SPEC® CFP2006 Result
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HITACHI

BladeSymphony BS2000 (Intel Xeon X5690)

$SPECfp®\_rate2006 =$ 266

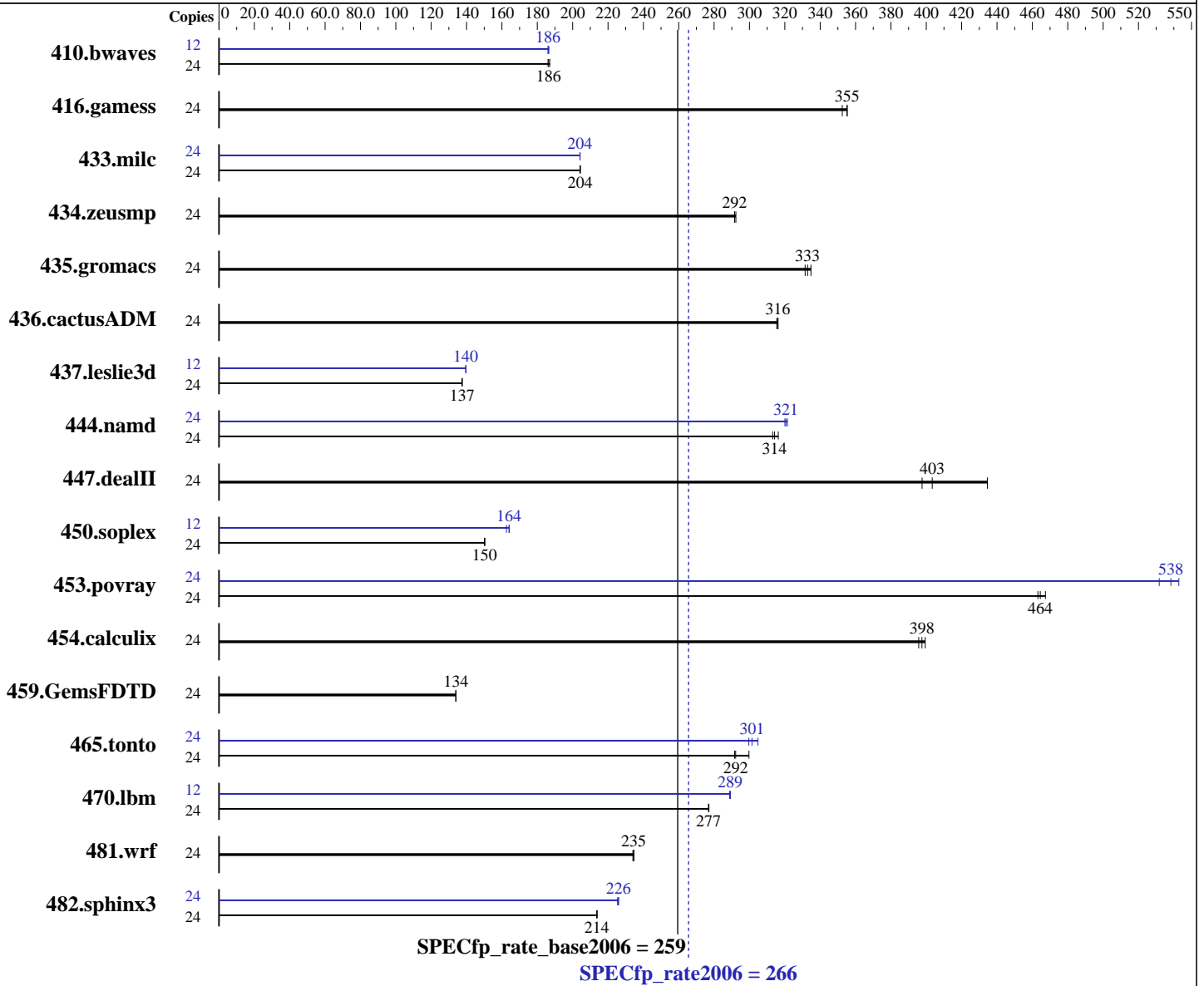$SPECfp\_rate\_base2006 =$ 259

CPU2006 license: 35
Test sponsor: HITACHI
Tested by: HITACHI

Test date: Mar-2011
Hardware Availability: Feb-2011
Software Availability: Jan-2011

	Copies	
410.bwaves	12	186
	24	186
416.gamess	24	355
433.milc	24	204
	24	204
434.zeusmp	24	292
435.gromacs	24	333
436.cactusADM	24	316
437.leslie3d	12	140
	24	137
444.namd	24	321
	24	314
447.dealII	24	403
450.soplex	12	164
	24	150
453.povray	24	538
	24	464
454.calculix	24	398
459.GemsFDTD	24	134
465.tonto	24	301
	24	292
470.lbm	12	289
	24	277
481.wrf	24	235
482.sphinx3	24	226
	24	214

SPECfp_rate_base2006 = 259
SPECfp_rate2006 = 266

Hardware

CPU Name: Intel Xeon X5690
CPU Characteristics: Intel Turbo Boost Technology up to 3.73 GHz
CPU MHz: 3466
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

Continued on next page

Software

Operating System: Red Hat Enterprise Linux
Server release 5.4.3, Advanced Platform,
Kernel 2.6.18-164.9.1.el5 on an x86_64
Compiler: Intel C++ Compiler XE for Linux
Version 12.0.2.137 Build 20110112
Intel Fortran Compiler XE for Linux
Version 12.0.2.137 Build 20110112
Auto Parallel: No
File System: ext3

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L3 Cache:	12 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	64-bit
Memory:	48 GB (6 x 8 GB 2Rx4 PC3-10600R-9, ECC, running at 1333 MHz)	Peak Pointers:	32/64-bit
		Other Software:	None
Disk Subsystem:	2 x 146 GB 10000 rpm SAS RAID1 configuration		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	1744	187	**1750**	**186**	1753	186	12	**876**	**186**	874	187	876	186
416.gamess	24	**1323**	**355**	1323	355	1333	352	24	**1323**	**355**	1323	355	1333	352
433.milc	24	1078	204	**1079**	**204**	1079	204	24	1079	204	1079	204	**1079**	**204**
434.zeusmp	24	747	292	749	292	**749**	**292**	24	747	292	749	292	**749**	**292**
435.gromacs	24	512	335	517	331	**515**	**333**	24	512	335	517	331	**515**	**333**
436.cactusADM	24	909	315	907	316	**908**	**316**	24	909	315	907	316	**908**	**316**
437.leslie3d	24	1641	138	**1641**	**137**	1641	137	12	808	140	808	140	**808**	**140**
444.namd	24	**613**	**314**	615	313	609	316	24	**600**	**321**	601	320	599	321
447.dealII	24	632	435	691	398	**681**	**403**	24	632	435	691	398	**681**	**403**
450.soplex	24	1332	150	1333	150	**1332**	**150**	12	**610**	**164**	616	163	610	164
453.povray	24	273	467	**275**	**464**	276	463	24	240	532	235	543	**237**	**538**
454.calculix	24	**498**	**398**	496	399	500	396	24	**498**	**398**	496	399	500	396
459.GemsFDTD	24	1899	134	1903	134	**1900**	**134**	24	1899	134	1903	134	**1900**	**134**
465.tonto	24	810	292	**808**	**292**	788	300	24	788	300	**784**	**301**	775	305
470.lbm	24	1190	277	1191	277	**1191**	**277**	12	570	289	**570**	**289**	571	289
481.wrf	24	**1143**	**235**	1145	234	1142	235	24	**1143**	**235**	1145	234	1142	235
482.sphinx3	24	2189	214	2187	214	**2189**	**214**	24	2075	225	**2070**	**226**	2070	226

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.
     '/usr/bin/numactl' used to bind processes to CPUs
```

Operating System Notes

```
     'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
     Large pages were disabled for this run
```

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Platform Notes

```
BIOS Settings:
Data Reuse Optimization = Disabled
```

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`

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Base Optimization Flags (Continued)

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

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`

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Peak Optimization Flags

C benchmarks:

> 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: basepeak = yes

> 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) -static(pass 2) -prof-use(pass 2)
> -unroll4 -ansi-alias

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: basepeak = yes

> 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) -static(pass 2) -prof-use(pass 2)
> -unroll4 -auto -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

> 435.gromacs: basepeak = yes

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Peak Optimization Flags (Continued)

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/PlatformHitachi.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/PlatformHitachi.xml

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

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