



SPEC® CFP2006 Result

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Fujitsu

SPECfp®2006 = **67.8**

CELSIUS R920 (Intel Xeon E5-2637)

SPECfp_base2006 = **66.6**

CPU2006 license: 19

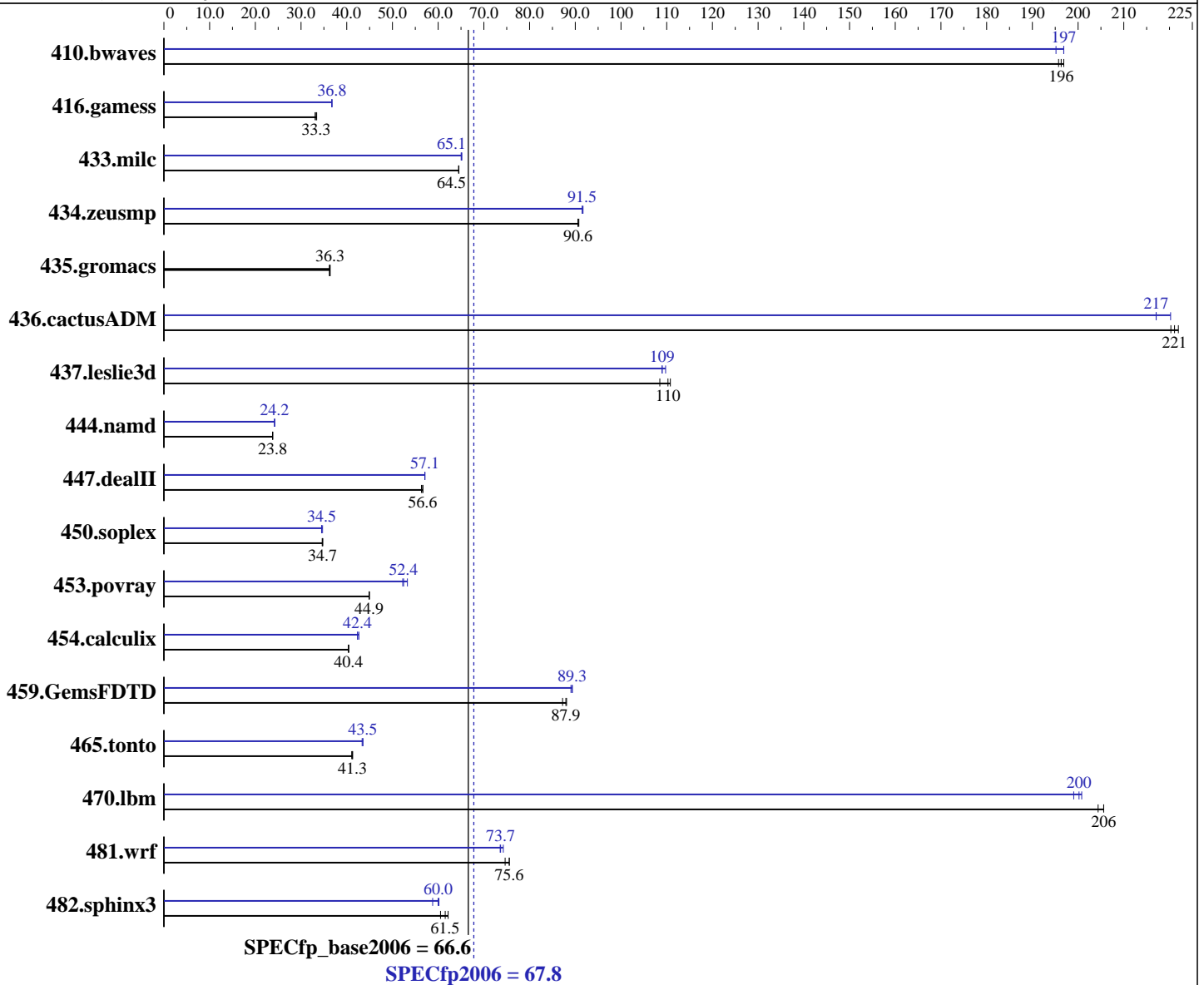
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Mar-2012

Hardware Availability: Mar-2012

Software Availability: Dec-2011



Hardware

CPU Name: Intel Xeon E5-2637
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
 CPU MHz: 3000
 FPU: Integrated
 CPU(s) enabled: 4 cores, 2 chips, 2 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: Red Hat Enterprise Linux Server release 6.1, 2.6.32-131.0.15.el6.x86_64
 Compiler: C/C++: Version 12.1.2.273 of Intel C++ Studio XE for Linux;
 Fortran: Version 12.1.2.273 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ReiserFS
 System State: Run level 3 (multi - user)

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L3 Cache: 5 MB I+D on chip per chip
Other Cache: None
Memory: 64 GB (16 x 4 GB 2Rx8 PC3-12800R-11, ECC)
Disk Subsystem: 1 x SATA III, 500 GB, 7200 rpm
Other Hardware: None

Base Pointers: 64-bit
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>69.2</u>	<u>196</u>	69.4	196	69.0	197	69.6	195	<u>69.0</u>	<u>197</u>	69.0	197
416.gamess	<u>588</u>	<u>33.3</u>	586	33.4	592	33.1	533	36.7	<u>533</u>	<u>36.8</u>	533	36.8
433.milc	142	64.5	<u>142</u>	<u>64.5</u>	142	64.5	141	65.0	<u>141</u>	<u>65.1</u>	141	65.2
434.zeusmp	100	90.8	<u>100</u>	<u>90.6</u>	100	90.6	99.4	91.5	<u>99.4</u>	<u>91.5</u>	99.2	91.7
435.gromacs	196	36.4	197	36.2	<u>197</u>	<u>36.3</u>	196	36.4	197	36.2	<u>197</u>	<u>36.3</u>
436.cactusADM	53.8	222	<u>54.0</u>	<u>221</u>	54.2	220	54.3	220	<u>55.0</u>	<u>217</u>	55.1	217
437.leslie3d	<u>85.2</u>	<u>110</u>	86.6	108	84.8	111	85.6	110	<u>86.2</u>	<u>109</u>	86.2	109
444.namd	<u>337</u>	<u>23.8</u>	337	23.8	337	23.8	331	24.2	331	24.2	<u>331</u>	<u>24.2</u>
447.dealII	203	56.3	<u>202</u>	<u>56.6</u>	202	56.6	200	57.1	200	57.1	<u>200</u>	<u>57.1</u>
450.soplex	241	34.6	<u>240</u>	<u>34.7</u>	240	34.7	240	34.7	<u>242</u>	<u>34.5</u>	242	34.5
453.povray	119	44.9	<u>118</u>	<u>44.9</u>	118	45.0	102	52.3	99.9	53.3	<u>101</u>	<u>52.4</u>
454.calculix	<u>204</u>	<u>40.4</u>	204	40.4	204	40.4	<u>195</u>	<u>42.4</u>	193	42.7	195	42.4
459.GemsFDTD	<u>121</u>	<u>87.9</u>	122	87.2	120	88.1	<u>119</u>	<u>89.3</u>	119	89.3	119	89.0
465.tonto	<u>239</u>	<u>41.3</u>	240	41.1	238	41.3	226	43.5	<u>226</u>	<u>43.5</u>	227	43.4
470.lbm	<u>66.8</u>	<u>206</u>	66.8	206	67.2	204	69.0	199	<u>68.6</u>	<u>200</u>	68.4	201
481.wrf	<u>148</u>	<u>75.6</u>	148	75.6	150	74.6	152	73.6	<u>152</u>	<u>73.7</u>	150	74.3
482.sphinx3	<u>317</u>	<u>61.5</u>	313	62.2	322	60.5	331	58.8	324	60.2	<u>325</u>	<u>60.0</u>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file. For full details on using numactl, please refer to your Linux documentation, 'man numactl'

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"



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Platform Notes

BIOS settings:
Hyper-Threading Technology = Disabled
Frequency Floor Override = Enabled

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/work/cpu2006/libs/32:/work/cpu2006/libs/64"
OMP_NUM_THREADS = "4"

Binaries compiled on a system with
2x Xeon E5-2690 CPU + 64 GB memory using
Red Hat Enterprise Linux Server release 6.1 (Santiago)
Added glibc-static-2.12-1.25.el6.x86_64.rpm
to enable static linking

Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

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

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Base Portability Flags (Continued)

```

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

```

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



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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 -ipo -O3 -no-prec-div -static -parallel
-opt-prefetch -ansi-alias

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

447.dealIII: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
-static

450.soplex: -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch
-ansi-alias

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

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

437.leslie3d: Same as 434.zeusmp

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

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

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Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: -xAVX -ipo -O3 -no-prec-div -static -parallel
-opt-prefetch -ansi-alias

454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: Same as 436.cactusADM

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120313.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120313.xml>

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