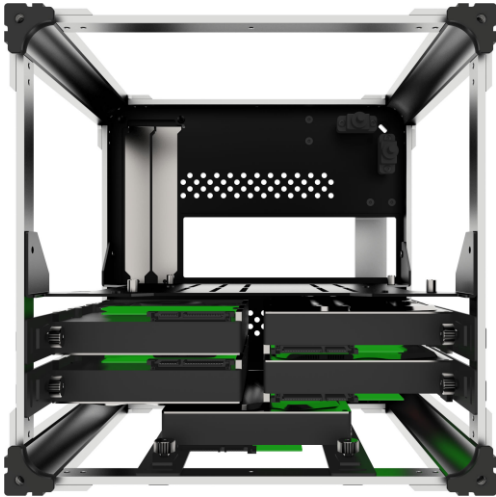
Introduction to the Universal Bracket

The DB4 has an open frame internal structure designed to support all the outer panels as well as the PC hardware. Components are fitted to the frame using the universal brackets which support 3.5" & 2.5" hard drives, heat sink mounts and the ZF240 PSU. The clamp design of the bracket means it can be placed anywhere along the frame which is not occupied by the motherboard tray, which gives flexibility to the placement of components. The brackets are removed and secured in place using a single "thumbnut" located at the top of the bracket which opens/closes the bracket arm to clamps the frame. To remove a bracket, loosen the thumbnut to release the upper side then lift the lower side upwards and away from the case. Simply reverse the procedure to re-install the bracket. Always make sure the thumbnut is fully tightened to ensure the bracket does not come loose. The HEX screw on the bracket can be used for additional pressure if required.

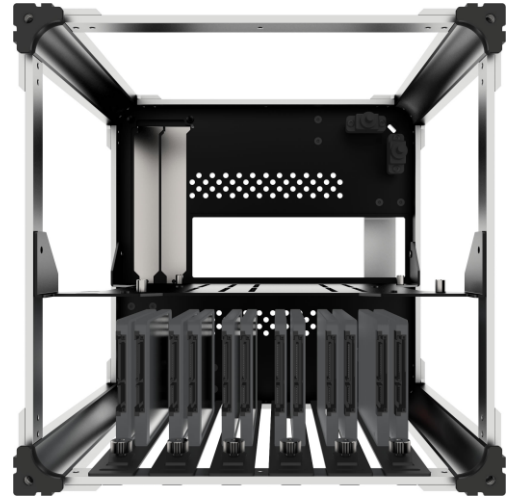


Installing Hard Drives

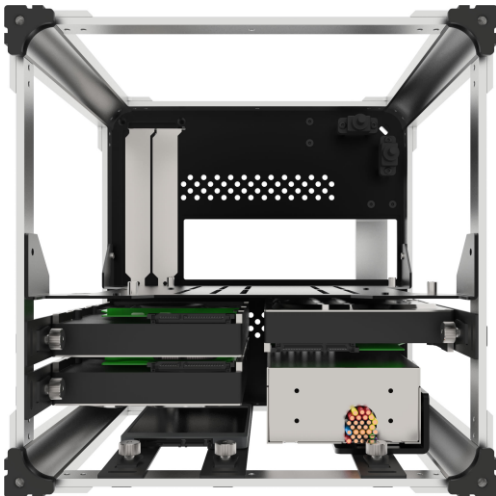
The DB4 can accommodate a mix of drives that in principle can be fitted anywhere along the frame of the case but we recommend using the space away from the CPU side of the motherboard tray so that the drives run cooler. Below are some potential configurations showing the maximum number of 3.5" & 2.5" drives and typical scenarios which also include using the ZF240 PSU. Note that these examples do not show the back of the motherboard tray in use which can also accommodate drives but of course will influence the space available for the configurations shown. Once the general concept is understood, it is possible to mix and match different combinations and achieve the ideal layout for your chosen components.



5 x 3.5" Drives



12 x 2.5" Drives



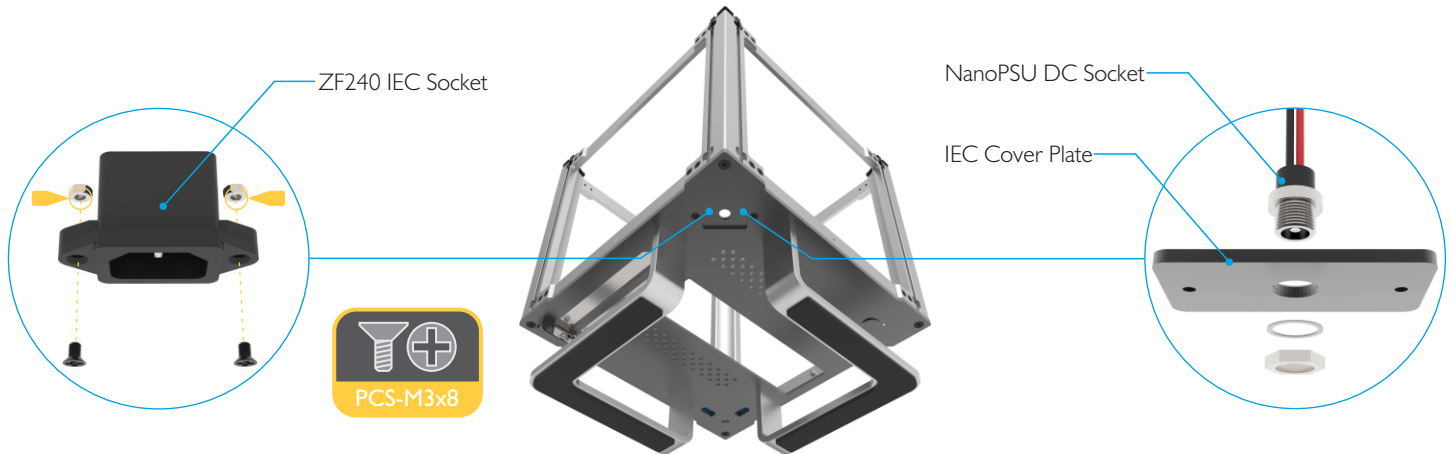
3 x 3.5" + 1 x 2.5" + ZF240



2 x 3.5" + 4 x 2.5" Drives

Installing a PSU

The DB4 is compatible with Nano (external AC adapter and internal DC to DC PCB) or ZeroFlex (internal fanless) style PSUs. Depending on which solution you choose, either secure the Nano DC socket to the IEC cover plate, or remove it in order to install the ZF240 IEC socket directly to the bottom panel.

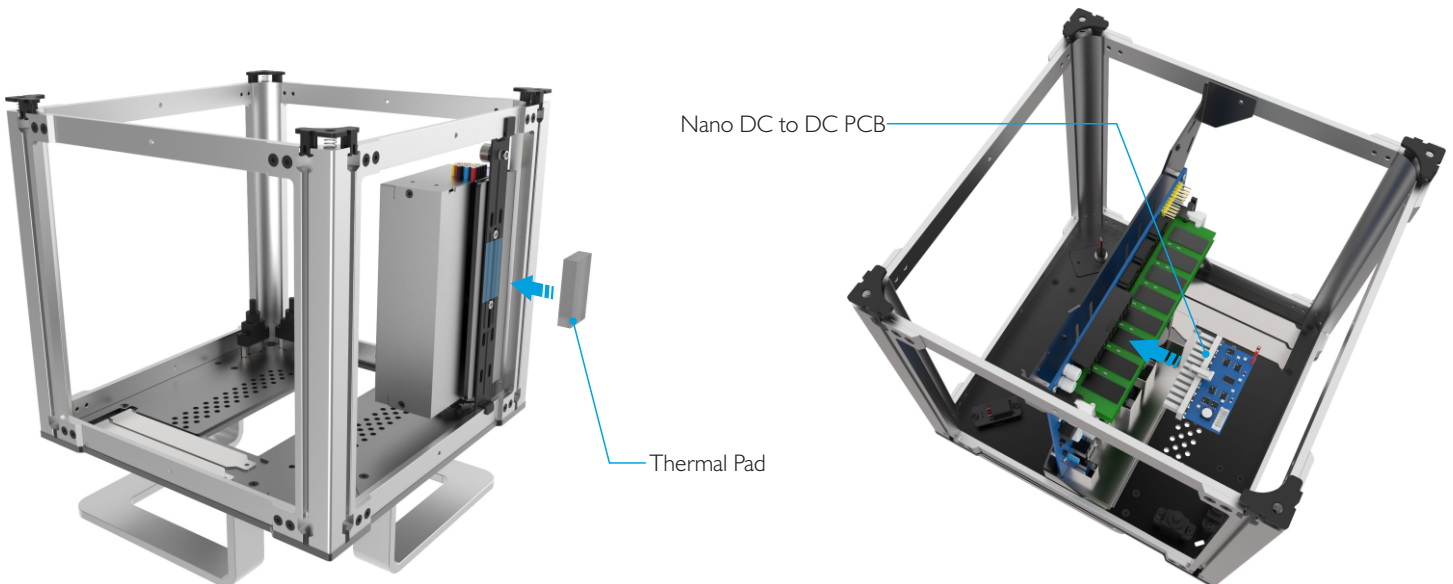


Using the ZF240

Remove the IEC cover plate from the bottom panel and replace it with the ZF240 IEC power socket, then attached the ZF240 to a universal bracket, fitted to the frame as shown below. Apply the thermal pad supplied to the universal bracket as shown in order to transfer the heat from the ZF240 to the side panel. When the side panel is replaced, it should make contact with the thermal pad. Note that the ZF240 can actually be placed anywhere along the frame, within reach of the AC power cable.

Using a Nano PSU

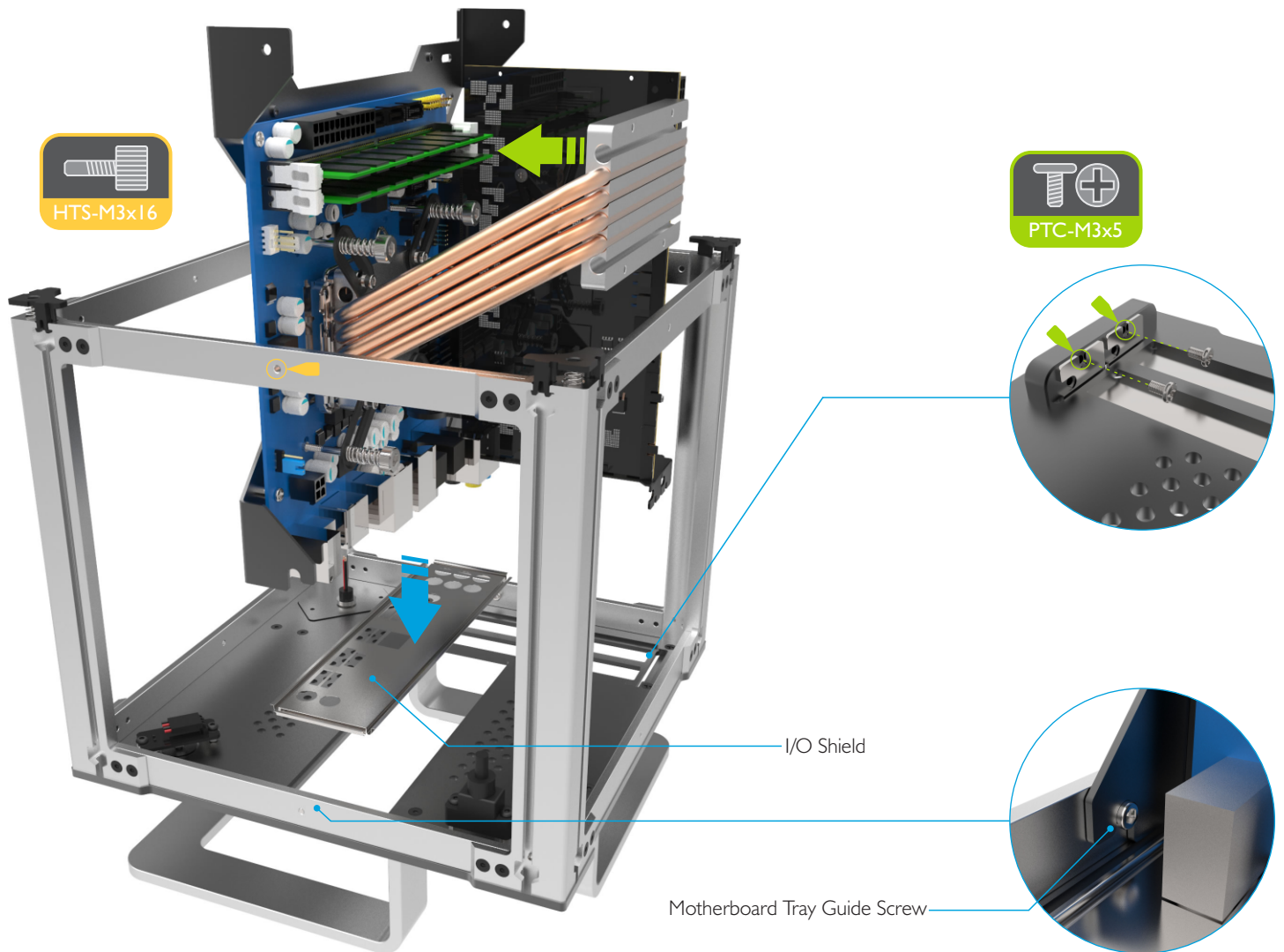
Fit the NanoPSU DC jack to the bottom panel through the hole in the IEC cover plate with the nut and washer supplied. When the motherboard is installed in the case, you can plug the NanoPSU into the motherboard 24Pin & 4Pin power connectors and connect all the other device power SATA and Molex connectors.



Installing the Motherboard Tray with Hardware

Before replacing the tray, locate the I/O shield supplied with your motherboard and firmly push it in place. Ensure that it is properly seated and in the correct orientation otherwise the motherboard will not fit. If you are installing an expansion card, you must first remove the PCI blanking plates already installed in the case. This is done by removing the single screw for each PCI blank which is located at the bottom of the case. These screws will be replaced once the motherboard tray with expansion card is installed in the case.

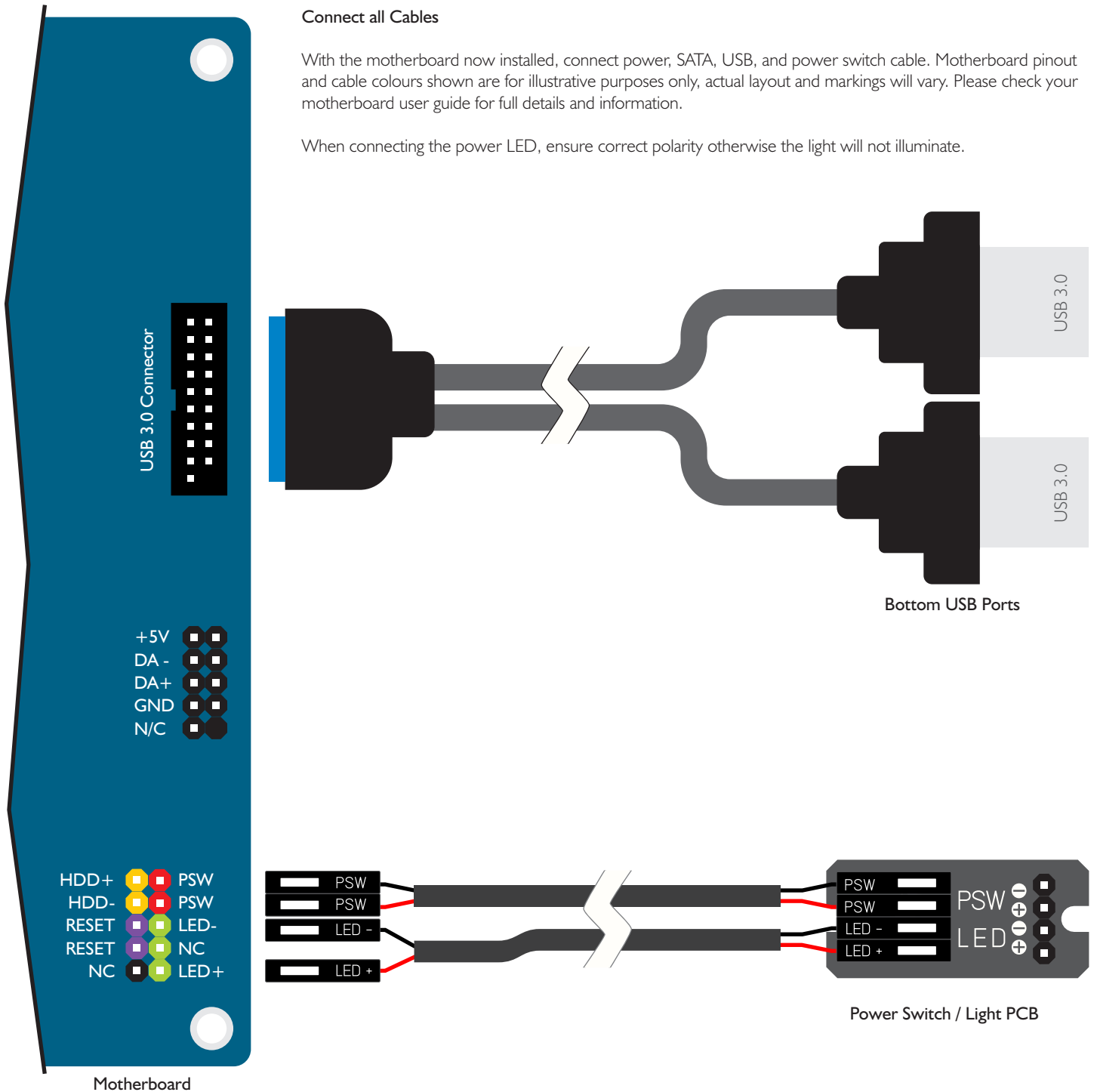
With all the components fitted (i.e. motherboard, CPU, RAM, expansion card, cooler assembly), carefully lower the tray into the case making sure the bottom of the tray slots into the guide screws and the expansion cards slot into the PCI mount opening. Secure the assembly in place using the lock thumbscrews and PCI screws if using an expansion card. Do not fully tighten the lock thumbscrews until replacing the side panels.



Connect all Cables

With the motherboard now installed, connect power, SATA, USB, and power switch cable. Motherboard pinout and cable colours shown are for illustrative purposes only, actual layout and markings will vary. Please check your motherboard user guide for full details and information.

When connecting the power LED, ensure correct polarity otherwise the light will not illuminate.

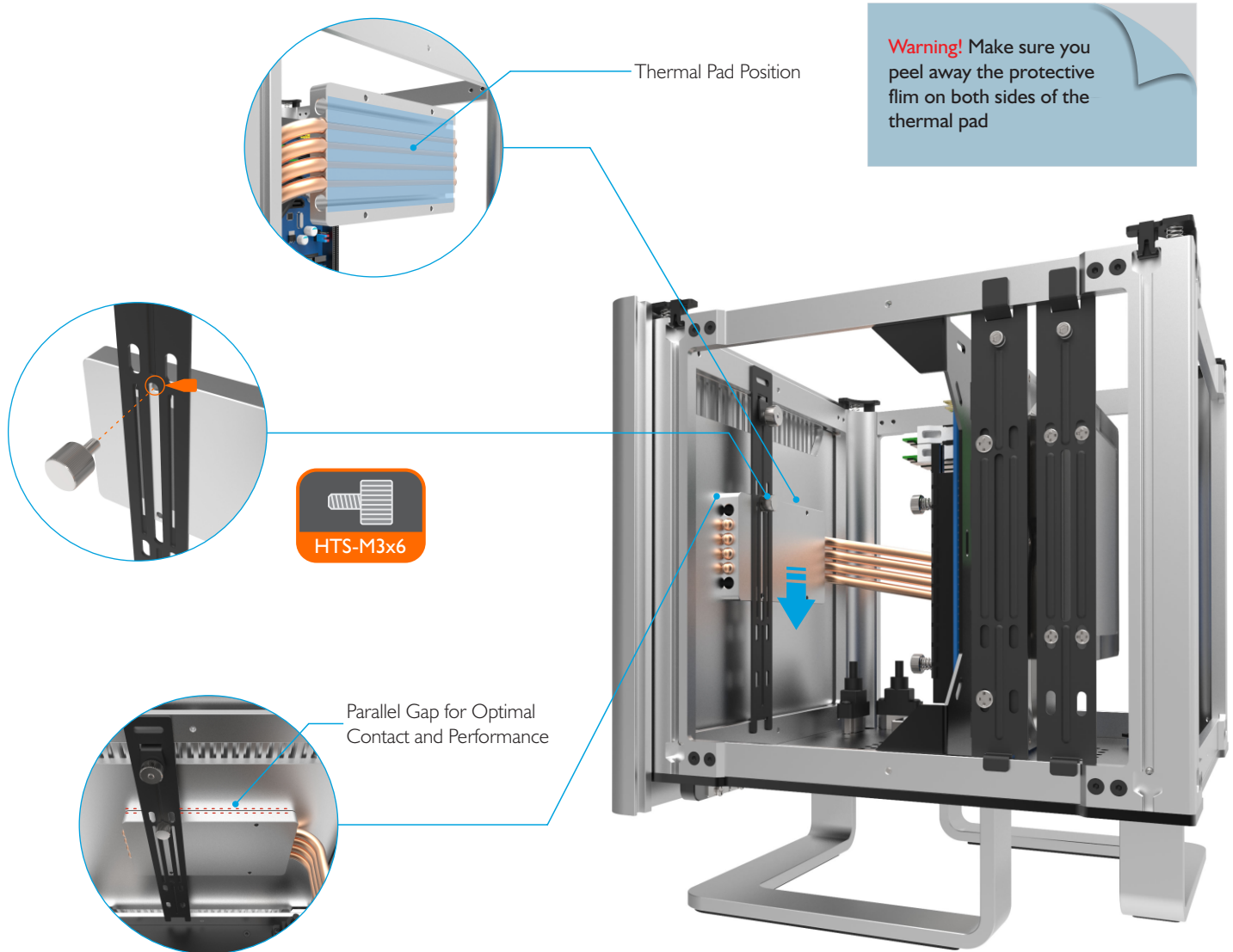


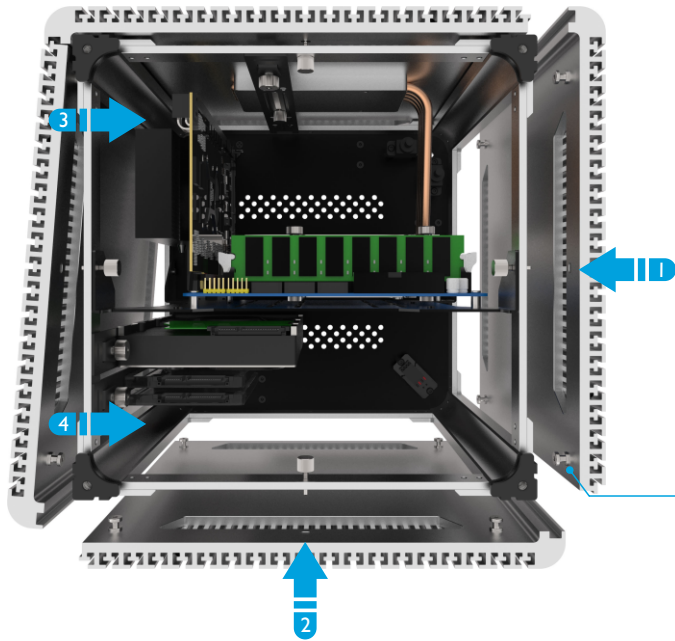
Motherboard

Attach the Heat Sink Mount to the Side Panel

A key step before replacing all the side panels is the adjustment and attachment of the Heat Sink Mount (HSM) to the side panel. As noted earlier it can pivot up and down, but for optimal performance must be correctly positioned to make good contact with the side panel.

Peel off the protective film from the thermal pad and stick it to the centre of the HSM being careful not to tear or damage the thin material. With the HSM still in the up position, replace the side panel and lock it in place with the thumbscrew. Push the HSM downwards until it makes firm contact with the side panel. The heat pipes should still have a slight upward angle away from the CPU and be applying pressure on the HSM to force it against the side panel. Fit a universal bracket to the frame making sure it aligns with the holes on the opposite side of where the heat pipes enter the HSM. The bracket will lock the HSM in place and apply additional pressure to ensure positive contact with the side panel. A thumbscrew should also be used to lock the HSM in place and stop it from moving. If done correctly, the gap between the HSM and side panel should be even which indicates that equal force is being applied.

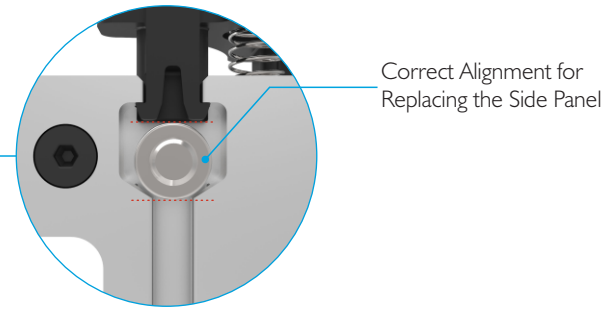




Replace the Side Panels

It is not critical to follow a specific order for replacing the side panels, but following the clockwise order is easier as only the last panel will need to be angled when fitting it. Replace the side panels ensuring the screw posts fit into the cutout area of the slots on the frame then slide downwards until they stop. The last side panel is replaced by positioning the left edge at an angle and behind the slot of the panel already installed to the right (i.e. reversing the removal procedure).

Don't forget to secure all the sides panels in place using the lock thumbscrews.



Replace the Top Panel

With all the components installed and internal cables connected, make one final check that everything is secure. Lower the top panel back on to case ensuring the screws align with the panel catch holes. Push down on the top panel while turning the screw to secure it into the frame and repeat this for all 4 screws. Do not over tighten the screw as this could cause damage to the top panel. Connect the power and accessory cables to the ports which are all accessible at the bottom of the case.

The system power button is also located on the bottom panel and is therefore not visible but its position can be identified by the power symbol etched on the foot directly below it, so power up the system, then sit back and enjoy your beautiful creation :)

