



# SPEC® CINT2006 Result

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## Hewlett-Packard Company

SPECint®\_rate2006 = 260

ProLiant ML370 G6  
(3.2 GHz, Intel Xeon W5580)

SPECint\_rate\_base2006 = 242

CPU2006 license: 3

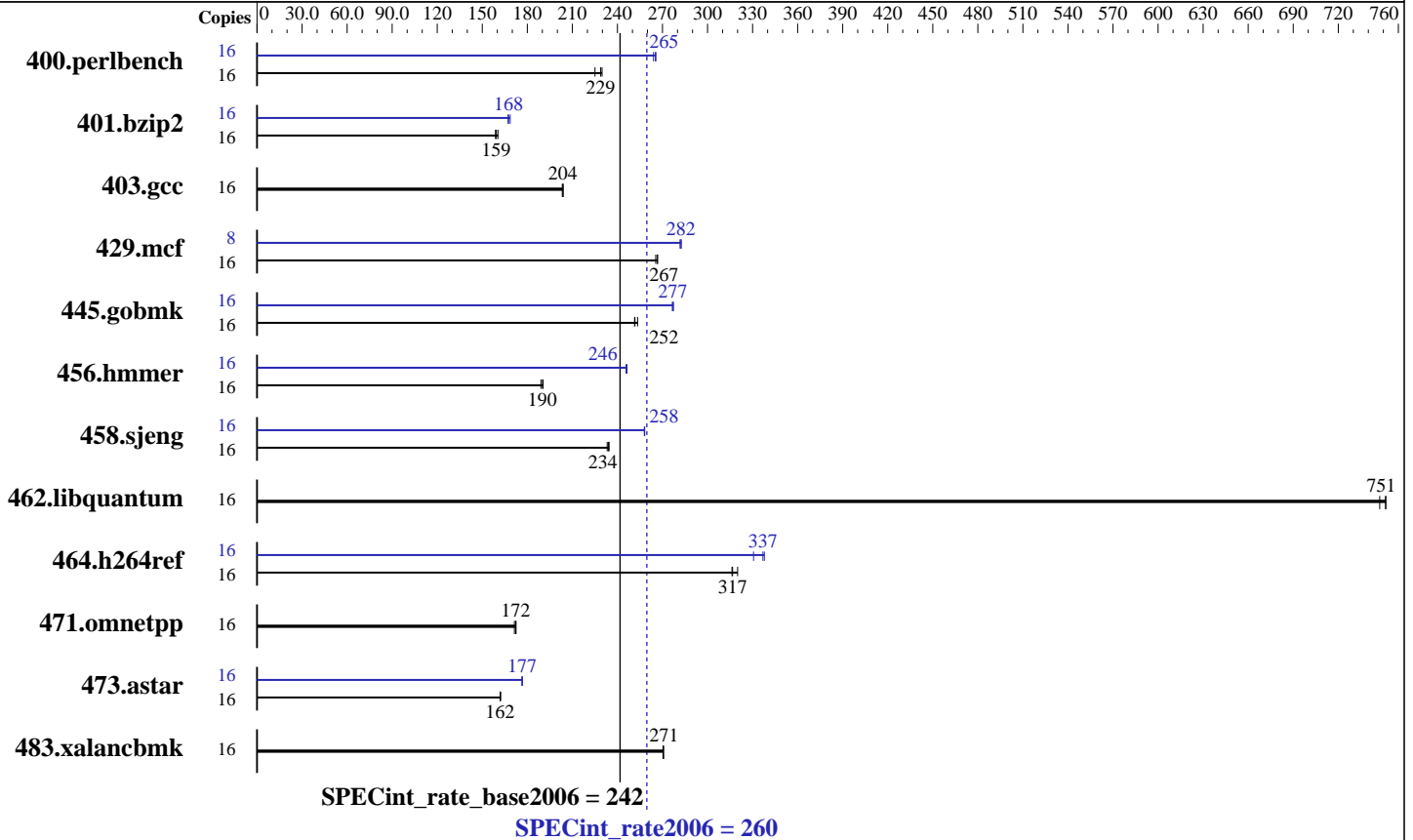
Test date: Apr-2009

Test sponsor: Hewlett-Packard Company

Hardware Availability: Apr-2009

Tested by: Hewlett-Packard Company

Software Availability: Feb-2009



### Hardware

CPU Name: Intel Xeon W5580  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.46 GHz  
 CPU MHz: 3200  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core  
 L3 Cache: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 48 GB (6x8 GB PC3-10600R CL9)  
 Disk Subsystem: 1x146 GB 10 K SAS  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 5.3  
 Kernel 2.6.18-128.el5  
 Compiler: Intel C++ Compiler 11.0 for Linux  
 Build 20090131 Package ID: l\_cproc\_p\_11.0.080  
 Auto Parallel: No  
 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  
 Binutils 2.18.50.0.7.20080502



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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  | 16     | 695        | 225        | 680        | 230        | <b>683</b>  | <b>229</b> | 16     | 592        | 264        | <b>589</b>  | <b>265</b> | 588        | 266        |
| 401.bzip2      | 16     | <b>969</b> | <b>159</b> | 962        | 160        | 972         | 159        | 16     | 924        | 167        | 916         | 169        | <b>922</b> | <b>168</b> |
| 403.gcc        | 16     | <b>632</b> | <b>204</b> | 634        | 203        | 632         | 204        | 16     | <b>632</b> | <b>204</b> | 634         | 203        | 632        | 204        |
| 429.mcf        | 16     | <b>547</b> | <b>267</b> | 550        | 265        | 547         | 267        | 8      | 259        | 282        | 258         | 283        | <b>258</b> | <b>282</b> |
| 445.gobmk      | 16     | <b>667</b> | <b>252</b> | 662        | 253        | 668         | 251        | 16     | 605        | 277        | <b>606</b>  | <b>277</b> | 607        | 277        |
| 456.hammer     | 16     | <b>785</b> | <b>190</b> | 790        | 189        | 784         | 190        | 16     | 606        | 246        | <b>606</b>  | <b>246</b> | 608        | 246        |
| 458.sjeng      | 16     | 830        | 233        | <b>827</b> | <b>234</b> | 826         | 234        | 16     | 750        | 258        | 751         | 258        | <b>750</b> | <b>258</b> |
| 462.libquantum | 16     | <b>441</b> | <b>751</b> | 443        | 748        | 441         | 752        | 16     | <b>441</b> | <b>751</b> | 443         | 748        | 441        | 752        |
| 464.h264ref    | 16     | 1120       | 316        | 1106       | 320        | <b>1118</b> | <b>317</b> | 16     | 1071       | 331        | <b>1051</b> | <b>337</b> | 1048       | 338        |
| 471.omnetpp    | 16     | 583        | 171        | 580        | 172        | <b>580</b>  | <b>172</b> | 16     | 583        | 171        | 580         | 172        | <b>580</b> | <b>172</b> |
| 473.astar      | 16     | 694        | 162        | <b>694</b> | <b>162</b> | 692         | 162        | 16     | 636        | 177        | <b>636</b>  | <b>177</b> | 636        | 176        |
| 483.xalancbmk  | 16     | 408        | 271        | <b>408</b> | <b>271</b> | 408         | 270        | 16     | 408        | 271        | <b>408</b>  | <b>271</b> | 408        | 270        |

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

## Submit Notes

The config file option 'submit' was used.  
numactl was used to bind copies to the cores

## 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  
Power Profile set to Maximum Performance  
Thermal Configuration set to Increased Cooling

## General Notes

The HP ProLiant DL370 G6 (Intel Xeon W5580) and the HP ProLiant ML370 G6 (Intel Xeon W5580) models are electronically equivalent. The results have been measured on a HP ProLiant ML370 G6 (Intel Xeon W5580) model.

## Base Compiler Invocation

C benchmarks:  
icc

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## Base Compiler Invocation (Continued)

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:  
-xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc  
-opt-malloc-options=3 -opt-prefetch

C++ benchmarks:  
-xSSE4.2 -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/11.0/080/bin/intel64/icc  
456.hmmmer: /opt/intel/Compiler/11.0/080/bin/intel64/icc  
458.sjeng: /opt/intel/Compiler/11.0/080/bin/intel64/icc

C++ benchmarks (except as noted below):  
icpc

473.astar: /opt/intel/Compiler/11.0/080/bin/intel64/icpc



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## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
 401.bzip2: -DSPEC\_CPU\_LP64  
 456.hmmer: -DSPEC\_CPU\_LP64  
 458.sjeng: -DSPEC\_CPU\_LP64  
 462.libquantum: -DSPEC\_CPU\_LINUX  
 473.astar: -DSPEC\_CPU\_LP64  
 483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
 -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)  
 -prof-use(pass 2) -ansi-alias -opt-prefetch

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
 -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)  
 -prof-use(pass 2) -opt-prefetch -ansi-alias -auto-ilp32

403.gcc: basepeak = yes

429.mcf: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
 -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)  
 -prof-use(pass 2) -opt-prefetch

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

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2  
 -ansi-alias -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
 -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)  
 -prof-use(pass 2) -unroll4 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
 -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)  
 -prof-use(pass 2) -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
 -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
 -ansi-alias -opt-ra-region-strategy=routine -auto-ilp32

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## Peak Optimization Flags (Continued)

473.astar (continued):

`-Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap64`

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.20090710.html>

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20090710.10.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.20090710.xml>

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20090710.10.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).

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