



SPEC[®] CFP2006 Result

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NEC Corporation

SPECfp[®]_rate2006 = 141

Express5800/R120b-1 (Intel Xeon X5690)

SPECfp_rate_base2006 = 137

CPU2006 license: 9006

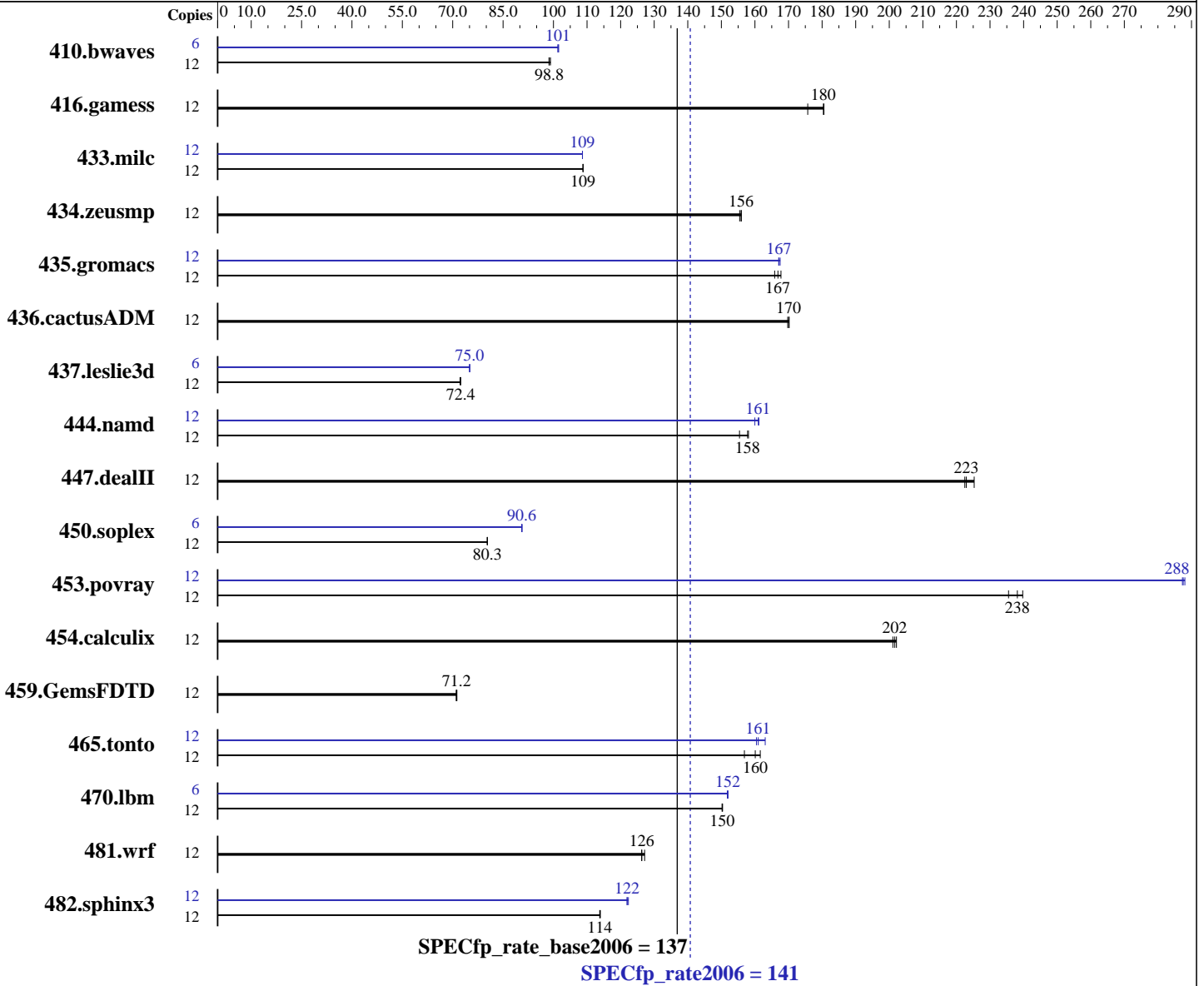
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Jul-2011

Hardware Availability: Feb-2011

Software Availability: Mar-2011



Hardware

CPU Name: Intel Xeon X5690
 CPU Characteristics: Intel Turbo Boost Technology up to 3.73 GHz
 CPU MHz: 3467
 FPU: Integrated
 CPU(s) enabled: 6 cores, 1 chip, 6 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: SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default
 Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64, Version 12.0.3.174 Build 20110309
 Auto Parallel: No
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (6 x 8 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
Other Hardware: None

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	12	1645	99.1	<u>1651</u>	<u>98.8</u>	1653	98.7	6	<u>805</u>	<u>101</u>	803	102	805	101		
416.gamess	12	1337	176	<u>1303</u>	<u>180</u>	1301	181	12	1337	176	<u>1303</u>	<u>180</u>	1301	181		
433.milc	12	1013	109	1012	109	<u>1012</u>	<u>109</u>	12	1014	109	1014	109	<u>1014</u>	<u>109</u>		
434.zeusmp	12	702	155	<u>701</u>	<u>156</u>	700	156	12	702	155	<u>701</u>	<u>156</u>	700	156		
435.gromacs	12	517	166	511	168	<u>514</u>	<u>167</u>	12	511	168	<u>513</u>	<u>167</u>	513	167		
436.cactusADM	12	845	170	843	170	<u>843</u>	<u>170</u>	12	845	170	843	170	<u>843</u>	<u>170</u>		
437.leslie3d	12	1563	72.2	<u>1559</u>	<u>72.4</u>	1558	72.4	6	<u>752</u>	<u>75.0</u>	752	75.0	751	75.1		
444.namd	12	609	158	619	155	<u>610</u>	<u>158</u>	12	<u>598</u>	<u>161</u>	597	161	602	160		
447.dealII	12	609	225	<u>616</u>	<u>223</u>	617	222	12	609	225	<u>616</u>	<u>223</u>	617	222		
450.soplex	12	1246	80.3	<u>1246</u>	<u>80.3</u>	1247	80.3	6	<u>553</u>	<u>90.6</u>	553	90.5	552	90.7		
453.povray	12	<u>268</u>	<u>238</u>	271	236	266	240	12	<u>222</u>	<u>288</u>	222	288	222	287		
454.calculix	12	<u>491</u>	<u>202</u>	492	201	490	202	12	<u>491</u>	<u>202</u>	492	201	490	202		
459.GemsFDTD	12	1793	71.0	<u>1789</u>	<u>71.2</u>	1787	71.3	12	1793	71.0	<u>1789</u>	<u>71.2</u>	1787	71.3		
465.tonto	12	753	157	<u>738</u>	<u>160</u>	731	162	12	736	160	<u>734</u>	<u>161</u>	724	163		
470.lbm	12	1097	150	<u>1097</u>	<u>150</u>	1097	150	6	542	152	<u>543</u>	<u>152</u>	543	152		
481.wrf	12	1062	126	<u>1061</u>	<u>126</u>	1054	127	12	1062	126	<u>1061</u>	<u>126</u>	1054	127		
482.sphinx3	12	2052	114	2056	114	<u>2054</u>	<u>114</u>	12	1912	122	<u>1918</u>	<u>122</u>	1918	122		

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.
numactl was used to bind copies to the cores

Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
Huge pages were not configured for this run

Platform Notes

BIOS Settings:
Performance/Watt: Traditional
Server Class: Custom

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Platform Notes (Continued)

Data Reuse Optimization: Disabled
Memory Voltage: Normal

General Notes

The Express5800/R120b-1 and the Express5800/R120b-2 models are electronically equivalent. The results have been measured on the Express5800/R120b-1 model.

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.deallI: -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:

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

C++ benchmarks:

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

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:

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

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

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Peak Portability Flags (Continued)

470.lbm: -DSPEC_CPU_LP64

481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

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

470.lbm: -xSSE4.2(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
-ansi-alias -opt-prefetch -static -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2

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

447.dealII: basepeak = yes

450.soplex: -xSSE4.2(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
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

459.GemsFDTD: basepeak = yes

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) -unroll4 -auto
-inline-calloc -opt-malloc-options=3

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Peak Optimization Flags (Continued)

465.tonto (continued):

`-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) -opt-prefetch
-static -auto-ilp32`

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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.html>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revF.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.xml>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revF.xml>

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Tested with SPEC CPU2006 v1.1.

Report generated on Wed Jul 23 22:54:36 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 16 August 2011.