SPEC® CFP2006 Result

ASUSTeK Computer Inc.

ASUS ESC4000(Z8PG-D18) Server System
(Intel Xeon X5690, 3.46 GHz)

$SPECfp^{®}\_rate2006 =$ 268

SPECfp_rate_base2006 =   262

CPU2006 license: 9016	**Test date:**	Aug-2011
Test sponsor: ASUSTeK Computer Inc.	**Hardware Availability:**	May-2011
Tested by: ASUSTeK Computer Inc.	**Software Availability:**	Jan-2011

SPECfp_rate_base2006 = 262

SPECfp_rate2006 = 268
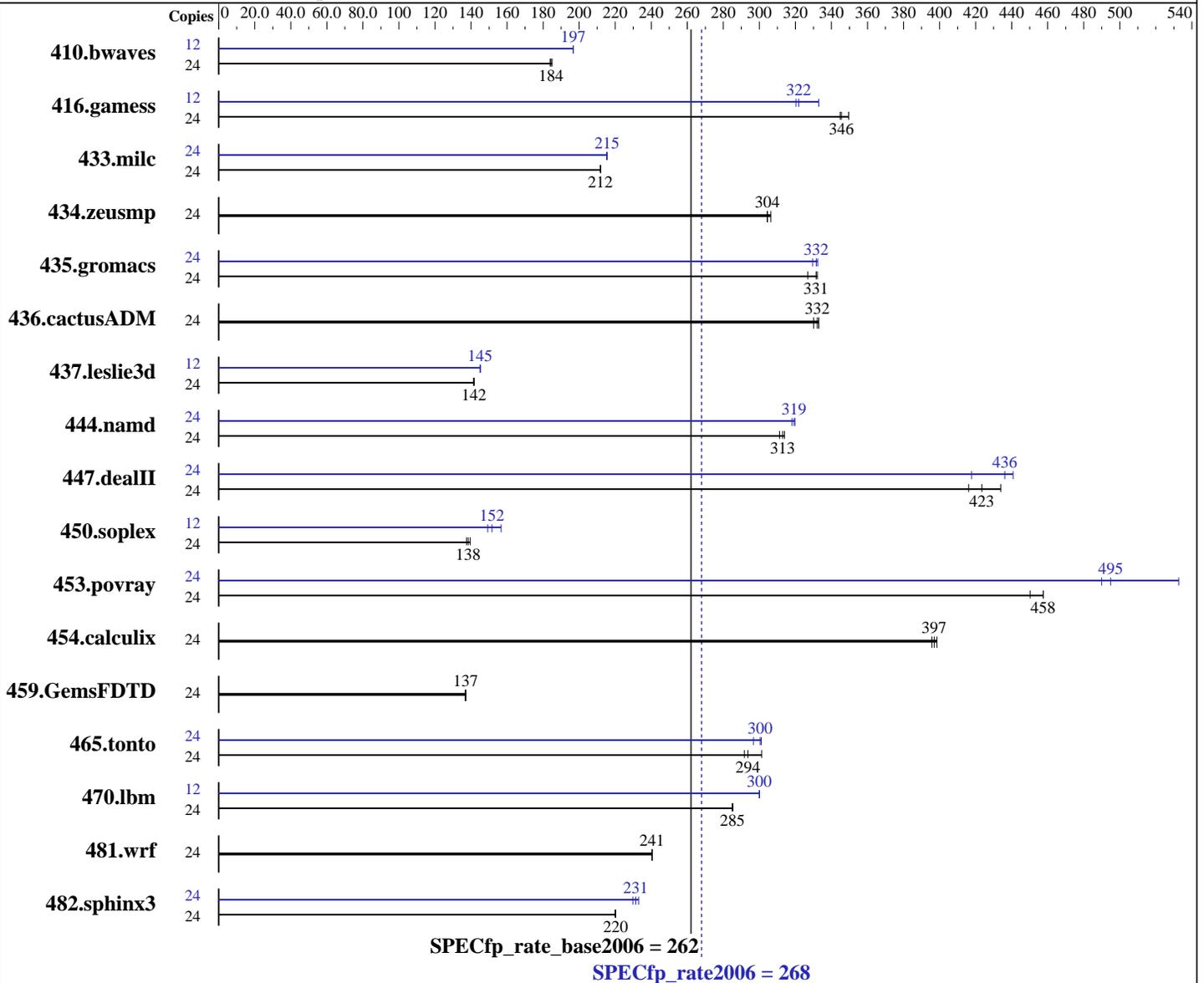
Hardware

CPU Name:	Intel Xeon X5690
CPU Characteristics:	Intel Turbo Boost Technology up to 3.73 GHz
CPU MHz:	3467
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core

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Software

Operating System:	SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default
Compiler:	Intel C++ Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116
Auto Parallel:	No
File System:	ReiserFS
System State:	Run level 3 (multi-user)

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L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	48 GB (12 x 4 GB 2Rx8 PC3L-10600E-9, ECC)
Disk Subsystem:	Seagate ST3500320AS 1 x 500 GB SATA, 7200 RPM
Other Hardware:	None
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

Results Table

	Base						Peak						
Benchmark	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	1763	185	1773	184	**1769**	**184**	12	**829**	**197**	829	197	829	197
416.gamess	24	1344	350	1363	345	**1360**	**346**	12	706	333	**730**	**322**	734	320
433.milc	24	1041	212	1039	212	**1040**	**212**	24	1022	216	**1023**	**215**	1024	215
434.zeusmp	24	717	304	713	306	**717**	**304**	24	717	304	713	306	**717**	**304**
435.gromacs	24	524	327	**517**	**331**	516	332	24	520	330	**517**	**332**	516	332
436.cactusADM	24	**864**	**332**	861	333	869	330	24	**864**	**332**	861	333	869	330
437.leslie3d	24	1591	142	1596	141	**1592**	**142**	12	778	145	**778**	**145**	776	145
444.namd	24	619	311	613	314	**615**	**313**	24	605	318	**603**	**319**	602	320
447.dealII	24	**648**	**423**	633	434	660	416	24	657	418	623	441	**629**	**436**
450.soplex	24	1434	140	1456	137	**1446**	**138**	12	639	157	**660**	**152**	670	149
453.povray	24	**279**	**458**	284	450	279	458	24	240	533	**258**	**495**	261	490
454.calculix	24	497	399	500	396	**499**	**397**	24	497	399	500	396	**499**	**397**
459.GemsFDTD	24	1862	137	1857	137	**1858**	**137**	24	1862	137	1857	137	**1858**	**137**
465.tonto	24	810	292	**804**	**294**	784	301	24	**786**	**300**	784	301	796	297
470.lbm	24	1156	285	**1157**	**285**	1157	285	12	549	300	550	300	**550**	**300**
481.wrf	24	1114	241	1115	240	**1115**	**241**	24	1114	241	1115	240	**1115**	**241**
482.sphinx3	24	2127	220	**2124**	**220**	2123	220	24	2008	233	**2022**	**231**	2036	230

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.
     numactl was used to bind copies to the cores

Operating System Notes

    'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
    'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
    echo 10800 > /proc/sys/vm/nr_hugepages
    export HUGETLB_MORECORE=yes
    export LD_PRELOAD=/usr/lib64/libhugetlbfs.so

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General Notes

Binaries compiled on RHEL5.5

Base Compiler Invocation

C benchmarks:
    icc   -m64

C++ benchmarks:
    icpc -m64

Fortran benchmarks:
    ifort -m64

Benchmarks using both Fortran and C:
    icc   -m64 ifort -m64

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:
    -xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias

C++ benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias

Fortran benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -static

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc    -m64
```

```
482.sphinx3: icc -m32
```

C++ benchmarks (except as noted below):
```
icpc   -m64
```

```
450.soplex: icpc -m32
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc    -m64 ifort -m64
```

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
         470.lbm: -DSPEC_CPU_LP64
         481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

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Peak Optimization Flags (Continued)

433.milc: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32`

470.lbm: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3`
`-ansi-alias -opt-prefetch -static -auto-ilp32`

482.sphinx3: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2`

C++ benchmarks:

444.namd: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias`
`-auto-ilp32`

447.dealII: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32`

450.soplex: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3`
`-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT`

453.povray: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias`
`-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT`

Fortran benchmarks:

410.bwaves: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -prof-use(pass 2) -static`

416.gamess: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -prof-use(pass 2) -unroll2`
`-inline-level=0 -scalar-rep- -static`

434.zeusmp: `basepeak = yes`

437.leslie3d: `-xSSE4.2 -ipo -O3 -no-prec-div`
`-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT`

459.GemsFDTD: `basepeak = yes`

465.tonto: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto`
`-inline-calloc -opt-malloc-options=3`
`-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT`

Benchmarks using both Fortran and C:

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Peak Optimization Flags (Continued)

435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch
-static -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html
http://www.spec.org/cpu2006/flags/ASUSTekPlatform.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml
http://www.spec.org/cpu2006/flags/ASUSTekPlatform.xml

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

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