



SPEC® MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Intel Corporation

Endeavor (Intel Xeon E5-2670, 2.60 GHz, DDR3-1333 MHz, SMT on, Turbo off)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 14.1

MPI2007 license: 13

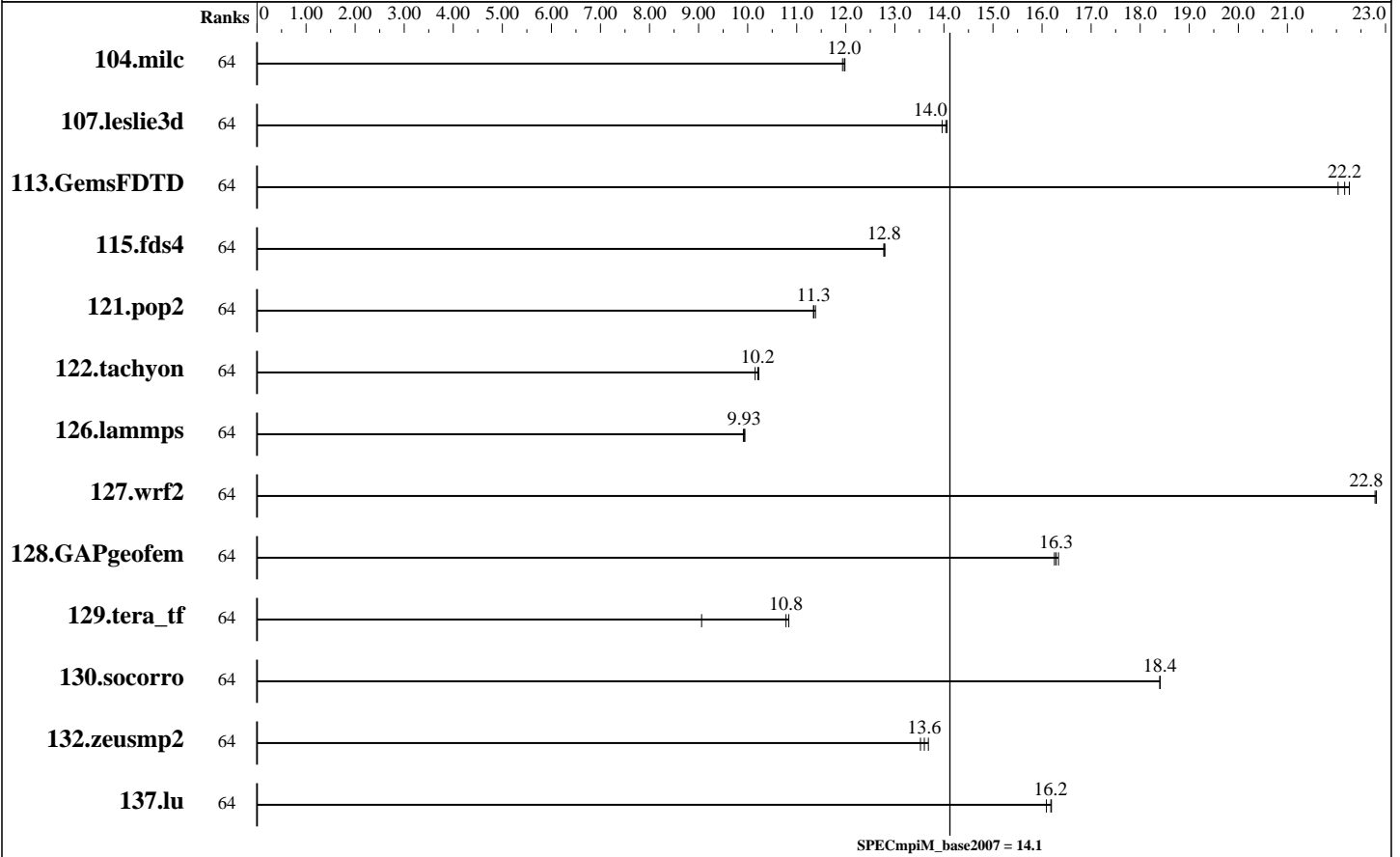
Test sponsor: Intel Corporation

Tested by: Pavel Shelepugin

Test date: Feb-2012

Hardware Availability: Mar-2012

Software Availability: Sep-2011



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	64	<u>131</u>	<u>12.0</u>	131	12.0	131	11.9							
107.leslie3d	64	371	14.1	<u>372</u>	<u>14.0</u>	374	14.0							
113.GemsFDTD	64	286	22.0	<u>285</u>	<u>22.2</u>	283	22.3							
115.fds4	64	153	12.8	152	12.8	<u>153</u>	<u>12.8</u>							
121.pop2	64	363	11.4	<u>364</u>	<u>11.3</u>	364	11.3							
122.tachyon	64	275	10.2	<u>274</u>	<u>10.2</u>	273	10.2							
126.lammps	64	293	9.94	294	9.91	<u>294</u>	<u>9.93</u>							
127.wrf2	64	342	22.8	342	22.8	<u>342</u>	<u>22.8</u>							
128.GAPgeofem	64	<u>127</u>	<u>16.3</u>	126	16.3	127	16.3							
129.tera_tf	64	305	9.06	<u>257</u>	<u>10.8</u>	255	10.8							

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	64	207	18.4	207	18.4	<u>207</u>	<u>18.4</u>							
132.zeusmp2	64	227	13.7	229	13.5	<u>228</u>	<u>13.6</u>							
137.lu	64	228	16.1	<u>227</u>	<u>16.2</u>	227	16.2							

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: 4
 Total Chips: 8
 Total Cores: 64
 Total Threads: 128
 Total Memory: 256 GB
 Base Ranks Run: 64
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C++ Composer XE 2011 for Linux, Version 12.0.5.220 Build 20110719
 C++ Compiler: Intel C++ Composer XE 2011 for Linux, Version 12.0.5.220 Build 20110719
 Fortran Compiler: Intel Fortran Composer XE 2011 for Linux, Version 12.0.5.220 Build 20110719
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 MPI Library: Intel MPI Library 4.0.3.008 for Linux
 Other MPI Info: None
 Pre-processors: No
 Other Software: None

Node Description: Endeavor Node

Hardware

Number of nodes: 4
 Uses of the node: compute
 Vendor: Intel
 Model: R1208GLBPP
 CPU Name: Intel Xeon E5-2670
 CPU(s) orderable: 1-2 chips
 Chips enabled: 2
 Cores enabled: 16
 Cores per chip: 8
 Threads per core: 2
 CPU Characteristics: Intel Turbo Boost Technology disabled, 8.0 GT/s QPI, Hyper-Threading enabled
 CPU MHz: 2600
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 20 MB I+D on chip per chip, 20 MB shared / 8 cores
 Other Cache: None
 Memory: 64 GB (8 x 8 GB 2Rx4 PC3-12800R, ECC, running at 1333MHz and CL9)
 Disk Subsystem: Seagate 600 GB SSD ST9600205SS
 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 1.5.3.1
 Adapter Firmware: 2.10.0
 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: Platform LSF 8.0

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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: 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



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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: 36 Data Rate: InfiniBand 4x QDR Firmware: 7.2.0 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, 10Gbps 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

130.socorro (base): "nullify_ptrs" src.alt was used.

MPI startup command:

mpiexec.hydra command was used to start MPI jobs.

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 2x8-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 16/32/64/128/256 ranks, 2 switches for 512 ranks, 4 switches for 1024 ranks, 8 switches for 2048 ranks.

Platform LSF was used for job submission. It has no impact on performance. Information can be found at: <http://www.platform.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 -xAVX -no-prec-div

C++ benchmarks:

126.lammps: -O3 -xAVX -no-prec-div

Fortran benchmarks:
-O3 -xAVX -no-prec-div

Benchmarks using both Fortran and C:
-O3 -xAVX -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_Intel121_flags.html

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

http://www.spec.org/mpi2007/flags/EM64T_Intel121_flags.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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