Liquid lunch

Antony Leather puts eight of the latest 240mm all-in-one liquid coolers through their paces on Intel and AMD sockets

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How we test

When testing CPU coolers, we want to examine performance across a range of sockets, as the mounting mechanisms vary between them; some coolers perform well on some CPU sockets, but not on others. For this reason, we test across three sockets and we've updated our Intel test rigs this month, using CPUs without soldered heatspreaders.

Our LGA1151 test rig comprises an MSI Z370 PC Pro and Intel Core i5-8600K overclocked to 4.6GHz with a 1.2V vcore. Next is LGA2066 using an MSI X299M Gaming Pro Carbon AC and Intel Core i9-7900X overclocked to 4.2GHz with a 1.15V vcore. Finally, our Socket AM4 rig

uses an Asus ROG Strix B350-F Gaming and AMD Ryzen 7 1700 overclocked to 3.9GHz with a 1.425V vcore.

We also use 16GB of 3000MHz Corsair Vengeance LPX memory along with a Crucial MX100 SSD and a be quiet! System Power 9 500W PSU. Our test systems are housed in a Fractal Design Meshify C case and we use Windows 10.

We use CoreTemp to measure the CPU temperature, before subtracting the ambient air temperature to give a delta T result, which enables us to test in a lab that isn't temperature controlled. We use Prime95 version 26.6's smallfft test to load the CPU and take the reading after ten

minutes. We also take sound readings from a distance of 30cm, with the fans and pumps at full speed, to assess the maximum noise.

To obtain a final score, we apply a weighted calculation to the cooling, design, features and value scores. There's a separate score for each CPU socket, accounting for the different cooling and mounting mechanisms as well as value. The feature score includes aspects such as software control, lighting, expansion possibilities and PWM fans; the design score considers installation, noise and aesthetics; and the value score takes all the results into account as well as the price.

Game Max Iceberg 240mm / **£50** inc VAT

Despite costing less money than many 120mm all-in-one liquid coolers, the Game Max Iceberg 240mm has a fully-fledged 240mm radiator, and it even offers lighting too. However, while the pump is illuminated and colours change on rings that surround the fans, you can't control the lighting – that's fine if you don't mind the full colour spectrum spilling out all the time, but it's not great if you want to use specific effects or colour-match the lighting to the rest of the PC. Thankfully, the display looks quite pleasant, and it will help to brighten up your PC's interior if the rest of the gear is budget-focused.

The fans are rated at 1,800rpm, so they have a reasonable amount of grunt, and there's a PWM splitter cable included, so you only need a single fan header to power them. The pump only has a 3-pin power connector, but many modern motherboards can control parts with these connectors too.

The installation procedure proved to be a pain on Intel systems though. With LGA115x sockets, you have to hold a backplate in place, hold the cooler (having installed mounting brackets to it) and secure the cooler to the backplate with small screws, all at the same time.

This installation process meant we had to remove the motherboard. Plus, even with our LGA2066 motherboard, we had to hold the cooler in place while trying not to let the securing pins fall out of our magnetic screwdriver – you can't really secure them by hand. Meanwhile, the AMD mount uses the existing plastic socket mounts, but didn't feel as secure as those on the Intel and NZXT coolers.

In terms of noise, the Iceberg 240mm registered a very low 51dBA on our meter. However, the pump had a distinct whine that was audible outside the case. It's far from annoying, but every other cooler had a quieter pump.

Performance was reasonable in our LGA1151 system, though, with a CPU delta T of 48°C, which is just 4°C warmer than the best result – a fantastic performance for a cooler that costs just £50 inc VAT.

It was less competitive in our LGA2066 system, where our overclocked Core i9-7900X pushed the delta T to 61°C, which was 7°C warmer than the NZXT Kraken X52 and 2°C warmer than the Alphacool Eisbaer LT 240. Our concerns over the AM4 mount seem justified too, as the AM4 CPU delta T of 55°C was 7°C warmer than the next full-speed

result, despite several attempts to remount the cooler.

Conclusion

Despite the slightly troublesome installation, the Game Max Iceberg 240mm performed excellently for the cash in both our Intel systems, dealing with the heat just as well as other coolers. It doesn't top the cooling charts, but it keeps up with coolers costing considerably more money. It's not the quietest cooler either, but if you're on a tight budget and want to overclock your CPU, it's a compelling money saver for Intel systems.

VERDICT

Fiddly installation and a noisy pump compared with the competition, but it offers great cooling for the money.

/**SPECIFICATIONS**

Compatibility Intel: LGA2011/v3, LGA115x, LGA1366; AMD: Socket AM4, AM3/+, AM2/+, FM2/+, FM1

Radiator size with fans (mm) 120 x 275 x 52 (W x D x H)

Fans 2 x 120mm

Stated noise Up to 32dBA

LGA1151 RESULTS		
COOLING 35/40	FEATURES 14/20	OVERALL SCORE
DESIGN 11/20	VALUE 20/20	**80**%
FITTING MEDIUM		

LGA2011 RESULTS		
COOLING 31/40	FEATURES 14/20	OVERALL SCORE
DESIGN 14/20	VALUE 20/20	**79**%
FITTING MEDIUM		

AM4 RESULTS		
COOLING 26/40	FEATURES 14/20	OVERALL SCORE
DESIGN 14/20	VALUE 20/20	**74**%
FITTING EASY		

CUSTOM PC APPROVED

LGA1151/ LGA2011