Your Gateway to HPC simplicity

FUJITSU x86 HPC Cluster
FUJITSU HPC Platforms: PRIMERGY and CELSIUS
Fujitsu x86 Server

Exhibit in the booth

- PRIMERGY CX400 S1 Multi-Node System
- Scale-Out Smart for HPC and Cloud Computing
PRIMERGY CX400 (CX250 S1 / CX270 S1)

High Density / Scalability in 2U

- Up to 4 nodes **CX250 S1** (1U)
- Or Up to 2 nodes **CX270 S1** (2U)
  - 2x Intel® Xeon® E5-2600 processors / node
- 16 DIMMs, up to 1600MHz
- Up to 12x 3.5” or 24x 2.5” HDD
- FDR Infiniband
- 1x GPGPU Option within CX270 S1 (2U node)
Offers an HPC Cluster “in a box” in 6U

- 2x Intel® Xeon® E5-2600 processors / blade
- Up to 8 different types of server and storage blades
- FDR Infiniband
- Certified for Schlumberger Eclipse application
- Ideal for Midmarket (w/o Rack infrastructure)
PRIMERGY BX900 S2 / BX924 S3

Top blade density and top I/O bandwidth in 10U

- 2x Intel® Xeon® E5-2600 processors / blade
- Up to 18 different types of server and storage
- FDR Infiniband

HPC Usage Scenarios

- Head Node
- Compute Node
- HPC Cluster in a Box
- In-build nodes + Storage
PRIMERGY RX200 S7

Maximum productivity in a 1U
- 2x Intel® Xeon® E5-2600 processors / node
- 24 DIMMs with up to 768GB DDR3, 1600MHz
- Up to 8 HDD
- FDR Infiniband
PRIMERGY RX300 S7

Versatile power house in 2U
- 2x Intel® Xeon® E5-2600 processors / node
- 24 DIMMs with up to 768GB DDR3, 1600MHz
- Up to 16 HDD
- FDR Infiniband

HPC Platforms  HPC Cluster Suite  FEFS(Luster)

HPC Usage Scenarios
- Head Node
- Compute Node
- Fileserver Node
- Login Node
With big Storage capacity and GPGPU in 4U

- 2x Intel® Xeon® E5-2600 processors / node
- 2x NVIDIA® Tesla™ GPGPU’s - K20 or K20X each with up to 2688 cores
- Up to 24 DIMMs with 768 GB memory, 1600MHz
- Up to 24 HDD
- LTO drives
- FDR Infiniband

HPC Usage Scenarios

- Head Node
- Compute Node
- Fileserver Node
- Accelerator Card Node
Support Xeon Phi and Kepler

- Xeon Phi 5110P
  - 60 cores / 1.053GHz / 240 threads
  - Up to 1 teraflops double-precision

- NVIDIA K20 / K20X (Kepler)
  - Up to 2688 cores / CPU clock 732 MHz
  - Up to 1.32 teraflops double-precision

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HPC Platforms | HPC Cluster Suite | FEFS(Luster)

RX350 S7
- 2x / Node
- Available

CX400 S2 / CX270 S2
- 1x / CX270
- 2x / CX400
- From Q3/2013

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Key Specifications:
- 60 cores/1.053 GHz/240 threads
- Up to 1 teraflops double-precision peak performance
- 8 GB memory and up to 320 GB/s bandwidth
- Supported by the latest Intel® software development products
- 512-bit wide vector engine
- 32 KB L1 I/D cache, 512 KB L2 cache (per core)
- 245W TDP
- x16 PCIe form factor (requires IA host)
  - Double wide, full height, full length cards

Ideal for:
- Highly parallel applications using over 100 threads
- Memory bandwidth-bound applications
- Applications with extensive vector use
CELSIUS C620 – for HPC

Product description

- 1U Rack-Mount workstation
- Highest performance packed in only one unit
- Optimal for High Performance Computing and Remote CAD, CAE, DCC, Visualization
- Certified for CAD and DCC workstation applications

Technology

- Intel® Xeon® E3-12xx v2 or Core™ i3 processor
- Intel® C216 chipset
- Intel® vPro™ technology / iAMT 8.0
- Integrated graphics or up to high-end 3D graphics / GPGPU, (Xeon Phi coming soon)
- Up to 32 GB DDR3 ECC memory
- iAMT or IPMI system management
CELSIUS R920 – for HPC

Product description
- For high-end CAE, EDA, DCC, VR/VIS, Simulation and Geosciences
- Certified for all leading CAD/CAE and DCC workstation applications
- ENERGY STAR® 5.0 compliant
- Full remote system management with Intel® vPro™
- Dynamic USB security – HW-based USB access control
- Optimized thermal management for best-in-class noise emission of just 23 dB(A)

Technology
- Up to two Intel® Xeon® E5-2600 processors
- Intel® C602 chipset
- Up to 3 ultra-high-end graphics cards, 2 GPUs, Xeon Phi coming soon
- Up to 512 GB DDR3 ECC memory
FUJITSU software HPC Cluster Suite
Brings Simplicity to HPC

- Software choices on the market are wide and varied
- Easy configuration control and cluster extension

Complex and difficult

Improved TCO

Improved Quality
Reduced IT Cost
Shortened Delivery

Simple and Validated
Comprehensive and flexible HPC solution

- **Comprehensive software stack**
  - Popular workload managers
  - General HPC Open Source Software
  - Alliance with leading ISVs
  - Highly scalable parallel file systems
  - Graphical interface simplifies usage

- **Fully validated HPC solution**
Clear benefits from “Standardized” HPC solution

- Optimal application configuration
- Immediate system readiness and faster deployment
- Simplifies HPC usage and management
- Dramatically reduce cluster purchasing complexity
  - Delivered with Intel® Cluster Ready
    - Accelerate your cluster deployment timeline
    - “Quality assurance” for your cluster purchase

Highly Optimized performance
Simplified operation
Reduced TCO
Ease of use

Intel® Cluster Ready

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HPC Gateway value proposition

- Access expertise in application methods without the IT pain
- Direct visibility on processes and experiments
- Traceability for assured and secure operations
- Scalable and Agile resources usable from single view
HPC Gateway for CAE

Providing domain expertise in-built for HPC Solutions to vertical sectors

- Toolset for computation and visualisation
- Proven application workflow methods

- Information organisation and sharing
- Audit, reporting and billing

HPC Platforms | HPC Cluster Suite | FEFS(Luster)
Strong relationship

HPC Platforms  HPC Cluster Suite  FEFS(Luster)
FUJITSU software FEFS
FEFS - Scalable parallel file system (optional)

- Highly scalable and easy-to-install parallel file system based on Lustre

**High-speed & large-scale**
- Enable high-speed parallel processing
  - write 965 GB/s  read 1486 GB/s
- Very large-scale file systems with up to 8 Exabyte(EB)

**Feature differentiations**
- Extended File system size limitation
  - Max size
    - FEFS: 8EB
    - Lustre: 64PB
    - FEFS: 8EB
    - Lustre: 320TB
- Directory level quotas
- Fair share I/O (QoS)

**Reliability differentiations**
- Fully validated with HPC Cluster Suite
- Configuration files automatically
- Built-in High Availability
- Additional Bug fixed
FEFS with : DDN Read performance (MiB/s)

DDNSFA12K-FEFS

18.4GiB/s
FEFS with : DDN Write performance (MiB/s)

DDNSFA12K-FEFS

14.0GiB/s