



SPEC® CFP2006 Result

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Hewlett-Packard Company

SPECfp®_rate2006 = 736

ProLiant DL580 G7
(2.40 GHz, Intel Xeon E7-4870)

SPECfp_rate_base2006 = 720

CPU2006 license: 3

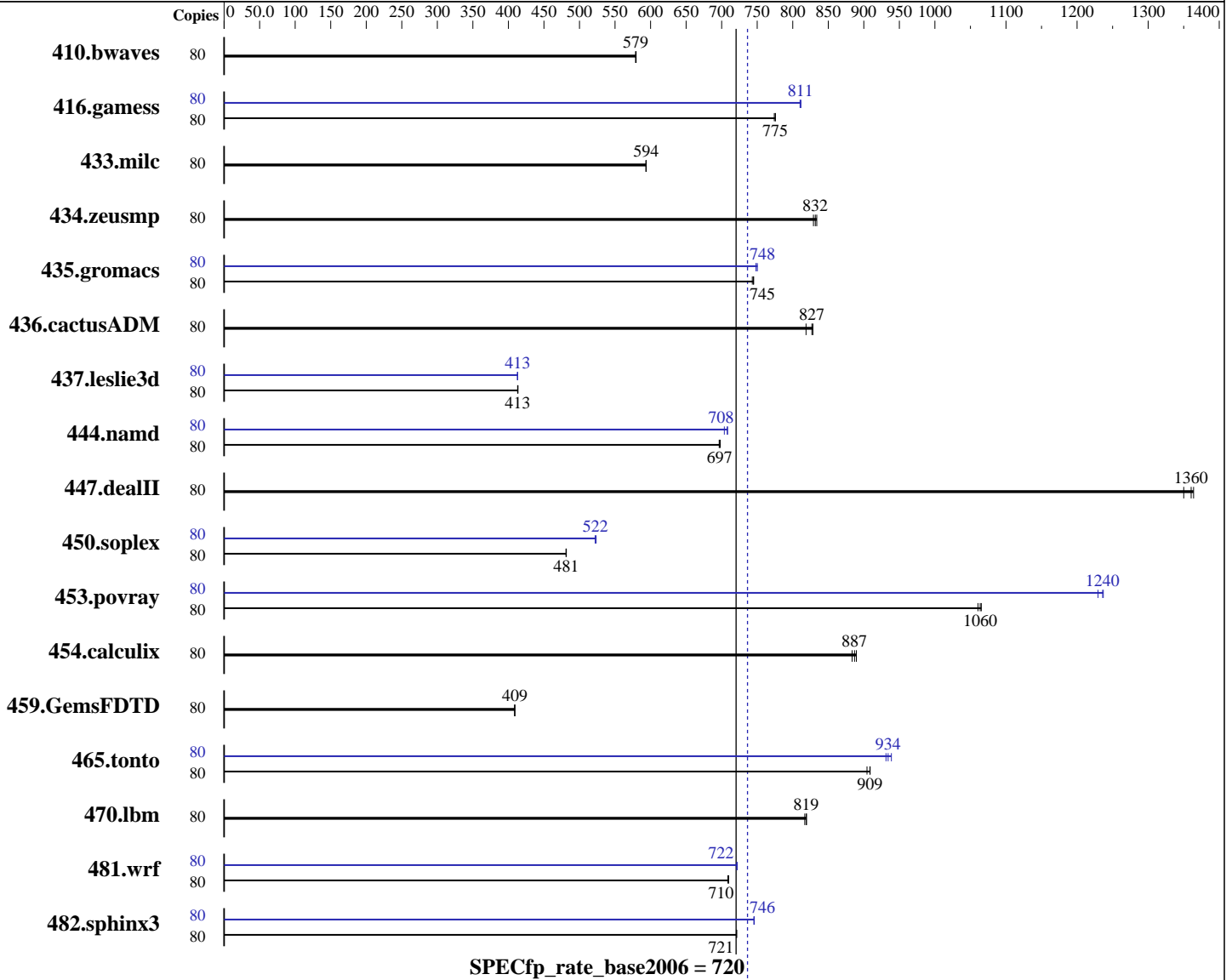
Test date: Oct-2011

Test sponsor: Hewlett-Packard Company

Hardware Availability: Apr-2011

Tested by: Hewlett-Packard Company

Software Availability: Aug-2011



Hardware

CPU Name: Intel Xeon E7-4870
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
 CPU MHz: 2400
 FPU: Integrated
 CPU(s) enabled: 40 cores, 4 chips, 10 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: C/C++/Fortran: Version 12.1.0.225 of
Intel Compiler XE
Build 20110803
 Auto Parallel: No
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 32/64-bit

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L3 Cache: 30 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (64 x 4 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: 2 x 146 GB 10 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	80	1876	580	<u>1877</u>	<u>579</u>	1878	579	80	1876	580	<u>1877</u>	<u>579</u>	1878	579
416.gamess	80	<u>2020</u>	<u>775</u>	2020	776	2024	774	80	1933	810	1930	811	<u>1932</u>	<u>811</u>
433.milc	80	1237	594	1238	593	<u>1237</u>	<u>594</u>	80	1237	594	1238	593	<u>1237</u>	<u>594</u>
434.zeusmp	80	873	834	<u>875</u>	<u>832</u>	878	829	80	873	834	<u>875</u>	<u>832</u>	878	829
435.gromacs	80	<u>767</u>	<u>745</u>	767	745	769	743	80	<u>763</u>	<u>748</u>	763	748	761	750
436.cactusADM	80	1154	828	<u>1156</u>	<u>827</u>	1168	819	80	1154	828	<u>1156</u>	<u>827</u>	1168	819
437.leslie3d	80	1821	413	1819	413	<u>1820</u>	<u>413</u>	80	1823	413	<u>1821</u>	<u>413</u>	1821	413
444.namd	80	919	698	<u>920</u>	<u>697</u>	921	697	80	<u>906</u>	<u>708</u>	906	708	912	704
447.dealII	80	<u>673</u>	<u>1360</u>	678	1350	671	1360	80	<u>673</u>	<u>1360</u>	678	1350	671	1360
450.soplex	80	1386	481	1387	481	<u>1386</u>	<u>481</u>	80	1275	523	<u>1277</u>	<u>522</u>	1278	522
453.povray	80	401	1060	400	1070	<u>400</u>	<u>1060</u>	80	346	1230	<u>344</u>	<u>1240</u>	344	1240
454.calculix	80	<u>744</u>	<u>887</u>	742	890	747	884	80	<u>744</u>	<u>887</u>	742	890	747	884
459.GemsFDTD	80	<u>2075</u>	<u>409</u>	2076	409	2075	409	80	<u>2075</u>	<u>409</u>	2076	409	2075	409
465.tonto	80	866	909	<u>866</u>	<u>909</u>	870	904	80	<u>843</u>	<u>934</u>	839	939	845	931
470.lbm	80	<u>1342</u>	<u>819</u>	1342	819	1346	817	80	<u>1342</u>	<u>819</u>	1342	819	1346	817
481.wrf	80	<u>1259</u>	<u>710</u>	1261	709	1259	710	80	1238	722	1239	721	<u>1238</u>	<u>722</u>
482.sphinx3	80	2162	721	<u>2163</u>	<u>721</u>	2164	721	80	2091	746	<u>2091</u>	<u>746</u>	2091	746

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

Platform Notes

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



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General Notes

Environment variables set by runspec before the start of the run:

LD_LIBRARY_PATH = "/cpu2006/smartheap:/cpu2006/ic12.1-libs/ia32:/cpu2006/ic12.1-libs/intel64"

Stack size set to unlimited using "ulimit -s unlimited"

Transparent Huge Pages disabled with:

echo never > /sys/kernel/mm/redhat_transparent_hugepage/enabled

runspec command invoked through numactl i.e.:

numactl --interleave=all runspec <etc>

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.deallI: -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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

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.deallI: -DSPEC_CPU_LP64

453.povray: -DSPEC_CPU_LP64

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Peak Portability Flags (Continued)

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

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes
 470.lbm: basepeak = yes
 482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
 -unroll2

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -opt-mem-layout-trans=3(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) -opt-mem-layout-trans=3(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) -opt-mem-layout-trans=3(pass 2)
 -prof-use(pass 2) -unroll4 -ansi-alias

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 -static -opt-prefetch
 459.GemsFDTD: basepeak = yes

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Peak Optimization Flags (Continued)

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

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) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -opt-prefetch -static -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

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-ic12.1-linux64.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-ic12.1-linux64.xml>

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

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