Vertiv™ 360AI

High Density Reference Design for AI

AI Reference Design #028

5 MW (2x Large PODs) at up to 142kW per rack

A full data center environment designed for a 5MW solution with 4 to make 3 configuration, utilizing the latest NVIDIA DGX GB300 NVL72 architecture.

Design Principles

1. **Design both Power and Cooling** together to optimize AI infrastructure.
2. **Power is at a premium.** Eliminate stranded power by aligning AI clusters to data center 'capacity blocks.'
3. **Consider total cost of ownership, redundancy, and blast radius** in AI power and cooling designs, and the tradeoffs among them.
4. **Handle AI workload surges** through system-level controls and power and cooling buffers.
5. **Design for a mix of liquid and air cooling,** which have a combined and interdependent impact on the ability to remove heat.
6. **Design for the future.** Anticipate your needs by upgrading to the latest power and cooling technologies today.

Image is for representation only

Design Summary		
Solution Capacity	5 MW	
Redundancy	4 to make 3 for power, N+1 for cooling	
Total IT Load	4,992kW (2,496 per POD)	
Rack Density (IT load)	32 racks @ 142kW, 32 racks @ 14kW	
Rack(s)	64	
Cooling Topology	78% liquid 22% air	
Cooling Equipment	Liquid: XDU2300 Air: CW205 Heat Rejection: FF3175	
Power (Facility-level)	4000A MSB for IT and Facility 2000kVA UPS for IT 300kVA UPS for Facility 1000kVA PDU for IT	
Power (POD-level)	***Option 1*** 800A 240/415V Busbar 60A TOB 33kVA DC power shelf	***Option 2*** 800A 240/415V RPP 60A Branch Breakers 33kVA DC power shelf

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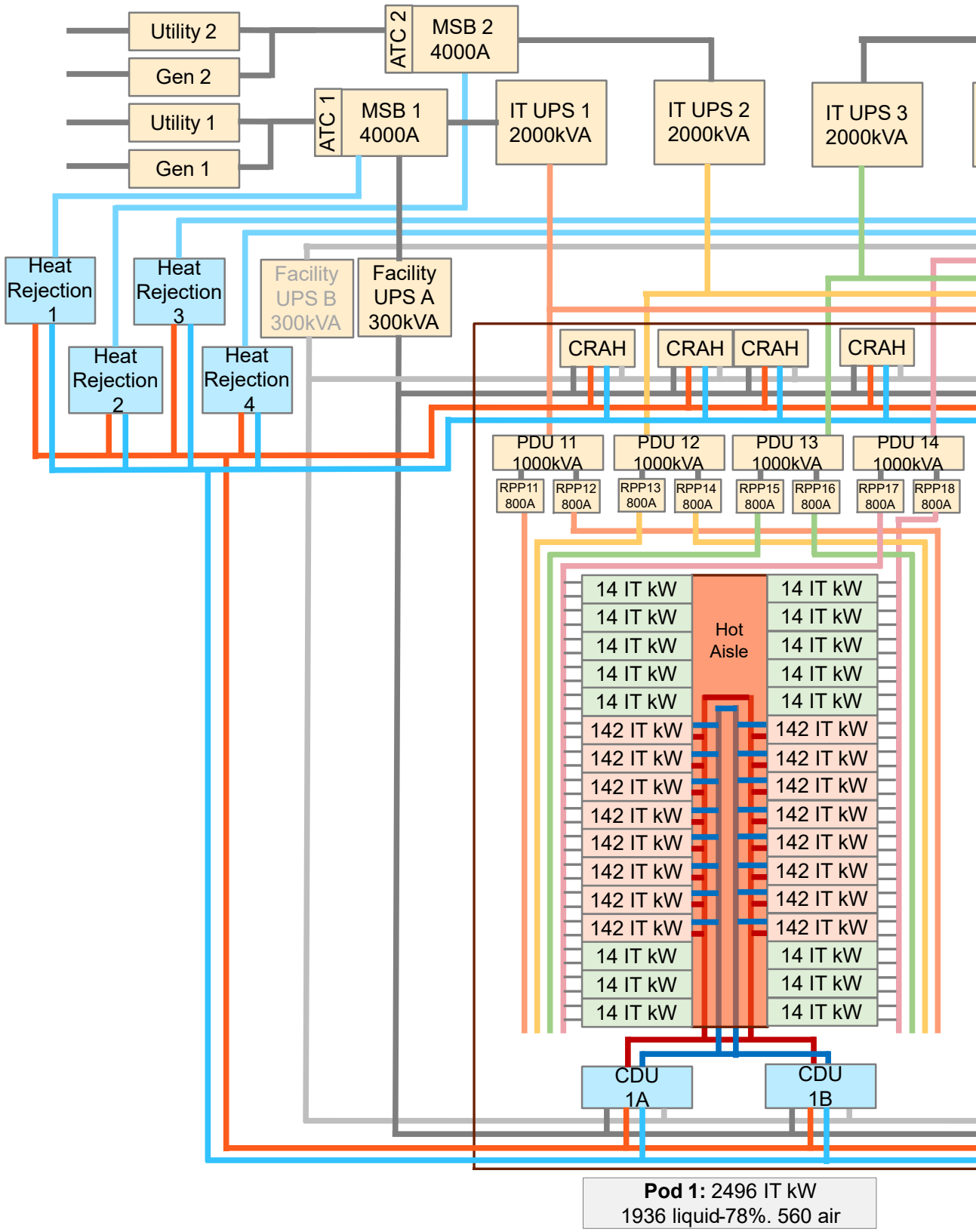
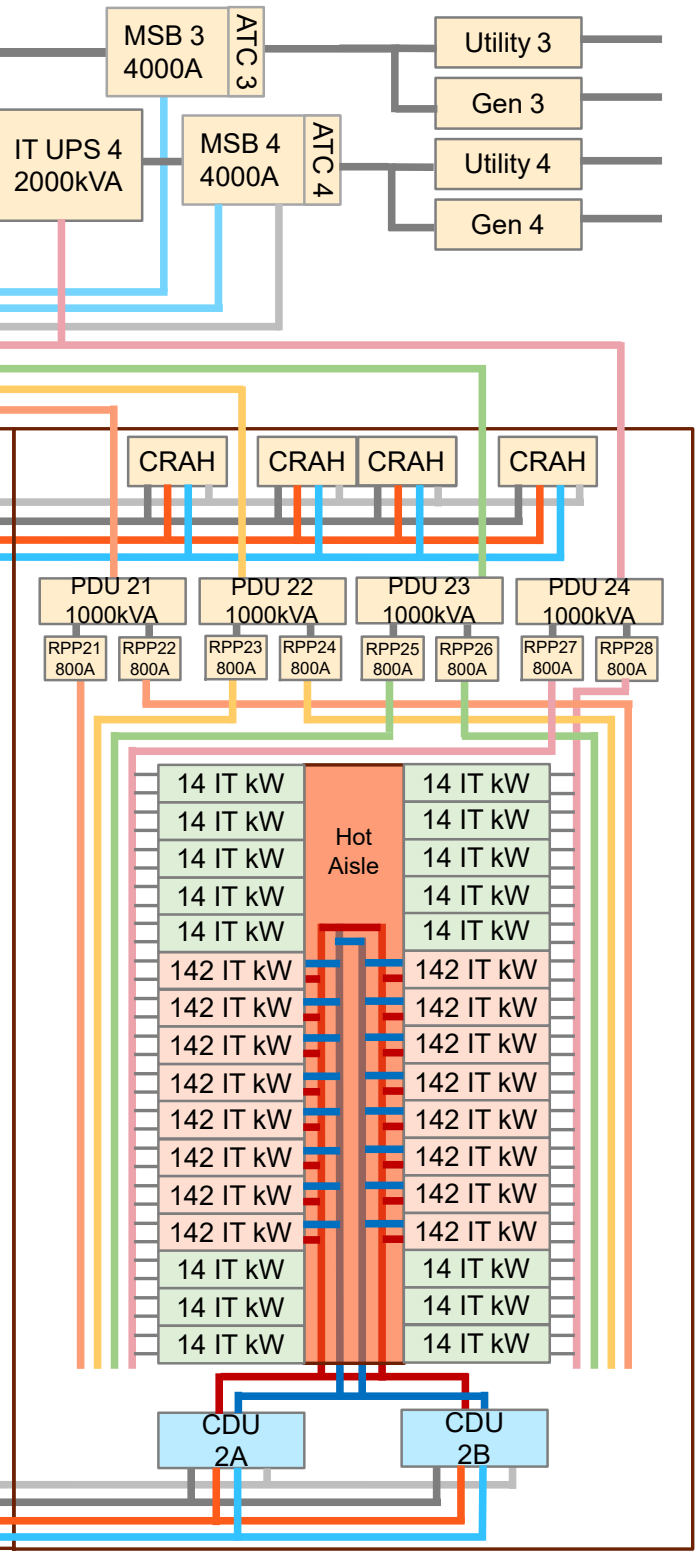
Reference Design Schematic



See next page for more configuration options.



Pod 2: 2496 IT kW
1936 liquid-78%. 560 air

Vertiv Components of the Design

Component	Details	
Main Switchboard (MSB)	4x 4000A MSB for IT and Facility	**Optional:** Vertiv™ PowerNexus can be deployed to integrate MSB and UPS together for this configuration
UPS for IT	4x 2000kVA UPS for two PODs, 4 to make 3 redundancy	
UPS for Facility	2x 300kVA UPS for facility, 2N redundancy	
Power Distribution Unit	8x 1000kVA PDU, 4 per POD	
Busbar and Tap-off Boxes (TOB) or RPP and Branch Breakers	**Option 1** 8x 800A 240/415V busbar per POD 2x 60A TOB per compute rack per busbar 2x 60A TOB per support rack	**Option 2** 8x 800A 240/415V RPP per POD 2x 60A branch breaker per compute rack per RPP 2x 60A branch breaker per support rack, 1 per every other RPP
Rack PDUs for compute racks	8x 33kVA DC power shelf, 4 to make 3 redundancy	
Rack PDUs for support racks	2x 33kVA DC power shelf, 2N redundancy	
Liquid Cooling	2x XDU2300 per POD @ 4°C ATD, N+1	
Air Cooling	4x CW205 per POD, N+2 for two PODs	
Heat Rejection	4x FF3175 with PG30, N+1	
Compute Racks	16x 48U racks per POD @ 142kW	
Support Racks	16x 48U racks per POD @ 14kW	

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