



SPEC[®] CFP2006 Result

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Fujitsu

SPECfp[®]2006 = **57.9**

PRIMERGY BX920 S3, Intel Xeon E5-2420, 1.90 GHz

SPECfp_base2006 = **55.5**

CPU2006 license: 19

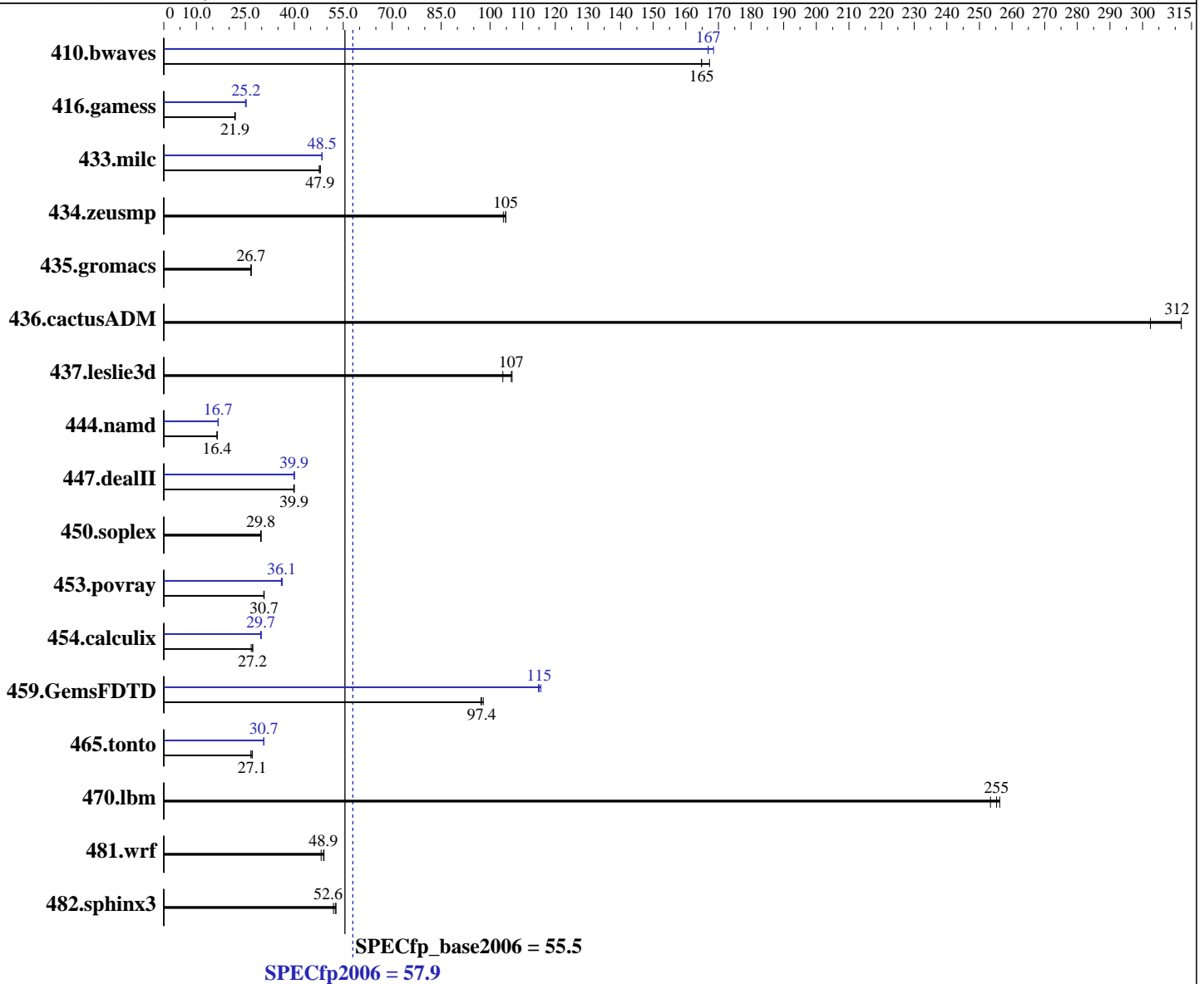
Test date: Apr-2012

Test sponsor: Fujitsu

Hardware Availability: May-2012

Tested by: Fujitsu

Software Availability: Feb-2012



Hardware

CPU Name: Intel Xeon E5-2420
 CPU Characteristics: Intel Turbo Boost Technology up to 2.40 GHz
 CPU MHz: 1900
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 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 6.2 (Santiago)
 2.6.32-220.el6.x86_64
 Compiler: C/C++: Version 12.1.0.293 of Intel C++ Studio XE for Linux;
 Fortran: Version 12.1.0.293 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4

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L3 Cache: 15 MB I+D on chip per chip
Other Cache: None
Memory: 96 GB (12 x 8 GB 2Rx4 PC3L-12800R-11, ECC, running at 1333 MHz and CL9)
Disk Subsystem: 1 x SATA, 500 GB, 7200 RPM
Other Hardware: None

System State: Run level 3 (multi-user)
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 | 82.5 | 165 | 82.5 | 165 | 81.3 | 167 | 81.5 | 167 | 81.5 | 167 | 80.7 | 169 |
| 416.gamess | 896 | 21.9 | 901 | 21.7 | 894 | 21.9 | 776 | 25.2 | 777 | 25.2 | 782 | 25.0 |
| 433.milc | 192 | 47.9 | 193 | 47.6 | 191 | 48.0 | 189 | 48.5 | 189 | 48.5 | 189 | 48.5 |
| 434.zeusmp | 86.8 | 105 | 87.4 | 104 | 86.8 | 105 | 86.8 | 105 | 87.4 | 104 | 86.8 | 105 |
| 435.gromacs | 266 | 26.8 | 267 | 26.7 | 267 | 26.7 | 266 | 26.8 | 267 | 26.7 | 267 | 26.7 |
| 436.cactusADM | 38.3 | 312 | 38.3 | 312 | 39.5 | 302 | 38.3 | 312 | 38.3 | 312 | 39.5 | 302 |
| 437.leslie3d | 88.3 | 107 | 90.5 | 104 | 88.1 | 107 | 88.3 | 107 | 90.5 | 104 | 88.1 | 107 |
| 444.namd | 491 | 16.3 | 491 | 16.4 | 490 | 16.4 | 482 | 16.7 | 482 | 16.7 | 482 | 16.7 |
| 447.dealII | 287 | 39.9 | 287 | 39.8 | 286 | 40.0 | 285 | 40.1 | 286 | 39.9 | 287 | 39.9 |
| 450.soplex | 281 | 29.7 | 279 | 29.8 | 280 | 29.8 | 281 | 29.7 | 279 | 29.8 | 280 | 29.8 |
| 453.povray | 174 | 30.7 | 173 | 30.7 | 173 | 30.8 | 146 | 36.4 | 148 | 36.0 | 147 | 36.1 |
| 454.calculix | 308 | 26.8 | 303 | 27.2 | 303 | 27.3 | 276 | 29.9 | 278 | 29.7 | 278 | 29.7 |
| 459.GemsFDTD | 108 | 97.9 | 109 | 97.4 | 109 | 97.2 | 92.4 | 115 | 91.8 | 116 | 92.2 | 115 |
| 465.tonto | 369 | 26.7 | 363 | 27.1 | 364 | 27.1 | 321 | 30.6 | 321 | 30.7 | 321 | 30.7 |
| 470.lbm | 53.6 | 256 | 53.8 | 255 | 54.2 | 253 | 53.6 | 256 | 53.8 | 255 | 54.2 | 253 |
| 481.wrf | 232 | 48.2 | 227 | 49.1 | 228 | 48.9 | 232 | 48.2 | 227 | 49.1 | 228 | 48.9 |
| 482.sphinx3 | 375 | 52.0 | 371 | 52.6 | 369 | 52.8 | 375 | 52.0 | 371 | 52.6 | 369 | 52.8 |

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 configuration:
Intel HT Technology = Disable
Frequency Floor Override = Enable



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General Notes

Environment variables set by runspec before the start of the run:

```
KMP_AFFINITY = "granularity=fine,scatter"  
LD_LIBRARY_PATH = "/SPECcpu2006/libs/32:/SPECcpu2006/libs/64"  
OMP_NUM_THREADS = "12"
```

Binaries compiled on a system with 1x E3-1270v2 CPU + 32 GB memory using RHEL6.2

Transparent Huge Pages enabled with:

```
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

For information about Fujitsu please visit: <http://www.fujitsu.com>

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
```



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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: basepeak = yes`

`482.sphinx3: basepeak = yes`

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Peak Optimization Flags (Continued)

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 -static -opt-prefetch
-ansi-alias

450.soplex: basepeak = yes

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: basepeak = yes

437.leslie3d: basepeak = yes

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: basepeak = yes

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

481.wrf: basepeak = yes

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.20120320.html>



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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.20120320.xml>

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For other inquiries, please contact webmaster@spec.org.

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