SPEC® OMPG2012 Result

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Intel

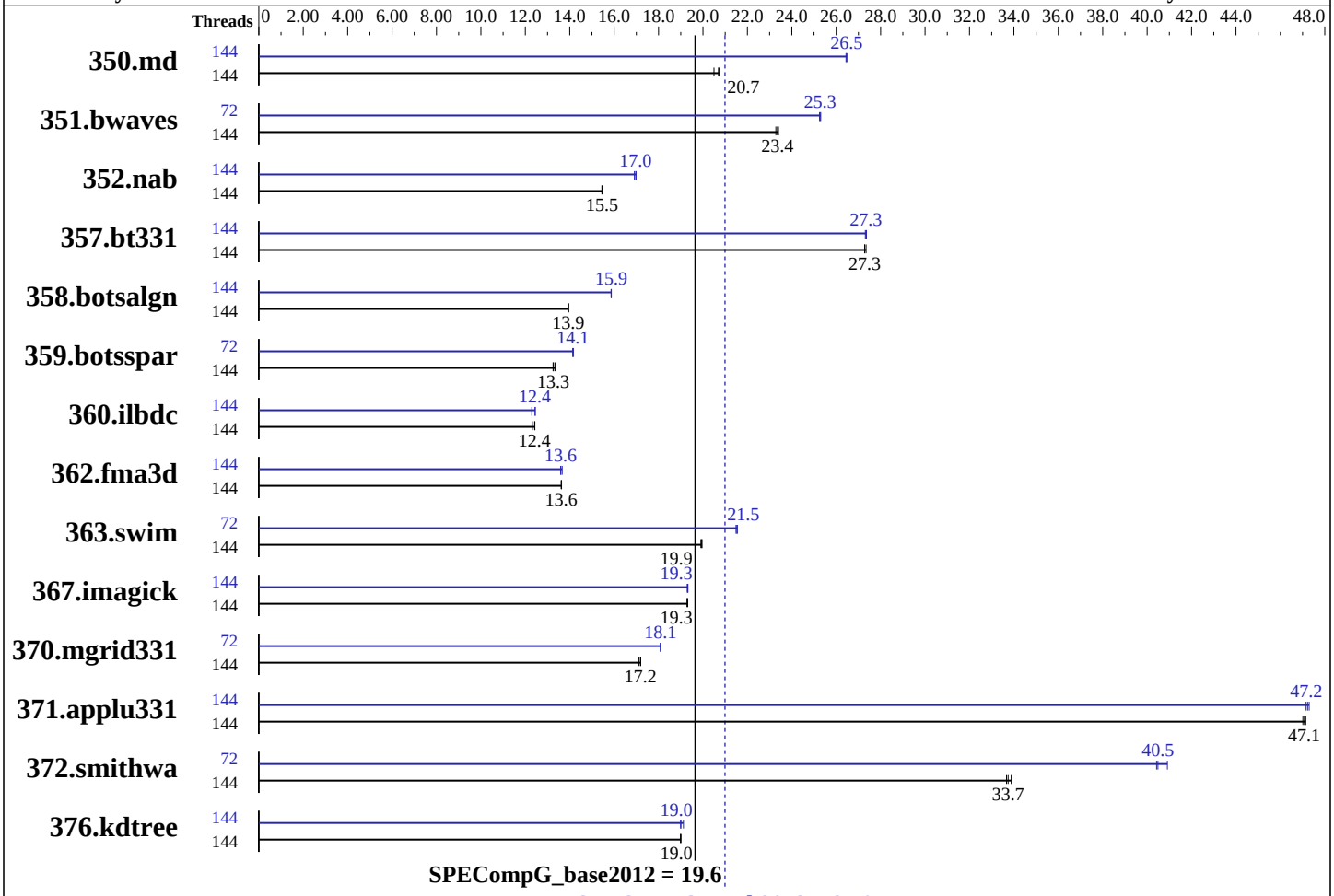
S4TR2KUQ (Intel Xeon E7-8890 v3)

SPECompG_peak2012 = 21.0

SPECompG_base2012 = 19.6

OMP2012 license: 13
Test sponsor: Intel
Tested by: Intel

Test date: May-2015
Hardware Availability: May-2015
Software Availability: Jan-2014



Hardware

CPU Name:	Intel Xeon E7-8890 v3
CPU Characteristics:	
CPU MHz:	2500
CPU MHz Maximum:	3300
FPU:	Integrated
CPU(s) enabled:	72 cores, 4 chips, 18 cores/chip, 2 threads/core
CPU(s) orderable:	1-4 Chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	45 MB I+D on chip per chip
Other Cache:	None
Memory:	512 GB (32 x 16 GB 2Rx4 PC4-17000R-15, ECC)
Disk Subsystem:	Panasas ActiveStor 14 connected via 1Gbps Ethernet
Other Hardware:	--
Base Threads Run:	144
Minimum Peak Threads:	72

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Software

Operating System:	Red Hat Enterprise Linux Server release 6.5
Compiler:	C/C++/Fortran: Version 14.0.2.144 of Intel Composer XE for Linux Build 20140120
Auto Parallel:	No
File System:	Linux ext3
System State:	Default
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other Software:	None

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Maximum Peak Threads: 144

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	144	223	20.7	**224**	**20.7**	226	20.5	144	175	26.4	**175**	**26.5**	175	26.5
351.bwaves	144	195	23.3	**194**	**23.4**	194	23.4	72	**179**	**25.3**	179	25.3	179	25.2
352.nab	144	251	15.5	252	15.4	**252**	**15.5**	144	230	16.9	229	17.0	**229**	**17.0**
357.bt331	144	173	27.3	174	27.3	**174**	**27.3**	144	173	27.4	**173**	**27.3**	174	27.3
358.botsalgn	144	312	13.9	**312**	**13.9**	312	13.9	144	**274**	**15.9**	274	15.9	274	15.9
359.botsspar	144	393	13.3	**396**	**13.3**	396	13.2	72	371	14.1	371	14.2	**371**	**14.1**
360.ilbdc	144	**287**	**12.4**	286	12.4	289	12.3	144	290	12.3	286	12.4	**286**	**12.4**
362.fma3d	144	279	13.6	**279**	**13.6**	279	13.6	144	**279**	**13.6**	280	13.6	278	13.7
363.swim	144	227	20.0	228	19.9	**227**	**19.9**	72	**210**	**21.5**	211	21.5	210	21.5
367.imagick	144	364	19.3	365	19.3	**364**	**19.3**	144	364	19.3	364	19.3	**364**	**19.3**
370.mgrid331	144	**257**	**17.2**	258	17.1	257	17.2	72	244	18.1	**244**	**18.1**	244	18.1
371.applu331	144	129	47.0	**129**	**47.1**	129	47.1	144	128	47.3	129	47.2	**128**	**47.2**
372.smithwa	144	158	33.9	159	33.7	**159**	**33.7**	72	133	40.4	**132**	**40.5**	131	40.9
376.kdtree	144	237	19.0	**237**	**19.0**	237	19.0	144	235	19.1	237	19.0	**237**	**19.0**

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

Platform Notes

```
Sysinfo program /panfs/projects/innl/aknyaze1/OMP2012/1.0/Docs/sysinfo
$Rev: 395 $ $Date:: 2012-07-25 #$ 8f8c0fe9e19c658963a1e67685e50647
running on ehx07 Fri May 22 22:04:37 2015

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
  http://www.spec.org/omp2012/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E7-8890 v3 @ 2.50GHz
      4 "physical id"s (chips)
      144 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
   following excerpts from /proc/cpuinfo might not be reliable.  Use with
   caution.)
      cpu cores : 18
      siblings  : 36
      physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 3: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
   cache size : 46080 KB
```

Continued on next page

Platform Notes (Continued)

```
From /proc/meminfo
   MemTotal:       529146648 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.5 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux ehx07 2.6.32-358.6.2.el6.x86_64.crt1 #4 SMP Fri May 17 15:33:33 MDT
   2013 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 22 05:08

SPEC is set to: /panfs/projects/innl/aknyaze1/OMP2012/1.0
   Filesystem           Type   Size  Used Avail Use% Mounted on
   panfs://36.101.211.31/projects
                        panfs   32T   28T  4.1T  88% /panfs/projects

Cannot run dmidecode; consider saying 'chmod +s /usr/sbin/dmidecode'

(End of data from sysinfo program)
```

General Notes

```
================================================================================
BIOS settings notes:
  Intel Turbo Boost Technology (Turbo)  : Enabled

================================================================================
General OMP Library Settings
  ENV_KMP_LIBRARY=turnaround
  ENV_KMP_STACKSIZE=190M
  ENV_KMP_BLOCKTIME=infinite
  ENV_OMP_DYNAMIC=FALSE
  ENV_OMP_NESTED=FALSE
  ENV_OMP_SCHEDULE=static

================================================================================
General base OMP Library Settings
  ENV_KMP_AFFINITY=compact,0

================================================================================
General peak OMP Library Settings
  ENV_KMP_AFFINITY=compact,0
```

Continued on next page

General Notes (Continued)

```
================================================================================
Per benchmark peak OMP Library Settings

================================================================================
351.bwaves:peak:
  ENV_KMP_AFFINITY=compact,1
  ENV_OMP_SCHEDULE=static,1

================================================================================
357.bt331:peak:
  ENV_OMP_SCHEDULE=static,1

================================================================================
359.botsspar:peak:
  ENV_KMP_AFFINITY=compact,1
  ENV_OMP_SCHEDULE=guided

================================================================================
362.fma3d:peak:
  ENV_OMP_SCHEDULE=static,1

================================================================================
363.swim:peak:
  ENV_KMP_AFFINITY=compact,1

================================================================================
370.mgrid331:peak:
  ENV_KMP_AFFINITY=compact,1

================================================================================
372.smithwa:peak:
  ENV_KMP_AFFINITY=compact,1
  ENV_OMP_SCHEDULE=static,1
```

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Base Portability Flags

350.md: `-FR`
357.bt331: `-mcmodel=medium`
363.swim: `-mcmodel=medium`
367.imagick: `-std=c99`

Base Optimization Flags

C benchmarks:
`-O3 -openmp -ipo -xCORE-AVX2 -ansi-alias`

C++ benchmarks:
`-O3 -openmp -ipo -xCORE-AVX2 -ansi-alias`

Fortran benchmarks:
`-O3 -openmp -ipo -xCORE-AVX2 -align array64byte`

Peak Compiler Invocation

C benchmarks:
`icc`

C++ benchmarks:
`icpc`

Fortran benchmarks:
`ifort`

Peak Portability Flags

350.md: `-FR`
357.bt331: `-mcmodel=medium`
363.swim: `-mcmodel=medium`
367.imagick: `-std=c99`

Peak Optimization Flags

C benchmarks:

352.nab: `-O3 -openmp -ipo -xCORE-AVX2 -fno-alias -opt-malloc-options=1 -opt-calloc -fp-model fast=2 -no-prec-div -no-prec-sqrt -ansi-alias`

Continued on next page

Peak Optimization Flags (Continued)

358.botsalgn: `-O3 -openmp -ipo -xSSE4.2 -fno-alias -ansi-alias`

359.botsspar: `-O3 -openmp -ipo -xCORE-AVX2 -fno-alias -ansi-alias`

367.imagick: `-O3 -openmp -ipo -xCORE-AVX2 -ansi-alias`

372.smithwa: `-O3 -openmp -ipo -xSSE4.2 -fno-alias -opt-streaming-stores always -opt-malloc-options=1 -ansi-alias`

C++ benchmarks:
`-O3 -openmp -ipo -xCORE-AVX2 -fno-alias -ansi-alias`

Fortran benchmarks:

350.md: `-O3 -openmp -ipo -xCORE-AVX2 -fno-alias -opt-malloc-options=1 -fp-model fast=2 -no-prec-div -no-prec-sqrt -align array64byte`

351.bwaves: `-O3 -openmp -ipo -xCORE-AVX2 -fno-alias -fp-model fast=2 -no-prec-div -no-prec-sqrt -align array64byte`

357.bt331: `Same as 351.bwaves`

360.ilbdc: `-O3 -openmp -ipo -xCORE-AVX2 -opt-malloc-options=1 -align array64byte`

362.fma3d: `-O3 -openmp -ipo -xCORE-AVX2 -fno-alias -align array64byte`

363.swim: `-O3 -openmp -ipo -xSSE4.2 -fno-alias -opt-streaming-stores always -opt-malloc-options=3 -align array64byte`

370.mgrid331: `-O3 -openmp -ipo -xSSE4.2 -fno-alias -opt-malloc-options=3 -align array64byte`

371.applu331: `-O3 -openmp -ipo -xCORE-AVX2 -align array64byte`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/omp2012/flags/Intel-ic13.0-linux64.20140219.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/omp2012/flags/Intel-ic13.0-linux64.20140219.xml`

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