



# SPEC® CINT2006 Result

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## Hewlett-Packard Company

### SPECint®\_rate2006 = 150

ProLiant ML370 G5  
(3.33 GHz, Intel Xeon X5470)

### SPECint\_rate\_base2006 = 136

CPU2006 license: 3

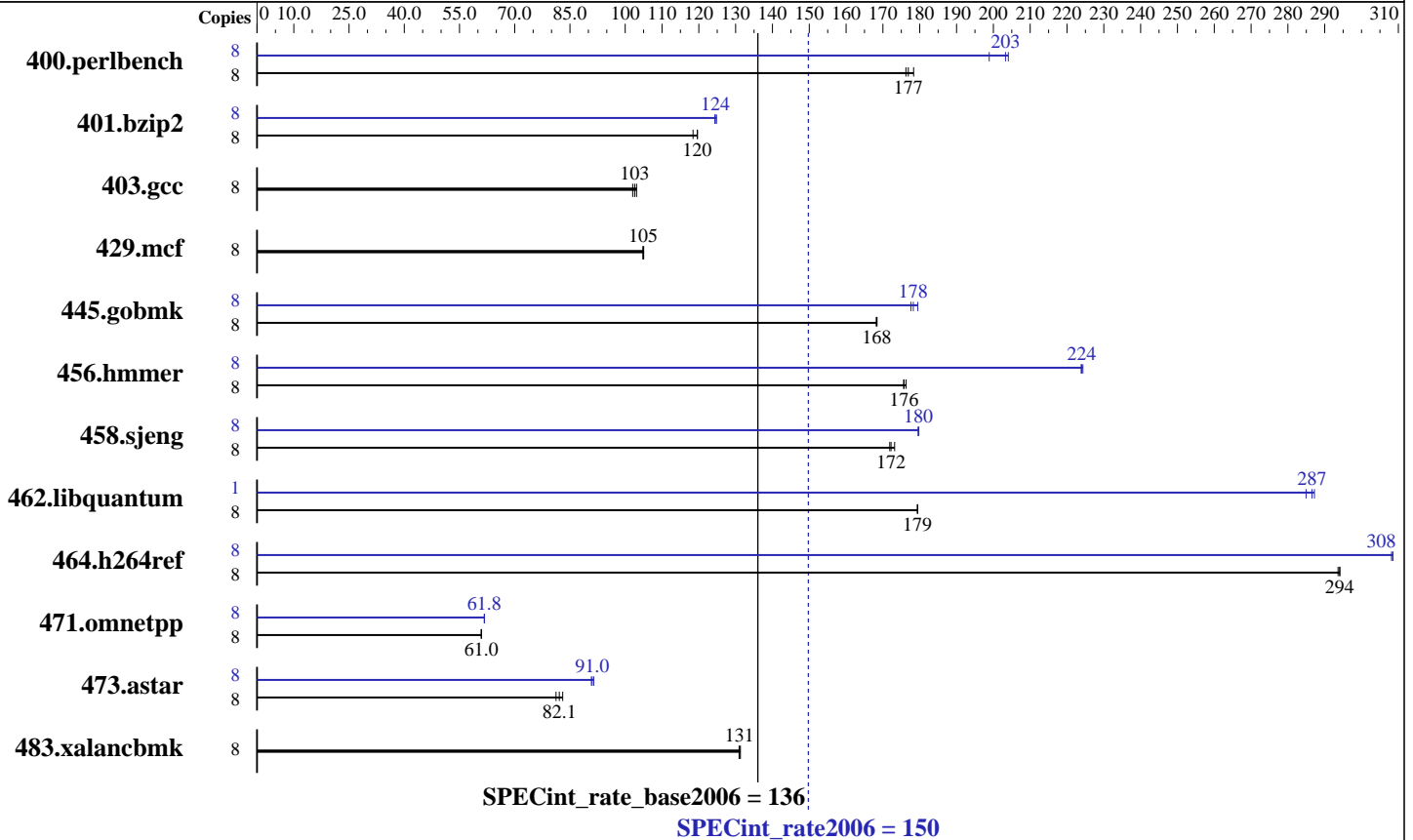
Test date: Aug-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Sep-2008

Tested by: Hewlett-Packard Company

Software Availability: Nov-2008



### Hardware

CPU Name: Intel Xeon X5470  
 CPU Characteristics: 3.33 GHz, 2x6 MB L2 Shared, 1333 MHz system bus  
 CPU MHz: 3333  
 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: 12 MB I+D on chip per chip, 6 MB shared / 2 cores  
 L3 Cache: None  
 Other Cache: None  
 Memory: 16 GB (8x2 GB PC2-5300F CL5)  
 Disk Subsystem: 1x72 GB 15 K SAS  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 10 (x86\_64) SP1, Kernel 2.6.16.46-0.12-smp  
 Compiler: Intel C++ Compiler 11.0 for Linux Build 20080730 Package ID: l\_cproc\_b\_11.0.042  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: MicroQuill SmartHeap Library 8.1 Binutils 2.18.50.0.7.20080502



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## Results Table

Benchmark	Base						Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	8	443	176	<b><u>442</u></b>	<b><u>177</u></b>	438	178	8	<b><u>384</u></b>	<b><u>203</u></b>	393	199	383	204
401.bzip2	8	<b><u>645</u></b>	<b><u>120</u></b>	645	120	652	118	8	619	125	<b><u>620</u></b>	<b><u>124</u></b>	621	124
403.gcc	8	<b><u>628</u></b>	<b><u>103</u></b>	631	102	625	103	8	<b><u>628</u></b>	<b><u>103</u></b>	631	102	625	103
429.mcf	8	695	105	696	105	<b><u>695</u></b>	<b><u>105</u></b>	8	695	105	696	105	<b><u>695</u></b>	<b><u>105</u></b>
445.gobmk	8	<b><u>498</u></b>	<b><u>168</u></b>	498	168	499	168	8	468	179	473	178	<b><u>471</u></b>	<b><u>178</u></b>
456.hammer	8	<b><u>425</u></b>	<b><u>176</u></b>	425	176	423	176	8	333	224	<b><u>333</u></b>	<b><u>224</u></b>	333	224
458.sjeng	8	563	172	559	173	<b><u>562</u></b>	<b><u>172</u></b>	8	539	180	<b><u>539</u></b>	<b><u>180</u></b>	539	180
462.libquantum	8	924	179	924	179	<b><u>924</u></b>	<b><u>179</u></b>	1	72.1	287	72.7	285	<b><u>72.3</u></b>	<b><u>287</u></b>
464.h264ref	8	602	294	603	294	<b><u>602</u></b>	<b><u>294</u></b>	8	574	309	<b><u>574</u></b>	<b><u>308</u></b>	575	308
471.omnetpp	8	<b><u>820</u></b>	<b><u>61.0</u></b>	820	61.0	821	60.9	8	809	61.8	810	61.7	<b><u>810</u></b>	<b><u>61.8</u></b>
473.astar	8	676	83.0	<b><u>684</u></b>	<b><u>82.1</u></b>	692	81.2	8	614	91.5	<b><u>617</u></b>	<b><u>91.0</u></b>	618	90.8
483.xalancbmk	8	<b><u>421</u></b>	<b><u>131</u></b>	422	131	420	131	8	<b><u>421</u></b>	<b><u>131</u></b>	422	131	420	131

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.  
taskset was used to bind processes to cores except  
for 462.libquantum peak

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run  
OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to physical,0  
KMP\_STACKSIZE set to 64M

## Platform Notes

BIOS configuration:  
Power Regulator set to Static High Performance Mode  
Adjacent Sector Prefetch Disabled

## Base Compiler Invocation

C benchmarks:  
icc

C++ benchmarks:  
icpc



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## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -inline-calloc  
-opt-malloc-options=3 -opt-prefetch

C++ benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/spec/cpu2006.1.1/lib -lsmartheap

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

401.bzip2: /opt/intel/Compiler/11.0/042/bin/intel64/icc  
-L/opt/intel/Compiler/11.0/042/ipp/em64t/lib  
-I/opt/intel/Compiler/11.0/042/ipp/em64t/include

456.hmmer: /opt/intel/Compiler/11.0/042/bin/intel64/icc  
-L/opt/intel/Compiler/11.0/042/ipp/em64t/lib  
-I/opt/intel/Compiler/11.0/042/ipp/em64t/include

C++ benchmarks:

icpc

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64

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## Peak Portability Flags (Continued)

462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -ansi-alias -opt-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -opt-prefetch -ansi-alias

403.gcc: basepeak = yes

429.mcf: basepeak = yes

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -O2 -ipo  
-no-prec-div -ansi-alias

456.hmmcr: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2  
-ansi-alias

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll4

462.libquantum: -xSSE4.1 -ipo -O3 -no-prec-div -static  
-opt-malloc-options=3 -parallel -par-runtime-control  
-opt-prefetch

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -ansi-alias -opt-ra-region-strategy=block  
-Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine  
-Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap

483.xalancbmk: basepeak = yes



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## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

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.20090713.00.html>

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revD.20090713.00.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.20090713.00.xml>

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revD.20090713.00.xml>

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

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