



SPEC[®] CFP2006 Result

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Fujitsu

SPECfp[®]_rate2006 = 469

CELSIUS R920 (Intel Xeon E5-2665)

SPECfp_rate_base2006 = 457

CPU2006 license: 19

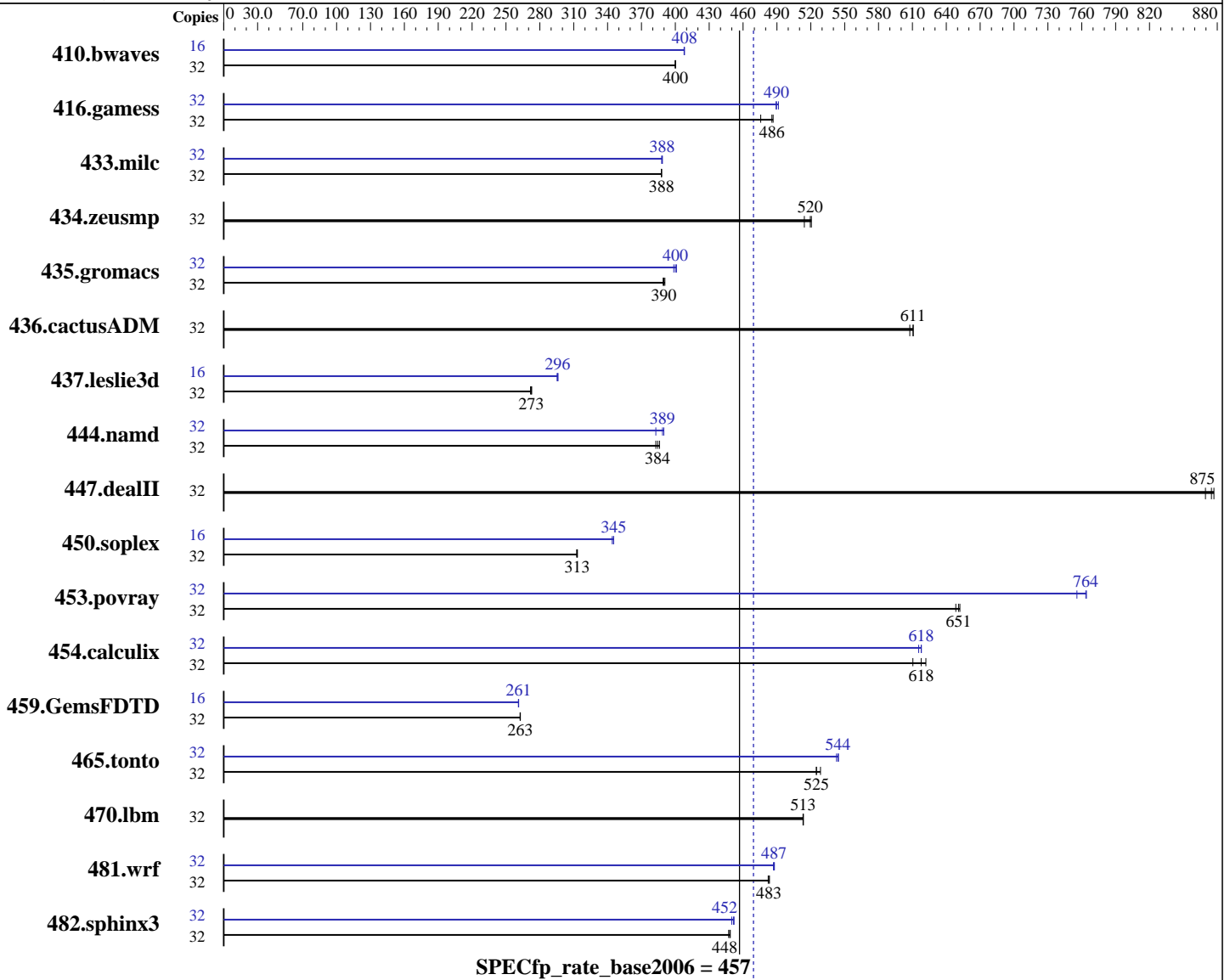
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Mar-2012

Hardware Availability: Mar-2012

Software Availability: Dec-2011



Hardware

CPU Name: Intel Xeon E5-2665
 CPU Characteristics: Intel Turbo Boost Technology up to 3.10 GHz
 CPU MHz: 2400
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
 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 6.1, 2.6.32-131.0.15.el6.x86_64
 Compiler: C/C++: Version 12.1.2.273 of Intel C++ Studio XE for Linux;
 Fortran: Version 12.1.2.273 of Intel Fortran Studio XE for Linux
 Auto Parallel: No
 File System: ReiserFS
 System State: Run level 3 (multi - user)

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L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx8 PC3-12800R-11, ECC)
Disk Subsystem: 1 x SATA III, 500 GB, 7200 rpm
Other Hardware: None

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	1087	400	<u>1087</u>	<u>400</u>	1087	400	16	533	408	533	408	<u>533</u>	<u>408</u>
416.gamess	32	1317	476	<u>1290</u>	<u>486</u>	1288	487	32	1275	491	1281	489	<u>1280</u>	<u>490</u>
433.milc	32	<u>758</u>	<u>388</u>	758	388	758	388	32	756	389	<u>757</u>	<u>388</u>	757	388
434.zeusmp	32	559	521	566	514	<u>560</u>	<u>520</u>	32	559	521	566	514	<u>560</u>	<u>520</u>
435.gromacs	32	585	391	<u>586</u>	<u>390</u>	587	389	32	<u>571</u>	<u>400</u>	573	399	570	401
436.cactusADM	32	<u>626</u>	<u>611</u>	626	611	629	608	32	<u>626</u>	<u>611</u>	626	611	629	608
437.leslie3d	32	<u>1104</u>	<u>273</u>	1107	272	1103	273	16	509	295	508	296	<u>508</u>	<u>296</u>
444.namd	32	665	386	<u>668</u>	<u>384</u>	671	383	32	671	383	<u>660</u>	<u>389</u>	658	390
447.dealII	32	421	870	417	877	<u>418</u>	<u>875</u>	32	421	870	417	877	<u>418</u>	<u>875</u>
450.soplex	32	852	313	<u>853</u>	<u>313</u>	854	313	16	<u>386</u>	<u>345</u>	388	344	386	345
453.povray	32	261	652	263	648	<u>262</u>	<u>651</u>	32	223	764	<u>223</u>	<u>764</u>	225	756
454.calculix	32	424	622	<u>427</u>	<u>618</u>	432	610	32	<u>427</u>	<u>618</u>	429	616	427	618
459.GemsFDTD	32	1293	263	1292	263	<u>1293</u>	<u>263</u>	16	650	261	650	261	<u>650</u>	<u>261</u>
465.tonto	32	600	525	596	529	<u>600</u>	<u>525</u>	32	<u>579</u>	<u>544</u>	578	545	580	543
470.lbm	32	857	513	<u>857</u>	<u>513</u>	856	513	32	857	513	<u>857</u>	<u>513</u>	856	513
481.wrf	32	739	483	<u>740</u>	<u>483</u>	741	482	32	<u>733</u>	<u>487</u>	734	487	733	488
482.sphinx3	32	<u>1392</u>	<u>448</u>	1395	447	1390	449	32	1380	452	1386	450	<u>1381</u>	<u>452</u>

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

Submit Notes

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. For full details on using numactl, please refer to your Linux documentation, 'man numactl'

Operating System Notes

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



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Platform Notes

BIOS settings:
Frequency Floor Override = Enabled

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/work/cpu2006/libs/32:/work/cpu2006/libs/64"

Binaries compiled on a system with
2x Xeon E5-2690 CPU + 64 GB memory using
Red Hat Enterprise Linux Server release 6.1 (Santiago)
Added glibc-static-2.12-1.25.el6.x86_64.rpm
to enable static linking

Transparent Huge Pages disabled with:
echo never > /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>

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

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Base Portability Flags (Continued)

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

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



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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
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
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: -xSSE4.2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
-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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static
```

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Peak Optimization Flags (Continued)

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: -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

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:

435.gromacs: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -static
-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.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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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 04:17:06 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 24 April 2012.