



SPEC[®] CFP2006 Result

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Fujitsu

SPECfp[®]2006 = **65.5**

PRIMERGY BX922 S2, Intel Xeon X5687, 3.60 GHz

SPECfp_base2006 = **61.7**

CPU2006 license: 19

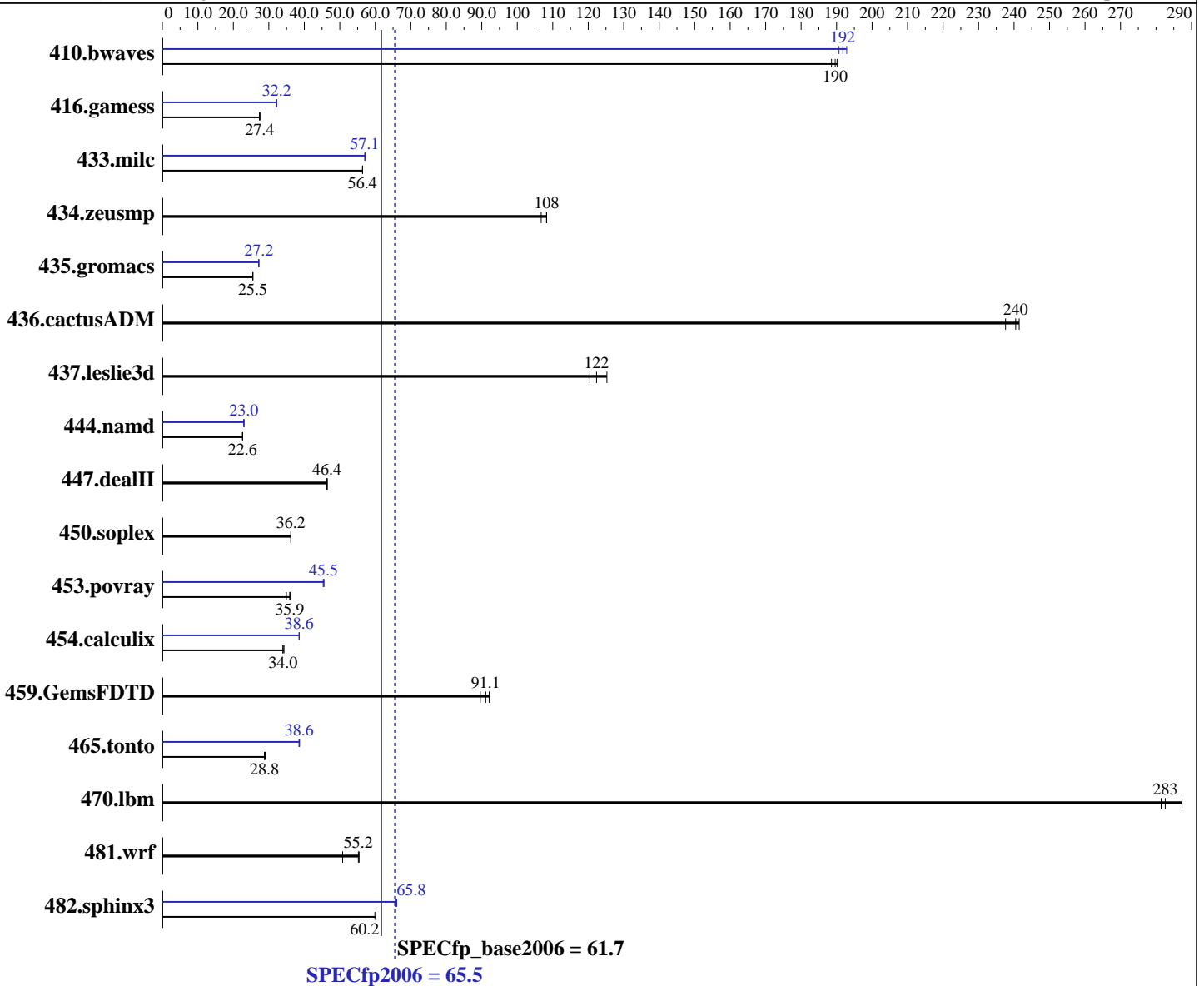
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Mar-2011

Hardware Availability: Feb-2011

Software Availability: Apr-2011



Hardware

CPU Name: Intel Xeon X5687
 CPU Characteristics: Intel Turbo Boost Technology up to 3.87 GHz
 CPU MHz: 3600
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 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 | 72.1 | 189 | <u>71.7</u> | <u>190</u> | 71.5 | 190 | 71.3 | 191 | 70.5 | 193 | <u>70.9</u> | <u>192</u> |
| 416.gamess | 715 | 27.4 | 712 | 27.5 | <u>714</u> | <u>27.4</u> | 609 | 32.1 | 608 | 32.2 | <u>608</u> | <u>32.2</u> |
| 433.milc | 163 | 56.4 | <u>163</u> | <u>56.4</u> | 163 | 56.4 | 161 | 57.1 | <u>161</u> | <u>57.1</u> | 161 | 57.0 |
| 434.zeusmp | <u>84.1</u> | <u>108</u> | 85.3 | 107 | 84.1 | 108 | <u>84.1</u> | <u>108</u> | 85.3 | 107 | 84.1 | 108 |
| 435.gromacs | 280 | 25.5 | <u>280</u> | <u>25.5</u> | 280 | 25.5 | 263 | 27.2 | <u>263</u> | <u>27.2</u> | 263 | 27.2 |
| 436.cactusADM | 50.3 | 238 | <u>49.7</u> | <u>240</u> | 49.5 | 241 | 50.3 | 238 | <u>49.7</u> | <u>240</u> | 49.5 | 241 |
| 437.leslie3d | 75.0 | 125 | 78.0 | 120 | <u>76.8</u> | <u>122</u> | 75.0 | 125 | 78.0 | 120 | <u>76.8</u> | <u>122</u> |
| 444.namd | 355 | 22.6 | 355 | 22.6 | <u>355</u> | <u>22.6</u> | <u>349</u> | <u>23.0</u> | 349 | 23.0 | 349 | 23.0 |
| 447.dealII | 247 | 46.4 | <u>246</u> | <u>46.4</u> | 246 | 46.4 | 247 | 46.4 | <u>246</u> | <u>46.4</u> | 246 | 46.4 |
| 450.soplex | 230 | 36.2 | 230 | 36.2 | <u>230</u> | <u>36.2</u> | 230 | 36.2 | 230 | 36.2 | <u>230</u> | <u>36.2</u> |
| 453.povray | <u>148</u> | <u>35.9</u> | 152 | 35.0 | 148 | 36.0 | 117 | 45.6 | <u>117</u> | <u>45.5</u> | 117 | 45.3 |
| 454.calculix | <u>242</u> | <u>34.0</u> | 241 | 34.3 | 243 | 34.0 | 214 | 38.6 | <u>214</u> | <u>38.6</u> | 214 | 38.5 |
| 459.GemsFDTD | <u>116</u> | <u>91.1</u> | 118 | 89.6 | 115 | 92.1 | <u>116</u> | <u>91.1</u> | 118 | 89.6 | 115 | 92.1 |
| 465.tonto | 340 | 29.0 | <u>342</u> | <u>28.8</u> | 342 | 28.7 | 254 | 38.7 | 256 | 38.5 | <u>255</u> | <u>38.6</u> |
| 470.lbm | 47.8 | 287 | 48.8 | 281 | <u>48.6</u> | <u>283</u> | 47.8 | 287 | 48.8 | 281 | <u>48.6</u> | <u>283</u> |
| 481.wrf | 201 | 55.4 | 220 | 50.8 | <u>202</u> | <u>55.2</u> | 201 | 55.4 | 220 | 50.8 | <u>202</u> | <u>55.2</u> |
| 482.sphinx3 | 324 | 60.2 | <u>324</u> | <u>60.2</u> | 325 | 59.9 | <u>296</u> | <u>65.8</u> | 295 | 66.0 | 297 | 65.6 |

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
'nodetv /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.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:

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-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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