SPEC® CFP2006 Result
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NEC Corporation

Express5800/120Lj
(Intel Xeon X5450)

$SPECfp®\_rate2006 =$ 74.0

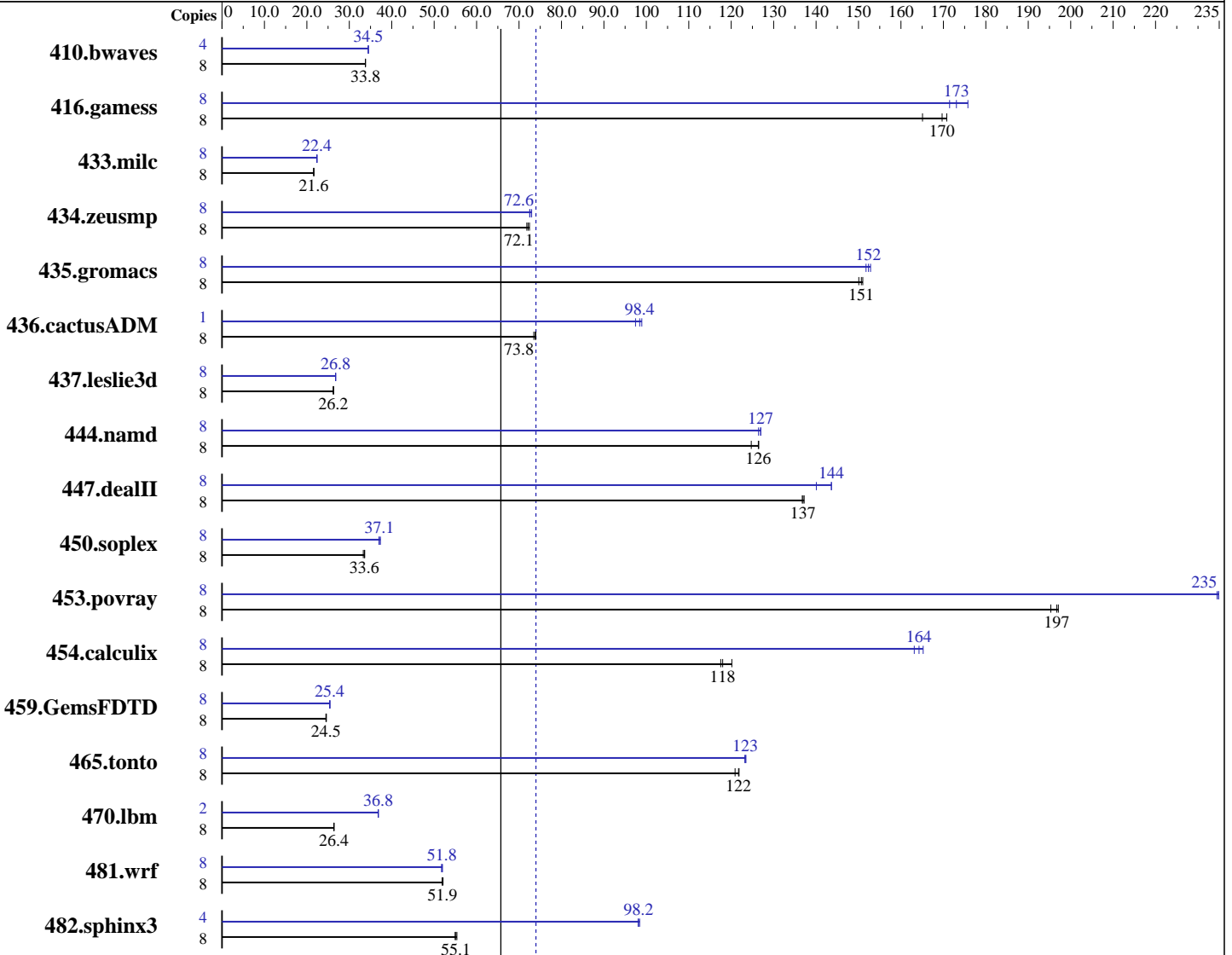$SPECfp\_rate\_base2006 =$ 65.7

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

Test date: Mar-2008
Hardware Availability: Feb-2008
Software Availability: Nov-2007

Benchmark	Copies	Result
410.bwaves	4	34.5
	8	33.8
416.gamess	8	173
	8	170
433.milc	8	22.4
	8	21.6
434.zeusmp	8	72.6
	8	72.1
435.gromacs	8	152
	8	151
436.cactusADM	1	98.4
	8	73.8
437.leslie3d	8	26.8
	8	26.2
444.namd	8	127
	8	126
447.dealII	8	144
	8	137
450.soplex	8	37.1
	8	33.6
453.povray	8	235
	8	197
454.calculix	8	164
	8	118
459.GemsFDTD	8	25.4
	8	24.5
465.tonto	8	123
	8	122
470.lbm	2	36.8
	8	26.4
481.wrf	8	51.8
	8	51.9
482.sphinx3	4	98.2
	8	55.1

SPECfp_rate_base2006 = 65.7

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Hardware

CPU Name:	Intel Xeon X5450
CPU Characteristics:	3.00 GHz, 2x6 MB L2 shared, 1333 MHz bus
CPU MHz:	3000
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) SP1, Kernel 2.6.16.46-0.12-smp
Compiler:	Intel C++ and Fortran Compiler for Linux32 and Linux64 version 10.1 Build 20070913 Package ID: l_cc_p_10.1.008, l_fc_p_10.1.008
Auto Parallel:	Yes
File System:	ext2

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L3 Cache:	None	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	64-bit
Memory:	12 GB (12x1 GB PC2-5300F, 2 rank, CL5-5-5, ECC)	Peak Pointers:	32/64-bit
Disk Subsystem:	1x73.2 GB SAS, 15000RPM	Other Software:	binutils-2.17.tar.gz, Version 2.17
Other Hardware:	None		

Results Table

Benchmark		Base							Peak					
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	3216	33.8	**3217**	**33.8**	3217	33.8	4	**1577**	**34.5**	1576	34.5	1577	34.5
416.gamess	8	949	165	**923**	**170**	917	171	8	914	171	**905**	**173**	891	176
433.milc	8	3402	21.6	3392	21.6	**3393**	**21.6**	8	3279	22.4	**3283**	**22.4**	3285	22.4
434.zeusmp	8	1014	71.8	**1009**	**72.1**	1005	72.5	8	**1003**	**72.6**	1004	72.5	998	73.0
435.gromacs	8	381	150	**379**	**151**	378	151	8	376	152	**375**	**152**	374	153
436.cactusADM	8	1293	74.0	1301	73.5	**1295**	**73.8**	1	**121**	**98.4**	121	98.9	123	97.5
437.leslie3d	8	2869	26.2	**2867**	**26.2**	2857	26.3	8	2811	26.8	**2807**	**26.8**	2807	26.8
444.namd	8	**508**	**126**	514	125	507	126	8	505	127	**505**	**127**	507	126
447.dealII	8	**668**	**137**	667	137	669	137	8	653	140	**637**	**144**	637	144
450.soplex	8	2004	33.3	**1988**	**33.6**	1984	33.6	8	1804	37.0	**1799**	**37.1**	1787	37.3
453.povray	8	218	195	**216**	**197**	216	197	8	181	235	**181**	**235**	181	235
454.calculix	8	562	118	**559**	**118**	549	120	8	405	163	399	165	**402**	**164**
459.GemsFDTD	8	3450	24.6	3464	24.5	**3462**	**24.5**	8	3343	25.4	**3342**	**25.4**	3336	25.4
465.tonto	8	**647**	**122**	651	121	646	122	8	**638**	**123**	638	123	639	123
470.lbm	8	4170	26.4	**4167**	**26.4**	4162	26.4	2	746	36.8	**746**	**36.8**	747	36.8
481.wrf	8	1715	52.1	1722	51.9	**1720**	**51.9**	8	1726	51.8	**1725**	**51.8**	1720	52.0
482.sphinx3	8	2817	55.4	**2829**	**55.1**	2839	54.9	4	795	98.1	**794**	**98.2**	792	98.4

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
 OMP_NUM_THREADS set to number of cores
```

Platform Notes

```
Bios settings:
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
```

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

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Base Optimization Flags (Continued)

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
      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
```

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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`

> 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`

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Peak Optimization Flags (Continued)

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.20090713.html

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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.20090713.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 18:21:14 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 15 April 2008.