SPEC® OMPG2012 Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

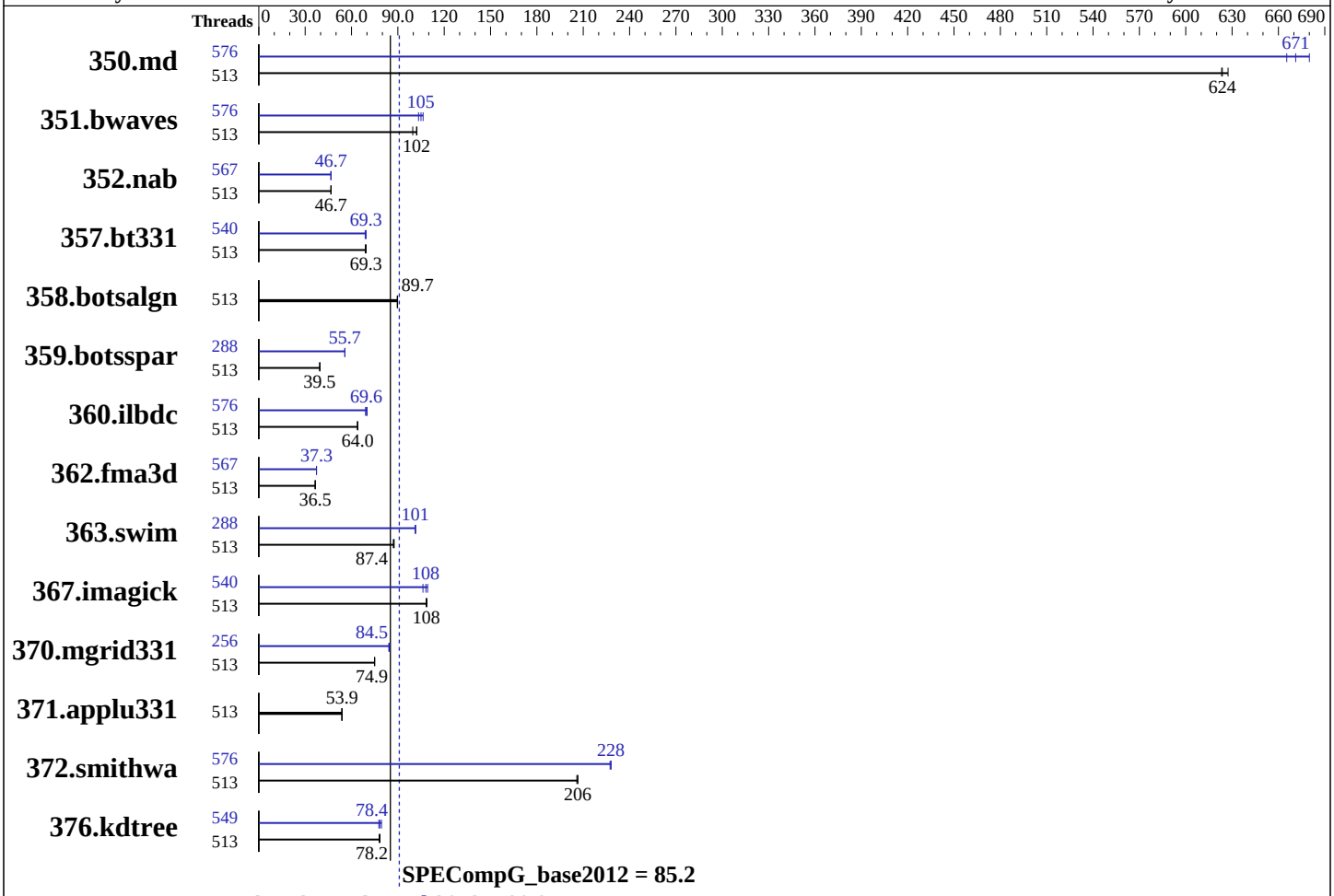
Superdome Flex (Intel Xeon Gold 6154, 3.00 GHz)

SPECompG_peak2012 = 90.9

SPECompG_base2012 = 85.2

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

Test date: Dec-2017
Hardware Availability: Mar-2018
Software Availability: Mar-2018



Hardware

CPU Name:	Intel Xeon Gold 6154
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	3000
CPU MHz Maximum:	3700
FPU:	Integrated
CPU(s) enabled:	288 cores, 16 chips, 18 cores/chip, 2 threads/core
CPU(s) orderable:	4-32 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:	24.75 MB I+D on chip per chip
Other Cache:	None
Memory:	6 TB (192 x 32 GB 2Rx4 PC4-2666V-R)
Disk Subsystem:	tmpfs
Other Hardware:	None
Base Threads Run:	513
Minimum Peak Threads:	256

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Software

Operating System:	SUSE Linux Enterprise Server 12 SP2 Kernel 4.4.74-92.38-default
Compiler:	C/C++/Fortran: Version 18.0.0.128 of Intel Composer XE for Linux, Build 20170811
Auto Parallel:	No
File System:	tmpfs
System State:	Multi-user, run level 3
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other Software:	HPE Foundation Software 1.0, Build 717a270.sles12sp2-1709012000

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Maximum Peak Threads: 576

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	513	7.43	623	**7.42**	**624**	7.38	627	576	6.96	665	**6.90**	**671**	6.81	680
351.bwaves	513	**44.4**	**102**	45.5	99.6	44.3	102	576	42.6	106	43.8	103	**43.2**	**105**
352.nab	513	83.2	46.8	83.3	46.7	**83.2**	**46.7**	567	83.3	46.7	83.2	46.7	**83.3**	**46.7**
357.bt331	513	68.3	69.4	**68.4**	**69.3**	68.7	69.0	540	**68.4**	**69.3**	68.3	69.4	68.9	68.8
358.botsalgn	513	**48.5**	**89.7**	48.5	89.6	48.4	89.8	513	**48.5**	**89.7**	48.5	89.6	48.4	89.8
359.botsspar	513	133	39.4	133	39.5	**133**	**39.5**	288	94.2	55.7	94.3	55.7	**94.2**	**55.7**
360.ilbdc	513	**55.7**	**64.0**	55.6	64.0	55.8	63.8	576	**51.1**	**69.6**	50.8	70.1	51.5	69.1
362.fma3d	513	**104**	**36.5**	104	36.5	104	36.5	567	**102**	**37.3**	102	37.3	102	37.4
363.swim	513	51.7	87.6	**51.8**	**87.4**	52.0	87.0	288	**44.7**	**101**	44.6	102	44.8	101
367.imagick	513	**64.8**	**108**	64.6	109	64.9	108	540	**65.0**	**108**	64.3	109	66.2	106
370.mgrid331	513	58.9	75.0	**59.0**	**74.9**	59.0	74.9	256	**52.3**	**84.5**	52.3	84.6	52.5	84.2
371.applu331	513	**113**	**53.9**	113	53.7	112	53.9	513	**113**	**53.9**	113	53.7	112	53.9
372.smithwa	513	**26.0**	**206**	26.0	207	26.0	206	576	23.5	228	23.6	227	**23.5**	**228**
376.kdtree	513	57.8	77.9	57.4	78.4	**57.5**	**78.2**	549	57.9	77.7	56.7	79.4	**57.4**	**78.4**

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

Compiler Invocation Notes

```
COPTIMIZE=-O3 -qopt-zmm-usage=high -xCORE-AVX512 -ipo1  -qopenmp -ansi-alias -mcmodel=medium -shared-intel
CXXOPTIMIZE=-O3 -qopt-zmm-usage=high -xCORE-AVX512 -ipo1  -qopenmp -ansi-alias -mcmodel=medium -shared-intel
FOPTIMIZE=-O3 -qopt-zmm-usage=high -xCORE-AVX512 -ipo1  -qopenmp -mcmodel=medium -shared-intel
```

Submit Notes

```
The config file option 'submit' was used.
For all benchmarks threads were bound to cores using
the following submit command:
    dplace $command
This binds threads in order of creation, beginning
with the master thread on logical cpu 0, the first slave
thread on logical cpu 1, and so on.
```

Operating System Notes

```
Transparent Hugepages :
    Transparent Hugepages are disabled by
    echo never > /sys/kernel/mm/transparent_hugepage/enabled

Software Environment:
```

Continued on next page

Operating System Notes (Continued)

```
    export KMP_AFFINITY=disabled
    export KMP_STACKSIZE=200M
    export KMP_SCHEDULE=static,balanced
    export OMP_DYNAMIC=FALSE
    ulimit -s unlimited

The tmpfs filesystem was set up with:
    mount -t tmpfs -o rw,remount,mode=1777,mpol=interleave tmpfs /dev/shm
```

Platform Notes

```
Rack Management Controller setting:
   modify npar pnum=0 ras=hpc
```

Base Compiler Invocation

C benchmarks:
`icc`

C++ benchmarks:
`icpc`

Fortran benchmarks:
`ifort`

Base Portability Flags

350.md: `-free`
367.imagick: `-std=c99`

Base Optimization Flags

C benchmarks:
`-O3 -qopt-zmm-usage=high -xCORE-AVX512 -ipo1 -qopenmp -ansi-alias -mcmodel=medium -shared-intel`

C++ benchmarks:
`-O3 -qopt-zmm-usage=high -xCORE-AVX512 -ipo1 -qopenmp -ansi-alias -mcmodel=medium -shared-intel`

Fortran benchmarks:
`-O3 -qopt-zmm-usage=high -xCORE-AVX512 -ipo1 -qopenmp -mcmodel=medium -shared-intel`

Peak Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Peak Portability Flags

350.md: -free
367.imagick: -std=c99

Peak Optimization Flags

C benchmarks:

352.nab: -O3 -qopt-zmm-usage=high -xCORE-AVX512 -ipo1 -qopenmp -ansi-alias -mcmodel=medium -shared-intel

358.botsalgn: basepeak = yes

359.botsspar: Same as 352.nab

367.imagick: Same as 352.nab

372.smithwa: Same as 352.nab

C++ benchmarks:
-O3 -qopt-zmm-usage=high -xCORE-AVX512 -ipo1 -qopenmp -ansi-alias -mcmodel=medium -shared-intel

Fortran benchmarks:

350.md: -O3 -qopt-zmm-usage=high -xCORE-AVX512 -ipo1 -qopenmp -mcmodel=medium -shared-intel

351.bwaves: Same as 350.md

357.bt331: Same as 350.md

360.ilbdc: Same as 350.md

362.fma3d: Same as 350.md

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Peak Optimization Flags (Continued)

363.swim: `Same as 350.md`

370.mgrid331: `Same as 350.md`

371.applu331: `basepeak = yes`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/omp2012/flags/HPE-OMP2012-ic18.html`
`http://www.spec.org/omp2012/flags/HPE-Superdome_Flex-RevA.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/omp2012/flags/HPE-OMP2012-ic18.xml`
`http://www.spec.org/omp2012/flags/HPE-Superdome_Flex-RevA.xml`

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

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