SPEC® OMPG2012 Result

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Intel

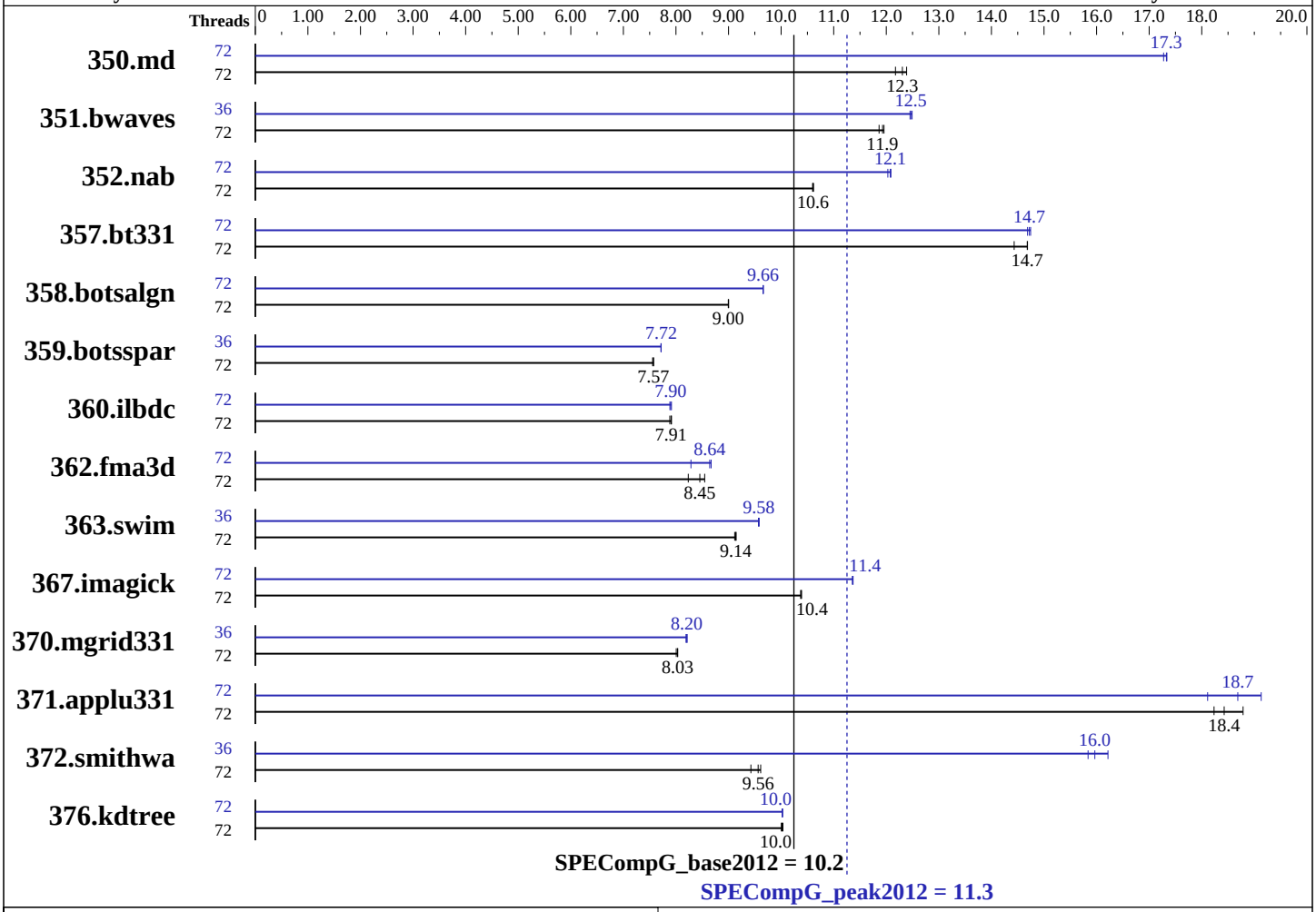
Intel R2308WTTYS (Endeavour Node, Intel Xeon E5-2697 v4, 2.3GHz, DDR4-2400 MHz,SMT ON Turbo ON)

SPECompG_peak2012 = 11.3

SPECompG_base2012 = 10.2

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

Test date: Mar-2016
Hardware Availability: Mar-2016
Software Availability: Feb-2016



Hardware

CPU Name:	Intel Xeon E5-2697 v4
CPU Characteristics:	Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz:	2300
CPU MHz Maximum:	3600
FPU:	Integrated
CPU(s) enabled:	36 cores, 2 chips, 18 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:	256 KB I+D on chip per core
L3 Cache:	45 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (8 x 16 GB 2Rx4 PC4-2400U-R)
Disk Subsystem:	Panasas ActiveStor 14
Other Hardware:	--
Base Threads Run:	72
Minimum Peak Threads:	36

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Software

Operating System:	Oracle Linux Server release 6.7, Kernel 3.10.0-229.20.1.el6.x86_64.knl2
Compiler:	C/C++/Fortran: Version 14.0.4.211 of Intel Composer XE for Linux Build 20140805 C/C++/Fortran: Version 16.0.2.181 of Intel Composer XE for Linux Build 20160204
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: 72

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	72	374	12.4	**376**	**12.3**	380	12.2	72	268	17.3	267	17.3	**267**	**17.3**
351.bwaves	72	**380**	**11.9**	379	12.0	382	11.9	36	364	12.5	**363**	**12.5**	363	12.5
352.nab	72	**367**	**10.6**	366	10.6	367	10.6	72	**322**	**12.1**	323	12.0	322	12.1
357.bt331	72	**323**	**14.7**	328	14.4	323	14.7	72	323	14.7	**322**	**14.7**	321	14.7
358.botsalgn	72	**484**	**9.00**	484	9.00	483	9.00	72	450	9.66	**450**	**9.66**	450	9.66
359.botsspar	72	693	7.57	**693**	**7.57**	695	7.56	36	681	7.71	680	7.72	**680**	**7.72**
360.ilbdc	72	450	7.92	**450**	**7.91**	452	7.88	72	450	7.91	452	7.88	**451**	**7.90**
362.fma3d	72	**449**	**8.45**	445	8.55	461	8.23	72	438	8.67	**440**	**8.64**	459	8.29
363.swim	72	497	9.12	**496**	**9.14**	495	9.14	36	473	9.58	473	9.57	**473**	**9.58**
367.imagick	72	**677**	**10.4**	677	10.4	678	10.4	72	**619**	**11.4**	619	11.4	618	11.4
370.mgrid331	72	550	8.03	552	8.01	**550**	**8.03**	36	540	8.19	**539**	**8.20**	538	8.21
371.applu331	72	**329**	**18.4**	332	18.2	323	18.8	72	**324**	**18.7**	317	19.1	335	18.1
372.smithwa	72	569	9.43	**560**	**9.56**	558	9.61	36	331	16.2	338	15.8	**336**	**16.0**
376.kdtree	72	450	10.0	448	10.0	**449**	**10.0**	72	449	10.0	449	10.0	**449**	**10.0**

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

Submit Notes

```
The config file option 'submit' was used.
```

Platform Notes

```
Sysinfo program /panfs/projects/innl/aknyaze1/OMP2012/1.0/Docs/sysinfo
$Rev: 395 $ $Date:: 2012-07-25 #$ 8f8c0fe9e19c658963a1e67685e50647
running on ewb261 Sun Mar 13 01:46:38 2016

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 E5-2697 v4 @ 2.30GHz
      2 "physical id"s (chips)
      72 "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
```

Continued on next page

Platform Notes (Continued)

```
        physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
     cache size : 46080 KB

  From /proc/meminfo
     MemTotal:       131920288 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  /usr/bin/lsb_release -d
     Oracle Linux Server release 6.7

  From /etc/*release* /etc/*version*
     oracle-release: Oracle Linux Server release 6.7
     os-release:
        NAME="Oracle Linux Server"
        VERSION="6.7"
        ID="ol"
        VERSION_ID="6.7"
        PRETTY_NAME="Oracle Linux Server 6.7"
        ANSI_COLOR="0;31"
        CPE_NAME="cpe:/o:oracle:linux:6:7:server"
        HOME_URL="https://linux.oracle.com/"
     redhat-release: Red Hat Enterprise Linux Server release 6.7 (Santiago)
     system-release: Oracle Linux Server release 6.7
     system-release-cpe: cpe:/o:oracle:linux:6:7:server

  uname -a:
     Linux ewb261 3.10.0-229.20.1.el6.x86_64.knl2 #2 SMP Tue Dec 8 22:27:38 MST
     2015 x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Mar 10 14:13

  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   78T   63T   16T  81% /panfs/projects

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

  (End of data from sysinfo program)
```

General Notes

```
  ------------------------------------------------------------------------
  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)

```
================================================================================
General OMP Library Settings
  KMP_LIBRARY=turnaround
  KMP_STACKSIZE=256M
  KMP_BLOCKTIME=infinite
  OMP_DYNAMIC=FALSE
  OMP_NESTED=FALSE
  OMP_SCHEDULE=static
================================================================================
Compiler selection proxy script spec{icc/ifort/icpc/run} was used:
#!/bin/sh
COMPBIN=${BASH_SOURCE[0]:-$0}
COMPBIN=${COMPBIN##*/spec}
version=$1
shift

COMPILER_ROOT_PATHS="/opt/intel/compiler"

for COMPILER_ROOT_PATH in $COMPILER_ROOT_PATHS ; do
if [ -e "$COMPILER_ROOT_PATH/${version}/bin/compilervars.sh" ] ; then
. $COMPILER_ROOT_PATH/${version}/bin/compilervars.sh intel64
break
fi
done

exec $COMPBIN "$@"
for specrun last line is
exec "$@"
Compiler for base and most peak: C/C++/Fortran: Version 14.0.4.211 of Intel Composer XE for Linux Build 20140805
Compiler for some peak components (where 2016u2 is specified): C/C++/Fortran: Version 16.0.2.181 of Intel Composer XE for Linux Build 20160204
================================================================================
351.bwaves:peak:
  ENV_KMP_AFFINITY=compact,1
  ENV_OMP_SCHEDULE=static,1

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

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

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

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

Base Compiler Invocation

C benchmarks:
```
specicc 2013_sp1.4.211
```

C++ benchmarks:
```
specicpc 2013_sp1.4.211
```

Fortran benchmarks:
```
specifort 2013_sp1.4.211
```

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 (except as noted below):
```
specicc 2016u2
```

359.botsspar: `specicc 2013_sp1.4.211`

372.smithwa: `specicc 2013_sp1.4.211`

C++ benchmarks:
```
specicpc 2013_sp1.4.211
```

Fortran benchmarks (except as noted below):
```
specifort 2013_sp1.4.211
```

350.md: `specifort 2016u2`

Continued on next page

Peak Compiler Invocation (Continued)

371.applu331: specifort 2016u2

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 -ipo -xCORE-AVX2 -fno-alias -opt-malloc-options=1 -opt-calloc -fp-model fast=2 -no-prec-div -no-prec-sqrt -ansi-alias

358.botsalgn: -O3 -qopenmp -ipo -xCORE-AVX2 -fno-alias -ansi-alias

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

367.imagick: -O3 -qopenmp -ipo -xCORE-AVX2 -ansi-alias

372.smithwa: -O3 -openmp -ipo -xCORE-AVX2 -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 -qopenmp -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 -fno-alias -align array64byte

362.fma3d: Same as 360.ilbdc

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Peak Optimization Flags (Continued)

363.swim: `-O3 -openmp -ipo -xCORE-AVX2 -fno-alias -opt-streaming-stores always -opt-malloc-options=3 -align array64byte`

370.mgrid331: `-O3 -openmp -ipo -xCORE-AVX2 -fno-alias -opt-malloc-options=3 -align array64byte`

371.applu331: `-O3 -qopenmp -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-linux64.20160331.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/omp2012/flags/Intel-ic13.0-linux64.20160331.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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