



SPEC® CFP2006 Result

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Huawei

SPECfp®2006 = 92.1

Huawei RH2288 V2 (Intel Xeon E5-2658 v2)

SPECfp_base2006 = 88.4

CPU2006 license: 3175

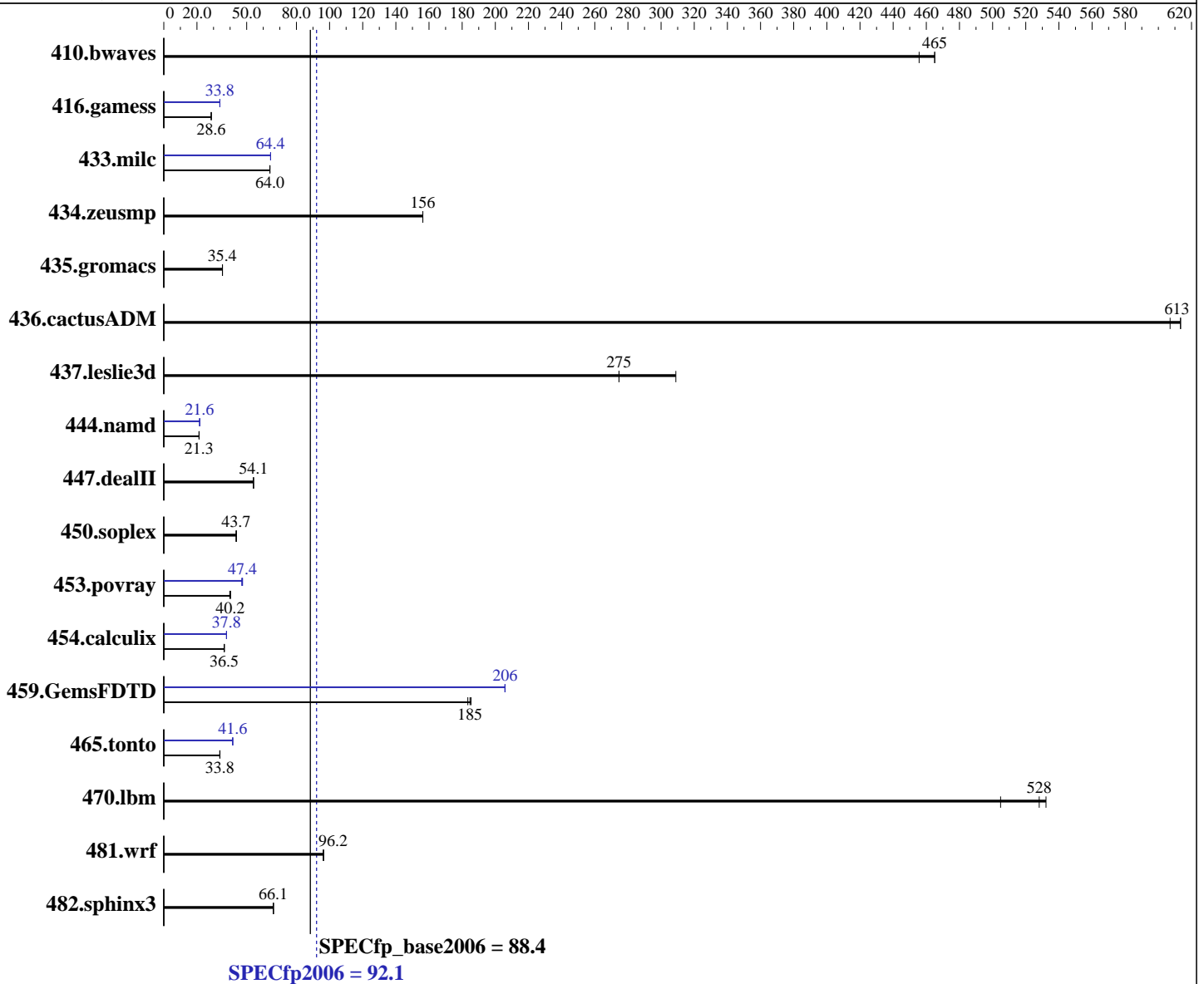
Test date: Jul-2014

Test sponsor: Huawei

Hardware Availability: Sep-2013

Tested by: Huawei

Software Availability: Nov-2013



Hardware		Software	
CPU Name:	Intel Xeon E5-2658 v2	Operating System:	Red Hat Enterprise Linux Server release 6.5 (Santiago)
CPU Characteristics:	Intel Turbo Boost Technology up to 3.00 GHz		2.6.32-431.el6.x86_64
CPU MHz:	2400	Compiler:	C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;
FPU:	Integrated		Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
CPU(s) enabled:	20 cores, 2 chips, 10 cores/chip	Auto Parallel:	Yes
CPU(s) orderable:	1,2 chip	File System:	ext4
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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L3 Cache: 25 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, 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	29.2	465	29.8	456	<u>29.2</u>	<u>465</u>	29.2	465	29.8	456	<u>29.2</u>	<u>465</u>
416.gamess	684	28.6	684	28.6	685	28.6	579	33.8	579	33.8	579	33.8
433.milc	143	64.0	143	64.0	143	64.0	142	64.5	143	64.4	143	64.4
434.zeusmp	58.2	156	58.2	156	58.2	156	58.2	156	58.2	156	58.2	156
435.gromacs	202	35.4	202	35.4	202	35.4	202	35.4	202	35.4	202	35.4
436.cactusADM	19.5	613	19.5	613	19.7	607	19.5	613	19.5	613	19.7	607
437.leslie3d	34.2	275	34.2	275	30.4	309	34.2	275	34.2	275	30.4	309
444.namd	377	21.3	377	21.3	377	21.3	371	21.6	371	21.6	371	21.6
447.dealII	211	54.1	211	54.1	212	54.1	211	54.1	211	54.1	212	54.1
450.soplex	191	43.7	191	43.6	190	43.8	191	43.7	191	43.6	190	43.8
453.povray	132	40.2	134	39.8	132	40.2	112	47.4	112	47.5	113	47.0
454.calculix	226	36.5	226	36.5	226	36.5	218	37.8	218	37.8	218	37.8
459.GemsFDTD	57.8	183	57.4	185	57.2	185	51.5	206	51.5	206	51.5	206
465.tonto	291	33.8	290	33.9	292	33.8	237	41.6	237	41.6	237	41.6
470.lbm	27.2	505	25.8	532	26.0	528	27.2	505	25.8	532	26.0	528
481.wrf	116	96.4	116	96.2	116	96.2	116	96.4	116	96.2	116	96.2
482.sphinx3	294	66.2	295	66.1	295	66.1	294	66.2	295	66.1	295	66.1

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

Sysinfo program /spec/config/sysinfo.rev6800
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3
 running on RHEL Tue Jul 15 03:17:49 2014

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 E5-2658 v2 @ 2.40GHz
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Platform Notes (Continued)

2 "physical id"s (chips)
20 "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 : 10
siblings  : 10
physical 0: cores 0 1 2 3 4 8 9 10 11 12
physical 1: cores 0 1 2 3 4 8 9 10 11 12
cache size : 25600 KB
```

From /proc/meminfo

```
MemTotal:      264478184 kB
```

```
HugePages_Total: 0
```

```
Hugepagesize:   2048 kB
```

/usr/bin/lsc_release -d

```
Red Hat Enterprise Linux Server release 6.5 (Santiago)
```

From /etc/*release* /etc/*version*

```
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
```

```
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
```

```
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

uname -a:

```
Linux RHEL 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013 x86_64
x86_64 x86_64 GNU/Linux
```

run-level 3 Jul 14 21:04

SPEC is set to: /spec

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        ext4  265G  136G  116G   54% /
```

Additional information from dmidecode:

Memory:

```
2x Hynix HMT42GR7AFR4C-RD 16 GB 1867 MHz 2 rank
```

```
8x Samsung M393B2G70DB0-CMA 16 GB 1867 MHz 2 rank
```

```
6x Samsung M393B2G70QH0-CMA 16 GB 1867 MHz 2 rank
```

(End of data from sysinfo program)

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 = "20"
```

Binaries compiled on a system with 2 x Xeon X5645 CPU + 16GB memory using RHEL 6.1

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General Notes (Continued)

Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
The Huawei RH2288 v2 and Huawei RH1288 v2 models are electronically equivalent.
The results have been measured on a Huawei RH2288 v2 model

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

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Base Optimization Flags (Continued)

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

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: basepeak = yes

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

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Peak Optimization Flags (Continued)

447.dealII: 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

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-V1.0-IVB-RevG.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-V1.0-IVB-RevG.xml>



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