



SPEC[®] CFP2006 Result

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NEC Corporation

Express5800/B120b-d
(Intel Xeon X5670)

SPECfp[®]2006 = 46.1

SPECfp_base2006 = 43.5

CPU2006 license: 9006

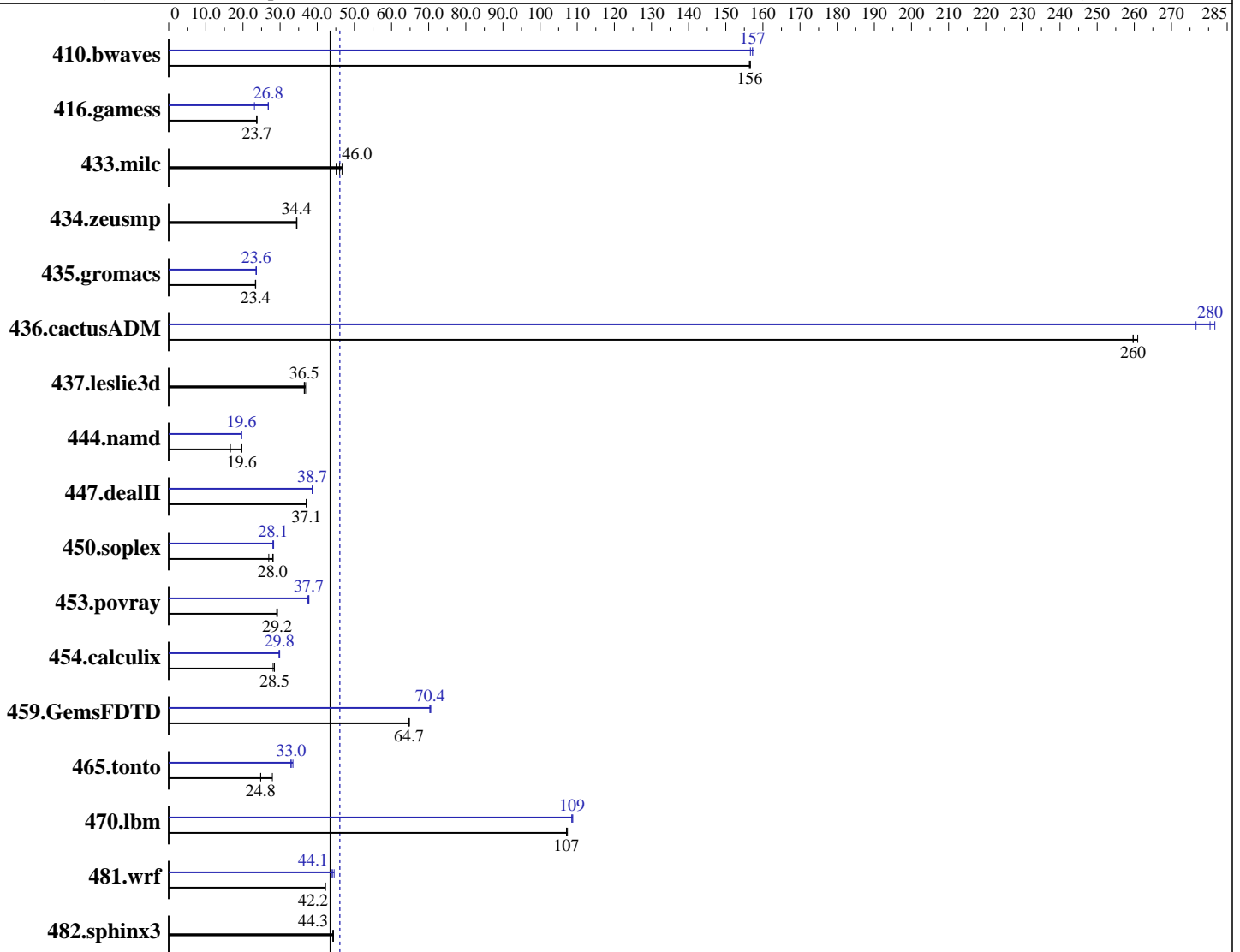
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Jun-2010

Hardware Availability: Apr-2010

Software Availability: Dec-2009



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Hardware

CPU Name: Intel Xeon X5670
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz
 CPU MHz: 2933
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip
 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: SUSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-default
 Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064
 Auto Parallel: Yes
 File System: ext3
 System State: Run level 3 (multi-user)

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 96 GB (12 x 8 GB PC3-10600R, 2 rank, CL9, ECC)
Disk Subsystem: 1x146.5 GB SAS, 10000 RPM in Express5800/AD106a
Other Hardware: None

Base Pointers: 64-bit
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	87.1	156	86.8	157	<u>86.9</u>	<u>156</u>	<u>86.5</u>	<u>157</u>	86.8	157	86.3	158
416.gamess	<u>826</u>	<u>23.7</u>	826	23.7	824	23.8	<u>731</u>	<u>26.8</u>	848	23.1	730	26.8
433.milc	197	46.7	204	45.1	<u>199</u>	<u>46.0</u>	197	46.7	204	45.1	<u>199</u>	<u>46.0</u>
434.zeusmp	263	34.5	<u>264</u>	<u>34.4</u>	264	34.4	263	34.5	<u>264</u>	<u>34.4</u>	264	34.4
435.gromacs	305	23.4	<u>305</u>	<u>23.4</u>	306	23.4	304	23.5	302	23.6	<u>303</u>	<u>23.6</u>
436.cactusADM	<u>46.0</u>	<u>260</u>	46.0	260	45.8	261	43.2	277	42.4	282	<u>42.6</u>	<u>280</u>
437.leslie3d	<u>257</u>	<u>36.5</u>	257	36.5	255	36.9	<u>257</u>	<u>36.5</u>	257	36.5	255	36.9
444.namd	483	16.6	<u>408</u>	<u>19.6</u>	407	19.7	409	19.6	<u>410</u>	<u>19.6</u>	410	19.6
447.dealII	<u>308</u>	<u>37.1</u>	309	37.1	308	37.1	296	38.7	<u>296</u>	<u>38.7</u>	296	38.7
450.soplex	296	28.1	<u>298</u>	<u>28.0</u>	309	26.9	297	28.1	<u>297</u>	<u>28.1</u>	295	28.3
453.povray	182	29.3	<u>182</u>	<u>29.2</u>	183	29.1	141	37.7	142	37.5	<u>141</u>	<u>37.7</u>
454.calculix	290	28.5	293	28.1	<u>290</u>	<u>28.5</u>	276	29.9	278	29.7	<u>277</u>	<u>29.8</u>
459.GemsFDTD	<u>164</u>	<u>64.7</u>	164	64.8	164	64.6	<u>151</u>	<u>70.4</u>	151	70.3	150	70.6
465.tonto	<u>397</u>	<u>24.8</u>	397	24.8	353	27.9	294	33.5	299	32.9	<u>298</u>	<u>33.0</u>
470.lbm	128	107	<u>128</u>	<u>107</u>	128	107	126	109	<u>126</u>	<u>109</u>	127	109
481.wrf	265	42.1	265	42.2	<u>265</u>	<u>42.2</u>	<u>253</u>	<u>44.1</u>	251	44.6	255	43.8
482.sphinx3	439	44.4	<u>440</u>	<u>44.3</u>	441	44.2	439	44.4	<u>440</u>	<u>44.3</u>	441	44.2

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

Platform Notes

BIOS setting:
Hyper-Threading Technology : Disabled

General Notes

OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M
The Express5800/AD106a provides a local storage for the attached blade.



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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

C++ benchmarks:

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

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



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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: basepeak = yes

470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-parallel -ansi-alias -auto-ilp32

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-fno-alias -auto-ilp32

447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -ansi-alias -scalar-rep- -auto-ilp32

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-opt-malloc-options=3 -auto-ilp32

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll4 -ansi-alias

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Peak Optimization Flags (Continued)

Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
-parallel

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -Ob0 -ansi-alias -scalar-rep-

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) -static(pass 2) -prof-use(pass 2)
-unroll2 -Ob0 -opt-prefetch -parallel

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-inline-alloc -opt-malloc-options=3 -auto -unroll4

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) -static(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32

436.cactusADM: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -opt-prefetch -parallel -auto-ilp32

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: Same as 454.calculix

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100609.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100609.xml>



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