



# SPEC® MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

## Intel Corporation

Endeavor (Intel Xeon X5670, 2.93 GHz,  
DDR3-1333 MHz, SMT on, Turbo off)

SPECmpiM\_peak2007 = Not Run

SPECmpiM\_base2007 = 65.2

MPI2007 license: 13

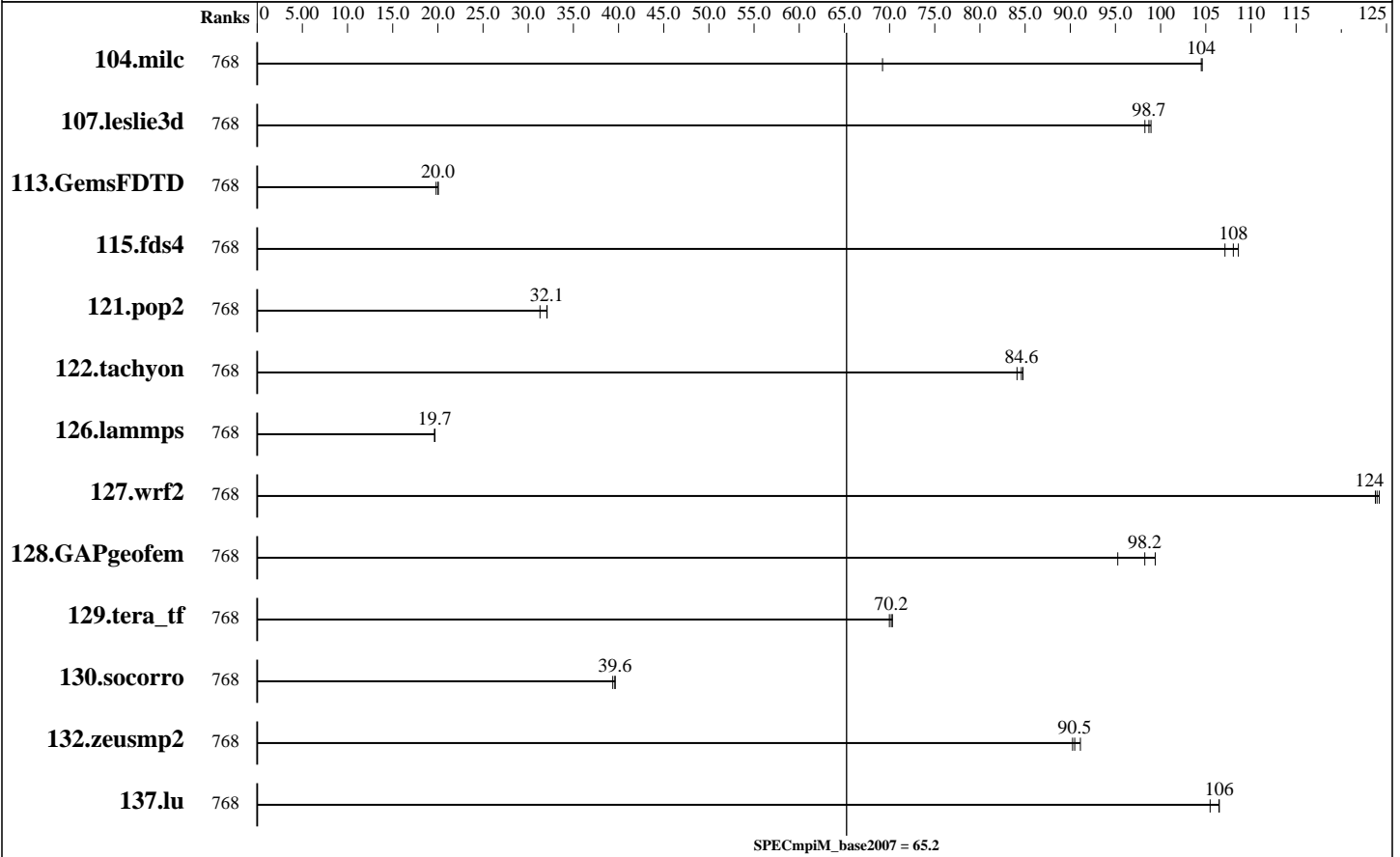
Test sponsor: Intel Corporation

Tested by: Pavel Shelepugin

Test date: Jul-2011

Hardware Availability: Mar-2010

Software Availability: Aug-2011



## Results Table

Benchmark	Base								Peak							
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
104.milc	768	22.6	69.2	<b>15.0</b>	<b>104</b>	15.0	105									
107.leslie3d	768	53.1	98.3	52.8	98.9	<b>52.9</b>	<b>98.7</b>									
113.GemsFDTD	768	319	19.8	<b>315</b>	<b>20.0</b>	315	20.0									
115.fds4	768	18.2	107	18.0	109	<b>18.1</b>	<b>108</b>									
121.pop2	768	<b>129</b>	<b>32.1</b>	132	31.3	129	32.1									
122.tachyon	768	33.3	84.1	<b>33.1</b>	<b>84.6</b>	33.0	84.8									
126.lammps	768	<b>148</b>	<b>19.7</b>	148	19.6	148	19.7									
127.wrf2	768	62.8	124	63.0	124	<b>62.9</b>	<b>124</b>									
128.GAPgeofem	768	20.8	99.4	<b>21.0</b>	<b>98.2</b>	21.7	95.3									
129.tera_tf	768	39.6	70.0	<b>39.4</b>	<b>70.2</b>	39.4	70.3									

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



# SPEC MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

## Intel Corporation

Endeavor (Intel Xeon X5670, 2.93 GHz, DDR3-1333 MHz, SMT on, Turbo off)

SPECmpiM\_peak2007 = Not Run

SPECmpiM\_base2007 = 65.2

MPI2007 license: 13

Test sponsor: Intel Corporation

Tested by: Pavel Shelepugin

Test date: Jul-2011

Hardware Availability: Mar-2010

Software Availability: Aug-2011

## Results Table (Continued)

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
130.socorro	768	96.3	39.6	97.0	39.4	<b>96.4</b>	<b>39.6</b>							
132.zeusmp2	768	34.1	91.1	34.4	90.3	<b>34.3</b>	<b>90.5</b>							
137.lu	768	<b>34.5</b>	<b>106</b>	34.9	105	34.5	106							

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: Endeavor Node  
 Interconnects: IB Switch  
 Gigabit Ethernet  
 File Server Node: NFS  
 Total Compute Nodes: 64  
 Total Chips: 128  
 Total Cores: 768  
 Total Threads: 1536  
 Total Memory: 1536 GB  
 Base Ranks Run: 768  
 Minimum Peak Ranks: --  
 Maximum Peak Ranks: --

### Software Summary

C Compiler: Intel C++ Compiler 12.0.3.174 for Linux  
 C++ Compiler: Intel C++ Compiler 12.0.3.174 for Linux  
 Fortran Compiler: Intel Fortran Compiler 12.0.3.174 for Linux  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 MPI Library: Intel MPI Library 4.0.1.007 for Linux  
 Other MPI Info: None  
 Pre-processors: No  
 Other Software: None

## Node Description: Endeavor Node

### Hardware

Number of nodes: 64  
 Uses of the node: compute  
 Vendor: Intel  
 Model: SR1600UR  
 CPU Name: Intel Xeon X5670  
 CPU(s) orderable: 1-2 chips  
 Chips enabled: 2  
 Cores enabled: 12  
 Cores per chip: 6  
 Threads per core: 2  
 CPU Characteristics: Intel Turbo Boost Technology disabled, 6.4 GT/s QPI, Hyper-Threading enabled  
 CPU MHz: 2934  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core  
 L3 Cache: 12 MB I+D on chip per chip, 12 MB shared / 6 cores  
 Other Cache: None  
 Memory: 24 GB (Dual-rank RDIMM 6x4-GB DDR3-1333 MHz)  
 Disk Subsystem: Seagate 400 GB ST3400755SS  
 Other Hardware: None  
 Adapter: Intel (ESB2) 82575EB Dual-Port Gigabit Ethernet Controller  
 Number of Adapters: 1

### Software

Adapter: Intel (ESB2) 82575EB Dual-Port Gigabit Ethernet Controller  
 Adapter Driver: e1000  
 Adapter Firmware: None  
 Adapter: Mellanox MHQH29-XTC  
 Adapter Driver: OFED 1.4.2  
 Adapter Firmware: 2.7.000  
 Operating System: Red Hat EL 6.1, kernel 2.6.32-131  
 Local File System: Linux/ext2  
 Shared File System: NFS  
 System State: Multi-User  
 Other Software: PBS Pro 11.1

Continued on next page



# SPEC MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

## Intel Corporation

Endeavor (Intel Xeon X5670, 2.93 GHz, DDR3-1333 MHz, SMT on, Turbo off)

SPECmpiM\_peak2007 = Not Run

SPECmpiM\_base2007 = 65.2

MPI2007 license: 13

Test sponsor: Intel Corporation

Tested by: Pavel Shelepugin

Test date: Jul-2011

Hardware Availability: Mar-2010

Software Availability: Aug-2011

### Node Description: Endeavor Node

Slot Type:	PCI-Express x8
Data Rate:	1Gbps Ethernet
Ports Used:	2
Interconnect Type:	Ethernet
Adapter:	Mellanox MHQH29-XTC
Number of Adapters:	1
Slot Type:	PCIe x8 Gen2
Data Rate:	InfiniBand 4x QDR
Ports Used:	1
Interconnect Type:	InfiniBand

### Node Description: NFS

	Hardware
Number of nodes:	1
Uses of the node:	fileserver
Vendor:	Intel
Model:	S7000FC4UR
CPU Name:	Intel Xeon CPU
CPU(s) orderable:	1-4 chips
Chips enabled:	4
Cores enabled:	16
Cores per chip:	4
Threads per core:	2
CPU Characteristics:	--
CPU MHz:	2926
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	8 MB I+D on chip per chip, 4 MB shared / 2 cores
L3 Cache:	None
Other Cache:	None
Memory:	64 GB
Disk Subsystem:	8 disks, 500GB/disk, 2.7TB total
Other Hardware:	None
Adapter:	Intel 82563GB Dual-Port Gigabit Ethernet Controller
Number of Adapters:	1
Slot Type:	PCI-Express x8
Data Rate:	1Gbps Ethernet
Ports Used:	1
Interconnect Type:	Ethernet

	Software
Adapter:	Intel 82563GB Dual-Port Gigabit Ethernet Controller
Adapter Driver:	e1000e
Adapter Firmware:	N/A
Operating System:	RedHat EL 5 Update 4
Local File System:	None
Shared File System:	NFS
System State:	Multi-User
Other Software:	None



# SPEC MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

## Intel Corporation

Endeavor (Intel Xeon X5670, 2.93 GHz, DDR3-1333 MHz, SMT on, Turbo off)

SPECmpiM\_peak2007 = Not Run

SPECmpiM\_base2007 = 65.2

MPI2007 license: 13

Test sponsor: Intel Corporation

Tested by: Pavel Shelepugin

Test date: Jul-2011

Hardware Availability: Mar-2010

Software Availability: Aug-2011

### Interconnect Description: IB Switch

Hardware	Software
Vendor: Mellanox Model: Mellanox MTS3600Q-1UNC Switch Model: Mellanox MTS3600Q-1UNC Number of Switches: 46 Number of Ports: 36 Data Rate: InfiniBand 4x QDR Firmware: 7.1.000 Topology: Fat tree Primary Use: MPI traffic	

### Interconnect Description: Gigabit Ethernet

Hardware	Software
Vendor: Force10 Networks Model: Force10 S50, Force10 C300 Switch Model: Force10 S50, Force10 C300 Number of Switches: 15 Number of Ports: 48 Data Rate: 1Gbps Ethernet Firmware: 8.2.1.0 Topology: Fat tree Primary Use: Cluster File System	

### Submit Notes

The config file option 'submit' was used.

### General Notes

MPI startup command:

mpiexec.hydra command was used to start MPI jobs. To start a job by this command, the daemons are not required to be run beforehand.

BIOS settings:

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

RAM configuration:

Compute nodes have 1x4-GB RDIMM on each memory channel.

Network:

Forty six 36-port switches: 18 core switches and 28 leaf switches. Each leaf has one link to each core. Remaining 18 ports on 25 of 28 leafs are used for compute nodes. On the remaining 3 leafs the ports are used for FS nodes and other peripherals.

Continued on next page



# SPEC MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

**Intel Corporation**

Endeavor (Intel Xeon X5670, 2.93 GHz,  
DDR3-1333 MHz, SMT on, Turbo off)

SPECmpiM\_peak2007 = Not Run

SPECmpiM\_base2007 = 65.2

**MPI2007 license:** 13

**Test sponsor:** Intel Corporation

**Tested by:** Pavel Shelepugin

**Test date:** Jul-2011

**Hardware Availability:** Mar-2010

**Software Availability:** Aug-2011

## General Notes (Continued)

### Job placement:

Each MPI job was assigned to a topologically compact set of nodes, i.e. the minimal needed number of leaf switches was used for each job: 1 switch for 96/192 ranks, 2 switches for 384 ranks, 4 switches for 768 ranks, 8 switches for 1536 ranks.

PBS Pro was used for job submission. It has no impact on performance.  
Can be found at: <http://www.altair.com>

## Base Compiler Invocation

### C benchmarks:

mpiicc

### C++ benchmarks:

126.lammps: mpiicpc

### Fortran benchmarks:

mpiifort

### Benchmarks using both Fortran and C:

mpiicc mpiifort

## Base Portability Flags

121.pop2: -DSPEC\_MPI\_CASE\_FLAG  
126.lammps: -DMPICH\_IGNORE\_CXX\_SEEK  
127.wrf2: -DSPEC\_MPI\_CASE\_FLAG -DSPEC\_MPI\_LINUX

## Base Optimization Flags

### C benchmarks:

-O3 -xSSE4.2 -no-prec-div

### C++ benchmarks:

126.lammps: -O3 -xSSE4.2 -no-prec-div

### Fortran benchmarks:

-O3 -xSSE4.2 -no-prec-div

### Benchmarks using both Fortran and C:

-O3 -xSSE4.2 -no-prec-div



# SPEC MPI2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

**Intel Corporation**

Endeavor (Intel Xeon X5670, 2.93 GHz,  
DDR3-1333 MHz, SMT on, Turbo off)

SPECmpiM\_peak2007 = Not Run

SPECmpiM\_base2007 = 65.2

**MPI2007 license:** 13

**Test sponsor:** Intel Corporation

**Tested by:** Pavel Shelepugin

**Test date:** Jul-2011

**Hardware Availability:** Mar-2010

**Software Availability:** Aug-2011

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

[http://www.spec.org/mpi2007/flags/EM64T\\_Intel120\\_flags.html](http://www.spec.org/mpi2007/flags/EM64T_Intel120_flags.html)

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

[http://www.spec.org/mpi2007/flags/EM64T\\_Intel120\\_flags.xml](http://www.spec.org/mpi2007/flags/EM64T_Intel120_flags.xml)

SPEC and SPEC MPI are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC MPI2007 v2.0.1.  
Report generated on Tue Jul 22 13:42:45 2014 by SPEC MPI2007 PS/PDF formatter v1463.  
Originally published on 10 August 2011.