



SPEC[®] CFP2006 Result

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Hewlett-Packard Company

SPECfp[®]_rate2006 = 197

ProLiant BL460c G6
(2.93 GHz, Intel Xeon X5570)

SPECfp_rate_base2006 = 190

CPU2006 license: 3

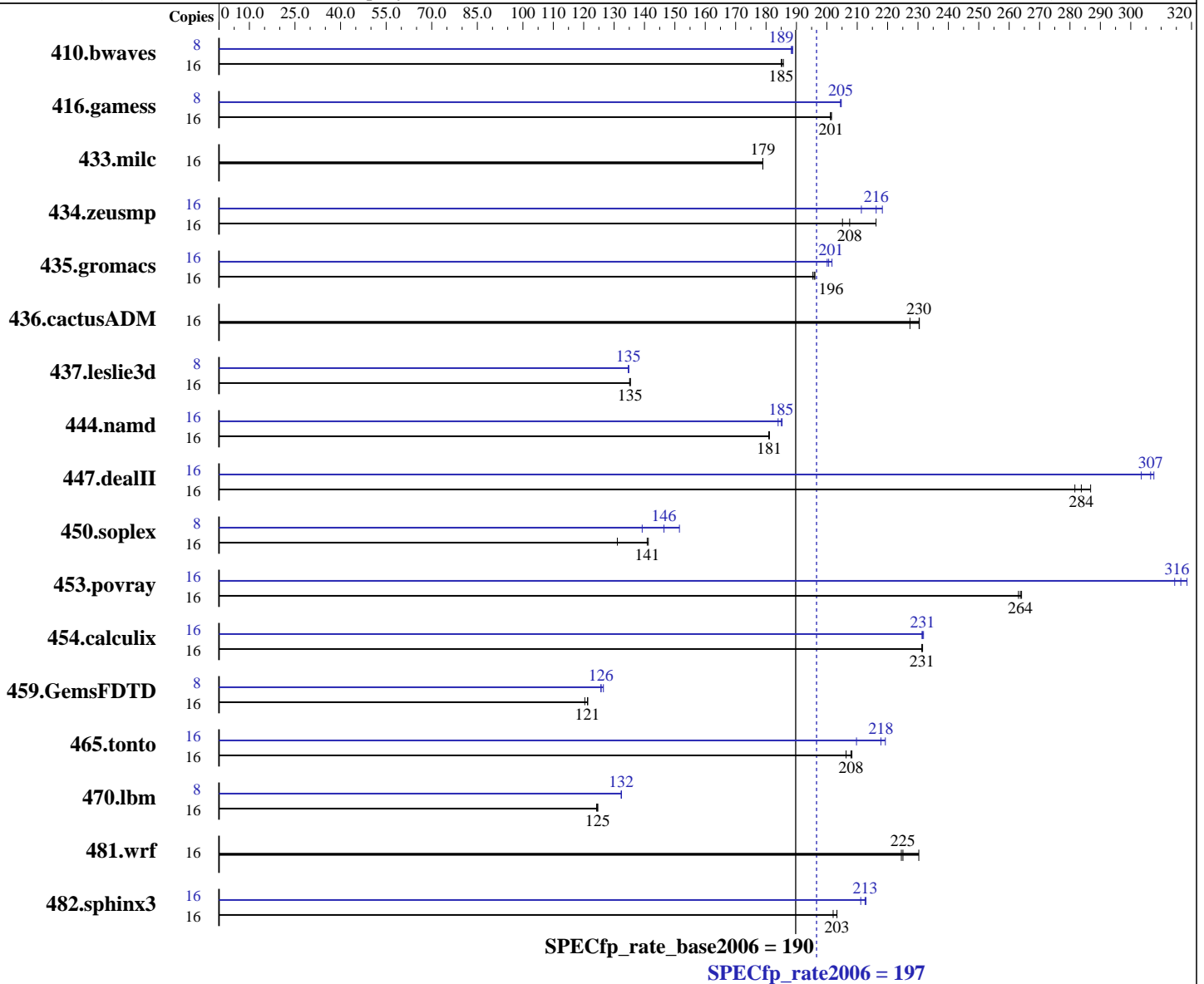
Test date: May-2009

Test sponsor: Hewlett-Packard Company

Hardware Availability: Mar-2009

Tested by: Hewlett-Packard Company

Software Availability: Mar-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: l_cproc_p_11.0.080,
 l_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 PC3-10600R CL5)
Disk Subsystem: 2x146 GB 10 K SAS
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	1175	185	1171	186	<u>1174</u>	<u>185</u>	8	577	188	576	189	<u>576</u>	<u>189</u>
416.gamess	16	1554	202	1557	201	<u>1556</u>	<u>201</u>	8	766	205	765	205	<u>766</u>	<u>205</u>
433.milc	16	821	179	821	179	<u>821</u>	<u>179</u>	16	821	179	821	179	<u>821</u>	<u>179</u>
434.zeusmp	16	673	216	710	205	<u>702</u>	<u>208</u>	16	667	218	689	211	<u>673</u>	<u>216</u>
435.gromacs	16	<u>583</u>	<u>196</u>	583	196	585	195	16	566	202	<u>569</u>	<u>201</u>	571	200
436.cactusADM	16	<u>830</u>	<u>230</u>	841	227	830	230	16	<u>830</u>	<u>230</u>	841	227	830	230
437.leslie3d	16	1111	135	1113	135	<u>1112</u>	<u>135</u>	8	558	135	558	135	<u>558</u>	<u>135</u>
444.namd	16	<u>709</u>	<u>181</u>	709	181	709	181	16	697	184	693	185	<u>693</u>	<u>185</u>
447.dealII	16	<u>645</u>	<u>284</u>	650	282	638	287	16	595	308	<u>597</u>	<u>307</u>	603	303
450.soplex	16	1018	131	<u>947</u>	<u>141</u>	945	141	8	479	139	<u>456</u>	<u>146</u>	440	152
453.povray	16	<u>323</u>	<u>264</u>	324	263	322	264	16	267	319	271	314	<u>269</u>	<u>316</u>
454.calculix	16	570	232	571	231	<u>571</u>	<u>231</u>	16	569	232	<u>570</u>	<u>231</u>	571	231
459.GemsFDTD	16	1410	120	<u>1400</u>	<u>121</u>	1399	121	8	671	126	<u>675</u>	<u>126</u>	675	126
465.tonto	16	<u>757</u>	<u>208</u>	763	206	756	208	16	<u>723</u>	<u>218</u>	751	210	718	219
470.lbm	16	<u>1765</u>	<u>125</u>	1764	125	1769	124	8	830	132	830	132	<u>830</u>	<u>132</u>
481.wrf	16	776	230	<u>794</u>	<u>225</u>	796	225	16	776	230	<u>794</u>	<u>225</u>	796	225
482.sphinx3	16	1543	202	<u>1534</u>	<u>203</u>	1534	203	16	1477	211	<u>1467</u>	<u>213</u>	1465	213

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



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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.20090710.13.html>
<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20090710.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.20090710.13.xml>
<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20090710.xml>

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