

Scaling AI with Dell PowerEdge XE9680

Performance and Strategic Evaluation

Lower TCO with
Dell PowerEdge XE9680

19-28%

Ethernet Standardization, Operational
Simplicity, and Optimized Power & Cooling

Dell PowerEdge XE9680: Choice Without Compromise

AMD Instinct

- GPU Memory: 192GB HBM3 per GPU
- Total Memory: 1,536GB per node
- Memory Bandwidth: 5.3 TB/s
- Power: 750W per GPU
- Software: Open-source ROCm

NVIDIA Hopper

- GPU Memory: 141GB HBM3e per GPU
- Total Memory: 1,128GB per node
- Memory Bandwidth: 4.8 TB/s
- Power: 700W per GPU
- Software: Mature CUDA ecosystem

Multi-Node Scaling Performance (64 GPUs)

87-93%

Scaling Efficiency
Both platforms

37%

More Memory Capacity
AMD MI300X advantage

>95%

Network Utilization
with proper tuning

Unified Dell & Broadcom Infrastructure



Broadcom Thor 2 NICs

400GbE with hardware-
accelerated collectives



Dell PowerSwitch Z9864F

64 ports @ 800GbE with
Tomahawk 5



RAIL-Optimized Topology

Microsecond-level
congestion control

Strategic Considerations

Consider AMD Instinct when

- ✓ Memory capacity is critical (192GB per GPU)
- ✓ Training workloads dominate deployment
- ✓ Cost optimization is a key priority
- ✓ Open-source ecosystem preferred
- ✓ Large model experimentation required

Consider NVIDIA Hopper when

- ✓ Inference performance is critical
- ✓ Mature CUDA ecosystem essential
- ✓ Time-to-deployment is top priority
- ✓ Power efficiency matters (700W vs 750W)
- ✓ Advanced Transformer Engine needed

Hybrid Approach Recommended for Large Enterprises:

Deploy NVIDIA Hopper for production inference workloads requiring maximum performance, and AMD Instinct for cost-effective training and development environments. Leverage Dell's unified management across both platforms.

87-93%

Scaling Efficiency Achieved by Both Platforms at 64 GPUs
Dell Technologies: Your Agnostic Scaling Partner

Dell Technologies | AMD Instinct & NVIDIA Hopper | Broadcom Thor 2

Choice Without Compromise

Optimize for performance, cost, or ecosystem preference.
All on the same enterprise-grade Dell PowerEdge XE9680 platform.

For more, [see the full report on the Signal65 website.](#)