



SPEC[®] CFP2006 Result

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Hewlett-Packard Company

SPECfp[®]_rate2006 = 1430

ProLiant DL980 G7 (2.4 GHz, Intel Xeon E7-4870)

SPECfp_rate_base2006 = 1380

CPU2006 license: 3

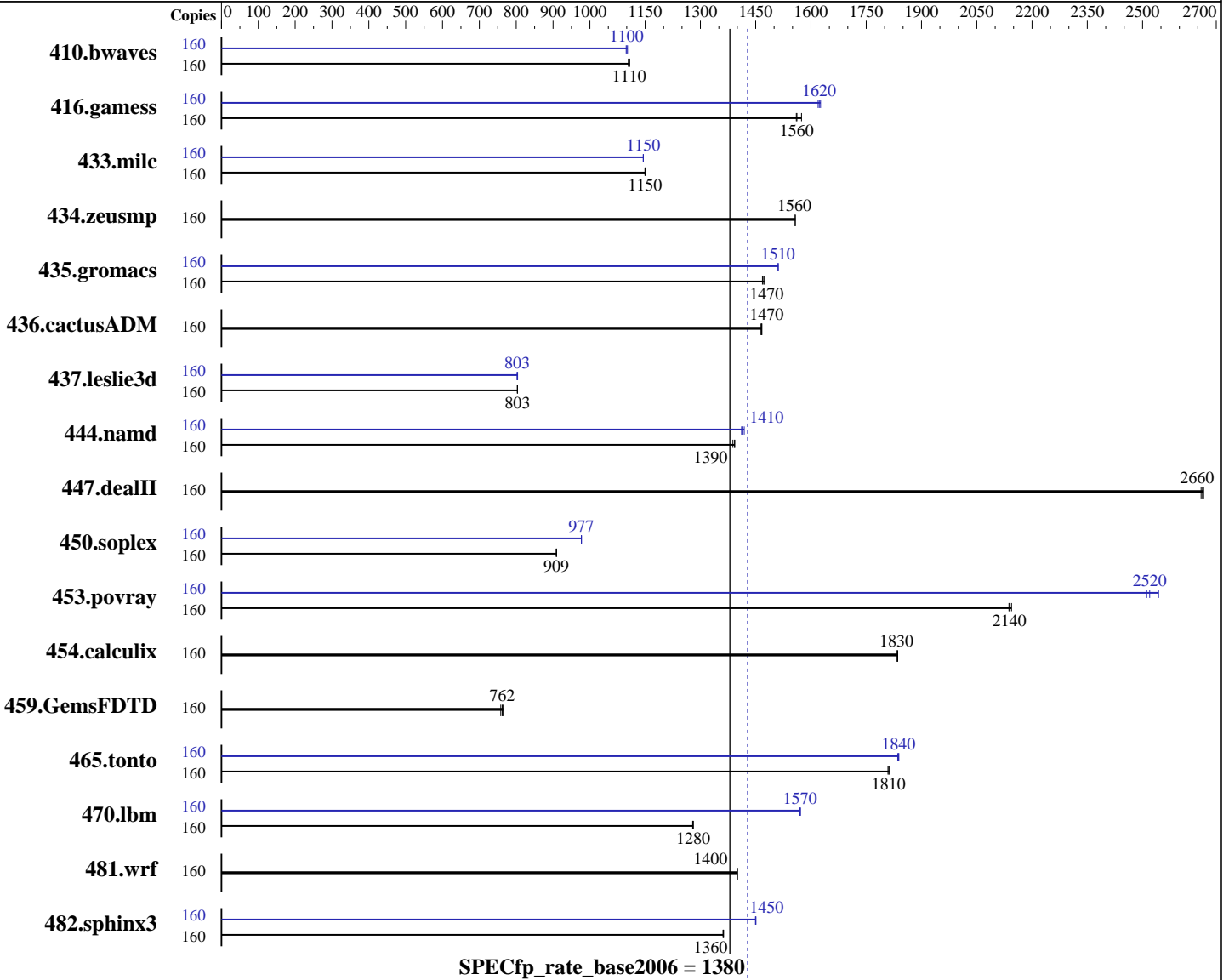
Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Sep-2011

Hardware Availability: Aug-2011

Software Availability: Jul-2011



Hardware

CPU Name: Intel Xeon E7-4870
 CPU Characteristics: Intel Turbo Boost Technology up to 2.8 GHz
 CPU MHz: 2400
 FPU: Integrated
 CPU(s) enabled: 80 cores, 8 chips, 10 cores/chip, 2 threads/core
 CPU(s) orderable: 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: SUSE Linux Enterprise Server 11 (x86_64) SP1, Kernel 2.6.32.12-0.7-default
 Compiler: C/C++: Version 12.0.5 of Intel C++ Composer XE 2011 for Linux Build 20110719; Fortran: Version 12.0.5 of Intel Fortran Composer XE 2011 for Linux Build 20110719
 Auto Parallel: No
 File System: tmpfs
 System State: Run level 3 (multi-user)

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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 PC3L-10600R-9, ECC, running at 1066 MHz)
 Disk Subsystem: 1 x 120 GB SATA SSD
 Other Hardware: 512 MB FBWC Module for P410i SmartArray

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	1963	1110	1969	1100	1965	1110	160	1977	1100	1973	1100	1980	1100
416.gamess	160	2006	1560	1990	1570	2008	1560	160	1931	1620	1934	1620	1927	1630
433.milc	160	1278	1150	1278	1150	1277	1150	160	1283	1150	1283	1150	1283	1140
434.zeusmp	160	935	1560	937	1550	936	1560	160	935	1560	937	1550	936	1560
435.gromacs	160	776	1470	778	1470	775	1470	160	756	1510	757	1510	756	1510
436.cactusADM	160	1303	1470	1304	1470	1306	1460	160	1303	1470	1304	1470	1306	1460
437.leslie3d	160	1873	803	1872	803	1872	803	160	1871	804	1874	803	1874	803
444.namd	160	921	1390	924	1390	921	1390	160	909	1410	909	1410	904	1420
447.dealII	160	687	2660	687	2670	688	2660	160	687	2660	687	2670	688	2660
450.soplex	160	1468	909	1468	909	1467	909	160	1366	977	1366	977	1366	977
453.povray	160	398	2140	397	2140	398	2140	160	335	2540	339	2510	338	2520
454.calculix	160	720	1830	719	1840	721	1830	160	720	1830	719	1840	721	1830
459.GemsFDTD	160	2220	765	2239	758	2228	762	160	2220	765	2239	758	2228	762
465.tonto	160	868	1810	869	1810	870	1810	160	856	1840	857	1840	858	1840
470.lbm	160	1717	1280	1719	1280	1717	1280	160	1399	1570	1400	1570	1399	1570
481.wrf	160	1276	1400	1277	1400	1277	1400	160	1276	1400	1277	1400	1277	1400
482.sphinx3	160	2291	1360	2289	1360	2288	1360	160	2150	1450	2150	1450	2151	1450

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

I/O scheduler for the device holding the filesystem set to "noop"
 SPEC files placed in /dev/shm/cpu2006 with /dev/shm
 mounted as tmpfs with mpol=interleave, size=500G
 'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
 Hugepages were not configured on the system



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Platform Notes

BIOS Settings:

Power Regulator set to HP Static High Performance Mode

Sysinfo program /dev/shm/cpu2006/Docs/sysinfo

\$Rev: 6775 \$ \$Date:: 2011-08-16 # \$ 8787f7622badcf24e01c368b1db4377c

running on s9 Fri Sep 9 19:19:07 2011

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

From /proc/cpuinfo

model name : Intel(R) Xeon(R) CPU E7- 4870 @ 2.40GHz

8 "physical id"s (chips)

160 "processors"

cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

cpu cores : 10

siblings : 20

physical 0: cores 0 1 2 3 4 5 6 7 8 9

physical 1: cores 0 1 2 3 4 5 6 7 8 9

physical 2: cores 0 1 2 3 4 5 6 7 8 9

physical 3: cores 0 1 2 3 4 5 6 7 8 9

physical 4: cores 0 1 2 3 4 5 6 7 8 9

physical 5: cores 0 1 2 3 4 5 6 7 8 9

physical 6: cores 0 1 2 3 4 5 6 7 8 9

physical 7: cores 0 1 2 3 4 5 6 7 8 9

cache size : 30720 KB

From /proc/meminfo

MemTotal: 1040205340 kB

HugePages_Total: 0

Hugepagesize: 2048 kB

/usr/bin/lsc_release -d

SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release* /etc/*version*

SuSE-release:

SUSE Linux Enterprise Server 11 (x86_64)

VERSION = 11

PATCHLEVEL = 1

uname -a:

Linux s9 2.6.32.12-0.7-default #1 SMP 2010-05-20 11:14:20 +0200 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Sep 9 00:49 last=S

SPEC is set to: /dev/shm/cpu2006

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
tmpfs	tmpfs	497G	138G	359G	28%	/dev/shm

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Platform Notes (Continued)

(End of data from sysinfo program)

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) -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.20111012.html>

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

<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-platform-flags.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.20111012.xml>

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

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

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