



SPEC® MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Intel Corporation

Endeavor (Intel Xeon E5-2697 v2, 2.70 GHz, DDR3-1600 MHz, SMT on, Turbo off)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 20.2

MPI2007 license: 13

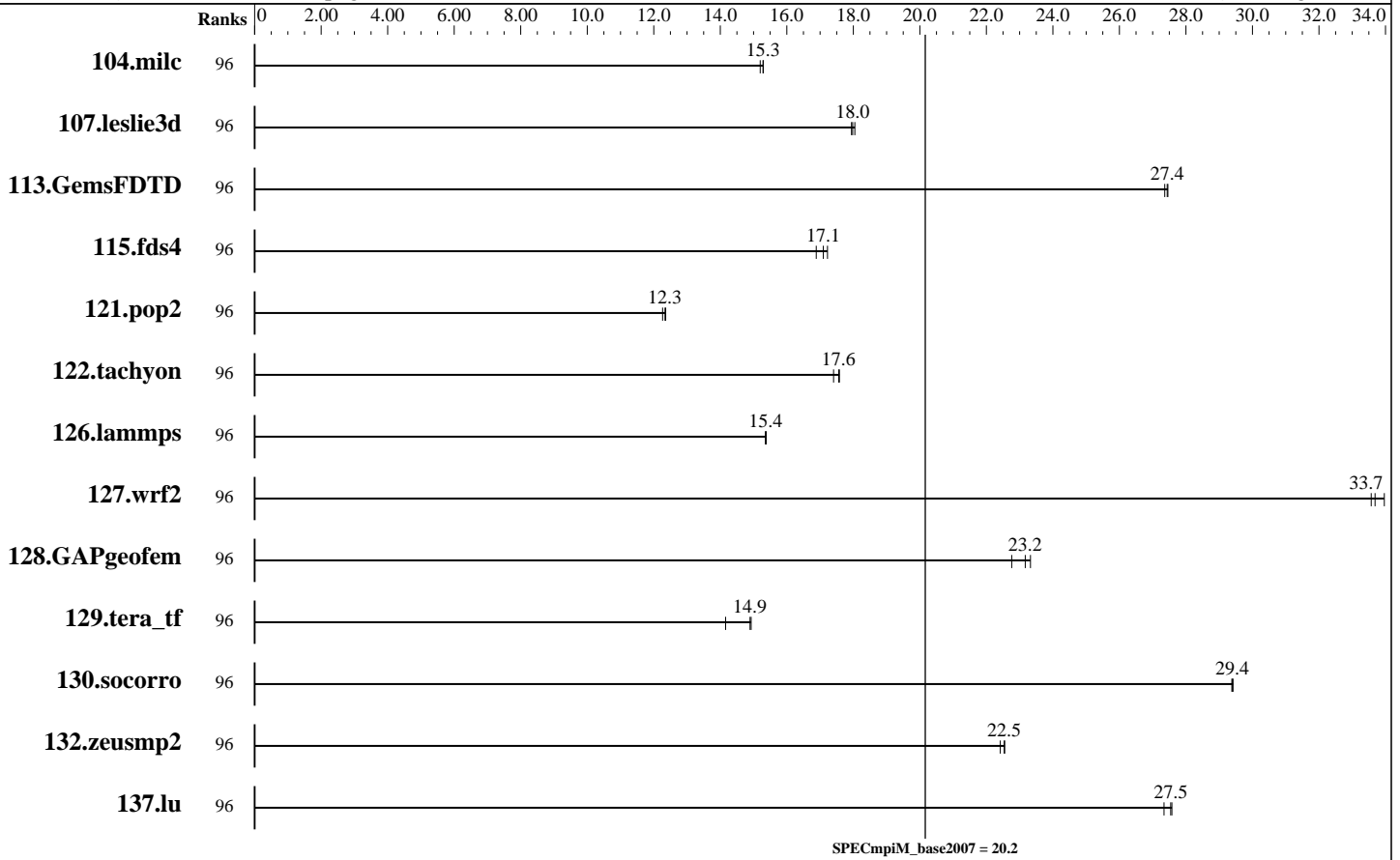
Test sponsor: Intel Corporation

Tested by: Pavel Shelepugin

Test date: Aug-2013

Hardware Availability: Sep-2013

Software Availability: Aug-2013



Results Table

Benchmark	Base								Peak							
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
104.milc	96	103	15.2	102	15.3	<u>102</u>	<u>15.3</u>									
107.leslie3d	96	289	18.0	291	17.9	<u>290</u>	<u>18.0</u>									
113.GemsFDTD	96	<u>230</u>	<u>27.4</u>	231	27.4	230	27.5									
115.fds4	96	113	17.2	<u>114</u>	<u>17.1</u>	116	16.9									
121.pop2	96	<u>335</u>	<u>12.3</u>	334	12.4	337	12.3									
122.tachyon	96	159	17.6	161	17.4	<u>159</u>	<u>17.6</u>									
126.lammps	96	<u>190</u>	<u>15.4</u>	190	15.4	190	15.4									
127.wrf2	96	230	34.0	<u>231</u>	<u>33.7</u>	232	33.6									
128.GAPgeofem	96	<u>89.1</u>	<u>23.2</u>	88.5	23.3	90.7	22.8									
129.tera_tf	96	185	14.9	<u>186</u>	<u>14.9</u>	195	14.2									

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	130	29.4	130	29.4	130	29.4							
132.zeusmp2	96	138	22.5	138	22.4	138	22.6							
137.lu	96	133	27.6	134	27.3	133	27.5							

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: 96
 Total Threads: 192
 Total Memory: 256 GB
 Base Ranks Run: 96
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C++ Composer XE 2013 for Linux, Version 13.1.3.192 Build 20130607
 C++ Compiler: Intel C++ Composer XE 2013 for Linux, Version 13.1.3.192 Build 20130607
 Fortran Compiler: Intel Fortran Composer XE 2013 for Linux, Version 13.1.3.192 Build 20130607
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 MPI Library: Intel MPI Library 4.1.1.036 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: R2208GZ4GC
 CPU Name: Intel Xeon E5-2697 v2
 CPU(s) orderable: 1-2 chips
 Chips enabled: 2
 Cores enabled: 24
 Cores per chip: 12
 Threads per core: 2
 CPU Characteristics: Intel Turbo Boost Technology disabled, 8.0 GT/s QPI, Hyper-Threading enabled
 CPU MHz: 2700
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 30 MB I+D on chip per chip, 30 MB shared / 12 cores
 Other Cache: None
 Memory: 64 GB (8 x 8 GB 2Rx4 PC3-12800R-11, ECC)
 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 MCX353A-FCAT ConnectX-3
 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 MCX353A-FCAT ConnectX-3
Number of Adapters:	1
Slot Type:	PCIe x8 Gen3
Data Rate:	InfiniBand 4x FDR
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 MSX6025F-1BFR Switch Model: Mellanox MSX6025F-1BFR Number of Switches: 46 Number of Ports: 36 Data Rate: InfiniBand 4x FDR 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 24/48/96/192/384 ranks, 2 switches for 768 ranks, 4 switches for 1536 ranks, 8 switches for 3072 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
130.socorro: -assume nostd_intent_in

Base Optimization Flags

C benchmarks:
-O3 -xCORE-AVX-I -no-prec-div

C++ benchmarks:

126.lammps: -O3 -xCORE-AVX-I -no-prec-div

Fortran benchmarks:

-O3 -xCORE-AVX-I -no-prec-div

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

`-O3 -xCORE-AVX-I -no-prec-div`

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

http://www.spec.org/mpi2007/flags/EM64T_Intel140_flags.html

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

http://www.spec.org/mpi2007/flags/EM64T_Intel140_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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