



Supermicro

Server Technology Leader
Total Solution Provider

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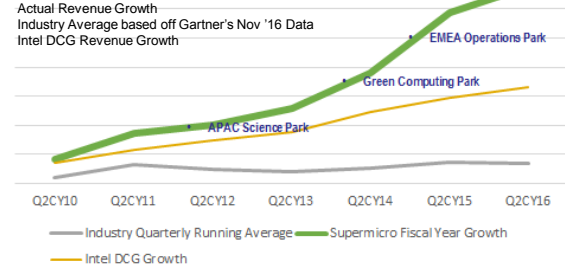
We Keep IT Green™

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Supermicro Corporate Growth & Development

5X Revenue Growth in 6 Years

(3X Number of Units Growth)

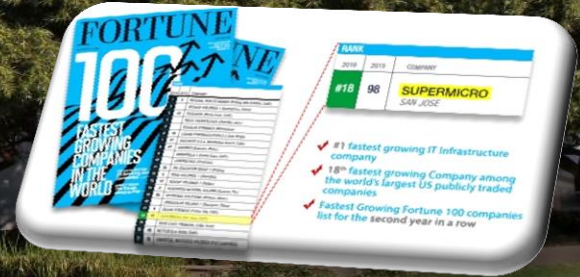


SUPERMICRO

980

#1 Fastest Growing IT Infrastructure Company

- Fortune Magazine Sept '16



Optimized Subsystems

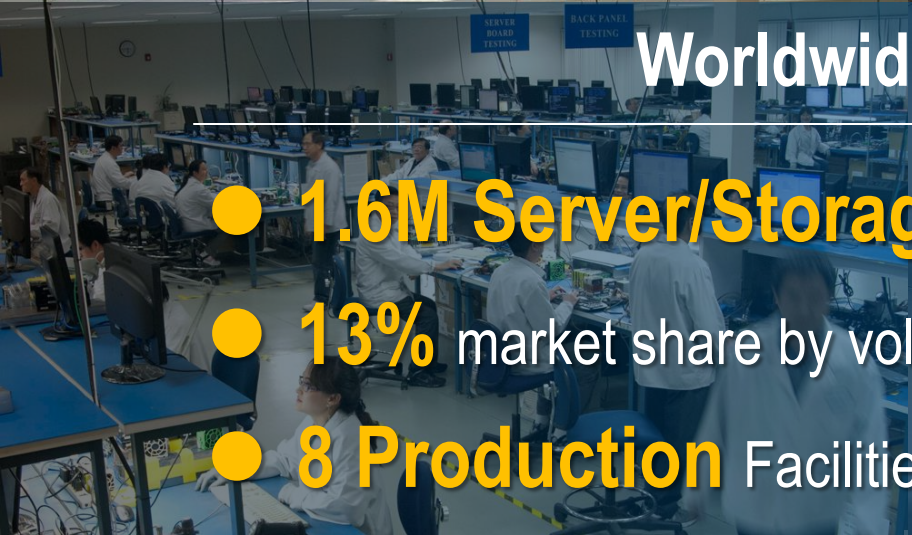
Server/Storage Solutions

Datacenter Deployments

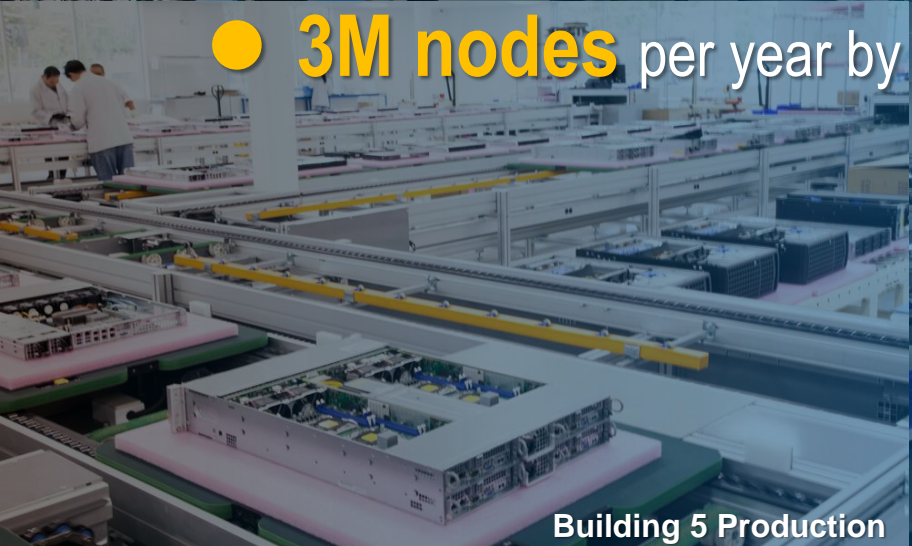
Services

Worldwide Production

- **1.6M Server/Storage nodes** delivered in 2016
- **13%** market share by volume
- **8 Production** Facilities WW
- **3M nodes** per year by end of 2019 (target)



Building 6 Production



Building 5 Production

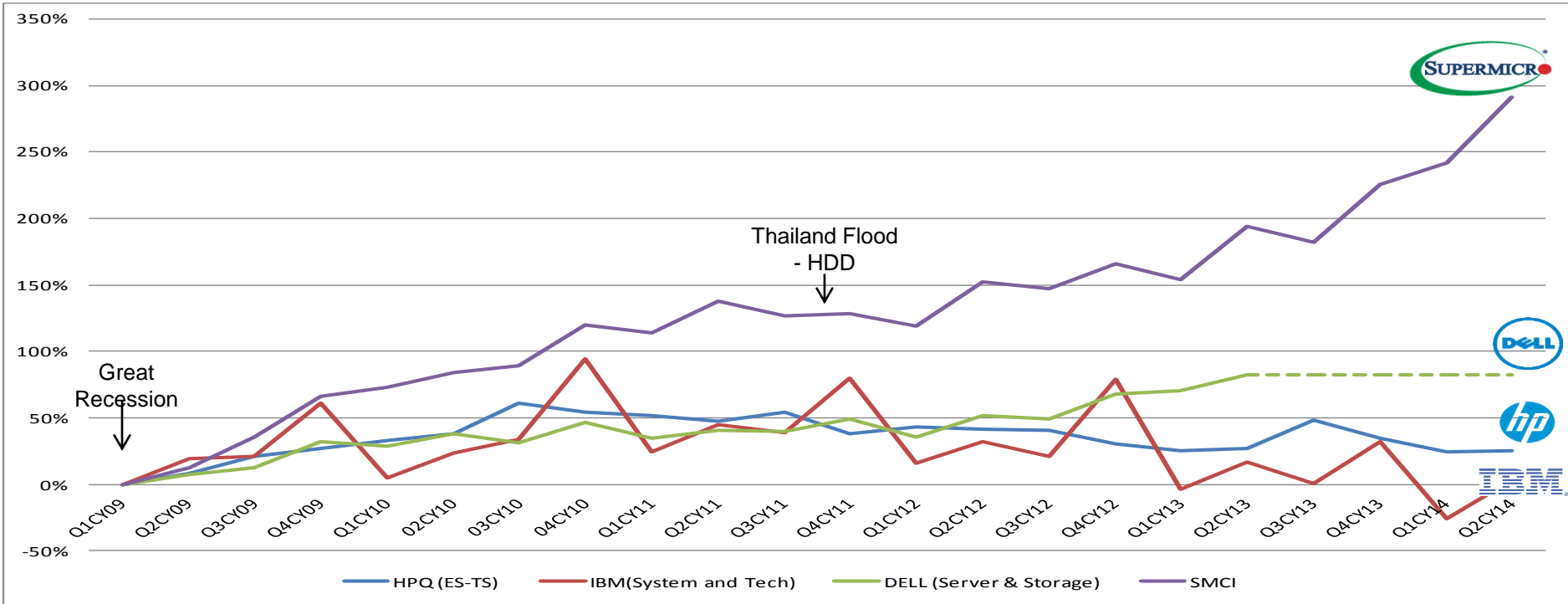


Building 21 Production

Rack & System Optimization

- Design
 - Assemble
 - Configure
 - Test
 - Worldwide Deployment
- 
- A photograph of a server room with several technicians in white lab coats working on server racks. The room is filled with rows of black server racks. A blue lift is visible in the background. The image has a blue tint.

Supermicro Growth Story



Note1 : Quarter revenue growth compared to Q1CY09. Q1CY14 IBM actual and HP based on analysis report. HP has reorganized their business segments in Q4CY13. Dell private. No estimate from Q2CY13

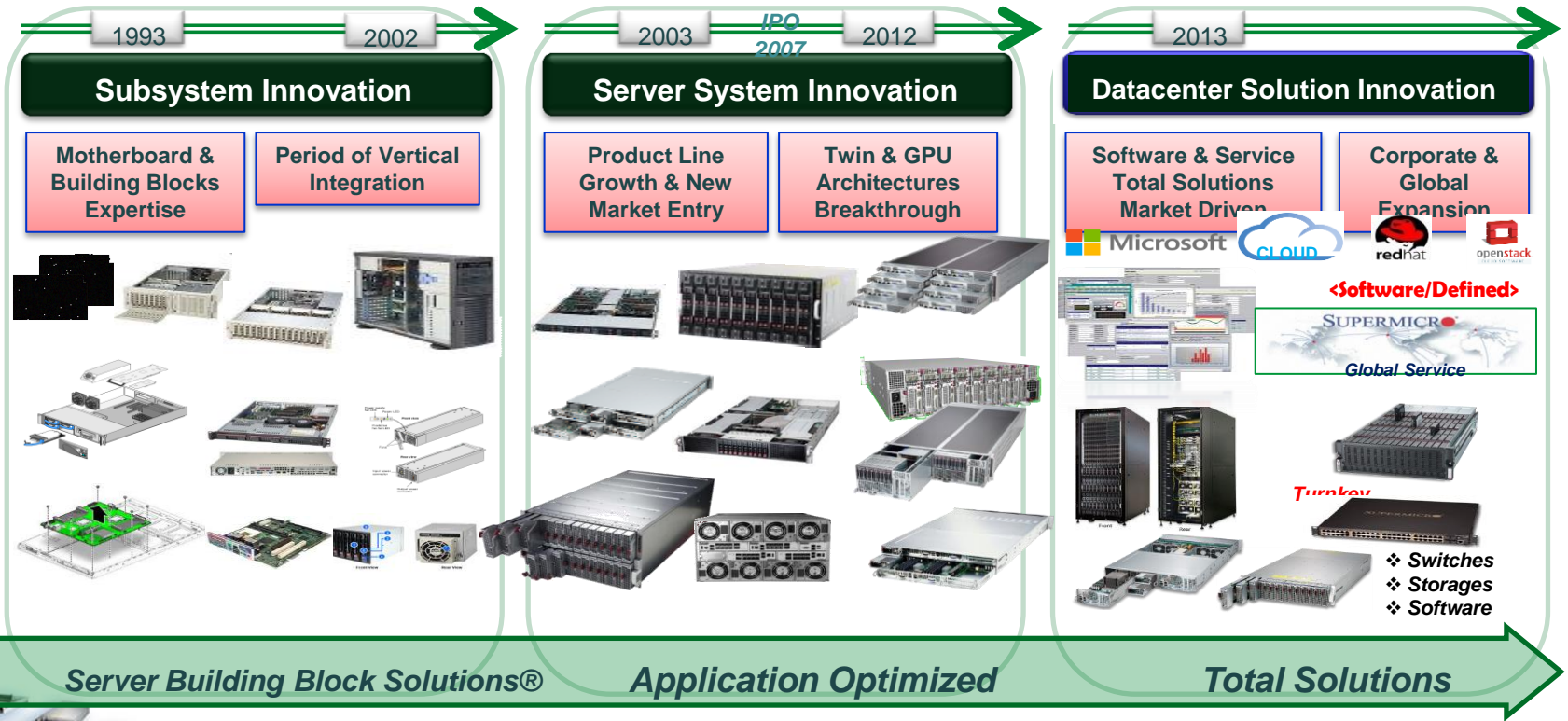


NVMe
SSD
HDD



Supermicro Total Solution Evolution

Leveraging the Expertise, Scale, and Innovations of Every Phase



NVMe

SSD

HDD

HYPER CONVERGENCE



NVMe

SSD

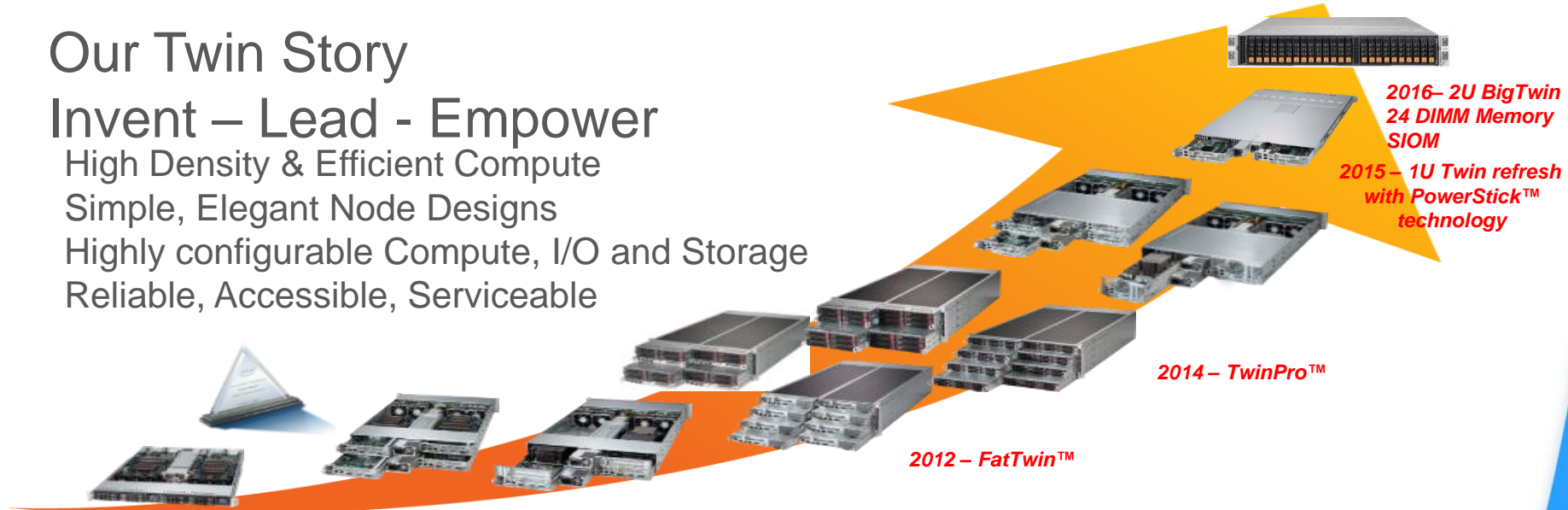
HDD

A Generation of Twin Servers

Our Twin Story

Invent – Lead - Empower

High Density & Efficient Compute
Simple, Elegant Node Designs
Highly configurable Compute, I/O and Storage
Reliable, Accessible, Serviceable



2008 – 1U Twin
DP Twin Architecture Pioneer

2010 – 2U Twin & 2U Twin²

2012 – FatTwin™

2014 – TwinPro™

2015 – 1U Twin refresh
with PowerStick™
technology

2016 – 2U BigTwin
24 DIMM Memory
SIOM

NVMe

SSD

HDD

HYPER CONVERGENCE 2.0



Performance

- Dual Xeon E5 28 Core
- Up to 3TB DDR4-2666 in Memory 24 DIMM per node

Reliable/Service

- 4 hot-swappable Server Nodes
- Redundant hot-swappable Power Supplies

Storage Expansion

- 6 NVMe per node. 2 optional M.2 NVMe/SATA

Network Options

- SIOM for flexible network
- 1G/10G/25G ENet

Scale/Expansion

- 2 PCI-e x16 expansion slots

BigTwin²

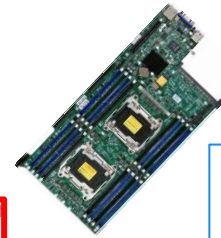


SYS-2029BT-HNR

SYS-2029BT-HTR



2600W/2200W Titanium level power stick module
45X40X480mm



SIOM Network Modules

NVMe

SSD

HDD



Ultra Servers

Versatile



SYS-1028U



SYS-6018U



SYS-2028U



SYS-6028U

Performance

165W CPU
24 DIMM 3TB

Scale

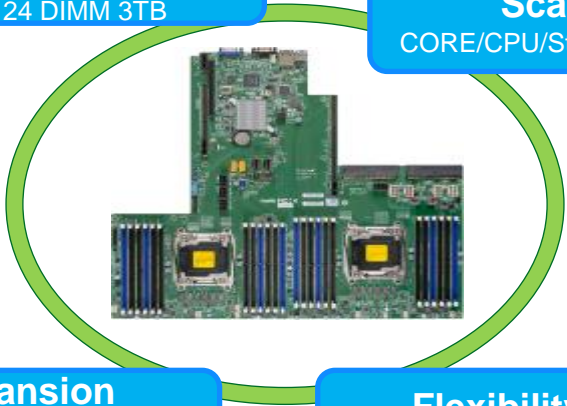
CORE/CPU/Storage/LAN

Expansion

Network : ENet, IB and OPA
Storage: IT/IR/HBA

Flexibility

GPU Acceleration



NVMe

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HDD

Dense and Ultra-Dense Storage Servers

48 All FLASH in 2U

Top-Loading



SSG-6048R-E1CR90L

- 4U 90x Hot-Swap 3.5" 12Gb/s SAS3/SATA3 bays
- Chassis depth: 38.2", 39.96" including CMA
- 8x DIMM Slots (DDR4)
- 2x Rear Hot-Swap 2.5" HDD
- On-board 4x 10Gbps SPF+
- 1 x SIOM module

Simply Double



SSG-2028R-NR48N

SSG-2028R-E1CR48

- All Flash Storage Server
- N/L 2U 48x Hot-Swap 2.5" NVMe bays
- 24x DIMM Slots (DDR4)
- SIOM for flexible networking options



6028R-E1CR12T

- 2U 16x Hot-Swap 3.5" SAS3/SATA3 bays (12Gb/sec)
- 16x DIMM Slots (DDR4)
- Cable-arm for hot-swap access of second row



SSG-6048R-E1CR60 L/N

- 4U 60x Hot-Swap 3.5" SAS3/SATA3 bays (12Gb/sec)
- 6x optional 2.5" NVMe bays
- IT mode LSI 3008 (L-series) / 3108 HW RAID (N-series)
- 24x DIMM Slots (DDR4)
- SIOM for flexible networking options
- Optional front 3.5" LCD display



SSG-6028R-E1CR24 N/L

- 2U 24x Hot-Swap 3.5" SAS3/SATA3 bays (12Gb/sec)
- 4x Optional Hybrid NVMe bays
- 24x DIMM Slots (DDR4)
- SIOM for flexible networking options
- Cable-arm for hot-swap access of second row





Low-Latency Performance Optimization with Supermicro Hyper-Speed Ultra Servers

- The only enterprise-class hardware acceleration solution available
 - HW, BIOS for lockstep system acceleration
 - Unique Hyper-Turbo mode keeps CPU turbo mode maximized and stabilized
 - Proprietary interrupt management system to lower jitter
- Fastest Dual Processor product in the market
 - Up to 3.89GHz (1U)
- Lowest latency/jitter DP product available
- Accelerates PCIe network controllers in lockstep for lowest latency
- Low latency OS tuning guide available



NVMe

SSD

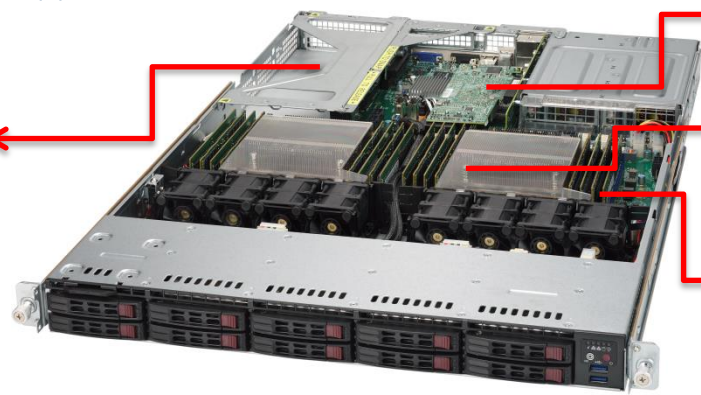
HDD

LL-Optimized Turnkey Solution Contents

Solution includes:

- 2x Screened E5-2643 v4 (12 cores/40 MB L3 cache total) / E5-2687W v4 (24 cores/60 MB L3 cache total) / **E5-2689 V4 (20 cores/50MB L3 cache total)**– Other CPU SKUs available upon request
- 8x Screened DDR4 8GB RDIMM (2400MHz)
- Integrated SAS3 storage card with 2GB cache and optional Supercap
- Supermicro Update Manager (SUM) remote management utility license
- Add up to 3 low-latency NIC(s) and/or Full-sized FPGA/GPU cards

Up to 3 Low-latency NIC



SAS3 HW RAID card with optional Supercap



x2

CPUs pre-accelerated

x8



DDR4 ECC pre-accelerated

CPU	Cores per CPU	Power	Base Freq.	Hyper-Speed Freq.
E5-2689 v4	10	165W	3.1 GHz	3.79 GHz (10 active cores), 3.89 GHz (2 active cores)
E5-2643 v4	6	135W	3.4 GHz	3.69 GHz (6 active cores), 3.79 GHz (2 active cores)
E5-2687W v4	12	160W	3.0 GHz	3.28 GHz (12 active cores), 3.58 GHz (2 active cores)
Memory	Q'ty	Power	Base Freq.	Hyper-Speed Freq.
8 DDR4 ECC Reg	8	1.2V	2400 MHZ	2460 MHZ





GPU Computing

Supermicro Innovation

FORM FACTOR
of Rack Units

1U; 2GPU / 1CPU

1U; 3GPU / 2CPU

1U; 4GPU / 2CPU

2U; 6GPU / 2CPU

4U; 8GPU / 2CPU

GPU / CPU Ratio



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Artificial Intelligence Ecosystem

Application; H/W & S/W Solution Integration

OBJECT DETECTION 	IMAGE CLASSIFICATION 	VOICE RECOGNITION 	LANGUAGE TRANSLATION 	RECOMMENDATION ENGINES 	SENTIMENT ANALYSIS
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AI Software Framework Tools

H₂O.ai **TensorFlow™** **Caffe** **Microsoft CNTK** **Spark MLlib**

AI Software Development Kit

NVMe
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HDD

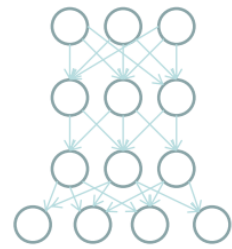


Artificial Intelligence & Machine Learning

Why Is GPU Preferred

	Neural Networks	GPUs
Inherently Parallel	✓	✓
Matrix Operation	✓	✓
Float Operations	✓	✓
Bandwidth	✓	✓

Neural Networks

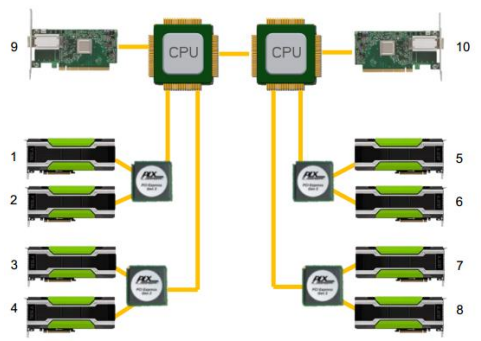


GPUs Deliver:

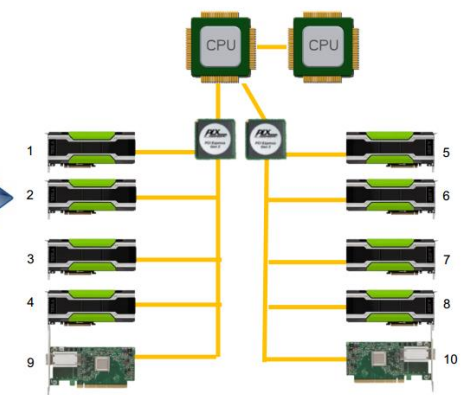
- Same or better prediction accuracy
- Faster results
- Smaller footprint
- Lower power
- Lower cost

Single Root PCI-e Route Design

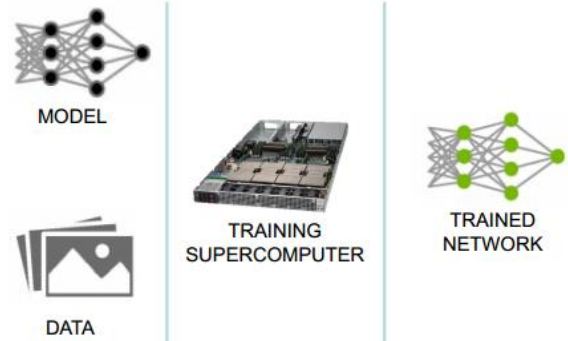
SYS-4028GR-TR(T)



SYS-4028GR-TR(T)2



DEEP LEARNING TRAINING



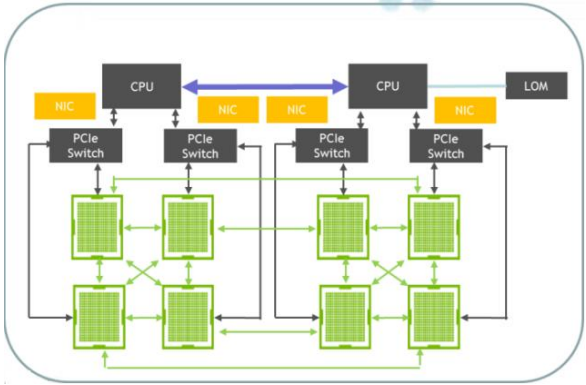
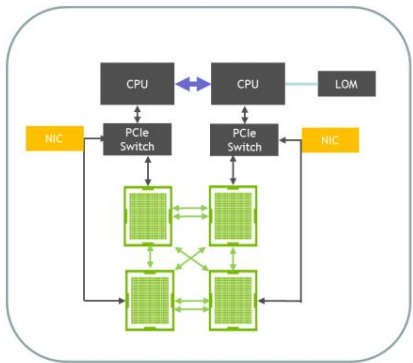
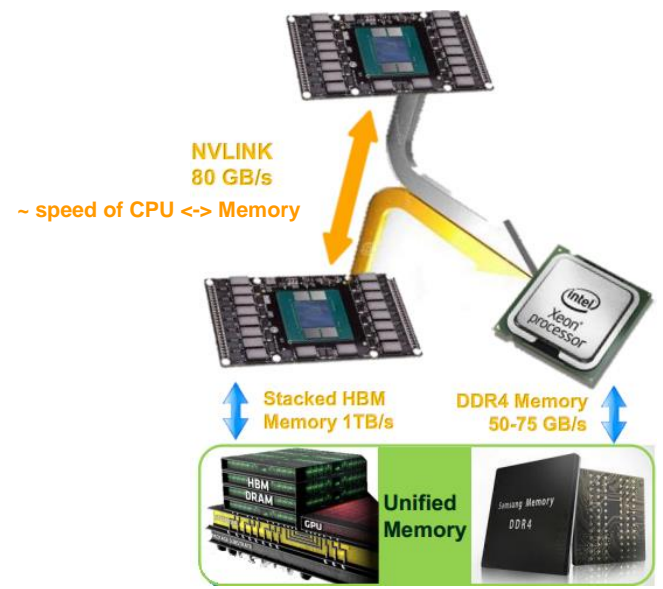
NVMe

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Artificial Intelligence & Machine Learning : nVidia

● nVidia Pascal & NV-Link



NVMe
SSD
HDD

Expanding Ecosystem with Software Partners



NVMe

SSD

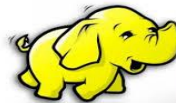
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Supermicro: Vision that Fuels Growth

- **Thought Leader – Trusted Advisor**
 - Close Customer Collaboration
 - e.g. Large Service Providers & Enterprise Leaders for Data Center Deployments and Innovation
- **Capitalize on Expanding Eco-System**
 - Partners
 - Customer Channels
 - Addressable Markets
- **Industry Broadest Portfolio**
 - 1U/2U/3U/4U/5U/6U/7U products that can play seamlessly as Compute, Storage, Networking Services (Image/ Authentication/ Orchestration/ Database/ Telemetry, ...)
- **Turnkey Solutions: Validated / Certified**
 - Span technologies and distro's: VMware, MSFT, OpenStack, Redhat RHEL/CentOS, Mirantis ...
 - Rack Solutions - 14U/42U plug-n-play
- **Open Model – No Conflict of Interests**
 - No competing homegrown Distro's

Infrastructure Investment

- Unified Worldwide Engineering
- Worldwide Logistics
- Worldwide Service



NVMe

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Supermicro Global Foot Print

Main Campus
(San Jose)



Fremont Facility

Worldwide Headquarters

European Operations Center

Asian Technology Park

- Corporate locations (US, Taiwan, Netherlands)
- Local Service & support in more than 70 countries
- Distribution and VAR alliances
- Commitment to help customers get the most optimized HPC, Cloud and Datacenter Solutions





Thank You

www.supermicro.com

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