



SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

Express5800/R120b-2
(Intel Xeon L5640)

SPECfp®_rate2006 = 201

SPECfp_rate_base2006 = 193

CPU2006 license: 9006

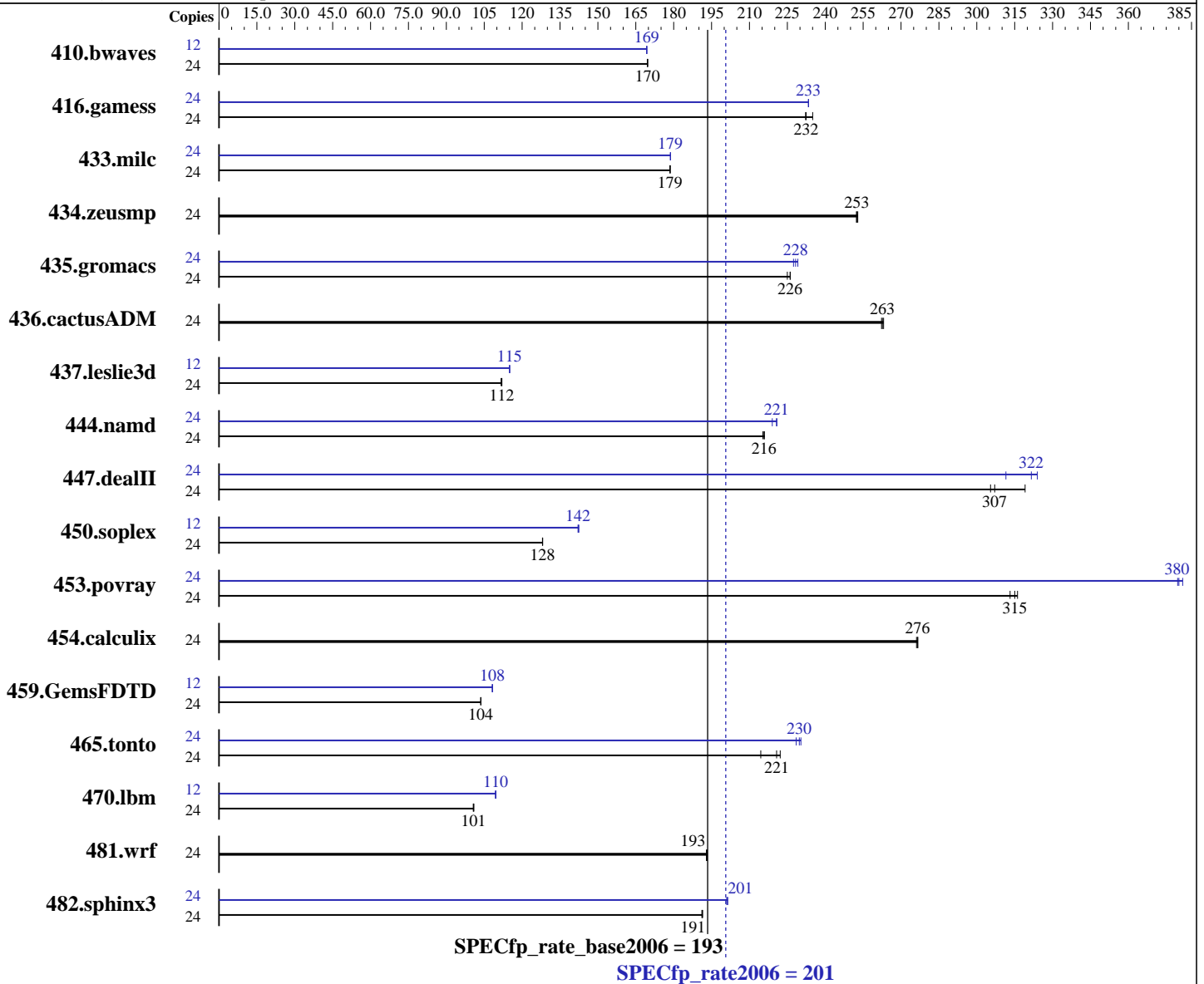
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Jul-2010

Hardware Availability: Sep-2010

Software Availability: Dec-2009



Hardware

CPU Name: Intel Xeon L5640
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
 CPU MHz: 2267
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 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 (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: I_cproc_p_11.1.064, L_cprof_p_11.1.064
 Auto Parallel: No
 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 PC3L-10600R, 2 rank, CL9, ECC)
Disk Subsystem: 1x160 GB SATA, 7200 RPM
Other Hardware: None

Base Pointers: 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	24	<u>1923</u>	<u>170</u>	1924	170	1921	170	12	963	169	<u>963</u>	<u>169</u>	963	169
416.gamess	24	2024	232	<u>2022</u>	<u>232</u>	1999	235	24	2013	233	2014	233	<u>2014</u>	<u>233</u>
433.milc	24	1234	179	1234	179	<u>1234</u>	<u>179</u>	24	1233	179	1233	179	<u>1233</u>	<u>179</u>
434.zeusmp	24	<u>865</u>	<u>253</u>	866	252	864	253	24	<u>865</u>	<u>253</u>	866	252	864	253
435.gromacs	24	758	226	<u>758</u>	<u>226</u>	762	225	24	<u>751</u>	<u>228</u>	748	229	753	227
436.cactusADM	24	<u>1092</u>	<u>263</u>	1093	262	1090	263	24	<u>1092</u>	<u>263</u>	1093	262	1090	263
437.leslie3d	24	2014	112	2020	112	<u>2015</u>	<u>112</u>	12	981	115	980	115	<u>980</u>	<u>115</u>
444.namd	24	<u>892</u>	<u>216</u>	894	215	891	216	24	871	221	879	219	<u>872</u>	<u>221</u>
447.dealII	24	<u>894</u>	<u>307</u>	860	319	899	305	24	881	312	<u>854</u>	<u>322</u>	848	324
450.soplex	24	1562	128	<u>1562</u>	<u>128</u>	1563	128	12	<u>704</u>	<u>142</u>	702	142	704	142
453.povray	24	408	313	<u>405</u>	<u>315</u>	404	316	24	335	382	<u>336</u>	<u>380</u>	336	380
454.calculix	24	717	276	716	277	<u>716</u>	<u>276</u>	24	717	276	716	277	<u>716</u>	<u>276</u>
459.GemsFDTD	24	2457	104	<u>2457</u>	<u>104</u>	2456	104	12	<u>1176</u>	<u>108</u>	1177	108	1176	108
465.tonto	24	1063	222	1101	214	<u>1070</u>	<u>221</u>	24	1034	228	1025	230	<u>1028</u>	<u>230</u>
470.lbm	24	3268	101	<u>3274</u>	<u>101</u>	3275	101	12	1504	110	<u>1505</u>	<u>110</u>	1507	109
481.wrf	24	1389	193	<u>1389</u>	<u>193</u>	1387	193	24	1389	193	<u>1389</u>	<u>193</u>	1387	193
482.sphinx3	24	<u>2446</u>	<u>191</u>	2443	191	2447	191	24	2323	201	<u>2324</u>	<u>201</u>	2327	201

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

Platform Notes

BIOS setting:
Performance/Watt: Traditional
Memory Voltage: Normal



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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.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`

C++ benchmarks:

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

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Base Optimization Flags (Continued)

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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

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.deallI: `-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`



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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) -static(pass 2) -prof-use(pass 2)
-fno-alias -opt-prefetch

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)
-opt-malloc-options=3 -ansi-alias -auto-ilp32

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

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.dealIII: -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-

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

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

Fortran benchmarks:

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

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

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

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

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Peak Optimization Flags (Continued)

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: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

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.20100823.00.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.20100823.00.xml>

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

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