# SPEC® CINT2006 Result



## Hewlett-Packard Company

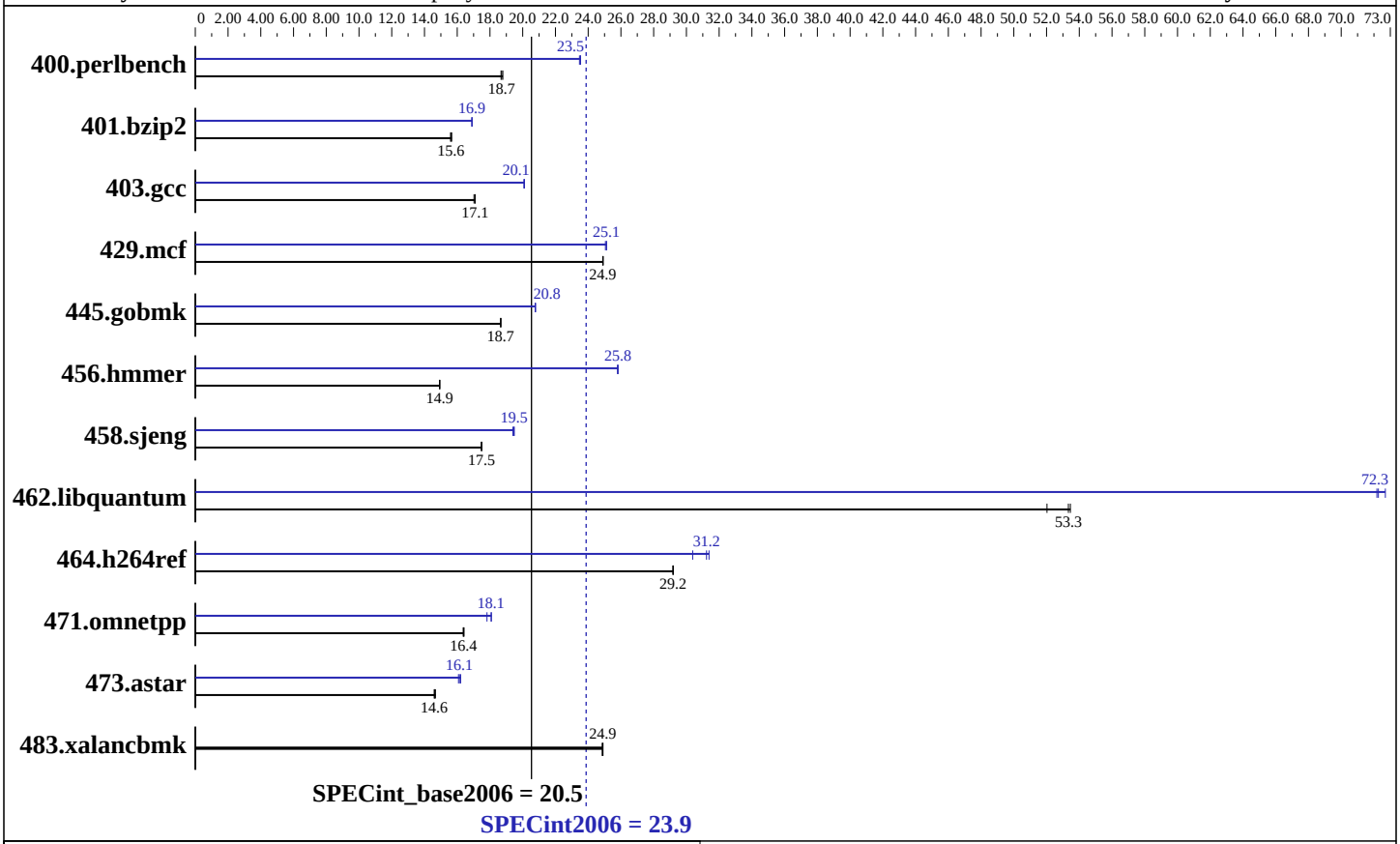
ProLiant DL320 G5p
(2.83 GHz, Intel Xeon X3360)

SPECint®2006 = 23.9

SPECint_base2006 = 20.5

**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 X3360 |
| CPU Characteristics: | 2.83 GHz, 2x6 MB L2 shared, 1333 MHz system bus |
| CPU MHz: | 2833 |
| 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: | 12 MB I+D on chip per chip, 6 MB shared / 2 cores |
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 8 GB (4x2 GB PC2-6400E CL5) |
| Disk Subsystem: | 1 x 80 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 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 | 520 | 18.8 | 523 | 18.7 | **522** | **18.7** | 416 | 23.5 | 415 | 23.5 | **415** | **23.5** |
| 401.bzip2 | 619 | 15.6 | **617** | **15.6** | 616 | 15.7 | **571** | **16.9** | 571 | 16.9 | 571 | 16.9 |
| 403.gcc | 471 | 17.1 | **471** | **17.1** | 473 | 17.0 | 400 | 20.1 | 401 | 20.1 | **401** | **20.1** |
| 429.mcf | 366 | 24.9 | **366** | **24.9** | 366 | 24.9 | **363** | **25.1** | 364 | 25.1 | 363 | 25.1 |
| 445.gobmk | 562 | 18.7 | 562 | 18.7 | **562** | **18.7** | 505 | 20.8 | 505 | 20.8 | **505** | **20.8** |
| 456.hmmer | 625 | 14.9 | **625** | **14.9** | 625 | 14.9 | 361 | 25.8 | 362 | 25.8 | **361** | **25.8** |
| 458.sjeng | 691 | 17.5 | **692** | **17.5** | 693 | 17.5 | 621 | 19.5 | **621** | **19.5** | 624 | 19.4 |
| 462.libquantum | **388** | **53.3** | 388 | 53.5 | 398 | 52.0 | 285 | 72.7 | 287 | 72.2 | **287** | **72.3** |
| 464.h264ref | 758 | 29.2 | **758** | **29.2** | 759 | 29.2 | 728 | 30.4 | 705 | 31.4 | **709** | **31.2** |
| 471.omnetpp | **381** | **16.4** | 381 | 16.4 | 382 | 16.4 | 346 | 18.1 | **346** | **18.1** | 351 | 17.8 |
| 473.astar | **481** | **14.6** | 481 | 14.6 | 479 | 14.7 | 433 | 16.2 | **435** | **16.1** | 437 | 16.1 |
| 483.xalancbmk | 277 | 24.9 | 278 | 24.9 | **277** | **24.9** | 277 | 24.9 | 278 | 24.9 | **277** | **24.9** |

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
```

## Base Compiler Invocation

C benchmarks:
`icc`

C++ benchmarks:
`icpc`

## Base Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
462.libquantum: `-DSPEC_CPU_LINUX`

Continued on next page

## Base Portability Flags (Continued)

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
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

`Same as Base Other Flags`

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.20080429.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.20080429.xml`



For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.0.
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