



# SPEC® CINT2006 Result

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## Hewlett-Packard Company

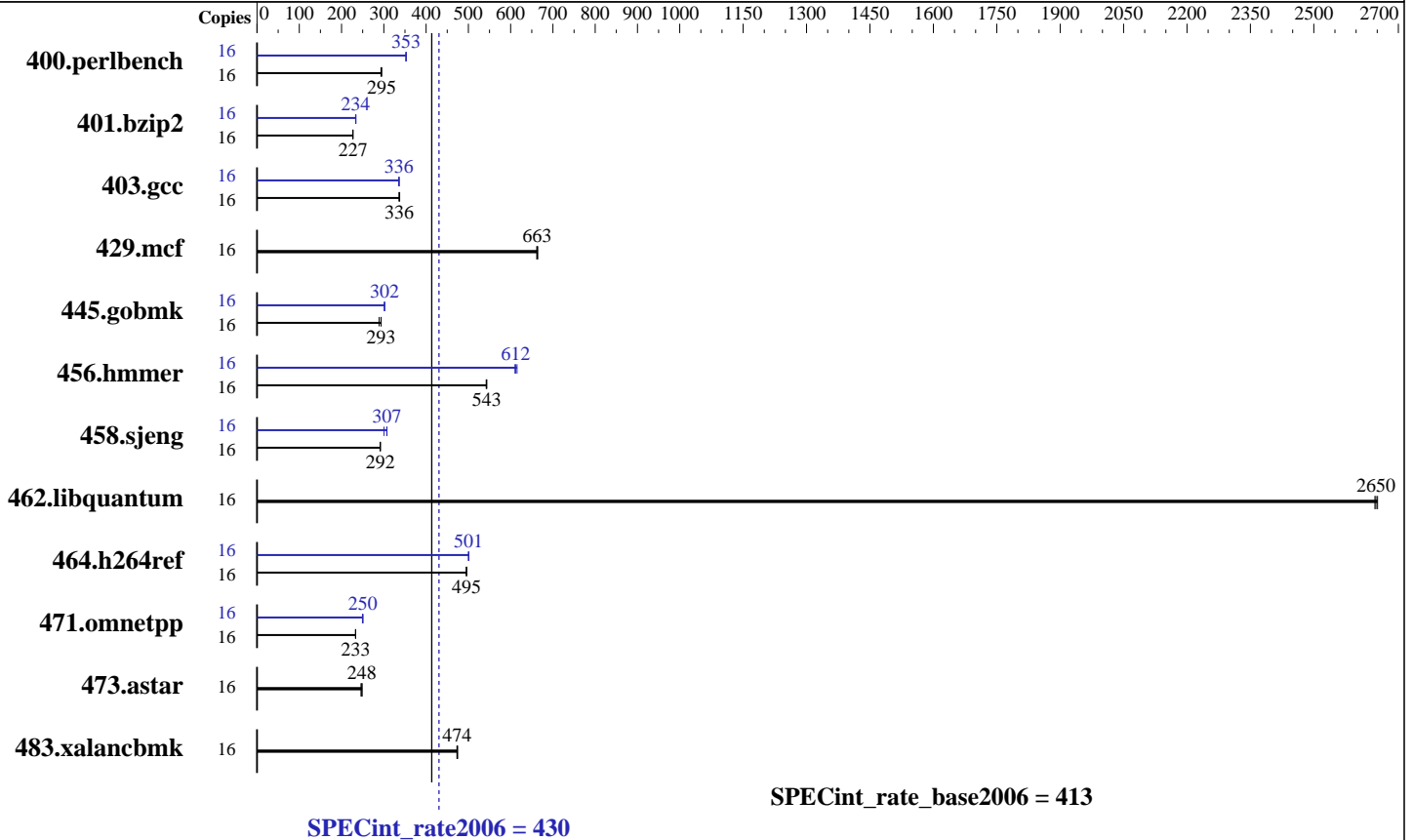
SPECint®\_rate2006 = 430

ProLiant DL380p Gen8  
(3.50 GHz, Intel Xeon E5-2637 v2)

SPECint\_rate\_base2006 = 413

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

Test date: Jan-2014  
Hardware Availability: Dec-2013  
Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E5-2637 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz  
 CPU MHz: 3500  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 chip  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core  
 L3 Cache: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-14900R-13, ECC)  
 Disk Subsystem: 1 x 400 GB SAS SSD, RAID 0  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)  
 Kernel 2.6.32-358.el6.x86\_64  
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux  
 Auto Parallel: No  
 File System: ext4  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V10.0



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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     | <u>531</u> | <u>295</u> | 530        | 295         | 533        | 293        | 16     | <u>443</u> | <u>353</u> | 444        | 352         | 443        | 353        |
| 401.bzip2      | 16     | <u>680</u> | <u>227</u> | 681        | 227         | 680        | 227        | 16     | 660        | 234        | 662        | 233         | <u>661</u> | <u>234</u> |
| 403.gcc        | 16     | 382        | 337        | <u>383</u> | <u>336</u>  | 383        | 336        | 16     | 383        | 336        | <u>383</u> | <u>336</u>  | 384        | 335        |
| 429.mcf        | 16     | 221        | 662        | <u>220</u> | <u>663</u>  | 220        | 664        | 16     | 221        | 662        | <u>220</u> | <u>663</u>  | 220        | 664        |
| 445.gobmk      | 16     | 572        | 294        | <u>572</u> | <u>293</u>  | 581        | 289        | 16     | 557        | 301        | 556        | 302         | <u>556</u> | <u>302</u> |
| 456.hammer     | 16     | <u>275</u> | <u>543</u> | 275        | 543         | 275        | 542        | 16     | 245        | 610        | <u>244</u> | <u>612</u>  | 243        | 615        |
| 458.sjeng      | 16     | 664        | 291        | 664        | 292         | <u>664</u> | <u>292</u> | 16     | <u>631</u> | <u>307</u> | 630        | 307         | 644        | 301        |
| 462.libquantum | 16     | 125        | 2650       | <u>125</u> | <u>2650</u> | 125        | 2640       | 16     | 125        | 2650       | <u>125</u> | <u>2650</u> | 125        | 2640       |
| 464.h264ref    | 16     | <u>715</u> | <u>495</u> | 714        | 496         | 715        | 495        | 16     | <u>707</u> | <u>501</u> | 708        | 500         | 707        | 501        |
| 471.omnetpp    | 16     | <u>429</u> | <u>233</u> | 429        | 233         | 428        | 233        | 16     | 399        | 251        | 401        | 249         | <u>400</u> | <u>250</u> |
| 473.astar      | 16     | 457        | 246        | <u>453</u> | <u>248</u>  | 452        | 249        | 16     | 457        | 246        | <u>453</u> | <u>248</u>  | 452        | 249        |
| 483.xalancbmk  | 16     | 233        | 475        | 233        | 473         | <u>233</u> | <u>474</u> | 16     | 233        | 475        | 233        | 473         | <u>233</u> | <u>474</u> |

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

### Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

### Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled  
Filesystem page cache cleared with:  
echo 1 > /proc/sys/vm/drop\_caches  
runspec command invoked through numactl i.e.:  
numactl --interleave=all runspec <etc>

### Platform Notes

BIOS Configuration:  
HP Power Profile set to Maximum Performance  
Memory Power Savings Mode set to Maximum Performance  
Thermal Configuration set to Maximum Cooling  
Collaborative Power Control set to Disabled  
Dynamic Power Capping Functionality set to Disabled  
Processor Power and Utilization Monitoring set to Disabled  
Memory Refresh Rate set to 1x  
  
Sysinfo program /cpu2006/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191  
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### Platform Notes (Continued)

running on DL380p-Gen8-0S9 Thu Jan 30 19:22:04 2014

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see: <http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```
From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2637 v2 @ 3.50GHz
 2 "physical id"s (chips)
 16 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
caution.)
  cpu cores : 4
  siblings  : 8
  physical 0: cores 1 2 3 4
  physical 1: cores 1 2 3 4
 cache size : 15360 KB
```

```
From /proc/meminfo
MemTotal:      132119284 kB
HugePages_Total:       0
Hugepagesize:       2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux DL380p-Gen8-0S9 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST
2013 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Jan 30 17:30
```

```
SPEC is set to: /cpu2006
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda3       ext4      365G  97G  250G  28% /
```

```
Additional information from dmidecode:
BIOS HP P70 12/20/2013
Memory:
 16x HP 712382-071 8 GB 1866 MHz 2 rank
 8x UNKNOWN NOT AVAILABLE
```

(End of data from sysinfo program)  
Regarding the sysinfo display about the memory installed, the correct amount of memory is 128 GB and the dmidecode description should have one line reading as:  
16x HP 712382-071 8 GB 1866 MHz 2 rank



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## General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/cpu2006/libs/32:/cpu2006/libs/64:/cpu2006/sh"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB  
memory using RedHat EL 6.4

## 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 -opt-mem-layout-trans=3

C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3  
-Wl,-z,muldefs -L/sh -lsmartheap

## Base Other Flags

C benchmarks:  
403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):  
icc -m32

400.perlbench: icc -m64

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## Peak Compiler Invocation (Continued)

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

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)  
-auto-ilp32

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

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -opt-mem-layout-trans=3

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

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

462.libquantum: basepeak = yes

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## Peak Optimization Flags (Continued)

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

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/sh -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-ic14.0-official-linux64.20140128.html>

<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revB.20131009.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revB.20131009.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.

Report generated on Thu Jul 24 19:56:30 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 25 February 2014.