



# SPEC® CFP2006 Result

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## Fujitsu

SPECfp®2006 = 64.3

PRIMERGY RX200 S6, Intel Xeon X5690, 3.47 GHz

SPECfp\_base2006 = 60.3

CPU2006 license: 19

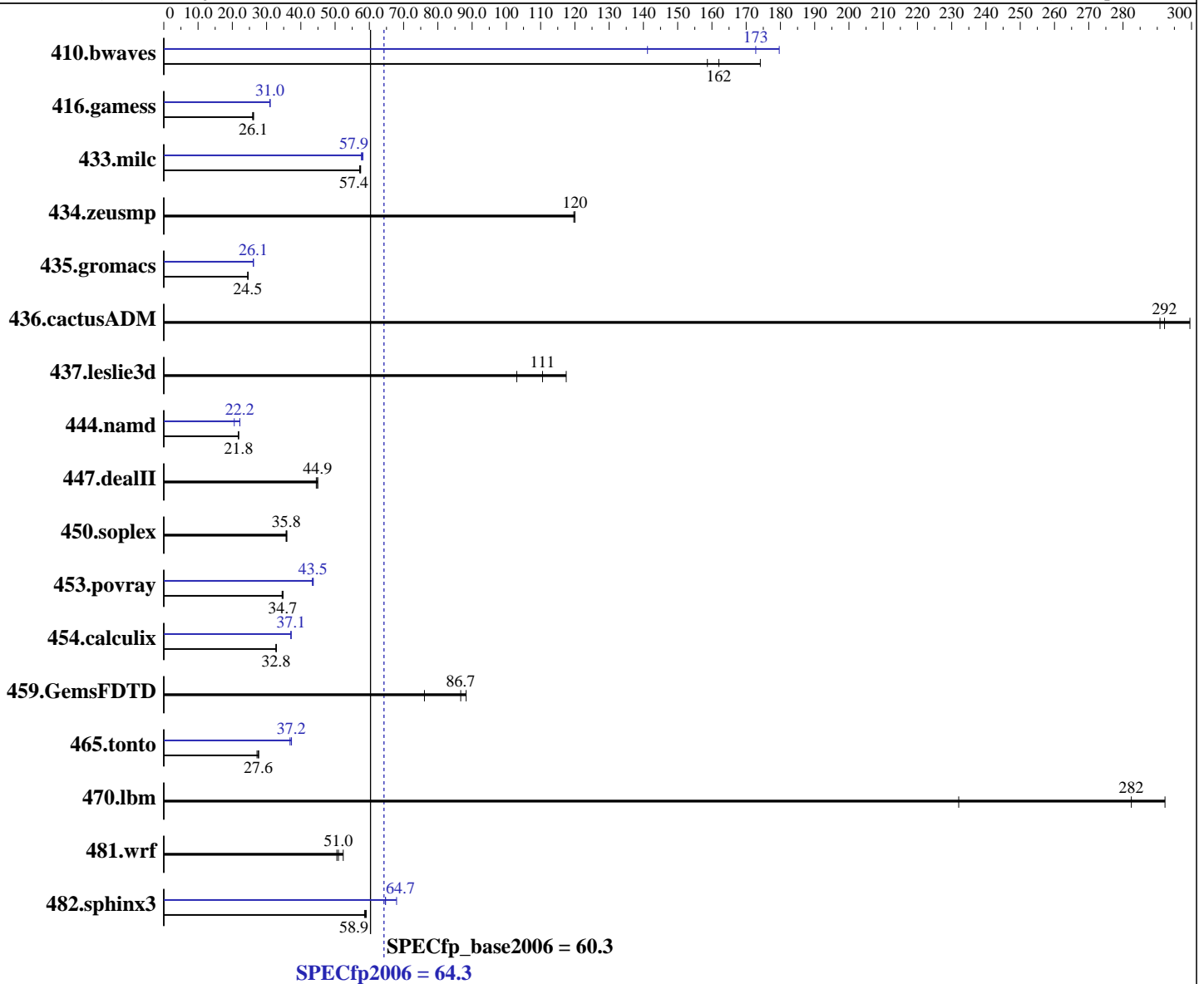
Test sponsor: Fujitsu

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 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	78.0	174	85.6	159	<b>83.9</b>	<b>162</b>	96.3	141	<b>78.6</b>	<b>173</b>	75.6	180
416.gamess	755	25.9	747	26.2	<b>750</b>	<b>26.1</b>	<b>631</b>	<b>31.0</b>	632	31.0	631	31.0
433.milc	161	57.2	<b>160</b>	<b>57.4</b>	160	57.5	<b>158</b>	<b>57.9</b>	158	58.1	159	57.7
434.zeusmp	<b>75.8</b>	<b>120</b>	76.0	120	75.8	120	<b>75.8</b>	<b>120</b>	76.0	120	75.8	120
435.gromacs	<b>291</b>	<b>24.5</b>	290	24.6	291	24.5	<b>273</b>	<b>26.1</b>	273	26.1	273	26.1
436.cactusADM	41.1	291	<b>40.9</b>	<b>292</b>	39.9	300	41.1	291	<b>40.9</b>	<b>292</b>	39.9	300
437.leslie3d	<b>85.0</b>	<b>111</b>	91.2	103	80.0	117	<b>85.0</b>	<b>111</b>	91.2	103	80.0	117
444.namd	368	21.8	<b>368</b>	<b>21.8</b>	368	21.8	<b>361</b>	<b>22.2</b>	361	22.2	390	20.6
447.dealII	257	44.5	<b>255</b>	<b>44.9</b>	255	44.9	257	44.5	<b>255</b>	<b>44.9</b>	255	44.9
450.soplex	232	35.9	234	35.7	<b>233</b>	<b>35.8</b>	232	35.9	234	35.7	<b>233</b>	<b>35.8</b>
453.povray	<b>153</b>	<b>34.7</b>	154	34.5	153	34.8	123	43.4	122	43.6	<b>122</b>	<b>43.5</b>
454.calculix	251	32.9	252	32.7	<b>252</b>	<b>32.8</b>	222	37.2	<b>222</b>	<b>37.1</b>	222	37.1
459.GemsFDTD	<b>122</b>	<b>86.7</b>	120	88.3	139	76.1	<b>122</b>	<b>86.7</b>	120	88.3	139	76.1
465.tonto	355	27.7	<b>357</b>	<b>27.6</b>	362	27.2	264	37.3	<b>264</b>	<b>37.2</b>	267	36.8
470.lbm	59.2	232	47.0	292	<b>48.6</b>	<b>282</b>	59.2	232	47.0	292	<b>48.6</b>	<b>282</b>
481.wrf	<b>219</b>	<b>51.0</b>	221	50.5	213	52.4	<b>219</b>	<b>51.0</b>	221	50.5	213	52.4
482.sphinx3	333	58.6	330	59.1	<b>331</b>	<b>58.9</b>	287	67.9	301	64.7	<b>301</b>	<b>64.7</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/libhugetlbfs.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.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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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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