



SPEC® CFP2006 Result

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Hewlett-Packard Company

SPECfp®_rate2006 = 565

ProLiant DL580 G7
(2.13 GHz, Intel Xeon E7-4830)

SPECfp_rate_base2006 = 541

CPU2006 license: 3

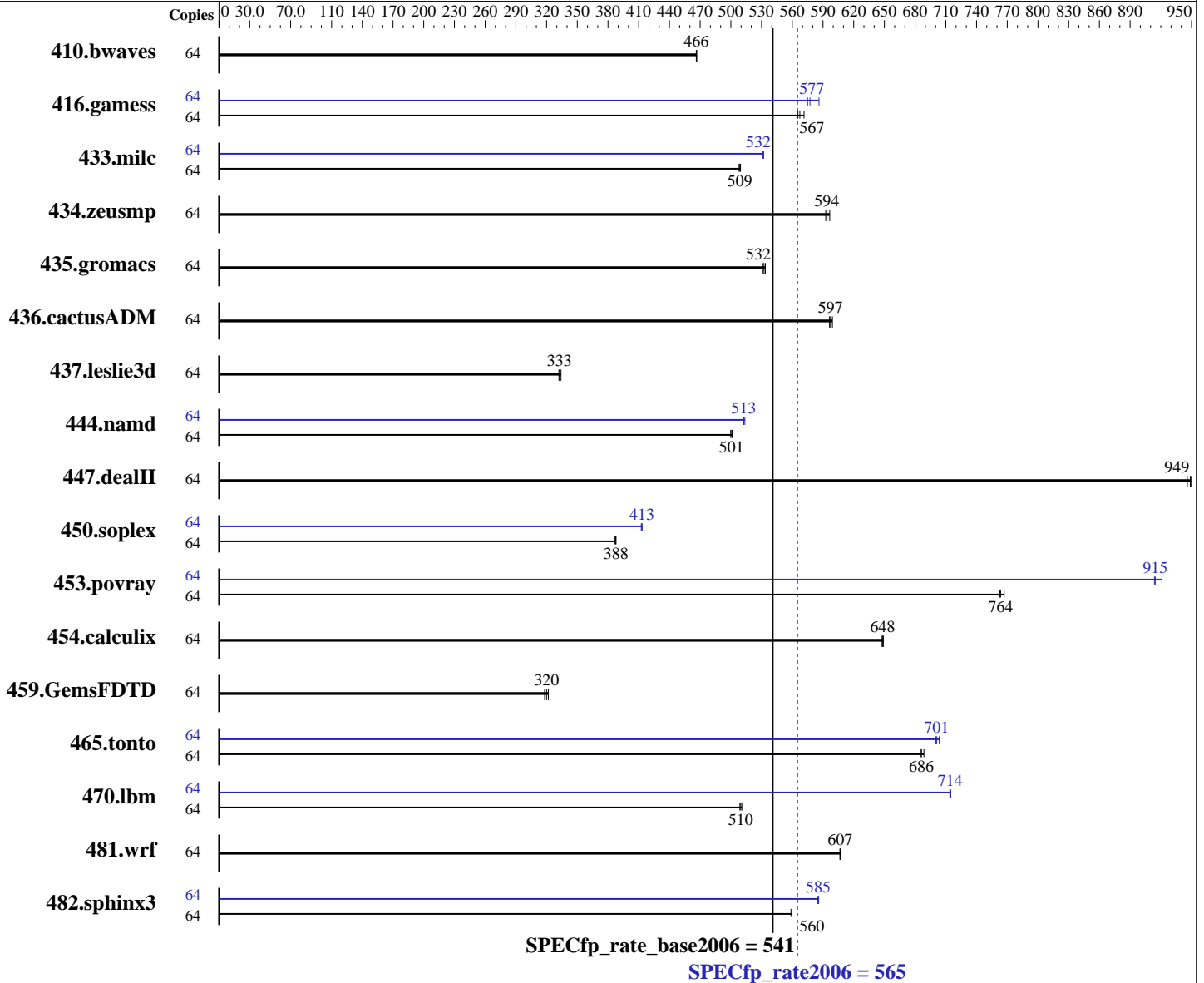
Test date: Jul-2011

Test sponsor: Hewlett-Packard Company

Hardware Availability: Apr-2011

Tested by: Hewlett-Packard Company

Software Availability: Dec-2010



Hardware

CPU Name: Intel Xeon E7-4830
 CPU Characteristics: Intel Turbo Boost Technology up to 2.40 GHz
 CPU MHz: 2133
 FPU: Integrated
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 2 threads/core
 CPU(s) orderable: 2,4 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 6.1, Kernel 2.6.32-131.0.15.el6.x86_64
 Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116
 Auto Parallel: No
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit

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L3 Cache: 24 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (64 x 4 GB 2Rx4 PC3-10600R-9, ECC, running at 1067 MHz)
Disk Subsystem: 1 x 146 GB 15 K SAS
Other Hardware: None

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	64	1866	466	1865	466	1864	467	64	1866	466	1865	466	1864	467
416.gamess	64	2209	567	2216	566	2193	571	64	2179	575	2171	577	2138	586
433.milc	64	1155	509	1156	508	1153	509	64	1105	532	1105	532	1105	531
434.zeusmp	64	983	593	976	597	981	594	64	983	593	976	597	981	594
435.gromacs	64	858	532	856	534	860	532	64	858	532	856	534	860	532
436.cactusADM	64	1282	596	1276	599	1280	597	64	1282	596	1276	599	1280	597
437.leslie3d	64	1808	333	1801	334	1812	332	64	1808	333	1801	334	1812	332
444.namd	64	1024	501	1027	500	1025	501	64	1001	513	1002	512	999	514
447.dealII	64	771	949	774	946	772	949	64	771	949	774	946	772	949
450.soplex	64	1376	388	1377	388	1380	387	64	1291	413	1292	413	1294	412
453.povray	64	444	767	446	763	446	764	64	373	914	372	915	370	921
454.calculix	64	815	648	815	648	814	649	64	815	648	815	648	814	649
459.GemsFDTD	64	2122	320	2135	318	2111	322	64	2122	320	2135	318	2111	322
465.tonto	64	915	689	918	686	919	685	64	898	701	895	704	899	700
470.lbm	64	1728	509	1722	511	1725	510	64	1231	714	1232	714	1230	715
481.wrf	64	1178	607	1177	608	1179	607	64	1178	607	1177	608	1179	607
482.sphinx3	64	2229	560	2233	559	2229	560	64	2132	585	2129	586	2131	585

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

```
'nodev /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
echo 28800 > /proc/sys/vm/nr_hugepages
echo never > /sys/kernel/mm/redhat_transparent_hugepage/enabled
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```



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Platform Notes

BIOS configuration:
Power Profile set to Maximum Performance
Thermal Configuration set to Increased Cooling

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



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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`

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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: -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.dealIII: 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: basepeak = yes

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: basepeak = yes

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/HP-Intel-Linux-Settings-flags.20110316.html>

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110316.xml>

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>

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

Tested with SPEC CPU2006 v1.1.
Report generated on Thu Jul 24 00:24:37 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 2 August 2011.