



SPEC[®] CFP2006 Result

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Fujitsu

SPECfp[®]_rate2006 = 447

PRIMERGY RX500 S7, Intel Xeon E5-4650L, 2.60 GHz

SPECfp_rate_base2006 = 435

CPU2006 license: 19

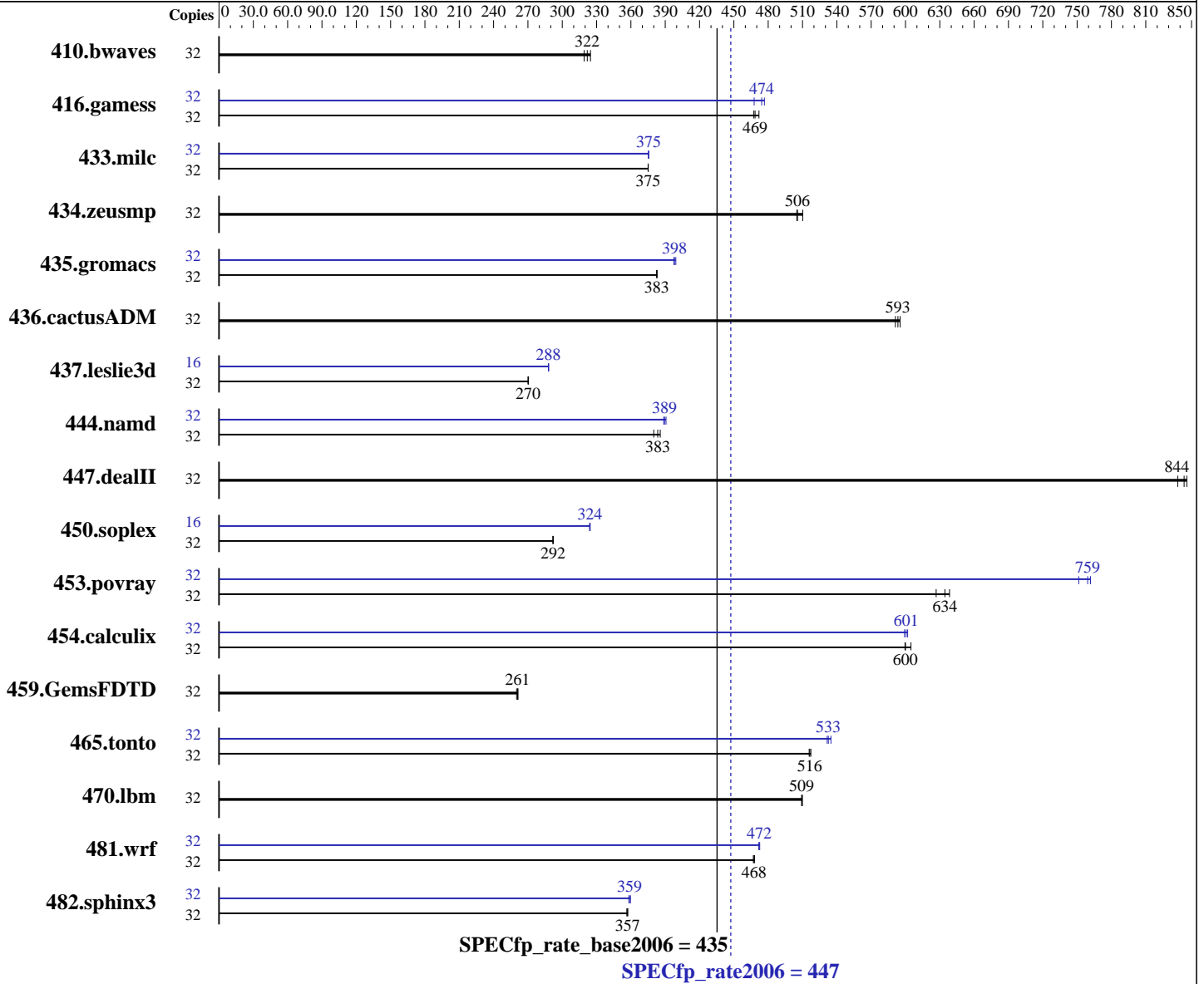
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Jul-2012

Hardware Availability: Jul-2012

Software Availability: Feb-2012



Hardware

CPU Name: Intel Xeon E5-4650L
 CPU Characteristics: Intel Turbo Boost Technology up to 3.10 GHz
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
 CPU(s) orderable: 2,4 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: No
 File System: ext4

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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 PC3L-12800R-11, ECC)
 Disk Subsystem: 1 x SATA, 500 GB, 7200 RPM
 Other Hardware: None

System State: Run level 3 (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 | 32 | 1339 | 325 | <u>1351</u> | <u>322</u> | 1363 | 319 | 32 | 1339 | 325 | <u>1351</u> | <u>322</u> | 1363 | 319 | | |
| 416.gamess | 32 | 1328 | 472 | <u>1337</u> | <u>469</u> | 1340 | 467 | 32 | <u>1321</u> | <u>474</u> | 1340 | 468 | 1314 | 477 | | |
| 433.milc | 32 | <u>783</u> | <u>375</u> | 783 | 375 | 783 | 375 | 32 | <u>782</u> | <u>375</u> | 783 | 375 | 782 | 376 | | |
| 434.zeusmp | 32 | <u>576</u> | <u>506</u> | 571 | 510 | 577 | 505 | 32 | <u>576</u> | <u>506</u> | 571 | 510 | 577 | 505 | | |
| 435.gromacs | 32 | 597 | 382 | <u>597</u> | <u>383</u> | 597 | 383 | 32 | 575 | 398 | 572 | 399 | <u>574</u> | <u>398</u> | | |
| 436.cactusADM | 32 | <u>644</u> | <u>593</u> | 642 | 595 | 647 | 591 | 32 | <u>644</u> | <u>593</u> | 642 | 595 | 647 | 591 | | |
| 437.leslie3d | 32 | <u>1113</u> | <u>270</u> | 1114 | 270 | 1112 | 270 | 16 | 522 | 288 | <u>522</u> | <u>288</u> | 522 | 288 | | |
| 444.namd | 32 | 665 | 386 | <u>669</u> | <u>383</u> | 675 | 380 | 32 | 657 | 391 | 660 | 389 | <u>659</u> | <u>389</u> | | |
| 447.dealII | 32 | 437 | 838 | <u>434</u> | <u>844</u> | 433 | 846 | 32 | 437 | 838 | <u>434</u> | <u>844</u> | 433 | 846 | | |
| 450.soplex | 32 | <u>914</u> | <u>292</u> | 915 | 292 | 913 | 292 | 16 | 411 | 324 | <u>411</u> | <u>324</u> | 412 | 324 | | |
| 453.povray | 32 | 267 | 639 | <u>268</u> | <u>634</u> | 272 | 627 | 32 | <u>224</u> | <u>759</u> | 223 | 762 | 227 | 751 | | |
| 454.calculix | 32 | 437 | 605 | 440 | 600 | <u>440</u> | <u>600</u> | 32 | 439 | 602 | <u>440</u> | <u>601</u> | 441 | 599 | | |
| 459.GemsFDTD | 32 | 1299 | 261 | 1305 | 260 | <u>1301</u> | <u>261</u> | 32 | 1299 | 261 | 1305 | 260 | <u>1301</u> | <u>261</u> | | |
| 465.tonto | 32 | 609 | 517 | <u>610</u> | <u>516</u> | 610 | 516 | 32 | 592 | 532 | 589 | 535 | <u>591</u> | <u>533</u> | | |
| 470.lbm | 32 | 863 | 509 | 862 | 510 | <u>863</u> | <u>509</u> | 32 | 863 | 509 | 862 | 510 | <u>863</u> | <u>509</u> | | |
| 481.wrf | 32 | 764 | 468 | <u>764</u> | <u>468</u> | 765 | 467 | 32 | <u>757</u> | <u>472</u> | 758 | 472 | 756 | 473 | | |
| 482.sphinx3 | 32 | <u>1746</u> | <u>357</u> | 1746 | 357 | 1750 | 356 | 32 | 1741 | 358 | <u>1738</u> | <u>359</u> | 1734 | 360 | | |

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"
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>



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General Notes

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

Binaries compiled on a system with 2x E5-2650 CPU + 96 GB
memory using RHEL6.2
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

Base Optimization Flags

C benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

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Base Optimization Flags (Continued)

C++ benchmarks:

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

Fortran benchmarks:

`-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch`

Benchmarks using both Fortran and C:

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

Peak Compiler Invocation

C benchmarks (except as noted below):

`icc -m64`

482.sphinx3: `icc -m32`

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`
465.tonto: `-DSPEC_CPU_LP64`
470.lbm: `-DSPEC_CPU_LP64`

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Peak Portability Flags (Continued)

481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

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
-opt-mem-layout-trans=3

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2

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: basepeak = yes

450.soplex: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

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: basepeak = yes

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: -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xAVX(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:

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Peak Optimization Flags (Continued)

435.gromacs: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
-auto-p32 -ansi-alias -opt-mem-layout-trans=3

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32
-opt-mem-layout-trans=3

481.wrf: Same as 454.calculix

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>

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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