# SPEC® CFP2006 Result

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## NEC Corporation

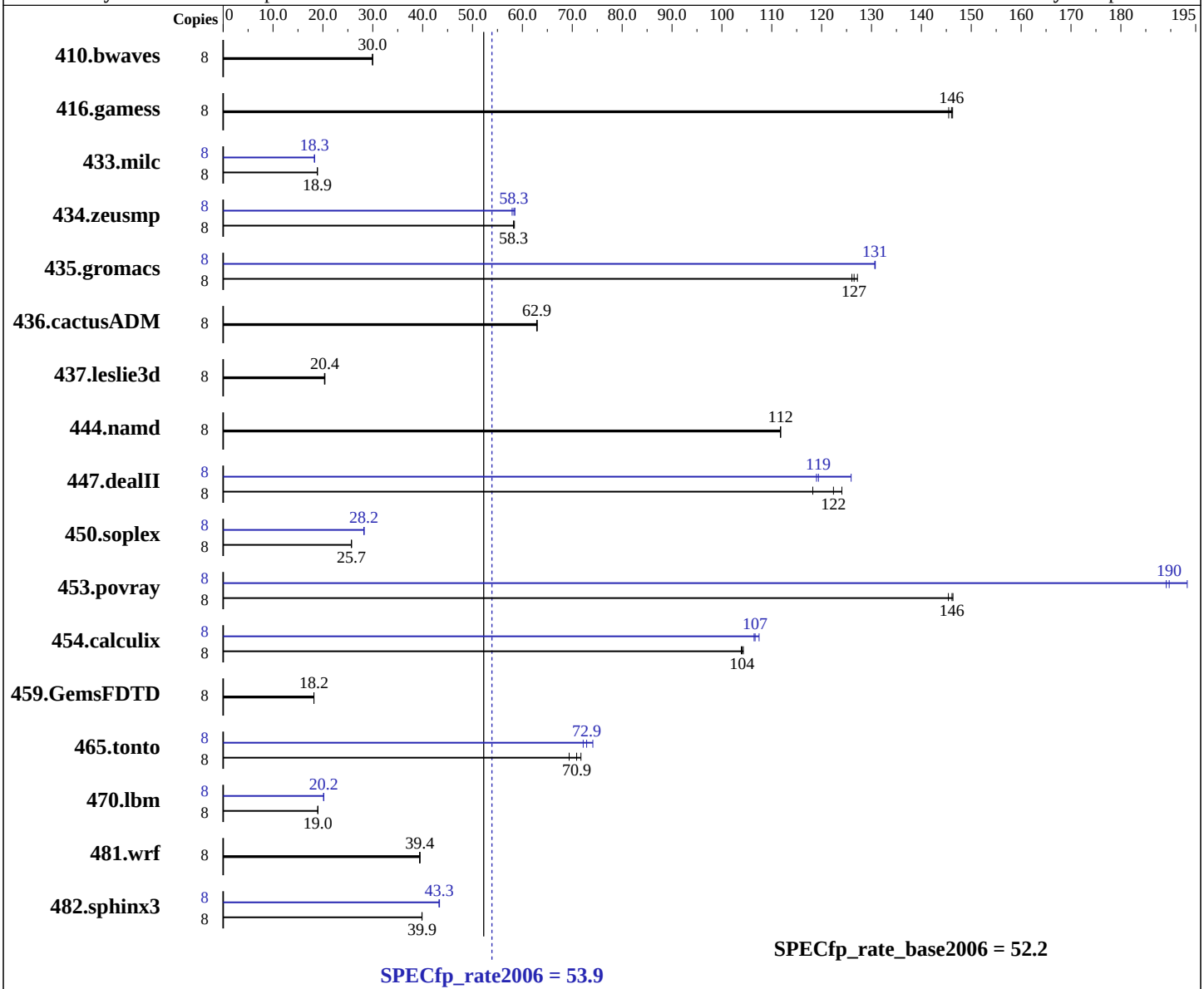
Express5800/120Bb-6
(Intel Xeon processor X5355)

SPECfp®_rate2006 = 53.9

SPECfp_rate_base2006 = 52.2

**CPU2006 license:** 9006
**Test sponsor:** NEC Corporation
**Tested by:** NEC Corporation

**Test date:** Jul-2007
**Hardware Availability:** Jan-2007
**Software Availability:** Apr-2007




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X5355 |
| CPU Characteristics: | 2.66 GHz, 2x4 MB L2 shared, 1333 MHz bus |
| CPU MHz: | 2666 |
| 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: | 8 MB I+D on chip per chip, 4 MB shared / 2 cores |

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### Software

| | |
|---|---|
| Operating System: | 64-Bit SUSE LINUX Enterprise Server 10, Kernel 2.6.16.21-0.8-smp on an x86_64 |
| Compiler: | Intel C++ Compiler for IA32/EM64T application, Version 9.1 - Build 20070320, Package-ID: l_cc_c_9.1.049<br>Intel Fortran Compiler for IA32/EM64T application, Version 9.1 - Build 20070320, Package ID: l_fc_c_9.1.045 |
| Auto Parallel: | No |
| File System: | ext2 |

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L3 Cache: None
Other Cache: None
Memory: 16 GB (4x4 GB DDR2 5300F, 2 rank, CL5-5-5-5, ECC)
Disk Subsystem: 1x146.5 GB SAS, 10000RPM
Other Hardware: None

System State: Multiuser, Runlevel 3
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 | 8 | **3629** | **30.0** | 3630 | 30.0 | 3626 | 30.0 | 8 | **3629** | **30.0** | 3630 | 30.0 | 3626 | 30.0 |
| 416.gamess | 8 | 1071 | 146 | **1073** | **146** | 1077 | 145 | 8 | 1071 | 146 | **1073** | **146** | 1077 | 145 |
| 433.milc | 8 | 3886 | 18.9 | 3889 | 18.9 | **3888** | **18.9** | 8 | **4009** | **18.3** | 4008 | 18.3 | 4009 | 18.3 |
| 434.zeusmp | 8 | **1250** | **58.3** | 1246 | 58.4 | 1251 | 58.2 | 8 | 1244 | 58.5 | 1256 | 57.9 | **1249** | **58.3** |
| 435.gromacs | 8 | 449 | 127 | **452** | **127** | 453 | 126 | 8 | 437 | 131 | 437 | 131 | **437** | **131** |
| 436.cactusADM | 8 | 1518 | 63.0 | 1521 | 62.9 | **1520** | **62.9** | 8 | 1518 | 63.0 | 1521 | 62.9 | **1520** | **62.9** |
| 437.leslie3d | 8 | **3689** | **20.4** | 3703 | 20.3 | 3686 | 20.4 | 8 | **3689** | **20.4** | 3703 | 20.3 | 3686 | 20.4 |
| 444.namd | 8 | **574** | **112** | 574 | 112 | 574 | 112 | 8 | **574** | **112** | 574 | 112 | 574 | 112 |
| 447.dealII | 8 | 738 | 124 | **748** | **122** | 774 | 118 | 8 | **767** | **119** | 769 | 119 | 727 | 126 |
| 450.soplex | 8 | **2594** | **25.7** | 2594 | 25.7 | 2593 | 25.7 | 8 | 2361 | 28.3 | 2363 | 28.2 | **2363** | **28.2** |
| 453.povray | 8 | 293 | 145 | **291** | **146** | 291 | 146 | 8 | 225 | 189 | **224** | **190** | 220 | 193 |
| 454.calculix | 8 | **634** | **104** | 635 | 104 | 633 | 104 | 8 | 620 | 106 | **619** | **107** | 614 | 107 |
| 459.GemsFDTD | 8 | 4666 | 18.2 | 4662 | 18.2 | **4663** | **18.2** | 8 | 4666 | 18.2 | 4662 | 18.2 | **4663** | **18.2** |
| 465.tonto | 8 | 1135 | 69.4 | 1097 | 71.7 | **1111** | **70.9** | 8 | **1080** | **72.9** | 1062 | 74.1 | 1090 | 72.2 |
| 470.lbm | 8 | 5788 | 19.0 | **5789** | **19.0** | 5789 | 19.0 | 8 | 5453 | 20.2 | 5451 | 20.2 | **5452** | **20.2** |
| 481.wrf | 8 | 2263 | 39.5 | **2266** | **39.4** | 2270 | 39.4 | 8 | 2263 | 39.5 | **2266** | **39.4** | 2270 | 39.4 |
| 482.sphinx3 | 8 | 3909 | 39.9 | **3911** | **39.9** | 3912 | 39.9 | 8 | 3602 | 43.3 | 3594 | 43.4 | **3599** | **43.3** |

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

## General Notes

The system bus runs at 1333 MHz
All binaries were built with 64-bit Intel compiler except:
433.milc, 434.zeusmp, 450.soplex, 470.lbm and 482.sphinx3 in peak were built with
32-bit Intel compiler by changing the path for include and library files.

## 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

## Base Optimization Flags

C benchmarks:
-fast

C++ benchmarks:
-fast

Fortran benchmarks:
-fast

Benchmarks using both Fortran and C:
-fast

## Peak Compiler Invocation

C benchmarks:
`/opt/intel/cc/9.1.049/bin/icc -I/opt/intel/cc/9.1.049/include -L/opt/intel/cc/9.1.049/lib`

C++ benchmarks (except as noted below):
`icpc`

450.soplex: `/opt/intel/cc/9.1.049/bin/icpc -I/opt/intel/cc/9.1.049/include -L/opt/intel/cc/9.1.049/lib`

Fortran benchmarks (except as noted below):
`ifort`

434.zeusmp: `/opt/intel/fc/9.1.045/bin/ifort -I/opt/intel/fc/9.1.045/include -L/opt/intel/fc/9.1.045/lib`

Benchmarks using both Fortran and C:
`icc ifort`

## Peak Portability Flags

410.bwaves: `-DSPEC_CPU_LP64`
416.gamess: `-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`
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`

470.lbm: `Same as 433.milc`

482.sphinx3: `-fast`

C++ benchmarks:

Continued on next page

# Peak Optimization Flags (Continued)

444.namd: `basepeak = yes`

447.dealII: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast`

450.soplex: `Same as 447.dealII`

453.povray: `Same as 447.dealII`

Fortran benchmarks:

410.bwaves: `basepeak = yes`

416.gamess: `basepeak = yes`

434.zeusmp: `-fast`

437.leslie3d: `basepeak = yes`

459.GemsFDTD: `basepeak = yes`

465.tonto: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast`

Benchmarks using both Fortran and C:

435.gromacs: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast`

436.cactusADM: `basepeak = yes`

454.calculix: `Same as 435.gromacs`

481.wrf: `basepeak = yes`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/NEC-ic91-linux-flags.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/NEC-ic91-linux-flags.xml`


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

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