



SPEC[®] CFP2006 Result

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Fujitsu

SPECfp[®]2006 = **64.0**

PRIMERGY BX922 S2, Intel Xeon X5690, 3.47 GHz

SPECfp_base2006 = **60.7**

CPU2006 license: 19

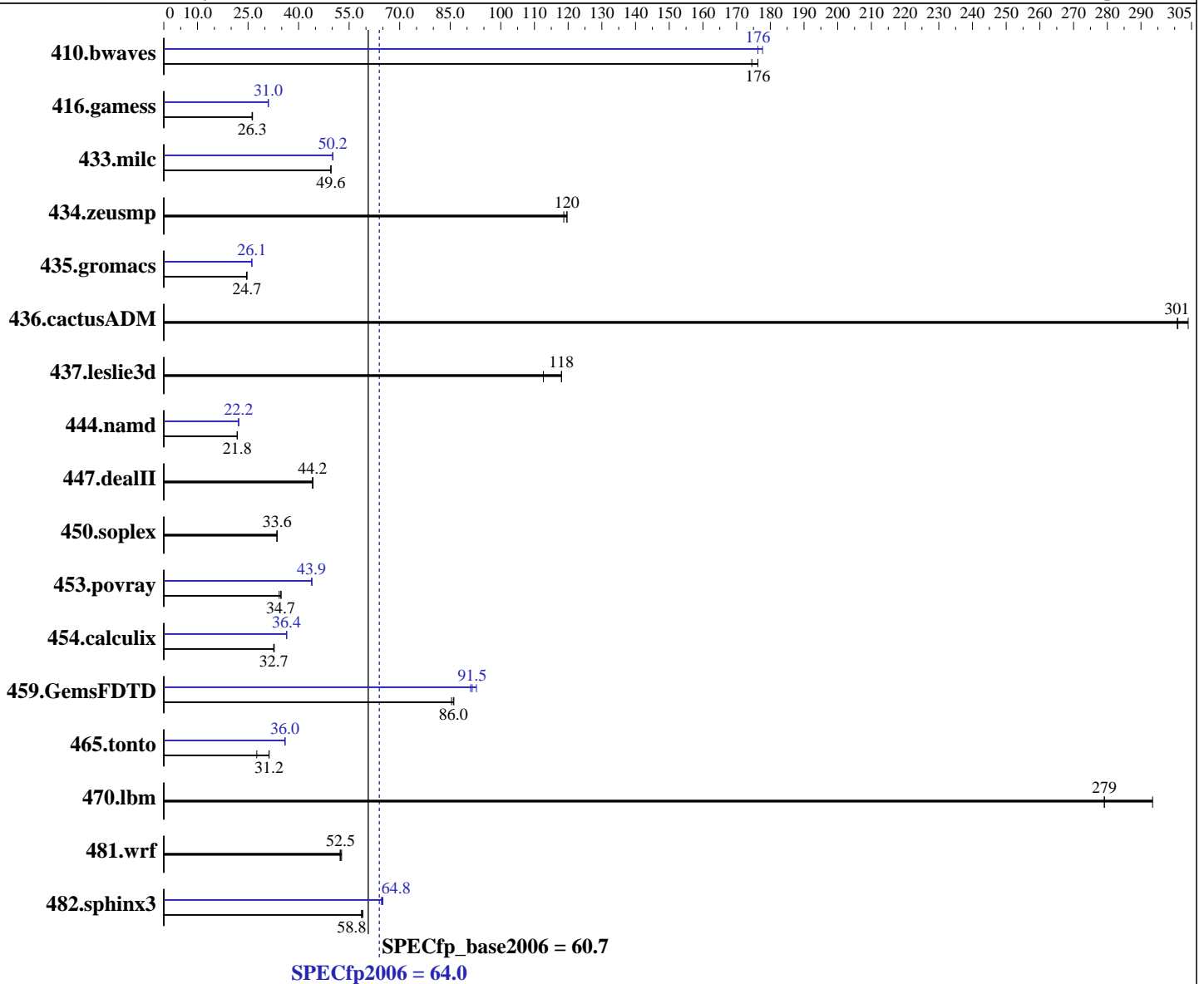
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Mar-2011

Hardware Availability: Feb-2011

Software Availability: Apr-2011



Hardware

CPU Name: Intel Xeon X5690
 CPU Characteristics: Intel Turbo Boost Technology up to 3.73 GHz
 CPU MHz: 3467
 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 | <u>77.1</u> | <u>176</u> | 77.1 | 176 | 77.9 | 175 | <u>77.1</u> | <u>176</u> | 76.5 | 178 | 77.1 | 176 |
| 416.gamess | <u>746</u> | <u>26.3</u> | 747 | 26.2 | 743 | 26.3 | 632 | 31.0 | 631 | 31.0 | <u>631</u> | <u>31.0</u> |
| 433.milc | <u>185</u> | <u>49.6</u> | 185 | 49.5 | 185 | 49.6 | <u>183</u> | <u>50.2</u> | 183 | 50.2 | 183 | 50.1 |
| 434.zeusmp | 76.7 | 119 | 76.1 | 120 | <u>76.1</u> | <u>120</u> | 76.7 | 119 | 76.1 | 120 | <u>76.1</u> | <u>120</u> |
| 435.gromacs | 289 | 24.7 | <u>290</u> | <u>24.7</u> | 291 | 24.5 | 273 | 26.1 | <u>273</u> | <u>26.1</u> | 274 | 26.1 |
| 436.cactusADM | 39.3 | 304 | <u>39.7</u> | <u>301</u> | 39.7 | 301 | 39.3 | 304 | <u>39.7</u> | <u>301</u> | 39.7 | 301 |
| 437.leslie3d | 79.6 | 118 | <u>79.6</u> | <u>118</u> | 83.4 | 113 | 79.6 | 118 | <u>79.6</u> | <u>118</u> | 83.4 | 113 |
| 444.namd | <u>368</u> | <u>21.8</u> | 368 | 21.8 | 368 | 21.8 | <u>361</u> | <u>22.2</u> | 361 | 22.2 | 361 | 22.2 |
| 447.dealII | 259 | 44.2 | 259 | 44.1 | <u>259</u> | <u>44.2</u> | 259 | 44.2 | 259 | 44.1 | <u>259</u> | <u>44.2</u> |
| 450.soplex | <u>248</u> | <u>33.6</u> | 248 | 33.6 | 248 | 33.6 | <u>248</u> | <u>33.6</u> | 248 | 33.6 | 248 | 33.6 |
| 453.povray | 155 | 34.3 | 153 | 34.8 | <u>153</u> | <u>34.7</u> | <u>121</u> | <u>43.9</u> | 121 | 43.9 | 121 | 44.0 |
| 454.calculix | 252 | 32.8 | <u>252</u> | <u>32.7</u> | 253 | 32.6 | 226 | 36.5 | 227 | 36.4 | <u>226</u> | <u>36.4</u> |
| 459.GemsFDTD | <u>123</u> | <u>86.0</u> | 124 | 85.4 | 123 | 86.1 | 117 | 91.0 | 114 | 92.8 | <u>116</u> | <u>91.5</u> |
| 465.tonto | 315 | 31.3 | <u>315</u> | <u>31.2</u> | 357 | 27.6 | <u>273</u> | <u>36.0</u> | 274 | 35.9 | 273 | 36.0 |
| 470.lbm | <u>49.2</u> | <u>279</u> | 46.8 | 293 | 49.2 | 279 | <u>49.2</u> | <u>279</u> | 46.8 | 293 | 49.2 | 279 |
| 481.wrf | 213 | 52.3 | <u>213</u> | <u>52.5</u> | 212 | 52.8 | 213 | 52.3 | <u>213</u> | <u>52.5</u> | 212 | 52.8 |
| 482.sphinx3 | 330 | 59.1 | 332 | 58.7 | <u>331</u> | <u>58.8</u> | 300 | 65.0 | 302 | 64.6 | <u>301</u> | <u>64.8</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
'noddev /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.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/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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