



SPEC® CFP2006 Result

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Hewlett-Packard Company

SPECfp®_rate2006 = 115

ProLiant ML370 G6
(2.0 GHz, Intel Xeon E5504)

SPECfp_rate_base2006 = 111

CPU2006 license: 3

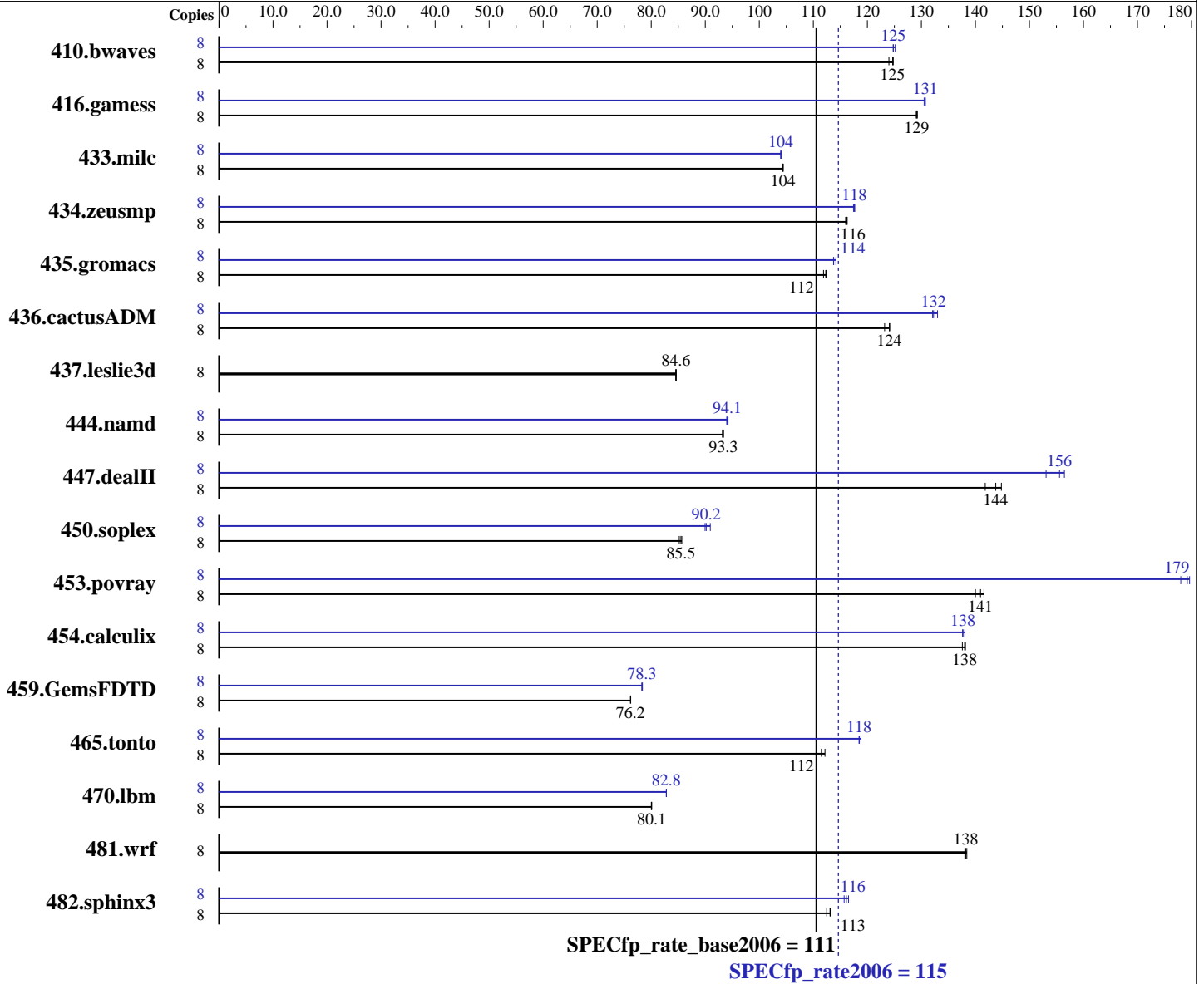
Test date: Jun-2009

Test sponsor: Hewlett-Packard Company

Hardware Availability: Mar-2009

Tested by: Hewlett-Packard Company

Software Availability: Feb-2009



Hardware

CPU Name: Intel Xeon E5504
 CPU Characteristics:
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
 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: 4 MB I+D on chip per chip
Other Cache: None
Memory: 24 GB (6x4 GB DDR3-10600R CL9, running at 800 MHz)
Disk Subsystem: 1x146 GB 10 K RPM 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	8	877	124	871	125	<u>872</u>	<u>125</u>	8	871	125	869	125	<u>871</u>	<u>125</u>
416.gamess	8	1214	129	1212	129	<u>1213</u>	<u>129</u>	8	<u>1198</u>	<u>131</u>	1200	131	1198	131
433.milc	8	<u>703</u>	<u>104</u>	704	104	703	104	8	706	104	<u>706</u>	<u>104</u>	706	104
434.zeusmp	8	628	116	<u>626</u>	<u>116</u>	626	116	8	<u>619</u>	<u>118</u>	619	118	620	117
435.gromacs	8	511	112	<u>509</u>	<u>112</u>	508	112	8	502	114	<u>502</u>	<u>114</u>	500	114
436.cactusADM	8	770	124	<u>771</u>	<u>124</u>	776	123	8	<u>723</u>	<u>132</u>	719	133	724	132
437.leslie3d	8	<u>889</u>	<u>84.6</u>	890	84.5	889	84.6	8	<u>889</u>	<u>84.6</u>	890	84.5	889	84.6
444.namd	8	689	93.2	<u>687</u>	<u>93.3</u>	687	93.4	8	683	94.0	<u>682</u>	<u>94.1</u>	681	94.2
447.dealII	8	<u>637</u>	<u>144</u>	645	142	632	145	8	<u>588</u>	<u>156</u>	585	156	598	153
450.soplex	8	<u>780</u>	<u>85.5</u>	783	85.2	779	85.7	8	742	90.0	<u>740</u>	<u>90.2</u>	734	90.9
453.povray	8	304	140	<u>302</u>	<u>141</u>	301	142	8	239	178	<u>237</u>	<u>179</u>	237	180
454.calculix	8	478	138	<u>478</u>	<u>138</u>	480	138	8	480	138	478	138	<u>479</u>	<u>138</u>
459.GemsFDTD	8	1118	75.9	<u>1114</u>	<u>76.2</u>	1114	76.2	8	<u>1084</u>	<u>78.3</u>	1084	78.3	1083	78.4
465.tonto	8	706	111	702	112	<u>705</u>	<u>112</u>	8	663	119	664	118	<u>664</u>	<u>118</u>
470.lbm	8	1374	80.0	1372	80.1	<u>1373</u>	<u>80.1</u>	8	1327	82.8	1328	82.8	<u>1328</u>	<u>82.8</u>
481.wrf	8	647	138	<u>646</u>	<u>138</u>	646	138	8	647	138	<u>646</u>	<u>138</u>	646	138
482.sphinx3	8	1386	112	<u>1379</u>	<u>113</u>	1378	113	8	1348	116	<u>1343</u>	<u>116</u>	1338	117

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 Regulator set to Static High Performance Mode
HP Power Profile set to Maximum Performance
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:

ifort

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
 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

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) -static(pass 2) -prof-use(pass 2)
 -fno-alias

470.lbm: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
 -auto-ilp32

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Peak Optimization Flags (Continued)

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: -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: basepeak = yes

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: -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 -opt-prefetch -auto-ilp32

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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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