



SPEC[®] CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

Express5800/120Lj
(Intel Xeon X5470)

SPECfp[®]_rate2006 = 81.6

SPECfp_rate_base2006 = 74.4

CPU2006 license: 9006

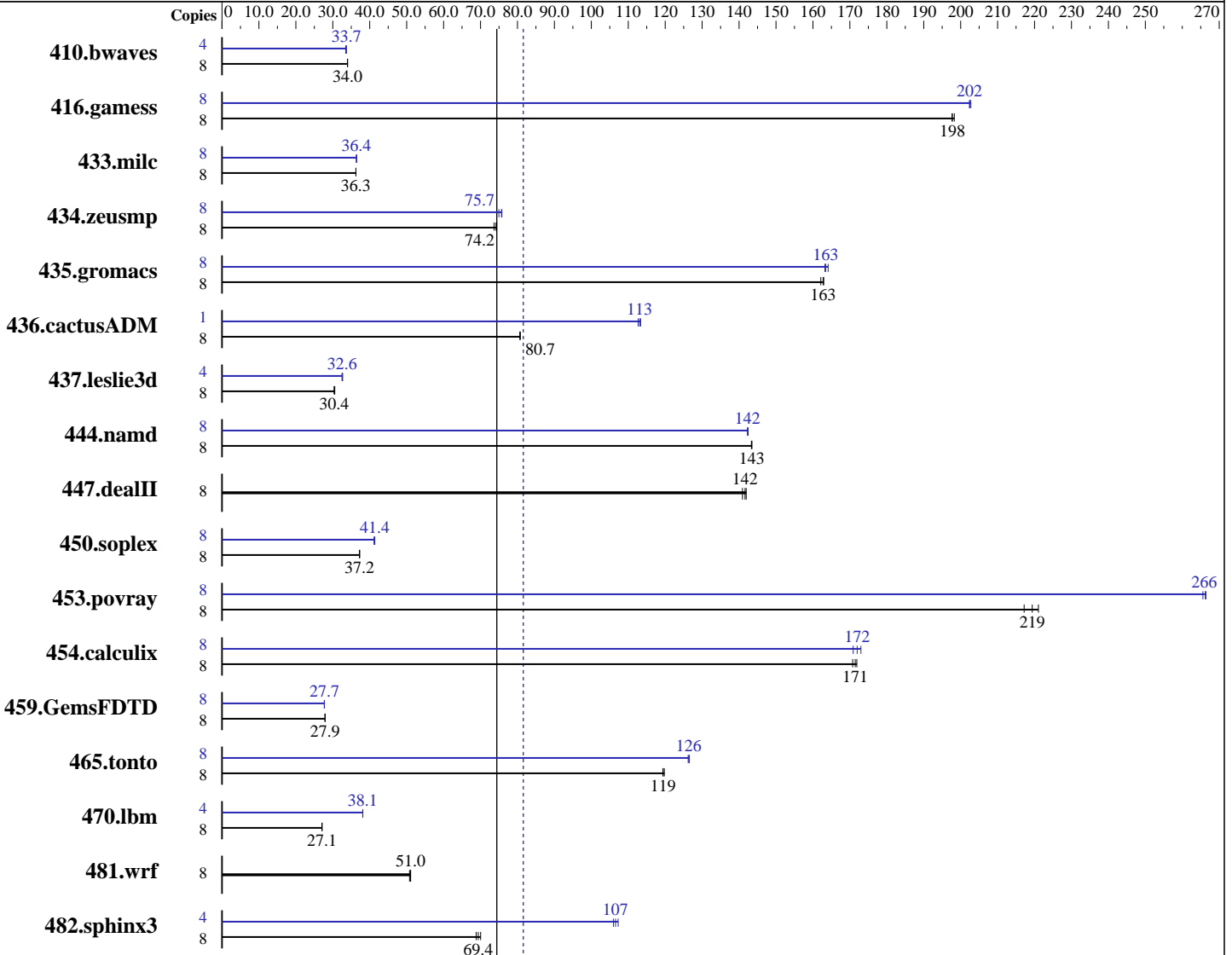
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Nov-2008

Hardware Availability: Oct-2008

Software Availability: Nov-2008



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Hardware

CPU Name: Intel Xeon X5470
 CPU Characteristics: 3.33 GHz, 2x6 MB L2 shared, 1333 MHz system bus
 CPU MHz: 3333
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
 CPU(s) orderable: 1,2 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores

Continued on next page

Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16.60-0.21-smpp
 Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20080730 Package ID: l_cproc_b_11.0.044, l_cprof_b_11.0.044
 Auto Parallel: Yes
 File System: ext2
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8x2 GB PC2-5300F, 2 rank, CL5-5-5, ECC)
Disk Subsystem: 1x73.2 GB SAS, 15000RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	3199	34.0	<u>3199</u>	<u>34.0</u>	3200	34.0	4	<u>1615</u>	<u>33.7</u>	1623	33.5	1614	33.7
416.gamess	8	<u>792</u>	<u>198</u>	792	198	790	198	8	773	203	<u>774</u>	<u>202</u>	774	202
433.milc	8	2026	36.3	2025	36.3	<u>2025</u>	<u>36.3</u>	8	2017	36.4	2017	36.4	<u>2017</u>	<u>36.4</u>
434.zeusmp	8	980	74.3	<u>981</u>	<u>74.2</u>	988	73.7	8	<u>962</u>	<u>75.7</u>	961	75.8	971	75.0
435.gromacs	8	351	163	352	162	<u>351</u>	<u>163</u>	8	348	164	350	163	<u>349</u>	<u>163</u>
436.cactusADM	8	<u>1184</u>	<u>80.7</u>	1185	80.7	1184	80.7	1	105	113	<u>106</u>	<u>113</u>	106	113
437.leslie3d	8	<u>2472</u>	<u>30.4</u>	2462	30.5	2476	30.4	4	<u>1155</u>	<u>32.6</u>	1151	32.7	1157	32.5
444.namd	8	448	143	<u>447</u>	<u>143</u>	447	143	8	451	142	450	142	<u>451</u>	<u>142</u>
447.dealII	8	<u>646</u>	<u>142</u>	649	141	645	142	8	<u>646</u>	<u>142</u>	649	141	645	142
450.soplex	8	<u>1792</u>	<u>37.2</u>	1790	37.3	1793	37.2	8	1621	41.2	<u>1613</u>	<u>41.4</u>	1612	41.4
453.povray	8	193	221	196	217	<u>194</u>	<u>219</u>	8	<u>160</u>	<u>266</u>	160	266	160	266
454.calculix	8	387	171	<u>385</u>	<u>171</u>	384	172	8	<u>384</u>	<u>172</u>	382	173	386	171
459.GemsFDTD	8	3043	27.9	3040	27.9	<u>3041</u>	<u>27.9</u>	8	3066	27.7	<u>3061</u>	<u>27.7</u>	3061	27.7
465.tonto	8	659	119	<u>659</u>	<u>119</u>	657	120	8	622	127	624	126	<u>623</u>	<u>126</u>
470.lbm	8	4063	27.1	4059	27.1	<u>4060</u>	<u>27.1</u>	4	<u>1442</u>	<u>38.1</u>	1441	38.1	1442	38.1
481.wrf	8	1749	51.1	1760	50.8	<u>1750</u>	<u>51.0</u>	8	1749	51.1	1760	50.8	<u>1750</u>	<u>51.0</u>
482.sphinx3	8	2227	70.0	2266	68.8	<u>2247</u>	<u>69.4</u>	4	736	106	727	107	<u>732</u>	<u>107</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.
taskset was used to bind processes to cores except
for 436.cactusADM peak

Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 64M



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Platform Notes

Bios settings:
Hardware Prefetcher: Disabled
Adjacent Cache Line Prefetch: Disabled

General Notes

The NEC Express5800/120Lj(Intel Xeon X5470) and the Bull NovaScale T860 E1(Intel Xeon X5470, 3.33 GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/120Lj(Intel Xeon X5470) model.

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

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



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Base Optimization Flags

C benchmarks:

`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

C++ benchmarks:

`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

Fortran benchmarks:

`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

Benchmarks using both Fortran and C:

`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

Peak Compiler Invocation

C benchmarks (except as noted below):

`icc`

482.sphinx3: `/opt/intel/Compiler/11.0/044/bin/ia32/icc
-L/opt/intel/Compiler/11.0/044/ipp/ia32/lib
-I/opt/intel/Compiler/11.0/044/ipp/ia32/include`

C++ benchmarks (except as noted below):

`icpc`

450.soplex: `/opt/intel/Compiler/11.0/044/bin/ia32/icpc
-L/opt/intel/Compiler/11.0/044/ipp/ia32/lib
-I/opt/intel/Compiler/11.0/044/ipp/ia32/include`

Fortran benchmarks (except as noted below):

`ifort`

437.leslie3d: `/opt/intel/Compiler/11.0/044/bin/ia32/ifort
-L/opt/intel/Compiler/11.0/044/ipp/ia32/lib
-I/opt/intel/Compiler/11.0/044/ipp/ia32/include`

Benchmarks using both Fortran and C:

`icc ifort`

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`

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Peak Portability Flags (Continued)

```

436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
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
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

```

Peak Optimization Flags

C benchmarks:

```

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

```

```

470.lbm: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
        -auto-ilp32

```

```

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2

```

C++ benchmarks:

```

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

```

```

447.dealII: basepeak = yes

```

```

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

```

```

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

```

Fortran benchmarks:

```

410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

```

```

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

```

```

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

```

```

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
            -no-prec-div -static -opt-malloc-options=3 -opt-prefetch

```

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Peak Optimization Flags (Continued)

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -Ob0 -opt-prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -opt-prefetch -auto-ilp32

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

454.calculix: -xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32

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-ic11.0-fp-linux64-revD.html>

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

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revD.xml>

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

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

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