



SPEC® MPIL2007 Result

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NEC

NEC HPC1812Rg-2 (Intel Xeon E5-2650 v4, 2.20 GHz, DDR4-2400 MHz, SMT ON, Turbo ON)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 7.22

MPI2007 license: 055A

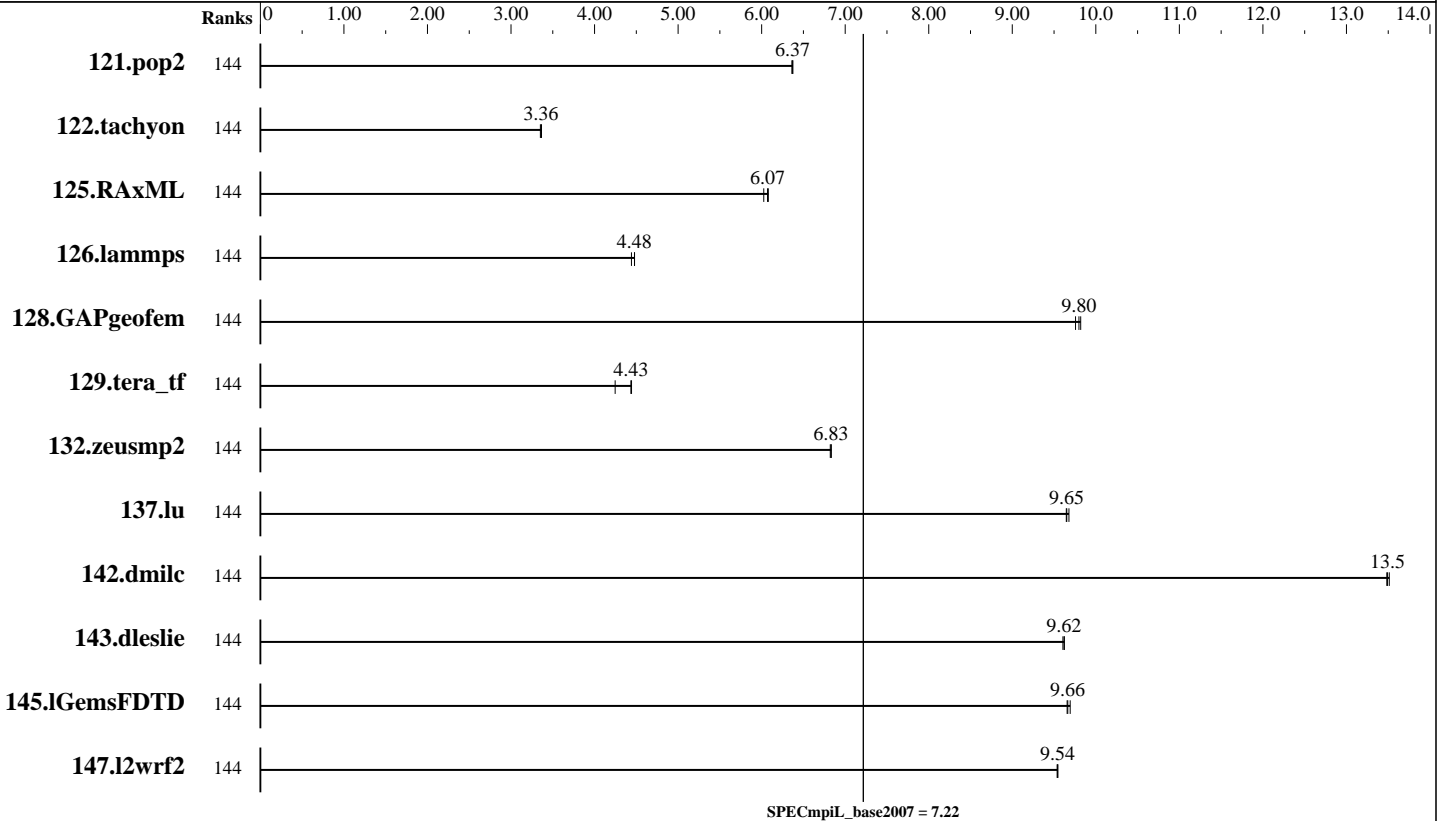
Test sponsor: RWTH University Aachen

Tested by: Bo Wang

Test date: Sep-2017

Hardware Availability: Oct-2016

Software Availability: Oct-2016



Results Table

Benchmark	Base								Peak							
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
121.pop2	144	611	6.37	611	6.37	612	6.36									
122.tachyon	144	578	3.37	579	3.36	580	3.35									
125.RAxML	144	480	6.08	484	6.03	481	6.07									
126.lammps	144	554	4.44	549	4.48	549	4.48									
128.GAPgeofem	144	608	9.76	606	9.80	604	9.82									
129.tera_tf	144	259	4.25	247	4.44	248	4.43									
132.zeusmp2	144	310	6.83	310	6.83	311	6.82									
137.lu	144	434	9.68	436	9.65	435	9.65									
142.dmilc	144	273	13.5	273	13.5	273	13.5									
143.dleslie	144	322	9.62	323	9.61	322	9.62									
145.lGemsFDTD	144	455	9.69	456	9.66	457	9.66									
147.l2wrf2	144	860	9.54	859	9.55	860	9.54									

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

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http://www.spec.org/



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Hardware Summary

Type of System: Homogeneous
 Compute Node: NEC HPC
 Interconnects: Omni-Path Architecture
 Gigabit Ethernet
 File Server Node: NFS
 Total Compute Nodes: 6
 Total Chips: 12
 Total Cores: 144
 Total Threads: 288
 Total Memory: 768 GB
 Base Ranks Run: 144
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C++ Composer XE 2017 for Linux, Version 17.0.2.174
 C++ Compiler: Intel C++ Composer XE 2017 for Linux, Version 17.0.2.174
 Fortran Compiler: Intel Fortran Composer XE 2017 for Linux, Version 17.0.2.174
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 MPI Library: Intel MPI Library 2017 for Linux, Version 2017.1.132
 Other MPI Info: None
 Pre-processors: No
 Other Software: None

Node Description: NEC HPC

Hardware

Number of nodes: 6
 Uses of the node: compute
 Vendor: Intel
 Model: NEC HPC 1812Rg
 CPU Name: Intel Xeon E5-2650 v4
 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 up to 2.9 GHz (single)/2.2 GHz (all), 9.6 GT/s QPI, Hyper-Threading enabled
 CPU MHz: 2200
 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 shared / 12 cores
 Other Cache: None
 Memory: 128 GB (8 x 16 GB 2Rx8 PC4-2400T-R)
 Disk Subsystem: SATA, Samsung SM863, 120GB, SSD
 Other Hardware: None
 Adapter: Intel Omni-Path Host Fabric Interface Adapter 100 Series 1 Port PCIe X8
 Number of Adapters: 1
 Slot Type: PCI-E x8
 Data Rate: 58Gb/s
 Ports Used: 1
 Interconnect Type: Omni-Path

Software

Adapter: Intel Omni-Path Host Fabric Interface Adapter 100 Series 1 Port PCIe X8
 Adapter Driver: hfi1
 Adapter Firmware: 2.33.5100
 Operating System: CentOS Linux release 7.3.1611 (Core)
 Local File System: Linux/xfs
 Shared File System: NFS
 System State: Multi-User
 Other Software: None



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Software Availability: Oct-2016

Node Description: NFS

Hardware		Software	
Number of nodes:	1	Adapter:	10 Gigabit Ethernet Controller
Uses of the node:	fileserver		IX1-SFP+
Vendor:	NETAPP	Adapter Driver:	N/A
Model:	FAS6240	Adapter Firmware:	1.8-0
CPU Name:	Intel Xeon CPU X5670	Operating System:	NetApp Release 8.2.3P2 7-Mode
CPU(s) orderable:	1-2 chips	Local File System:	None
Chips enabled:	2	Shared File System:	NFS
Cores enabled:	12	System State:	Multi-User
Cores per chip:	6	Other Software:	None
Threads per core:	2		
CPU Characteristics:	None		
CPU MHz:	2930		
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		
Other Cache:	None		
Memory:	96 GB		
Disk Subsystem:	216 disks, 2 TB/disk, 432TB total		
Other Hardware:	None		
Adapter:	10 Gigabit Ethernet Controller		
	IX1-SFP+		
Number of Adapters:	2		
Slot Type:	PCI-Express x8		
Data Rate:	10Gbps Ethernet		
Ports Used:	2		
Interconnect Type:	Ethernet		

Interconnect Description: Omni-Path Architecture

Hardware		Software	
Vendor:	Intel		
Model:	Intel Omni-Path 100 Series		
Switch Model:	Intel Omni-Path 100 Series		
Number of Switches:	25		
Number of Ports:	48		
Data Rate:	100Gbps		
Firmware:	10.3.0.0.81		
Topology:	2:1 Blocking Fat tree		
Primary Use:	MPI traffic		



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Software Availability: Oct-2016

Interconnect Description: Gigabit Ethernet

Hardware		Software
Vendor:	Cisco	
Model:	Ethernet 40 Gbps	
Switch Model:	Cisco Nexus5020, N5K-C5020P-BF	
Number of Switches:	1	
Number of Ports:	96	
Data Rate:	40Gbps	
Firmware:	5.2(1)N1(9a)	
Topology:	Star	
Primary Use:	Cluster File System	

Submit Notes

The config file option 'submit' was used.

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

Base Optimization Flags

C benchmarks:
-O3 -xCORE-AVX2 -no-prec-div

C++ benchmarks:

Continued on next page



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Base Optimization Flags (Continued)

126.lammps: -O3 -xCORE-AVX2 -no-prec-div

Fortran benchmarks:

-O3 -xCORE-AVX2 -no-prec-div

Benchmarks using both Fortran and C:

-O3 -xCORE-AVX2 -no-prec-div

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

<http://www.spec.org/mpi2007/flags/RWTH-Aachen-CLAIX-MPI-2017-SEP.html>

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

<http://www.spec.org/mpi2007/flags/RWTH-Aachen-CLAIX-MPI-2017-SEP.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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