# SPEC® MPIM2007 Result



## IBM

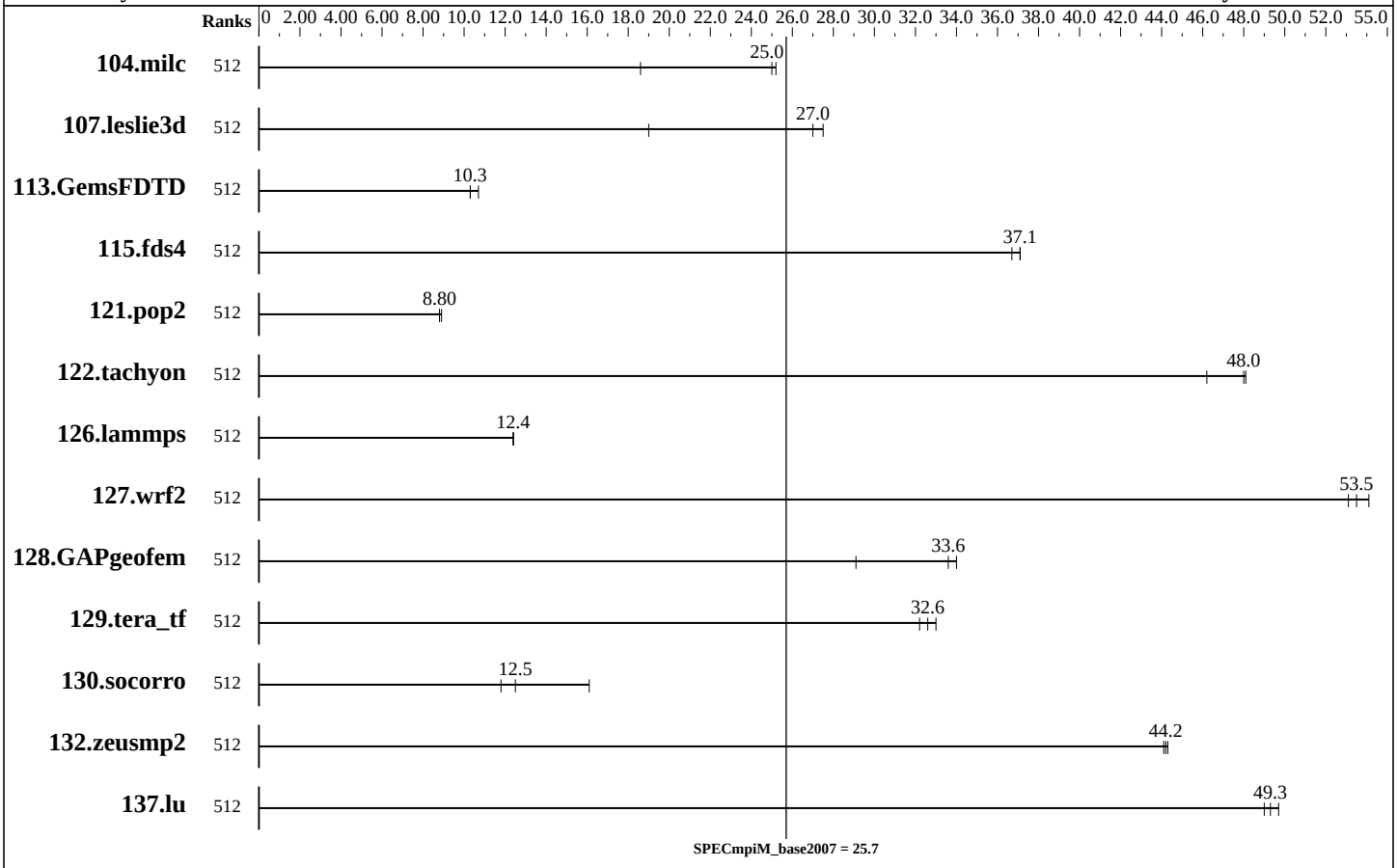
## iDP (Intel Xeon L5420, 2.50 GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 25.7

**MPI2007 license:** 37
**Test sponsor:** Indiana University
**Tested by:** Jens Doleschal

**Test date:** Dec-2009
**Hardware Availability:** Sep-2008
**Software Availability:** Jan-2009




## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ranks | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Ranks | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 104.milc | 512 | 62.2 | 25.2 | **62.7** | **25.0** | 84.0 | 18.6 | | | | | | | |
| 107.leslie3d | 512 | 190 | 27.5 | **194** | **27.0** | 274 | 19.0 | | | | | | | |
| 113.GemsFDTD | 512 | 611 | 10.3 | 590 | 10.7 | **610** | **10.3** | | | | | | | |
| 115.fds4 | 512 | 53.2 | 36.7 | 52.6 | 37.1 | **52.6** | **37.1** | | | | | | | |
| 121.pop2 | 512 | **467** | **8.80** | 469 | 8.80 | 466 | 8.90 | | | | | | | |
| 122.tachyon | 512 | 60.5 | 46.2 | **58.3** | **48.0** | 58.1 | 48.1 | | | | | | | |
| 126.lammps | 512 | 235 | 12.4 | **235** | **12.4** | 236 | 12.4 | | | | | | | |
| 127.wrf2 | 512 | **146** | **53.5** | 144 | 54.1 | 147 | 53.1 | | | | | | | |
| 128.GAPgeofem | 512 | 60.8 | 34.0 | 70.9 | 29.1 | **61.5** | **33.6** | | | | | | | |
| 129.tera_tf | 512 | 86.0 | 32.2 | **84.9** | **32.6** | 83.9 | 33.0 | | | | | | | |

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

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## Results Table (Continued)

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ranks | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Ranks | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 130.socorro | 512 | **305** | **12.5** | 323 | 11.8 | 238 | 16.1 | | | | | | | |
| 132.zeusmp2 | 512 | 70.1 | 44.3 | **70.2** | **44.2** | 70.4 | 44.1 | | | | | | | |
| 137.lu | 512 | 74.0 | 49.7 | 75.0 | 49.0 | **74.5** | **49.3** | | | | | | | |

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: | iDP node |
| Interconnects: | Gigabit Ethernet<br>IB Switch |
| Total Compute Nodes: | 64 |
| Total Chips: | 128 |
| Total Cores: | 512 |
| Total Threads: | 512 |
| Total Memory: | 2 TB |
| Base Ranks Run: | 512 |
| Minimum Peak Ranks: | -- |
| Maximum Peak Ranks: | -- |

### Software Summary

| | |
|---|---|
| C Compiler: | Intel C++ Compiler 11.1 for Windows (11.1.038) |
| C++ Compiler: | Intel C++ Compiler 11.1 for Windows (11.1.038) |
| Fortran Compiler: | Intel Fortran Compiler 11.1 for Windows (11.1.038) |
| Base Pointers: | 64-bit |
| Peak Pointers: | 64-bit |
| MPI Library: | MS MPI 1.0.6 |
| Other MPI Info: | None |
| Pre-processors: | No |
| Other Software: | None |

## Node Description: iDP node

### Hardware

| | |
|---|---|
| Number of nodes: | 64 |
| Uses of the node: | compute |
| Vendor: | IBM |
| Model: | System x iDataPlex dx340 |
| CPU Name: | Intel Xeon L5420 |
| CPU(s) orderable: | 1-2 chips |
| Chips enabled: | 2 |
| Cores enabled: | 8 |
| Cores per chip: | 4 |
| Threads per core: | 1 |
| CPU Characteristics: | 1333 MHz FSB |
| CPU MHz: | 2500 |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 12 MB I+D on chip per chip, 6 MB shared / 2 cores |
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 32 GB (FBDIMM 8x4-GB 667 MHz) |
| Disk Subsystem: | Western Digital 160 GB SATA WD160YS-23SHBO |
| Other Hardware: | None |
| Adapter: | Intel Corporation 80003ES2LAN Gigabit Ethernet Controller (Copper) (rev 01) |
| Number of Adapters: | 2 |
| Slot Type: | -- |
| Data Rate: | Gigabit Ethernet |

Continued on next page

### Software

| | |
|---|---|
| Adapter: | Intel Corporation 80003ES2LAN Gigabit Ethernet Controller (Copper) (rev 01) |
| Adapter Driver: | OS default (v.9.11.5.7) |
| Adapter Firmware: | 2.4-0 |
| Adapter: | Mellanox Technologies MT26418 [ConnectX IB DDR, PCIe 2.0 5GT/s] (rev a0) |
| Adapter Driver: | Mellanox WinOF (v. 2.0.0) |
| Adapter Firmware: | 2.5.0 |
| Operating System: | Windows HPC Server 2008 Service Pack 2 |
| Local File System: | Windows/NTFS |
| Shared File System: | Network shared NTFS directory |
| System State: | Multi-User |
| Other Software: | -- |

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## Node Description: iDP node

| | |
|---|---|
| Ports Used: | 1 |
| Interconnect Type: | Ethernet |
| Adapter: | Mellanox Technologies MT26418 [ConnectX IB DDR, PCIe 2.0 5GT/s] (rev a0) |
| Number of Adapters: | 1 |
| Slot Type: | PCIe x8 Gen2 |
| Data Rate: | InfiniBand 4x DDR |
| Ports Used: | 1 |
| Interconnect Type: | InfiniBand |

## Interconnect Description: Gigabit Ethernet

| Hardware | |
|---|---|
| Vendor: | ProCurve Networking |
| Model: | HP ProCurve Switch 5406zl Intelligent Edge J8697A |
| Switch Model: | HP ProCurve Switch 5406zl Intelligent Edge J8697A |
| Number of Switches: | 1 |
| Number of Ports: | 144 |
| Data Rate: | 1Gbps Ethernet |
| Firmware: | -- |
| Topology: | Single switch |
| Primary Use: | Cluster File System |

**Software**

## Interconnect Description: IB Switch

| Hardware | |
|---|---|
| Vendor: | Cisco |
| Model: | Cisco SFS 7024D |
| Switch Model: | Cisco SFS 7024D |
| Number of Switches: | 1 |
| Number of Ports: | 288 |
| Data Rate: | InfiniBand 4x DDR |
| Firmware: | 4.1.1.1.11 |
| Topology: | Single switch |
| Primary Use: | MPI traffic |

**Software**

## Submit Notes

```
The config file option 'submit' was used.
```

## 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_CASE_FLAG /DSPEC_MPI_WINDOWS_ICL
/DSPEC_MPI_COMM_F2C /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 /QxSSE3 /Qipo /Qprec-div- /F3950000000

C++ benchmarks:

126.lammps: /O3 /QxSSE3 /Qipo /Qprec-div- /F3950000000

Fortran benchmarks:
/O3 /QxSSE3 /Qipo /Qprec-div- /F3950000000

Benchmarks using both Fortran and C:
/O3 /QxSSE3 /Qipo /Qprec-div- /F3950000000

## Base Other Flags

C benchmarks:
/c /Fooptions /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
/Feoptions

Continued on next page

## Base Other Flags (Continued)

C++ benchmarks:

126.lammps: /c /Fooptions
/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 msm
/Feoptions

Fortran benchmarks:
/c /Fooptions /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
/Feoptions

Benchmarks using both Fortran and C:
/c /Fooptions /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
/Feoptions

The flags file that was used to format this result can be browsed at
http://www.spec.org/mpi2007/flags/dell.ic10.windows.flags.20100128.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/mpi2007/flags/dell.ic10.windows.flags.20100128.xml



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

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