

THERMAL SOLUTIONS

LIQUID COOLING

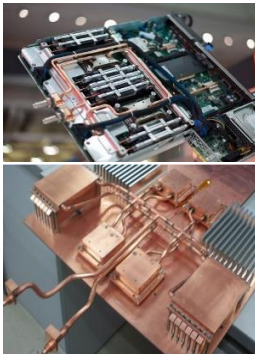
Introduction:

Like convection, liquid cooling involves forcing a cooling modality, in this case a liquid rather than air, through a system. This operation is normally performed by using an external force like a pump. The typical liquid used is water or a mixture of glycol and water. Two primary types of liquid cooled thermal products are cold plates and high-performance re-circulating chillers. In this section, we will focus on Cold Plate technology.

Cold Plates:

Cold plates are an excellent solution when wattages are excessive. Below are various types of cold plates and associated wattages.

➤ Brazing:



Cold plate profile:

- ✓ Material: C1100
- ✓ Size: Customized
- ✓ Process: Aluminum/copper brazing/FSW
- ✓ Inlet/outlet fit: Customized
- ✓ Finish: Cleaning
- ✓ Coolant: 50% Ethylene glycol/water mixture
- ✓ Cooling capacity: 0~300 W per CPU
- ✓ Pressurize: >6 Bar

➤ Epoxy Bonding:



Cold plate profile:

- ✓ Material: Al6061-T6 / C1100
- ✓ Size: 300x350x18 mm
- ✓ Process: CNC/Epoxy bonding
- ✓ Inlet/outlet fit: Ø9.52mm, pagoda joint
- ✓ Finish: Cleaning
- ✓ Coolant: 50% Ethylene glycol/water mixture
- ✓ Cooling capacity: 2200 W
- ✓ Pressurize: >10 Bar

➤ Friction Stir Welding:



Cold plate profile:

- ✓ Material: Al6061-T6
- ✓ Size: 230x190x22 mm
- ✓ Process: CNC/FSW
- ✓ Inlet/outlet fit: G3/8" pipe thread
- ✓ Finish: Anodized
- ✓ Coolant: 50% Ethylene glycol/water mixture
- ✓ Cooling capacity: 3000 W
- ✓ Pressurize: >10 Bar