

# Rittal – The System.

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## TU Kaiserslautern: Cooling solution for HPC

### CUSTOMER REFERENCES

Information technology



**Customer:** TU Kaiserslautern  
**Industry:** IT infrastructures  
**Company size:** more than 2,100 employees  
**Established:** 1970  
**Headquarters:** Kaiserslautern, Germany

High-performance computers play a crucial role in safeguarding Germany's position as an attractive location for businesses. At the end of 2012, a new supercomputer was taken into service at the University of Kaiserslautern in Rhineland Palatinate – with a cooling solution specially developed by Rittal for its performance range.

High performance computers are used in basic research and in the development of new materials and processes, where they help to simulate and model procedures such as the dispersal of waves. The Elwetrtsch supercomputer, named after the birdlike mythical creature reported to be found in the Palatinate, significantly boosts the computing capacities available to universities and research institutes in the region.

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**“Rittal surpassed our requirements with the LCP system – high cooling performance on a small footprint with maximum availability.”**

Heiko Krupp,  
research assistant at the  
Regional University Computing Center,  
Kaiserslautern

## THE PROJECT

### The Challenge

- High amount of servers in tight space
- Only limited space for cooling units
- Cooling capacity from 200 kW to 250 kW on 65 sqm in 650 rack units

### The Solution

- High performance cooling devices of the series LCP
- 16 racks in two rows, 5 LCPs in each row
- n+1 redundancy



### Cooling package beads 0,33 sqm only

Due to a lack of space, it was not possible to incorporate the new computers into the existing infrastructure. The University therefore took the decision to convert and use a larger infrastructure room close to the current data centre. At around 65 m<sup>2</sup>, it was big enough to accommodate racks with a total of 650 height units. With the computers tightly packed into the limited space, the cooling output would need to be 200 kW to 250 kW.

### Maxium cooling outputs in tight space

The system solution from Rittal uses high-performance climate control units from the Liquid Cooling Package (LCP) range with an air/water heat exchanger that require just a third of a square meter in floorspace and therefore fit perfectly into the concept. The cold air is blown out over the full height of the rack suites, which means that all the height units can be used without the risk of hotspots forming.

### Room for growth

At present, five of the 16 racks are empty. There is also additional flexibility in terms of cooling output – of the 250 kW that the Rittal solution can deliver, only 95 kW is currently being used (115 kW when the computers are running at full capacity). If the remaining five racks were also filled, Krupp, research assistant at the Regional University Computing Center believes that the cooling output would have to rise to 150 kW – which is still well within the system’s limits.

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