



# SPEC® CINT2006 Result

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## Hewlett-Packard Company

SPECint®\_rate2006 = 388

ProLiant BL490c G7  
(3.06 GHz, Intel Xeon X5675)

SPECint\_rate\_base2006 = 362

CPU2006 license: 3

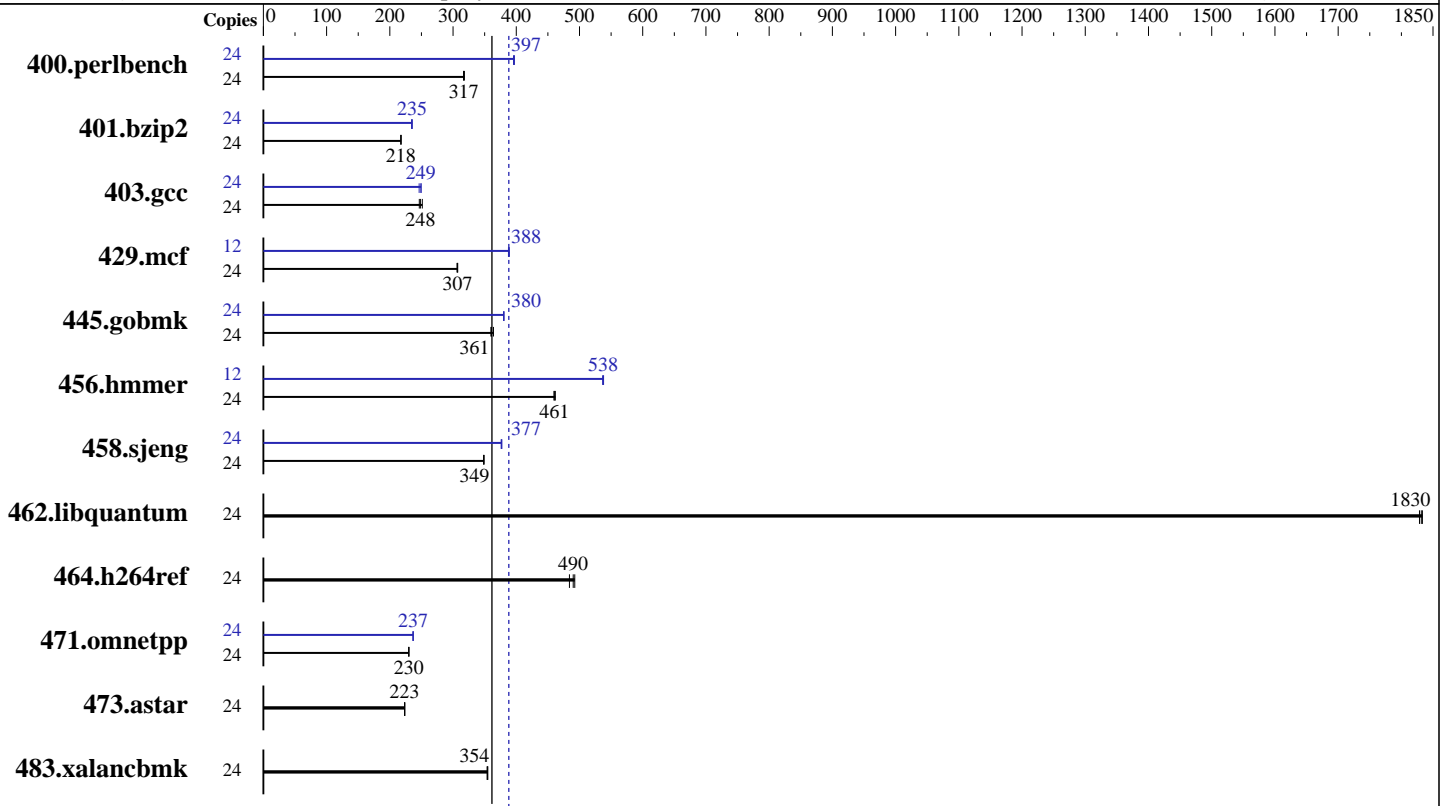
Test date: Dec-2010

Test sponsor: Hewlett-Packard Company

Hardware Availability: Feb-2011

Tested by: Hewlett-Packard Company

Software Availability: Dec-2010



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### Hardware

CPU Name: Intel Xeon X5675  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.46 GHz  
 CPU MHz: 3067  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 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: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC)  
 Disk Subsystem: 1 x 120 GB SATA SSD  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 11 (x86\_64), Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ Compiler XE for applications running on IA-32 Version 12.0.1.116 Build 20101116  
 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 V9.01



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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  | 24     | 737         | 318        | 740        | 317        | <b>740</b>  | <b>317</b>  | 24     | 593        | 396        | <b>591</b> | <b>397</b> | 591         | 397         |
| 401.bzip2      | 24     | <b>1064</b> | <b>218</b> | 1064       | 218        | 1065        | 217         | 24     | 984        | 235        | <b>985</b> | <b>235</b> | 988         | 234         |
| 403.gcc        | 24     | 769         | 251        | <b>778</b> | <b>248</b> | 783         | 247         | 24     | 774        | 250        | <b>775</b> | <b>249</b> | 784         | 246         |
| 429.mcf        | 24     | 712         | 307        | 715        | 306        | <b>713</b>  | <b>307</b>  | 12     | <b>282</b> | <b>388</b> | 282        | 388        | 281         | 389         |
| 445.gobmk      | 24     | <b>698</b>  | <b>361</b> | 692        | 364        | 700         | 360         | 24     | 662        | 381        | 663        | 380        | <b>662</b>  | <b>380</b>  |
| 456.hammer     | 24     | 487         | 460        | 485        | 462        | <b>486</b>  | <b>461</b>  | 12     | 209        | 537        | <b>208</b> | <b>538</b> | 208         | 538         |
| 458.sjeng      | 24     | 832         | 349        | <b>833</b> | <b>349</b> | 833         | 348         | 24     | <b>771</b> | <b>377</b> | 772        | 376        | 770         | 377         |
| 462.libquantum | 24     | 272         | 1830       | 271        | 1830       | <b>272</b>  | <b>1830</b> | 24     | 272        | 1830       | 271        | 1830       | <b>272</b>  | <b>1830</b> |
| 464.h264ref    | 24     | 1078        | 493        | 1097       | 484        | <b>1084</b> | <b>490</b>  | 24     | 1078       | 493        | 1097       | 484        | <b>1084</b> | <b>490</b>  |
| 471.omnetpp    | 24     | <b>652</b>  | <b>230</b> | 652        | 230        | 652         | 230         | 24     | 633        | 237        | <b>633</b> | <b>237</b> | 634         | 237         |
| 473.astar      | 24     | 755         | 223        | 753        | 224        | <b>754</b>  | <b>223</b>  | 24     | 755        | 223        | 753        | 224        | <b>754</b>  | <b>223</b>  |
| 483.xalancbmk  | 24     | <b>467</b>  | <b>354</b> | 466        | 355        | 468         | 354         | 24     | <b>467</b> | <b>354</b> | 466        | 355        | 468         | 354         |

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

```
'nodev /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
echo 10800 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

## Platform Notes

BIOS configuration:  
HP Power Profile set to Maximum Performance  
Thermal Configuration set to Increased Cooling  
Data Reuse set to Disabled

## General Notes

Binaries were compiled on RHEL5.5 with Binutils binutils-2.17.50.0.6-14.e15



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## Base Compiler Invocation

C benchmarks:

icc -m32

C++ benchmarks:

icpc -m32

## 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 -opt-prefetch  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/smartheap -lsmartheap  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

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## Peak Compiler Invocation (Continued)

C++ benchmarks:  
icpc -m32

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64  
401.bzip2: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LINUX  
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) -prof-use(pass 2)  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-opt-prefetch -auto-ilp32 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

429.mcf: -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 -auto-ilp32

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -auto-ilp32

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll4 -auto-ilp32  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

462.libquantum: basepeak = yes

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## Peak Optimization Flags (Continued)

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -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=block -Wl,-z,muldefs  
-L/smartheap -lsmartheap

473.astar: basepeak = yes

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/Intel-ic12.0-linux64-revA.html>

<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110216.00.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.xml>

<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110216.00.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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