SPEC® MPIL2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Intel Corporation

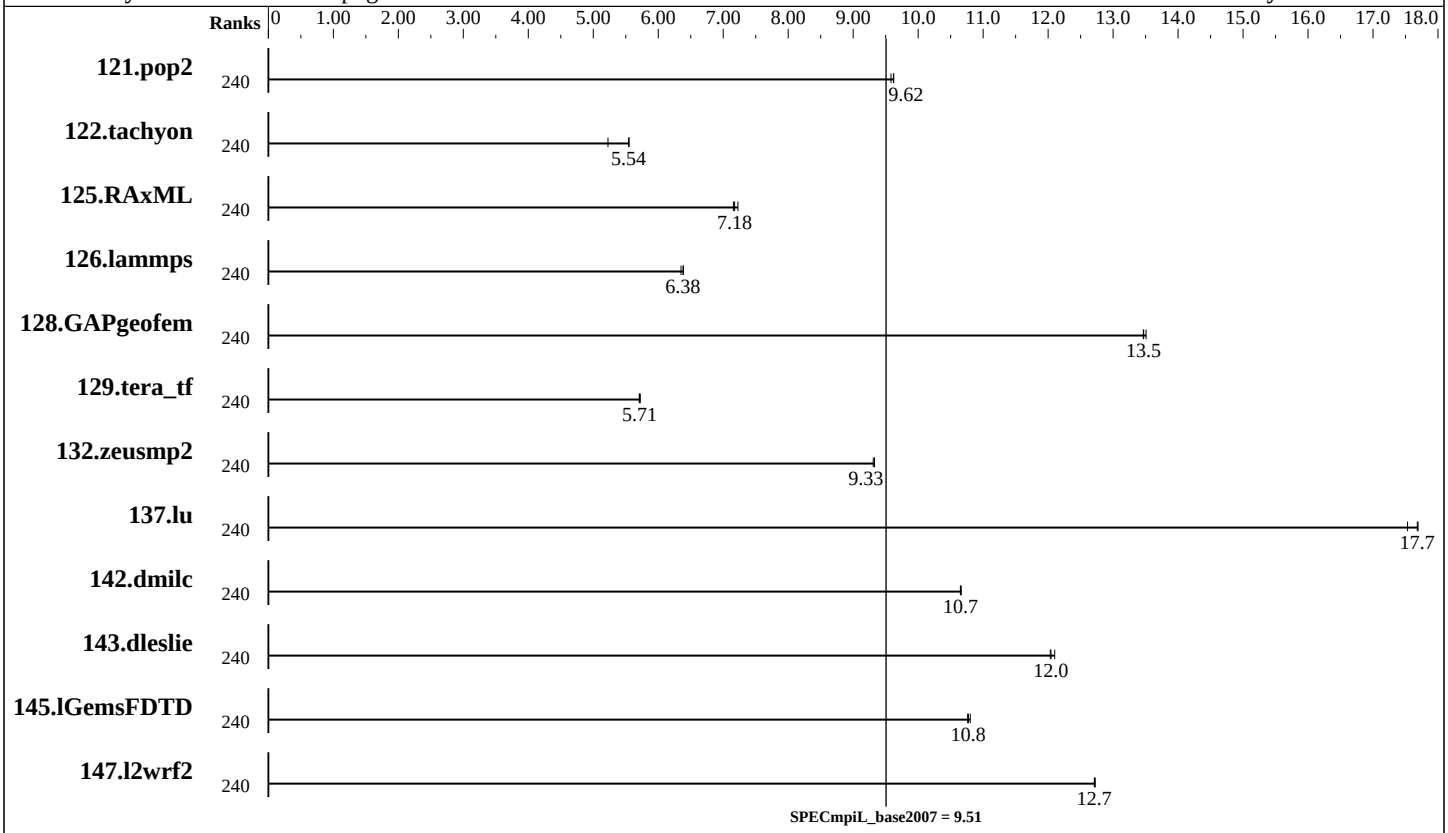
Endeavor (Intel Xeon E7-4890 v2, 2.80 GHz, DDR3-1600 MHz, SMT on, Turbo off)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 9.51

MPI2007 license: 13
Test sponsor: Intel Corporation
Tested by: Pavel Shelepugin

Test date: Feb-2014
Hardware Availability: Feb-2014
Software Availability: Dec-2013



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
121.pop2	240	**405**	**9.62**	404	9.62	406	9.58							
122.tachyon	240	372	5.23	**351**	**5.54**	350	5.55							
125.RAxML	240	408	7.16	404	7.23	**407**	**7.18**							
126.lammps	240	385	6.39	**385**	**6.38**	387	6.35							
128.GAPgeofem	240	441	13.5	439	13.5	**441**	**13.5**							
129.tera_tf	240	**192**	**5.71**	192	5.72	193	5.71							
132.zeusmp2	240	**227**	**9.33**	228	9.31	227	9.33							
137.lu	240	**238**	**17.7**	240	17.5	237	17.7							
142.dmilc	240	345	10.7	346	10.6	**346**	**10.7**							
143.dleslie	240	256	12.1	**257**	**12.0**	258	12.0							
145.lGemsFDTD	240	410	10.8	408	10.8	**409**	**10.8**							
147.l2wrf2	240	645	12.7	645	12.7	**645**	**12.7**							

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

SPEC MPIL2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Intel Corporation

Endeavor (Intel Xeon E7-4890 v2, 2.80 GHz, DDR3-1600 MHz, SMT on, Turbo off)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 9.51

MPI2007 license: 13
Test sponsor: Intel Corporation
Tested by: Pavel Shelepugin

Test date: Feb-2014
Hardware Availability: Feb-2014
Software Availability: Dec-2013

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:	16
Total Cores:	240
Total Threads:	480
Total Memory:	2 TB
Base Ranks Run:	240
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 4.1.3.045 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:	S4TR1SY4Q
CPU Name:	Intel Xeon E7-4890 v2
CPU(s) orderable:	1-4 chips
Chips enabled:	4
Cores enabled:	60
Cores per chip:	15
Threads per core:	2
CPU Characteristics:	Intel Turbo Boost Technology disabled, 8.0 GT/s QPI, Hyper-Threading enabled
CPU MHz:	2800
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	38400 KB I+D on chip per chip, 38400 KB shared / 15 cores
Other Cache:	None
Memory:	512 GB (32 x 16 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem:	2 x 300 GB SAS HDDs
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 6.4, kernel 2.6.32-358
Local File System:	Linux/ext2
Shared File System:	NFS
System State:	Multi-User
Other Software:	Platform LSF 9.1.1.1

Copyright 2006-2010 Standard Performance Evaluation Corporation

Intel Corporation

Endeavor (Intel Xeon E7-4890 v2, 2.80 GHz, DDR3-1600 MHz, SMT on, Turbo off)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 9.51

MPI2007 license: 13
Test sponsor: Intel Corporation
Tested by: Pavel Shelepugin

Test date: Feb-2014
Hardware Availability: Feb-2014
Software Availability: Dec-2013

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

Interconnect Description: IB Switch

Hardware

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

Software

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 4x16-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 60/120/240/480 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

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`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/mpi2007/flags/EM64T_Intel140_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.

Tested with SPEC MPI2007 v2.0.1.
Report generated on Tue Jul 22 13:47:52 2014 by SPEC MPI2007 PS/PDF formatter v1463.
Originally published on 5 March 2014.