SPEC® CFP2006 Result

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Fujitsu

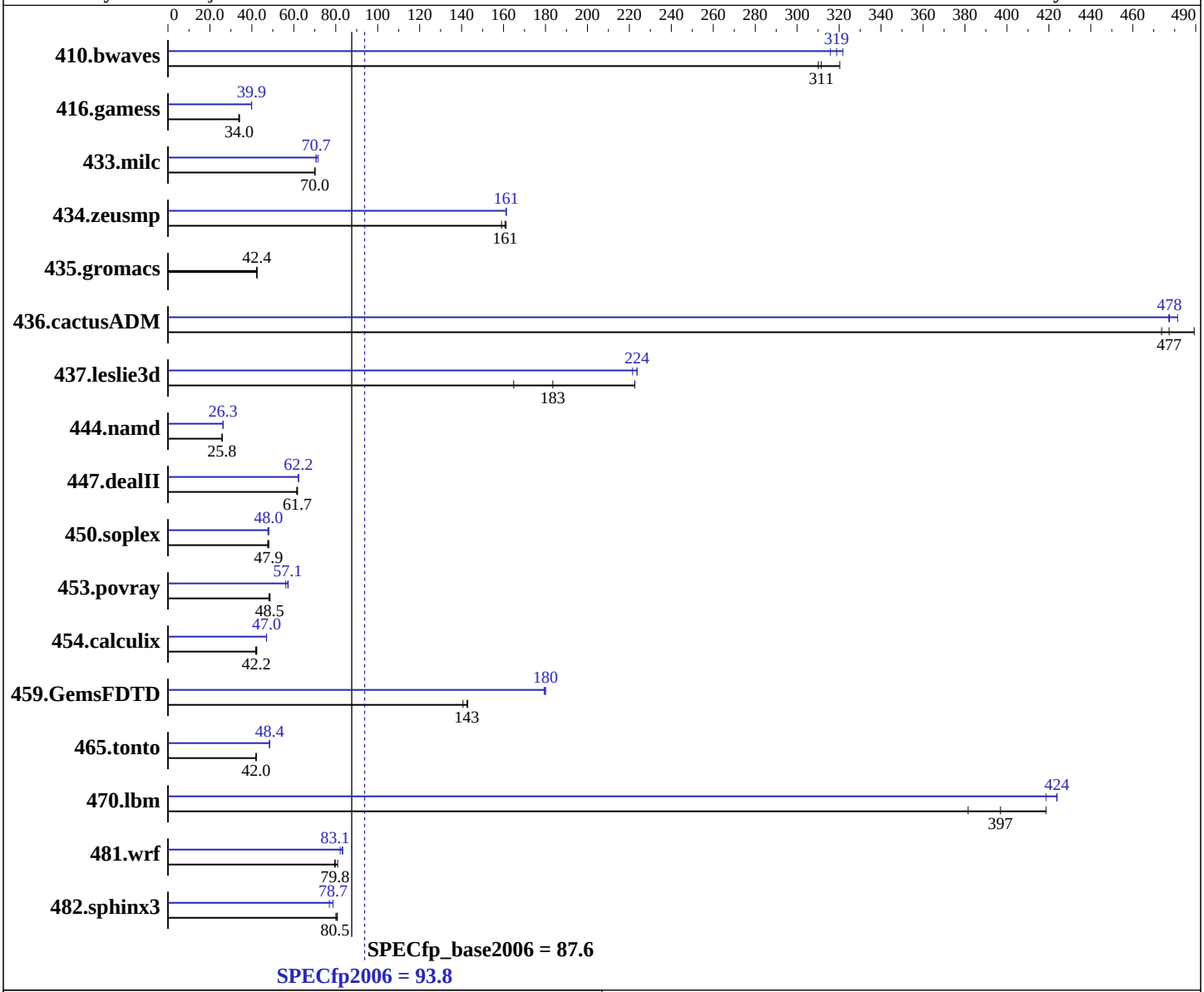
CELSIUS R920 (2x Intel Xeon E5-2687W)

SPECfp®2006 = 93.8

SPECfp_base2006 = 87.6

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 E5-2687W
CPU Characteristics:	Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz:	3100
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: 128 GB (16 x 8 GB 2Rx4 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	43.8	310	42.4	320	**43.6**	**311**	42.2	322	43.0	316	**42.6**	**319**
416.gamess	574	34.1	**576**	**34.0**	580	33.7	**491**	**39.9**	491	39.9	491	39.9
433.milc	131	70.2	**131**	**70.0**	131	69.9	128	71.6	130	70.6	**130**	**70.7**
434.zeusmp	56.4	161	**56.6**	**161**	57.2	159	56.4	161	56.4	161	**56.4**	**161**
435.gromacs	**168**	**42.4**	168	42.4	169	42.4	**168**	**42.4**	168	42.4	169	42.4
436.cactusADM	**25.0**	**477**	24.4	489	25.2	474	25.0	477	24.8	481	**25.0**	**478**
437.leslie3d	42.2	223	**51.2**	**183**	57.0	165	42.0	224	**42.0**	**224**	42.4	222
444.namd	**311**	**25.8**	311	25.8	311	25.8	**305**	**26.3**	305	26.3	305	26.3
447.dealII	185	61.7	186	61.4	**185**	**61.7**	**184**	**62.2**	184	62.1	184	62.3
450.soplex	175	47.6	174	48.1	**174**	**47.9**	173	48.1	**174**	**48.0**	175	47.7
453.povray	109	48.7	**110**	**48.5**	110	48.2	92.8	57.3	**93.1**	**57.1**	94.7	56.2
454.calculix	195	42.3	197	41.8	**195**	**42.2**	176	47.0	175	47.0	**176**	**47.0**
459.GemsFDTD	75.4	141	**74.4**	**143**	74.2	143	**58.9**	**180**	58.9	180	59.1	179
465.tonto	**234**	**42.0**	234	42.0	234	42.0	203	48.5	**203**	**48.4**	203	48.4
470.lbm	**34.6**	**397**	36.0	381	32.8	419	**32.4**	**424**	32.4	424	32.8	419
481.wrf	138	80.9	140	79.5	**140**	**79.8**	**134**	**83.1**	136	82.1	134	83.3
482.sphinx3	241	80.8	**242**	**80.5**	243	80.1	248	78.7	253	77.0	**248**	**78.7**

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.
'numactl' was used to bind copies to the cores.
See the configuration file for details.
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:
Frequency Floor Overright = Enabled
Hyper-Threading Technology = Disabled
```

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
 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
    453.povray: -DSPEC_CPU_LP64
    454.calculix: -DSPEC_CPU_LP64 -nofor_main
```

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Base Portability Flags (Continued)

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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