SPEC® OMPG2012 Result

Huawei

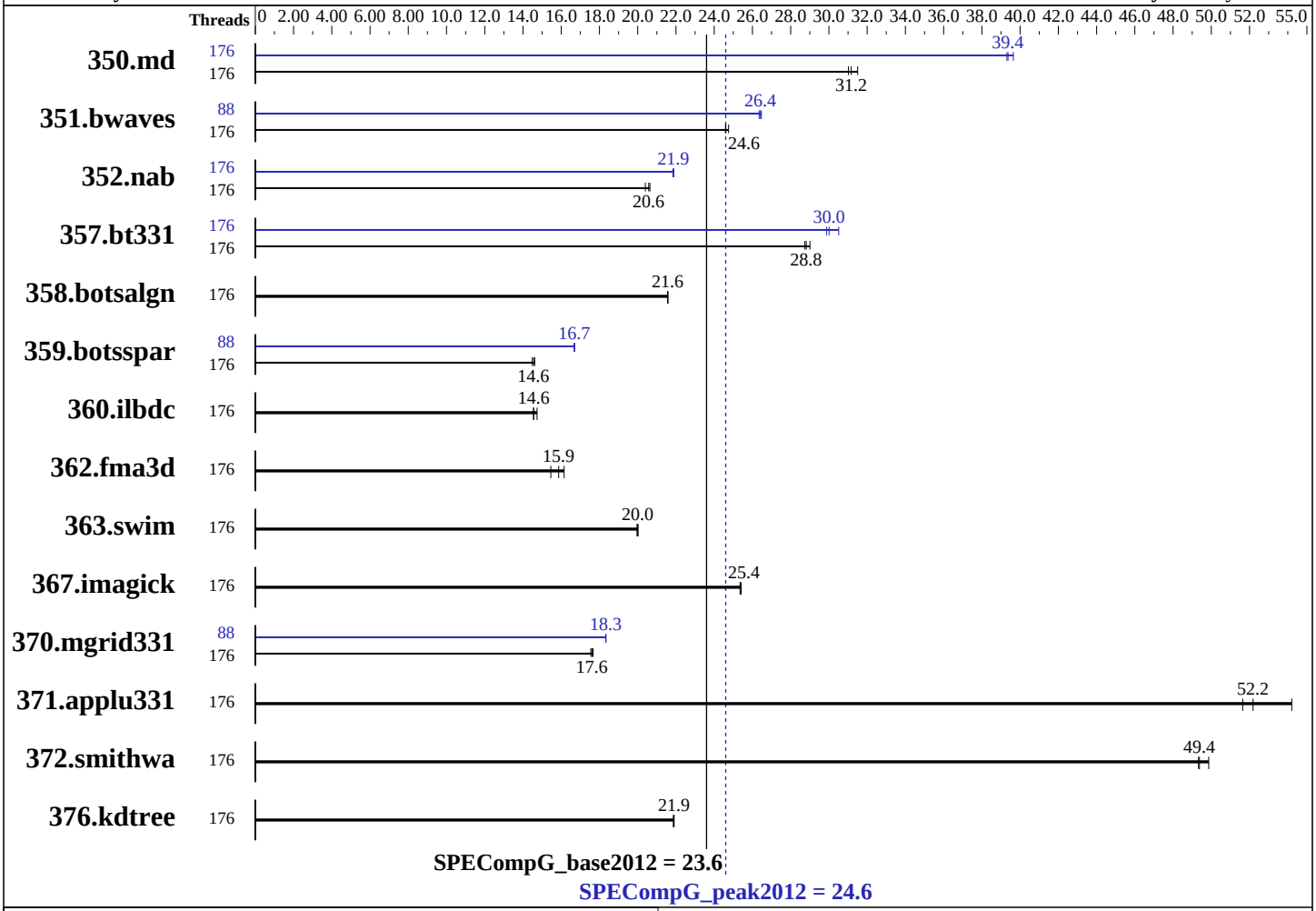
Huawei RH5885H V3 (Intel Xeon E7-8880 v4)

SPECompG_peak2012 = 24.6

SPECompG_base2012 = 23.6

OMP2012 license: 27
Test sponsor: Huawei
Tested by: Huawei

Test date: Feb-2017
Hardware Availability: May-2015
Software Availability: May-2016



Hardware

CPU Name:	Intel Xeon E7-8880 v4
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2200
CPU MHz Maximum:	3300
FPU:	Integrated
CPU(s) enabled:	88 cores, 4 chips, 22 cores/chip, 2 threads/core
CPU(s) orderable:	2, 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:	55 MB I+D on chip per chip
Other Cache:	None
Memory:	512 GB (32 x 16 GB 2Rx8 PC4-2400T-R, running at 1600 MHz)
Disk Subsystem:	2 x 600 GB SAS, 10K RPM
Other Hardware:	None
Base Threads Run:	176

Continued on next page

Software

Operating System:	Red Hat Enterprise Linux Server release 7.2 (Maipo) 3.10.0-327.el7.x86_64
Compiler:	C/C++: Version 16.0.2.181 of Intel C++ Studio XE for Linux; Fortran: Version 16.0.2.181 of Intel Fortran
Auto Parallel:	No
File System:	xfs
System State:	Run level 3
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other Software:	None

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OMP2012 license:27
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Test date: Feb-2017
Hardware Availability: May-2015
Software Availability: May-2016

Minimum Peak Threads: 88
Maximum Peak Threads: 176

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	176	147	31.5	**149**	**31.2**	149	31.0	176	**118**	**39.4**	117	39.6	118	39.3
351.bwaves	176	184	24.6	**184**	**24.6**	183	24.8	88	172	26.3	**171**	**26.4**	171	26.5
352.nab	176	**189**	**20.6**	191	20.4	188	20.6	176	178	21.9	178	21.8	**178**	**21.9**
357.bt331	176	**164**	**28.8**	165	28.7	163	29.0	176	155	30.5	159	29.9	**158**	**30.0**
358.botsalgn	176	**202**	**21.6**	202	21.6	202	21.6	176	**202**	**21.6**	202	21.6	202	21.6
359.botsspar	176	359	14.6	**361**	**14.6**	362	14.5	88	314	16.7	**315**	**16.7**	315	16.7
360.ilbdc	176	245	14.5	242	14.7	**245**	**14.6**	176	245	14.5	242	14.7	**245**	**14.6**
362.fma3d	176	235	16.2	**240**	**15.9**	246	15.5	176	235	16.2	**240**	**15.9**	246	15.5
363.swim	176	226	20.0	**226**	**20.0**	227	20.0	176	226	20.0	**226**	**20.0**	227	20.0
367.imagick	176	277	25.4	277	25.4	**277**	**25.4**	176	277	25.4	277	25.4	**277**	**25.4**
370.mgrid331	176	250	17.7	**251**	**17.6**	252	17.5	88	241	18.3	**241**	**18.3**	241	18.3
371.applu331	176	**116**	**52.2**	117	51.6	112	54.2	176	**116**	**52.2**	117	51.6	112	54.2
372.smithwa	176	107	49.9	**109**	**49.4**	109	49.3	176	107	49.9	**109**	**49.4**	109	49.3
376.kdtree	176	**206**	**21.9**	206	21.9	205	21.9	176	**206**	**21.9**	206	21.9	205	21.9

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

Platform Notes

```
Sysinfo program /specomp/Docs/sysinfo
$Rev: 395 $ $Date:: 2012-07-25 #$ 8f8c0fe9e19c658963a1e67685e50647
running on localhost.localdomain Thu Feb 23 01:41:04 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) CPU E7-8880 v4 @ 2.20GHz
      4 "physical id"s (chips)
      176 "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 : 22
      siblings  : 44
      physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
      28
      physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
      28
      physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
```

Continued on next page

Platform Notes (Continued)

```
        28
        physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
        28
     cache size : 56320 KB

  From /proc/meminfo
     MemTotal:       528061232 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  From /etc/*release* /etc/*version*
     os-release:
        NAME="Red Hat Enterprise Linux Server"
        VERSION="7.2 (Maipo)"
        ID="rhel"
        ID_LIKE="fedora"
        VERSION_ID="7.2"
        PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
        ANSI_COLOR="0;31"
        CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
     redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
     system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
     system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server

  uname -a:
     Linux localhost.localdomain 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29
     EDT 2015 x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Feb 23 01:21

  SPEC is set to: /specomp
     Filesystem            Type  Size  Used Avail Use% Mounted on
     /dev/mapper/rhel-root xfs    50G   27G   24G  53% /

  Additional information from dmidecode:
    BIOS American Megatrends Inc. BLISV789 12/06/2016
    Memory:
     32x   16 GB
     32x Hynix HMA42GR7MFR4N-TF 16 GB 1600 MHz 2 rank
     64x NO DIMM NO DIMM

  (End of data from sysinfo program)
```

General Notes

```
  ------------------------------------------------------------------------
  Power profile set with:
  cpupower -c all frequency-set -g performance

  System settings notes:
  Intel Turbo Boost Technology (Turbo)  : Enabled
```

Continued on next page

General Notes (Continued)

```
Memory RAS Configuration set to Maximum Performance

================================================================================
General Notes and Enviroment variables
  ENV_KMP_AFFINITY=compact,1
  ENV_KMP_BLOCKTIME=infinite
  ENV_KMP_DETERMINISTIC_REDUCTION=1
  ENV_OMP_DYNAMIC=FALSE
  ENV_KMP_LIBRARY=turnaround
  ENV_KMP_SCHEDULE=static,balanced
  ENV_KMP_STACKSIZE=256M
  ENV_OMP_NESTED=FALSE
  ENV_OMP_NUM_THREADS=176

================================================================================
General base OMP Library Settings
  ENV_KMP_AFFINITY=compact,1

================================================================================
General peak OMP Library Settings
  ENV_KMP_AFFINITY=compact,1

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

================================================================================
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

================================================================================
357.bt331:peak:
  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:
`-O2 -openmp -ipo -xCORE-AVX2 -ansi-alias`

C++ benchmarks:
`-O2 -openmp -ipo -xCORE-AVX2 -ansi-alias`

Fortran benchmarks:
`-O2 -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`

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Peak Optimization Flags (Continued)

358.botsalgn: basepeak = yes

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

367.imagick: basepeak = yes

372.smithwa: basepeak = yes

C++ benchmarks:

376.kdtree: basepeak = yes

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: basepeak = yes

362.fma3d: basepeak = yes

363.swim: basepeak = yes

370.mgrid331: -O3 -openmp -ipo -xCORE-AVX2 -fno-alias
-opt-malloc-options=3 -fp-model strict

371.applu331: basepeak = yes

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.

Tested with SPEC OMP2012 v1.0.
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