



# SPEC® MPIL2007 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)

SPECmpiL\_peak2007 = Not Run

SPECmpiL\_base2007 = 15.2

MPI2007 license: 13

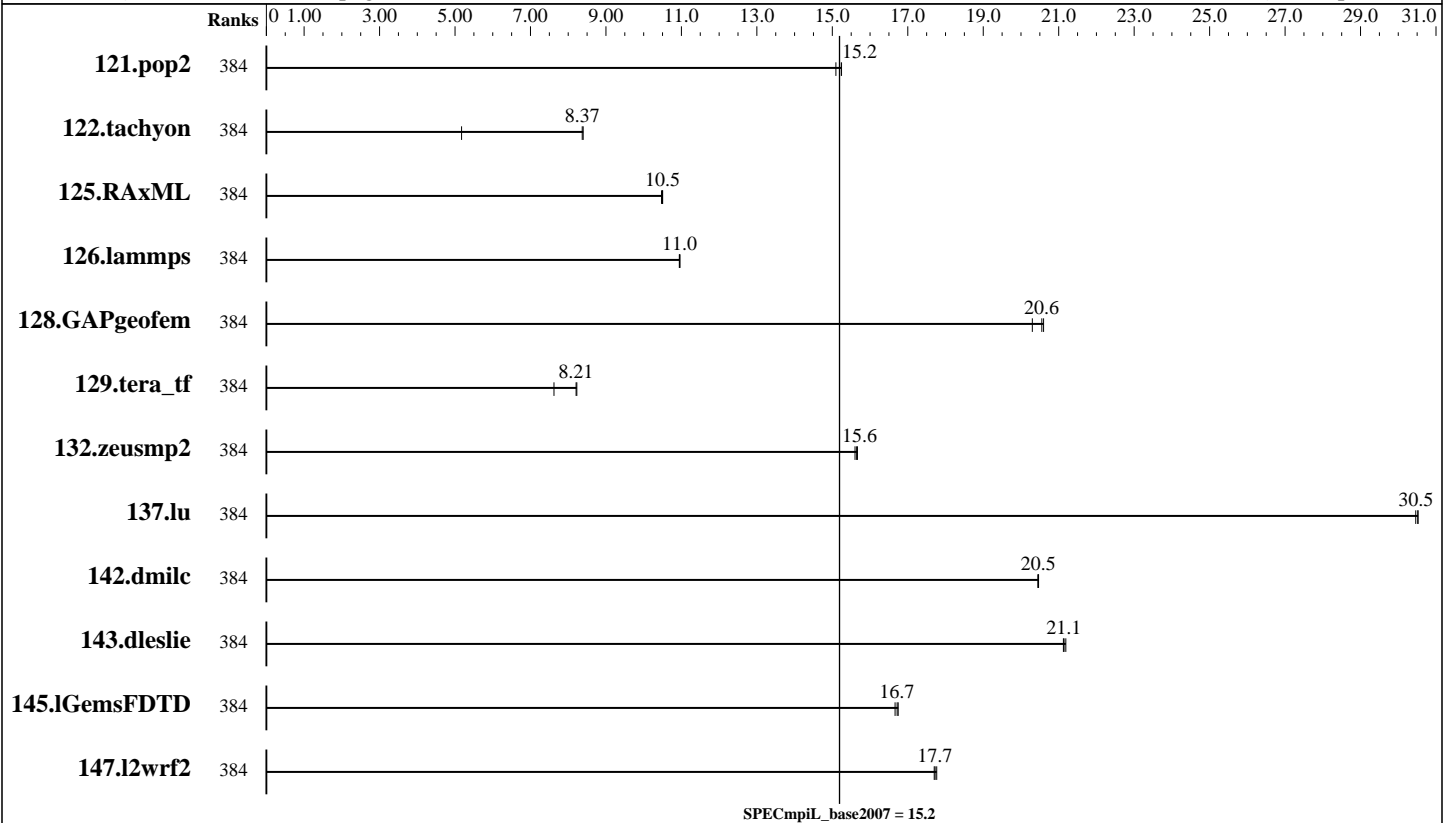
Test sponsor: Intel Corporation

Tested by: Pavel Shelepugin

Test date: Aug-2013

Hardware Availability: Sep-2013

Software Availability: Sep-2013



## Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
121.pop2	384	258	15.1	255	15.2	<u>256</u>	<u>15.2</u>							
122.tachyon	384	376	5.17	<u>232</u>	<u>8.37</u>	232	8.40							
125.RAxML	384	279	10.5	278	10.5	<u>278</u>	<u>10.5</u>							
126.lammps	384	225	10.9	224	11.0	<u>225</u>	<u>11.0</u>							
128.GAPgeofem	384	292	20.3	<u>289</u>	<u>20.6</u>	288	20.6							
129.tera_tf	384	134	8.23	144	7.62	<u>134</u>	<u>8.21</u>							
132.zeusmp2	384	<u>136</u>	<u>15.6</u>	135	15.7	136	15.6							
137.lu	384	138	30.5	<u>138</u>	<u>30.5</u>	138	30.5							
142.dmilc	384	180	20.5	<u>180</u>	<u>20.5</u>	180	20.4							
143.dleslie	384	147	21.1	<u>147</u>	<u>21.1</u>	146	21.2							
145.lGemsFDTD	384	263	16.7	<u>264</u>	<u>16.7</u>	265	16.7							
147.l2wrf2	384	<u>463</u>	<u>17.7</u>	462	17.8	463	17.7							

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/



# SPEC MPIL2007 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)

SPECmpiL\_peak2007 = Not Run

SPECmpiL\_base2007 = 15.2

MPI2007 license: 13

Test sponsor: Intel Corporation

Tested by: Pavel Shelepugin

Test date: Aug-2013

Hardware Availability: Sep-2013

Software Availability: Sep-2013

### Hardware Summary

Type of System: Homogeneous  
 Compute Node: Endeavor Node  
 Interconnects: IB Switch  
 Gigabit Ethernet  
 File Server Node: NFS  
 Total Compute Nodes: 16  
 Total Chips: 32  
 Total Cores: 384  
 Total Threads: 768  
 Total Memory: 1 TB  
 Base Ranks Run: 384  
 Minimum Peak Ranks: --  
 Maximum Peak Ranks: --

### Software Summary

C Compiler: Intel C++ Composer XE 2013 for Linux, Version 14.0.0.080 Build 20130728  
 C++ Compiler: Intel C++ Composer XE 2013 for Linux, Version 14.0.0.080 Build 20130728  
 Fortran Compiler: Intel Fortran Composer XE 2013 for Linux, Version 14.0.0.080 Build 20130728  
 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: 16  
 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  
 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

### 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



# SPEC MPIL2007 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)

SPECmpiL\_peak2007 = Not Run

SPECmpiL\_base2007 = 15.2

MPI2007 license: 13

Test sponsor: Intel Corporation

Tested by: Pavel Shelepugin

Test date: Aug-2013

Hardware Availability: Sep-2013

Software Availability: Sep-2013

### Node Description: NFS

Hardware		Software	
Number of nodes:	1	Adapter:	Intel 82563GB Dual-Port Gigabit Ethernet Controller
Uses of the node:	fileserver	Adapter Driver:	e1000e
Vendor:	Intel	Adapter Firmware:	N/A
Model:	S7000FC4UR	Operating System:	RedHat EL 5 Update 4
CPU Name:	Intel Xeon CPU	Local File System:	None
CPU(s) orderable:	1-4 chips	Shared File System:	NFS
Chips enabled:	4	System State:	Multi-User
Cores enabled:	16	Other Software:	None
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		

### 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		



# SPEC MPIL2007 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)

SPECmpiL\_peak2007 = Not Run

SPECmpiL\_base2007 = 15.2

MPI2007 license: 13

Test sponsor: Intel Corporation

Tested by: Pavel Shelepugin

Test date: Aug-2013

Hardware Availability: Sep-2013

Software Availability: Sep-2013

## 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

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 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

Continued on next page

Standard Performance Evaluation Corporation

[info@spec.org](mailto:info@spec.org)

<http://www.spec.org/>

Page 4



# SPEC MPIL2007 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)

SPECmpiL\_peak2007 = Not Run

SPECmpiL\_base2007 = 15.2

**MPI2007 license:** 13

**Test sponsor:** Intel Corporation

**Tested by:** Pavel Shelepugin

**Test date:** Aug-2013

**Hardware Availability:** Sep-2013

**Software Availability:** Sep-2013

## Base Compiler Invocation (Continued)

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

## 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

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](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](http://www.spec.org/mpi2007/flags/EM64T_Intel140_flags.xml)



# SPEC MPIL2007 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)

SPECmpiL\_peak2007 = Not Run

SPECmpiL\_base2007 = 15.2

**MPI2007 license:** 13

**Test sponsor:** Intel Corporation

**Tested by:** Pavel Shelepugin

**Test date:** Aug-2013

**Hardware Availability:** Sep-2013

**Software Availability:** Sep-2013

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 13:47:03 2014 by SPEC MPI2007 PS/PDF formatter v1463.  
Originally published on 10 September 2013.