



# SPEC<sup>®</sup> CFP2006 Result

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## Huawei

SPECfp<sup>®</sup>2006 = **55.5**

## Tecal RH5885 V2 (Intel Xeon E7-4850)

SPECfp\_base2006 = **53.4**

CPU2006 license: 3175

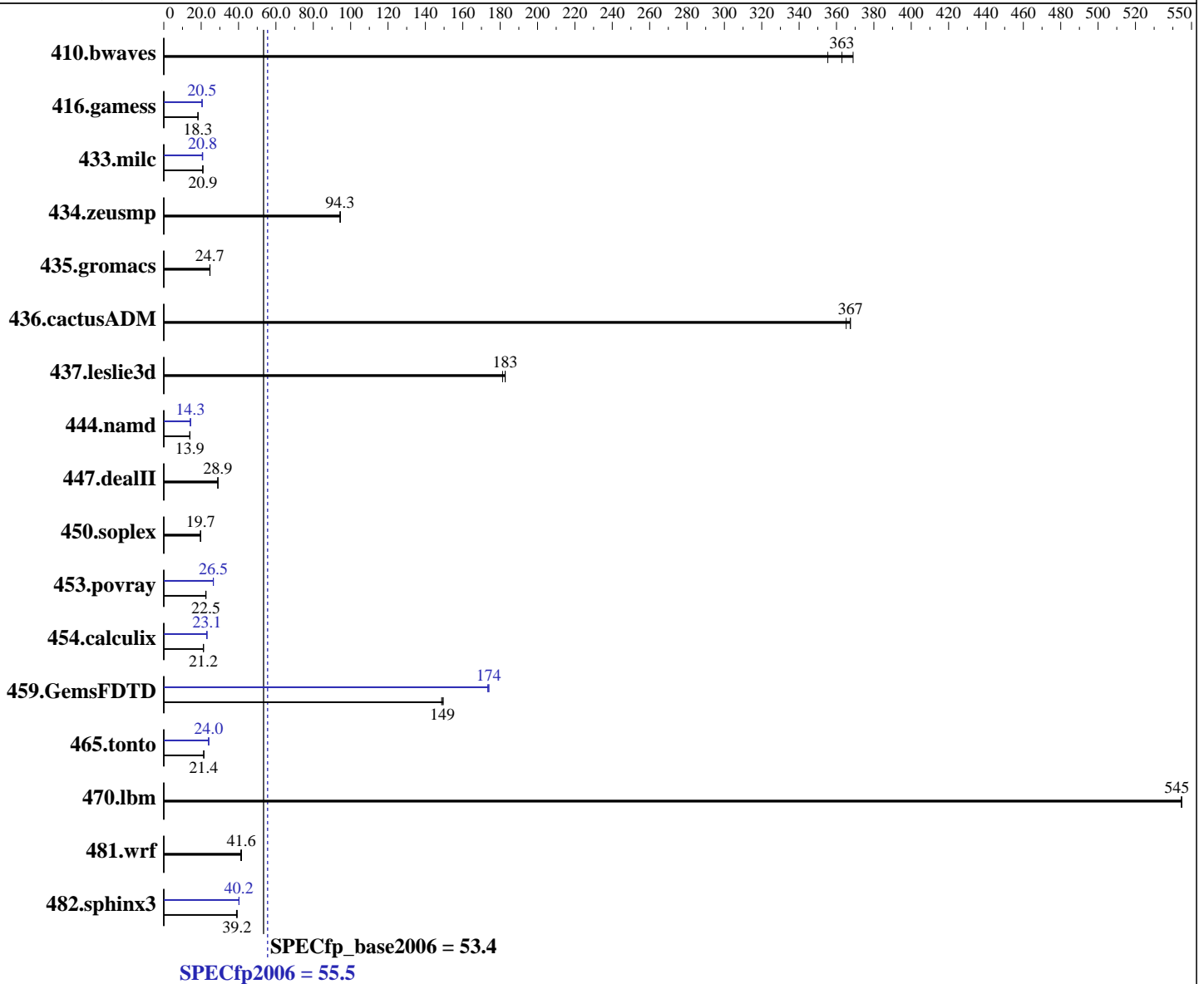
Test sponsor: Huawei

Tested by: Huawei

Test date: Feb-2013

Hardware Availability: Oct-2012

Software Availability: Oct-2012



### Hardware

CPU Name: Intel Xeon E7-4850  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.67 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 40 cores, 4 chips, 10 cores/chip  
 CPU(s) orderable: 2,4 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 13.0.0.079 of Intel C++ Studio XE for Linux;  
 Fortran: Version 13.0.0.079 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4

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L3 Cache: 24 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 1 TB (64 x 16 GB 4Rx4 PC3-10600R-9, ECC, running at 1066 MHz)  
 Disk Subsystem: 1 x 500 GB SATA, 7200 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	38.2	355	<b><u>37.4</u></b>	<b><u>363</u></b>	36.8	369	38.2	355	<b><u>37.4</u></b>	<b><u>363</u></b>	36.8	369
416.gamess	1068	18.3	<b><u>1070</u></b>	<b><u>18.3</u></b>	1071	18.3	955	20.5	<b><u>955</u></b>	<b><u>20.5</u></b>	956	20.5
433.milc	439	20.9	440	20.9	<b><u>440</u></b>	<b><u>20.9</u></b>	446	20.6	<b><u>442</u></b>	<b><u>20.8</u></b>	441	20.8
434.zeusmp	96.5	94.3	<b><u>96.5</u></b>	<b><u>94.3</u></b>	96.3	94.5	96.5	94.3	<b><u>96.5</u></b>	<b><u>94.3</u></b>	96.3	94.5
435.gromacs	290	24.6	<b><u>289</u></b>	<b><u>24.7</u></b>	288	24.8	290	24.6	<b><u>289</u></b>	<b><u>24.7</u></b>	288	24.8
436.cactusADM	32.5	367	<b><u>32.5</u></b>	<b><u>367</u></b>	32.7	365	32.5	367	<b><u>32.5</u></b>	<b><u>367</u></b>	32.7	365
437.leslie3d	51.8	181	51.4	183	<b><u>51.4</u></b>	<b><u>183</u></b>	51.8	181	51.4	183	<b><u>51.4</u></b>	<b><u>183</u></b>
444.namd	575	13.9	575	14.0	<b><u>575</u></b>	<b><u>13.9</u></b>	563	14.3	562	14.3	<b><u>563</u></b>	<b><u>14.3</u></b>
447.dealII	<b><u>395</u></b>	<b><u>28.9</u></b>	395	29.0	396	28.9	<b><u>395</u></b>	<b><u>28.9</u></b>	395	29.0	396	28.9
450.soplex	423	19.7	425	19.6	<b><u>424</u></b>	<b><u>19.7</u></b>	423	19.7	425	19.6	<b><u>424</u></b>	<b><u>19.7</u></b>
453.povray	<b><u>236</u></b>	<b><u>22.5</u></b>	237	22.4	236	22.6	201	26.5	<b><u>201</u></b>	<b><u>26.5</u></b>	200	26.6
454.calculix	388	21.3	<b><u>389</u></b>	<b><u>21.2</u></b>	390	21.1	357	23.1	<b><u>358</u></b>	<b><u>23.1</u></b>	358	23.1
459.GemsFDTD	70.9	150	<b><u>71.2</u></b>	<b><u>149</u></b>	71.4	149	61.2	173	61.0	174	<b><u>61.0</u></b>	<b><u>174</u></b>
465.tonto	460	21.4	459	21.4	<b><u>460</u></b>	<b><u>21.4</u></b>	411	24.0	409	24.0	<b><u>410</u></b>	<b><u>24.0</u></b>
470.lbm	25.2	545	<b><u>25.2</u></b>	<b><u>545</u></b>	25.2	545	25.2	545	<b><u>25.2</u></b>	<b><u>545</u></b>	25.2	545
481.wrf	269	41.6	271	41.2	<b><u>269</u></b>	<b><u>41.6</u></b>	269	41.6	271	41.2	<b><u>269</u></b>	<b><u>41.6</u></b>
482.sphinx3	497	39.2	<b><u>497</u></b>	<b><u>39.2</u></b>	501	38.9	485	40.2	484	40.3	<b><u>484</u></b>	<b><u>40.2</u></b>

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:  
 Intel Hyper-Threading set to Disabled  
 Power Technology set to Custom, Performance/Watt set to Traditional  
 Sysinfo program /home/cpu2006/config/sysinfo.rev6800  
 \$Rev: 6800 \$ \$Date:: 2011-10-11 # \$ 6f2ebdff5032aaa42e583f96b07f99d3  
 running on RH5885-24 Tue Feb 19 18:49:39 2013

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

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SPECfp\_base2006 = 53.4

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Feb-2013

Hardware Availability: Oct-2012

Software Availability: Oct-2012

## Platform Notes (Continued)

<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

From /proc/cpuinfo

model name : Intel(R) Xeon(R) CPU E7- 4850 @ 2.00GHz

4 "physical id"s (chips)

40 "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 8 9 16 17 18 24 25

physical 1: cores 0 1 2 8 9 16 17 18 24 25

physical 2: cores 0 1 2 8 9 16 17 18 24 25

physical 3: cores 0 1 2 8 9 16 17 18 24 25

cache size : 24576 KB

From /proc/meminfo

MemTotal: 1058808572 kB

HugePages\_Total: 0

Hugepagesize: 2048 kB

/usr/bin/lsb\_release -d

Red Hat Enterprise Linux Server release 6.2 (Santiago)

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 RH5885-24 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 Feb 19 09:15

SPEC is set to: /home/cpu2006

Filesystem Type Size Used Avail Use% Mounted on

/dev/mapper/vg\_rh588524-lv\_home

ext4 409G 16G 373G 5% /home

Additional information from dmidecode:

Memory:

64x Hyundai HMT42GR7BMR4C-H9 16 GB 1067 MHz 4 rank

(End of data from sysinfo program)



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<b>CPU2006 license:</b> 3175	<b>Test date:</b> Feb-2013
<b>Test sponsor:</b> Huawei	<b>Hardware Availability:</b> Oct-2012
<b>Tested by:</b> Huawei	<b>Software Availability:</b> Oct-2012

## General Notes

Environment variables set by runspec before the start of the run:  
 KMP\_AFFINITY = "granularity=fine,compact,1,0"  
 LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"  
 OMP\_NUM\_THREADS = "40"

Binaries compiled on a system with 4x Xeon E7-8870 CPU + 1024GB memory using RHEL6.2  
 Transparent Huge Pages enabled with:  
 echo always > /sys/kernel/mm/redhat\_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.deallI: -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



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## Base Optimization Flags

C benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xSSE4.2 -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: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel

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## Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2 -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-linux64.20111122.html>  
<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revG.20130313.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>  
<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revG.20130313.xml>



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 For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
 Report generated on Thu Jul 24 14:42:10 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
 Originally published on 12 March 2013.