



SPEC[®] CFP2006 Result

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Fujitsu

SPECfp[®]_rate2006 = 101

PRIMERGY RX1330 M1, Intel Core i3-4330, 3.50 GHz

SPECfp_rate_base2006 = 98.1

CPU2006 license: 19

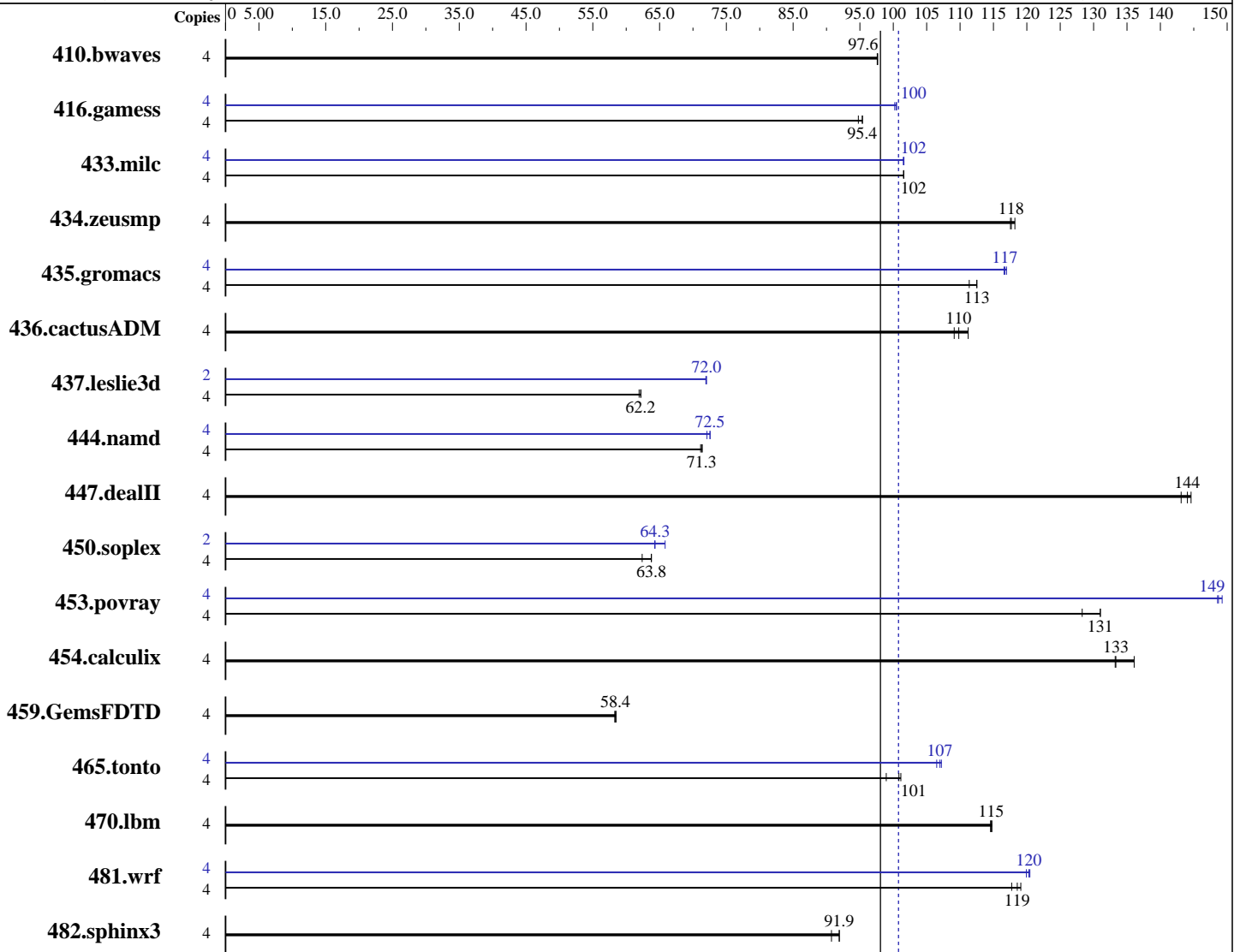
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Jun-2014

Hardware Availability: Jul-2014

Software Availability: Nov-2013



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Hardware

CPU Name: Intel Core i3-4330
 CPU Characteristics:
 CPU MHz: 3500
 FPU: Integrated
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip, 2 threads/core
 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 6.5 (Santiago)
 2.6.32-431.el6.x86_64
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
 Auto Parallel: No
 File System: ext4

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L3 Cache: 4 MB I+D on chip per chip
Other Cache: None
Memory: 32 GB (4 x 8 GB 2Rx8 PC3L-12800E-11, ECC)
Disk Subsystem: 1 x SATA, 500 GB, 7200 RPM
Other Hardware: None

System State: Run level 5 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

| Benchmark | Base | | | | | | | | Peak | | | | | | | |
|---------------|--------|------------|-------------|------------|-------------|------------|-------------|--------|------------|-------------|------------|-------------|------------|-------------|--|--|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | | |
| 410.bwaves | 4 | 557 | 97.6 | 557 | 97.6 | 557 | 97.7 | 4 | 557 | 97.6 | 557 | 97.6 | 557 | 97.7 | | |
| 416.gamess | 4 | 821 | 95.4 | 821 | 95.4 | 826 | 94.8 | 4 | 780 | 100 | 779 | 101 | 782 | 100 | | |
| 433.milc | 4 | 362 | 102 | 362 | 102 | 362 | 102 | 4 | 361 | 102 | 362 | 102 | 362 | 102 | | |
| 434.zeusmp | 4 | 308 | 118 | 309 | 118 | 310 | 118 | 4 | 308 | 118 | 309 | 118 | 310 | 118 | | |
| 435.gromacs | 4 | 256 | 111 | 254 | 113 | 254 | 113 | 4 | 245 | 117 | 245 | 117 | 244 | 117 | | |
| 436.cactusADM | 4 | 435 | 110 | 438 | 109 | 430 | 111 | 4 | 435 | 110 | 438 | 109 | 430 | 111 | | |
| 437.leslie3d | 4 | 607 | 61.9 | 604 | 62.2 | 605 | 62.2 | 2 | 261 | 71.9 | 261 | 72.0 | 261 | 72.0 | | |
| 444.namd | 4 | 449 | 71.4 | 451 | 71.1 | 450 | 71.3 | 4 | 445 | 72.1 | 442 | 72.5 | 442 | 72.6 | | |
| 447.dealII | 4 | 318 | 144 | 316 | 145 | 320 | 143 | 4 | 318 | 144 | 316 | 145 | 320 | 143 | | |
| 450.soplex | 4 | 523 | 63.8 | 535 | 62.4 | 523 | 63.8 | 2 | 260 | 64.3 | 253 | 65.8 | 259 | 64.3 | | |
| 453.povray | 4 | 162 | 131 | 166 | 128 | 162 | 131 | 4 | 143 | 149 | 143 | 149 | 143 | 149 | | |
| 454.calculix | 4 | 248 | 133 | 243 | 136 | 247 | 133 | 4 | 248 | 133 | 243 | 136 | 247 | 133 | | |
| 459.GemsFDTD | 4 | 728 | 58.3 | 726 | 58.5 | 727 | 58.4 | 4 | 728 | 58.3 | 726 | 58.5 | 727 | 58.4 | | |
| 465.tonto | 4 | 389 | 101 | 390 | 101 | 398 | 98.9 | 4 | 370 | 107 | 367 | 107 | 368 | 107 | | |
| 470.lbm | 4 | 480 | 115 | 479 | 115 | 479 | 115 | 4 | 480 | 115 | 479 | 115 | 479 | 115 | | |
| 481.wrf | 4 | 375 | 119 | 380 | 118 | 377 | 119 | 4 | 371 | 120 | 371 | 120 | 373 | 120 | | |
| 482.sphinx3 | 4 | 848 | 91.9 | 859 | 90.7 | 848 | 91.9 | 4 | 848 | 91.9 | 859 | 90.7 | 848 | 91.9 | | |

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

Submit Notes

The numactl mechanism was used to bind copies to processors. 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.

Operating System Notes

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

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/SPECcpu2006/libs/32:/SPECcpu2006/libs/64:/SPECcpu2006/sh"

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General Notes (Continued)

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 Filesystem page cache cleared with:
 echo 1> /proc/sys/vm/drop_caches
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
 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:

`-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3`

C++ benchmarks:

`-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3`

Fortran benchmarks:

`-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch`

Benchmarks using both Fortran and C:

`-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3`

Peak Compiler Invocation

C benchmarks:

`icc -m64`

C++ benchmarks (except as noted below):

`icpc -m64`

`450.soplex: icpc -m32`

Fortran benchmarks:

`ifort -m64`

Benchmarks using both Fortran and C:

`icc -m64 ifort -m64`

Peak 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`
453.povray: `-DSPEC_CPU_LP64`
454.calculix: `-DSPEC_CPU_LP64 -nofor_main`
459.GemsFDTD: `-DSPEC_CPU_LP64`

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Peak Portability Flags (Continued)

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

Peak Optimization Flags

C benchmarks:

433.milc: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
 -O3(pass 2) -no-prec-div(pass 2)
 -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
 -auto-ilp32

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
 -O3(pass 2) -no-prec-div(pass 2)
 -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -fno-alias
 -auto-ilp32

447.dealIII: basepeak = yes

450.soplex: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
 -O3(pass 2) -no-prec-div(pass 2)
 -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
 -opt-malloc-options=3

453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
 -O3(pass 2) -no-prec-div(pass 2)
 -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -unroll4
 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(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: basepeak = yes

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Peak Optimization Flags (Continued)

437.leslie3d: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4
-auto -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2)
-opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html>
<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20130924.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>
<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20130924.xml>

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