SPEC® OMPG2012 Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

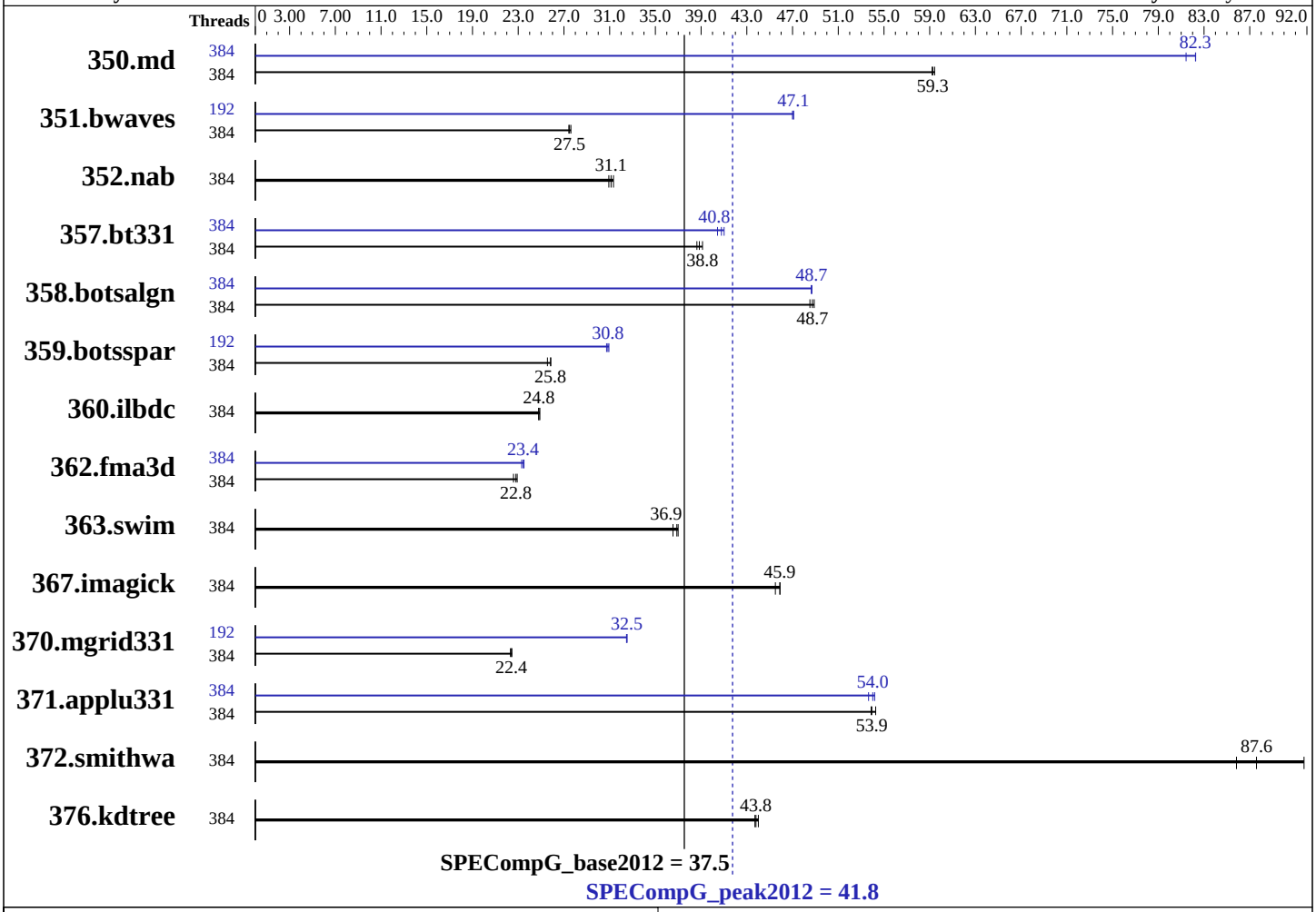
Integrity MC990 X
(2.20 GHz, Intel Xeon E7-8890 v4)

SPECompG_peak2012 = 41.8

SPECompG_base2012 = 37.5

OMP2012 license: 1
Test sponsor: HPE
Tested by: HPE

Test date: Jul-2016
Hardware Availability: Jun-2016
Software Availability: May-2016



Hardware

CPU Name:	Intel Xeon E7-8890 v4
CPU Characteristics:	Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz:	2200
CPU MHz Maximum:	3400
FPU:	Integrated
CPU(s) enabled:	192 cores, 8 chips, 24 cores/chip, 2 threads/core
CPU(s) orderable:	1-8 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:	60 MB I+D on chip per chip
Other Cache:	None
Memory:	2 TB (64 x 32 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
Disk Subsystem:	1 x 400 GB SAS MLC SSD, RAID 0
Other Hardware:	None
Base Threads Run:	384

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Software

Operating System:	Red Hat Enterprise Linux Server release 7.2 Kernel 3.10.0-327.18.2.el7.x86_64
Compiler:	C/C++: Version 16.0.3.210 of Intel C++ Studio XE for Linux; Fortran: Version 16.0.3.210 of Intel Fortran
Auto Parallel:	No
File System:	ext3
System State:	Default
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
Other Software:	None

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Minimum Peak Threads: 192
Maximum Peak Threads: 384

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	384	**78.1**	**59.3**	77.9	59.4	78.2	59.2	384	56.3	82.3	**56.3**	**82.3**	56.9	81.4
351.bwaves	384	164	27.6	165	27.4	**165**	**27.5**	192	96.4	47.0	**96.2**	**47.1**	96.2	47.1
352.nab	384	124	31.3	**125**	**31.1**	126	30.9	384	124	31.3	**125**	**31.1**	126	30.9
357.bt331	384	121	39.1	**122**	**38.8**	123	38.6	384	117	40.4	116	41.0	**116**	**40.8**
358.botsalgn	384	89.7	48.5	89.0	48.9	**89.3**	**48.7**	384	89.4	48.7	**89.4**	**48.7**	89.4	48.6
359.botsspar	384	**203**	**25.8**	203	25.9	205	25.6	192	**170**	**30.8**	170	30.9	171	30.7
360.ilbdc	384	143	24.9	144	24.8	**143**	**24.8**	384	143	24.9	144	24.8	**143**	**24.8**
362.fma3d	384	**167**	**22.8**	168	22.6	166	22.9	384	163	23.3	162	23.5	**162**	**23.4**
363.swim	384	122	37.0	124	36.5	**123**	**36.9**	384	122	37.0	124	36.5	**123**	**36.9**
367.imagick	384	**153**	**45.9**	153	45.9	155	45.5	384	**153**	**45.9**	153	45.9	155	45.5
370.mgrid331	384	198	22.3	197	22.4	**197**	**22.4**	192	136	32.5	**136**	**32.5**	136	32.5
371.applu331	384	112	53.9	112	54.3	**112**	**53.9**	384	**112**	**54.0**	112	54.2	113	53.6
372.smithwa	384	58.4	91.7	**61.2**	**87.6**	62.4	85.8	384	58.4	91.7	**61.2**	**87.6**	62.4	85.8
376.kdtree	384	103	43.7	102	44.0	**103**	**43.8**	384	103	43.7	102	44.0	**103**	**43.8**

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

General Notes

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

System settings notes:
Intel Turbo Boost Technology (Turbo)  : Enabled
Memory RAS Configuration set to Maximum Performance

================================================================================
General Notes and Enviroment variables
  ENV_KMP_AFFINITY=compact,1
  ENV_KMP_BLOCKTIME=infinite
  ENV_OMP_NESTED=FALSE
  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=384

================================================================================
```

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General Notes (Continued)

```
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

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

==============================================================================
372.smithwa: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`
370.mgrid331: `-mcmodel=medium`

Base Optimization Flags

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

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

Fortran benchmarks:

350.md: `-O3 -openmp -ipo -xCORE-AVX2 -align array64byte -fp-model strict`

351.bwaves: `Same as 350.md`

357.bt331: `Same as 350.md`

360.ilbdc: `Same as 350.md`

362.fma3d: `Same as 350.md`

363.swim: `Same as 350.md`

370.mgrid331: `-O3 -openmp -ipo -xCORE-AVX2 -fp-model strict`

371.applu331: `Same as 350.md`

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`
370.mgrid331: `-mcmodel=medium`

Peak Optimization Flags

C benchmarks:

352.nab: `basepeak = yes`

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

359.botsspar: `Same as 358.botsalgn`

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

363.swim: `basepeak = yes`

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

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

The flags files that were used to format this result can be browsed at
http://www.spec.org/omp2012/flags/HP-Platform-Flags-Intel-V1.2-Integrity-revD.20160804.html
http://www.spec.org/omp2012/flags/hp-ic16.0.2-linux64.v1.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/omp2012/flags/HP-Platform-Flags-Intel-V1.2-Integrity-revD.20160804.xml
http://www.spec.org/omp2012/flags/hp-ic16.0.2-linux64.v1.xml

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

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