



SPEC[®] CFP2006 Result

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Huawei

SPECfp[®]2006 = 108

Huawei RH2288H V3 (Intel Xeon E5-2699 v3)

SPECfp_base2006 = 103

CPU2006 license: 3175

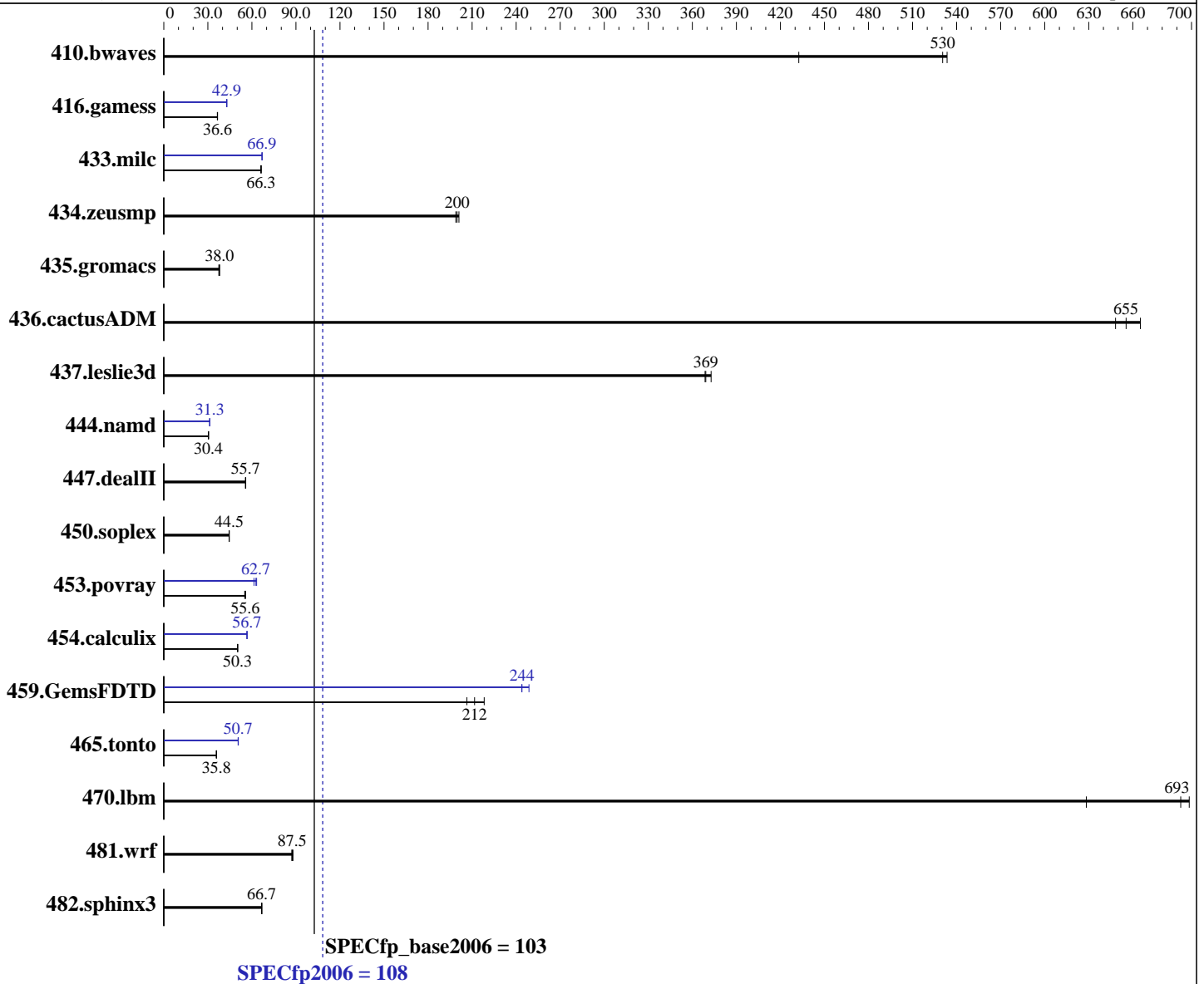
Test sponsor: Huawei

Tested by: Huawei

Test date: Jan-2015

Hardware Availability: Sep-2014

Software Availability: Sep-2014



Hardware

CPU Name: Intel Xeon E5-2699 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 36 cores, 2 chips, 18 cores/chip
 CPU(s) orderable: 1,2 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

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Software

Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo)
 3.10.0-123.el7.x86_64
 Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux;
 Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4

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L3 Cache: 45 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
 Disk Subsystem: 1 x 300 GB SAS, 10000 RPM
 Other Hardware: None

System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	<u>25.6</u>	<u>530</u>	25.5	534	31.4	433	<u>25.6</u>	<u>530</u>	25.5	534	31.4	433
416.gamess	535	36.6	537	36.4	<u>536</u>	<u>36.6</u>	457	42.9	<u>457</u>	<u>42.9</u>	457	42.9
433.milc	<u>138</u>	<u>66.3</u>	139	66.1	138	66.4	<u>137</u>	<u>66.9</u>	137	67.0	137	66.8
434.zeusmp	45.3	201	45.8	199	<u>45.6</u>	<u>200</u>	45.3	201	45.8	199	<u>45.6</u>	<u>200</u>
435.gromacs	191	37.5	188	38.0	<u>188</u>	<u>38.0</u>	191	37.5	188	38.0	<u>188</u>	<u>38.0</u>
436.cactusADM	18.0	665	18.4	648	<u>18.2</u>	<u>655</u>	18.0	665	18.4	648	<u>18.2</u>	<u>655</u>
437.leslie3d	<u>25.5</u>	<u>369</u>	25.2	373	25.5	369	<u>25.5</u>	<u>369</u>	25.2	373	25.5	369
444.namd	263	30.5	264	30.4	<u>264</u>	<u>30.4</u>	256	31.3	<u>256</u>	<u>31.3</u>	256	31.3
447.dealII	206	55.7	205	55.8	<u>205</u>	<u>55.7</u>	206	55.7	205	55.8	<u>205</u>	<u>55.7</u>
450.soplex	187	44.6	<u>187</u>	<u>44.5</u>	187	44.5	187	44.6	<u>187</u>	<u>44.5</u>	187	44.5
453.povray	96.5	55.1	95.6	55.7	<u>95.7</u>	<u>55.6</u>	84.1	63.2	<u>84.8</u>	<u>62.7</u>	86.6	61.5
454.calculix	164	50.3	<u>164</u>	<u>50.3</u>	164	50.3	<u>146</u>	<u>56.7</u>	146	56.7	146	56.7
459.GemsFDTD	51.4	206	48.6	218	<u>50.1</u>	<u>212</u>	42.7	249	<u>43.5</u>	<u>244</u>	43.5	244
465.tonto	274	36.0	275	35.7	<u>275</u>	<u>35.8</u>	194	50.8	194	50.6	<u>194</u>	<u>50.7</u>
470.lbm	21.9	628	<u>19.8</u>	<u>693</u>	19.7	698	21.9	628	<u>19.8</u>	<u>693</u>	19.7	698
481.wrf	<u>128</u>	<u>87.5</u>	127	88.0	128	87.2	<u>128</u>	<u>87.5</u>	127	88.0	128	87.2
482.sphinx3	<u>292</u>	<u>66.7</u>	293	66.6	292	66.8	<u>292</u>	<u>66.7</u>	293	66.6	292	66.8

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

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

BIOS configuration:
 Set Power Efficiency Mode to Custom
 Set Snoop Mode to HS
 Set Hyper-Threading to Disabled
 Baseboard Management Controller used to adjust the fan speed to 100%
 Sysinfo program /spec15/config/sysinfo.rev6914
 \$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
 running on localhost.localdomain Fri Jan 9 09:52:45 2015

This section contains SUT (System Under Test) info as seen by
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Platform Notes (Continued)

some common utilities. To remove or add to this section, see:
<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```

From /proc/cpuinfo
model name      : Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
 2 "physical id"s (chips)
 36 "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      : 18
  physical 0:   cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  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:      263719160 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

```

```

uname -a:
Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57
EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Jan 9 09:51

```

SPEC is set to: /spec15
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdb1       ext4  237G  11G  215G   5% /

```

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS Insyde Corp. 1.19 10/10/2014

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Platform Notes (Continued)

Memory:

8x NO DIMM NO DIMM 3 rank
8x Samsung M393A2G40DB0-CPB 16 GB 1 rank 2133 MHz
8x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:

```
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/spec15/libs/32:/spec15/libs/64:/spec15/sh"
OMP_NUM_THREADS = "36"
```

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0

Transparent Huge Pages enabled with:

```
echo always > /sys/kernel/mm/transparent_hugepage/enabled
```

runspec command invoked through numactl i.e.:

```
numactl --interleave=all runspec <etc>
```

Base Compiler Invocation

C benchmarks:

```
icc -m64
```

C++ benchmarks:

```
icpc -m64
```

Fortran benchmarks:

```
ifort -m64
```

Benchmarks using both Fortran and C:

```
icc -m64 ifort -m64
```

Base Portability Flags

```
410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
```

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Base Portability Flags (Continued)

```

450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

```

Base Optimization Flags

C benchmarks:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

```

C++ benchmarks:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

```

Fortran benchmarks:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

```

Benchmarks using both Fortran and C:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

```

Peak Compiler Invocation

C benchmarks:

```

icc -m64

```

C++ benchmarks:

```

icpc -m64

```

Fortran benchmarks:

```

ifort -m64

```

Benchmarks using both Fortran and C:

```

icc -m64 ifort -m64

```

Peak Portability Flags

Same as Base Portability Flags



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Software Availability: Sep-2014

Peak Optimization Flags

C benchmarks:

433.milc: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4
-ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-inline-calloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

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Peak Optimization Flags (Continued)

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.1.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.1.xml>

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