Hyperscale
The new frontier for HPC

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March 13th, 2011
Hyperscale—the new frontier for HPC

New HPC customer requirements demand a shift in technology and market innovation.

Where IT IS the business

New expectations set

Time to innovation
Reduced cost and power
Improved quality
Response to change
Competitiveness

New innovation is required

Performance
Efficiency
Agility

Driving innovation and competitiveness in science, engineering, and analysis
Transforming the Server Industry in 100 Days

**Project Moonshot**
Delivering the future of extreme low-energy computing

Announced Nov. 1, 2011

**Project Odyssey**
Redefining the future of mission-critical systems

Announced Nov. 22, 2011

**Project Voyager**
Redefining the expectations and economics of data centers

Announced Feb. 13, 2012
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A New Era of Extreme Scale Computing

From tens of servers per rack sharing little to thousands sharing everything

HP Project Moonshot Infrastructure

HP ‘Redstone’

HP Discovery Lab

HP Pathfinder Program

Available 1H 2012

Opening 1H 2012

Available

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HP ‘Redstone’ Server Development Platform

Perfect for development and testing with unparalleled density, flexibility, and simplicity

**ProLiant SL6500 chassis**

- Up to 72 servers in a single 1U tray
- 4 trays in a single 4U chassis

**HP ‘Redstone’ Development Platform server tray**

- Up to 288 servers—18 quad node compute cartridges per server tray
  - Calxeda EnergyCore™ quad-core ARM SoCs w/4MB L2 cache
  - Up to 4GB ECC (up to 1333mhz) memory per server
  - Integrated management

Shared SL6500 scalable system enclosure
- Pooled power—4 common slot power supplies
- Shared cooling—8 shared fans, N+1, rear-serviceable
- Integrated, configurable network fabric with up to 16 10Gb uplinks

Shared and configurable storage
- Diskless or up 4 SATA drives (1 drive cartridges) per server
- Up to 192 SSD or 96 2.5” SFF HDD per enclosure

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Industry’s most complete portfolio for HPC

Workload optimized, engineered for any demand

ProLiant DL Family
Versatile, rack-optimized servers with a balance of efficiency, performance and management

ProLiant BL Family
Cloud-ready converged infrastructure engineered to maximize every hour, watt and dollar

ProLiant SL Family
Purpose built for the world’s most extreme data centers
“HP's integrated system portfolio (and new initiatives like Moonshot, Voyager and Odyssey) build on the BladeSystem architecture, creating arguably the most comprehensive blade-based portfolio in the industry.”

Source: Gartner Magic Quadrant for Blade Servers
March, 2012
ID Number: G00225510
HP eliminates the barriers to scale

HP ProLiant Gen8 systems driven new levels of performance, efficiency and agility

Next gen performance with SL200s Gen8
The ProLiant SL200s Gen8 portfolio, purpose-built for HPC, enables scientific and engineering innovation

Integrated accelerators for explosive growth in performance
Family of integrated accelerator offerings enables explosive growth in performance and efficiency

New levels of scalability with FDR InfiniBand
Mellanox 56 Gb/s FDR InfiniBand establishes the basis for new levels of performance and scalability
Modular Configurations to Meet Any Requirement

Mix and match within the shared SL6500 chassis

Balanced HPC GPU Performance = Balanced CPU/GPU for extreme HPC applications

Scalable HPC Performance = Maximum compute and I/O performance for dense HPC environments
Demonstrating the value of SL6500 servers

Built on ProActive Insight Architecture

### SL230s
- **Purpose-built** for HPC performance at scale
- Up to 1 integrated GPU or I/O Accelerator
- **Maximum speed** FDR IB FlexibleLOM
- **Multi-node** density and efficiency
- Enhanced, simple front serviceability
- Rack level power management
- Industry Leading Mgmt with Insight Control*

### SL250S
- **Purpose-built** for HPC performance at scale
- Up to 3 integrated GPUs
- **Maximum speed** FDR IB FlexibleLOM
- **Multi-node** density and efficiency
- Enhanced, simple front serviceability
- Rack level power management
- Industry Leading Mgmt with Insight Control*
Introducing HP ProLiant SL230s & SL250s Gen8
Built on ProActive Insight Architecture

What’s New

Integrated Lifecycle Automation
• Enhanced performance and quality of service with HP Active Health and Agentless Management

Dynamic Workload Acceleration
• 33% more memory capacity, 25% greater performance at full capacity with HP Smart Memory
• Increased storage performance with SSD-optimized PCIe-gen3–based Smart Array Controllers

Automated Energy Optimization
• Energy optimized technology, with 3D Sea of Sensors, automated power discovery, rack level power management and new 94% Platinum Plus power supplies

Proactive Service and Support
• Quality of service innovations such as Smart Socket guides and Smart Drives

Purpose-built Design for HPC
• Expanded application accelerator support with optional NVIDIA Tesla GPUs and PCIe IO Accelerators
• Over 30% increased InfiniBand performance with PCI-e gen3 and Mellanox CX3 Flexible LOM
Integrated HPC solutions

HP Unified Cluster Portfolio: The world’s first Converged Infrastructure for HPC
Airbus HPC data center transformation with HP POD

Deploying the world’s largest industrial supercomputer,* in a modular data center

Performance, efficiency, and agility via a Converged Infrastructure for HPC

Scalable performance
- Doubling usable supercomputing power for advanced research and engineering
- HP Cluster Platform 3000BL with 2,016 HP ProLiant BL280c G6 servers, and QDR InfiniBand

Maximum efficiency
- 40% less power than traditional data centers, with a PUE of only 1.25
- Nearly 1,000 m2 of data center space in two 40 ft. (12 m) modular data centers

Instant-On Agility
- Fully deployed in 4 months

* At the time it was deployed, per the TOP500 list of June’11, www.top500.org
Expert design, deployment, and support
Designed-in expertise; dedicated design and support services

**ISV Engineering**
- Dedicated ISV Engineering Team
- Qualification and characterization lab

**Scale Out Select**
- Scale Out Select Support Team
- Fixed/Flexible Care Packs – or Per Data Center

**HPC Consulting**
- Cluster Quickstart
- On-site integration
- HPC Training
- Regional competency centers

**HP Financial Services**
- Leasing, Asset Recovery, Refresh
- Selective “Shared Risk” Instruments Available for Service Providers

**Critical Facility Services**
- Facility & technology assessment services
- Facility design, programming & cost modeling
- Commissioning & testing
Change ready architectures & systems

Industry standard servers

38% x86 market share
61 quarters of leadership

50% x86 blade share—more than IBM, Dell & Cisco combined
43% of virtualized x86 servers

Modular data centers

89% less energy
94% less space
97% less complexity

Extreme low-energy servers

up to 88% faster deployment
75% capex savings
95% less facilities energy

Only HP has the technology and capability to deliver the future
ACCELERATE Innovation with HP

HP delivers high-performance innovation at any scale.

Scalable performance
Speed advancements with a converged infrastructure, purpose-built for scale.

Maximum efficiency
Optimize your performance footprint with the world’s most efficient systems.

Instant-On Agility
Deploy easily, adapt quickly to change, and improve quality.