SPEC® CFP2006 Result

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Fujitsu

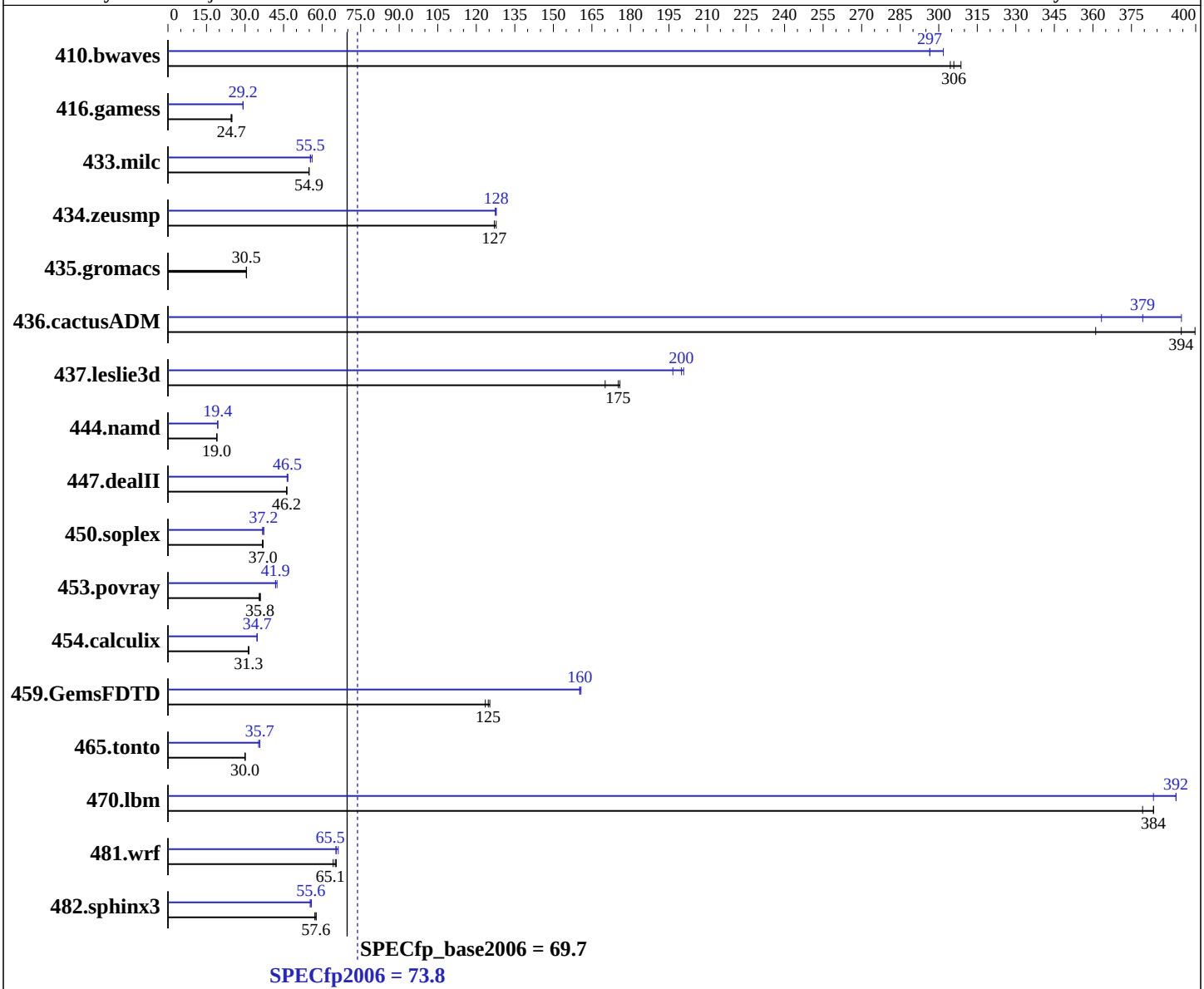
CELSIUS R920 (Intel Xeon E5-2650)

SPECfp®2006 = 73.8

SPECfp_base2006 = 69.7

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 E5-2650
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 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: 20 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	44.6	305	**44.4**	**306**	44.0	309	45.8	297	**45.8**	**297**	45.0	302
416.gamess	786	24.9	796	24.6	**793**	**24.7**	**670**	**29.2**	670	29.2	669	29.3
433.milc	167	54.9	167	55.0	**167**	**54.9**	166	55.4	**165**	**55.5**	164	56.1
434.zeusmp	**71.6**	**127**	71.2	128	71.6	127	71.4	127	71.2	128	**71.2**	**128**
435.gromacs	234	30.5	**234**	**30.5**	234	30.5	234	30.5	**234**	**30.5**	234	30.5
436.cactusADM	29.9	400	**30.3**	**394**	33.1	361	32.9	363	**31.5**	**379**	30.3	394
437.leslie3d	**53.6**	**175**	53.4	176	55.2	170	**47.0**	**200**	47.8	197	46.8	201
444.namd	421	19.0	421	19.0	**421**	**19.0**	**414**	**19.4**	414	19.4	414	19.4
447.dealII	247	46.3	248	46.2	**248**	**46.2**	247	46.4	**246**	**46.5**	245	46.7
450.soplex	225	37.0	227	36.7	**226**	**37.0**	227	36.8	224	37.3	**224**	**37.2**
453.povray	148	36.0	150	35.5	**149**	**35.8**	127	41.9	**127**	**41.9**	125	42.5
454.calculix	**263**	**31.3**	262	31.5	264	31.3	237	34.8	**238**	**34.7**	238	34.6
459.GemsFDTD	**85.1**	**125**	85.9	124	84.7	125	**66.2**	**160**	66.0	161	66.2	160
465.tonto	327	30.1	329	29.9	**328**	**30.0**	**275**	**35.7**	275	35.8	279	35.3
470.lbm	36.2	379	35.8	384	**35.8**	**384**	35.8	384	35.0	392	**35.0**	**392**
481.wrf	**172**	**65.1**	174	64.3	170	65.5	**171**	**65.5**	171	65.4	168	66.3
482.sphinx3	**338**	**57.6**	341	57.2	338	57.7	352	55.3	349	55.9	**350**	**55.6**

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"
```

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 = "16"

 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

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.dealII: -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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