# SPEC® CINT2006 Result

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## Hewlett-Packard Company

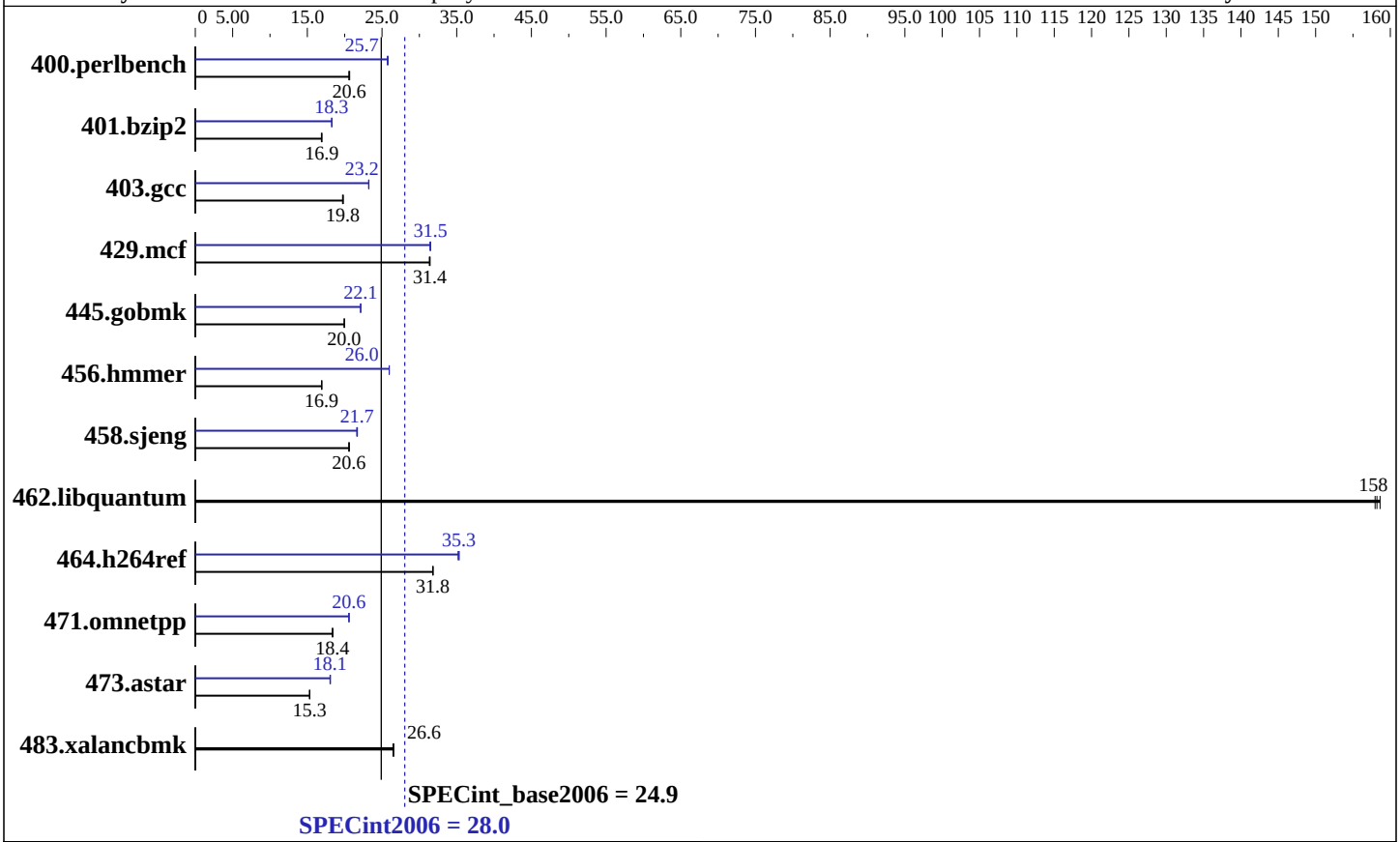
ProLiant DL320 G5p
(3.00 GHz, Intel Xeon X3370)

SPECint®2006 = 28.0

SPECint_base2006 = 24.9

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

**Test date:** Sep-2008
**Hardware Availability:** Sep-2008
**Software Availability:** Nov-2008




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X3370 |
| CPU Characteristics: | 3.0 GHz, 2x6MB L2 shared, 1333 MHz system bus |
| CPU MHz: | 3000 |
| 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 CL6) |
| Disk Subsystem: | 250 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 10.1 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 V8.1<br>Binutils 2.18.50.0.7.20080502 |

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## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 475 | 20.6 | 473 | 20.7 | **474** | **20.6** | 380 | 25.7 | 379 | 25.8 | **380** | **25.7** |
| 401.bzip2 | 569 | 17.0 | 572 | 16.9 | **570** | **16.9** | 528 | 18.3 | **528** | **18.3** | 528 | 18.3 |
| 403.gcc | 406 | 19.8 | **407** | **19.8** | 408 | 19.7 | 347 | 23.2 | 346 | 23.3 | **346** | **23.2** |
| 429.mcf | 291 | 31.3 | **290** | **31.4** | 290 | 31.4 | **290** | **31.5** | 290 | 31.4 | 289 | 31.5 |
| 445.gobmk | 526 | 19.9 | **526** | **20.0** | 526 | 20.0 | 474 | 22.1 | **474** | **22.1** | 474 | 22.1 |
| 456.hmmer | 551 | 16.9 | **551** | **16.9** | 551 | 16.9 | **359** | **26.0** | 359 | 26.0 | 359 | 26.0 |
| 458.sjeng | 589 | 20.6 | 587 | 20.6 | **588** | **20.6** | 560 | 21.6 | 557 | 21.7 | **558** | **21.7** |
| 462.libquantum | 131 | 159 | 131 | 158 | **131** | **158** | 131 | 159 | 131 | 158 | **131** | **158** |
| 464.h264ref | **695** | **31.8** | 696 | 31.8 | 695 | 31.8 | **627** | **35.3** | 627 | 35.3 | 629 | 35.2 |
| 471.omnetpp | 339 | 18.4 | **340** | **18.4** | 341 | 18.3 | 304 | 20.6 | **304** | **20.6** | 303 | 20.6 |
| 473.astar | **459** | **15.3** | 459 | 15.3 | 459 | 15.3 | **389** | **18.1** | 388 | 18.1 | 389 | 18.0 |
| 483.xalancbmk | 260 | 26.6 | 261 | 26.5 | **260** | **26.6** | 260 | 26.6 | 261 | 26.5 | **260** | **26.6** |

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

## Operating System Notes

```
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
```

## General Notes

```
All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmer,
for peak, are compiled in 64-bit 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`

## Base Optimization Flags

C benchmarks:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel
-par-runtime-control -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`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

## Peak Optimization Flags

C benchmarks:

Continued on next page

# Peak Optimization Flags (Continued)

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 -auto-ilp32 -opt-prefetch -ansi-alias

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

429.mcf: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

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

456.hmmer: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -ansi-alias -auto-ilp32

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

462.libquantum: basepeak = yes

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

# 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.20090713.01.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.20090713.01.xml


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