



# SPEC® CFP2006 Result

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## Hewlett-Packard Company

SPECfp®\_rate2006 = 187

ProLiant DL380 G7  
(2.93 GHz, Intel Xeon X5647)

SPECfp\_rate\_base2006 = 183

CPU2006 license: 3

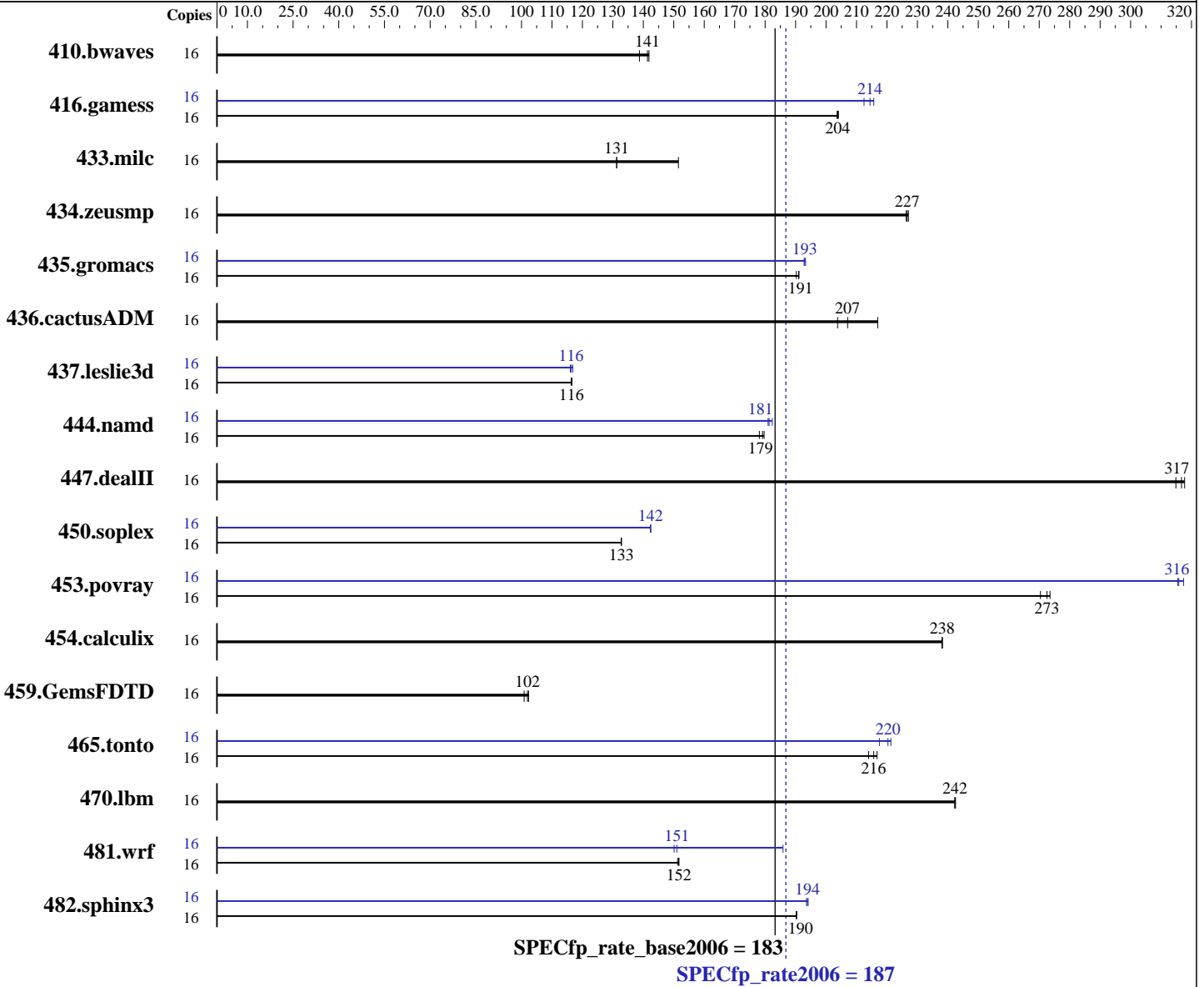
Test date: Oct-2011

Test sponsor: Hewlett-Packard Company

Hardware Availability: Feb-2011

Tested by: Hewlett-Packard Company

Software Availability: Sep-2011



### Hardware

CPU Name: Intel Xeon X5647  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.20 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 6.1, Kernel 2.6.32-131.0.15.el6.x86\_64  
 Compiler: C/C++/Fortran: Version 12.1.0.225 of Intel Compiler XE Build 20110803  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit

Continued on next page



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L3 Cache: 12 MB I+D on chip per chip  
Other Cache: None  
Memory: 48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)  
Disk Subsystem: 1 x 146 GB 15 K SAS  
Other Hardware: None

Peak Pointers: 32/64-bit  
Other Software: None

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	1567	139	<u>1538</u>	<u>141</u>	1533	142	16	1567	139	<u>1538</u>	<u>141</u>	1533	142
416.gamess	16	1535	204	<u>1537</u>	<u>204</u>	1539	204	16	1474	212	<u>1461</u>	<u>214</u>	1453	216
433.milc	16	969	152	1119	131	<u>1119</u>	<u>131</u>	16	969	152	1119	131	<u>1119</u>	<u>131</u>
434.zeusmp	16	643	226	641	227	<u>642</u>	<u>227</u>	16	643	226	641	227	<u>642</u>	<u>227</u>
435.gromacs	16	598	191	<u>598</u>	<u>191</u>	601	190	16	591	193	<u>592</u>	<u>193</u>	593	193
436.cactusADM	16	881	217	<u>923</u>	<u>207</u>	938	204	16	881	217	<u>923</u>	<u>207</u>	938	204
437.leslie3d	16	1293	116	<u>1292</u>	<u>116</u>	1290	117	16	1296	116	<u>1293</u>	<u>116</u>	1287	117
444.namd	16	721	178	714	180	<u>716</u>	<u>179</u>	16	709	181	<u>708</u>	<u>181</u>	704	182
447.dealII	16	<u>578</u>	<u>317</u>	581	315	576	318	16	<u>578</u>	<u>317</u>	581	315	576	318
450.soplex	16	<u>1005</u>	<u>133</u>	1005	133	1005	133	16	937	142	937	142	<u>937</u>	<u>142</u>
453.povray	16	315	270	<u>312</u>	<u>273</u>	311	274	16	268	317	270	316	<u>270</u>	<u>316</u>
454.calculix	16	554	238	<u>554</u>	<u>238</u>	554	238	16	554	238	<u>554</u>	<u>238</u>	554	238
459.GemsFDTD	16	1683	101	<u>1665</u>	<u>102</u>	1659	102	16	1683	101	<u>1665</u>	<u>102</u>	1659	102
465.tonto	16	736	214	<u>730</u>	<u>216</u>	726	217	16	724	218	711	221	<u>715</u>	<u>220</u>
470.lbm	16	<u>907</u>	<u>242</u>	906	243	907	242	16	<u>907</u>	<u>242</u>	906	243	907	242
481.wrf	16	<u>1178</u>	<u>152</u>	1182	151	1178	152	16	962	186	<u>1183</u>	<u>151</u>	1191	150
482.sphinx3	16	<u>1639</u>	<u>190</u>	1639	190	1638	190	16	1606	194	1611	194	<u>1608</u>	<u>194</u>

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

```
Stack size set to unlimited using "ulimit -s unlimited"
Transparent Huge Pages disabled with:
echo never > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
```



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**Test date:** Oct-2011  
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### Platform Notes

BIOS configuration:  
HP Power Profile set to Maximum Performance  
Thermal Configuration set to Increased Cooling  
Data Reuse set to Disabled

### General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/cpu2006/smartheap:/cpu2006/ic12.1-libs/ia32:/cpu2006/ic12.1-libs/intel64"

### Base Compiler Invocation

C benchmarks:  
icc -m64

C++ benchmarks:  
icpc -m64

Fortran benchmarks:  
ifort -m64

Benchmarks using both Fortran and C:  
icc -m64 ifort -m64

### 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



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## Base Optimization Flags

C benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## 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.deall: -DSPEC\_CPU\_LP64

453.povray: -DSPEC\_CPU\_LP64

Continued on next page

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Page 4



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## Peak Portability Flags (Continued)

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: basepeak = yes  
 482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3  
 -unroll2

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
 -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)  
 -prof-use(pass 2) -fno-alias -auto-ilp32  
 447.dealIII: basepeak = yes  
 450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
 -no-prec-div(pass 2) -opt-mem-layout-trans=3(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) -opt-mem-layout-trans=3(pass 2)  
 -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes  
 416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
 -no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
 -inline-level=0 -scalar-rep- -static  
 434.zeusmp: basepeak = yes  
 437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch  
 459.GemsFDTD: basepeak = yes

Continued on next page



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## Peak Optimization Flags (Continued)

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto  
-inline-calloc -opt-malloc-options=3

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) -opt-mem-layout-trans=3(pass 2)  
-prof-use(pass 2) -opt-prefetch -static -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

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.20111122.html>  
<http://www.spec.org/cpu2006/flags/Intel-ic12.1-linux64.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.20111122.xml>  
<http://www.spec.org/cpu2006/flags/Intel-ic12.1-linux64.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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