



SPEC[®] CFP2006 Result

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Fujitsu

SPECfp[®]_rate2006 = 342

CELSIUS C740, Intel Xeon E5-1660 v3, 3.0 GHz

SPECfp_rate_base2006 = 333

CPU2006 license: 19

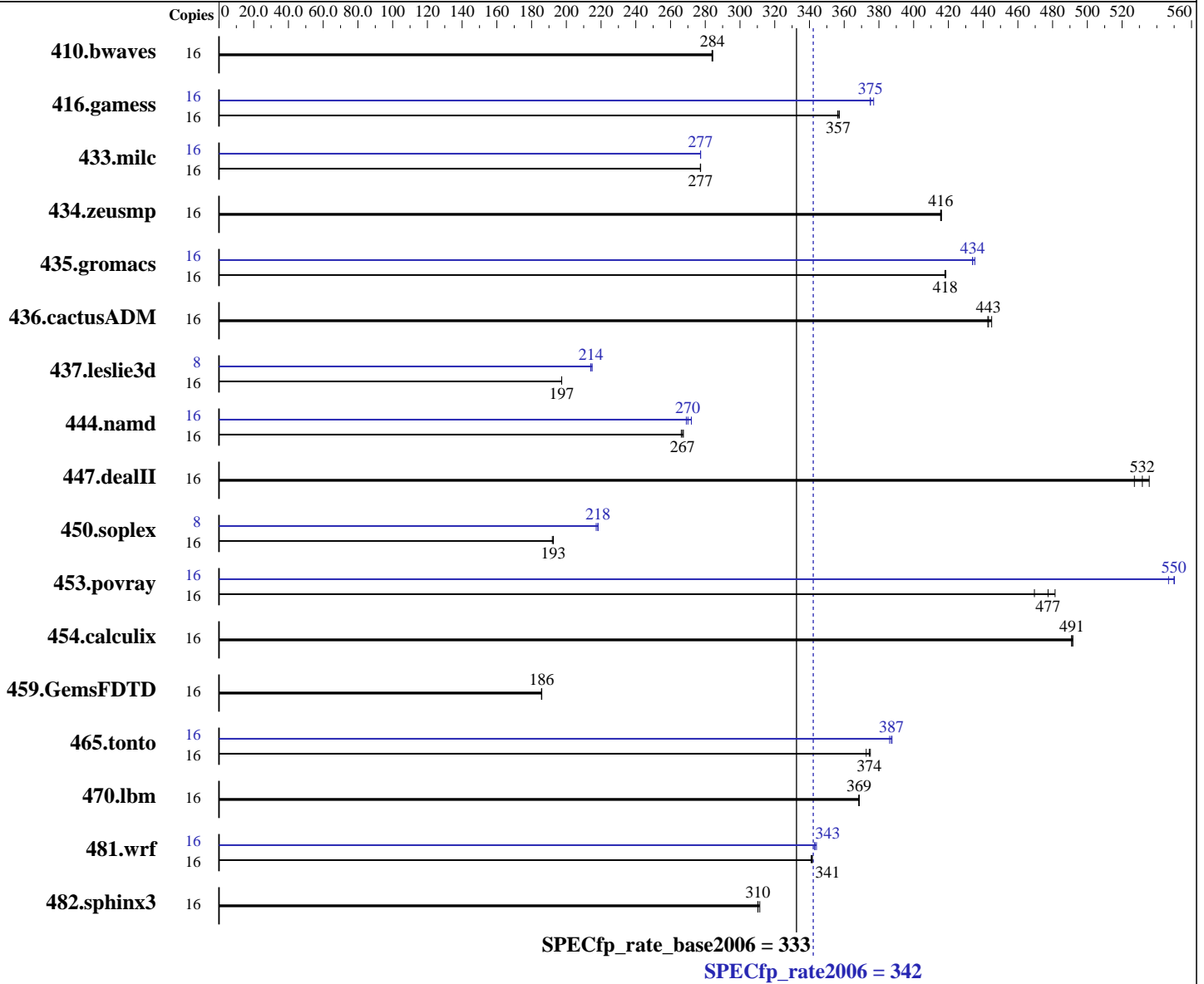
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: May-2015

Hardware Availability: May-2015

Software Availability: Nov-2013



Hardware

CPU Name: Intel Xeon E5-1660 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
 CPU MHz: 3000
 FPU: Integrated
 CPU(s) enabled: 8 cores, 1 chip, 8 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 6.6 (Santiago)
 2.6.32-504.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: 20 MB I+D on chip per chip
 Other Cache: None
 Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2133P-R)
 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 | 16 | <u>765</u> | <u>284</u> | 765 | 284 | 766 | 284 | 16 | <u>765</u> | <u>284</u> | 765 | 284 | 766 | 284 |
| 416.gamess | 16 | <u>879</u> | <u>357</u> | 877 | 357 | 879 | 356 | 16 | 831 | 377 | 835 | 375 | <u>835</u> | <u>375</u> |
| 433.milc | 16 | 530 | 277 | <u>530</u> | <u>277</u> | 530 | 277 | 16 | <u>530</u> | <u>277</u> | 530 | 277 | 530 | 277 |
| 434.zeusmp | 16 | 350 | 416 | <u>350</u> | <u>416</u> | 350 | 416 | 16 | 350 | 416 | <u>350</u> | <u>416</u> | 350 | 416 |
| 435.gromacs | 16 | 273 | 419 | <u>273</u> | <u>418</u> | 273 | 418 | 16 | 263 | 434 | 262 | 435 | <u>263</u> | <u>434</u> |
| 436.cactusADM | 16 | <u>432</u> | <u>443</u> | 432 | 443 | 430 | 445 | 16 | <u>432</u> | <u>443</u> | 432 | 443 | 430 | 445 |
| 437.leslie3d | 16 | <u>762</u> | <u>197</u> | 762 | 197 | 762 | 197 | 8 | <u>351</u> | <u>214</u> | 351 | 214 | 350 | 215 |
| 444.namd | 16 | <u>481</u> | <u>267</u> | 480 | 267 | 482 | 266 | 16 | 472 | 272 | 477 | 269 | <u>475</u> | <u>270</u> |
| 447.dealII | 16 | <u>344</u> | <u>532</u> | 347 | 527 | 342 | 536 | 16 | <u>344</u> | <u>532</u> | 347 | 527 | 342 | 536 |
| 450.soplex | 16 | 693 | 193 | 695 | 192 | <u>693</u> | <u>193</u> | 8 | 306 | 218 | 307 | 217 | <u>306</u> | <u>218</u> |
| 453.povray | 16 | 177 | 481 | <u>178</u> | <u>477</u> | 181 | 470 | 16 | 155 | 550 | <u>155</u> | <u>550</u> | 156 | 547 |
| 454.calculix | 16 | 269 | 491 | <u>269</u> | <u>491</u> | 268 | 492 | 16 | 269 | 491 | <u>269</u> | <u>491</u> | 268 | 492 |
| 459.GemsFDTD | 16 | 913 | 186 | <u>914</u> | <u>186</u> | 914 | 186 | 16 | 913 | 186 | <u>914</u> | <u>186</u> | 914 | 186 |
| 465.tonto | 16 | <u>421</u> | <u>374</u> | 422 | 373 | 420 | 375 | 16 | 406 | 388 | 408 | 386 | <u>407</u> | <u>387</u> |
| 470.lbm | 16 | 596 | 369 | <u>596</u> | <u>369</u> | 597 | 368 | 16 | 596 | 369 | <u>596</u> | <u>369</u> | 597 | 368 |
| 481.wrf | 16 | <u>523</u> | <u>341</u> | 523 | 342 | 524 | 341 | 16 | <u>521</u> | <u>343</u> | 521 | 343 | 519 | 344 |
| 482.sphinx3 | 16 | <u>1005</u> | <u>310</u> | 1001 | 311 | 1005 | 310 | 16 | <u>1005</u> | <u>310</u> | 1001 | 311 | 1005 | 310 |

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"

Platform Notes

BIOS configuration: default



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General Notes

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

LD_LIBRARY_PATH = "/home/SPECcpu2006/libs/32:/home/SPECcpu2006/libs/64:/home/SPECcpu2006/sh"

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-revB.html>

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.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-revB.xml>

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-HSW-RevA.xml>

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

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