

# Cutting Edge Technology for Performance Computing & AI

Evolution of Performance Computing within FSI  
Solving IT System Performance & Scalability Challenges within FSI  
Future Trends

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# Performance Compute Evolution Pre & Post '08

< 2008

2008 Financial Crash

> 2008

## TECHNOLOGY PRE 2008

- RISC Processors
- Sun Microsystems SPARC
- IBM P-Series
- Mainframes
- Legacy Intel x86

## TECHNOLOGY POST 2008

### Intel Single Socket

- Liquid Cooling
- Low Latency
- High Frequency

### Intel Dual-Socket

- Increased Memory Bandwidth
- Optimised Servers
- FPGA & Offload Engines

### "In House" Supercomputers

- AI & Deep Learning
- GPU Based Servers

Legacy Banks

2008 Financial Crash

Hedge Funds, HFT  
Algorithmic Trading



# Solutions | Liquid Cooled Single Socket

- Evolution of power - user Workstations
- Self contained liquid cooling
- No rack changes required
- Resilient and remotely managed with IPMI
- Deployed at over 26 exchange facilities globally
- 5.0+ GHz with low - jitter
- Up to 28 overclocked cores available
- Memory frequency of 4133MHz





# Solutions | Dual Socket

- Market is dominated by dual socket X86
- Built on Dell EMC Intel platform
- Customised hardware & BIOS
- 8-cores @ 4.3 GHz per Socket
- 12-cores @ 4.1 GHz per Socket
- 18-cores @ 3.9 GHz per Socket
- Liquid cooled for +4%
- AMD variations available with 64 cores and PCIe 4.0
- Up to 480TB per 2U of all flash
- Deployed with any OS/HV

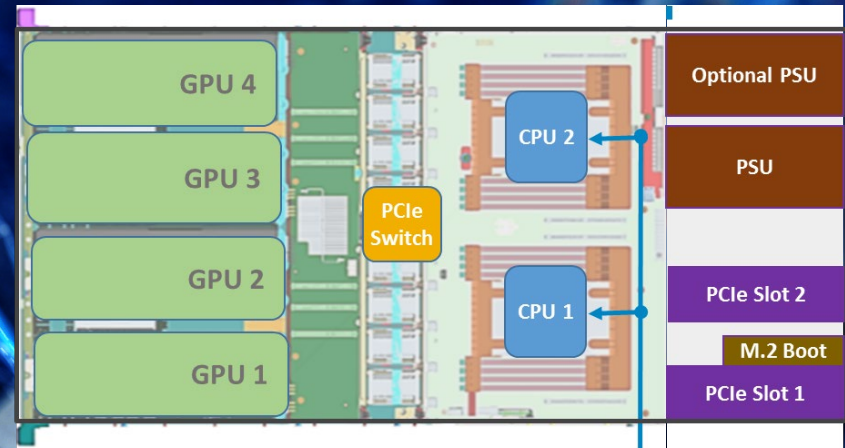
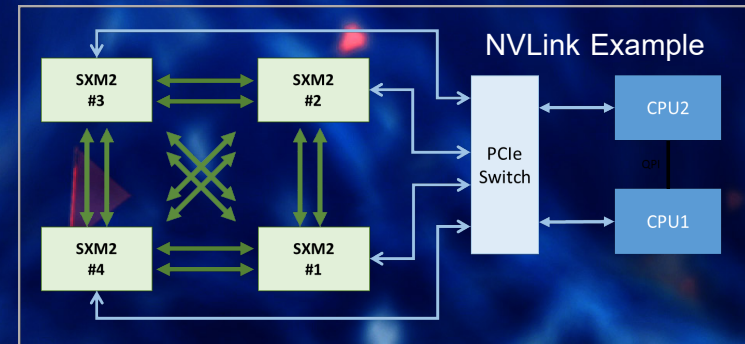




# Solutions | GPU, Machine Learning, AI



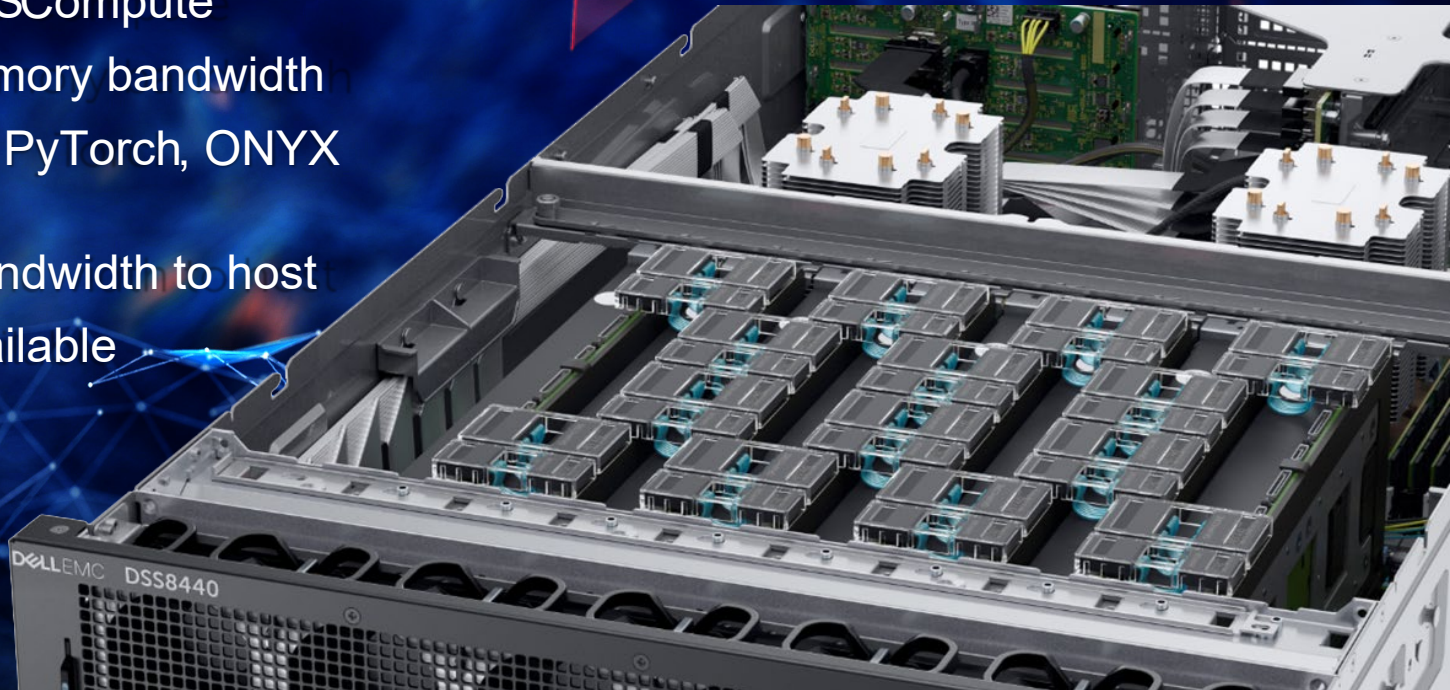
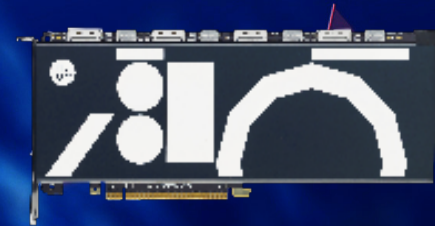
- Deployed > 14.3 Million Cores
- 1U 4-way NVIDIA V100 System
- NVLink for 500TFlops per 1U
- Powering many of the Super Computers
- Dual socket Intel Xeon SP
- Up to 1.5TB Memory
- 2x x16 PCIe expansion





# Solutions | Graphcore

- 16 Graphcore IPU's per host
- 2432 cores per card
- Revolutionary computation device
- Holds entire model in processor
- 2 PetaFLOPS Compute
- 720TB/s memory bandwidth
- TensorFlow, PyTorch, ONNX Support
- 31.5GB/s bandwidth to host
- Samples available





# We love a challenge

## Any questions?

Dell EMC President's Circle Award Global FY19

Dell EMC OEM Partner of the Year UK FY19 & FY20

Dell EMC OEM Partner of the Year EMEA FY19

Fujitsu Data Centre Partner of the Year FY19

NVIDIA Elite Solutions Provider

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