



SPEC® CFP2006 Result

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Fujitsu

SPECfp®2006 = **61.1**

PRIMERGY BX920 S2, Intel Xeon X5675, 3.07 GHz

SPECfp_base2006 = **57.6**

CPU2006 license: 19

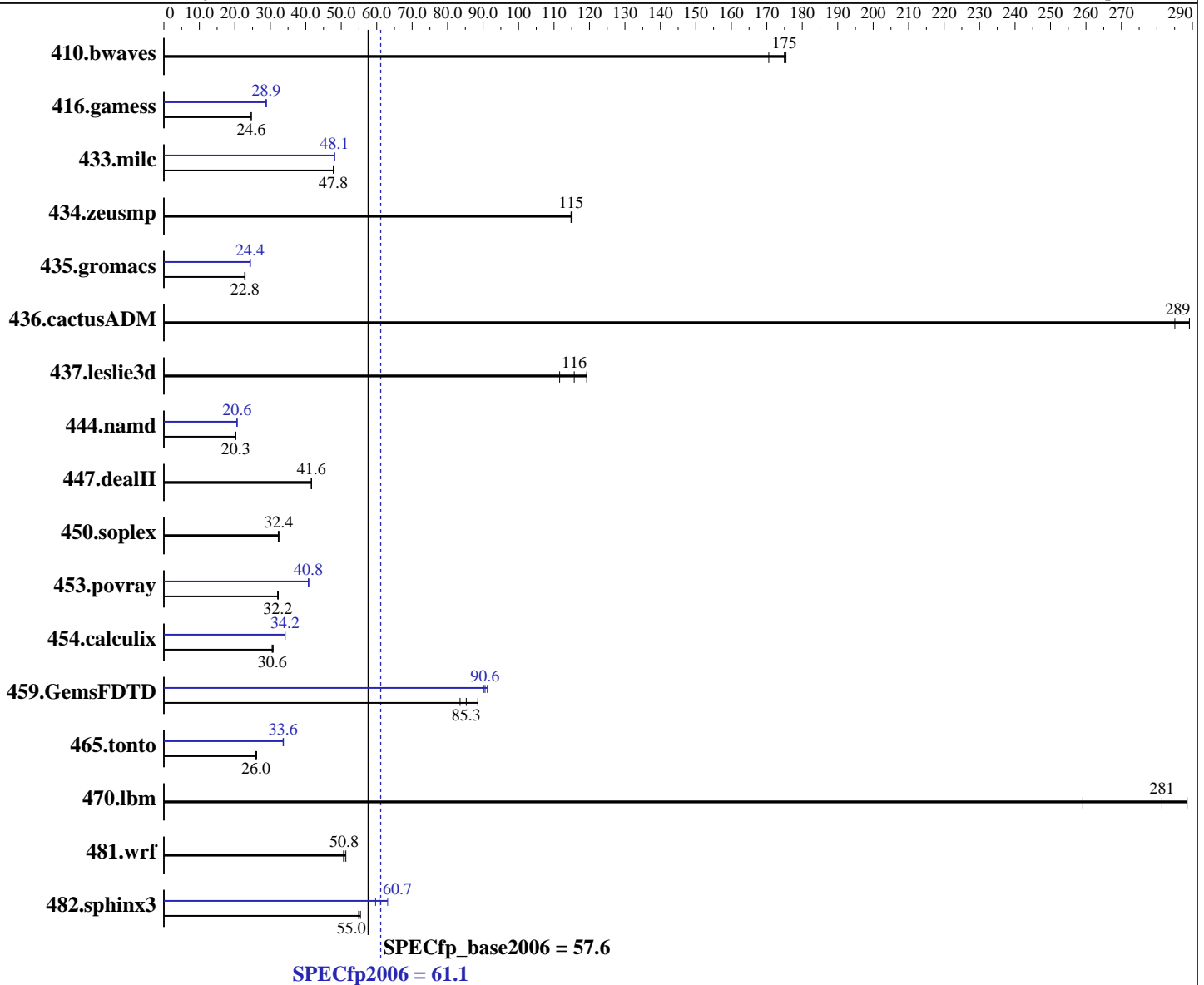
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Mar-2011

Hardware Availability: Feb-2011

Software Availability: Apr-2011



Hardware

CPU Name: Intel Xeon X5675
 CPU Characteristics: Intel Turbo Boost Technology up to 3.47 GHz
 CPU MHz: 3067
 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 (x86_64) with SP1, Kernel 2.6.32.12-0.7-default
 Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0 Update 3
 Auto Parallel: Yes
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: 1 x SAS, 300 GB, 10000 RPM
Other Hardware: --

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 | 77.5 | 175 | 79.7 | 171 | <u>77.7</u> | <u>175</u> | 77.5 | 175 | 79.7 | 171 | <u>77.7</u> | <u>175</u> |
| 416.gamess | 803 | 24.4 | 794 | 24.7 | <u>796</u> | <u>24.6</u> | <u>678</u> | <u>28.9</u> | 680 | 28.8 | 678 | 28.9 |
| 433.milc | 192 | 47.7 | <u>192</u> | <u>47.8</u> | 192 | 47.8 | 191 | 48.1 | <u>191</u> | <u>48.1</u> | 191 | 48.0 |
| 434.zeusmp | 79.1 | 115 | <u>79.3</u> | <u>115</u> | 79.3 | 115 | 79.1 | 115 | <u>79.3</u> | <u>115</u> | 79.3 | 115 |
| 435.gromacs | 313 | 22.8 | 312 | 22.9 | <u>313</u> | <u>22.8</u> | 293 | 24.4 | <u>293</u> | <u>24.4</u> | 294 | 24.3 |
| 436.cactusADM | <u>41.3</u> | <u>289</u> | 41.9 | 285 | 41.3 | 289 | <u>41.3</u> | <u>289</u> | 41.9 | 285 | 41.3 | 289 |
| 437.leslie3d | 78.8 | 119 | 84.2 | 112 | <u>81.2</u> | <u>116</u> | 78.8 | 119 | 84.2 | 112 | <u>81.2</u> | <u>116</u> |
| 444.namd | 396 | 20.3 | <u>396</u> | <u>20.3</u> | 396 | 20.3 | 389 | 20.6 | <u>389</u> | <u>20.6</u> | 389 | 20.6 |
| 447.dealII | 275 | 41.6 | <u>275</u> | <u>41.6</u> | 275 | 41.6 | 275 | 41.6 | <u>275</u> | <u>41.6</u> | 275 | 41.6 |
| 450.soplex | 259 | 32.3 | 257 | 32.4 | <u>258</u> | <u>32.4</u> | 259 | 32.3 | 257 | 32.4 | <u>258</u> | <u>32.4</u> |
| 453.povray | 166 | 32.1 | 165 | 32.3 | <u>165</u> | <u>32.2</u> | <u>130</u> | <u>40.8</u> | 131 | 40.8 | 130 | 40.8 |
| 454.calculix | 270 | 30.5 | 268 | 30.8 | <u>270</u> | <u>30.6</u> | 241 | 34.2 | 242 | 34.2 | <u>242</u> | <u>34.2</u> |
| 459.GemsFDTD | 127 | 83.5 | 120 | 88.5 | <u>124</u> | <u>85.3</u> | 118 | 90.3 | <u>117</u> | <u>90.6</u> | 116 | 91.2 |
| 465.tonto | 376 | 26.2 | <u>379</u> | <u>26.0</u> | 380 | 25.9 | 293 | 33.6 | <u>293</u> | <u>33.6</u> | 292 | 33.7 |
| 470.lbm | 47.6 | 289 | 53.0 | 259 | <u>48.8</u> | <u>281</u> | 47.6 | 289 | 53.0 | 259 | <u>48.8</u> | <u>281</u> |
| 481.wrf | 218 | 51.3 | <u>220</u> | <u>50.8</u> | 221 | 50.7 | 218 | 51.3 | <u>220</u> | <u>50.8</u> | 221 | 50.7 |
| 482.sphinx3 | <u>354</u> | <u>55.0</u> | 352 | 55.4 | 355 | 54.9 | 309 | 63.1 | 327 | 59.7 | <u>321</u> | <u>60.7</u> |

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
'nodenv /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 configuration:
Data Reuse Optimization = Disable
Performance/Power Setting = Traditional
Intel HT Technology = Disable



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General Notes

OMP_NUM_THREADS set to number of cores

For information about Fujitsu please visit: <http://www.fujitsu.com>

Binaries were compiled on RHEL5.5 with binutils-2.17.50.0.6-14.el5

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.dealll: 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: 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
-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/Intel-ic12.0-linux64-revB.20110316.html>

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.20110316.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.20110316.xml>

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.20110316.xml>



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