



SPEC® CFP2006 Result

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HITACHI

SPECfp®_rate2006 = 1180

Compute Blade 2000 (Intel Xeon E7-8870)

SPECfp_rate_base2006 = 1110

CPU2006 license: 35

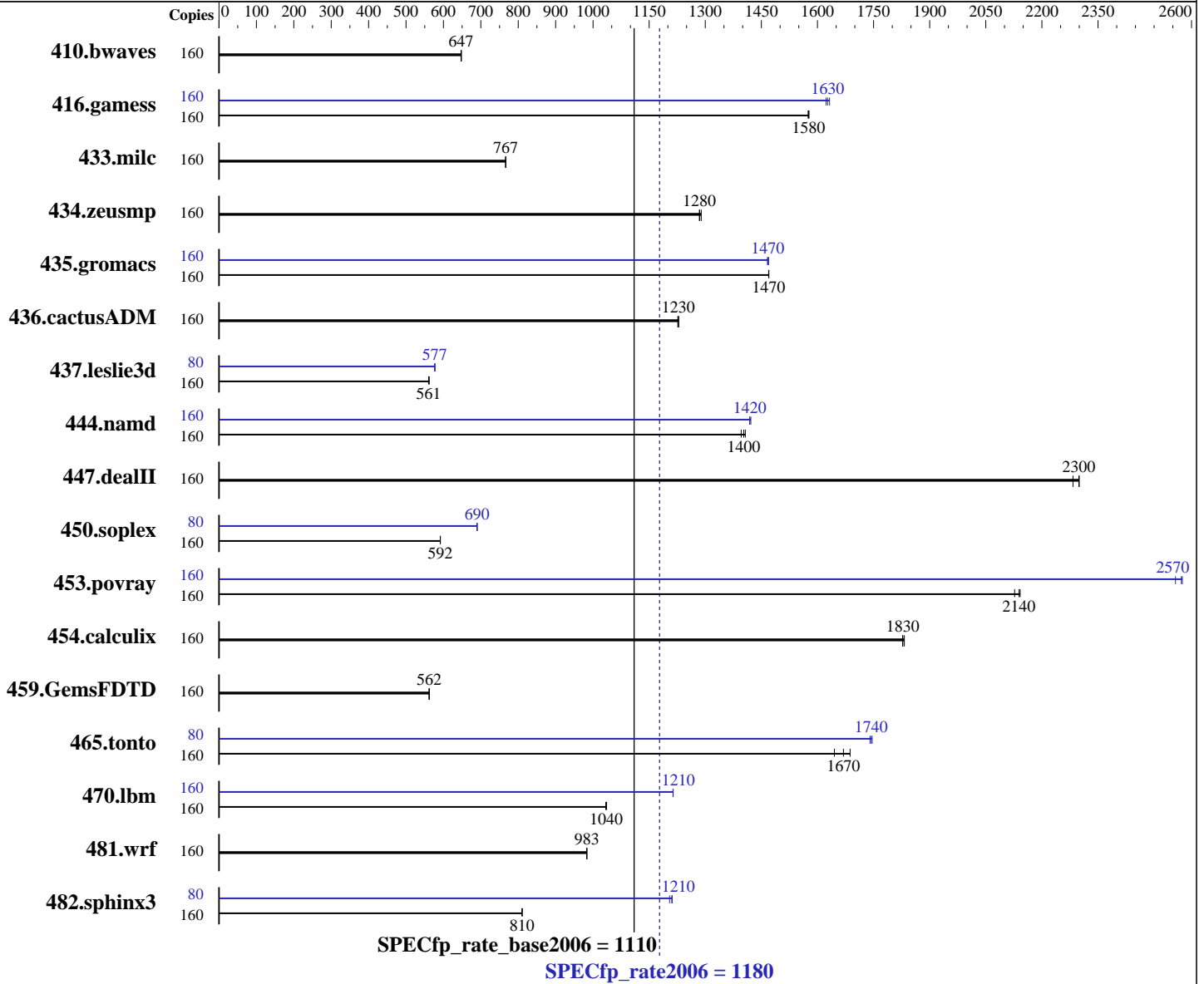
Test sponsor: HITACHI

Tested by: HITACHI

Test date: Jun-2011

Hardware Availability: Aug-2011

Software Availability: Jan-2011



Hardware

CPU Name: Intel Xeon E7-8870
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
 CPU MHz: 2400
 FPU: Integrated
 CPU(s) enabled: 80 cores, 8 chips, 10 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

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Software

Operating System: Red Hat Enterprise Linux Server release 5.6.3, Advanced Platform, Kernel 2.6.18-238.9.1.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: tmpfs

Continued on next page



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L3 Cache: 30 MB I+D on chip per chip
 Other Cache: None
 Memory: 1 TB (128 x 8 GB 2Rx4 PC3-10600R-9, ECC, running at 1066 MHz)
 Disk Subsystem: 10 x 73 GB 15000 rpm Fibre Channel RAID1+0 configuration
 Other Hardware: None

System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other Software: None

Results Table

Benchmark	Base								Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
410.bwaves	160	3359	647	3355	648	3361	647	160	3359	647	3355	648	3361	647		
416.gamess	160	1989	1570	1987	1580	1986	1580	160	1919	1630	1925	1630	1930	1620		
433.milc	160	1916	767	1917	766	1915	767	160	1916	767	1917	766	1915	767		
434.zeusmp	160	1133	1280	1129	1290	1133	1280	160	1133	1280	1129	1290	1133	1280		
435.gromacs	160	777	1470	777	1470	777	1470	160	777	1470	779	1470	779	1470		
436.cactusADM	160	1556	1230	1556	1230	1559	1230	160	1556	1230	1556	1230	1559	1230		
437.leslie3d	160	2682	561	2684	560	2676	562	80	1304	577	1304	576	1302	578		
444.namd	160	912	1410	915	1400	919	1400	160	905	1420	902	1420	904	1420		
447.dealII	160	796	2300	796	2300	802	2280	160	796	2300	796	2300	802	2280		
450.soplex	160	2255	592	2255	592	2256	592	80	967	690	967	690	966	690		
453.povray	160	400	2130	397	2140	398	2140	160	331	2570	333	2560	331	2580		
454.calculix	160	722	1830	722	1830	720	1830	160	722	1830	722	1830	720	1830		
459.GemsFDTD	160	3022	562	3019	562	3022	562	160	3022	562	3019	562	3022	562		
465.tonto	160	957	1650	933	1690	943	1670	80	451	1750	451	1740	452	1740		
470.lbm	160	2126	1030	2122	1040	2123	1040	160	1811	1210	1811	1210	1811	1210		
481.wrf	160	1818	983	1818	983	1817	984	160	1818	983	1818	983	1817	984		
482.sphinx3	160	3849	810	3847	811	3849	810	80	1294	1200	1287	1210	1288	1210		

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
 Hugepages was not enabled for this run
 Tmpfs filesystem was used with:
 mkdir -p /mnt/shm
 mount -t tmpfs -o size=500g,rw,mpol=interleave tmpfs /mnt/shm/



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Platform Notes

BIOS Settings:
Adjacent Cache Line Prefetch = enabled

General Notes

Binaries compiled on RHEL5.4.3
HITACHI BladeSymphony BS2000 and
HITACHI Compute Blade 2000 are electronically equivalent.
The results have been measured on a HITACHI BladeSymphony BS2000.

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



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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`

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`

Continued on next page



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Peak Portability Flags (Continued)

470.lbm: -DSPEC_CPU_LP64

481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

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) -prof-use(pass 2) -unroll4 -ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

410.bwaves: basepeak = yes

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

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Peak Optimization Flags (Continued)

465.tonto (continued):

`-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT`

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) -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/PlatformHitachi.20110720.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.20110720.xml>

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

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