



# SPEC® CINT2006 Result

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## Hewlett-Packard Company

**SPECint®2006 = 20.3**

ProLiant ML310 G5  
(2.4 GHz, Intel Xeon X3220)

**SPECint\_base2006 = 17.4**

CPU2006 license: 3

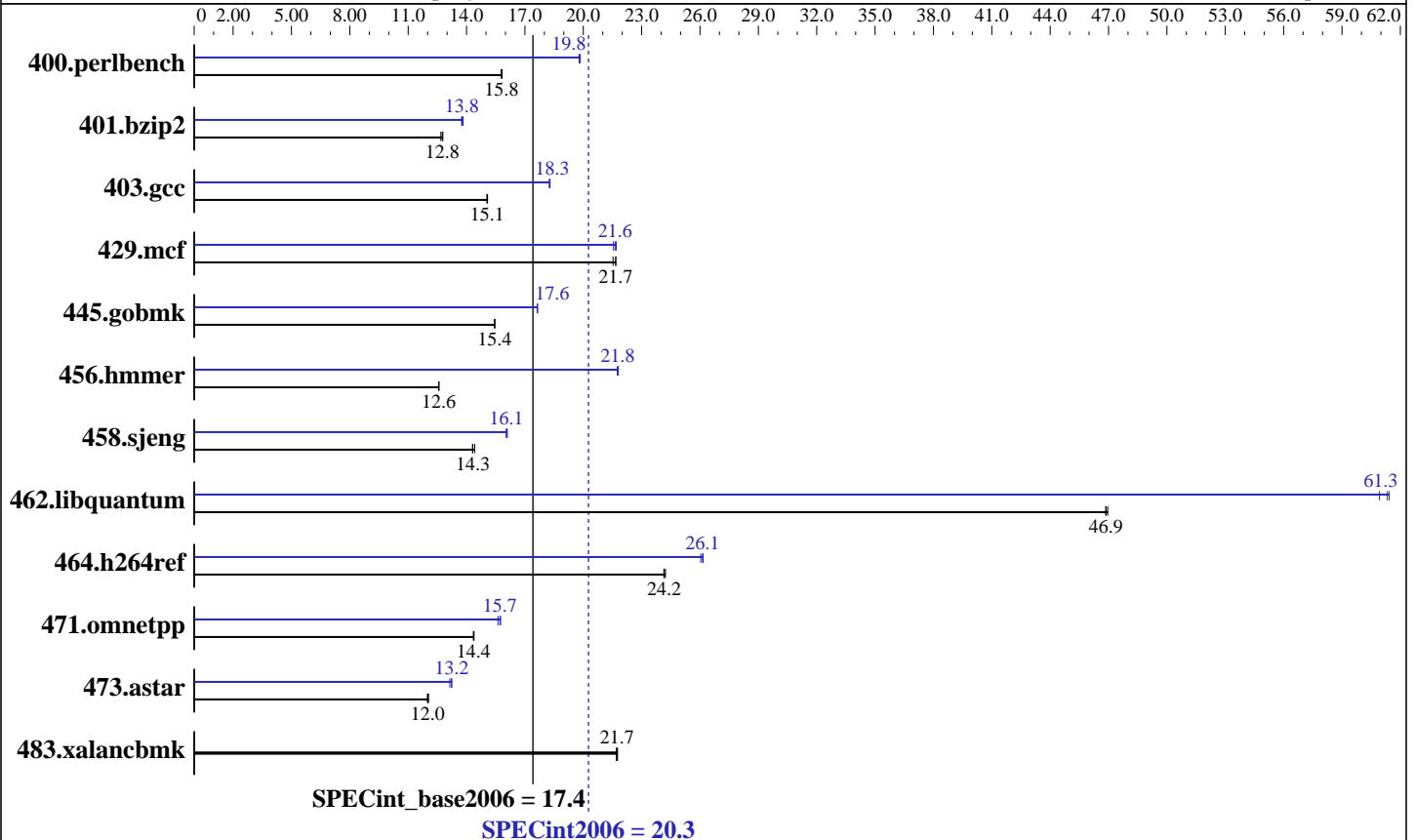
Test date: Jan-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jan-2008

Tested by: Hewlett-Packard Company

Software Availability: Sep-2007



### Hardware

CPU Name: Intel Xeon X3220  
 CPU Characteristics: 2.4 GHz, 2x4 MB L2 shared, 1066 MHz system bus  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 CPU(s) orderable: 1 chip  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 8 MB I+D on chip per chip, 4 MB shared / 2 cores  
 L3 Cache: None  
 Other Cache: None  
 Memory: 8 GB (4x2 GB PC2-6400E CL5)  
 Disk Subsystem: 1x250 GB 7.2 K SATA  
 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 for applications running on IA-32 and Intel 64, Version 10.1  
 Build 20070913 Package ID: l\_cc\_p\_10.1.008  
 Auto Parallel: Yes  
 File System: ext2  
 System State: Multi-user run level 3  
 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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	617	15.8	619	15.8	<b><u>618</u></b>	<b><u>15.8</u></b>	492	19.8	494	19.8	<b><u>493</u></b>	<b><u>19.8</u></b>
401.bzip2	755	12.8	761	12.7	<b><u>757</u></b>	<b><u>12.8</u></b>	702	13.7	698	13.8	<b><u>701</u></b>	<b><u>13.8</u></b>
403.gcc	535	15.0	534	15.1	<b><u>534</u></b>	<b><u>15.1</u></b>	<b><u>441</u></b>	<b><u>18.3</u></b>	440	18.3	441	18.3
429.mcf	424	21.5	421	21.7	<b><u>421</u></b>	<b><u>21.7</u></b>	420	21.7	<b><u>422</u></b>	<b><u>21.6</u></b>	423	21.6
445.gobmk	679	15.5	<b><u>679</u></b>	<b><u>15.4</u></b>	679	15.4	595	17.6	<b><u>595</u></b>	<b><u>17.6</u></b>	594	17.6
456.hammer	<b><u>742</u></b>	<b><u>12.6</u></b>	742	12.6	742	12.6	<b><u>429</u></b>	<b><u>21.8</u></b>	429	21.8	428	21.8
458.sjeng	<b><u>845</u></b>	<b><u>14.3</u></b>	846	14.3	839	14.4	752	16.1	754	16.0	<b><u>754</u></b>	<b><u>16.1</u></b>
462.libquantum	<b><u>442</u></b>	<b><u>46.9</u></b>	442	46.9	441	47.0	340	60.9	337	61.4	<b><u>338</u></b>	<b><u>61.3</u></b>
464.h264ref	913	24.2	917	24.1	<b><u>916</u></b>	<b><u>24.2</u></b>	<b><u>847</u></b>	<b><u>26.1</u></b>	846	26.2	850	26.0
471.omnetpp	435	14.4	<b><u>435</u></b>	<b><u>14.4</u></b>	434	14.4	<b><u>398</u></b>	<b><u>15.7</u></b>	400	15.6	397	15.8
473.astar	<b><u>585</u></b>	<b><u>12.0</u></b>	583	12.0	586	12.0	530	13.2	<b><u>530</u></b>	<b><u>13.2</u></b>	534	13.1
483.xalancbmk	317	21.8	<b><u>318</u></b>	<b><u>21.7</u></b>	318	21.7	317	21.8	<b><u>318</u></b>	<b><u>21.7</u></b>	318	21.7

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

## Platform Notes

BIOS configuration:  
Power Regulator set to Static High Performance Mode

## Base Compiler Invocation

C benchmarks:  
icc

C++ benchmarks:  
icpc

## Base Portability Flags

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



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## Base Optimization Flags

C benchmarks:

```
-fast -vec-guard-write -opt-malloc-options=3 -parallel
-par-runtime-control
```

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
```

## Peak Optimization Flags

C benchmarks:

Continued on next page



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## Peak Optimization Flags (Continued)

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  
-auto-ilp32

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  
-auto-ilp32

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).

Tested with SPEC CPU2006 v1.0.  
Report generated on Tue Jul 22 16:24:26 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 6 February 2008.