



# SPEC® CFP2006 Result

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## Fujitsu

SPECfp®2006 = **65.5**

PRIMERGY RX200 S6, Intel Xeon X5687, 3.60 GHz

SPECfp\_base2006 = **61.7**

CPU2006 license: 19

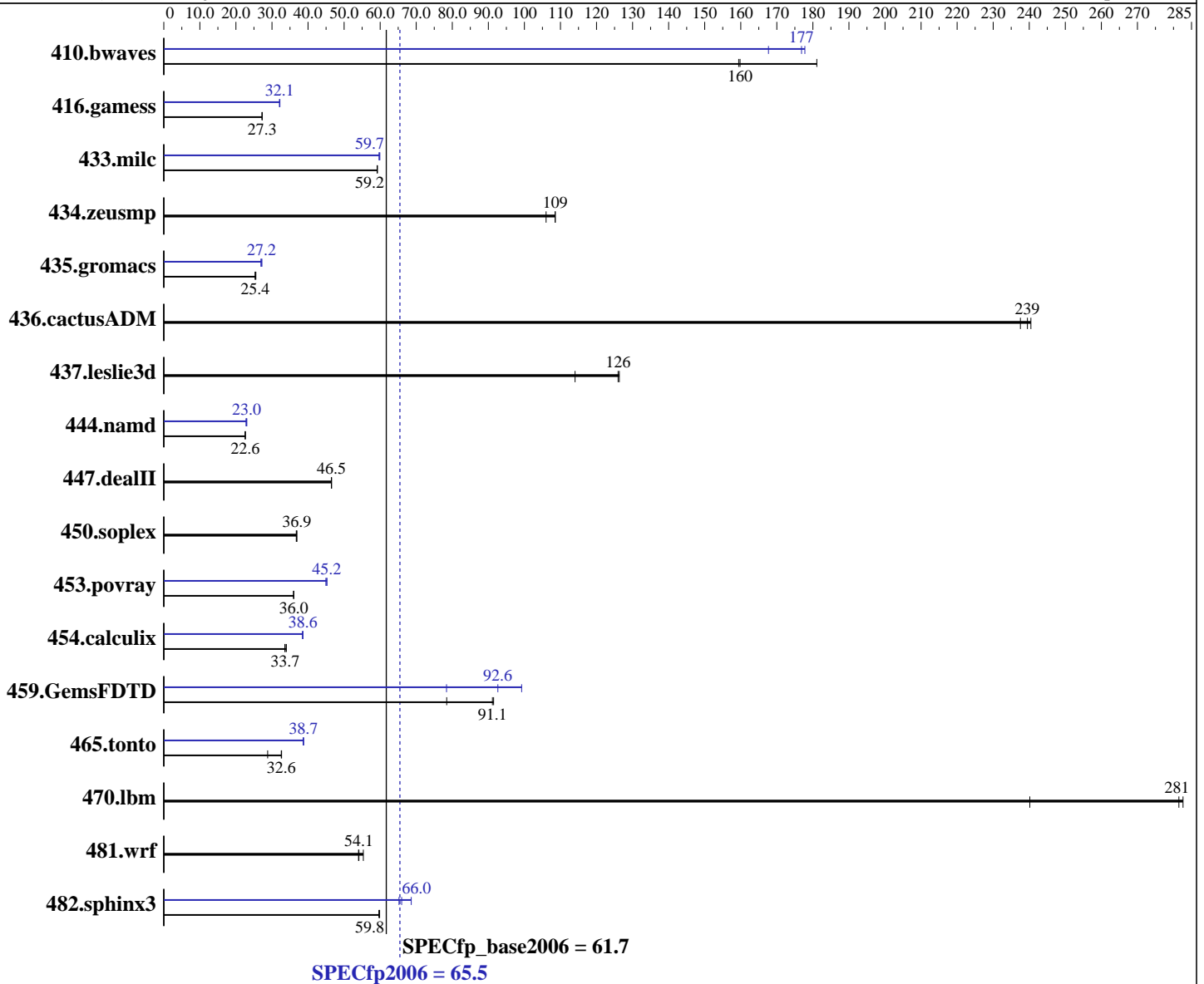
Test sponsor: Fujitsu

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 4 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	75.0	181	<b>85.0</b>	<b>160</b>	85.2	159	<b>76.8</b>	<b>177</b>	81.0	168	76.4	178
416.gamess	<b>718</b>	<b>27.3</b>	720	27.2	717	27.3	<b>610</b>	<b>32.1</b>	610	32.1	608	32.2
433.milc	<b>155</b>	<b>59.2</b>	155	59.2	155	59.2	<b>154</b>	<b>59.7</b>	153	59.9	154	59.7
434.zeusmp	85.8	106	<b>83.8</b>	<b>109</b>	83.8	109	85.8	106	<b>83.8</b>	<b>109</b>	83.8	109
435.gromacs	282	25.3	280	25.5	<b>281</b>	<b>25.4</b>	<b>263</b>	<b>27.2</b>	263	27.2	265	26.9
436.cactusADM	<b>49.9</b>	<b>239</b>	49.7	240	50.3	238	<b>49.9</b>	<b>239</b>	49.7	240	50.3	238
437.leslie3d	82.4	114	<b>74.6</b>	<b>126</b>	74.4	126	82.4	114	<b>74.6</b>	<b>126</b>	74.4	126
444.namd	355	22.6	355	22.6	<b>355</b>	<b>22.6</b>	349	23.0	<b>349</b>	<b>23.0</b>	352	22.8
447.dealII	246	46.5	<b>246</b>	<b>46.5</b>	246	46.5	246	46.5	<b>246</b>	<b>46.5</b>	246	46.5
450.soplex	226	36.9	<b>226</b>	<b>36.9</b>	227	36.7	226	36.9	<b>226</b>	<b>36.9</b>	227	36.7
453.povray	148	36.1	<b>148</b>	<b>36.0</b>	148	36.0	<b>118</b>	<b>45.2</b>	118	45.2	118	44.9
454.calculix	246	33.6	243	34.0	<b>245</b>	<b>33.7</b>	214	38.6	<b>214</b>	<b>38.6</b>	215	38.4
459.GemsFDTD	116	91.5	<b>116</b>	<b>91.1</b>	135	78.5	107	99.2	<b>115</b>	<b>92.6</b>	135	78.4
465.tonto	301	32.7	342	28.8	<b>302</b>	<b>32.6</b>	<b>254</b>	<b>38.7</b>	254	38.8	255	38.6
470.lbm	48.6	283	57.2	240	<b>48.8</b>	<b>281</b>	48.6	283	57.2	240	<b>48.8</b>	<b>281</b>
481.wrf	207	54.0	<b>206</b>	<b>54.1</b>	202	55.3	207	54.0	<b>206</b>	<b>54.1</b>	202	55.3
482.sphinx3	<b>326</b>	<b>59.8</b>	326	59.9	327	59.6	284	68.6	299	65.2	<b>295</b>	<b>66.0</b>

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/libhugepage.so
```

## Platform Notes

BIOS configuration:  
Data Reuse Optimization = Disable  
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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