SPEC® CFP2006 Result
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IBM Corporation

IBM System x3850 X5 (Intel Xeon X7550)

$SPECfp®\_rate2006 = 863$

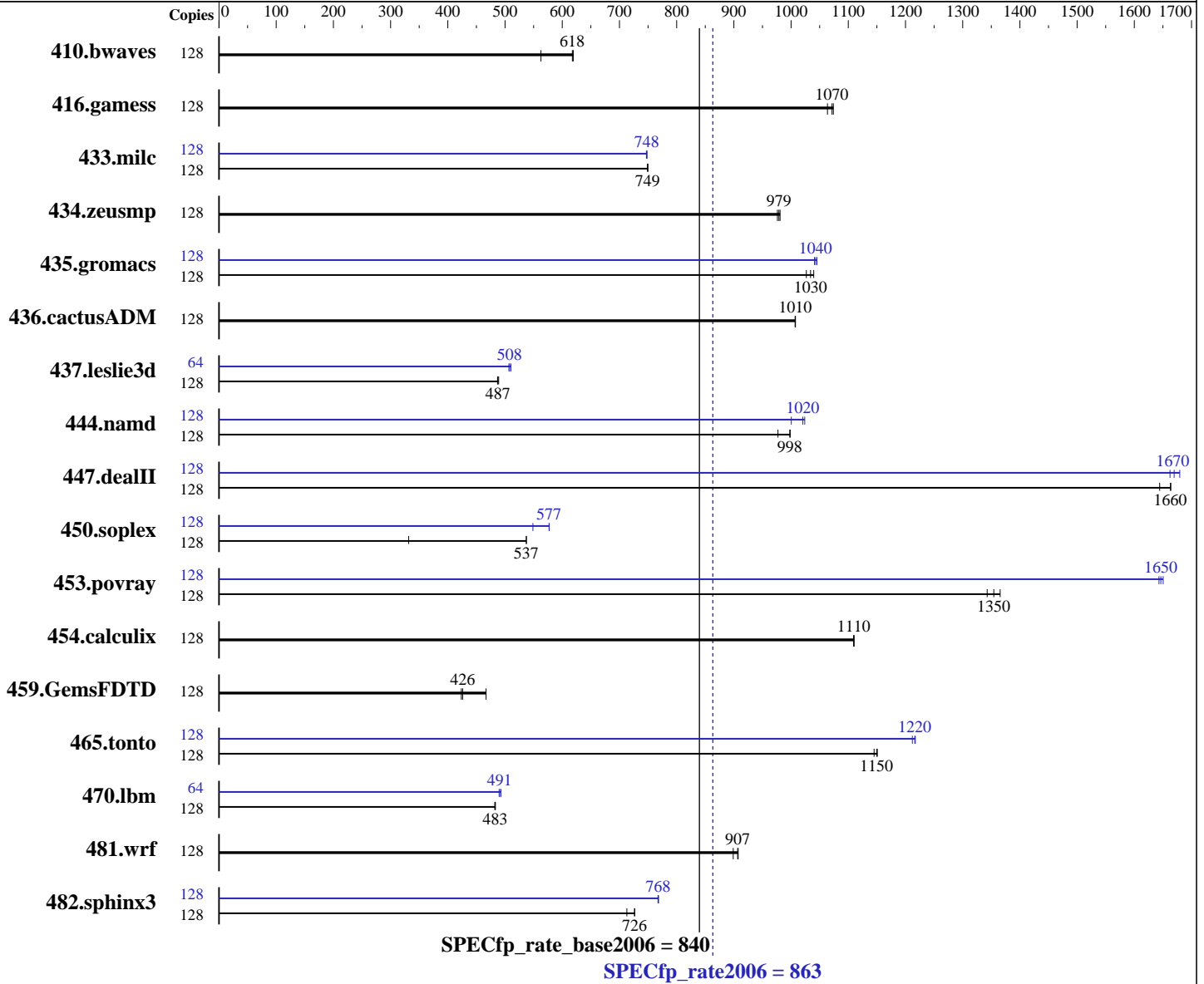$SPECfp\_rate\_base2006 = 840$

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Aug-2010

Hardware Availability: Jul-2010

Software Availability: Dec-2009

Benchmark	Copies	Result
410.bwaves	128	618
416.gamess	128	1070
433.milc	128	748
433.milc	128	749
434.zeusmp	128	979
435.gromacs	128	1040
435.gromacs	128	1030
436.cactusADM	128	1010
437.leslie3d	64	508
437.leslie3d	128	487
444.namd	128	1020
444.namd	128	998
447.dealII	128	1670
447.dealII	128	1660
450.soplex	128	577
450.soplex	128	537
453.povray	128	1650
453.povray	128	1350
454.calculix	128	1110
459.GemsFDTD	128	426
465.tonto	128	1220
465.tonto	128	1150
470.lbm	64	491
470.lbm	128	483
481.wrf	128	907
482.sphinx3	128	768
482.sphinx3	128	726

SPECfp_rate_base2006 = 840

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Hardware

CPU Name: Intel Xeon X7550

CPU Characteristics: Intel Turbo Boost Technology up to 2.40 GHz

CPU MHz: 2000

FPU: Integrated

CPU(s) enabled: 64 cores, 8 chips, 8 cores/chip, 2 threads/core

CPU(s) orderable: 1,2,4,8 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: SuSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-default

Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1
Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064

Auto Parallel: No

File System: ext3

System State: Run level 3 (multi-user)

Continued on next page

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SPECfp_rate2006 =	863
SPECfp_rate_base2006 =	840

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L3 Cache:	18 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	512 GB (128 x 4 GB PC3-8500R CL7, Quad Rank)	Other Software:	None
Disk Subsystem:	2 x 146 GB SAS, 15000 RPM, RAID 0		
Other Hardware:	None		

Results Table

Benchmark	Base Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	128	3091	563	2809	619	**2816**	**618**	128	3091	563	2809	619	**2816**	**618**
416.gamess	128	**2339**	**1070**	2356	1060	2334	1070	128	**2339**	**1070**	2356	1060	2334	1070
433.milc	128	1568	750	1568	749	**1568**	**749**	128	1573	747	1570	748	**1572**	**748**
434.zeusmp	128	1193	976	**1190**	**979**	1188	981	128	1193	976	**1190**	**979**	1188	981
435.gromacs	128	890	1030	879	1040	**884**	**1030**	128	**876**	**1040**	878	1040	874	1050
436.cactusADM	128	1519	1010	1518	1010	**1518**	**1010**	128	1519	1010	1518	1010	**1518**	**1010**
437.leslie3d	128	2471	487	2461	489	**2469**	**487**	64	1187	507	1179	510	**1184**	**508**
444.namd	128	1051	977	**1029**	**998**	1028	998	128	1026	1000	1003	1020	**1006**	**1020**
447.dealII	128	891	1640	880	1660	**880**	**1660**	128	872	1680	881	1660	**877**	**1670**
450.soplex	128	3220	332	**1987**	**537**	1987	537	128	1946	549	1849	577	**1850**	**577**
453.povray	128	**503**	**1350**	507	1340	499	1370	128	413	1650	**414**	**1650**	414	1640
454.calculix	128	**952**	**1110**	951	1110	952	1110	128	**952**	**1110**	951	1110	952	1110
459.GemsFDTD	128	2909	467	3206	424	**3188**	**426**	128	2909	467	3206	424	**3188**	**426**
465.tonto	128	**1096**	**1150**	1100	1150	1094	1150	128	1035	1220	**1036**	**1220**	1039	1210
470.lbm	128	**3644**	**483**	3648	482	3640	483	64	**1792**	**491**	1784	493	1796	490
481.wrf	128	1591	899	1575	908	**1577**	**907**	128	1591	899	1575	908	**1577**	**907**
482.sphinx3	128	3499	713	3433	727	**3435**	**726**	128	**3250**	**768**	3247	768	3250	768

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

    echo 1 > /proc/sys/vm/zone_reclaim_mode

Platform Notes

    Turbo Boost set to Traditional

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General Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502

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

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

Continued on next page

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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
```

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) `-static`(pass 2) `-prof-use`(pass 2)
> `-fno-alias -opt-prefetch`

> 470.lbm: `-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)
> `-opt-malloc-options=3 -ansi-alias -auto-ilp32`

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

C++ benchmarks:

> 444.namd: `-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)
> `-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) `-static`(pass 2) `-prof-use`(pass 2)
> `-unroll2 -ansi-alias -scalar-rep-`

> 450.soplex: `-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)
> `-opt-malloc-options=3`

> 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: `basepeak = yes`

> 416.gamess: `basepeak = yes`

> 434.zeusmp: `basepeak = yes`

> 437.leslie3d: `-xSSE4.2 -ipo -O3 -no-prec-div -static`

> 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: `-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)
> `-opt-prefetch -auto-ilp32`

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Peak Optimization Flags (Continued)

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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-ic11.1-linux64-revE.20100603.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100603.xml

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