



# SPEC® CFP2006 Result

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## Fujitsu

SPECfp®2006 = **62.0**

## CELSIUS W510, Intel Xeon E3-1280

SPECfp\_base2006 = **59.1**

CPU2006 license: 19

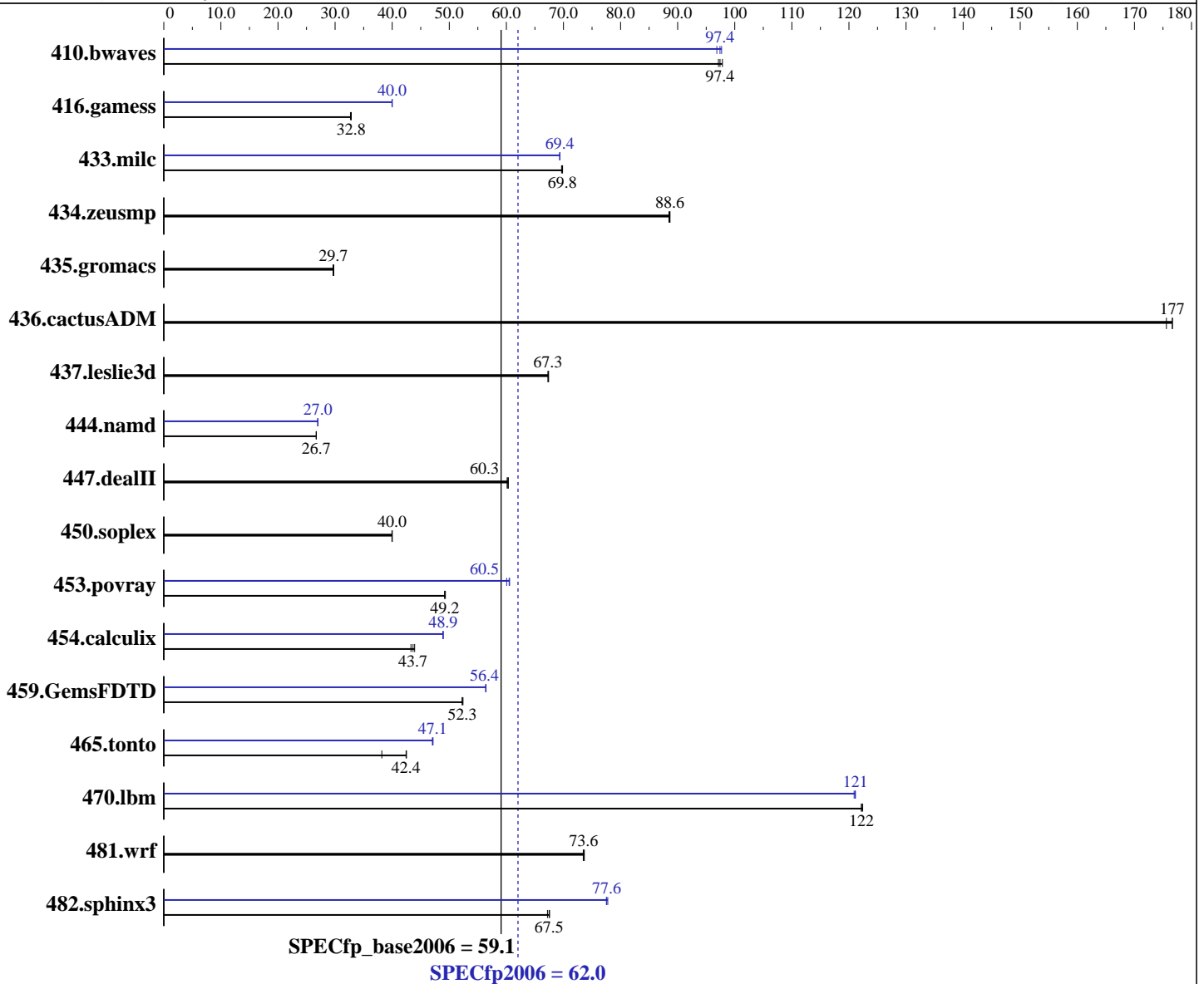
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Apr-2011

Hardware Availability: Apr-2011

Software Availability: Jan-2011



### Hardware

CPU Name: Intel Xeon E3-1280  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.9 GHz  
 CPU MHz: 3500  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 CPU(s) orderable: 1 chip  
 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), kernel 2.6.32.12-0.6-default  
 Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.2.137 Build 20110112  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run Level 3 (multi-user)  
 Base Pointers: 64-bit

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L3 Cache: 8 MB I+D on chip per chip  
Other Cache: None  
Memory: 8 GB (2 x 4 GB 2Rx8 PC3-10600U-9, non-ECC)  
Disk Subsystem: 1 x SATA II, 400 GB, 7200 rpm  
Other Hardware: None

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	140	97.1	<b>140</b>	<b>97.4</b>	139	97.8	139	97.7	<b>140</b>	<b>97.4</b>	140	96.9
416.gamess	596	32.8	<b>597</b>	<b>32.8</b>	599	32.7	<b>489</b>	<b>40.0</b>	489	40.0	490	40.0
433.milc	131	69.8	<b>132</b>	<b>69.8</b>	132	69.7	<b>132</b>	<b>69.4</b>	132	69.4	132	69.4
434.zeusmp	103	88.6	<b>103</b>	<b>88.6</b>	103	88.5	103	88.6	<b>103</b>	<b>88.6</b>	103	88.5
435.gromacs	240	29.8	<b>240</b>	<b>29.7</b>	241	29.6	240	29.8	<b>240</b>	<b>29.7</b>	241	29.6
436.cactusADM	67.6	177	<b>67.7</b>	<b>177</b>	68.1	176	67.6	177	<b>67.7</b>	<b>177</b>	68.1	176
437.leslie3d	139	67.4	140	67.3	<b>140</b>	<b>67.3</b>	139	67.4	140	67.3	<b>140</b>	<b>67.3</b>
444.namd	300	26.7	300	26.7	<b>300</b>	<b>26.7</b>	297	27.0	<b>297</b>	<b>27.0</b>	297	27.0
447.dealII	<b>190</b>	<b>60.3</b>	190	60.3	190	60.1	<b>190</b>	<b>60.3</b>	190	60.3	190	60.1
450.soplex	208	40.0	<b>209</b>	<b>40.0</b>	209	40.0	208	40.0	<b>209</b>	<b>40.0</b>	209	40.0
453.povray	<b>108</b>	<b>49.2</b>	108	49.2	108	49.3	88.6	60.1	87.8	60.6	<b>88.0</b>	<b>60.5</b>
454.calculix	188	43.9	191	43.3	<b>189</b>	<b>43.7</b>	<b>169</b>	<b>48.9</b>	169	48.9	169	48.9
459.GemsFDTD	<b>203</b>	<b>52.3</b>	202	52.4	203	52.3	188	56.4	<b>188</b>	<b>56.4</b>	188	56.4
465.tonto	232	42.5	258	38.2	<b>232</b>	<b>42.4</b>	209	47.2	<b>209</b>	<b>47.1</b>	209	47.0
470.lbm	112	122	<b>112</b>	<b>122</b>	112	122	113	121	<b>113</b>	<b>121</b>	114	121
481.wrf	152	73.5	<b>152</b>	<b>73.6</b>	152	73.7	152	73.5	<b>152</b>	<b>73.6</b>	152	73.7
482.sphinx3	288	67.6	290	67.2	<b>289</b>	<b>67.5</b>	251	77.8	251	77.5	<b>251</b>	<b>77.6</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 stack size to unlimited prior to run
Hugepages were enabled by:
mount -t hugetlbfs nodev /mnt/hugepages
echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

### Platform Notes

BIOS settings:  
Hyper-Threading Technology = Disabled



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## General Notes

OMP\_NUM\_THREADS set to number of cores

## 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.lelie3d: -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:  
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias

C++ benchmarks:  
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

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## Base Optimization Flags (Continued)

Fortran benchmarks:

`-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

Benchmarks using both Fortran and C:

`-xAVX -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: `-xAVX(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: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -parallel  
-ansi-alias -static -auto-ilp32`

482.sphinx3: `-xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel`

C++ benchmarks:

444.namd: `-xAVX(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.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel  
-static

416.gamess: -xAVX(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: -xAVX(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: -xAVX(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: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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.html>

<http://www.spec.org/cpu2006/flags/Platform.html>



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<http://www.spec.org/cpu2006/flags/Platform.xml>

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