

MEGWARE HPC Technologies

... HPC technology made in Europe!

Axel Auweter – MEGWARE CTO

BoF @ SC'18: Consolidating the European Exascale Effort



MEGWARE Computer Vertrieb und Service GmbH

Company Overview

Leading European HPC System Integrator and Solution Provider

German SME (~50 employees) with over 25 years of experience

HPC System Architecture and Design

Designing system architectures according to customer requirements

Custom Developments wherever Sensible

Mechanical Designs, Electronics for Power Distribution, Monitoring & Management, Direct Liquid Cooling, Energy Efficiency

No design of mainboards, ASICs, SoCs, ...

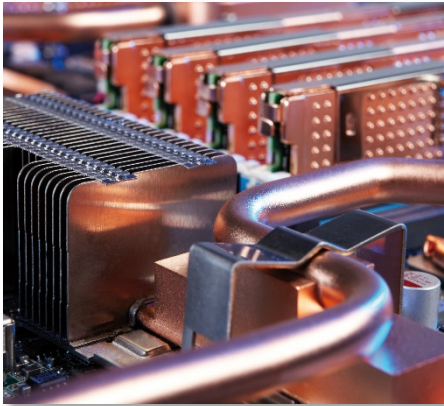
DEEP-EST (H2020 FET-HPC) project partner for system integration



Evolution of MEGWARE ColdCon®

Direct Liquid Cooling since 2011

ColdCon® 2011



Liquid cooling for

- CPUs
- VRs

Max inlet temp: 40°C

ColdCon® 2013

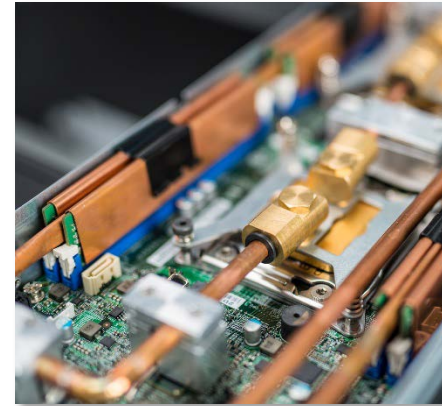


Liquid cooling for

- CPUs
- VRs
- DIMMs

Max inlet temp: 40°C

ColdCon® 2015

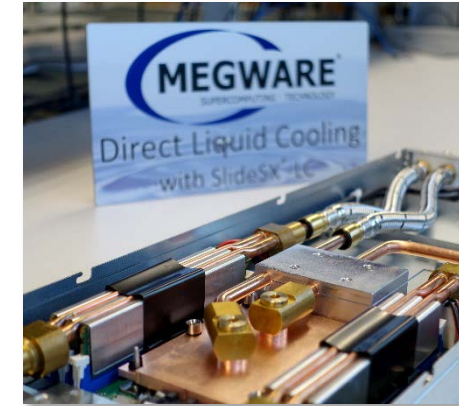


Liquid cooling for

- CPUs
- VRs
- DIMMs
- I/O

Max inlet temp: 50°C

ColdCon® 2017



Liquid cooling for

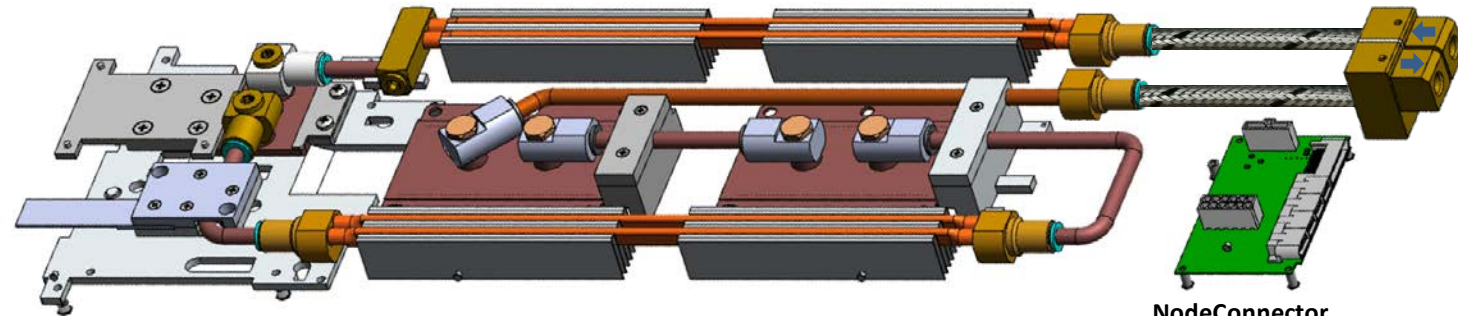
- CPUs
- VRs
- DIMMs
- I/O
- Power supplies

Max inlet temp: 55°C

MEGWARE ColdCon® Direct Liquid Cooling

Building European IP on top of off-the-shelf hardware...

ColdCon Node Level
MEGWARE



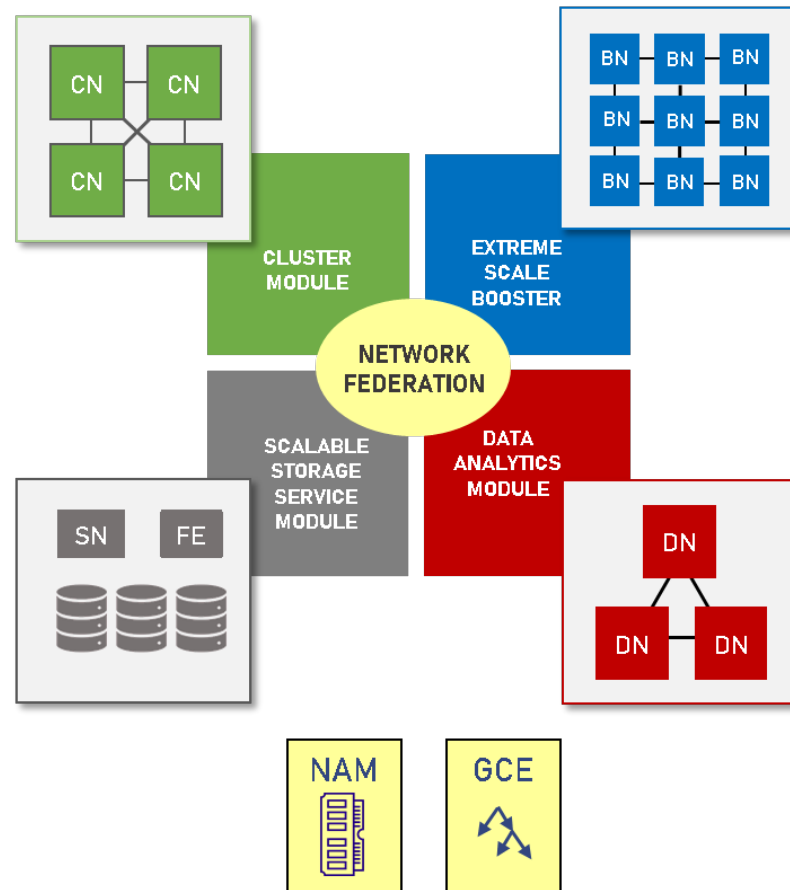
NodeConnector
MEGWARE

BARE BASEBOARD
INTEL



Towards a Modular Supercomputing Architecture

... bringing great ideas to life!



Cluster Module

- High single thread performance
- Low/medium scalable code parts

Extreme Scale Booster

- Highly energy efficient
- Highly scalable code parts

Data Analytics Module

- Large + fast memory + accelerators
- Data intensive codes

CN: Cluster Node (general purpose processor)
BN: Booster Node (autonomous accelerator)
DN: Data Analytics Node (CPU + accelerators)
NAM: Network Attached Memory
GCE: Global Collective Engine
SN: Storage Node
FE: Front-End