



# SPEC® CINT2006 Result

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## Hewlett-Packard Company

### SPECint®\_rate2006 = 73.0

ProLiant ML370 G5  
(3.16 GHz, Intel Xeon X5460)

### SPECint\_rate\_base2006 = 61.7

CPU2006 license: 3

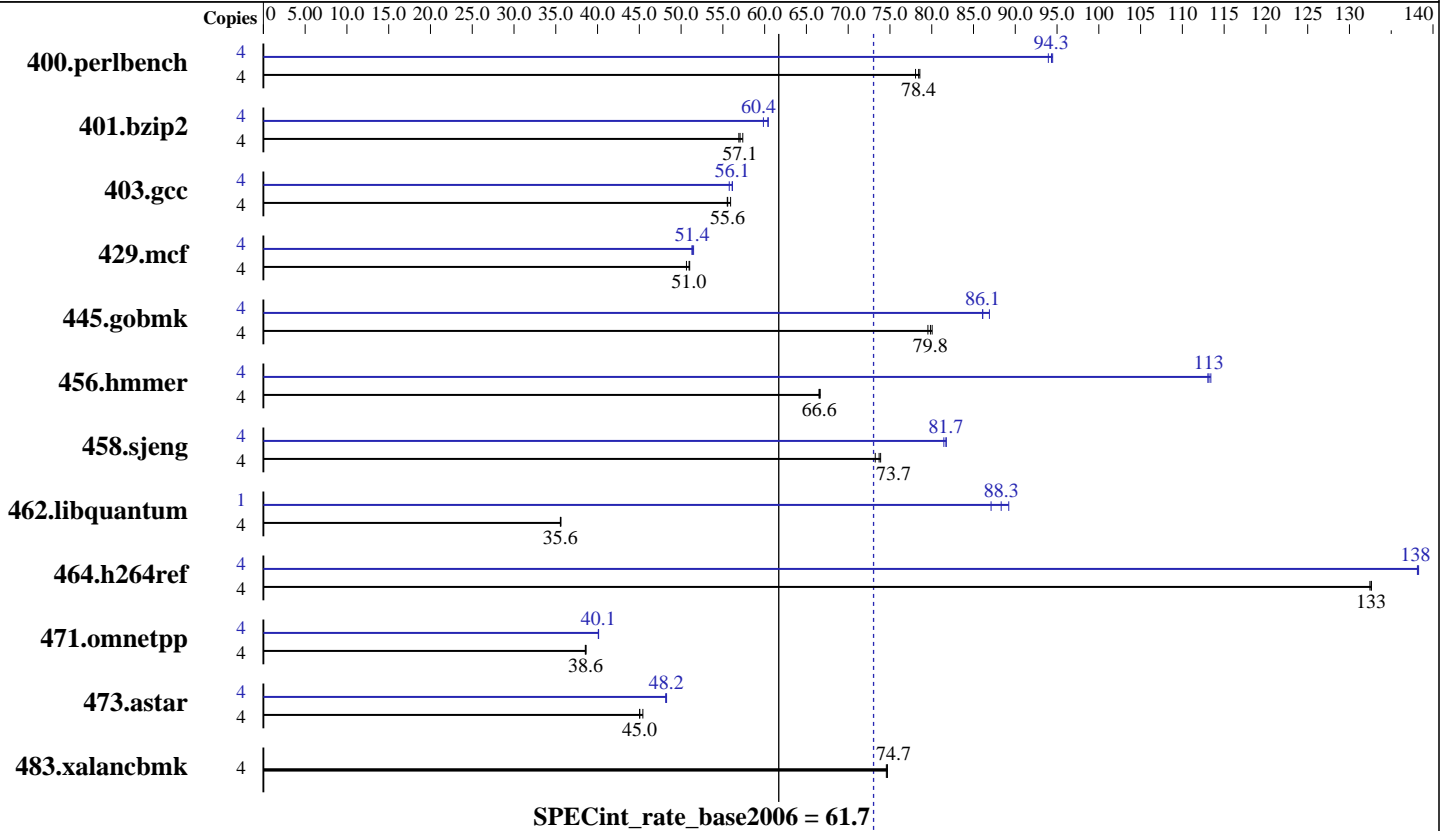
Test date: Feb-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jan-2008

Tested by: Hewlett-Packard Company

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon X5460  
 CPU Characteristics: 3.16 GHz, 2x6 MB L2 shared, 1333 MHz system bus  
 CPU MHz: 3166  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 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 10.1 for Linux Build 20070913 Package ID: l\_cc\_p\_10.1.008  
 Auto Parallel: Yes  
 File System: ext2  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: MicroQuill SmartHeap Library 8.1 binutils-2.17.50



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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	4	<b><u>498</u></b>	<b><u>78.4</u></b>	501	78.1	497	78.6	4	<b><u>414</u></b>	<b><u>94.3</u></b>	416	94.0	414	94.5
401.bzip2	4	673	57.4	678	56.9	<b><u>676</u></b>	<b><u>57.1</u></b>	4	639	60.4	<b><u>639</u></b>	<b><u>60.4</u></b>	645	59.9
403.gcc	4	580	55.5	576	55.9	<b><u>579</u></b>	<b><u>55.6</u></b>	4	577	55.8	<b><u>574</u></b>	<b><u>56.1</u></b>	574	56.1
429.mcf	4	715	51.0	<b><u>716</u></b>	<b><u>51.0</u></b>	720	50.6	4	<b><u>710</u></b>	<b><u>51.4</u></b>	711	51.3	708	51.5
445.gobmk	4	528	79.5	524	80.1	<b><u>526</u></b>	<b><u>79.8</u></b>	4	<b><u>487</u></b>	<b><u>86.1</u></b>	483	86.9	487	86.1
456.hammer	4	560	66.7	<b><u>561</u></b>	<b><u>66.6</u></b>	561	66.5	4	<b><u>330</u></b>	<b><u>113</u></b>	329	113	330	113
458.sjeng	4	661	73.2	655	73.9	<b><u>657</u></b>	<b><u>73.7</u></b>	4	594	81.5	<b><u>592</u></b>	<b><u>81.7</u></b>	592	81.7
462.libquantum	4	<b><u>2331</u></b>	<b><u>35.6</u></b>	2331	35.6	2327	35.6	1	232	89.2	238	87.1	<b><u>235</u></b>	<b><u>88.3</u></b>
464.h264ref	4	667	133	668	132	<b><u>668</u></b>	<b><u>133</u></b>	4	641	138	640	138	<b><u>641</u></b>	<b><u>138</u></b>
471.omnetpp	4	647	38.6	<b><u>648</u></b>	<b><u>38.6</u></b>	649	38.5	4	624	40.1	623	40.1	<b><u>623</u></b>	<b><u>40.1</u></b>
473.astar	4	<b><u>623</u></b>	<b><u>45.0</u></b>	618	45.4	624	45.0	4	<b><u>582</u></b>	<b><u>48.2</u></b>	583	48.2	582	48.3
483.xalancbmk	4	370	74.7	<b><u>370</u></b>	<b><u>74.7</u></b>	370	74.6	4	370	74.7	<b><u>370</u></b>	<b><u>74.7</u></b>	370	74.6

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

## 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

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32

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## Base Portability Flags (Continued)

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

## Base Optimization Flags

C benchmarks:  
-fast -inline-calloc -opt-malloc-options=3

C++ benchmarks:  
-xT -ipo -O3 -no-prec-div -Wl,-z,muldefs  
-L/cpu2006/SmartHeap\_8.1/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/cce/10.1.008/bin/icc  
-L/opt/intel/cce/10.1.008/lib  
-I/opt/intel/cce/10.1.008/include

456.hmmer: /opt/intel/cce/10.1.008/bin/icc  
-L/opt/intel/cce/10.1.008/lib  
-I/opt/intel/cce/10.1.008/include

C++ benchmarks:  
icpc

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX



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## Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -fast -ansi-alias  
-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch

403.gcc: -fast -inline-calloc -opt-malloc-options=3

429.mcf: -fast -prefetch

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

456.hmmer: -fast -unroll2 -ansi-alias -opt-multi-version-aggressive

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4

462.libquantum: -fast -unroll4 -Ob0 -prefetch  
-opt-streaming-stores always -vec-guard-write  
-opt-malloc-options=3 -parallel -par-runtime-control

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo  
-no-prec-div -ansi-alias -opt-ra-region-strategy=block  
-Wl,-z,muldefs -L/cpu2006/SmartHeap\_8.1/lib -lsmartheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo  
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine  
-Wl,-z,muldefs -L/cpu2006/SmartHeap\_8.1/lib -lsmartheap

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/HP-Intel-ic10.1-linux-int-flags.20090713.html>



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You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/HP-Intel-ic10.1-linux-int-flags.20090713.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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