



SPEC[®] CFP2006 Result

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Huawei

SPECfp[®]2006 = **82.9**

Huawei RH2288 V2 (Intel Xeon E5-2660)

SPECfp_base2006 = **79.2**

CPU2006 license: 3175

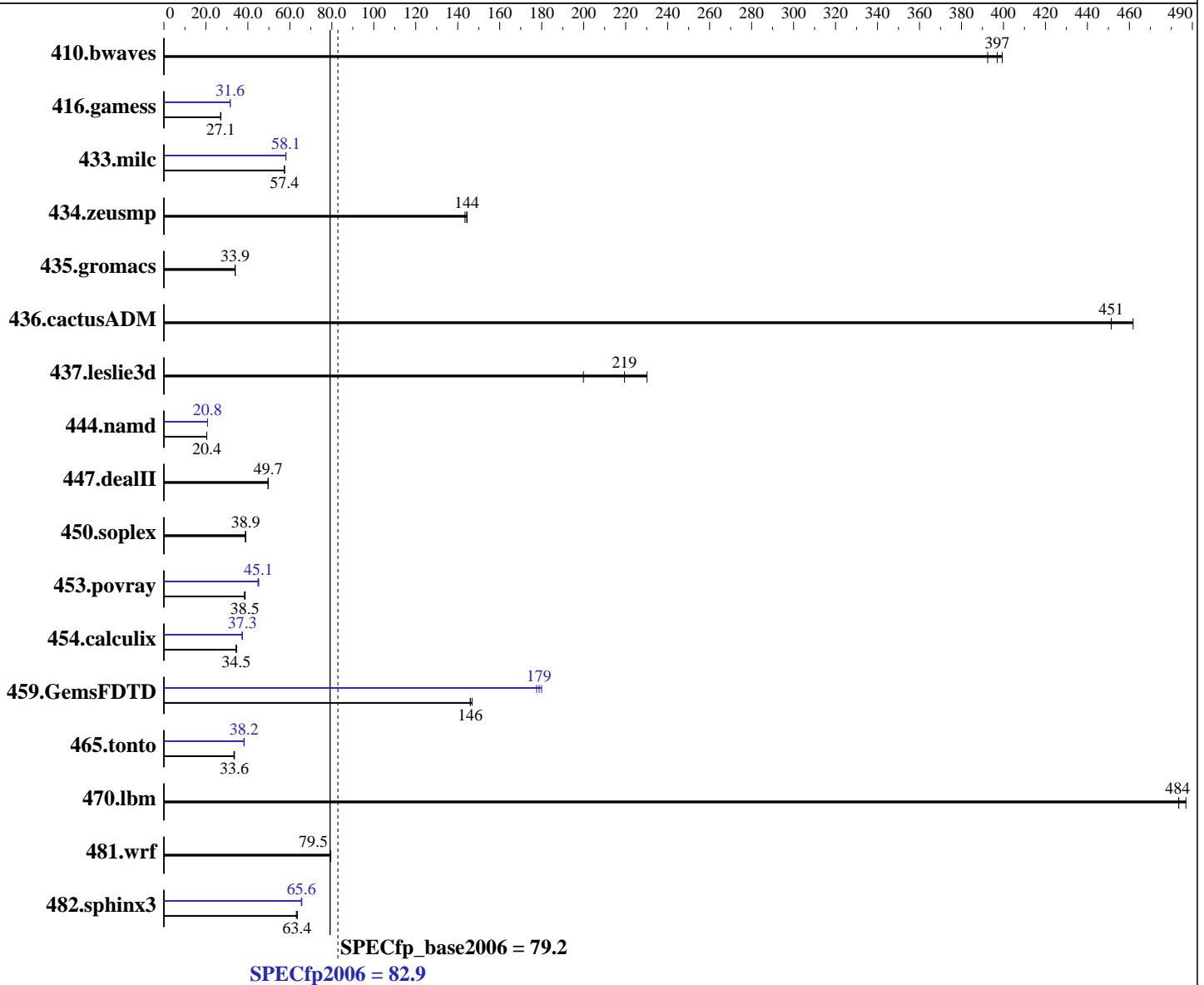
Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2012

Hardware Availability: Mar-2012

Software Availability: Dec-2011



Hardware

CPU Name: Intel Xeon E5-2660
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
 CPU MHz: 2200
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip
 CPU(s) orderable: 1,2 chips
 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 6.2 (Santiago)
 2.6.32-220.el6.x86_64
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;
 Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4

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L3 Cache: 20 MB I+D on chip per chip
 Other Cache: None
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)
 Disk Subsystem: 1 x 300 GB SAS, 10K 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	34.6	392	34.0	399	<u>34.2</u>	<u>397</u>	34.6	392	34.0	399	<u>34.2</u>	<u>397</u>
416.gamess	725	27.0	<u>722</u>	<u>27.1</u>	720	27.2	620	31.6	<u>620</u>	<u>31.6</u>	620	31.6
433.milc	160	57.4	<u>160</u>	<u>57.4</u>	160	57.4	<u>158</u>	<u>58.1</u>	158	58.2	158	58.1
434.zeusmp	63.0	144	<u>63.0</u>	<u>144</u>	63.4	143	63.0	144	<u>63.0</u>	<u>144</u>	63.4	143
435.gromacs	210	34.0	<u>210</u>	<u>33.9</u>	211	33.9	210	34.0	<u>210</u>	<u>33.9</u>	211	33.9
436.cactusADM	25.9	462	<u>26.5</u>	<u>451</u>	26.5	451	25.9	462	<u>26.5</u>	<u>451</u>	26.5	451
437.leslie3d	40.8	230	<u>42.8</u>	<u>219</u>	47.0	200	40.8	230	<u>42.8</u>	<u>219</u>	47.0	200
444.namd	393	20.4	393	20.4	<u>393</u>	<u>20.4</u>	385	20.8	385	20.8	<u>385</u>	<u>20.8</u>
447.dealII	<u>230</u>	<u>49.7</u>	230	49.6	230	49.7	<u>230</u>	<u>49.7</u>	230	49.6	230	49.7
450.soplex	<u>214</u>	<u>38.9</u>	214	38.9	214	38.9	<u>214</u>	<u>38.9</u>	214	38.9	214	38.9
453.povray	139	38.4	<u>138</u>	<u>38.5</u>	137	38.7	<u>118</u>	<u>45.1</u>	119	44.8	118	45.1
454.calculix	<u>239</u>	<u>34.5</u>	240	34.3	239	34.5	<u>221</u>	<u>37.3</u>	221	37.3	221	37.4
459.GemsFDTD	72.3	147	72.7	146	<u>72.7</u>	<u>146</u>	59.8	178	<u>59.4</u>	<u>179</u>	59.0	180
465.tonto	295	33.4	<u>293</u>	<u>33.6</u>	293	33.6	<u>258</u>	<u>38.2</u>	258	38.1	257	38.3
470.lbm	<u>28.4</u>	<u>484</u>	28.2	487	28.4	484	<u>28.4</u>	<u>484</u>	28.2	487	28.4	484
481.wrf	141	79.4	140	79.5	<u>140</u>	<u>79.5</u>	141	79.4	140	79.5	<u>140</u>	<u>79.5</u>
482.sphinx3	<u>307</u>	<u>63.4</u>	309	63.1	307	63.6	297	65.7	298	65.5	<u>297</u>	<u>65.6</u>

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"
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 Select only test related files when installing the operating system

Platform Notes

BIOS configuration:
 Intel Hyper-Threading set to Disabled
 Set Power Efficiency Mode to Performance
 Sysinfo program /spec/config/sysinfo.rev6800
 \$Rev: 6800 \$ \$Date:: 2011-10-11 # \$ 6f2ebdff5032aaa42e583f96b07f99d3
 running on RH62-rebuild Sun Jun 3 20:40:29 2012

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Platform Notes (Continued)

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/cpu2006/Docs/config.html#sysinfo>

```
From /proc/cpuinfo
model name      : Intel(R) Xeon(R) CPU E5-2660 0 @ 2.20GHz
 2 "physical id"s (chips)
 16 "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      : 8
  siblings       : 8
  physical 0:    cores 0 1 2 3 4 5 6 7
  physical 1:    cores 0 1 2 3 4 5 6 7
cache size      : 20480 KB
```

```
From /proc/meminfo
MemTotal:        132124032 kB
HugePages_Total: 0
Hugepagesize:    2048 kB
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux RH62-rebuild 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011
x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Jun 3 14:00

```
SPEC is set to: /spec
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sdal       ext4      289G  92G  183G  34% /
```

Additional information from dmidecode:

```
Memory:
16x Samsung M393B1K70DH0-CK0 8 GB 1600 MHz 2 rank
```

General Notes

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

```
KMP_AFFINITY = "granularity=fine,compact,0,1"
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64"
OMP_NUM_THREADS = "16"
```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5



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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
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:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias



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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

Peak Optimization Flags

C benchmarks:

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

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel

C++ benchmarks:

444.namd: -xAVX(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.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(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

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Peak Optimization Flags (Continued)

416.gamess: -xAVX(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- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xAVX(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: -xAVX(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

454.calculix: -xAVX -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-ic12.1-official-linux64.20120425.html>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revE.20120703.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revE.20120703.xml>

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

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