# SPEC® CINT2006 Result

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## Hewlett-Packard Company

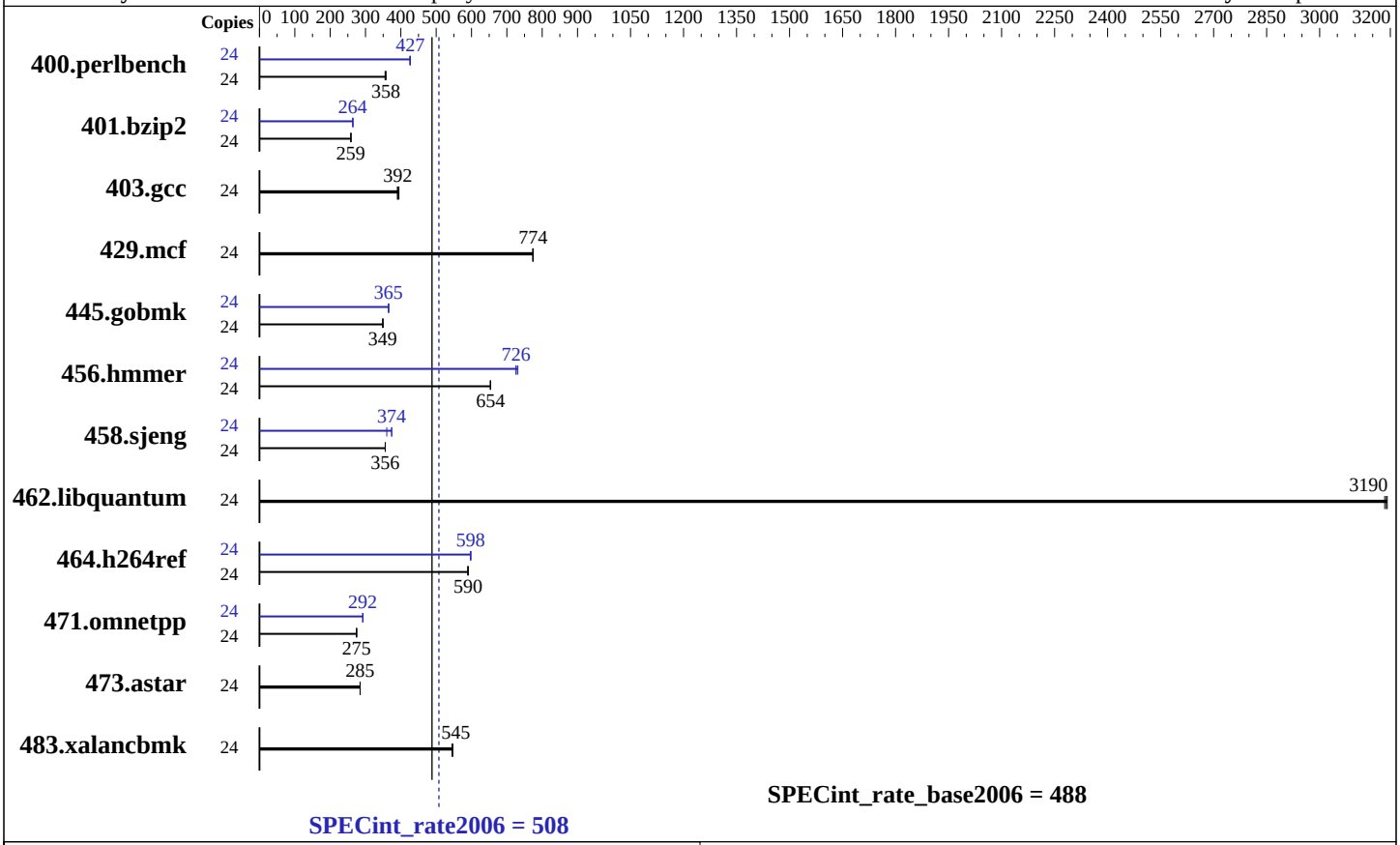
ProLiant BL460c Gen8
(2.60 GHz, Intel Xeon E5-2630 v2)

SPECint®_rate2006 = 508

SPECint_rate_base2006 = 488

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

**Test date:** Sep-2013
**Hardware Availability:** Sep-2013
**Software Availability:** Sep-2013




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2630 v2 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.10 GHz |
| CPU MHz: | 2600 |
| FPU: | Integrated |
| CPU(s) enabled: | 12 cores, 2 chips, 6 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 PC3-12800R-11, ECC) |
| Disk Subsystem: | 1 x 400 GB SAS SSD, RAID 1 |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 6.4 (Santiago)<br>Kernel version 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 | 24 | 655 | 358 | **656** | **358** | 660 | 355 | 24 | 549 | 427 | **549** | **427** | 551 | 425 |
| 401.bzip2 | 24 | 894 | 259 | **896** | **259** | 896 | 259 | 24 | 876 | 265 | 877 | 264 | **877** | **264** |
| 403.gcc | 24 | 490 | 395 | **493** | **392** | 495 | 390 | 24 | 490 | 395 | **493** | **392** | 495 | 390 |
| 429.mcf | 24 | 283 | 773 | 283 | 774 | **283** | **774** | 24 | 283 | 773 | 283 | 774 | **283** | **774** |
| 445.gobmk | 24 | 720 | 350 | 722 | 349 | **721** | **349** | 24 | 689 | 365 | 689 | 365 | **689** | **365** |
| 456.hmmer | 24 | **342** | **654** | 343 | 653 | 342 | 654 | 24 | 306 | 731 | **308** | **726** | 308 | 726 |
| 458.sjeng | 24 | 816 | 356 | **816** | **356** | 816 | 356 | 24 | 806 | 360 | **777** | **374** | 776 | 374 |
| 462.libquantum | 24 | **156** | **3190** | 156 | 3190 | 156 | 3180 | 24 | **156** | **3190** | 156 | 3190 | 156 | 3180 |
| 464.h264ref | 24 | **900** | **590** | 901 | 589 | 899 | 591 | 24 | 888 | 598 | **888** | **598** | 890 | 597 |
| 471.omnetpp | 24 | 545 | 275 | **546** | **275** | 547 | 274 | 24 | 512 | 293 | **513** | **292** | 513 | 292 |
| 473.astar | 24 | **592** | **285** | 592 | 285 | 591 | 285 | 24 | **592** | **285** | 592 | 285 | 591 | 285 |
| 483.xalancbmk | 24 | 303 | 547 | **304** | **545** | 304 | 545 | 24 | 303 | 547 | **304** | **545** | 304 | 545 |

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>
Disabled unused Linux services through "stop_services.sh" before running.
```

## Platform Notes

```
BIOS Configuration:
 HP Power Profile set to Maximum Performance
 Memory Power Savings Mode set to Maximum Performance
 Collaborative Power Control set to Disabled
 Dynamic Power Capping Functionality set to Disabled
 Thermal Configuration set to Maximum Cooling
 Processor Power and Utilization Monitoring set to Disabled
 Memory Refresh Rate set to 1x

Sysinfo program /cpu2006/config/sysinfo.rev6818
```

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## Platform Notes (Continued)

```
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on BL460cGen8-RFP-BAO Fri Sep 27 15:35:50 2013

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 E5-2630 v2 @ 2.60GHz
      2 "physical id"s (chips)
      24 "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 : 6
      siblings  : 12
      physical 0: cores 0 1 2 3 4 5
      physical 1: cores 0 1 2 3 4 5
   cache size : 15360 KB

From /proc/meminfo
   MemTotal:       132119288 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 BL460cGen8-RFP-BAO 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 Sep 27 15:34

SPEC is set to: /cpu2006
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/sda3      ext4    360G  8.8G  333G   3% /

Additional information from dmidecode:
  BIOS HP I31 09/08/2013
  Memory:
   16x HP 689911-071 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)
```

## 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`

Continued on next page

## 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: basepeak = yes

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/HP-Platform-Flags-Intel-V1.2-revB.html`
`http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revB.xml`
`http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml`


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Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 18:42:23 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 22 October 2013.