SPEC® CFP2006 Result
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Fujitsu

$SPECfp^®2006 =$ 63.8

CELSIUS M720 (Intel Xeon E5-1607)

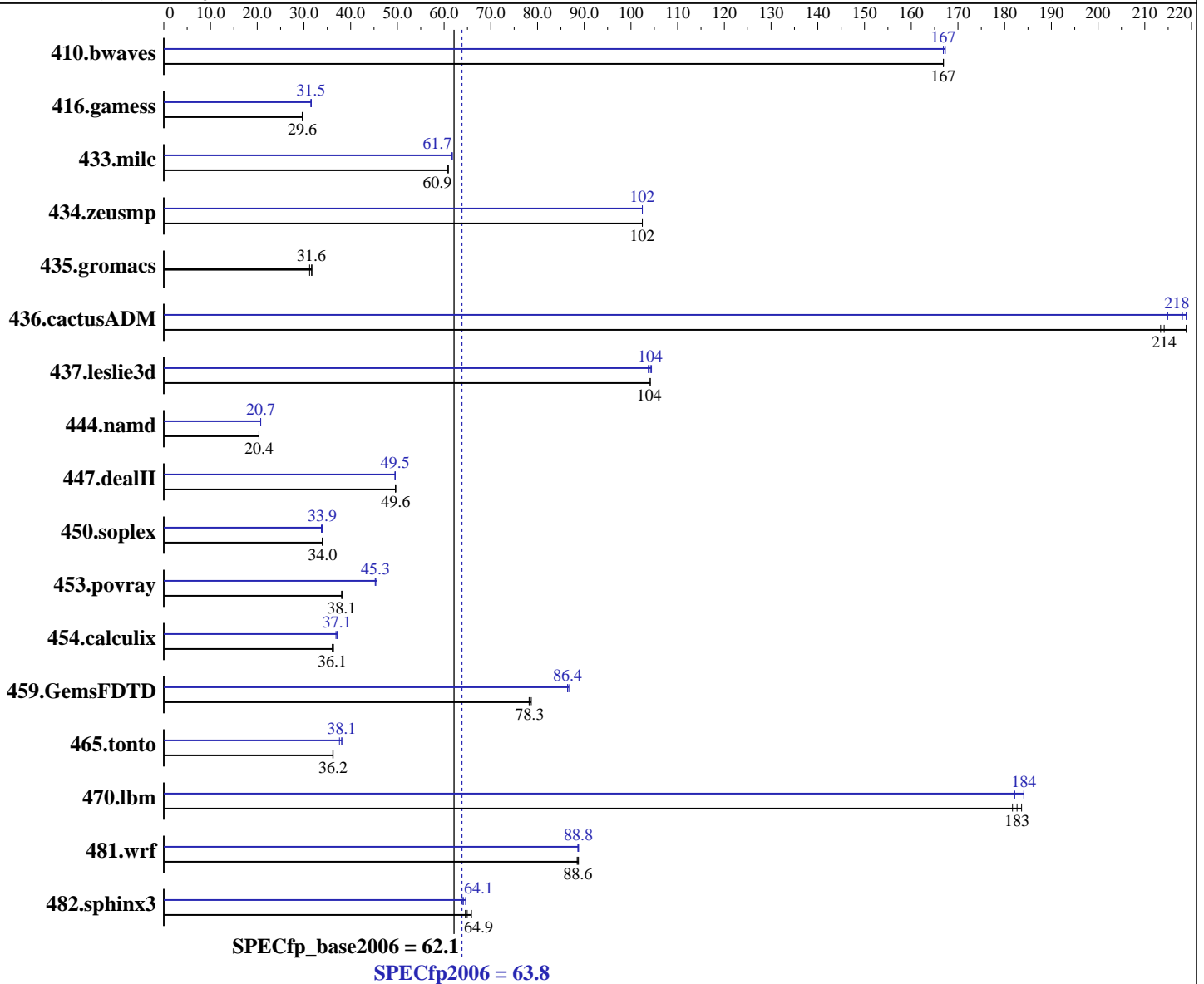$SPECfp\_base2006 =$ 62.1

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

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

Benchmark	Result (base)	Result (peak)
410.bwaves	167	167
416.gamess	29.6	31.5
433.milc	60.9	61.7
434.zeusmp	102	102
435.gromacs	31.6	
436.cactusADM	214	218
437.leslie3d	104	104
444.namd	20.4	20.7
447.dealII	49.6	49.5
450.soplex	34.0	33.9
453.povray	38.1	45.3
454.calculix	36.1	37.1
459.GemsFDTD	78.3	86.4
465.tonto	36.2	38.1
470.lbm	183	184
481.wrf	88.6	88.8
482.sphinx3	64.9	64.1

SPECfp_base2006 = 62.1
SPECfp2006 = 63.8

Hardware

CPU Name: Intel Xeon E5-1607
CPU Characteristics:
CPU MHz: 3000
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

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 6.2, 2.6.32-220.0.el6.x86_64
Compiler: C/C++: Version 12.1.3.293 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.3.293 of Intel Fortran Studio XE for Linux
Auto Parallel: Yes
File System: ReiserFS
System State: Run level 3 (multi - user)

Continued on next page

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L3 Cache:	10 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	32 GB (8 x 4 GB 2Rx8 PC3-12800E-11, ECC, running at 1067 MHz and CL8)	Other Software:	None
Disk Subsystem:	1 x SATA III, 500 GB, 7200 rpm		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	81.4	167	81.4	167	**81.4**	**167**	81.4	167	**81.4**	**167**	81.2	167
416.gamess	660	29.6	661	29.6	**661**	**29.6**	622	31.5	**621**	**31.5**	620	31.6
433.milc	151	60.8	151	60.9	**151**	**60.9**	**149**	**61.7**	149	61.7	149	61.7
434.zeusmp	**88.8**	**102**	88.8	102	88.8	102	88.8	102	**88.8**	**102**	88.8	102
435.gromacs	**226**	**31.6**	225	31.7	229	31.2	**226**	**31.6**	225	31.7	229	31.2
436.cactusADM	54.6	219	56.0	213	**55.8**	**214**	54.6	219	**54.8**	**218**	55.6	215
437.leslie3d	90.2	104	90.4	104	**90.4**	**104**	90.6	104	90.0	104	**90.2**	**104**
444.namd	394	20.4	393	20.4	**394**	**20.4**	387	20.7	**387**	**20.7**	387	20.7
447.dealII	**230**	**49.6**	230	49.6	231	49.6	**231**	**49.5**	231	49.5	231	49.5
450.soplex	**245**	**34.0**	245	34.0	246	33.9	245	34.0	247	33.7	**246**	**33.9**
453.povray	140	38.1	**140**	**38.1**	140	38.1	**117**	**45.3**	117	45.6	118	45.3
454.calculix	**229**	**36.1**	227	36.3	229	36.1	222	37.1	224	36.9	**223**	**37.1**
459.GemsFDTD	**135**	**78.3**	135	78.7	136	78.2	122	86.7	**123**	**86.4**	123	86.4
465.tonto	272	36.2	272	36.2	**272**	**36.2**	258	38.1	**258**	**38.1**	262	37.6
470.lbm	**75.2**	**183**	75.6	182	74.8	184	**74.6**	**184**	74.6	184	75.4	182
481.wrf	126	88.8	126	88.5	**126**	**88.6**	**126**	**88.8**	126	88.8	126	88.6
482.sphinx3	296	65.9	**300**	**64.9**	302	64.6	302	64.6	**304**	**64.1**	305	63.9

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
```

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"

 Binaries compiled on a system with
 2x Xeon E5-2650 CPU + 64 GB memory using
 Red Hat Enterprise Linux Server release 6.2 (Santiago)
 The RPMs glibc-static-2.12-1.47.el6.x86_64.rpm
 and glibc-static-2.12-1.47.el6.i686.rpm
 were added 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
    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
```

SPEC CFP2006 Result

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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
```

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Peak Optimization Flags (Continued)

```
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
```

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
```

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Peak Optimization Flags (Continued)

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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