



# SPEC<sup>®</sup> CFP2006 Result

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## HITACHI

SPECfp<sup>®</sup>2006 = **61.9**

### Compute Blade 320 (Intel Xeon X5675)

SPECfp\_base2006 = **58.9**

CPU2006 license: 35

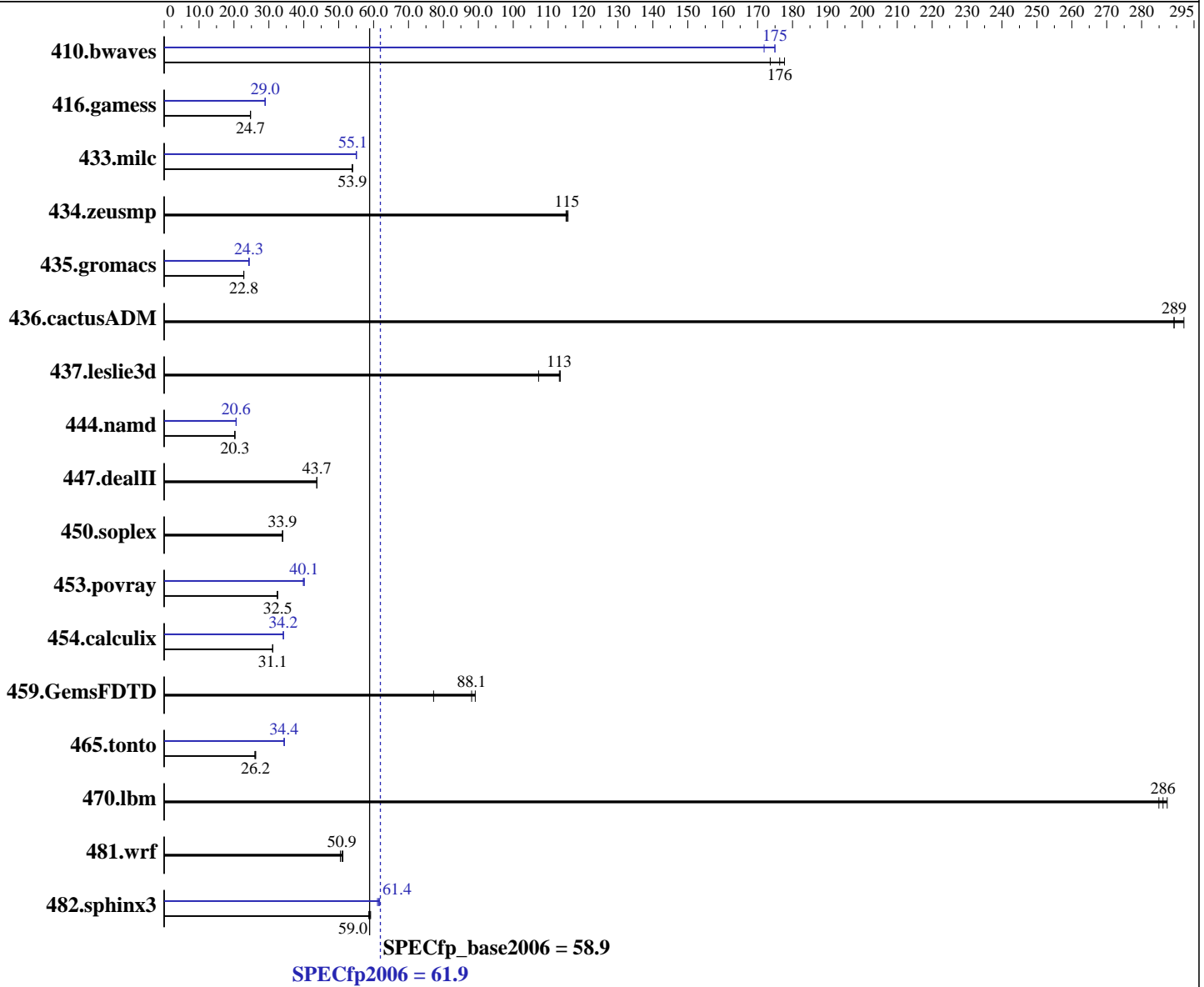
Test sponsor: HITACHI

Tested by: HITACHI

Test date: Jun-2011

Hardware Availability: Feb-2011

Software Availability: Apr-2011



#### Hardware

CPU Name: Intel Xeon X5675  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.46 GHz  
 CPU MHz: 3060  
 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: Intel C++ Compiler XE for Linux  
 Version 12.0.3.174 Build 20110309  
 Intel Fortran Compiler XE for Linux  
 Version 12.0.3.174 Build 20110309  
 Auto Parallel: Yes

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L3 Cache: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 48 GB (6 x 8 GB 2Rx4 PC3-10600R-9, ECC)  
 Disk Subsystem: 2 x 146 GB 10000 rpm Fibre Channel RAID1 configuration  
 Other Hardware: None

File System: ext3  
 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	76.5	178	78.3	174	<b><u>77.1</u></b>	<b><u>176</u></b>	<b><u>77.7</u></b>	<b><u>175</u></b>	77.7	175	79.1	172
416.gamess	<b><u>792</u></b>	<b><u>24.7</u></b>	791	24.8	792	24.7	678	28.9	<b><u>676</u></b>	<b><u>29.0</u></b>	675	29.0
433.milc	170	53.9	170	54.0	<b><u>170</u></b>	<b><u>53.9</u></b>	167	55.1	167	55.0	<b><u>167</u></b>	<b><u>55.1</u></b>
434.zeusmp	<b><u>78.9</u></b>	<b><u>115</u></b>	78.7	116	79.1	115	<b><u>78.9</u></b>	<b><u>115</u></b>	78.7	116	79.1	115
435.gromacs	313	22.8	<b><u>313</u></b>	<b><u>22.8</u></b>	313	22.8	293	24.4	<b><u>294</u></b>	<b><u>24.3</u></b>	295	24.2
436.cactusADM	<b><u>41.3</u></b>	<b><u>289</u></b>	41.3	289	40.9	292	<b><u>41.3</u></b>	<b><u>289</u></b>	41.3	289	40.9	292
437.leslie3d	87.6	107	<b><u>83.0</u></b>	<b><u>113</u></b>	82.8	113	87.6	107	<b><u>83.0</u></b>	<b><u>113</u></b>	82.8	113
444.namd	396	20.3	396	20.3	<b><u>396</u></b>	<b><u>20.3</u></b>	389	20.6	<b><u>389</u></b>	<b><u>20.6</u></b>	389	20.6
447.dealII	<b><u>261</u></b>	<b><u>43.7</u></b>	262	43.7	261	43.8	<b><u>261</u></b>	<b><u>43.7</u></b>	262	43.7	261	43.8
450.soplex	<b><u>246</u></b>	<b><u>33.9</u></b>	245	34.0	246	33.9	<b><u>246</u></b>	<b><u>33.9</u></b>	245	34.0	246	33.9
453.povray	164	32.5	164	32.4	<b><u>164</u></b>	<b><u>32.5</u></b>	<b><u>133</u></b>	<b><u>40.1</u></b>	133	40.1	133	39.9
454.calculix	265	31.1	<b><u>265</u></b>	<b><u>31.1</u></b>	266	31.1	242	34.2	<b><u>242</u></b>	<b><u>34.2</u></b>	241	34.2
459.GemsFDTD	119	89.1	<b><u>120</u></b>	<b><u>88.1</u></b>	137	77.2	119	89.1	<b><u>120</u></b>	<b><u>88.1</u></b>	137	77.2
465.tonto	379	26.0	<b><u>376</u></b>	<b><u>26.2</u></b>	376	26.2	<b><u>286</u></b>	<b><u>34.4</u></b>	286	34.4	286	34.4
470.lbm	<b><u>48.0</u></b>	<b><u>286</u></b>	48.2	285	47.8	287	<b><u>48.0</u></b>	<b><u>286</u></b>	48.2	285	47.8	287
481.wrf	<b><u>219</u></b>	<b><u>50.9</u></b>	221	50.5	218	51.2	<b><u>219</u></b>	<b><u>50.9</u></b>	221	50.5	218	51.2
482.sphinx3	333	58.6	<b><u>331</u></b>	<b><u>59.0</u></b>	330	59.2	<b><u>317</u></b>	<b><u>61.4</u></b>	316	61.7	319	61.1

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
Hugepages was enabled with the following:
'nodew /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

## Platform Notes

BIOS Settings:  
 Intel HT Technology = Disabled  
 Data Reuse Optimization = Disabled



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**CPU2006 license:** 35

**Test sponsor:** HITACHI

**Tested by:** HITACHI

**Test date:** Jun-2011

**Hardware Availability:** Feb-2011

**Software Availability:** Apr-2011

## 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

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



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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: -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

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  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

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## Peak Optimization Flags (Continued)

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: basepeak = yes

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-alloc -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/Intel-ic12.0-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/PlatformHitachi.html>

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

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

<http://www.spec.org/cpu2006/flags/PlatformHitachi.xml>

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

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