SPEC® CFP2006 Result
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NEC Corporation

Express5800/120Rh-1
(Intel Xeon E5205)

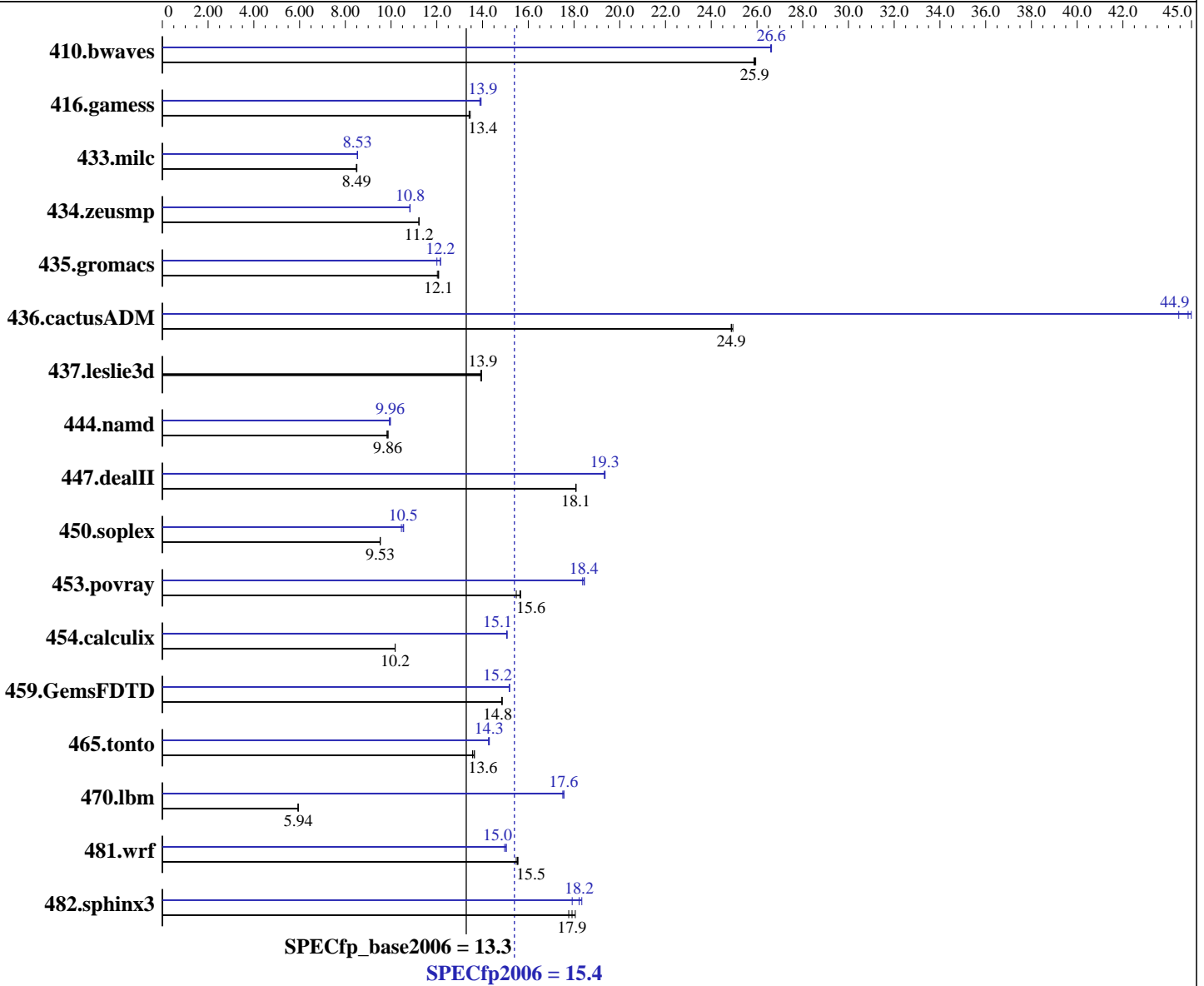$SPECfp^{®}2006 =$ 15.4

SPECfp_base2006 = 13.3

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

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

SPECfp_base2006 = 13.3
SPECfp2006 = 15.4

410.bwaves	26.6 / 25.9
416.gamess	13.9 / 13.4
433.milc	8.53 / 8.49
434.zeusmp	10.8 / 11.2
435.gromacs	12.2 / 12.1
436.cactusADM	44.9 / 24.9
437.leslie3d	13.9
444.namd	9.96 / 9.86
447.dealII	19.3 / 18.1
450.soplex	10.5 / 9.53
453.povray	18.4 / 15.6
454.calculix	15.1 / 10.2
459.GemsFDTD	15.2 / 14.8
465.tonto	14.3 / 13.6
470.lbm	17.6 / 5.94
481.wrf	15.0 / 15.5
482.sphinx3	18.2 / 17.9

Hardware

CPU Name:	Intel Xeon E5205
CPU Characteristics:	1.86 GHz, 6 MB L2, 1066 MHz bus
CPU MHz:	1867
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	6 MB I+D on chip per chip

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 Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	**525**	**25.9**	524	25.9	525	25.9	**510**	**26.6**	511	26.6	510	26.6
416.gamess	**1459**	**13.4**	1454	13.5	1460	13.4	**1407**	**13.9**	1410	13.9	1405	13.9
433.milc	1082	8.49	**1081**	**8.49**	1079	8.51	1076	8.53	1076	8.53	**1076**	**8.53**
434.zeusmp	811	11.2	811	11.2	**811**	**11.2**	840	10.8	**840**	**10.8**	841	10.8
435.gromacs	**591**	**12.1**	591	12.1	594	12.0	595	12.0	587	12.2	**587**	**12.2**
436.cactusADM	480	24.9	479	24.9	**480**	**24.9**	266	45.0	**266**	**44.9**	269	44.4
437.leslie3d	675	13.9	673	14.0	**674**	**13.9**	675	13.9	673	14.0	**674**	**13.9**
444.namd	817	9.82	**814**	**9.86**	812	9.87	**805**	**9.96**	804	9.97	808	9.93
447.dealII	**633**	**18.1**	633	18.1	632	18.1	591	19.4	592	19.3	**591**	**19.3**
450.soplex	876	9.53	875	9.53	**875**	**9.53**	790	10.6	798	10.5	**792**	**10.5**
453.povray	344	15.5	**340**	**15.6**	339	15.7	288	18.5	**289**	**18.4**	290	18.4
454.calculix	810	10.2	**811**	**10.2**	811	10.2	**548**	**15.1**	548	15.1	547	15.1
459.GemsFDTD	715	14.8	**715**	**14.8**	714	14.9	**699**	**15.2**	700	15.2	699	15.2
465.tonto	726	13.6	**722**	**13.6**	721	13.6	690	14.3	688	14.3	**689**	**14.3**
470.lbm	2312	5.94	2317	5.93	**2313**	**5.94**	782	17.6	**783**	**17.6**	785	17.5
481.wrf	718	15.6	722	15.5	**719**	**15.5**	747	15.0	743	15.0	**743**	**15.0**
482.sphinx3	1079	18.1	1097	17.8	**1088**	**17.9**	1088	17.9	**1070**	**18.2**	1063	18.3

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
OMP_NUM_THREADS set to number of cores

Platform Notes

Bios settings:
Intel SpeedStep Technology: Disabled

General Notes

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

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General Notes (Continued)

```
The NEC Express5800/120Rh-1(Intel Xeon Processor E5205),
the NEC Express5800/120Rj-2(Intel Xeon Processor E5205),
the Bull NovaScale R440 E1 (Intel Xeon E5205,1.86GHz) and
the Bull NovaScale R460 E1 (Intel Xeon E5205,1.86GHz) models are electronically equivalent.
The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon Processor E5205) 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
```

Base Optimization Flags

C benchmarks:
```
-fast -parallel
```

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Base Optimization Flags (Continued)

C++ benchmarks:
```
-fast -parallel
```

Fortran benchmarks:
```
-fast -parallel
```

Benchmarks using both Fortran and C:
```
-fast -parallel
```

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:
```
ifort
```

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
   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
```

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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 -parallel`

> 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: basepeak = yes

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

> 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`

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Peak Optimization Flags (Continued)

481.wrf: `-fast -parallel -prefetch -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

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

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

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