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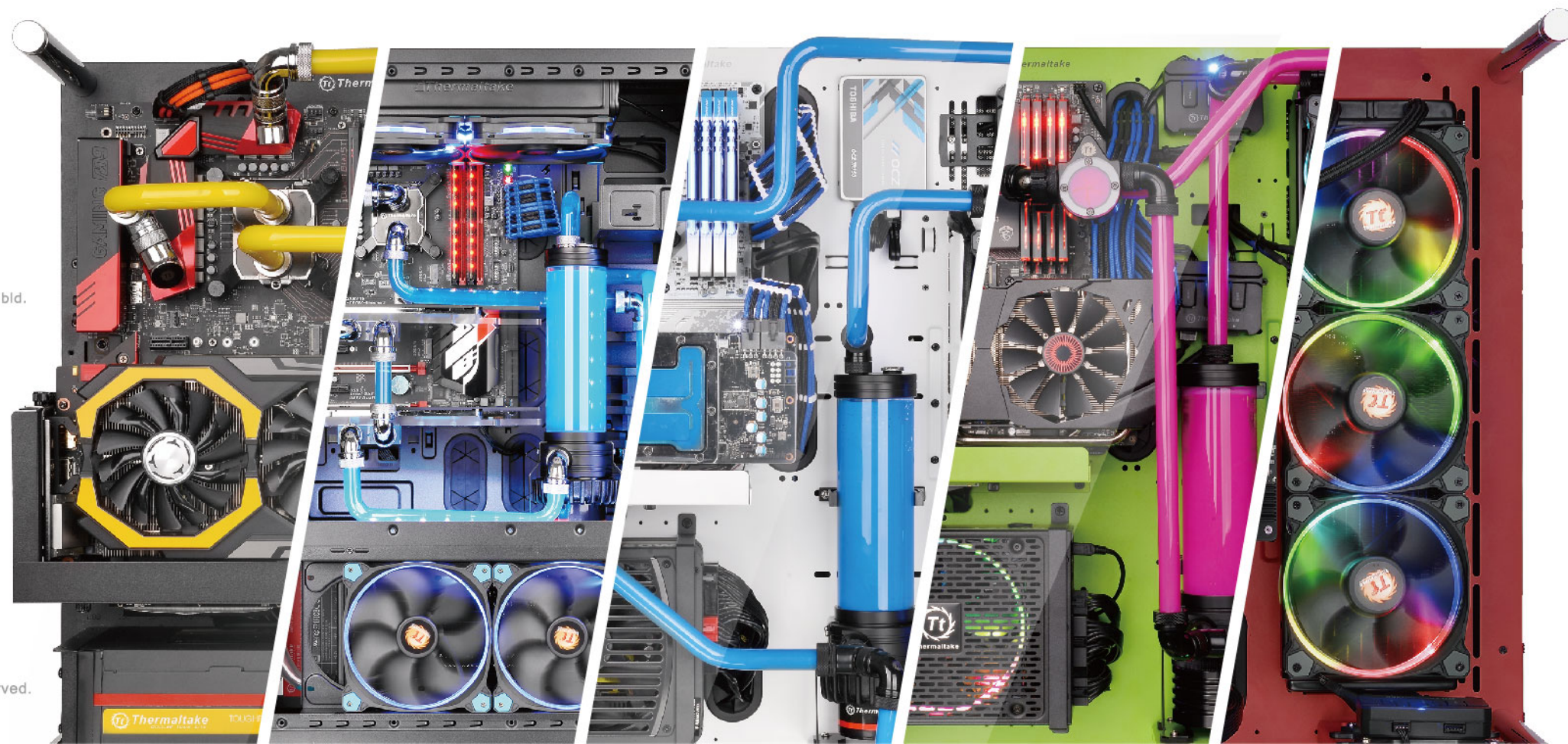
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No.01
January 2018

Liquid Cooling News



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01 Cool with Coolant

Coolant Cooling is required to remove the waste heat produced by computer components, to keep components within permissible operating temperature limits.

Thermaltake high performance coolant is made in Germany, virtually odorless and non-flammable, plus it features anti-corrosion protection and heat-transfer medium for PC water-cooling and superb protection for copper, nickel, brass, and aluminum. Create your own coolant color and experience the excitement of color mix & match.

Coolant

When



TT Premium
Concentrate Coolant

Meets



Thermaltake
C1000 Opaque

Decide the mix ratio on your own to create a preferred coolant color and be an artiste in no time!



Be a Coolant Artist

Color Mix Matching

- » Pour TT Premium Concentrate into the reservoir filled with Thermaltake C1000 Opaque/ Pure Clear Coolant.
- » The more TT Premium Concentrate you add, the stronger the color will appeal.
- » The standard recommendation is to use a mix of 50ml TT Premium Concentrate and 950ml Thermaltake C1000 Pure Clear Coolant.



《 Mix With C1000 Opaque Coolant White 》



《 Mix With C1000 Pure Clear Coolant 》

Glow Your System Under UV light

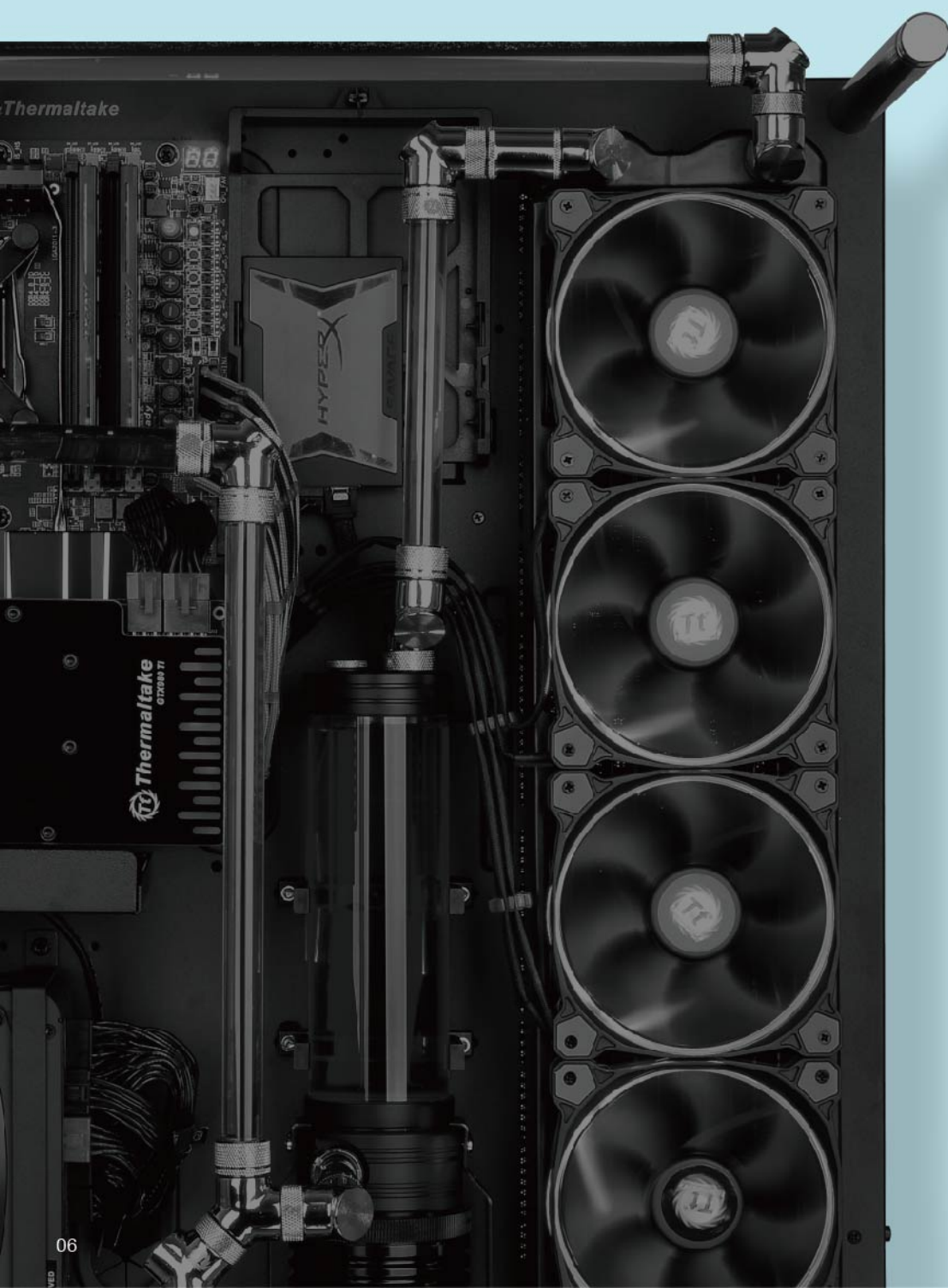
- » Pour TT Premium Concentrate Acid Green into the reservoir filled with Thermaltake C1000 Opaque/ Pure Clear Coolant.
- » The more TT Premium Concentrate Acid Green you add, the stronger the color will appeal.
- » The standard recommendation is to use a mix of 50ml TT Premium Concentrate Acid Green and 950ml Thermaltake C1000 Pure Clear Coolant.



《 Mix With C1000 Opaque Coolant White 》



《 Mix With C1000 Pure Clear Coolant 》



02 How LCS Works

Understanding Liquid Cooling System in Minutes !

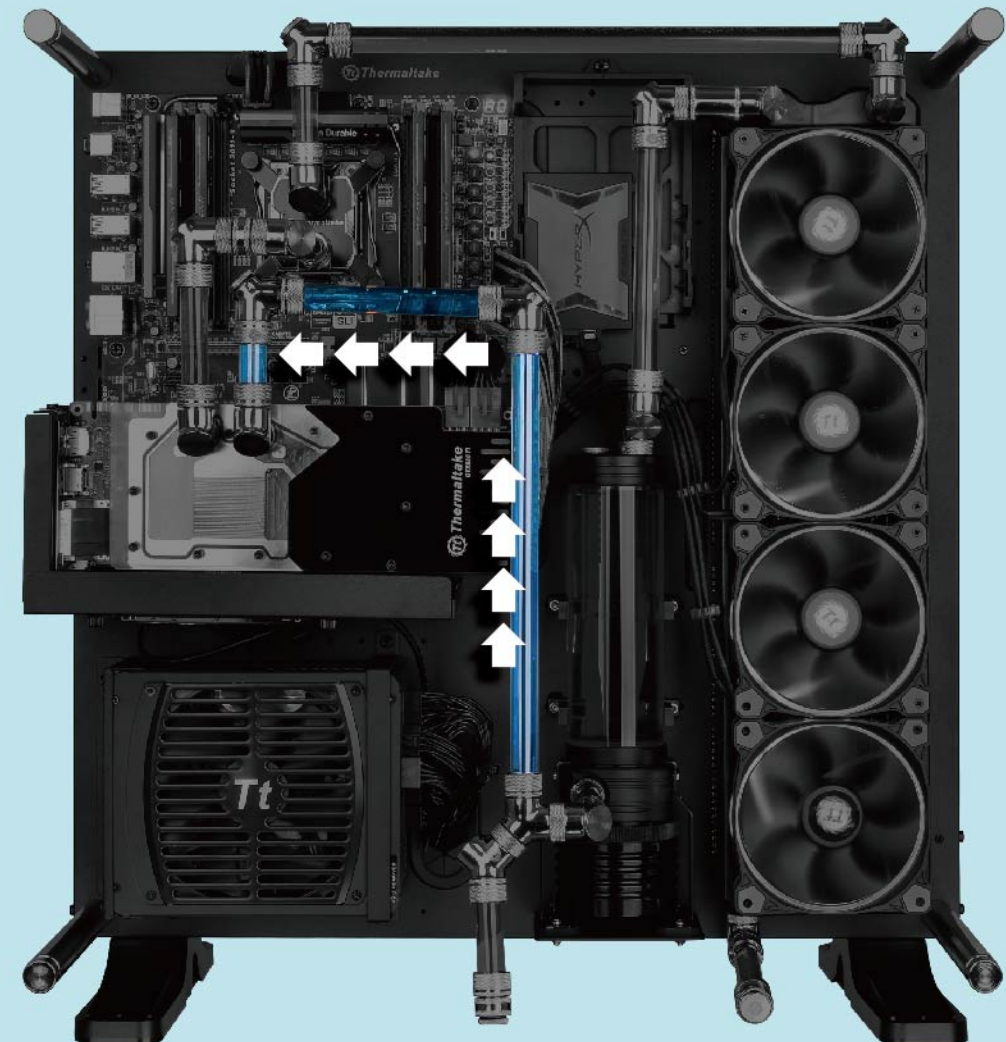
Step 1

Fill the coolant in the reservoir. Pure water's thermal conductivity is about 30 times greater than air and takes a lot longer for the temperature of water to rise compared to air. Water is the main transfer medium for Liquid cooling.



Step 2

The Pump will circulate the coolant within your loop starting from the pump and carried through to your heat source(s) i.e. CPU/GPU



Step 3

When the coolant reaches your heat source the waterblock dissipates the congested heat from the source into the coolant via the micro channels in the waterblock.



Step 4

The coolant continues to circulate transferring the heat from the source to the radiator. The radiator spreads the water out into the cooling fins dissipating the heat evenly allowing a bigger surface area for heat extraction.



Step 5

Then finally the fans secured on the radiator exhausts the heat trapped in the radiator fins cooling down the water and dissipating the heat into the air.



Step 6

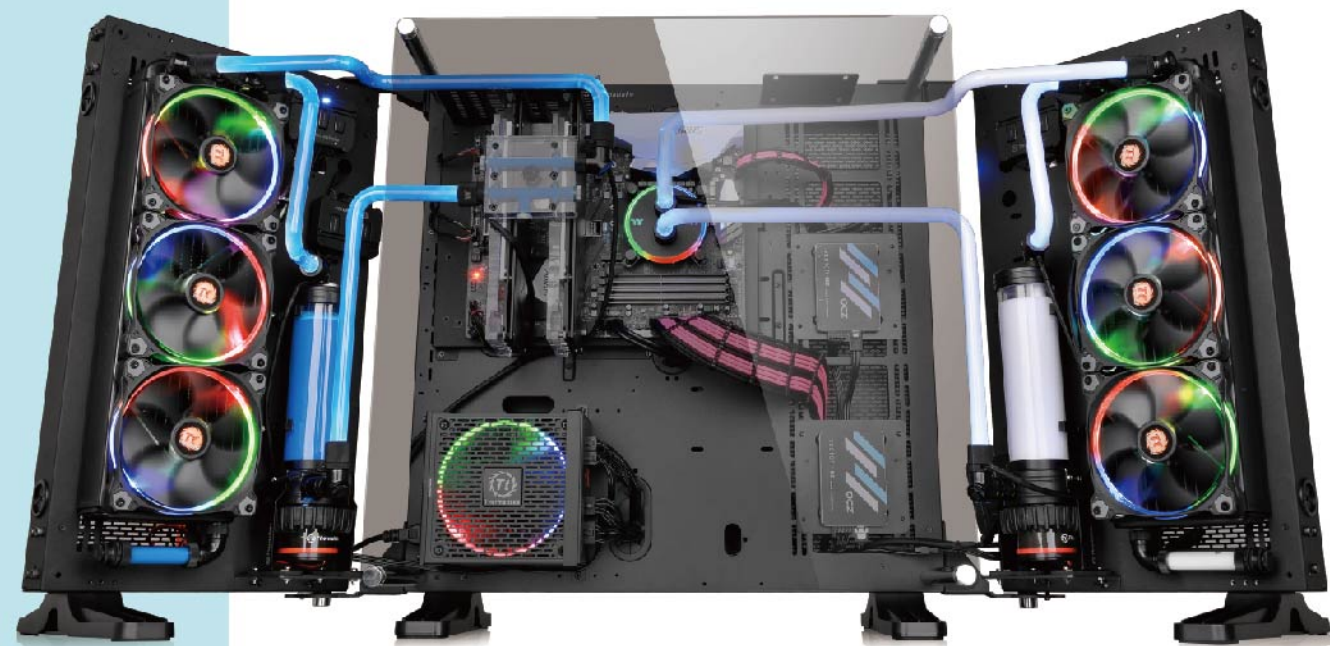
After most the heat is extracted on your radiator by fans, the coolant will continue to flow back into the reservoir making a complete loop.



03 Setting Up Your Own LCS System

With more advanced thermal conductivity than air cooling systems, liquid cooling could bring double-digit drops in system temperatures. Plus, you are able to build a LCS system that suits your cooling demands and aesthetic sensibilities!

So we've broken down the process and walk you through the details from a pile of components to a functional LCS applied PC in just 6 steps. Now let's get started!



1. Determine the Purpose of Your PC

Determine the functions of your PC, either it will be a high-end gaming PC or a workstation, each build is going to have its own requirements.

2. Choose a Case

To create your own liquid cooling system, it is ideal to have a chassis designed with liquid cooling in mind, usually it comes with plenty of space on the inside and a large fan grate on the top or bottom.

Case sizes can be generally categorized as below:

Super Tower

All standard equipment of the chassis is included and supports the latest XL-ATX, E-ATX, ATX, Micro ATX, Mini-ITX motherboards and the largest graphics cards and other components.



Mid Tower

The most popular choice for most custom builds. Mostly comes with enough room for a full size ATX motherboard, several hard drives and optical drives, and expansion slots.



Mini Case

Cube Case

Very space efficient and has the most limitations on which components can be utilized. It usually just has a maximum of two expansion slots, which limits them to a single, compact graphics card.



Comes with a room big enough for E-ATX and ATX motherboards, and enough space for the largest graphics cards and other components. It can also accommodate all of the cooling components essential for a case built full of superior performance equipment.

Full Tower

3. Choose A CPU

Choosing the best CPU for your build begins from generally dividing your workloads into two main types: single-threaded and multi-threaded. Single-threaded workloads usually involves easy tasks like browsing websites, word processing, and listening to music. Multi-threaded workloads could be tasks like photo editing, video encoding, and gaming, and usually benefit from processors with multiple cores. No matter which kind your workload is like, be sure to compare specs and find a processor that is up to date.



Intel® Core™ i7



AMD® Ryzen™

4. Choose A Graphics Card

Picking a graphics card is another issue you need to know your PC's functions. If your demands are quite simple like web surfing, minimal photo editing, and even light gaming, then the integrated graphics system included in your CPU is usually enough. If your requirements are more complicated, you will need to upgrade to a discrete GPU.

Graphics cards usually come in two: gaming-oriented cards, and workstation-oriented cards. Gaming cards are applied to deliver the best frame rates from games at the most realistic detail settings, and the highest resolutions. Meanwhile, workstation cards are made for maximum stability and precision, and are specifically optimized for 3D rendering workloads.



NVIDIA® GeForce® GTX 1080 Ti



ASUS® ROG Strix GeForce GTX 1060 OC

5. Choose A Motherboard

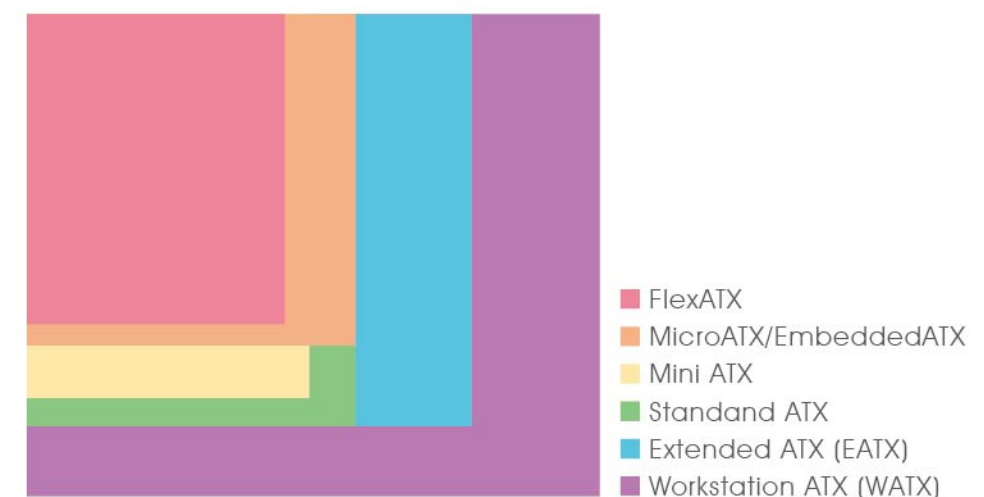
One of the most important steps of building your PC is to choose a motherboard due to its functionality it comes with. The most common motherboard sizes come in Mini-ITX, Flex-ATX, Micro-ATX, ATX, EATX and WATX. ATX is the standard full-size motherboard, so If you want to build a typical tower computer, go for ATX motherboards.

The motherboard you select should be compatible with your processor and memory. The best way to know the compatibility is to check the list of compatible processors for each board on manufacturer's website.

The chipset is the most important part of a motherboard, for it helps all the components in your PC talk to each other, thus you need to make sure the chipset you get will support the most of your other components.

Take other issues into account like how many graphics cards you will need, how many SATA ports you will need to connect drives to or how many USB ports you want, or if you will be overclocking or not will also help you determine.

ATX Motherboard Size Comparison



6. Select Your LCS Components



Coolant

Select your own coolant color or create your own color through mixing Thermaltake C1000 Coolant Series with TT Premium Concentrate Coolant Series. The coolant puts color to your loop allowing you to match your build theme.



CPU/GPU Water blocks

Water blocks come in a few different variations, the block is usually installed on a heat source such as CPU or GPU allowing maximum heat extraction. Liquid cooling performance is determined by the material of their base plate and micro-channel design.



If you are looking for a waterblock that strengthens the appealing for your build, Pacific W4 RGB provides the ultimate in cooling performance and delivers extreme compatibility for custom PC builders.



Pump & Reservoir

Choose the size of reservoir to fit your needs. Size usually is not entirely important although by having a bigger reservoir the pump is less likely to run dry and wear down.



Fittings

Fittings come in all shapes and sizes from angles, extenders to compression fittings, fittings are the connection between the blocks, radiators and tubes. The most popular sizes are 16mm OD and 12mm OD. The outside diameter is what you look for when choosing the type of fittings.



Radiators

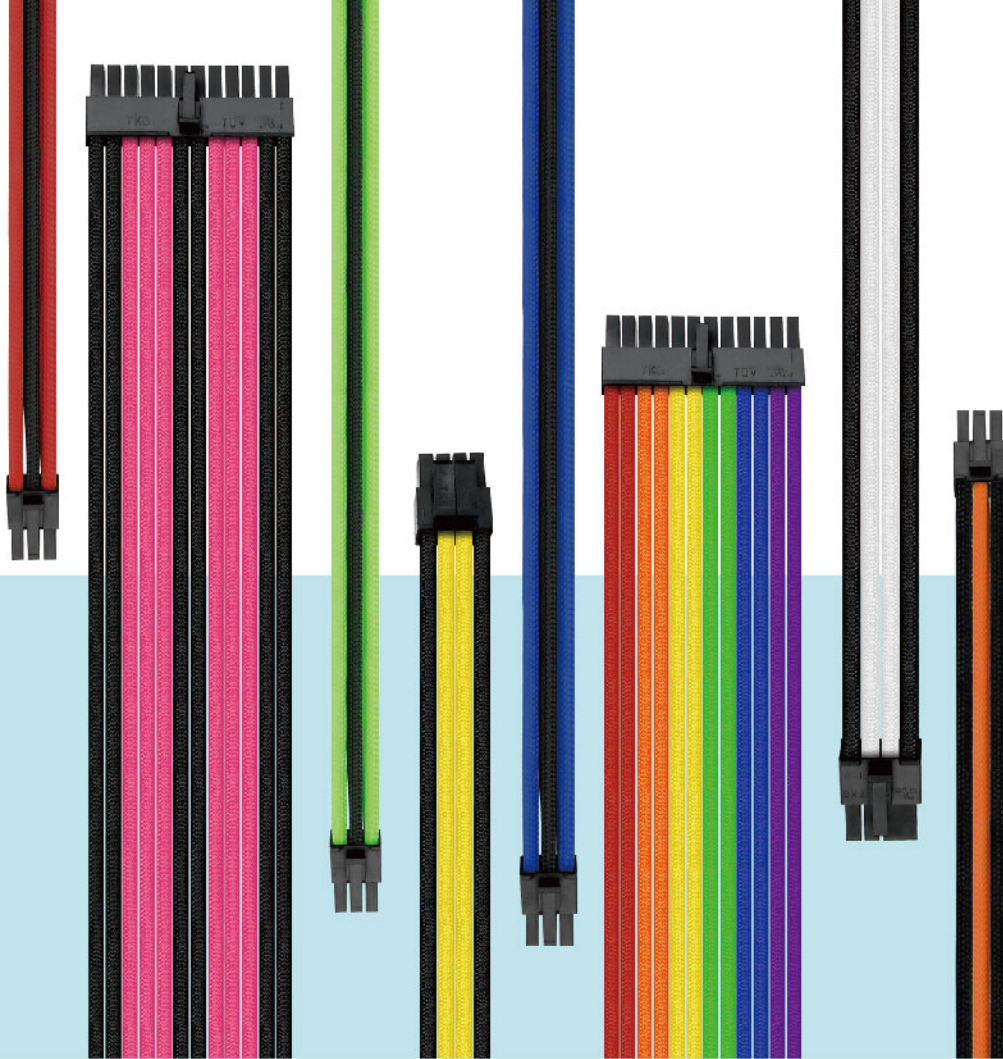
Radiators come in all sizes, usually in fan sizes like 120mm or 140mm variations. Sizes are chosen depending on your chassis and fan mounting points.

Tubing

Tubing comes in various sizes and textures to match the outside diameter (OD) of the fittings you have selected. You can first choose the fittings and then select the matching tubing, or vice versa.

Two popular types of tubes are soft tubes and hard tubes. Hard tube gives clean and well organized look but the bending requires more experience with custom LCS and will need additional tools such as a bending kit and a heat gun.





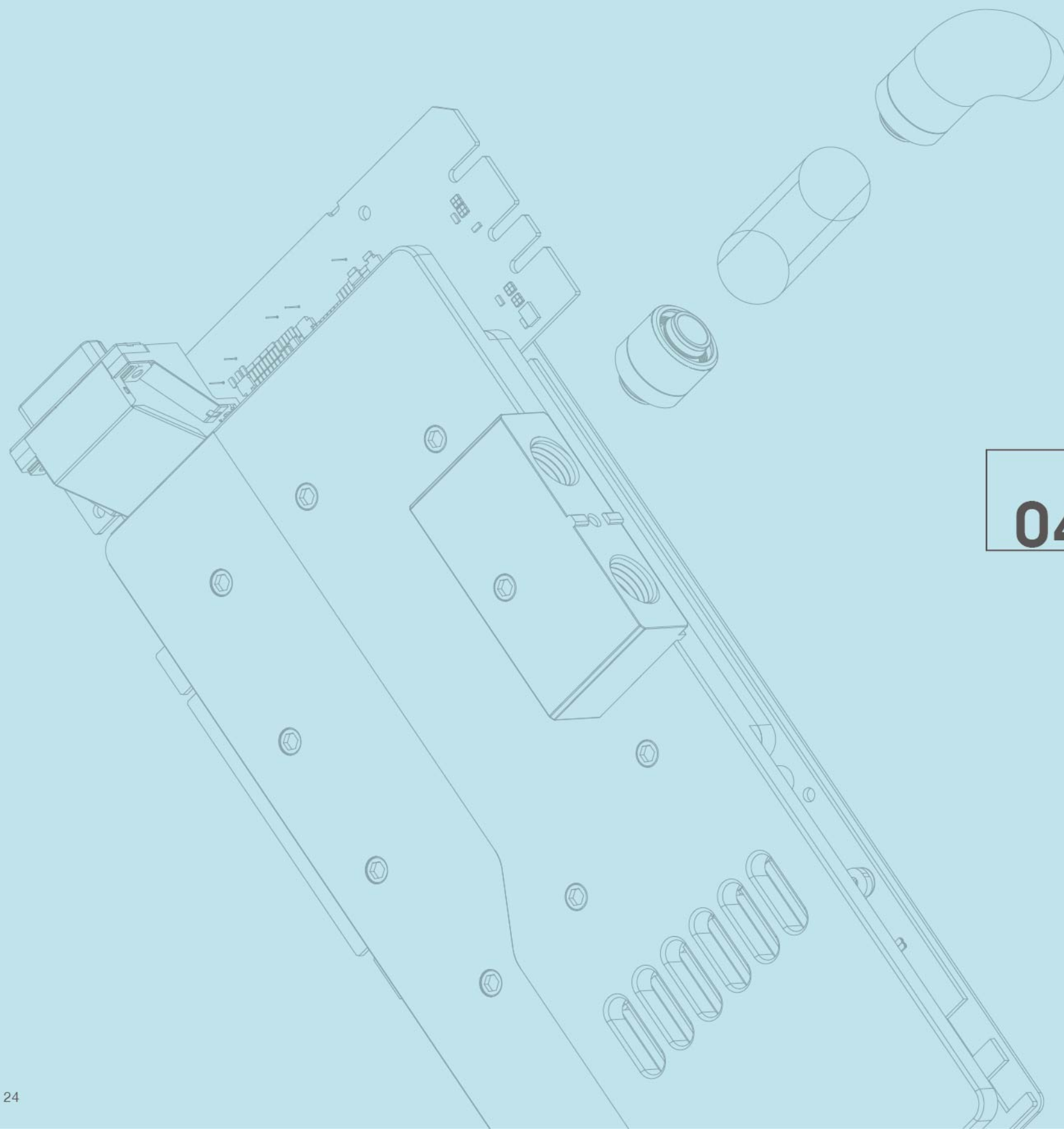
7. Select Sleeve Cables

To enhance the aesthetics of your build, you can pick TtMod Sleeve Cable, which is sleeved with the heatshrinkless sleeving method and comes in three-layered design: Outer ultra-density weaving, the middle insulating layer with acid and alkali-resistance, fuel resistance, damp proof, and mildew proof features, and inner certified 16 AWG wire.

8. Select A Power Supply

The power supply powers all the components in your computer. Some cases are preinstalled with a power supply already installed, but others require you to provide your own. Builders must find a power supply that is able to handle the load, quality-made, fits their case, and has all the required cable ends.





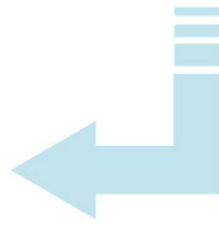
04 LCS System Setup Tips

LCS System Setup

Install the CPU Water Blocks

Install CPU water block and then screw the motherboard to the chassis.

Step 1



Step 2

Install the Radiator Fan

Install the radiator fan that is compatible with your model of radiator onto your radiator and secure it in place.



Step 3

Install the Radiator

There are many options available when it comes to picking where to mount the radiator. Some decide to mount the it to pull in fresh air from the outside; others want to have it push air out of the case. Just make sure the fans are pushing the hot air either up or to the side of the radiator and tighten the mounting screws snugly so the radiator will not move to alleviate vibrating/noise.

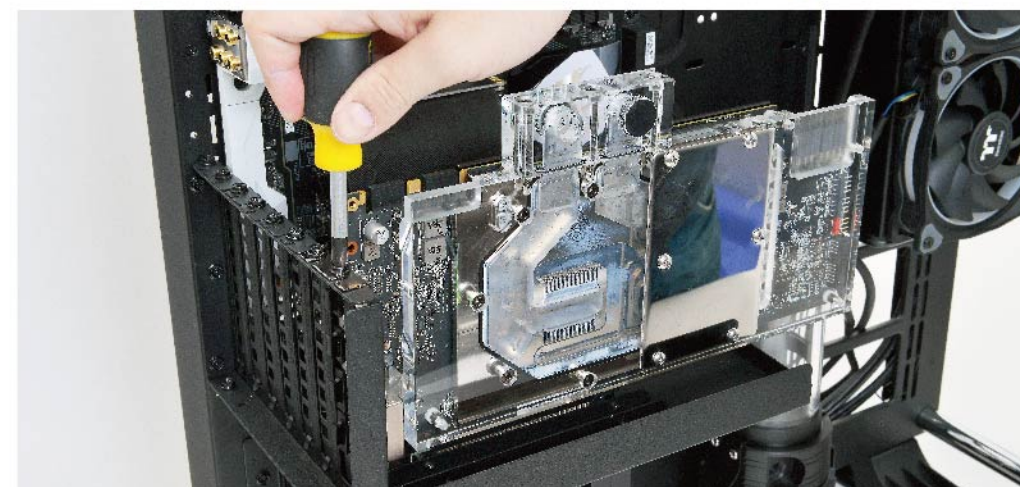
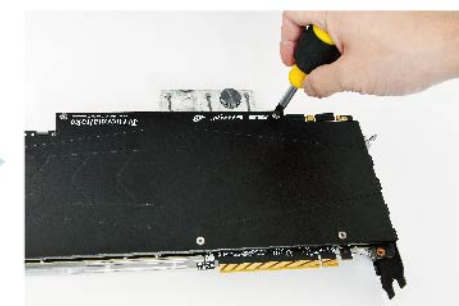
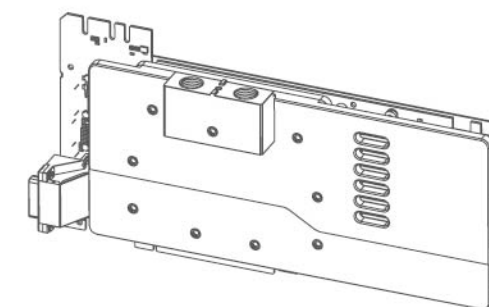
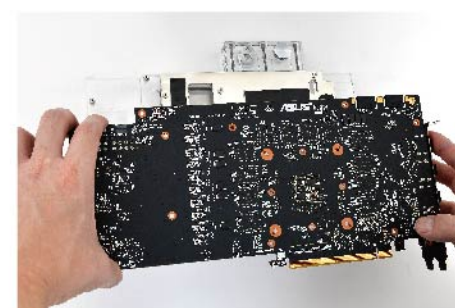
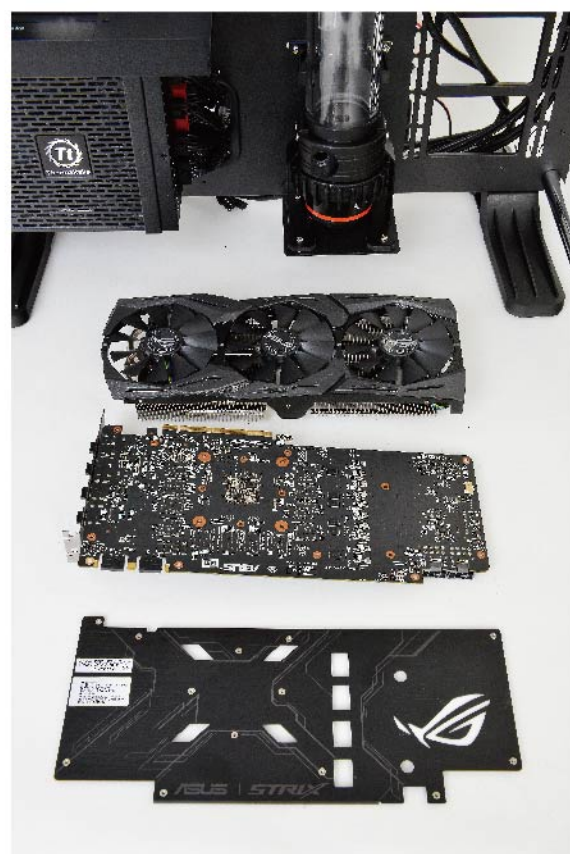


Step 5

Install the GPU Water Block

Unscrew and remove the graphics card's built-in cooler.

Attach the board(s) to the water block. Be sure that the graphics card is attached firmly to the chassis after you plug it into PCI-E slots.



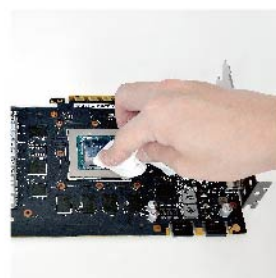
Step 4

Install the Reservoir

Following the radiator installation, let's deal with the reservoir!

A reservoir can be affixed inside or outside of the case or even to the radiator. Just keep in mind where the fill port is, so you can consider how to access that port when you need to fill your LCS system with coolant.

Clean leftover thermal paste and reapply paste to contact spots.





Step 6

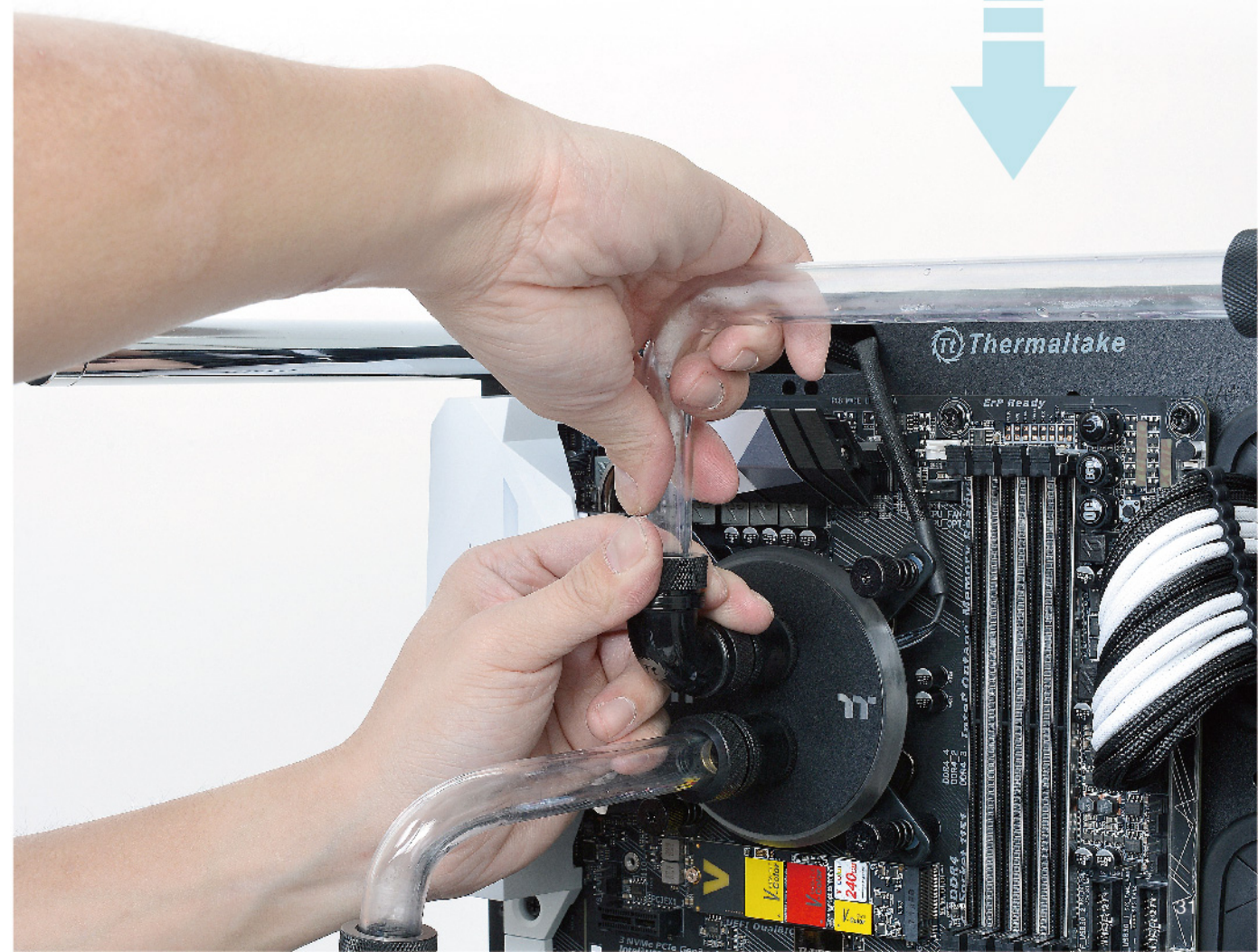
Tube Bending

Insert a silicone into the tube to retain the tube's structure when heated. Turn on the heat gun, rotate the tube at a moderate pace when retaining a fixed height offset from the top of the heat gun.

When the tube feels malleable, bend the tube in the shape you desire. Then put it in water to harden it faster.



Pull out the silicone and cut the tube to the length you want, then install it on the case.

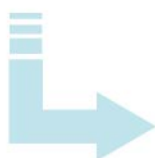
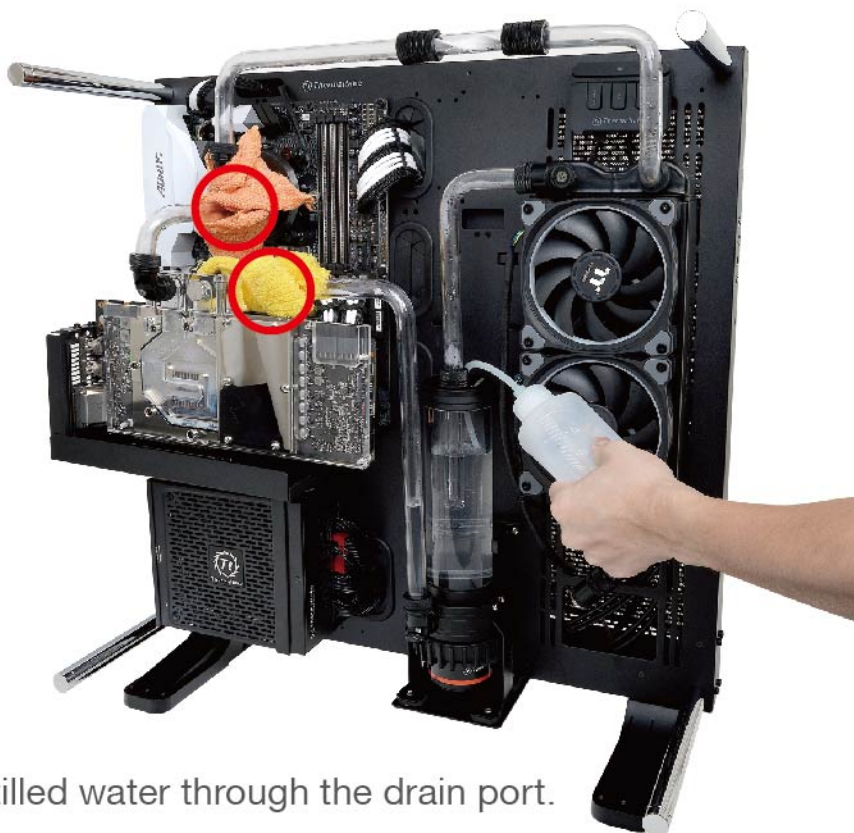


Step 7

Leak Test

To ensure a clean loop, cycle the power on and off several times to let the pump push distilled water into the loop. But before that, remember to place some towels under fittings and joining points in case the loop leaks.

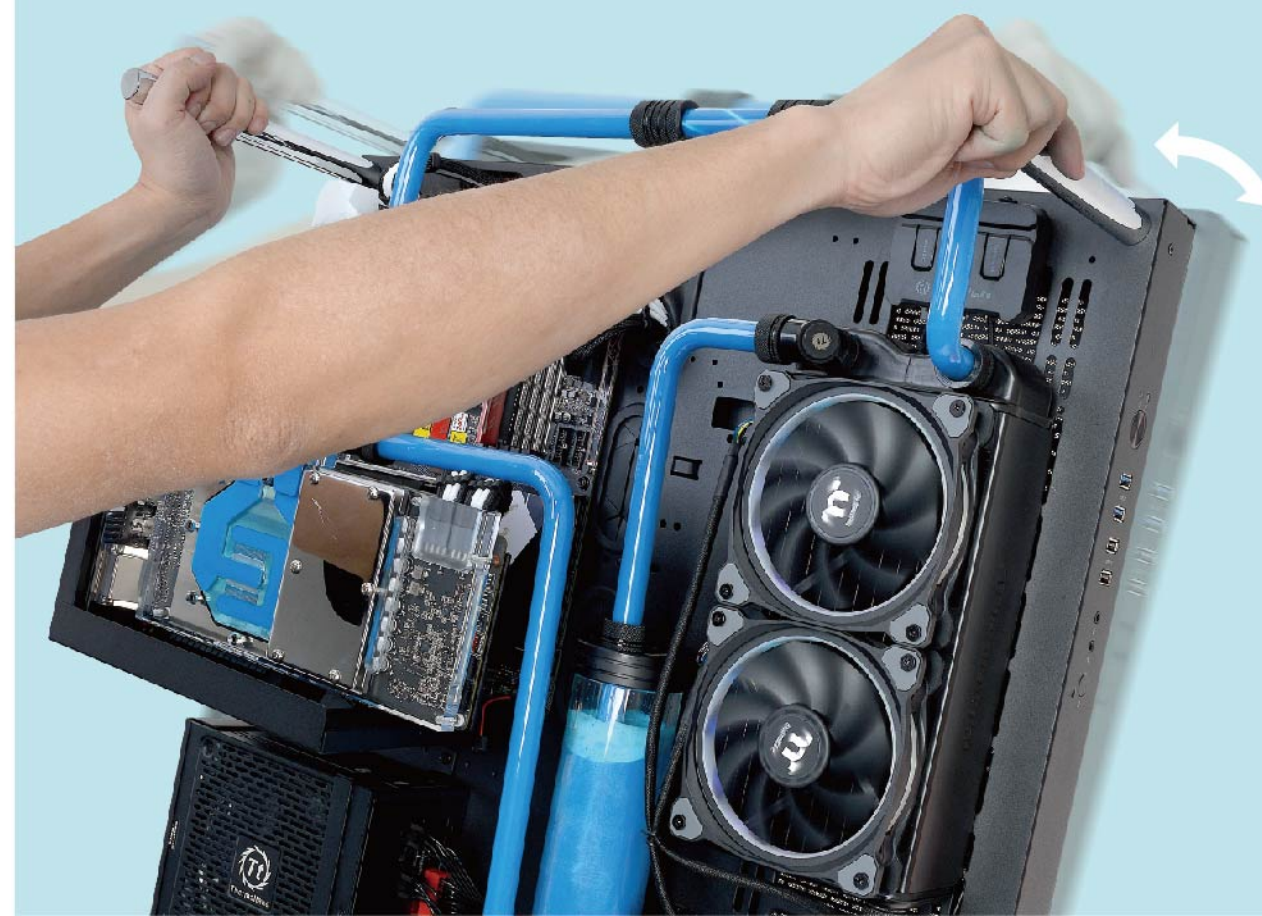
After testing, drain the distilled water through the drain port.



Step 8

Fill Up with Coolant

Pump coolant into the loop. Then gently rock your chassis back and forth to let air that's trapped in the water blocks or radiator escape.

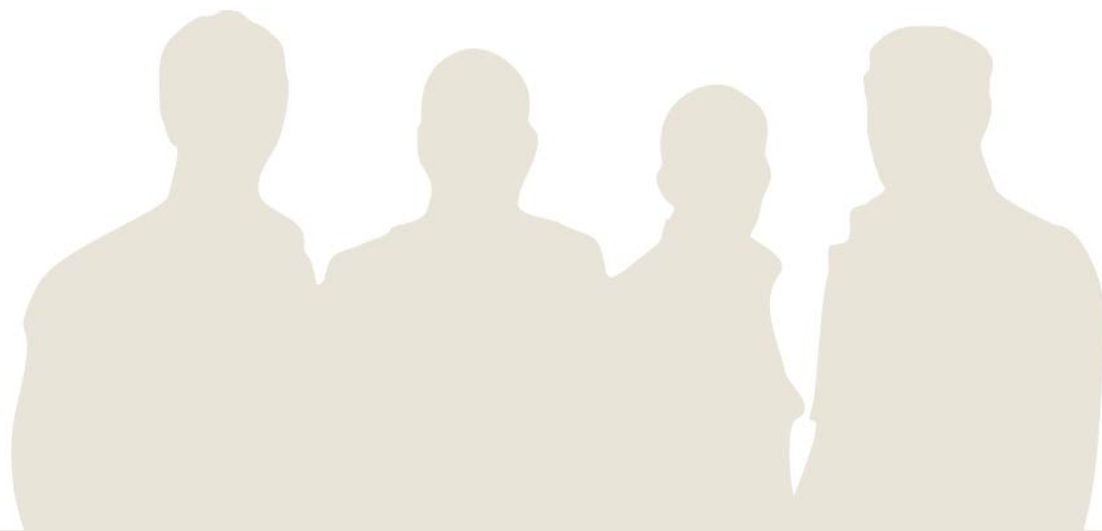


Step 9

Finish Set Up

Run the loop with the fill port open for about 24 hours to eliminate air bubbles. Now you have built your own PC with LCS Solution !





05 Master Modder Recommendation





Australia
Stuart Tonks



Thermaltake Core P7

The Thermaltake Core P7 is the ultimate chassis for high end water-cooling solutions. Unlike traditional cases, the P7 can house 2 radiators basically outside the main case. This means you're not brining hot air in, over your main components. This provides better cooling performance than the traditional way.

With its 3 part design. The 2 wing panels act as water-cooling add-on supports for fans, radiators, pumps and reservoirs. Both panels are all decked out with holes and grooves which conform to the Tt LCS Certification. What does this mean? This means that any Tt water-cooling part, say a reservoir or radiator will fit on these panels. No extra holes or drilling is required. Further to this, the main segment of the P7 is also full Tt LCS Certified as well, which makes installing TT water-cooling hardware a breeze.

The P7 also offers a unique builders experience giving the end user multiple case orientations and layouts. With the 2 side panels being rotatable, allows various build styles to accommodate for everyone's needs. The P7 also features a gorgeous 5mm tempered glass front panel as well as the ability to be wall mounted. Definitely the ultimate case for the ultimate enthusiast.

Thermaltake View 31

Nowadays, watercooling compatible cases are a must have feature. The Thermaltake View 31 does not only promise that, it delivers it and delivers it with ease. What I like most about it is the sleek and minimalist tinted front panel. Truly a first from what I have seen. It not only matches the 4mm Tempered Glass side panels, it more importantly finishes of the total look of the View 31 which is truly unique in it's own way. The out of the box option to vertically mount your GPU is also a huge selling point. There is also enough space at the back for properly managing cables. The only complaint I could have with the View 31 is... why it didn't come sooner.

Great Job Thermalake!



Philippines
Jesse Palacio



Thermaltake Pacific PR22-D5

I really like watercooling components from Thermaltake but I must admit that I have one product I love on top of everything else is the pump/res combo Pacific PR22-D5 w/mod kit !

A classy look, a beautiful res combined with a powerful D5 pump, with visually and tactually a feeling of high quality, this liquid cooling component is the best choice for make a high-end build.

By my side, I actually use only this combo on my own mods and it fits perfectly with the style I use to do.



Thermaltake Core P5

I really like what Thermaltake is doing with the P series. It's different, and I like it different.

So many things you can do as a builder or modder with the P5. Specially works really well with LCS. You could even build a desk with it!



Netherlands
Peter Brands

06

New Experience with LCS MOD

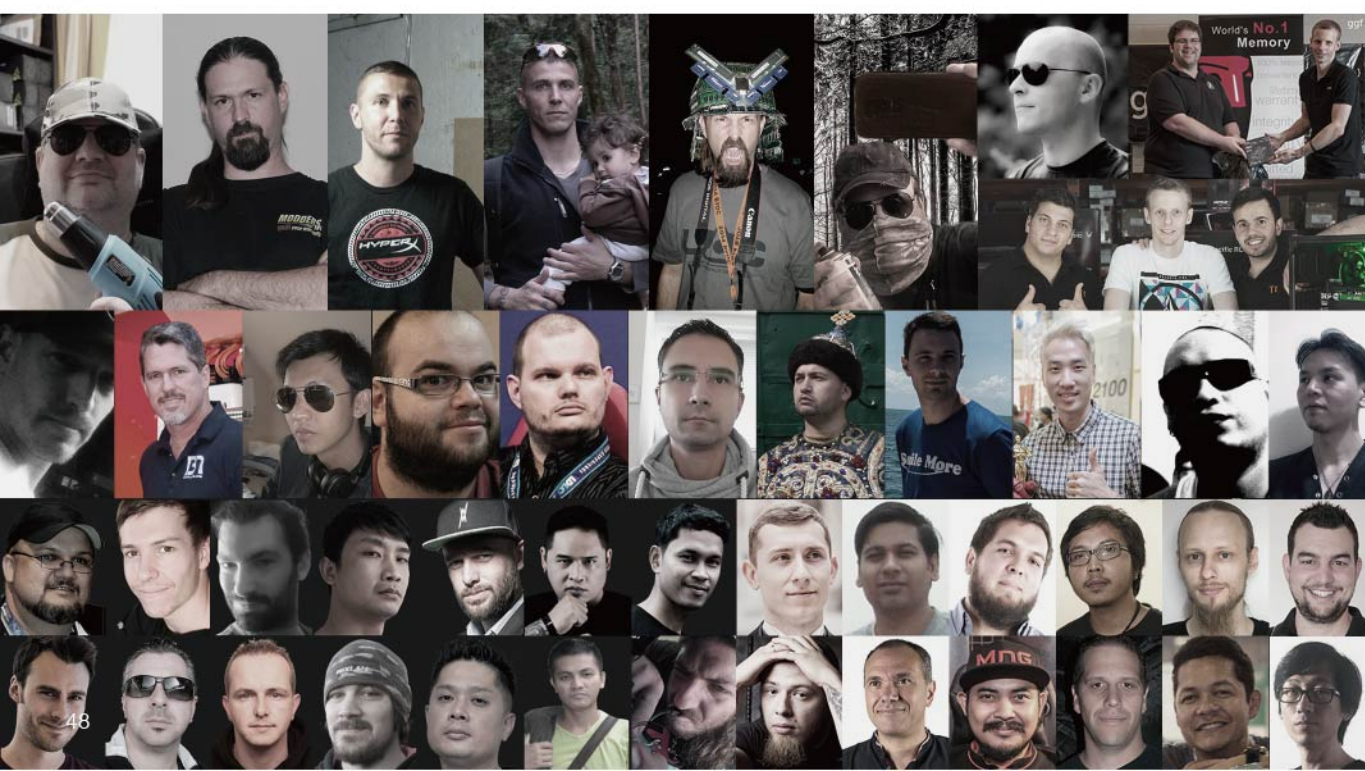
Since 2015, this is the third year of Thermaltake CaseMOD Invitational. This event is not only a chance for Thermaltake to promote the liquid cooling solutions, but also a place to help the case modders to make their dreams come true.



Thermaltake, the Nurturing Ground for PC Modding Culture

“Modding” is a form of personal expression that calls for creativity and fosters practice of innovation. With more makers share their creations and spread inspiration across the web, and more people are influenced to be makers, Maker Movement has become a contemporary culture.

Over the years, Thermaltake has reached the DIY power and made itself a nurturing ground for this growing community of creative individuals by launching maker-oriented product lineups that international master modders highly recognised, designing 3D printing files for free downloading, and kicking off CaseMOD Invitational competitions, in which ingenious makers throughout the world transfer Thermaltake chassis and other cooling components into a brand new creation. Thermaltake, together with professional modders and creative makers, will push each other forward to have a transformative impact on the future.



2015 Thermaltake CaseMOD Invitational SEASON 1

In 2015, Thermaltake presented the biggest event of the year, “2015 Thermaltake Case MOD Invitational”, in the Tt Community (<http://community.thermaltake.com/>) on April 15th, and gathered together seven of the world’s top case modders from USA, Japan, Germany, France, UK, Thailand, and Australia to use various Thermaltake liquid cooling components to transform the Thermaltake Core X9 E-ATX Cube Chassis into a brand new creation! The first prize went to Suchao Prowphong from Thailand, the runner up is Stuart Tonks from Australia, and the U. S. modder, Richi Bowzer, won the third place.



W I N N E R S

1st

 **Thailand**
Suchao Prowphong




2nd

 **Australia**
Stuart Tonks




3rd

 **France**
Mathieu Delsuc




 **U.S.A**
Nick Blackwell



 **United Kingdom**
Richi Bowzer



 **Germany**
Andy weber



 **Japan**
Fabio Moma

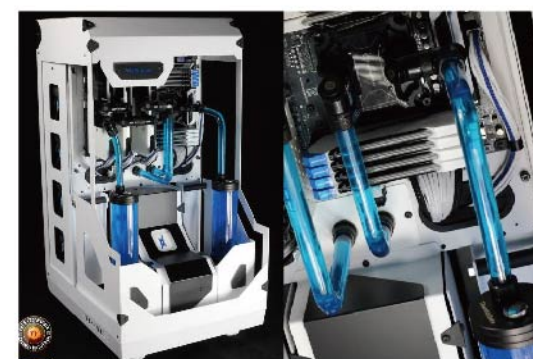


2015 Thermaltake CaseMOD Invitational SEASON 2

2015 Thermaltake CaseMOD Invitational Season 2 features ten of the top case modders throughout the world from the United States, United Kingdom, the Philippines, Canada, Germany, France, Russia, Australia, and Thailand. The top 3 winners are Jesse Palacio from the Philippines; Mathieu Heredia from France; and Maxim Kisin of Russia.



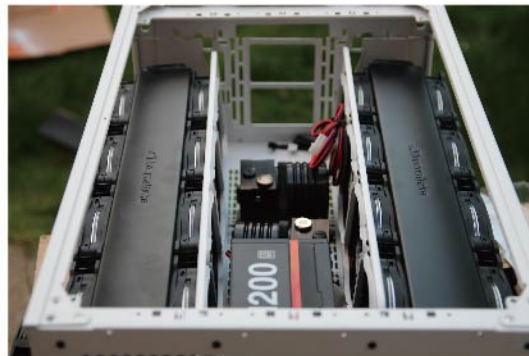
W I N N E R S



 **U.S.A**
Brian Carter



 **United Kingdom**
Dave Alcock



 **Thailand**
Jeng Ki



 **U.S.A**
Ron Lee Christianson



 **Canada**
Jonathan Garlit



 **Germany**
Edgar Marckmann



 **Australia**
Alex Ciobanu



2016 Thermaltake CaseMOD Invitational SEASON 1

In the 2016 Thermaltake CaseMOD Invitational Season 1, eleven of the best case modders from the United Kingdom, Germany, Vietnam, Australia, Italy, China, Japan, France, Belgium, the Netherlands, and the United States used Thermaltake Tt LCS certified liquid cooling components and the Toughpower DPS G RGB 1250W Titanium smart power supply to turn the Thermaltake Core P5 open-frame ATX Wall-Mount chassis into striking artworks! The winners are Peter Brands from the Netherlands; Ali Abbas from Germany; and Corey Gregory from Australia.



Ali Abbas



Corey Gregory



Daniel Bognesi



Icewolf Chen



Laurent Petipas



Adam Braithwaite



Mike Petereyns



Peter Brands



Kurt Schuff

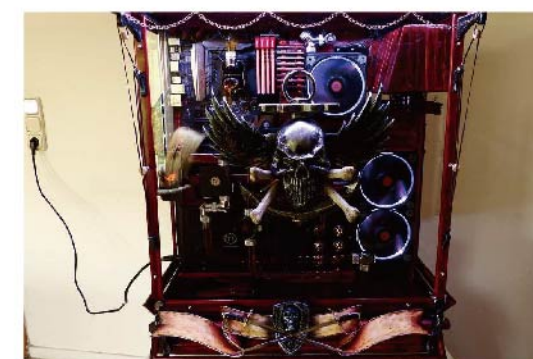


Ronnie Hara



Bui Duc Tam

W I N N E R S



 Italy
Daniel Bolognesi



 China
Icewolf Chen



 France
Laurent Petipas



 United Kingdom
Adam Braithwaite



 Belgium
Mike Petereyys



 U.S.A
Kurt Schuff



 Vietnam
Bui Duc Tam

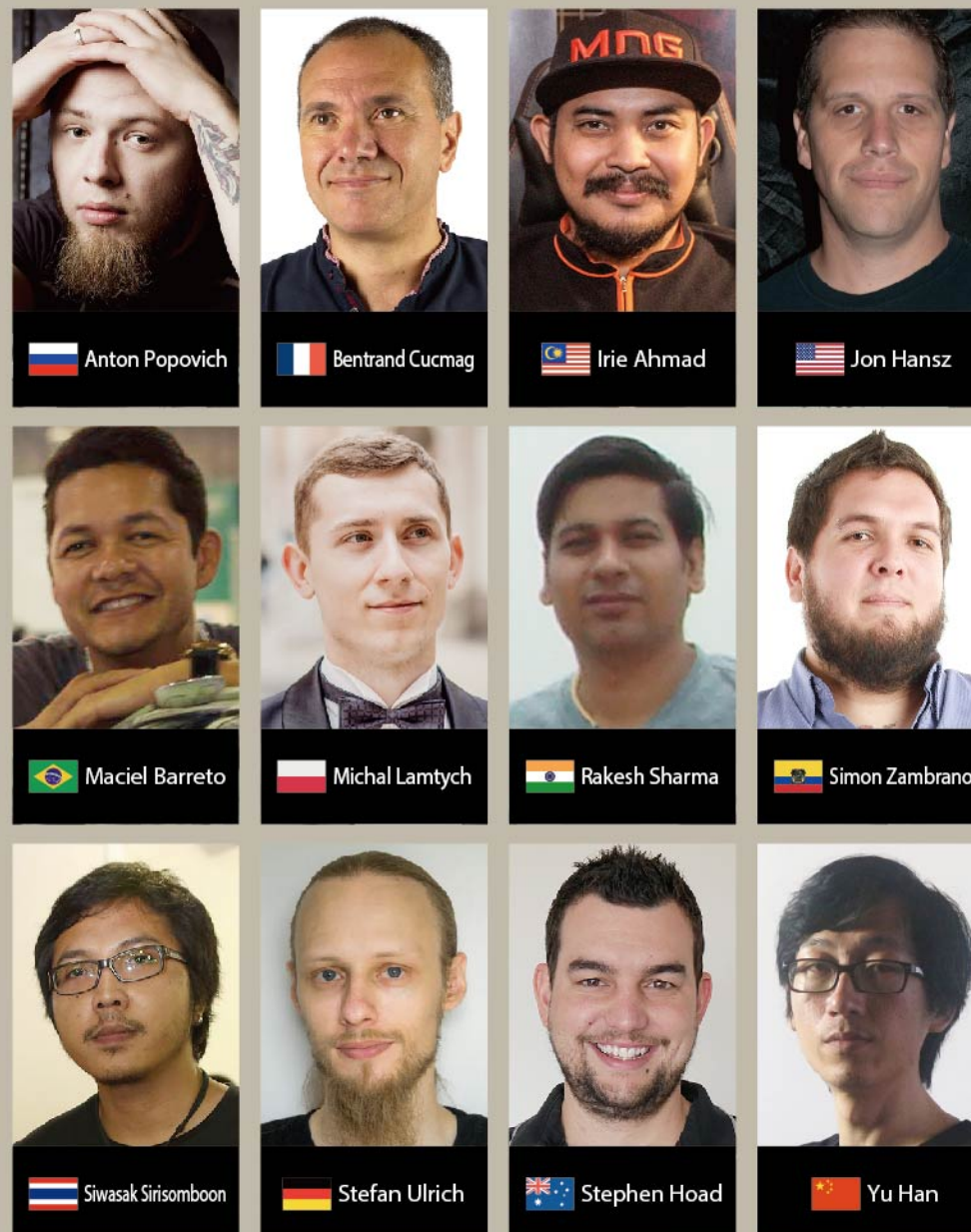


 Japan
Ronnie Hara

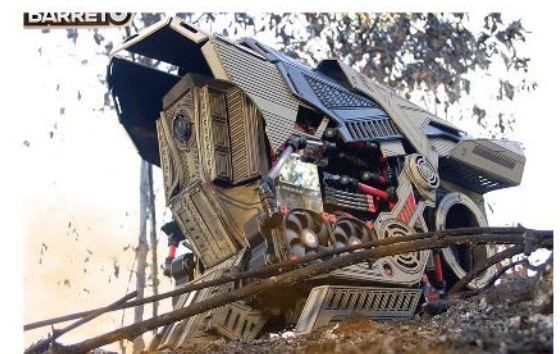


2016 Thermaltake CaseMOD Invitational SEASON 2

In the 2016 Thermaltake CaseMOD Invitational Season 2, Thermaltake is proud to invite twelve of the world's top modders from the United States, Ecuador, Brazil, Germany, France, Poland, Russia, China, India, Thailand, Malaysia and Australia to participate in the event. The top three winners are Chinese modder Yu Han, Thai modder Siwasak Sirisomboon and Brazilian modder Maciel Barreto.



W I N N E R S





Australia
Stephen Hoad



U.S.A
Jon Hansz



Poland
Michal Lamtych



Russia
Anton Popovich



Ecuador
Simon Zambrano



Malaysia
Irie Ahmad



India
Rakesh Sharma



France
Bertrand Cucmag

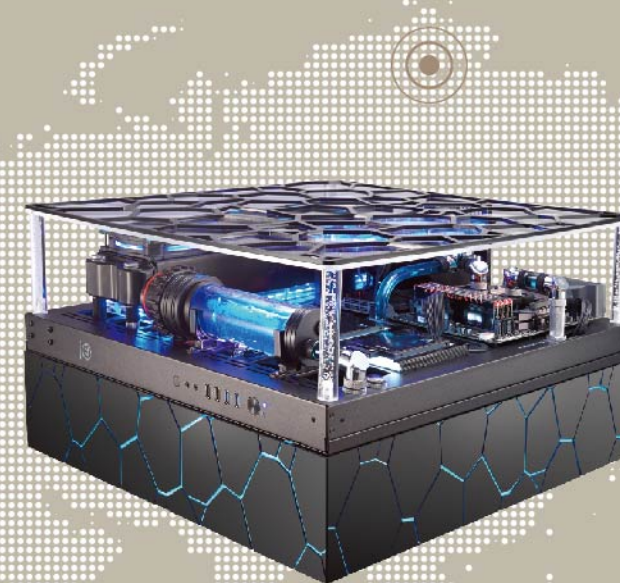
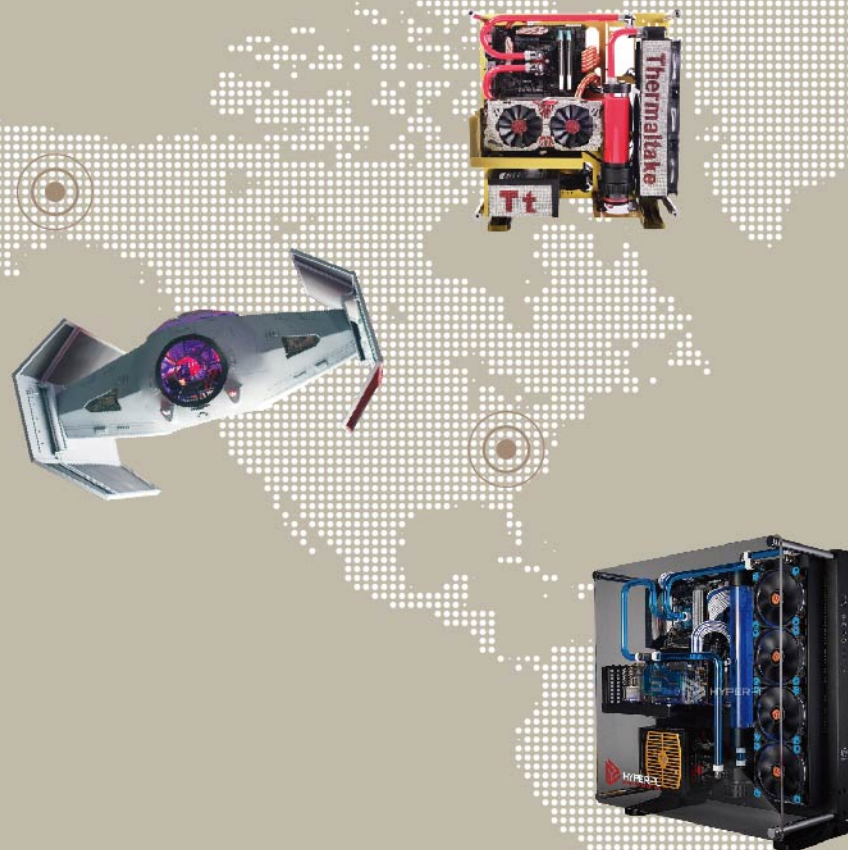


Germany
Stefan Ulrich

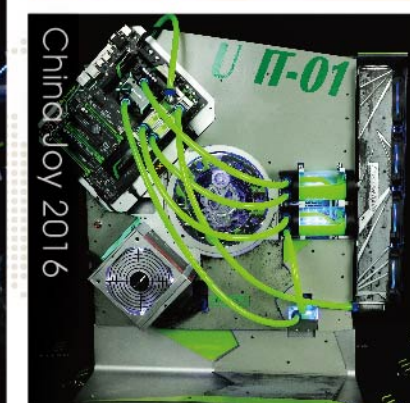
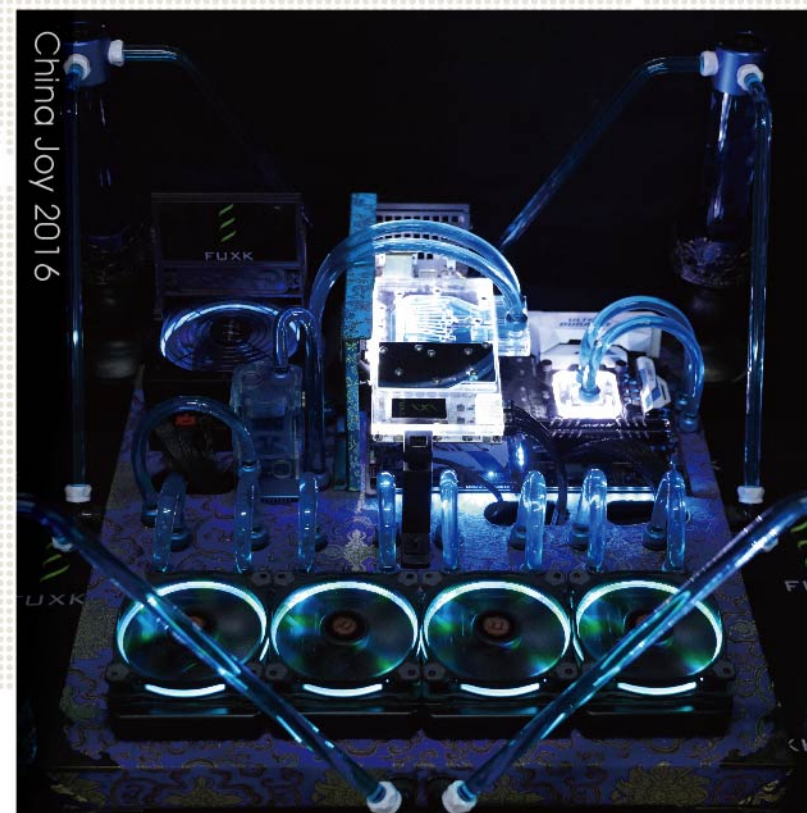
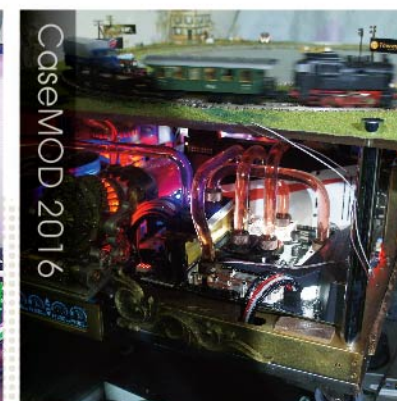


07 Thermaltake Casemodding Showcase

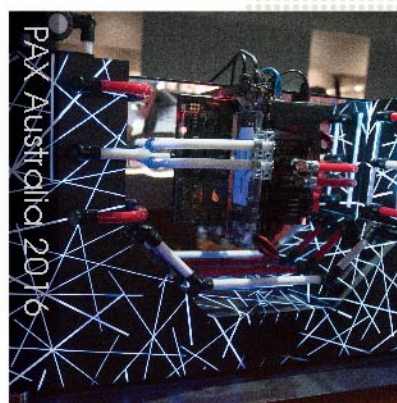
Our greatly successful event CaseMOD has brought together many talented makers; meanwhile, taking part in big exhibitions/competitions and holding local contests in various countries have tightened our connections with case mod culture.



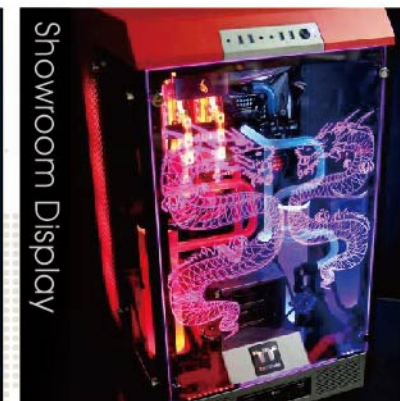
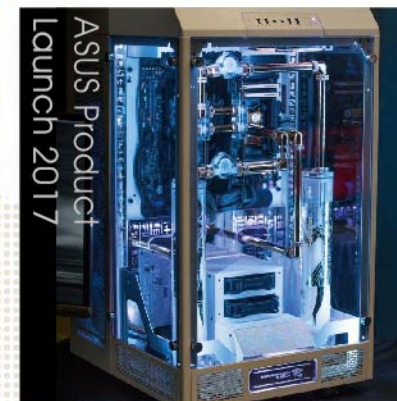
Core P5



Core P3



The Tower 900



Core WP100



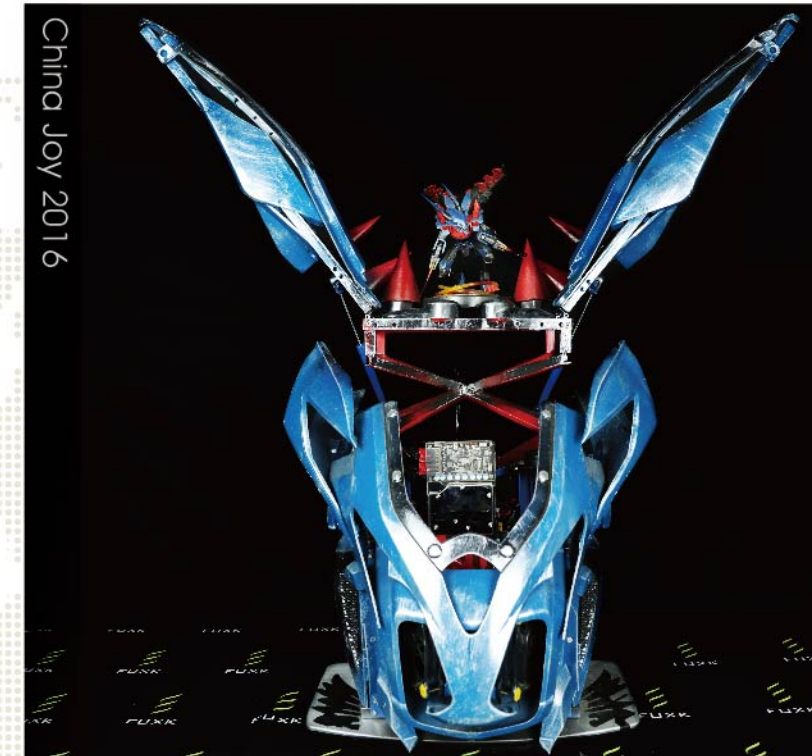
Core G3



View 27



Core X9



Core X5



Core X71



08 TT Premium.com

Thermaltake TT Premium, the most professional online shop for PC enthusiasts, has expanded its footprint to over 100 countries and territories by launching TT Premium Europe, TT Premium Australia, TT Premium Taiwan and TT Premium China. Established in 2016, TT Premium has always adhered to Thermaltake's core mission to create values for its customers by providing exceptional high-end products, including Chassis, Liquid Cooling Solutions and Digital Power Supplies.

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