**Gateway**

GW2000h-GW170hq (Intel Xeon X5570, 2.93 GHz)  

**SPECmpiM_base2007 = 14.2**

**MPI2007 license:** 4113  
**Test date:** Mar-2011  
**Test sponsor:** Fraunhofer SCAI  
**Hardware Availability:** Jan-2010  
**Tested by:** Steffen Claus  
**Software Availability:** Aug-2010  

---

**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Ranks</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>104.milc</td>
<td>64</td>
<td>101</td>
<td>15.4</td>
<td>101</td>
<td>15.5</td>
</tr>
<tr>
<td>107.leslie3d</td>
<td>64</td>
<td>369</td>
<td>14.1</td>
<td>368</td>
<td>14.2</td>
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<tr>
<td>113.GemsFDTD</td>
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<td>278</td>
<td>22.7</td>
<td>277</td>
<td>22.8</td>
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<tr>
<td>115.fds4</td>
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<td>156</td>
<td>12.5</td>
<td>156</td>
<td>12.5</td>
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<tr>
<td>121.pop2</td>
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<td>10.7</td>
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<td>10.6</td>
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<tr>
<td>122.tachyon</td>
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<td>9.50</td>
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<td>126.lammps</td>
<td>64</td>
<td>281</td>
<td>10.4</td>
<td>281</td>
<td>10.4</td>
</tr>
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<td>127.wrf2</td>
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<td>334</td>
<td>23.3</td>
<td>334</td>
<td>23.3</td>
</tr>
<tr>
<td>128.GAPgeofem</td>
<td>64</td>
<td>133</td>
<td>15.5</td>
<td>133</td>
<td>15.5</td>
</tr>
<tr>
<td>129.tera_tf</td>
<td>64</td>
<td>257</td>
<td>10.8</td>
<td>257</td>
<td>10.8</td>
</tr>
</tbody>
</table>

Table continues on next page. Results appear in the order in which they were run. Bold underlined text indicates a median measurement.
### Gateway

GW2000h-GW170hq (Intel Xeon X5570, 2.93 GHz)

**SPECmpiM_peak2007 = Not Run**

**SPECmpiM_base2007 = 14.2**

**MPI2007 license:** 4113

**Test sponsor:** Fraunhofer SCAI

**Tested by:** Steffen Claus

**Test date:** Mar-2011

**Hardware Availability:** Jan-2010

**Software Availability:** Aug-2010

### Results Table (Continued)

| Benchmark | Base | | | | | | Peak | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Ranks | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Ranks | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 130.scorro | 64 | 231 | 16.5 | 231 | 16.5 | | | | | | | | |
| 132.zeusmp2 | 64 | 204 | **15.2** | 205 | 15.2 | | | | | | | | |
| 137.lu | 64 | 240 | 15.3 | **238** | **15.4** | | | | | | | | |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

### Hardware Summary

- **Type of System:** Homogeneous
- **Compute Node:** Gateway GW2000h
- **Interconnects:** Infiniband Switch, Ethernet Switch
- **Total Compute Nodes:** 8
- **Total Chips:** 16
- **Total Cores:** 64
- **Total Threads:** 64
- **Total Memory:** 192 GB
- **Base Ranks Run:** 64
- **Minimum Peak Ranks:** --
- **Maximum Peak Ranks:** --

### Software Summary

- **C Compiler:** Intel C++ Compiler 11.1 for Windows (11.1.067)
- **C++ Compiler:** Intel C++ Compiler 11.1 for Windows (11.1.067)
- **Fortran Compiler:** Intel Fortran Compiler 11.1 for Windows (11.1.067)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 64-bit
- **MPI Library:** MS MPI Version 4.0 Update 1 Build 8/18/2010
- **Other MPI Info:** --
- **Pre-processors:** No
- **Other Software:** --

### Node Description: Gateway GW2000h

#### Hardware

- **Number of nodes:** 8
- **Uses of the node:** compute
- **Vendor:** Gateway
- **Model:** GW2000h-GW170hq
- **CPU Name:** Intel Xeon X5570 @ 2.93 GHz
- **CPU(s) orderable:** 1-2 chips
- **Chips enabled:** 2
- **Cores enabled:** 8
- **Cores per chip:** 4
- **Threads per core:** 1
- **CPU Characteristics:** --
- **CPU MHz:** 2930
- **Primary Cache:** 32 KB I + 32 KB D on chip per core
- **Secondary Cache:** 256 KB I+D on chip per core
- **L3 Cache:** 8 MB I+D on chip per chip, 8 MB shared / 4 cores
- **Other Cache:** None
- **Memory:** 24 GB
- **Disk Subsystem:** --
- **Other Hardware:** None
- **Adapter:** Intel 82574L Gigabit Network Connection
- **Number of Adapters:** 2
- **Slot Type:** onboard
- **Data Rate:** Gigabit Ethernet
- **Ports Used:** 1

### Software

- **Adapter:** Intel 82574L Gigabit Network Connection
- **Adapter Driver:** --
- **Adapter Firmware:** --
- **Adapter:** Mellanox Technologies MT26418
- **Adapter Driver:** Mellanox WinOF (v. 2.1.2)
- **Adapter Firmware:** 2.7.200
- **Operating System:** Windows HPC Server 2008 R2 Service Pack 1
- **Local File System:** --
- **Shared File System:** Network shared Ramdisk
- **System State:** --
- **Other Software:** --
Gateway

GW2000h-GW170hq (Intel Xeon X5570, 2.93 GHz)

SPECmpiM_peak2007 = Not Run
SPECmpiM_base2007 = 14.2

MPI2007 license: 4113
Test sponsor: Fraunhofer SCAI
Tested by: Steffen Claus

Node Description: Gateway GW2000h

Interconnect Type: Ethernet
Adapter: Mellanox Technologies MT26418
Number of Adapters: 1
Slot Type: onboard
Data Rate: QDR
Ports Used: 1
Interconnect Type: InfiniBand

Interconnect Description: InfiniBand Switch

Hardware
Vendor: Mellanox
Model: MTS3600
Switch Model: Mellanox MTS3600
Number of Switches: 1
Number of Ports: 36
Data Rate: QDR
Firmware: EFM_PPC_405EX
Topology: Single switch
Primary Use: MPI traffic

Software

Interconnect Description: Ethernet Switch

Hardware
Vendor: Extreme Networks
Model: Summit
Switch Model: Summit X450-24 t
Number of Switches: 1
Number of Ports: 24
Data Rate: Gigabit Ethernet
Firmware: ExtremeWare XOS 11.4.3.4 v1143b4
Topology: Single Switch
Primary Use: CIFS traffic

Software

Submit Notes

The config file option 'submit' was used.

General Notes

MPI startup command:
mpiexec command was used to start MPI jobs. This command starts
an independent ring of mpd daemons, launches an MPI job, and shuts
down the mpd ring upon the job termination.

Continued on next page
Gateway
GW2000h-GW170hq (Intel Xeon X5570, 2.93 GHz)

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Test sponsor: Fraunhofer SCAI
Tested by: Steffen Claus
Test date: Mar-2011
Hardware Availability: Jan-2010
Software Availability: Aug-2010

General Notes (Continued)

Batch system:
The internal Job Scheduler of Windows HPC Server 2008 was used.

BIOS settings:
Intel Hyper-Threading Technology (SMT): Disabled (default is Enabled)
Intel Turbo Boost Technology (Turbo) : Enabled (default is Enabled)

RAM configuration:
Compute nodes have 6x4-GB dual rank DDR3-1333 RAM.
Head node has 4x2GB single rank DDR2-667 RAM.

Network:
Windows HPC Server topology no. 3. Head node and all compute nodes are interconnected
by 1GB Ethernet and QDR Infiniband. Each interconnect type has one single switch.

Base Compiler Invocation

C benchmarks:
icl

C++ benchmarks:
126.lammps: icl

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icl ifort

Base Portability Flags

115.fds4: /DSPEC_MPI_UC_NO_TRAILING_UNDERSCORE /fpscomp:general
121.pop2: /DSPEC_MPI_WINDOWS_ICL
127.wrf2: /DSPEC_MPI_WINDOWS_ICL /DSPEC_MPI_COMM_F2C /DSPEC_MPI_CASE_FLAG /us /Qlowercase
129.tera_tf: /fpscomp:general
130.socorro: /DSPEC_NO_UNDERSCORE /DSPEC_MPI_COMM_F2C /Qlowercase
132.zeusmp2: /DSPEC_MPI_WINDOWS_ICL /fpscomp:general

Base Optimization Flags

C benchmarks:
/O3 /QxSSE4.2 /Qipo /Qprec-div /F3950000000

Continued on next page
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**Base Optimization Flags (Continued)**

**C++ benchmarks:**

```
126.lammps: /O3 /QxSSE4.2 /Qipo /Qprec-div- /F3950000000
```

**Fortran benchmarks:**

```
/O3 /QxSSE4.2 /Qipo /Qprec-div- /F3950000000
```

**Base Other Flags**

**C benchmarks:**

```
/I:C:/Program Files/Microsoft HPC Pack 2008 SDK/Include /link 
/libpath:C:/Program Files/Microsoft HPC Pack 2008 SDK/Lib/amd64 msmpifec.lib msmpifmc.lib msmpi.lib 
/out:options.exe
```

**C++ benchmarks:**

```
126.lammps: /I:C:/Program Files/Microsoft HPC Pack 2008 SDK/Include /link 
/libpath:C:/Program Files/Microsoft HPC Pack 2008 SDK/Lib/amd64 msmpifec.lib msmpifmc.lib msmpi.lib 
/out:options.exe
```

**Fortran benchmarks:**

```
/I:C:/Program Files/Microsoft HPC Pack 2008 SDK/Include /link 
/libpath:C:/Program Files/Microsoft HPC Pack 2008 SDK/Lib/amd64 msmpifec.lib msmpifmc.lib msmpi.lib 
/out:options.exe
```

**Benchmarks using both Fortran and C:**

```
/I:C:/Program Files/Microsoft HPC Pack 2008 SDK/Include /link 
/libpath:C:/Program Files/Microsoft HPC Pack 2008 SDK/Lib/amd64 msmpifec.lib msmpifmc.lib msmpi.lib 
/out:options.exe
```

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The flags file that was used to format this result can be browsed at


You can also download the XML flags source by saving the following link:

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For questions about this result, please contact the tester. For other inquiries, please contact webmaster@spec.org.

Tested with SPEC MPI2007 v2.0.