SPEC® OMPG2012 Result

Hewlett Packard Enterprise

(Test Sponsor: HPE)

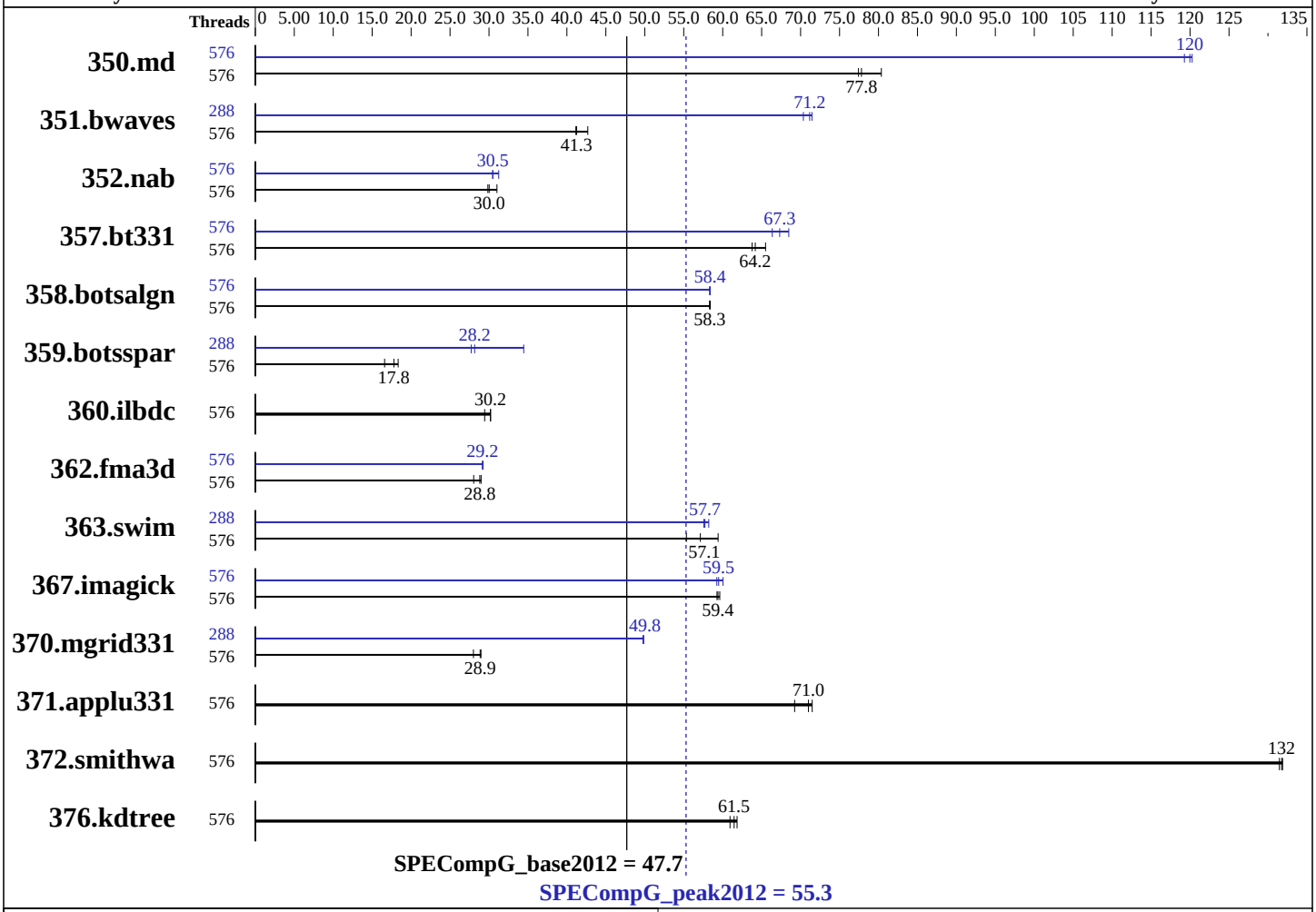
Integrity Superdome X
(288 core, 2.50 GHz, Intel Xeon E7-8890 v3)

SPECompG_peak2012 = 55.3

SPECompG_base2012 = 47.7

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

Test date: Apr-2016
Hardware Availability: Oct-2015
Software Availability: Feb-2016



Hardware

CPU Name:	Intel Xeon E7-8890 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2500
CPU MHz Maximum:	3300
FPU:	Integrated
CPU(s) enabled:	288 cores, 16 chips, 18 cores/chip, 2 threads/core
CPU(s) orderable:	2 to 16 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:	12 TB (384 x 32 GB 2Rx4 PC4-2133P-L, running at 1600 MHz)
Disk Subsystem:	8 x C8S59A, 900 GB 10 K RPM SAS
Other Hardware:	None
Base Threads Run:	576

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Software

Operating System:	SUSE Linux Enterprise Server 11 (x86_64) SP4 Kernel 3.0.101-63-default
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:	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	576	59.8	77.4	57.6	80.4	**59.5**	**77.8**	576	38.5	120	38.8	119	**38.6**	**120**
351.bwaves	576	110	41.2	106	42.7	**110**	**41.3**	288	63.4	71.5	**63.7**	**71.2**	64.4	70.4
352.nab	576	**130**	**30.0**	125	31.0	130	29.9	576	124	31.2	128	30.5	**128**	**30.5**
357.bt331	576	**73.9**	**64.2**	72.4	65.5	74.3	63.8	576	**70.4**	**67.3**	69.2	68.5	71.4	66.4
358.botsalgn	576	74.5	58.4	74.6	58.3	**74.6**	**58.3**	576	74.6	58.3	74.5	58.4	**74.5**	**58.4**
359.botsspar	576	316	16.6	**295**	**17.8**	286	18.3	288	**186**	**28.2**	189	27.7	152	34.5
360.ilbdc	576	121	29.4	**118**	**30.2**	118	30.2	576	121	29.4	**118**	**30.2**	118	30.2
362.fma3d	576	**132**	**28.8**	131	29.0	136	28.0	576	130	29.2	**130**	**29.2**	130	29.2
363.swim	576	**79.3**	**57.1**	76.2	59.4	81.9	55.3	288	77.8	58.2	**78.5**	**57.7**	78.7	57.6
367.imagick	576	118	59.6	**118**	**59.4**	119	59.3	576	**118**	**59.5**	117	60.0	119	59.2
370.mgrid331	576	153	29.0	**153**	**28.9**	158	28.0	288	**88.7**	**49.8**	88.7	49.8	88.8	49.8
371.applu331	576	84.8	71.5	**85.3**	**71.0**	87.5	69.2	576	84.8	71.5	**85.3**	**71.0**	87.5	69.2
372.smithwa	576	40.6	132	40.8	131	**40.7**	**132**	576	40.6	132	40.8	131	**40.7**	**132**
376.kdtree	576	**73.2**	**61.5**	73.8	60.9	72.8	61.8	576	**73.2**	**61.5**	73.8	60.9	72.8	61.8

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_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=576

================================================================================
General base OMP Library Settings
```

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General Notes (Continued)

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

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: `-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`

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

359.botsspar: `Same as 358.botsalgn`

367.imagick: `-O3 -openmp -ipo  -xCORE-AVX2 -ansi-alias`

372.smithwa: `basepeak = yes`

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Peak Optimization Flags (Continued)

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: -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 -fp-model strict

371.applu331: basepeak = yes

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

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

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

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