# SPEC® CINT2006 Result

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## Hewlett-Packard Company

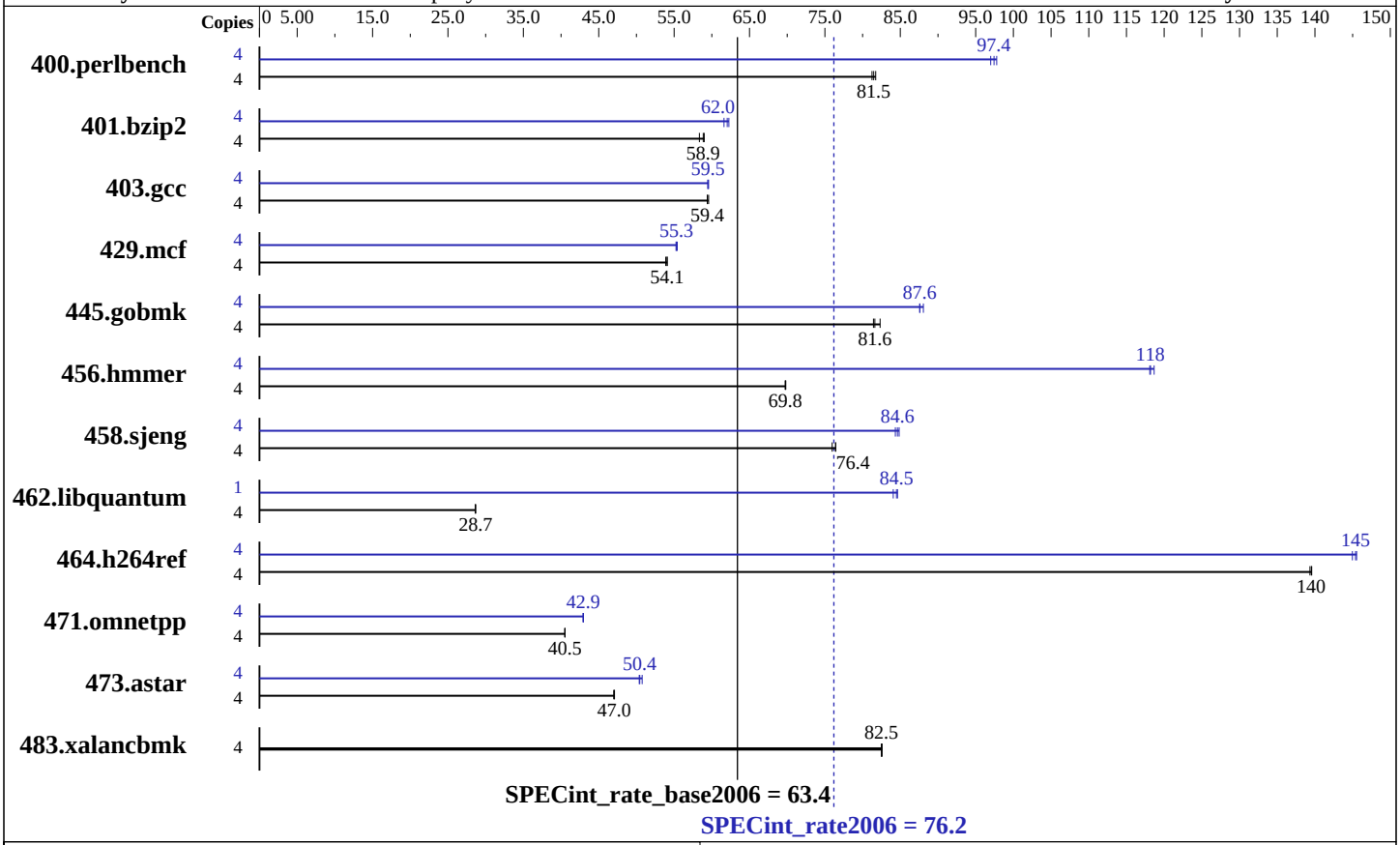
ProLiant ML350 G5
(3.33 GHz, Intel Xeon X5260)

SPECint®_rate2006 = 76.2

SPECint_rate_base2006 = 63.4

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

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




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X5260 |
| CPU Characteristics: | 3.33 GHz, 6 MB L2, 1333 MHz system bus |
| CPU MHz: | 3333 |
| FPU: | Integrated |
| CPU(s) enabled: | 4 cores, 2 chips, 2 cores/chip |
| CPU(s) orderable: | 1,2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 6 MB I+D on chip per chip |
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 16 GB (8x2 GB PC2-5300F CL5) |
| Disk Subsystem: | 1x36 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 | 478 | 81.7 | 481 | 81.2 | **480** | **81.5** | 4 | 400 | 97.8 | 403 | 97.0 | **401** | **97.4** |
| 401.bzip2 | 4 | **656** | **58.9** | 654 | 59.0 | 662 | 58.4 | 4 | 620 | 62.3 | 626 | 61.6 | **622** | **62.0** |
| 403.gcc | 4 | 542 | 59.4 | **542** | **59.4** | 540 | 59.6 | 4 | 541 | 59.5 | 541 | 59.6 | **541** | **59.5** |
| 429.mcf | 4 | 674 | 54.1 | **675** | **54.1** | 677 | 53.9 | 4 | 658 | 55.4 | **660** | **55.3** | 660 | 55.2 |
| 445.gobmk | 4 | **514** | **81.6** | 515 | 81.4 | 510 | 82.3 | 4 | **479** | **87.6** | 476 | 88.1 | 479 | 87.6 |
| 456.hmmer | 4 | 535 | 69.8 | **535** | **69.8** | 535 | 69.7 | 4 | 314 | 119 | 316 | 118 | **316** | **118** |
| 458.sjeng | 4 | 637 | 76.0 | 633 | 76.4 | **633** | **76.4** | 4 | 574 | 84.3 | 570 | 84.8 | **572** | **84.6** |
| 462.libquantum | 4 | 2897 | 28.6 | 2891 | 28.7 | **2891** | **28.7** | 1 | **245** | **84.5** | 245 | 84.6 | 246 | 84.1 |
| 464.h264ref | 4 | **634** | **140** | 635 | 139 | 634 | 140 | 4 | 608 | 146 | **609** | **145** | 611 | 145 |
| 471.omnetpp | 4 | 617 | 40.5 | 617 | 40.5 | **617** | **40.5** | 4 | **582** | **42.9** | 582 | 43.0 | 582 | 42.9 |
| 473.astar | 4 | 598 | 47.0 | 596 | 47.1 | **597** | **47.0** | 4 | 553 | 50.8 | **557** | **50.4** | 557 | 50.4 |
| 483.xalancbmk | 4 | 334 | 82.6 | **335** | **82.5** | 335 | 82.5 | 4 | 334 | 82.6 | **335** | **82.5** | 335 | 82.5 |

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`

Continued on next page

## 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

# 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.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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