



SPEC® CFP2006 Result

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Hewlett-Packard Company

SPECfp®_rate2006 = 244

ProLiant DL180 G6
(2.93 GHz, Intel Xeon X5670)

SPECfp_rate_base2006 = 236

CPU2006 license: 3

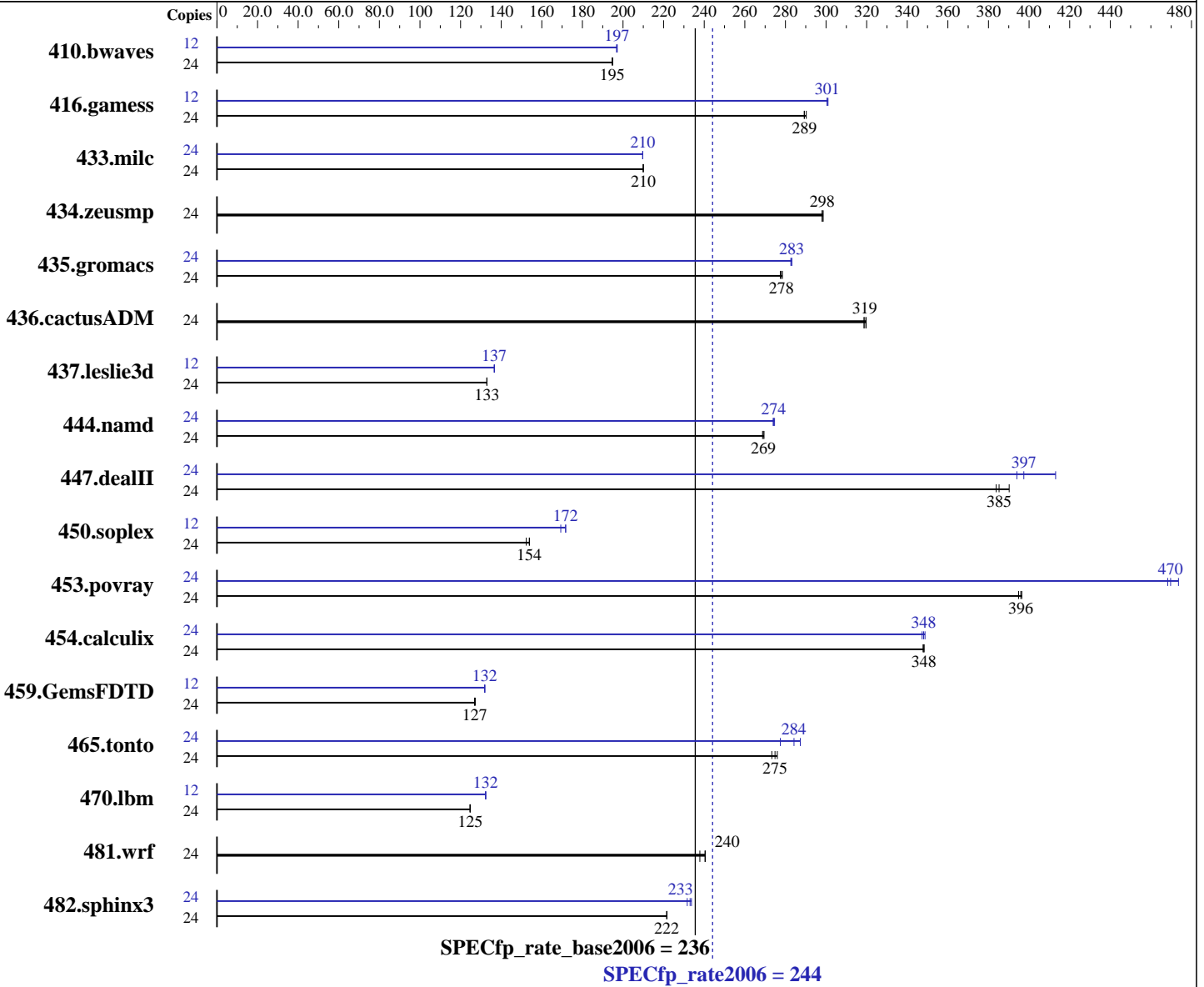
Test date: Mar-2010

Test sponsor: Hewlett-Packard Company

Hardware Availability: Mar-2010

Tested by: Hewlett-Packard Company

Software Availability: Sep-2009



Hardware

CPU Name: Intel Xeon X5670
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz
 CPU MHz: 2933
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 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 5.4
 Kernel 2.6.18-164.el5
 Compiler: Intel C++ and Fortran Compiler 11.1 for Linux
 Build 20090827 Package ID: l_cproc_p_11.1.056,
 l_cprof_p_11.1.056
 Auto Parallel: No
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12x4 GB PC3-10600R CL9)
Disk Subsystem: 2 x 146 GB 10 K SAS
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.17.50.0.18

Results Table

Benchmark	Base								Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
410.bwaves	24	1673	195	<u>1675</u>	<u>195</u>	1676	195	12	829	197	827	197	<u>828</u>	<u>197</u>		
416.gamess	24	1624	289	1619	290	<u>1624</u>	<u>289</u>	12	781	301	782	300	<u>782</u>	<u>301</u>		
433.milc	24	<u>1049</u>	<u>210</u>	1049	210	1049	210	24	1051	210	<u>1051</u>	<u>210</u>	1050	210		
434.zeusmp	24	733	298	731	299	<u>733</u>	<u>298</u>	24	733	298	731	299	<u>733</u>	<u>298</u>		
435.gromacs	24	615	279	618	277	<u>616</u>	<u>278</u>	24	606	283	<u>605</u>	<u>283</u>	605	283		
436.cactusADM	24	897	320	900	319	<u>899</u>	<u>319</u>	24	897	320	900	319	<u>899</u>	<u>319</u>		
437.leslie3d	24	<u>1696</u>	<u>133</u>	1697	133	1696	133	12	826	137	825	137	<u>826</u>	<u>137</u>		
444.namd	24	716	269	<u>715</u>	<u>269</u>	714	269	24	703	274	<u>702</u>	<u>274</u>	701	275		
447.dealII	24	704	390	<u>713</u>	<u>385</u>	715	384	24	<u>691</u>	<u>397</u>	665	413	697	394		
450.soplex	24	1314	152	<u>1301</u>	<u>154</u>	1300	154	12	591	169	583	172	<u>583</u>	<u>172</u>		
453.povray	24	323	395	<u>322</u>	<u>396</u>	322	396	24	<u>272</u>	<u>470</u>	273	468	270	474		
454.calculix	24	568	348	569	348	<u>569</u>	<u>348</u>	24	568	349	<u>569</u>	<u>348</u>	570	347		
459.GemsFDTD	24	2001	127	2006	127	<u>2006</u>	<u>127</u>	12	<u>965</u>	<u>132</u>	966	132	965	132		
465.tonto	24	856	276	<u>859</u>	<u>275</u>	864	273	24	<u>831</u>	<u>284</u>	822	287	851	277		
470.lbm	24	2642	125	<u>2644</u>	<u>125</u>	2647	125	12	1246	132	<u>1246</u>	<u>132</u>	1245	132		
481.wrf	24	<u>1115</u>	<u>240</u>	1114	241	1127	238	24	<u>1115</u>	<u>240</u>	1114	241	1127	238		
482.sphinx3	24	2110	222	2112	222	<u>2111</u>	<u>222</u>	24	2019	232	<u>2007</u>	<u>233</u>	2001	234		

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

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

Platform Notes

BIOS configuration:
Power Efficiency set to Performance
Data Reuse set to Disabled
Memory Speed with 2DPC set to 1333MHz@1.5V

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Platform Notes (Continued)

SATA#1 Controller set to Compatible

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

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

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

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

`-xSSE4.2 -ipo -O3 -no-prec-div -static`

Peak Compiler Invocation

C benchmarks (except as noted below):

`icc`

`482.sphinx3: icc -m32`

C++ benchmarks (except as noted below):

`icpc`

`450.soplex: /opt/intel/Compiler/11.1/056/bin/intel64/icpc -m32`

Fortran benchmarks (except as noted below):

`ifort`

`437.leslie3d: ifort -m32`

Benchmarks using both Fortran and C:

`icc ifort`

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`
 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`

Peak Optimization Flags

C benchmarks:

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Peak Optimization Flags (Continued)

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

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

416.gamess: -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 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: -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 -opt-prefetch

459.GemsFDTD: -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 -Ob0 -opt-prefetch

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

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Peak Optimization Flags (Continued)

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

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

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.20100511.00.html>
<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20100202.00.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.20100511.00.xml>
<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20100202.00.xml>

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

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