



SPEC[®] CFP2006 Result

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Huawei

SPECfp[®]2006 = **60.9**

Huawei BH620, Intel Xeon X5670

SPECfp_base2006 = **57.1**

CPU2006 license: 3175

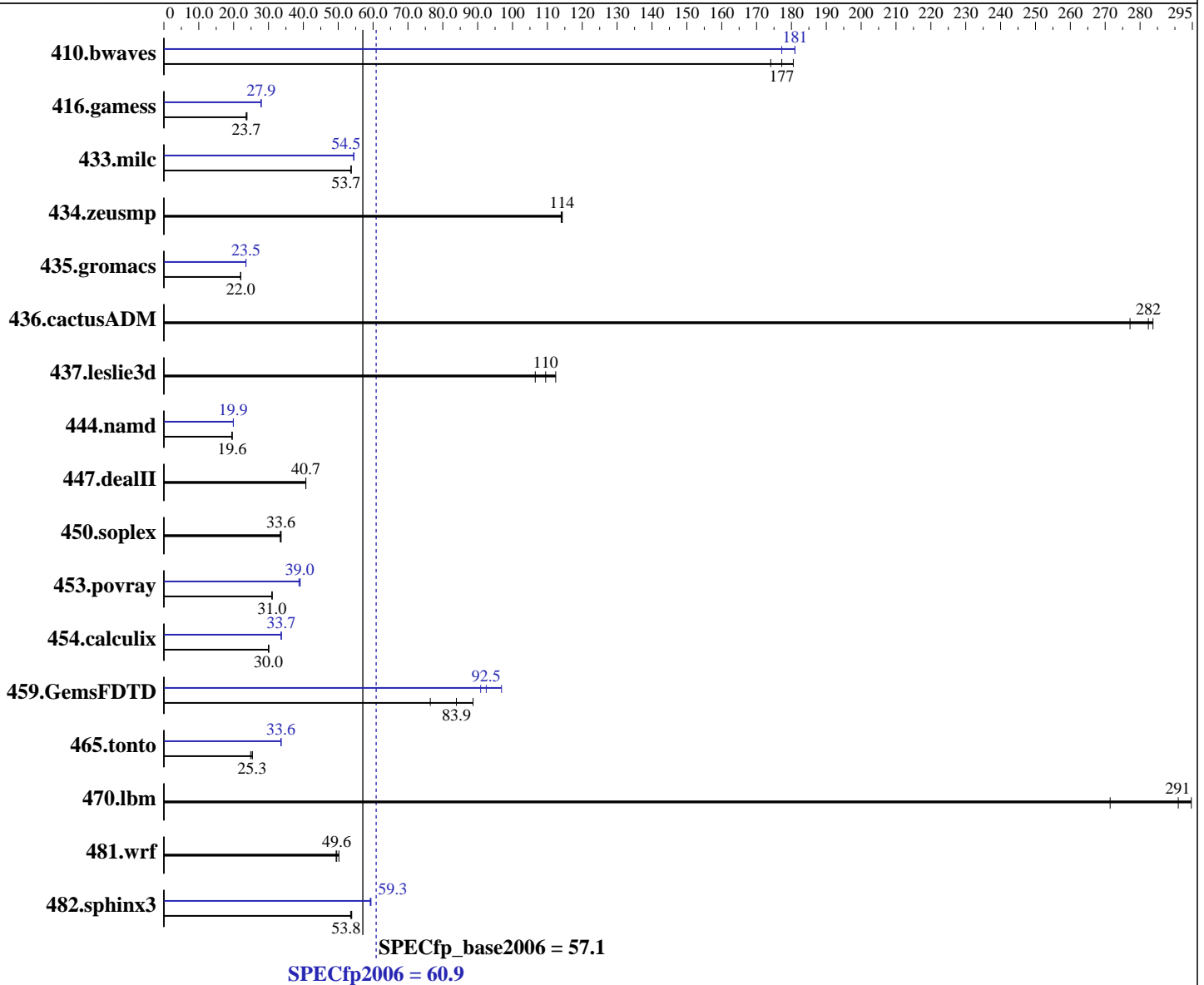
Test sponsor: Huawei

Tested by: Huawei

Test date: Sep-2011

Hardware Availability: May-2011

Software Availability: Jan-2011



Hardware

CPU Name: Intel Xeon X5670
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz
 CPU MHz: 2933
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 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: SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default
 Compiler: C++: Version 12.0 Update 3 of Intel 64 Compiler XE Build 20101116;
 Fortran: Version 12.0 Update 3 of Intel 64 Compiler XE Build 20101116
 Auto Parallel: Yes
 File System: ext3
 System State: Run level 3 (multi-user)

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: 1 x 300 GB SAS, 15K RPM
Other Hardware: None

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	78.1	174	<u>76.7</u>	<u>177</u>	75.3	181	<u>75.1</u>	<u>181</u>	76.7	177	75.1	181
416.gamess	<u>828</u>	<u>23.7</u>	821	23.8	829	23.6	703	27.9	<u>702</u>	<u>27.9</u>	702	27.9
433.milc	171	53.7	<u>171</u>	<u>53.7</u>	171	53.7	<u>169</u>	<u>54.5</u>	169	54.5	168	54.5
434.zeusmp	79.7	114	<u>79.7</u>	<u>114</u>	79.9	114	79.7	114	<u>79.7</u>	<u>114</u>	79.9	114
435.gromacs	324	22.1	<u>324</u>	<u>22.0</u>	325	22.0	<u>303</u>	<u>23.5</u>	304	23.5	303	23.5
436.cactusADM	42.1	284	<u>42.3</u>	<u>282</u>	43.1	277	42.1	284	<u>42.3</u>	<u>282</u>	43.1	277
437.leslie3d	88.2	107	83.6	112	<u>85.8</u>	<u>110</u>	88.2	107	83.6	112	<u>85.8</u>	<u>110</u>
444.namd	<u>410</u>	<u>19.6</u>	410	19.6	411	19.5	<u>403</u>	<u>19.9</u>	403	19.9	403	19.9
447.dealII	<u>281</u>	<u>40.7</u>	281	40.7	281	40.7	<u>281</u>	<u>40.7</u>	281	40.7	281	40.7
450.soplex	248	33.6	<u>248</u>	<u>33.6</u>	250	33.4	248	33.6	<u>248</u>	<u>33.6</u>	250	33.4
453.povray	171	31.1	<u>172</u>	<u>31.0</u>	172	31.0	137	38.7	<u>136</u>	<u>39.0</u>	136	39.1
454.calculix	274	30.1	275	30.0	<u>275</u>	<u>30.0</u>	245	33.6	<u>245</u>	<u>33.7</u>	245	33.7
459.GemsFDTD	120	88.7	139	76.4	<u>126</u>	<u>83.9</u>	110	96.8	117	90.9	<u>115</u>	<u>92.5</u>
465.tonto	396	24.9	388	25.4	<u>388</u>	<u>25.3</u>	<u>293</u>	<u>33.6</u>	293	33.6	293	33.6
470.lbm	50.6	271	46.6	295	<u>47.2</u>	<u>291</u>	50.6	271	46.6	295	<u>47.2</u>	<u>291</u>
481.wrf	226	49.4	<u>225</u>	<u>49.6</u>	223	50.2	226	49.4	<u>225</u>	<u>49.6</u>	223	50.2
482.sphinx3	362	53.9	364	53.6	<u>362</u>	<u>53.8</u>	328	59.4	<u>329</u>	<u>59.3</u>	329	59.2

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

Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

Platform Notes

Data Reuse Optimization disabled in BIOS Setup.
Intel HT technology Disabled in BIOS Setup.



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General Notes

Binaries compiled on RHEL5.5
OMP_NUM_THREADS set to number of cores

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:
-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

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Base Optimization Flags (Continued)

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

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

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Peak Optimization Flags (Continued)

447.deallI: 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
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

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

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
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Benchmarks using both Fortran and C:

435.gromacs: -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

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/HUAWEI-platform-linux64-revC.html>
<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html>

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

<http://www.spec.org/cpu2006/flags/HUAWEI-platform-linux64-revC.xml>
<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>



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