



# SPEC<sup>®</sup> CFP2006 Result

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## Hewlett-Packard Company

ProLiant DL380 G6  
(2.13 GHz, Intel Xeon E5506)

SPECfp<sup>®</sup>\_rate2006 = 119

SPECfp\_rate\_base2006 = 114

CPU2006 license: 3

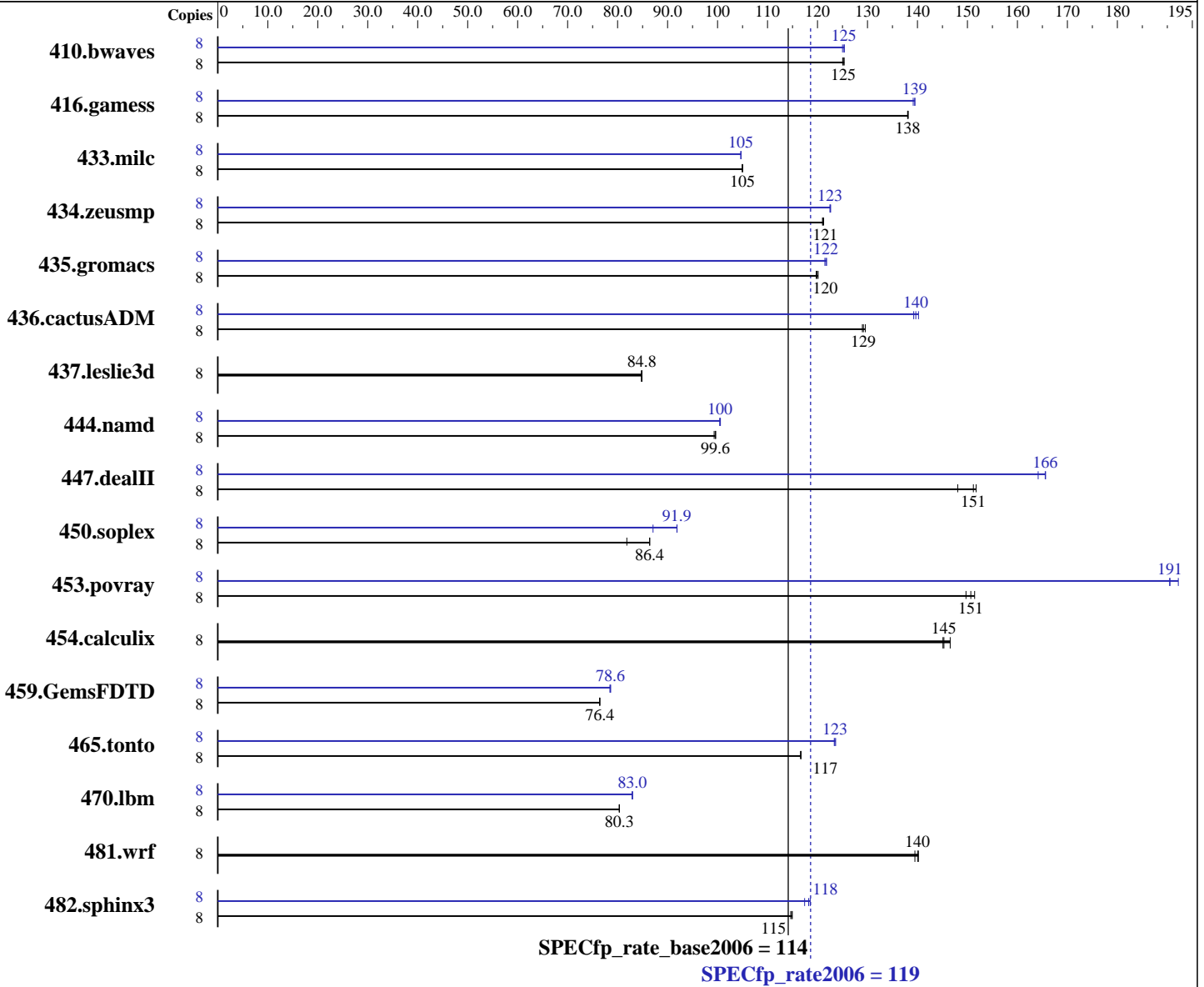
Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Jun-2009

Hardware Availability: Mar-2009

Software Availability: Feb-2009



### Hardware

CPU Name: Intel Xeon E5506  
 CPU Characteristics:  
 CPU MHz: 2133  
 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 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	870	125	867	125	<b>868</b>	<b>125</b>	8	867	125	<b>868</b>	<b>125</b>	870	125
416.gamess	8	<b>1134</b>	<b>138</b>	1134	138	1135	138	8	1123	139	<b>1123</b>	<b>139</b>	1126	139
433.milc	8	<b>699</b>	<b>105</b>	699	105	700	105	8	701	105	<b>702</b>	<b>105</b>	702	105
434.zeusmp	8	<b>601</b>	<b>121</b>	602	121	601	121	8	<b>594</b>	<b>123</b>	594	123	594	123
435.gromacs	8	477	120	475	120	<b>476</b>	<b>120</b>	8	<b>469</b>	<b>122</b>	470	121	469	122
436.cactusADM	8	741	129	738	130	<b>740</b>	<b>129</b>	8	682	140	687	139	<b>684</b>	<b>140</b>
437.leslie3d	8	886	84.9	887	84.8	<b>886</b>	<b>84.8</b>	8	886	84.9	887	84.8	<b>886</b>	<b>84.8</b>
444.namd	8	646	99.3	644	99.6	<b>644</b>	<b>99.6</b>	8	639	100	<b>639</b>	<b>100</b>	638	101
447.dealII	8	618	148	<b>605</b>	<b>151</b>	603	152	8	558	164	<b>553</b>	<b>166</b>	553	166
450.soplex	8	815	81.8	<b>772</b>	<b>86.4</b>	772	86.4	8	766	87.1	726	91.9	<b>726</b>	<b>91.9</b>
453.povray	8	<b>282</b>	<b>151</b>	281	151	284	150	8	223	190	<b>223</b>	<b>191</b>	221	192
454.calculix	8	450	147	<b>454</b>	<b>145</b>	455	145	8	450	147	<b>454</b>	<b>145</b>	455	145
459.GemsFDTD	8	1111	76.4	<b>1110</b>	<b>76.4</b>	1110	76.4	8	1080	78.6	<b>1080</b>	<b>78.6</b>	1082	78.5
465.tonto	8	675	117	674	117	<b>675</b>	<b>117</b>	8	<b>638</b>	<b>123</b>	637	124	638	123
470.lbm	8	<b>1368</b>	<b>80.3</b>	1368	80.4	1368	80.3	8	1326	82.9	1325	83.0	<b>1325</b>	<b>83.0</b>
481.wrf	8	641	139	<b>638</b>	<b>140</b>	637	140	8	641	139	<b>638</b>	<b>140</b>	637	140
482.sphinx3	8	1360	115	1356	115	<b>1358</b>	<b>115</b>	8	1328	117	1315	119	<b>1319</b>	<b>118</b>

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 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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**Software Availability:** Feb-2009

## 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: basepeak = yes

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.20090818.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.20090818.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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