



SPEC® MPIM2007 Result

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Intel Corporation

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

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 16.2

MPI2007 license: 13

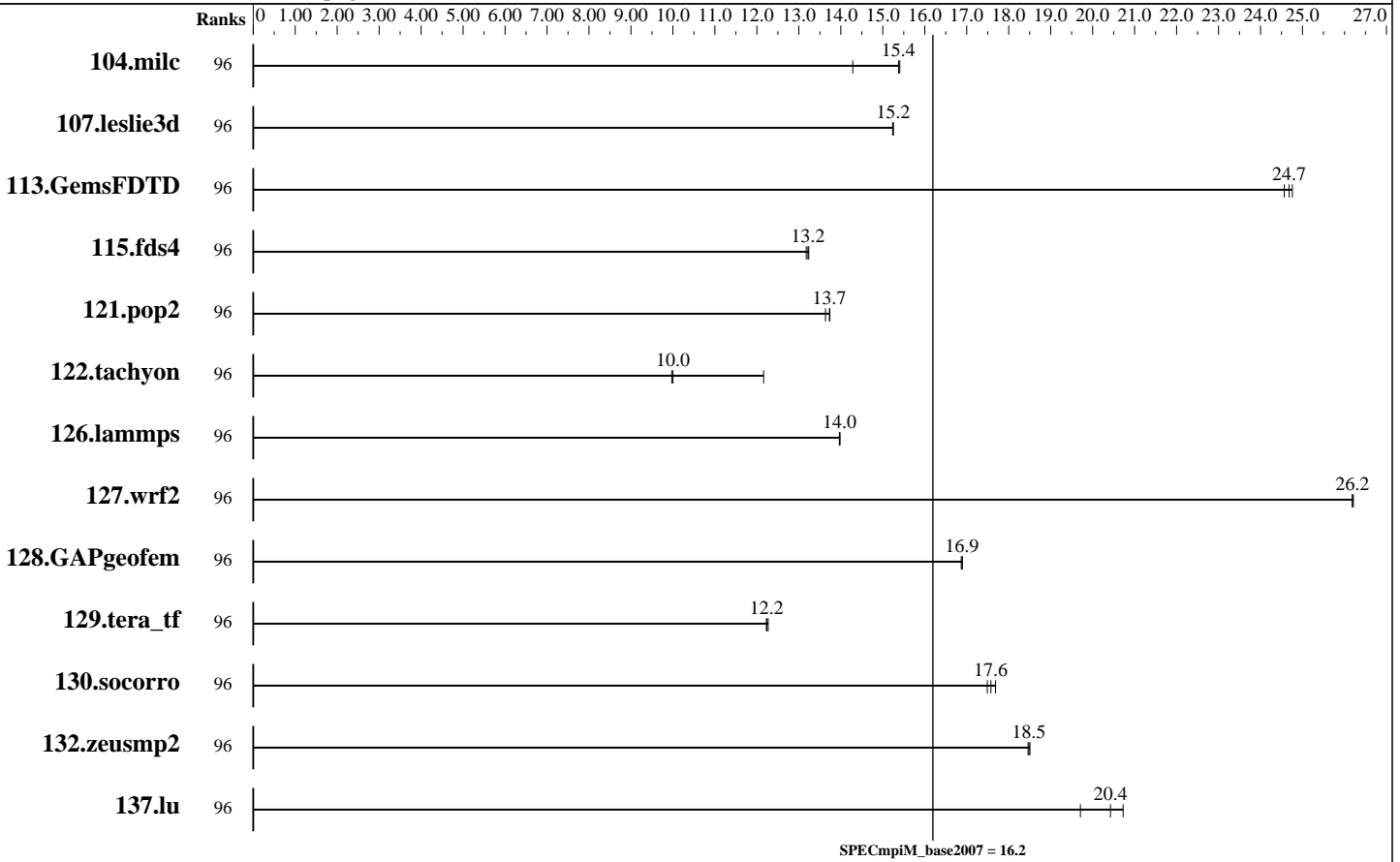
Test sponsor: Intel Corporation

Tested by: Pavel Shelepugin

Test date: Feb-2010

Hardware Availability: Mar-2010

Software Availability: Feb-2010



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	96	110	14.3	<u>102</u>	<u>15.4</u>	102	15.4							
107.leslie3d	96	342	15.3	343	15.2	<u>342</u>	<u>15.2</u>							
113.GemsFDTD	96	257	24.6	255	24.8	<u>256</u>	<u>24.7</u>							
115.fds4	96	147	13.2	<u>148</u>	<u>13.2</u>	148	13.2							
121.pop2	96	303	13.6	300	13.7	<u>301</u>	<u>13.7</u>							
122.tachyon	96	280	9.97	<u>280</u>	<u>10.0</u>	230	12.2							
126.lammps	96	208	14.0	<u>209</u>	<u>14.0</u>	209	14.0							
127.wrf2	96	297	26.2	<u>298</u>	<u>26.2</u>	298	26.2							
128.GAPgeofem	96	122	16.9	122	16.9	<u>122</u>	<u>16.9</u>							
129.tera_tf	96	226	12.2	226	12.3	<u>226</u>	<u>12.2</u>							

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	96	<u>217</u>	<u>17.6</u>	218	17.5	216	17.7							
132.zeusmp2	96	168	18.5	<u>168</u>	<u>18.5</u>	168	18.5							
137.lu	96	177	20.7	187	19.7	<u>180</u>	<u>20.4</u>							

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: HOME
 Total Compute Nodes: 8
 Total Chips: 16
 Total Cores: 96
 Total Threads: 96
 Total Memory: 192 GB
 Base Ranks Run: 96
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C++ Compiler 11.1.064 for Linux
 C++ Compiler: Intel C++ Compiler 11.1.064 for Linux
 Fortran Compiler: Intel Fortran Compiler 11.1.064 for Linux
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 MPI Library: Intel MPI Library 3.2.2.006 for Linux
 Other MPI Info: None
 Pre-processors: No
 Other Software: None

Node Description: Endeavor Node

Hardware

Number of nodes: 8
 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: 1
 CPU Characteristics: Intel Turbo Boost Technology disabled, 6.4 GT/s QPI, Hyper-Threading disabled
 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 (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 5.4, kernel 2.6.18-164
 Local File System: Linux/ext2
 Shared File System: NFS
 System State: Multi-User
 Other Software: PBS Pro 10.1

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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: HOME

	Hardware
Number of nodes:	1
Uses of the node:	fileserver
Vendor:	Intel
Model:	SSR212CC
CPU Name:	Intel Xeon CPU
CPU(s) orderable:	2 chips
Chips enabled:	2
Cores enabled:	2
Cores per chip:	1
Threads per core:	1
CPU Characteristics:	--
CPU MHz:	2800
Primary Cache:	12 KB I + 16 KB D on chip per chip
Secondary Cache:	1 MB I+D on chip per chip
L3 Cache:	None
Other Cache:	None
Memory:	6 GB
Disk Subsystem:	10 disks, 320GB/disk, 2.6TB total
Other Hardware:	None
Adapter:	Intel 82546GB 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 82546GB Dual-Port Gigabit Ethernet Controller
Adapter Driver:	e1000
Adapter Firmware:	N/A
Operating System:	RedHat EL 4 Update 4
Local File System:	None
Shared File System:	NFS
System State:	Multi-User
Other Software:	None



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Interconnect Description: IB Switch

Hardware	Software
Vendor: Mellanox Model: Mellanox MTS3600Q-1UNC Switch Model: Mellanox MTS3600Q-1UNC Number of Switches: 46 Number of Ports: 1656 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: 748 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:

mpirun 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.

BIOS settings:

Intel Hyper-Threading Technology (SMT): Disabled (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

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General Notes (Continued)

for FS nodes and other peripherals.

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 24/48/96/192 ranks, 2 switches for 384 ranks, 3 switches for 504 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



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

http://www.spec.org/mpi2007/flags/EM64T_Intel111_flags.20100202.html

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

http://www.spec.org/mpi2007/flags/EM64T_Intel111_flags.20100202.xml

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

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