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Thank you!

Thank you for downloading one of our ANSYS whitepapers – we hope you enjoy it.

Have questions? Need more information?

Please don't hesitate to contact us! We have plenty more where this came from.



Sales



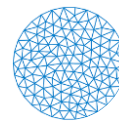
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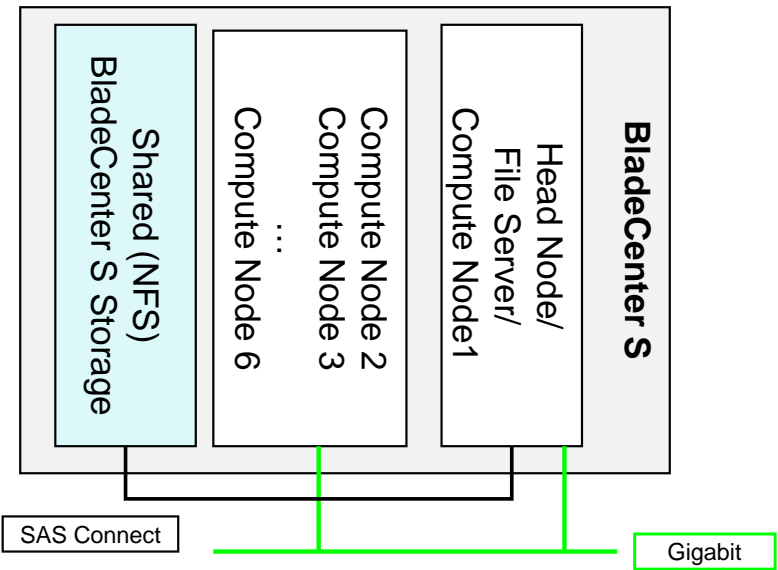
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Channel Partner & Distributor

Recommended HW Configurations for ANSYS Fluent 14.0 – small (two-socket based servers)

Target Audience: Small number of users running several single node jobs, each up to a few million cells



OS Supported

LINUX: SuSe and RedHat
Windows: Windows HPC Server 2008 R2

Actual number of nodes and memory per node depend on individual customer situation

System Configuration

Head Node/File Server: One HS22 Blade
Compute Nodes: 5 HS22 Blades
Total nodes: 6
Total Number of cores: 72
Total Memory (GB): 288
Management network: Ethernet (Gigabit)
Compute Network: none
Storage Network: SAS
File System: NFS over Ethernet (Gigabit)

Head Node Configuration

Number of Nodes: One HS22 Blade
Processor: Xeon X5675 3.06 GHz
Processors/node: 2
Cores/processor: 6
Cores/node: 12
Memory (GB): 48
Network: Ethernet Gigabit
File System: NFS over Ethernet (Gigabit)
Head Node doubles up a Compute Node, Remote Boot Server, and File Server

Network Configuration

Gigabit: System Management
Network File System

Compute Node Configuration

Number of Nodes: 5 HS22 Blades
Processor: Xeon X5675 3.06 GHz
Processors/node: 2
Cores/processor: 6
Cores/node: 12
Memory/node (GB): 48
Total Compute Cores: 60
Total memory (GB): 240
Local disk: OS only or diskless
Network: Ethernet (Gigabit)
File System: NFS over Ethernet (Gigabit)
Remote boot up from head node

Storage Configuration

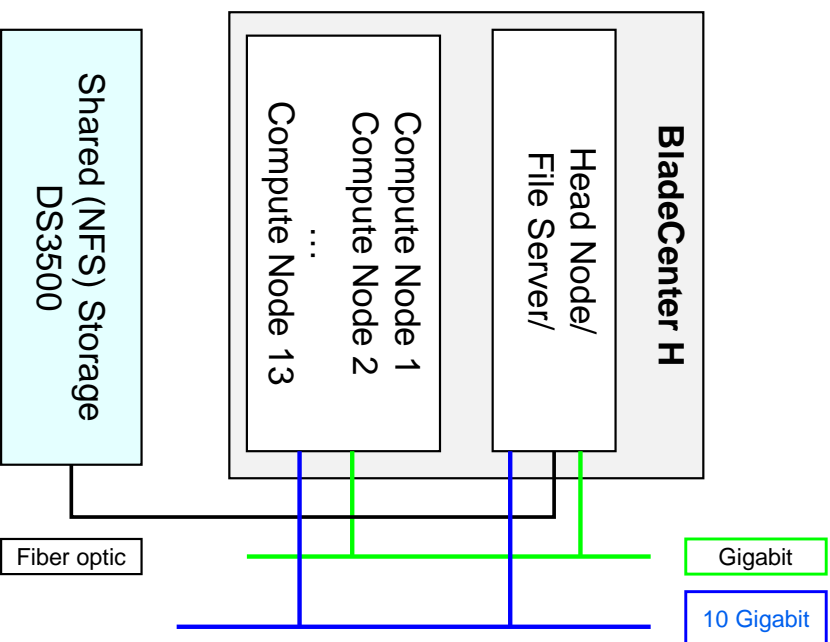
Disk System: BladeCenter S Storage
Disk: 2TB 7.2K
Number of disks: 12
Total storage size (TB) 24
Host Connectivity: SAS
Client Connectivity: Ethernet (Gigabit)

Access to the System

Users Interact the with the cluster by submitting jobs directly or through ANSYS Remote Simulation Manager from their desktop

Recommended HW Configurations for ANSYS Fluent 14.0 – medium (two-socket based servers)

Target Audience: Several users running single/multi-node jobs, each up to several million cells, or one large job using all blades



OS Supported
 LINUX: SuSe and RedHat
 Windows: Windows HPC Server 2008 R2

Actual number of nodes and memory per node depend on individual customer situation

System Configuration

Head Node/File Server: One HS22 Blade
 Compute Nodes: 13 HS22 Blades
 Total nodes: 14
 Total Number of cores: 168
 Total Memory (GB): 672
 Management network: Gigabit
 Compute Network: 10 Gigabit
 Storage Network: Fiber
 File System: NFS on Ethernet (10 Gigabit)

Head Node Configuration

Number of Nodes: One HS22 Blade
 Processor: Xeon X5675 3.06 GHz
 Processors/node: 2
 Cores/processor: 6
 Cores/node: 12
 Memory (GB): 48
 Local disk: diskless
 Networks: Ethernet (Gigabit, 10 Gigabit)
 File System: NFS over Ethernet (10 Gigabit)
 Head Node doubles up a Compute Node, Remote Boot Server, and File Server

Compute Node Configuration

Number of Nodes: 13 HS22 Blades
 Processor: Xeon X5675 3.06 GHz
 Processors/node: 2
 Cores/processor: 6
 Cores/node: 12
 Memory/node (GB): 48
 Total Compute Cores: 156
 Total memory (GB): 624
 Local disk: diskless
 Networks: Ethernet(Gigabit, 10 Gigabit)
 File System: NFS over Ethernet (10 Gigabit)
 Remote boot up from head node

Storage Configuration

Disk System: DS3500
 Disk: 2TB 7.2K
 Number of disks: 24
 Total storage size (TB) 48
 Host Connectivity: Fiber
 Client Connectivity: Ethernet (10 Gigabit)

Network Configuration

Gigabit: System Management
 10-Gigabit Compute Nodes
 Network File System

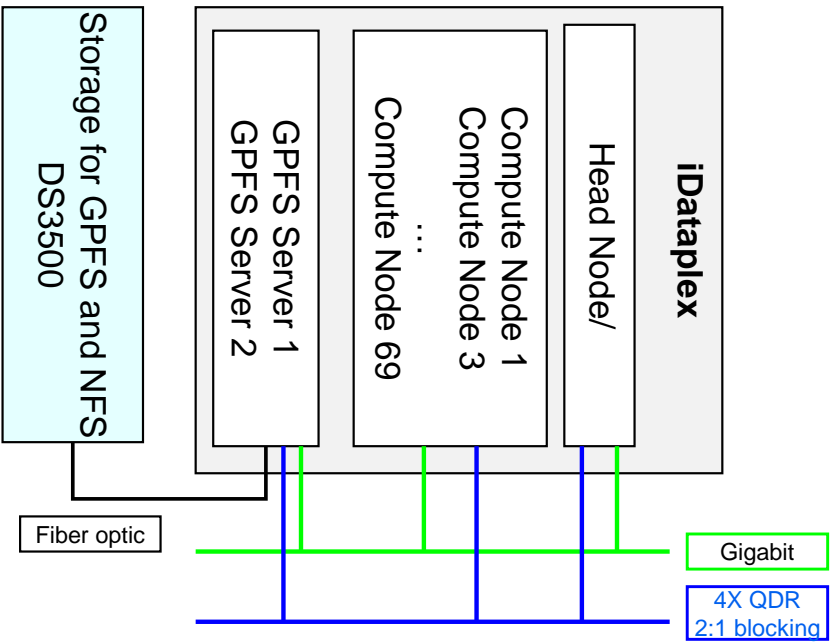
Access to the System

Users Interact the with the cluster by submitting jobs through ANSYS Remote Simulation Manager from their desktop

BladeCenter H with 10-Gigabit network has excellent scalability: On 16 nodes ANSYS Fluent runs ~14 times faster than a single node run

Recommended HW Configurations for ANSYS Fluent 14.0 – large (two-socket based servers)

Target Audience: Large number of users running several multi-node jobs, each up to hundred million cells, or one extreme-scale job



OS Supported
 LINUX: SuSe and RedHat
 Windows: Windows HPC Server 2008 R2

Actual number of nodes and memory per node depend on individual customer situation

System Configuration

Head Node/File Server: One dx360 M3
 Compute Nodes: 69 dx360 M3 nodes
 GPFS Server Nodes: 2
 Total nodes: 72
 Total Number of cores: 864
 Total Memory (GB): 3456
 Management network: Gigabit
 Compute Network: 4X QDR Infiniband 2:1 Blocking
 Storage Network: Fiber
 File System: GPFS (Infiniband), NFS over Ethernet (Gigabit)

Compute Node Configuration

Number of Nodes: 69 dx360 nodes
 Processor: Xeon X5675 3.06 GHz
 Processors/node: 2
 Cores/processor: 6
 Cores/node: 12
 Memory/node (GB): 96
 Total Compute Cores: 828
 Total memory (GB): 3312
 Local disk: diskless or OS only
 Networks: Gigabit, Infiniband
 File System: NFS over Ethernet (Gigabit) GPFS over Infiniband
 Remote boot up from head node

Head Node Configuration

Number of Nodes: One dx360 M3
 Processor: Xeon X5675 3.06 GHz
 Processors/node: 2
 Cores/processor: 6
 Cores/node: 12
 Memory (GB): 48
 Network: Fiber, Gigabit, Infiniband
 File System: NFS over Ethernet (Gigabit) GPFS over Infiniband
 Head Node doubles up as a Remote Boot Server

Storage Configuration

Disk System: DS3500
 Disk: 2TB 7.2K
 Number of disks: 48
 Total storage size (TB): 96
 Host Connectivity: Fiber
 GPFS Servers: Two dx360 nodes
 Processor: Xeon X5675 3.06 GHz
 Cores/Node: 12
 Memory/Node(GB): 96
 Networks: Gigabit, Infiniband

Access to the System

Users interact the with the cluster by submitting jobs through ANSYS Remote Simulation Manager from their desktop

Network Configuration

Gigabit: System Management
 Infiniband: Network File System
 Compute Nodes
 GPFS File System

iDataplex with Infiniband network has excellent scalability: On 64 nodes ANSYS Fluent runs ~49 times faster than a single node run

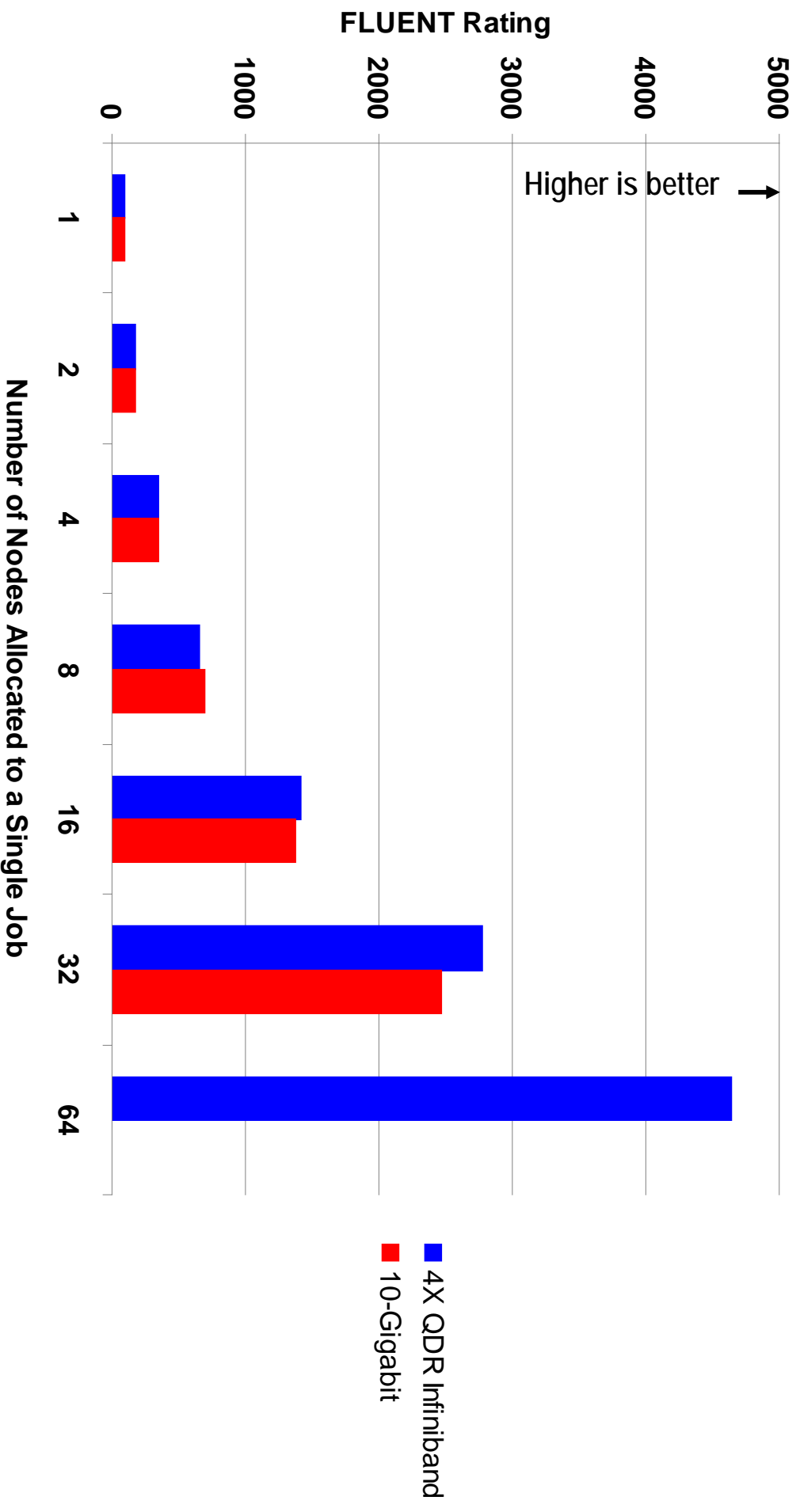
ANSYS/FLUENT Performance

iDataplex M3 (Intel Xeon x5670, 6C 2.93 GHz)

Network: 10-Gigabit, 4X QDR Infiniband

Hyperthreading: OFF, TURBO: ON

Models: truck_14M



ANSYS Fluent scales well on IBM iDataplex clusters achieving a speed-up of ~49 times on a 64-node cluster with 4X QDR Infiniband interconnect over single node performance. With this scale of productivity improvement customers can now expect overnight turnaround for job which took weeks to complete on a single node.