



SPEC[®] CFP2006 Result

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NEC Corporation

Express5800/120Rh-1
(Intel Xeon E5440)

SPECfp[®]_rate2006 = 40.2

SPECfp_rate_base2006 = 36.8

CPU2006 license: 9006

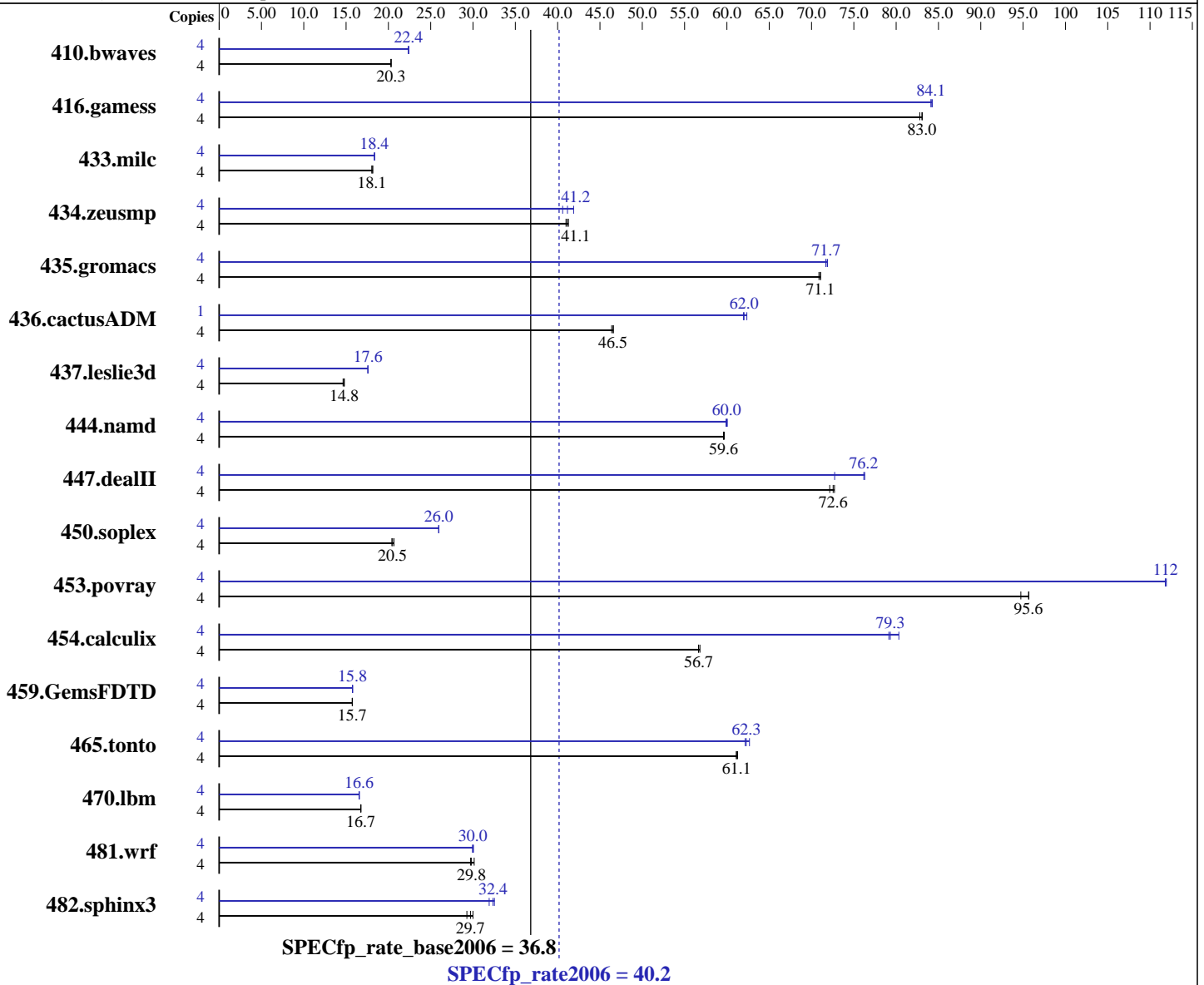
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Jun-2008

Hardware Availability: Apr-2008

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon E5440
 CPU Characteristics: 2.83 GHz, 2x6 MB L2 shared, 1333 MHz bus
 CPU MHz: 2833
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 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

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Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
 Compiler: Intel C++ and Fortran Compiler for Linux version 10.1 Build 20070913 Package ID: l_cc_p_10.1.008, l_fc_p_10.1.008
 Auto Parallel: Yes
 File System: ReiserFS
 System State: Run level 3 (multi-user)

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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

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: binutils 2.17

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	2677	20.3	2675	20.3	<u>2676</u>	<u>20.3</u>	4	2426	22.4	2430	22.4	<u>2430</u>	<u>22.4</u>
416.gamess	4	<u>943</u>	<u>83.0</u>	946	82.8	942	83.1	4	<u>931</u>	<u>84.1</u>	931	84.1	929	84.3
433.milc	4	2035	18.0	<u>2032</u>	<u>18.1</u>	2022	18.2	4	2002	18.3	<u>2000</u>	<u>18.4</u>	1998	18.4
434.zeusmp	4	888	41.0	<u>885</u>	<u>41.1</u>	882	41.3	4	869	41.9	<u>884</u>	<u>41.2</u>	897	40.6
435.gromacs	4	<u>402</u>	<u>71.1</u>	402	71.1	403	70.9	4	397	71.9	398	71.7	<u>398</u>	<u>71.7</u>
436.cactusADM	4	<u>1027</u>	<u>46.5</u>	1026	46.6	1031	46.4	1	193	62.0	<u>193</u>	<u>62.0</u>	192	62.4
437.leslie3d	4	<u>2546</u>	<u>14.8</u>	2542	14.8	2568	14.6	4	2138	17.6	2139	17.6	<u>2139</u>	<u>17.6</u>
444.namd	4	<u>538</u>	<u>59.6</u>	537	59.7	538	59.6	4	<u>535</u>	<u>60.0</u>	534	60.0	536	59.9
447.dealII	4	<u>631</u>	<u>72.6</u>	629	72.7	634	72.2	4	629	72.7	600	76.3	<u>601</u>	<u>76.2</u>
450.soplex	4	<u>1628</u>	<u>20.5</u>	1635	20.4	1615	20.7	4	1286	25.9	<u>1285</u>	<u>26.0</u>	1285	26.0
453.povray	4	222	95.7	225	94.7	<u>222</u>	<u>95.6</u>	4	<u>190</u>	<u>112</u>	190	112	190	112
454.calculix	4	583	56.7	581	56.8	<u>582</u>	<u>56.7</u>	4	417	79.1	411	80.3	<u>416</u>	<u>79.3</u>
459.GemsFDTD	4	2695	15.7	2699	15.7	<u>2697</u>	<u>15.7</u>	4	<u>2692</u>	<u>15.8</u>	2695	15.7	2691	15.8
465.tonto	4	642	61.3	<u>644</u>	<u>61.1</u>	644	61.1	4	628	62.7	<u>632</u>	<u>62.3</u>	633	62.2
470.lbm	4	3283	16.7	<u>3282</u>	<u>16.7</u>	3282	16.7	4	3321	16.6	<u>3321</u>	<u>16.6</u>	3320	16.6
481.wrf	4	1483	30.1	1504	29.7	<u>1498</u>	<u>29.8</u>	4	1493	29.9	1487	30.1	<u>1489</u>	<u>30.0</u>
482.sphinx3	4	2599	30.0	<u>2625</u>	<u>29.7</u>	2663	29.3	4	<u>2409</u>	<u>32.4</u>	2443	31.9	2397	32.5

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
'/usr/bin/taskset' used to bind processes to CPUs
except for 436.cactusADM at peak.
OMP_NUM_THREADS set to number of cores

Platform Notes

Bios settings:
Hardware Prefetcher: Disabled
Adjacent Cache Line Prefetch: Disabled
Intel SpeedStep Technology: Disabled



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General Notes

All benchmarks compiled in 64-bit mode except 437.leslie3d, 450.soplex, 470.lbm and 482.sphinx3, for peak, are compiled in 32-bit mode

The NEC Express5800/120Rh-1(Intel Xeon E5440), the NEC Express5800/120Rj-2(Intel Xeon E5440), the Bull NovaScale R440 E1 (Intel Xeon E5440,2.83GHz) and the Bull NovaScale R460 E1 (Intel Xeon E5440,2.83GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon E5440) 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.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:

-fast

C++ benchmarks:

-fast

Fortran benchmarks:

-fast

Benchmarks using both Fortran and C:

-fast

Peak Compiler Invocation

C benchmarks (except as noted below):

/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include

433.milc: icc

C++ benchmarks (except as noted below):

icpc

450.soplex: /opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include

Fortran benchmarks (except as noted below):

ifort

437.leslie3d: /opt/intel/fc/10.1.008/bin/ifort -L/opt/intel/fc/10.1.008/lib
-I/opt/intel/fc/10.1.008/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

436.cactusADM: -DSPEC_CPU_LP64 -nofor_main

444.namd: -DSPEC_CPU_LP64

447.dealII: -DSPEC_CPU_LP64

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Peak Portability Flags (Continued)

```

453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -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) -fast -fno-alias
         -auto-ilp32

```

```

470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
        -scalar-rep- -prefetch -opt-malloc-options=3

```

```

482.sphinx3: -fast -unroll2

```

C++ benchmarks:

```

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias
         -auto-ilp32

```

```

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
          -ansi-alias -scalar-rep-

```

```

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast
          -opt-malloc-options=3

```

```

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4
          -ansi-alias

```

Fortran benchmarks:

```

410.bwaves: -fast -prefetch

```

```

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0
          -ansi-alias -scalar-rep-

```

```

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

```

```

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch
            -opt-malloc-options=3

```

```

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0
            -prefetch

```

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Peak Optimization Flags (Continued)

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch
-auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-prefetch -parallel -auto-ilp32

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -auto-ilp32

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

<http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-FP-intel64-linux-flags.html>

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

<http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-FP-intel64-linux-flags.xml>

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

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