

## **Effect of process parameters on the cooling performance of liquid cooling system for electronic application**

### **Abstract**

This project is focused to study on the cooling performance of liquid cooling system under different process parameter. In this research, a liquid cooling system with copper block that simulates CPU, was setup to identify cooling performance of distilled water and vegetable oil at different mass flow rates (distilled water: 8.00g/s, 10.60g/s & 13.24g/s; vegetable oil: 1.22g/s, 1.30g/s & 1.38g/s) and input power (29.12W & 47.66W). The cooling performance of each fluid was characterized by the properties of: heat transfer coefficient, thermal resistance and also, the maximum CPU temperature (T4 at 66min) for the experiments. Experimental data shows that cooling performance was improved at higher mass flow rate and both distilled water and vegetable oil is a good coolant material.

### **Keywords**

Heat flux; Heat transfer coefficient; Input power; Mass flow rate; Thermal resistance