



SPEC® CFP2006 Result

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Hewlett-Packard Company

SPECfp®_rate2006 = 198

ProLiant BL490c G6
(2.93 GHz, Intel Xeon X5570)

SPECfp_rate_base2006 = 191

CPU2006 license: 3

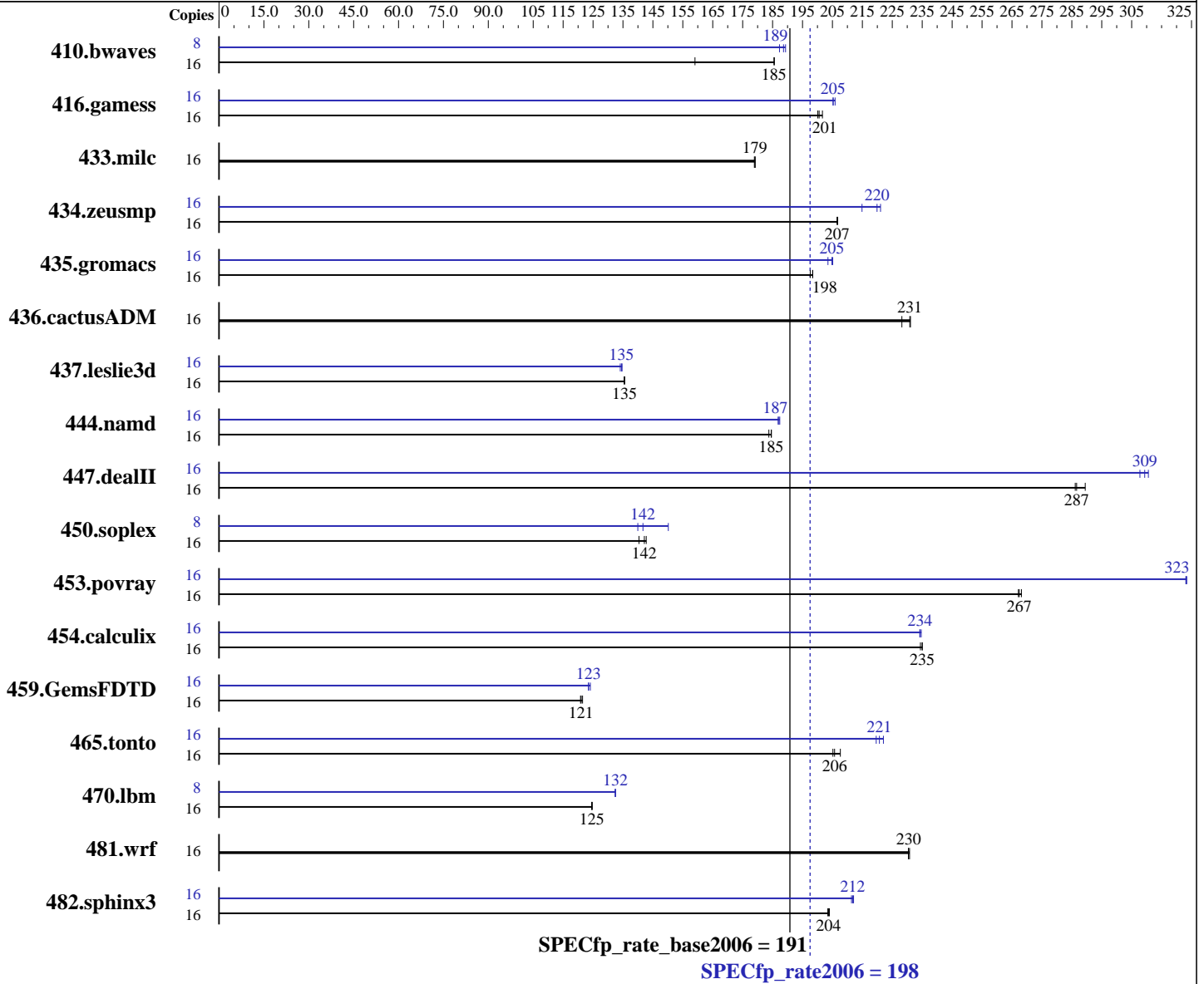
Test date: Mar-2009

Test sponsor: Hewlett-Packard Company

Hardware Availability: May-2009

Tested by: Hewlett-Packard Company

Software Availability: Feb-2009



Hardware

CPU Name: Intel Xeon X5570
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz
 CPU MHz: 2933
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 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 5.3
 Kernel 2.6.18-128.el5
 Compiler: Intel C++ and Fortran Compiler 11.0 for Linux
 Build 20090131 Package ID: I_cproc_p_11.0.080,
 I_cprof_p_11.0.080
 Auto Parallel: No
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 24 GB (6x4 GB DDR3-10600R CL9)
Disk Subsystem: 2x32 GB SSD SATA
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	1367	159	1171	186	<u>1173</u>	<u>185</u>	8	<u>576</u>	<u>189</u>	574	189	580	187
416.gamess	16	1565	200	1554	202	<u>1562</u>	<u>201</u>	16	1527	205	1522	206	<u>1526</u>	<u>205</u>
433.milc	16	821	179	<u>820</u>	<u>179</u>	820	179	16	821	179	<u>820</u>	<u>179</u>	820	179
434.zeusmp	16	704	207	<u>705</u>	<u>207</u>	705	207	16	659	221	<u>662</u>	<u>220</u>	678	215
435.gromacs	16	578	198	<u>576</u>	<u>198</u>	576	198	16	<u>558</u>	<u>205</u>	557	205	561	204
436.cactusADM	16	<u>828</u>	<u>231</u>	838	228	827	231	16	<u>828</u>	<u>231</u>	838	228	827	231
437.leslie3d	16	<u>1110</u>	<u>135</u>	1111	135	1110	136	16	1117	135	1122	134	<u>1118</u>	<u>135</u>
444.namd	16	695	185	<u>695</u>	<u>185</u>	698	184	16	687	187	685	187	<u>686</u>	<u>187</u>
447.dealII	16	<u>639</u>	<u>287</u>	632	289	640	286	16	595	308	589	311	<u>592</u>	<u>309</u>
450.soplex	16	951	140	<u>939</u>	<u>142</u>	935	143	8	477	140	<u>471</u>	<u>142</u>	444	150
453.povray	16	317	268	319	267	<u>318</u>	<u>267</u>	16	263	323	<u>263</u>	<u>323</u>	263	323
454.calculix	16	<u>562</u>	<u>235</u>	563	234	562	235	16	562	235	564	234	<u>563</u>	<u>234</u>
459.GemsFDTD	16	<u>1403</u>	<u>121</u>	1397	121	1405	121	16	<u>1375</u>	<u>123</u>	1375	123	1368	124
465.tonto	16	<u>765</u>	<u>206</u>	758	208	767	205	16	717	220	<u>713</u>	<u>221</u>	709	222
470.lbm	16	1763	125	<u>1764</u>	<u>125</u>	1765	125	8	830	132	<u>830</u>	<u>132</u>	829	133
481.wrf	16	774	231	<u>776</u>	<u>230</u>	776	230	16	774	231	<u>776</u>	<u>230</u>	776	230
482.sphinx3	16	1533	203	1529	204	<u>1531</u>	<u>204</u>	16	<u>1473</u>	<u>212</u>	1475	211	1471	212

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:
HP Power Profile set to Maximum Performance
HP Power Regulator set to HP Static High Performance Mode
Thermal Configuration set to Increased Cooling



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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

Benchmarks using both Fortran and C:

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



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Peak Compiler Invocation

C benchmarks (except as noted below):

icc

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc

450.soplex: 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.deallI: -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:

433.milc: basepeak = yes

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

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Peak Optimization Flags (Continued)

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.dealIII: -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: -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)

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

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

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Peak Optimization Flags (Continued)

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/Intel-ic11.0-fp-linux64-revA.20090710.12.html>

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

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.12.xml>

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

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Tested with SPEC CPU2006 v1.1.

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