



High Density Reference Design for AI

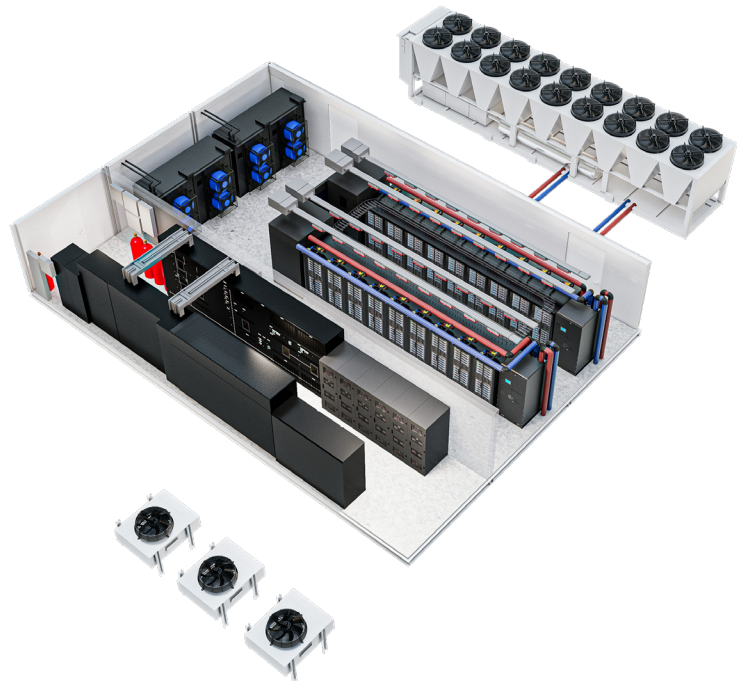
AI Reference Design #0019

1.2 MW NVIDIA Blackwell DGX SuperPODs

A full data center designed for a 1.2 MW Nvidia DGX GB200 NVL72 SuperPod.

Design Principles

- Completely **prefabricated AI direct-to-chip cooled data center**, including complex pipework, power train and heat rejection systems.
- Powered by **Vertiv™ PowerNexus**.
- **Skidded solutions** possible for quick repurposing of existing space.
- Greatly **reduced** on-site deployment and commissioning **complexity**.
- **Liquid cooling** works in **sync with air-cooled technology**, splitting the load to reject all the heat from the rack.

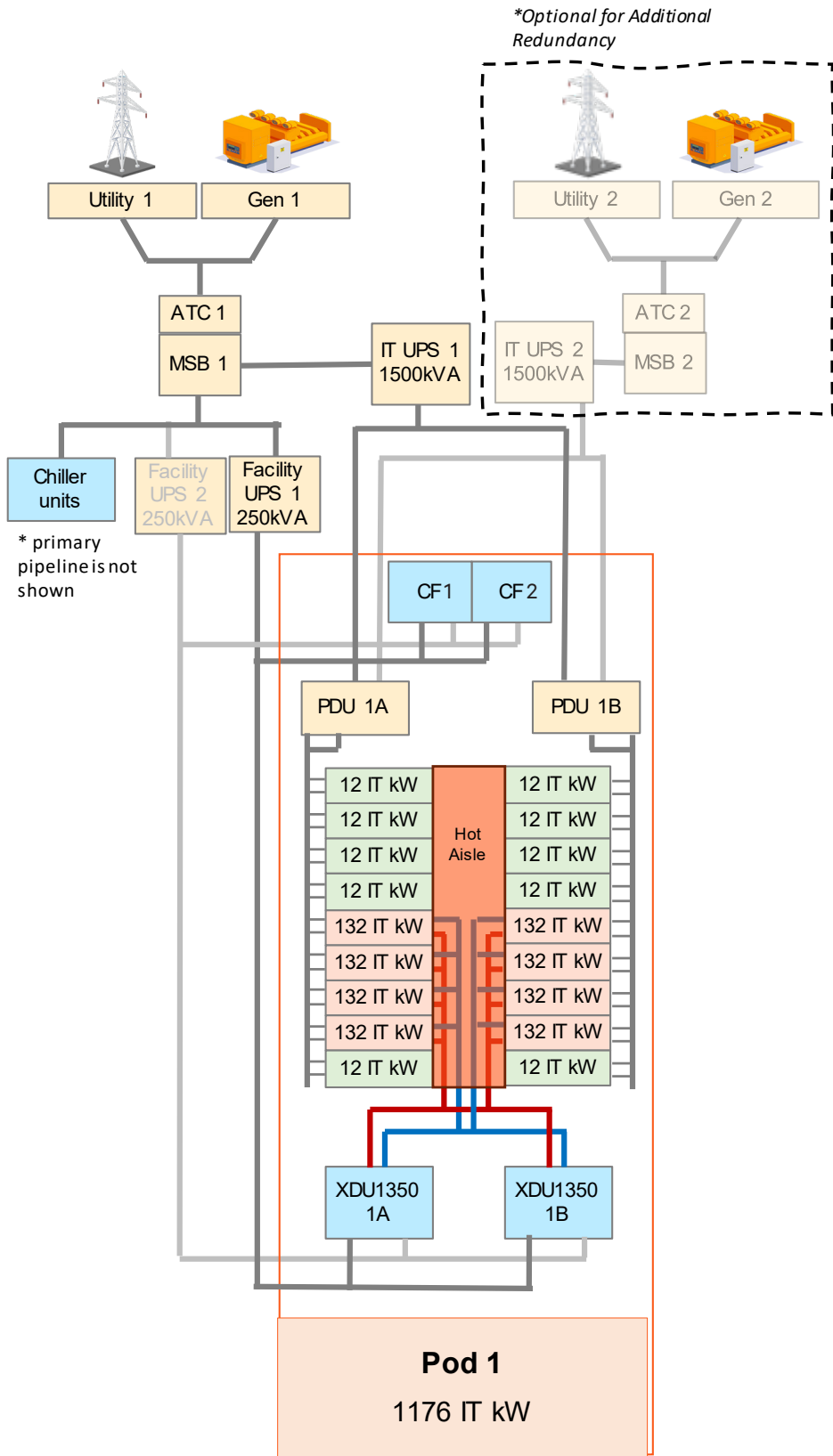


Design Summary

IT Load	1.2 MW
Infrastructure Redundancy	N
Rack IT Load	8 racks at 132 kW, 10 racks at 12 kW
Rack(s)	18
Cooling Topology	76% Liquid (direct-to-chip) 24% Air (perimeter units)
Coolant Distribution	Vertiv XDU1350
Perimeter air cooling	Chilled Water Modular Fan Wall
UPS for IT	1500 kVA UPS
UPS for Cooling System	240 kVA UPS, N+1

Vertiv™ 360AI

Reference Design Schematic



Legend

Critical Power

Thermal Management

Networking & Storage racks

Compute rack

— Liquid loop, cold/supply
— Liquid loop, hot/return



Key Terms

MSB: Main Switchboard

UPS: Uninterruptible Power Supply

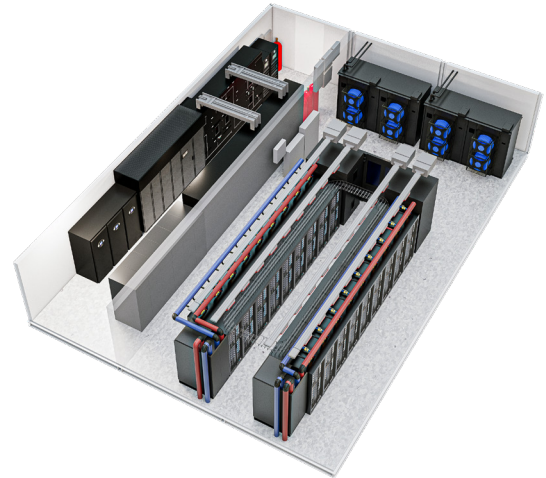
PDU: Power Distribution Unit

XDU1350: Coolant Distribution Unit

CF: CoolFlex Mod chilled water cooling solution

Vertiv Components of the Design

Component	Details
Power Nexus	Integrated 2500 A Switchboard, 1,500 kVA Trinergy UPS
UPS for mechanical loads	1x250 kVA EXM (2x for 2N Redundancy)
Compute/Network Racks	18x Vertiv Racks, Provisioned for 200 mm Rack Extension
Floor Mounted PDU	1x per row, 600 kVA PPC Cabinet
Busbar and Tap-off Boxes (TOB)	2x 500 A IMPB per row, 2x 120 A TOB per rack
Rack PDUs for network & storage racks	1x 22 kW (32 A) rack PDUs per rack
Rack PDUs for compute racks	2x 80 kW (120 A) rack PDUs per rack
Coolant Distribution Unit (CDU)	2x 1350 kVA Liquid-to-Liquid
Floor Mounted Air Conditioning Units	3x PX029 Floor Mounted Air Conditioning Units and Condensers
Chilled Water Fan Wall Air Handling Unit	4x Fan Wall integrated into Modular Deployment
Water Storage Tank	4x Water Reserve Storage Tanks
Prefabricated Modular Units	2x 12 m (40') Vertiv Prefabricated Modular Units



Design Modification Options

2N Rack IT

Option 1

- 2x PPC / Row
- 2x 1000 A Busbar or HPB /Row
- 4x 80 A TOB / Rack
- 4x 80 A rPDU /Rack
- 4x Modular Units

2N with OCP Racks

Option 2

- 18x OCP Racks
- 2x PPC / Row
- 2x 1000 A Busbar or HPB / Row

2N Infrastructure & IT (Tier III)

Option 3

- 2x 1.5 MW Trinergy UPS
- 2x 2500 A Switchboard
- 4x 240 kW UPS
- 2x PPC / Row
- 2x 1000 A Busbar or HPB / Row
- 4x 80 A TOB / Rack
- 4x 80 A rPDU /Rack
- 5x Modular Units

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