SPEC® OMPG2012 Result

Intel

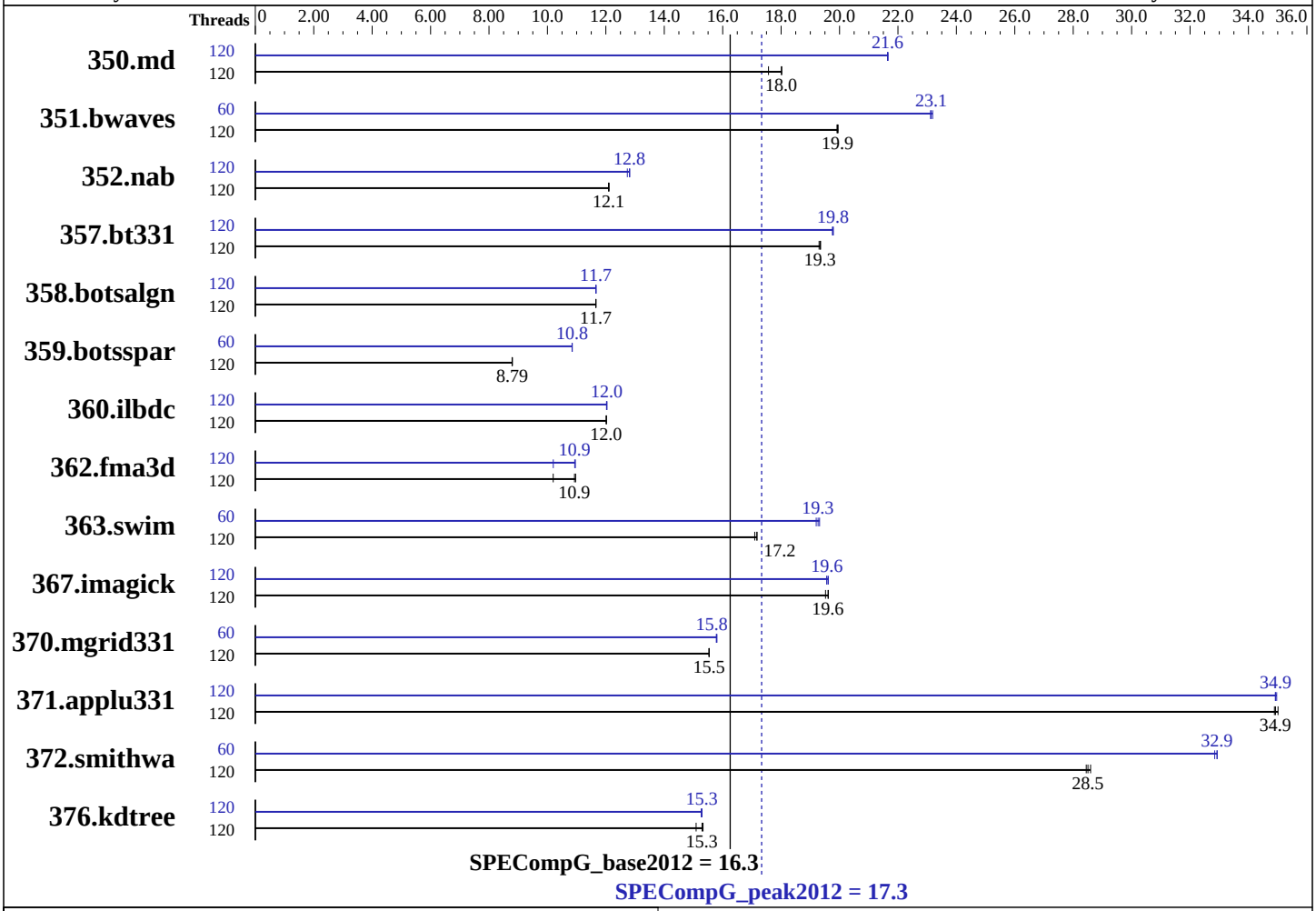
S4TR1SY4Q (Intel Xeon E7-4890 v2)

SPECompG_peak2012 = 17.3

SPECompG_base2012 = 16.3

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

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



Hardware

CPU Name:	Intel Xeon E7-4890 v2
CPU Characteristics:	
CPU MHz:	2800
CPU MHz Maximum:	2800
FPU:	Integrated
CPU(s) enabled:	60 cores, 4 chips, 15 cores/chip, 2 threads/core
CPU(s) orderable:	1,2,3,4 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:	38400 KB I+D on chip per chip
Other Cache:	None
Memory:	512 GB (32 x 16 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem:	Panasas ActiveStor 14
Other Hardware:	--
Base Threads Run:	120
Minimum Peak Threads:	60

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Software

Operating System:	Red Hat Enterprise Linux Server release 6.4
Compiler:	C/C++/Fortran: Version 13.1.3 of Intel Composer XE for Linux Build 20130607
Auto Parallel:	No
File System:	Linux ext3
System State:	Default
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other Software:	None

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	120	**257**	**18.0**	257	18.0	264	17.6	120	214	21.7	**214**	**21.6**	214	21.6
351.bwaves	120	227	20.0	**227**	**19.9**	227	19.9	60	**196**	**23.1**	196	23.1	195	23.2
352.nab	120	321	12.1	**322**	**12.1**	322	12.1	120	305	12.7	303	12.8	**304**	**12.8**
357.bt331	120	**245**	**19.3**	245	19.4	246	19.3	120	**240**	**19.8**	240	19.8	240	19.8
358.botsalgn	120	373	11.7	373	11.7	**373**	**11.7**	120	373	11.7	**373**	**11.7**	373	11.7
359.botsspar	120	**597**	**8.79**	597	8.79	597	8.80	60	484	10.8	**484**	**10.8**	484	10.8
360.ilbdc	120	296	12.0	296	12.0	**296**	**12.0**	120	296	12.0	**296**	**12.0**	296	12.0
362.fma3d	120	**348**	**10.9**	347	11.0	373	10.2	120	373	10.2	**348**	**10.9**	347	11.0
363.swim	120	264	17.2	**264**	**17.2**	265	17.1	60	235	19.3	**235**	**19.3**	236	19.2
367.imagick	120	358	19.6	360	19.5	**359**	**19.6**	120	359	19.6	**359**	**19.6**	358	19.6
370.mgrid331	120	285	15.5	**284**	**15.5**	284	15.5	60	280	15.8	280	15.8	**280**	**15.8**
371.applu331	120	174	34.9	173	35.0	**174**	**34.9**	120	**174**	**34.9**	174	34.9	173	35.0
372.smithwa	120	**188**	**28.5**	188	28.4	187	28.6	60	163	32.8	**163**	**32.9**	163	32.9
376.kdtree	120	298	15.1	**294**	**15.3**	294	15.3	120	**294**	**15.3**	294	15.3	295	15.3

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 eix05 Sat Feb  1 05:53:57 2014

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 E7-4890 v2 @ 2.80GHz
      4 "physical id"s (chips)
      120 "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 : 15
      siblings  : 30
      physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
   cache size : 38400 KB
```

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Platform Notes (Continued)

```
From /proc/meminfo
   MemTotal:       529160992 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.4 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux eix05 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 Jan 27 20:46

SPEC is set to: /panfs/projects/innl/aknyaze1/OMP2012/1.0
   Filesystem     Type    Size  Used Avail Use% Mounted on
   panfs://36.101.211.1/projects
                  panfs     28T   18T  9.7T  65% /panfs/projects

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

(End of data from sysinfo program)
```

General Notes

```
------------------------------------------------------------------------
BIOS settings: Default
  Intel Turbo Boost Technology (Turbo)  : Disabled
  Transparent Huge Pages Disabled via "echo never > /sys/kernel/mm/redhat_transparent_hugepage/enabled"

------------------------------------------------------------------------
General OMP Library Settings
  ENV_KMP_LIBRARY=throughput
  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,granularity=fine

------------------------------------------------------------------------
General peak OMP Library Settings
  ENV_KMP_AFFINITY=compact,0,granularity=fine
```

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General Notes (Continued)

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

================================================================================
351.bwaves:peak:
  ENV_KMP_AFFINITY=compact,1,granularity=fine
  ENV_OMP_SCHEDULE=static,1
================================================================================
357.bt331:peak:
  ENV_OMP_SCHEDULE=static,1

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

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

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

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

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

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:
`-O2 -openmp -ipo -xAVX -ansi-alias`

C++ benchmarks:
`-O2 -openmp -ipo -xAVX -ansi-alias`

Fortran benchmarks:
`-O2 -openmp -ipo -xAVX -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 -xAVX -fno-alias -opt-malloc-options=1 -opt-calloc -fp-model fast=2 -no-prec-div -no-prec-sqrt -ansi-alias`

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Peak Optimization Flags (Continued)

358.botsalgn: -O2 -openmp -ipo -xAVX -ansi-alias

359.botsspar: -O3 -openmp -ipo -xAVX -fno-alias -ansi-alias

367.imagick: Same as 358.botsalgn

372.smithwa: -O2 -openmp -ipo -xSSE4.2 -fno-alias
-opt-streaming-stores always -opt-malloc-options=1
-ansi-alias

C++ benchmarks:
-O3 -openmp -ipo -xAVX -fno-alias -ansi-alias

Fortran benchmarks:

350.md: -O2 -openmp -ipo -xAVX -fno-alias -opt-malloc-options=1
-fp-model fast=2 -no-prec-div -no-prec-sqrt
-align array64byte

351.bwaves: -O3 -openmp -ipo -xAVX -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 -xAVX -opt-malloc-options=1
-align array64byte

362.fma3d: -O3 -openmp -ipo -xAVX -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: -O2 -openmp -ipo -xSSE4.2 -fno-alias
-opt-malloc-options=3 -align array64byte

371.applu331: -O2 -openmp -ipo -xAVX -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

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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