SPEC® CFP2006 Result

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Fujitsu

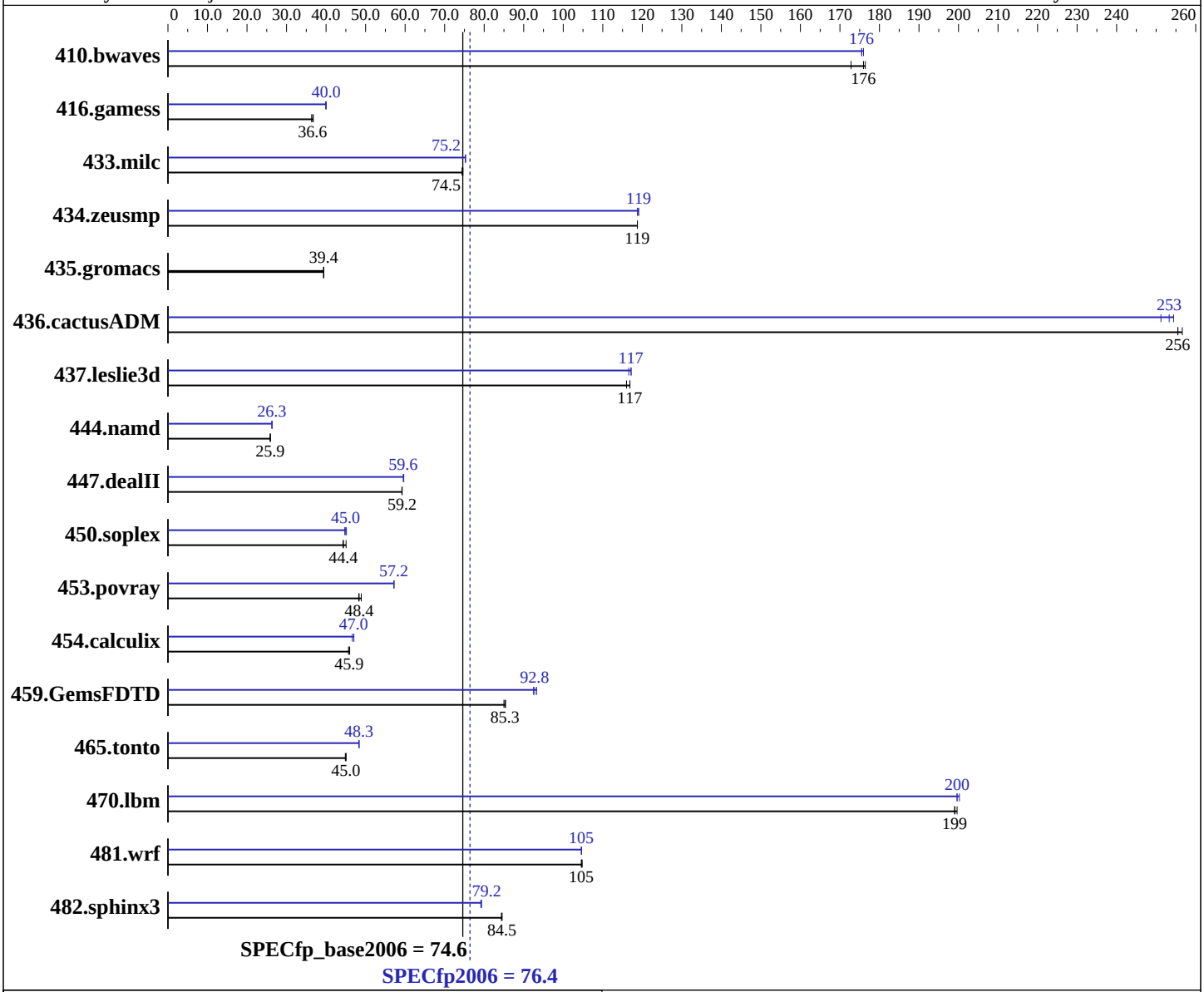
Fujitsu CELSIUS M720 (Intel Xeon E5-1620)

SPECfp®2006 = 76.4

SPECfp_base2006 = 74.6

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu

Test date: Feb-2012
Hardware Availability: Mar-2012
Software Availability: Dec-2011



Hardware

CPU Name:	Intel Xeon E5-1620
CPU Characteristics:	Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz:	3600
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:	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: 10 MB I+D on chip per chip
Other Cache: None
Memory: 32 GB (8 x 4 GB 2Rx8 PC3-12800E-11, ECC)
Disk Subsystem: 1 x SATA II, 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	78.6	173	77.0	176	**77.2**	**176**	77.4	176	77.2	176	**77.4**	**176**
416.gamess	533	36.8	539	36.3	**535**	**36.6**	**489**	**40.0**	489	40.0	491	39.9
433.milc	123	74.6	**123**	**74.5**	123	74.4	122	75.2	122	75.3	**122**	**75.2**
434.zeusmp	76.6	119	**76.6**	**119**	76.6	119	76.6	119	76.4	119	**76.4**	**119**
435.gromacs	181	39.4	181	39.4	**181**	**39.4**	181	39.4	181	39.4	**181**	**39.4**
436.cactusADM	46.6	257	**46.8**	**256**	46.8	255	47.0	254	47.6	251	**47.2**	**253**
437.leslie3d	80.4	117	**80.4**	**117**	81.0	116	**80.2**	**117**	80.2	117	80.6	117
444.namd	310	25.9	310	25.9	**310**	**25.9**	305	26.3	**305**	**26.3**	305	26.3
447.dealII	193	59.2	193	59.2	**193**	**59.2**	**192**	**59.6**	192	59.7	192	59.6
450.soplex	188	44.3	185	45.1	**188**	**44.4**	**186**	**45.0**	186	44.7	185	45.1
453.povray	109	48.9	110	48.3	**110**	**48.4**	93.1	57.1	**93.0**	**57.2**	93.0	57.2
454.calculix	**180**	**45.9**	181	45.7	179	46.0	177	46.6	**175**	**47.0**	175	47.0
459.GemsFDTD	125	85.0	124	85.4	**124**	**85.3**	115	92.5	**114**	**92.8**	114	93.3
465.tonto	219	44.9	219	45.0	**219**	**45.0**	203	48.4	**204**	**48.3**	204	48.3
470.lbm	68.8	200	69.0	199	**69.0**	**199**	**68.8**	**200**	68.8	200	68.6	200
481.wrf	**107**	**105**	107	105	107	105	107	105	**107**	**105**	107	105
482.sphinx3	**231**	**84.5**	231	84.4	231	84.5	246	79.3	**246**	**79.2**	246	79.2

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

Operating System Notes

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

Platform Notes

```
BIOS settings:
Frequency Floor Override = 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"
```

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General Notes (Continued)

```
OMP_NUM_THREADS = "4"

 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
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 -parallel -opt-prefetch -ansi-alias
```

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

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Base Optimization Flags (Continued)

Fortran benchmarks:
`-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch`

Benchmarks using both Fortran and C:
`-xAVX -ipo -O3 -no-prec-div -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) -auto-ilp32 -ansi-alias

470.lbm: -xAVX -ipo -O3 -no-prec-div -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

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Peak Optimization Flags (Continued)

447.dealII: `-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias`

450.soplex: `-xAVX -ipo -O3 -no-prec-div -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`

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-`

434.zeusmp: `-xAVX -ipo -O3 -no-prec-div -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`

Benchmarks using both Fortran and C:

435.gromacs: `basepeak = yes`

436.cactusADM: `-xAVX -ipo -O3 -no-prec-div -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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