SPEC® CFP2006 Result

Lenovo Group Limited

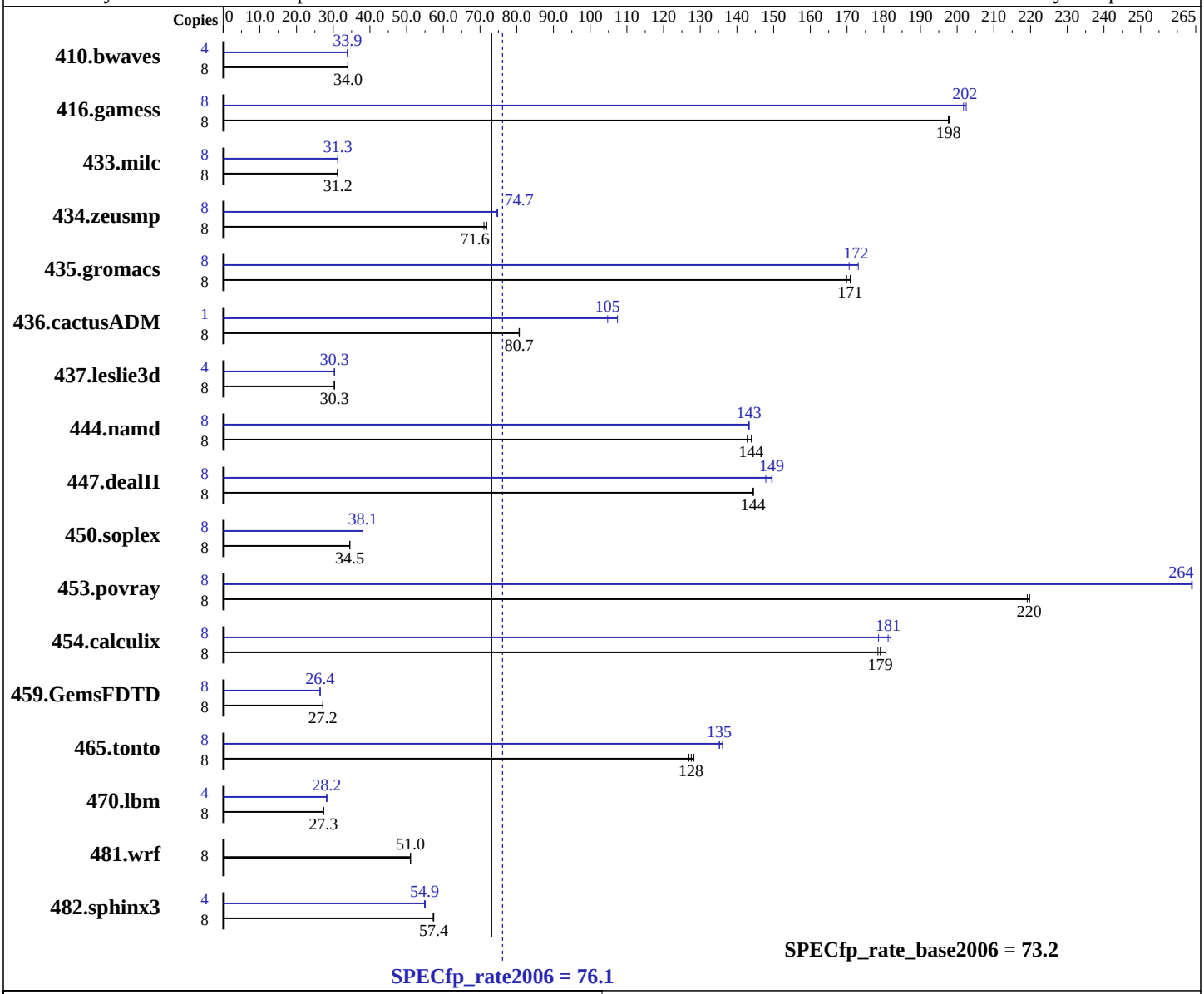
Lenovo ThinkServer RD120(Intel Xeon X5470)

SPECfp®_rate2006 = 76.1

SPECfp_rate_base2006 = 73.2

CPU2006 license: 9017
Test sponsor: Lenovo Group Limited
Tested by: Lenovo Group Limited

Test date: May-2009
Hardware Availability: Apr-2009
Software Availability: Apr-2009



Hardware

CPU Name:	Intel Xeon X5470
CPU Characteristics:	1333MHz 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

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Software

Operating System:	SuSE Linux Enterprise Server 10 (x86_64) SP2 Kernel 2.6.16.60-0.21-smp
Compiler:	Intel C++ and Fortran Compiler 11.0 for Linux Build 20090209 Package ID: l_cproc_b_11.0.081, l_fproc_b_11.0.081
Auto Parallel:	Yes
File System:	ReiserFS
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8 x 2GB 2Rx8 PC2 5300F)

Disk Subsystem: 1 x 146 GB, SAS 15K RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V8.1
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	3200	34.0	3196	34.0	**3196**	**34.0**	4	1603	33.9	1604	33.9	**1604**	**33.9**
416.gamess	8	793	198	**792**	**198**	792	198	8	**775**	**202**	774	202	776	202
433.milc	8	2351	31.2	**2352**	**31.2**	2354	31.2	8	**2349**	**31.3**	2348	31.3	2349	31.3
434.zeusmp	8	1025	71.1	1014	71.8	**1016**	**71.6**	8	977	74.5	973	74.8	**974**	**74.7**
435.gromacs	8	**334**	**171**	336	170	334	171	8	**331**	**172**	330	173	335	171
436.cactusADM	8	**1185**	**80.7**	1185	80.6	1184	80.7	1	115	104	111	107	**114**	**105**
437.leslie3d	8	**2481**	**30.3**	2480	30.3	2483	30.3	4	1240	30.3	**1240**	**30.3**	1239	30.3
444.namd	8	449	143	445	144	**446**	**144**	8	448	143	**448**	**143**	448	143
447.dealII	8	634	144	**634**	**144**	633	145	8	612	150	**612**	**149**	619	148
450.soplex	8	1935	34.5	**1934**	**34.5**	1932	34.5	8	1752	38.1	**1752**	**38.1**	1752	38.1
453.povray	8	194	219	194	220	**194**	**220**	8	161	264	161	264	**161**	**264**
454.calculix	8	**369**	**179**	365	181	370	178	8	370	179	363	182	**364**	**181**
459.GemsFDTD	8	**3121**	**27.2**	3122	27.2	3121	27.2	8	3212	26.4	**3211**	**26.4**	3211	26.4
465.tonto	8	614	128	620	127	**617**	**128**	8	**582**	**135**	582	135	579	136
470.lbm	8	4021	27.3	**4020**	**27.3**	4019	27.3	4	1947	28.2	1947	28.2	**1947**	**28.2**
481.wrf	8	**1751**	**51.0**	1751	51.0	1749	51.1	8	**1751**	**51.0**	1751	51.0	1749	51.1
482.sphinx3	8	2717	57.4	**2718**	**57.4**	2734	57.0	4	1420	54.9	1416	55.1	**1420**	**54.9**

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.
```

General Notes

```
taskset was used to bind processes to cores except
for 436.cactusADM peak
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 64M
```

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:
-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/11.0/081/bin/ia32/icc
-L/opt/intel/Compiler/11.0/081/ipp/ia32/lib
-I/opt/intel/Compiler/11.0/081/ipp/ia32/include

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

450.soplex: /opt/intel/Compiler/11.0/081/bin/ia32/icpc
-L/opt/intel/Compiler/11.0/081/ipp/ia32/lib
-I/opt/intel/Compiler/11.0/081/ipp/ia32/include

Fortran benchmarks (except as noted below):
ifort

437.leslie3d: /opt/intel/Compiler/11.0/081/bin/ia32/ifort
-L/opt/intel/Compiler/11.0/081/ipp/ia32/lib
-I/opt/intel/Compiler/11.0/081/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
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:

Continued on next page

Peak Optimization Flags (Continued)

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

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

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

Continued on next page

Peak Optimization Flags (Continued)

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

481.wrf: `basepeak = yes`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.16.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.16.xml`

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

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