



# SPEC® CFP2006 Result

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## Huawei

SPECfp®2006 = 75.2

### Huawei CH240 (Intel Xeon E5-4610)

SPECfp\_base2006 = 72.4

CPU2006 license: 3175

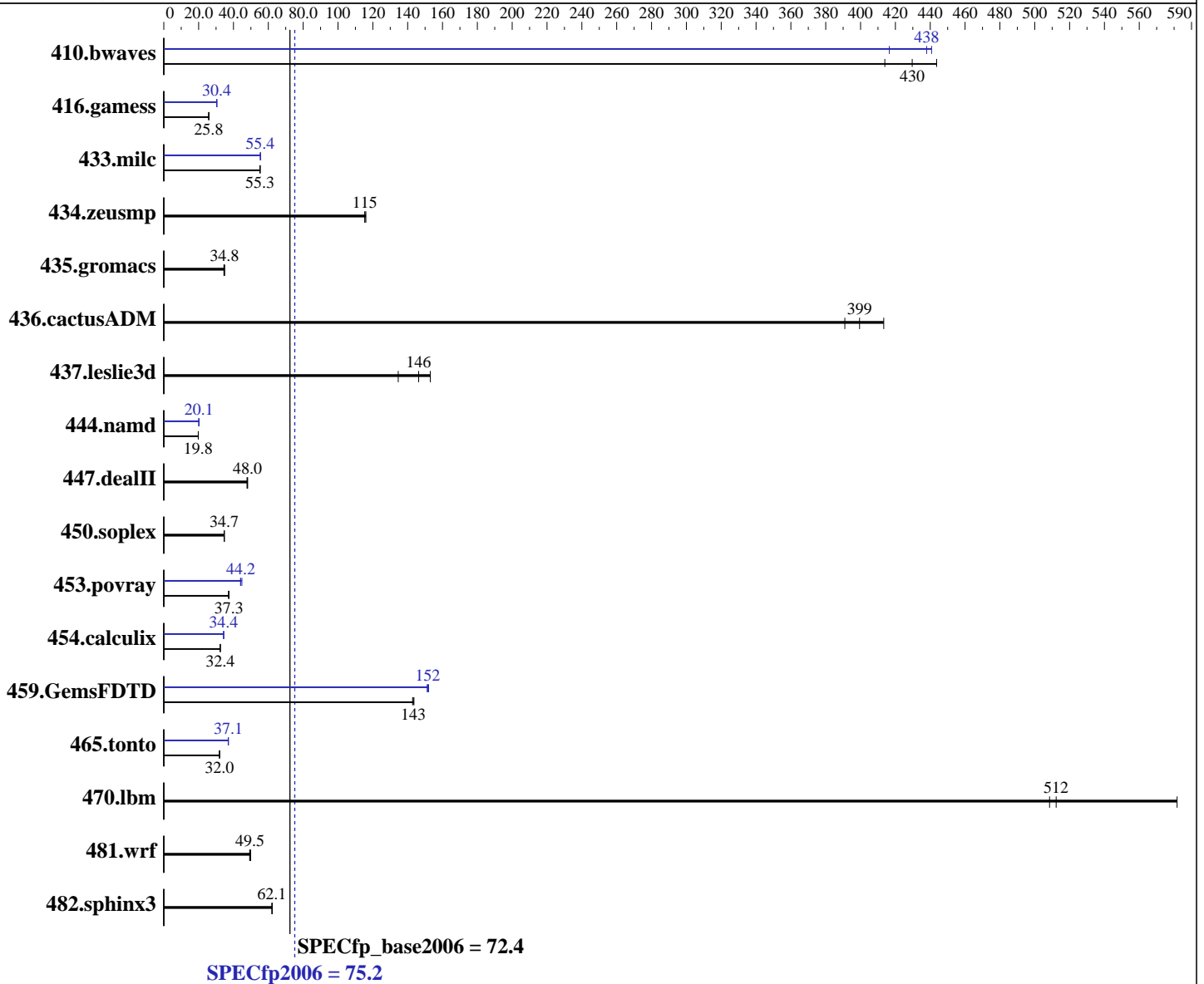
Test date: Jun-2013

Test sponsor: Huawei

Hardware Availability: Jun-2013

Tested by: Huawei

Software Availability: Feb-2013



#### Hardware

CPU Name: Intel Xeon E5-4610  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip  
 CPU(s) orderable: 1,2,4 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 6.4 (Santiago)  
 2.6.32-358.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: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (32 x 8 GB 2Rx8 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	32.8	414	<b>31.6</b>	<b>430</b>	30.6	444	30.8	441	<b>31.0</b>	<b>438</b>	32.6	416
416.gamess	<b>759</b>	<b>25.8</b>	757	25.9	759	25.8	644	30.4	643	30.4	<b>643</b>	<b>30.4</b>
433.milc	166	55.2	166	55.3	<b>166</b>	<b>55.3</b>	<b>166</b>	<b>55.4</b>	166	55.4	165	55.5
434.zeusmp	78.4	116	78.8	115	<b>78.8</b>	<b>115</b>	78.4	116	78.8	115	<b>78.8</b>	<b>115</b>
435.gromacs	207	34.5	<b>205</b>	<b>34.8</b>	205	34.9	207	34.5	<b>205</b>	<b>34.8</b>	205	34.9
436.cactusADM	<b>29.9</b>	<b>399</b>	28.9	413	30.6	391	<b>29.9</b>	<b>399</b>	28.9	413	30.6	391
437.leslie3d	69.8	135	<b>64.2</b>	<b>146</b>	61.4	153	69.8	135	<b>64.2</b>	<b>146</b>	61.4	153
444.namd	<b>405</b>	<b>19.8</b>	405	19.8	405	19.8	398	20.1	398	20.1	<b>398</b>	<b>20.1</b>
447.dealII	<b>238</b>	<b>48.0</b>	240	47.8	238	48.1	<b>238</b>	<b>48.0</b>	240	47.8	238	48.1
450.soplex	240	34.7	241	34.6	<b>240</b>	<b>34.7</b>	240	34.7	241	34.6	<b>240</b>	<b>34.7</b>
453.povray	<b>143</b>	<b>37.3</b>	143	37.1	142	37.4	<b>120</b>	<b>44.2</b>	121	44.0	119	44.8
454.calculix	255	32.4	254	32.5	<b>255</b>	<b>32.4</b>	240	34.4	240	34.4	<b>240</b>	<b>34.4</b>
459.GemsFDTD	<b>74.1</b>	<b>143</b>	74.3	143	73.9	144	69.8	152	70.2	151	<b>70.0</b>	<b>152</b>
465.tonto	307	32.0	308	32.0	<b>308</b>	<b>32.0</b>	266	37.0	<b>265</b>	<b>37.1</b>	265	37.1
470.lbm	<b>26.8</b>	<b>512</b>	27.0	509	23.6	582	<b>26.8</b>	<b>512</b>	27.0	509	23.6	582
481.wrf	<b>226</b>	<b>49.5</b>	227	49.3	224	49.9	<b>226</b>	<b>49.5</b>	227	49.3	224	49.9
482.sphinx3	314	62.0	<b>314</b>	<b>62.1</b>	313	62.3	314	62.0	<b>314</b>	<b>62.1</b>	313	62.3

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 spec3 Thu Jun 6 02:21:48 2013

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 E5-4610 0 @ 2.40GHz  
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## Platform Notes (Continued)

```

4 "physical id"s (chips)
24 "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 : 6
siblings  : 6
physical 0: cores 0 1 2 3 4 5
physical 1: cores 0 1 2 3 4 5
physical 2: cores 0 1 2 3 4 5
physical 3: cores 0 1 2 3 4 5
cache size : 15360 KB

```

```

From /proc/meminfo
MemTotal:      264493568 kB
HugePages_Total:    0
Hugepagesize:    2048 kB

```

```

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)

```

```

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

```

```

uname -a:
Linux spec3 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013 x86_64
x86_64 x86_64 GNU/Linux

```

run-level 3 Jun 5 19:23

```

SPEC is set to: /spec
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/ddf1_4c534920202020201000005b19e5d204471147119c2abcd4p3
                ext4      154G  8.8G  138G   6% /

```

Additional information from dmidecode:

(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 = "24"

```

Binaries compiled on a system with 2 x Xeon X5645 CPU + 16GB memory  
using RHEL 6.1  
Transparent Huge Pages enabled with:

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## General Notes (Continued)

echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled

## 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

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

## Base Optimization Flags (Continued)

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.deallI: 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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel  
-static

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.20121120.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.20121120.xml>



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

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