



SPEC[®] CFP2006 Result

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Fujitsu

SPECfp[®]2006 = 49.6

PRIMERGY RX600 S6, Intel Xeon E7-4850, 2.00 GHz

SPECfp_base2006 = 44.0

CPU2006 license: 19

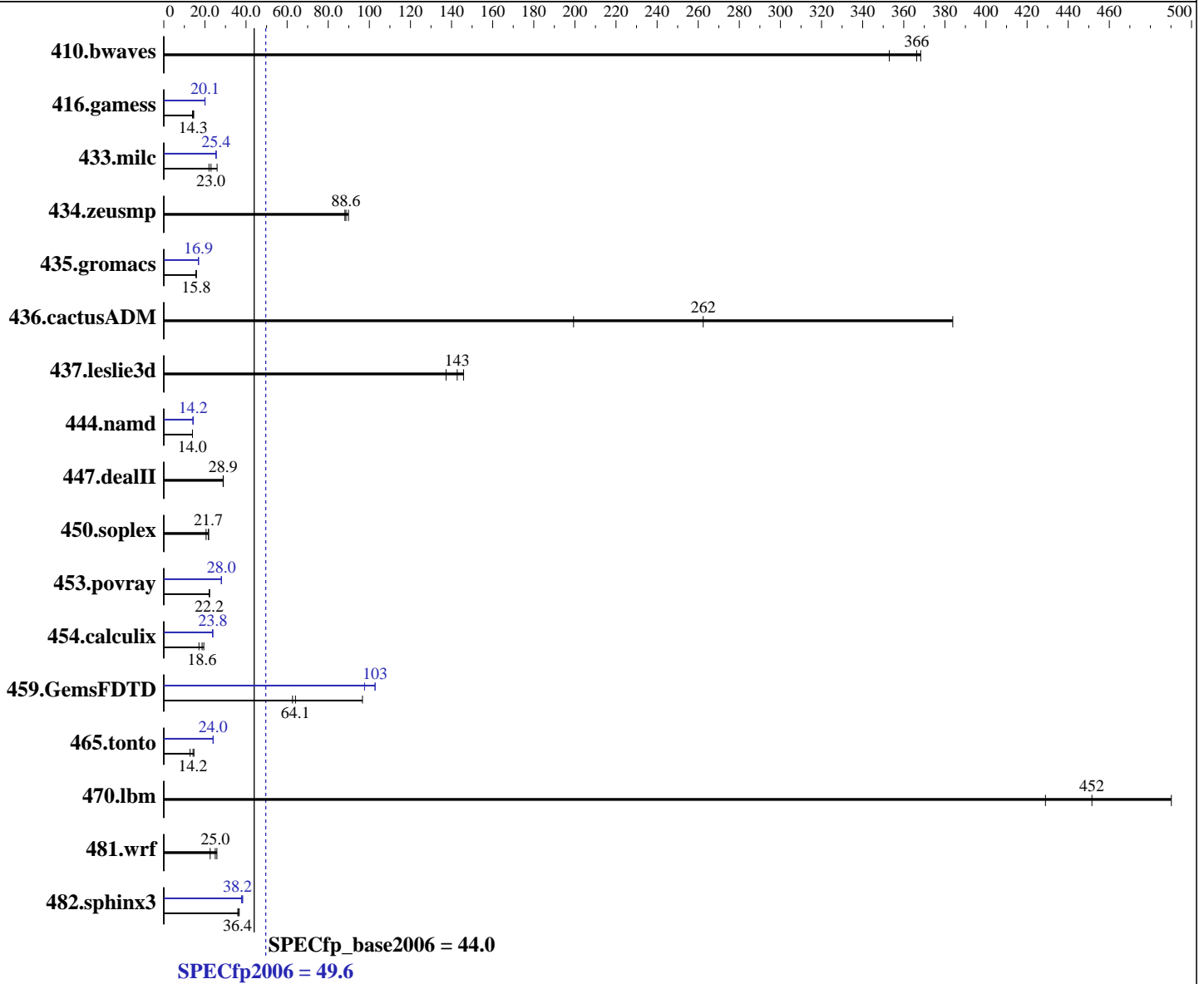
Test date: Aug-2011

Test sponsor: Fujitsu

Hardware Availability: Jul-2011

Tested by: Fujitsu

Software Availability: Jul-2011



Hardware

CPU Name: Intel Xeon E7-4850
 CPU Characteristics: Intel Turbo Boost Technology up to 2.40 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 40 cores, 4 chips, 10 cores/chip
 CPU(s) orderable: 2,3,4 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: SUSE Linux Enterprise Server 11 (x86_64) SP1, Kernel 2.6.32.12-0.7-default
 Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.4.191 Build 20110427
 Auto Parallel: Yes
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit

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L3 Cache: 24 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (32 x 8 GB 4Rx8 PC3L-8500R-7, ECC)
Disk Subsystem: 1 x SAS, 600 GB, 10000 RPM
Other Hardware: --

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	<u>37.1</u>	<u>366</u>	38.5	353	36.9	368	<u>37.1</u>	<u>366</u>	38.5	353	36.9	368
416.gamess	1404	13.9	<u>1367</u>	<u>14.3</u>	1344	14.6	<u>977</u>	<u>20.1</u>	976	20.1	978	20.0
433.milc	418	22.0	354	25.9	<u>399</u>	<u>23.0</u>	360	25.5	361	25.4	<u>361</u>	<u>25.4</u>
434.zeusmp	103	88.1	101	89.8	<u>103</u>	<u>88.6</u>	103	88.1	101	89.8	<u>103</u>	<u>88.6</u>
435.gromacs	452	15.8	456	15.7	<u>452</u>	<u>15.8</u>	422	16.9	<u>423</u>	<u>16.9</u>	425	16.8
436.cactusADM	<u>45.5</u>	<u>262</u>	31.1	384	59.9	199	<u>45.5</u>	<u>262</u>	31.1	384	59.9	199
437.leslie3d	<u>65.8</u>	<u>143</u>	64.4	146	68.5	137	<u>65.8</u>	<u>143</u>	64.4	146	68.5	137
444.namd	575	14.0	<u>575</u>	<u>14.0</u>	575	13.9	<u>564</u>	<u>14.2</u>	563	14.2	564	14.2
447.dealII	395	29.0	<u>396</u>	<u>28.9</u>	396	28.9	395	29.0	<u>396</u>	<u>28.9</u>	396	28.9
450.soplex	382	21.8	405	20.6	<u>384</u>	<u>21.7</u>	382	21.8	405	20.6	<u>384</u>	<u>21.7</u>
453.povray	239	22.3	241	22.0	<u>240</u>	<u>22.2</u>	190	28.1	<u>190</u>	<u>28.0</u>	190	28.0
454.calculix	482	17.1	<u>443</u>	<u>18.6</u>	424	19.5	<u>346</u>	<u>23.8</u>	346	23.8	349	23.7
459.GemsFDTD	169	62.6	110	96.7	<u>166</u>	<u>64.1</u>	109	97.7	103	103	<u>103</u>	<u>103</u>
465.tonto	769	12.8	671	14.7	<u>692</u>	<u>14.2</u>	<u>410</u>	<u>24.0</u>	409	24.0	410	24.0
470.lbm	32.0	429	<u>30.4</u>	<u>452</u>	28.0	490	32.0	429	<u>30.4</u>	<u>452</u>	28.0	490
481.wrf	495	22.6	<u>446</u>	<u>25.0</u>	432	25.8	495	22.6	<u>446</u>	<u>25.0</u>	432	25.8
482.sphinx3	<u>536</u>	<u>36.4</u>	541	36.0	531	36.7	507	38.4	<u>511</u>	<u>38.2</u>	516	37.8

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

Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'nodetv /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
echo 36000 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

Platform Notes

BIOS configuration:
Data Reuse Optimization = Disable
Performance/Power Setting = Traditional
Intel HT Technology = Disable



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General Notes

OMP_NUM_THREADS set to number of cores

Binaries were compiled on RHEL5.5

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:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

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Base Optimization Flags (Continued)

Fortran benchmarks:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

Benchmarks using both Fortran and C:

`-xSSE4.2 -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: `-xSSE4.2(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: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel`

C++ benchmarks:

444.namd: `-xSSE4.2(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`

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Peak Optimization Flags (Continued)

447.dealll: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -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 -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
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

465.tonto: -xSSE4.2(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
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Benchmarks using both Fortran and C:

435.gromacs: -xSSE4.2(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

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.2 -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-ic12.0-linux64-revB.20110316.html>

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20110705.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.20110316.xml>

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20110705.xml>



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