SPEC® OMPG2012 Result

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Intel

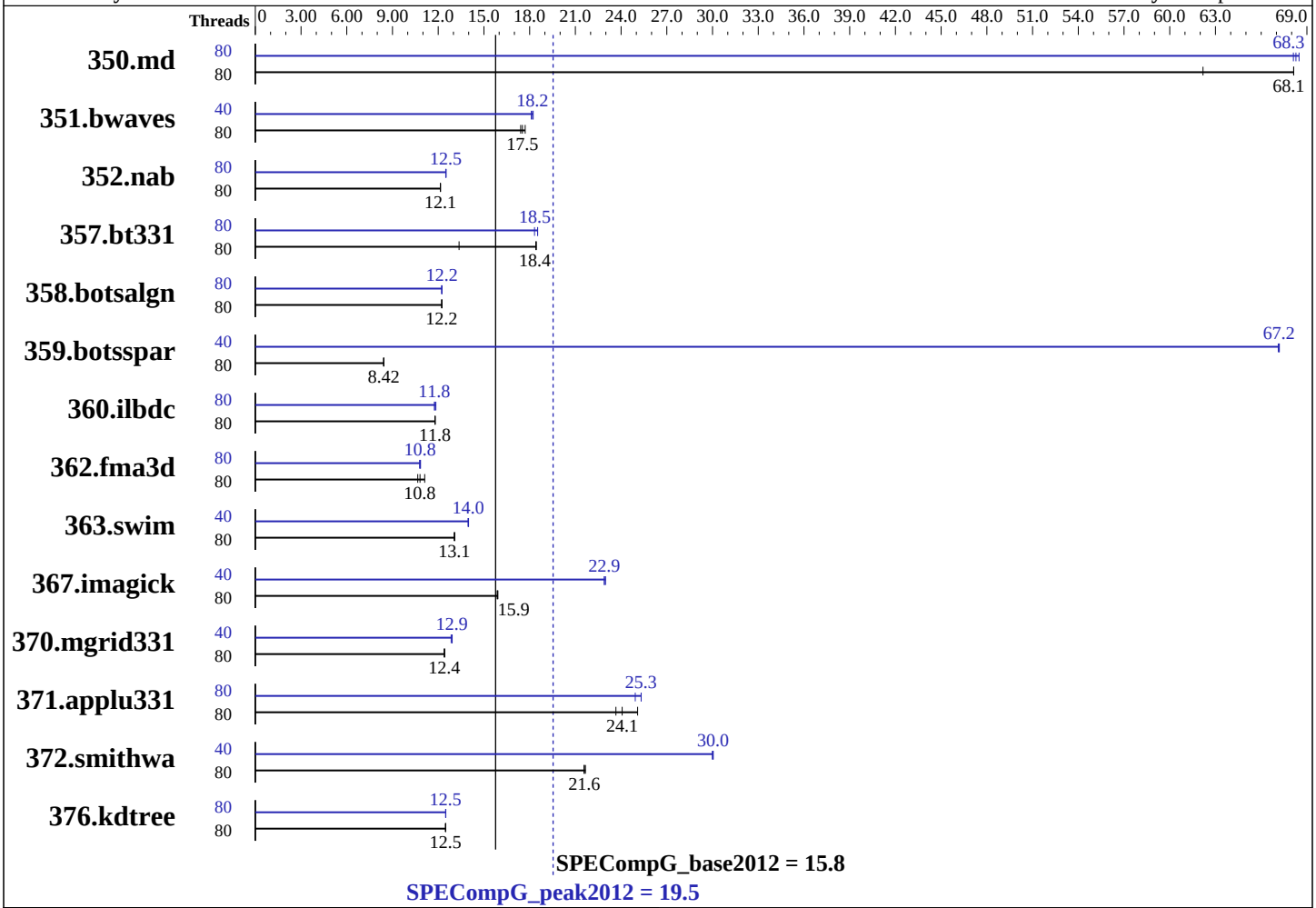
Intel Server System R2208WFTZS (Intel Xeon Gold 6148, DDR4-2666 Turbo ON, SMT ON) Endeavour Node

SPECompG_peak2012 = 19.5

SPECompG_base2012 = 15.8

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

Test date: Jul-2017
Hardware Availability: Jul-2017
Software Availability: Sep-2017



Hardware

CPU Name:	Intel Xeon Gold 6148
CPU Characteristics:	Intel Turbo Boost Technology up to 3.7 GHz
CPU MHz:	2400
CPU MHz Maximum:	3700
FPU:	Integrated
CPU(s) enabled:	40 cores, 2 chips, 20 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 Chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core
L3 Cache:	27.5 MB I+D on chip per chip
Other Cache:	None
Memory:	192 GB (12 x 16 GB 2Rx4 DDR4-2666 ECC Registered)
Disk Subsystem:	Panasas ActiveStor 14 (Size 124TB)
Other Hardware:	--
Base Threads Run:	80
Minimum Peak Threads:	40

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Software

Operating System:	Oracle Linux Server release 7.3
Compiler:	C/C++/Fortran: Version 18.0.0.082 of Intel Compiler for Linux Beta Build 20170510
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: 80

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	80	74.5	62.2	**68.0**	**68.1**	68.0	68.1	80	67.6	68.5	**67.8**	**68.3**	68.0	68.1
351.bwaves	80	260	17.4	256	17.7	**258**	**17.5**	40	250	18.1	**249**	**18.2**	248	18.2
352.nab	80	**320**	**12.1**	320	12.1	320	12.2	80	311	12.5	311	12.5	**311**	**12.5**
357.bt331	80	355	13.4	257	18.4	**258**	**18.4**	80	256	18.5	**256**	**18.5**	259	18.3
358.botsalgn	80	355	12.2	**355**	**12.2**	356	12.2	80	356	12.2	355	12.2	**355**	**12.2**
359.botsspar	80	622	8.44	624	8.42	**623**	**8.42**	40	**78.2**	**67.2**	78.2	67.1	78.1	67.2
360.ilbdc	80	**302**	**11.8**	302	11.8	302	11.8	80	303	11.8	**303**	**11.8**	300	11.8
362.fma3d	80	**352**	**10.8**	342	11.1	357	10.7	80	353	10.8	351	10.8	**351**	**10.8**
363.swim	80	347	13.1	346	13.1	**347**	**13.1**	40	325	14.0	324	14.0	**324**	**14.0**
367.imagick	80	**442**	**15.9**	443	15.9	442	15.9	40	**307**	**22.9**	307	22.9	306	23.0
370.mgrid331	80	357	12.4	356	12.4	**356**	**12.4**	40	344	12.8	342	12.9	**342**	**12.9**
371.applu331	80	256	23.7	242	25.1	**252**	**24.1**	80	239	25.3	**239**	**25.3**	243	24.9
372.smithwa	80	247	21.7	249	21.6	**248**	**21.6**	40	**178**	**30.0**	179	30.0	178	30.0
376.kdtree	80	361	12.5	**361**	**12.5**	360	12.5	80	360	12.5	**360**	**12.5**	360	12.5

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

Platform Notes

```
Sysinfo program /global/panfs02/innl/aknyaze1/OMP2012/1.0/Docs/sysinfo
$Rev: 395 $ $Date:: 2012-07-25 #$ 8f8c0fe9e19c658963a1e67685e50647
running on epb343 Tue Jul  4 06:33:00 2017

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) Gold 6148 CPU @ 2.40GHz
      2 "physical id"s (chips)
      80 "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 : 20
      siblings  : 40
      physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
      physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
   cache size : 28160 KB

From /proc/meminfo
   MemTotal:       196699188 kB
```

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Platform Notes (Continued)

```
      HugePages_Total:       0
      Hugepagesize:       2048 kB

   From /etc/*release* /etc/*version*
      oracle-release: Oracle Linux Server release 7.3
      os-release:
         NAME="Oracle Linux Server"
         VERSION="7.3"
         ID="ol"
         VERSION_ID="7.3"
         PRETTY_NAME="Oracle Linux Server 7.3"
         ANSI_COLOR="0;31"
         CPE_NAME="cpe:/o:oracle:linux:7:3:server"
         HOME_URL="https://linux.oracle.com/"
      redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
      system-release: Oracle Linux Server release 7.3
      system-release-cpe: cpe:/o:oracle:linux:7:3:server

   uname -a:
      Linux epb343 3.10.0-514.6.2.0.1.el7.x86_64.knl1 #1 SMP Thu Mar 2 10:19:17 MST
      2017 x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Jul 1 13:13

   SPEC is set to: /global/panfs02/innl/aknyaze1/OMP2012/1.0
      Filesystem                Type   Size  Used Avail Use% Mounted on
      panfs://36.101.212.1/innl panfs  108T   40T   69T  37% /global/panfs02/innl

   Additional information from dmidecode:

   (End of data from sysinfo program)
```

General Notes

```
   ------------------------------------------------------------------------
   Intel Turbo Boost Technology Enabled (Up to 3.7 Ghz)
   ------------------------------------------------------------------------
   General base OMP Library Settings
     ENV_KMP_AFFINITY=compact,0,verbose

   ------------------------------------------------------------------------
   General peak OMP Library Settings
     ENV_KMP_AFFINITY=compact,0,verbose

   ------------------------------------------------------------------------
   Per benchmark peak OMP Library Settings

   ------------------------------------------------------------------------
   System settings notes:

   ------------------------------------------------------------------------
```

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General Notes (Continued)

```
General OMP Library Settings
  KMP_LIBRARY=turnaround
  KMP_STACKSIZE=292M
  KMP_BLOCKTIME=infinite
  OMP_DYNAMIC=FALSE
  OMP_NESTED=FALSE
  OMP_SCHEDULE=static
==============================================================================
351.bwaves:peak:
  ENV_KMP_AFFINITY=compact,1,verbose

==============================================================================
359.botsspar:peak:
  ENV_KMP_AFFINITY=compact,1,verbose

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

==============================================================================
367.imagick:peak:
  ENV_KMP_AFFINITY=compact,1,verbose

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

==============================================================================
372.smithwa:peak:
  ENV_KMP_AFFINITY=compact,1,verbose
```

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Base Portability Flags

350.md: -FR
357.bt331: -mcmodel=medium

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Base Portability Flags (Continued)

363.swim: `-mcmodel=medium`
367.imagick: `-std=c99`

Base Optimization Flags

C benchmarks:
`-O3 -qopenmp -xCORE-AVX512 -fp-model fast=2 -ansi-alias -no-prec-div -no-prec-sqrt`

C++ benchmarks:
`-O3 -qopenmp -xCORE-AVX512 -fp-model fast=2 -ansi-alias -no-prec-div -no-prec-sqrt`

Fortran benchmarks:
`-O3 -qopenmp -xCORE-AVX512 -fp-model fast=2 -ansi-alias -no-prec-div -no-prec-sqrt -align all`

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 -qopenmp -xCORE-AVX512 -fp-model fast=2 -no-prec-div -no-prec-sqrt -fno-alias -qopt-malloc-options=1 -qopt-calloc`

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Peak Optimization Flags (Continued)

358.botsalgn: `-O3 -qopenmp -xCORE-AVX512 -fp-model fast=2 -fno-alias -no-prec-div -no-prec-sqrt`

359.botsspar: `Same as 358.botsalgn`

367.imagick: `-O3 -qopenmp -xCORE-AVX2 -fp-model fast=2 -fno-alias -no-prec-div -no-prec-sqrt`

372.smithwa: `Same as 367.imagick`

C++ benchmarks:
`-O3 -qopenmp -xCORE-AVX512 -fp-model fast=2 -fno-alias -no-prec-div -no-prec-sqrt`

Fortran benchmarks:

350.md: `-O3 -qopenmp -xCORE-AVX512 -fp-model fast=2 -fno-alias -no-prec-div -no-prec-sqrt -align all`

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

357.bt331: `Same as 350.md`

360.ilbdc: `-O3 -qopenmp -xCORE-AVX512 -fp-model fast=2 -ansi-alias -no-prec-div -no-prec-sqrt -align all`

362.fma3d: `Same as 350.md`

363.swim: `-O3 -qopenmp -xCORE-AVX2 -fp-model fast=2 -no-prec-div -no-prec-sqrt -fno-alias -qopt-malloc-options=3 -align all`

370.mgrid331: `Same as 363.swim`

371.applu331: `Same as 351.bwaves`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/omp2012/flags/Intel-ic13.0-linux64.20170722.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/omp2012/flags/Intel-ic13.0-linux64.20170722.xml`

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For other inquiries, please contact webmaster@spec.org.

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