# SPEC® CINT2006 Result

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## Hewlett-Packard Company

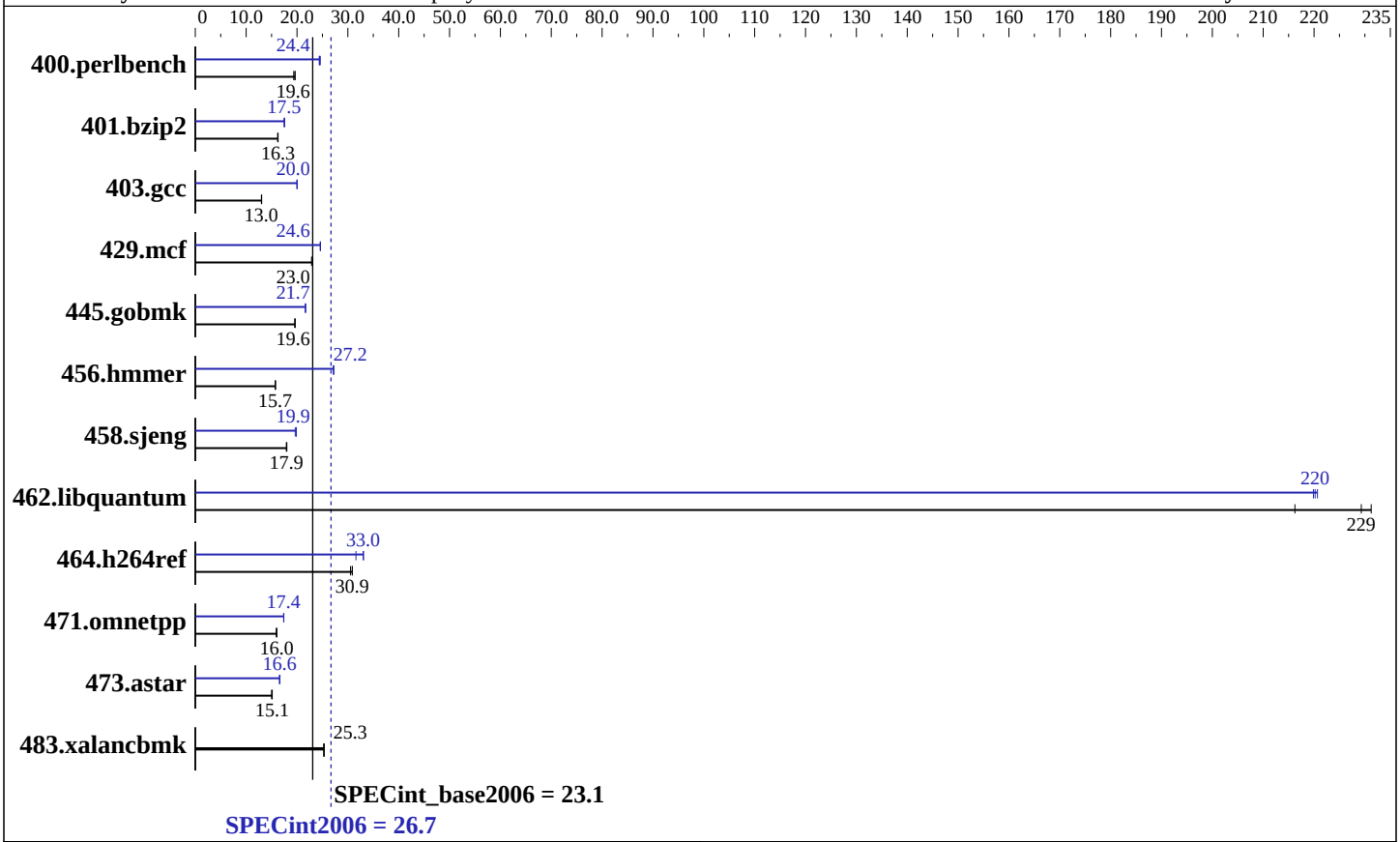
ProLiant BL2x220c G5
(3.00 GHz, Intel Xeon E5450)

SPECint®2006 = 26.7

SPECint_base2006 = 23.1

**CPU2006 license:** 3
**Test sponsor:** Hewlett-Packard Company
**Tested by:** Hewlett-Packard Company

**Test date:** May-2008
**Hardware Availability:** May-2008
**Software Availability:** Nov-2007




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5450 |
| CPU Characteristics: | 3.00 GHz, 2x6 MB L2 shared, 1333 MHz system bus |
| CPU MHz: | 3000 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 2 chips, 4 cores/chip |
| CPU(s) orderable: | 2,3,4 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 (4x4 GB PC2-5300P CL5) |
| Disk Subsystem: | 1x120 GB 5.4 K RPM 2.5" SFF SATA |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 10 (x86_64) SP1<br>Kernel 2.6.16.46-0.12-smp |
| Compiler: | Intel C++ Compiler 10.1 for Linux<br>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<br>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 | 505 | 19.3 | **499** | **19.6** | 498 | 19.6 | **400** | **24.4** | 397 | 24.6 | 401 | 24.4 |
| 401.bzip2 | 593 | 16.3 | **593** | **16.3** | 596 | 16.2 | 549 | 17.6 | **551** | **17.5** | 552 | 17.5 |
| 403.gcc | 617 | 13.1 | **619** | **13.0** | 619 | 13.0 | **402** | **20.0** | 403 | 20.0 | 401 | 20.1 |
| 429.mcf | **396** | **23.0** | 396 | 23.1 | 399 | 22.9 | 371 | 24.6 | **371** | **24.6** | 370 | 24.6 |
| 445.gobmk | **535** | **19.6** | 535 | 19.6 | 535 | 19.6 | **484** | **21.7** | 485 | 21.6 | 484 | 21.7 |
| 456.hmmer | **592** | **15.7** | 593 | 15.7 | 592 | 15.7 | 343 | 27.2 | **343** | **27.2** | 343 | 27.2 |
| 458.sjeng | 672 | 18.0 | **674** | **17.9** | 675 | 17.9 | **609** | **19.9** | 616 | 19.7 | 609 | 19.9 |
| 462.libquantum | 89.6 | 231 | **90.4** | **229** | 95.8 | 216 | 93.9 | 221 | 94.2 | 220 | **94.1** | **220** |
| 464.h264ref | 717 | 30.9 | 725 | 30.5 | **717** | **30.9** | 701 | 31.6 | **670** | **33.0** | 669 | 33.1 |
| 471.omnetpp | **390** | **16.0** | 392 | 15.9 | 390 | 16.0 | **360** | **17.4** | 359 | 17.4 | 360 | 17.4 |
| 473.astar | **464** | **15.1** | 464 | 15.1 | 468 | 15.0 | 424 | 16.5 | **423** | **16.6** | 422 | 16.6 |
| 483.xalancbmk | 272 | 25.4 | 273 | 25.3 | **273** | **25.3** | 272 | 25.4 | 273 | 25.3 | **273** | **25.3** |

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
```

## General Notes

```
The ProLiant BL2x220c G5 is comprised of two independent server nodes in a single
chassis. Only one of the server nodes was used for this benchmark; the other server
node was idle during the benchmark. The active server node contained all of the CPUs
and memory described in this disclosure.
```

## 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

## 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

Continued on next page

## 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) -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.20090714.html`

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.20090714.xml`


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For other inquiries, please contact webmaster@spec.org.

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