



# SPEC® CFP2006 Result

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## Hewlett-Packard Company

ProLiant DL380 G7  
(3.60 GHz, Intel Xeon X5687)

SPECfp®2006 = **65.1**

SPECfp\_base2006 = **61.2**

CPU2006 license: 3

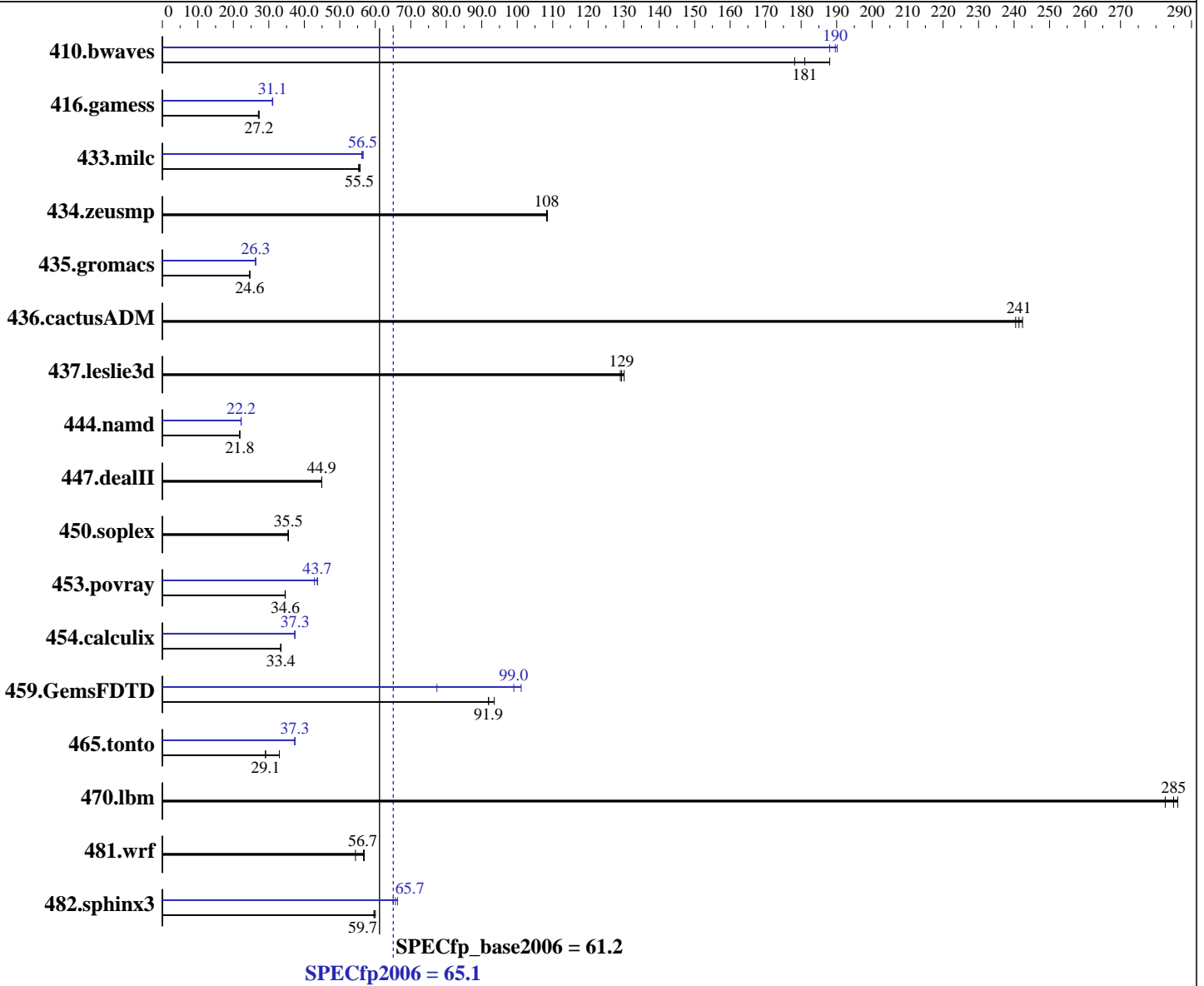
Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Feb-2011

Hardware Availability: Feb-2011

Software Availability: Apr-2011



### Hardware

CPU Name: Intel Xeon X5687  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.86 GHz  
 CPU MHz: 3600  
 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: SUSE Linux Enterprise Server 11 (x86\_64) SP1, Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0 Update 3  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

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L3 Cache: 12 MB I+D on chip per chip  
Other Cache: None  
Memory: 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC)  
Disk Subsystem: 1 x 300 GB 10 K SAS  
Other Hardware: None

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

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	<b><u>75.1</u></b>	<b><u>181</u></b>	72.3	188	76.3	178	71.5	190	72.3	188	<b><u>71.7</u></b>	<b><u>190</u></b>
416.gamess	718	27.3	<b><u>719</u></b>	<b><u>27.2</u></b>	724	27.1	<b><u>630</u></b>	<b><u>31.1</u></b>	629	31.1	632	31.0
433.milc	165	55.7	<b><u>165</u></b>	<b><u>55.5</u></b>	166	55.3	<b><u>162</u></b>	<b><u>56.5</u></b>	163	56.2	162	56.6
434.zeusmp	83.8	109	<b><u>84.0</u></b>	<b><u>108</u></b>	84.1	108	83.8	109	<b><u>84.0</u></b>	<b><u>108</u></b>	84.1	108
435.gromacs	<b><u>290</u></b>	<b><u>24.6</u></b>	290	24.6	289	24.7	272	26.3	272	26.3	<b><u>272</u></b>	<b><u>26.3</u></b>
436.cactusADM	49.7	240	49.3	242	<b><u>49.5</u></b>	<b><u>241</u></b>	49.7	240	49.3	242	<b><u>49.5</u></b>	<b><u>241</u></b>
437.leslie3d	<b><u>72.6</u></b>	<b><u>129</u></b>	72.2	130	72.8	129	<b><u>72.6</u></b>	<b><u>129</u></b>	72.2	130	72.8	129
444.namd	<b><u>368</u></b>	<b><u>21.8</u></b>	368	21.8	368	21.8	362	22.2	<b><u>361</u></b>	<b><u>22.2</u></b>	361	22.2
447.dealII	255	44.9	255	44.9	<b><u>255</u></b>	<b><u>44.9</u></b>	255	44.9	255	44.9	<b><u>255</u></b>	<b><u>44.9</u></b>
450.soplex	235	35.5	<b><u>235</u></b>	<b><u>35.5</u></b>	236	35.4	235	35.5	<b><u>235</u></b>	<b><u>35.5</u></b>	236	35.4
453.povray	<b><u>154</u></b>	<b><u>34.6</u></b>	154	34.6	154	34.6	122	43.7	124	42.9	<b><u>122</u></b>	<b><u>43.7</u></b>
454.calculix	248	33.3	247	33.5	<b><u>247</u></b>	<b><u>33.4</u></b>	<b><u>221</u></b>	<b><u>37.3</u></b>	221	37.4	221	37.3
459.GemsFDTD	113	93.5	115	91.9	<b><u>115</u></b>	<b><u>91.9</u></b>	137	77.4	<b><u>107</u></b>	<b><u>99.0</u></b>	105	101
465.tonto	339	29.1	298	33.0	<b><u>338</u></b>	<b><u>29.1</u></b>	263	37.4	264	37.3	<b><u>264</u></b>	<b><u>37.3</u></b>
470.lbm	48.0	286	48.6	283	<b><u>48.2</u></b>	<b><u>285</u></b>	48.0	286	48.6	283	<b><u>48.2</u></b>	<b><u>285</u></b>
481.wrf	205	54.4	196	56.9	<b><u>197</u></b>	<b><u>56.7</u></b>	205	54.4	196	56.9	<b><u>197</u></b>	<b><u>56.7</u></b>
482.sphinx3	325	60.0	327	59.6	<b><u>326</u></b>	<b><u>59.7</u></b>	294	66.3	300	65.0	<b><u>297</u></b>	<b><u>65.7</u></b>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Operating System Notes

```
'nodev /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

## Platform Notes

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



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## General Notes

Binaries were compiled on RHEL5.5

## 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

## Base Optimization Flags

C benchmarks:

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

C++ benchmarks:

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

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## Base Optimization Flags (Continued)

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias`

## Peak Compiler Invocation

C benchmarks:

`icc -m64`

C++ benchmarks:

`icpc -m64`

Fortran benchmarks:

`ifort -m64`

Benchmarks using both Fortran and C:

`icc -m64 ifort -m64`

## Peak Portability Flags

Same as Base Portability Flags

## 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) -prof-use(pass 2) -static -auto-ilp32  
-ansi-alias`

470.lbm: `basepeak = yes`

482.sphinx3: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel`

C++ benchmarks:

444.namd: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias  
-auto-ilp32`

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## Peak Optimization Flags (Continued)

447.dealll: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

### Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -parallel  
-static

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: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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) -inline-calloc  
-opt-malloc-options=3 -auto -unroll4  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

### 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) -prof-use(pass 2) -static -auto-ilp32  
-ansi-alias

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

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-ic12.0-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110316.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>

<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110316.xml>



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

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