



# SPEC<sup>®</sup> CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

SPECint<sup>®</sup>\_rate2006 = 596

ProLiant BL460c Gen8  
(2.20 GHz, Intel Xeon E5-2660)

SPECint\_rate\_base2006 = 572

CPU2006 license: 3

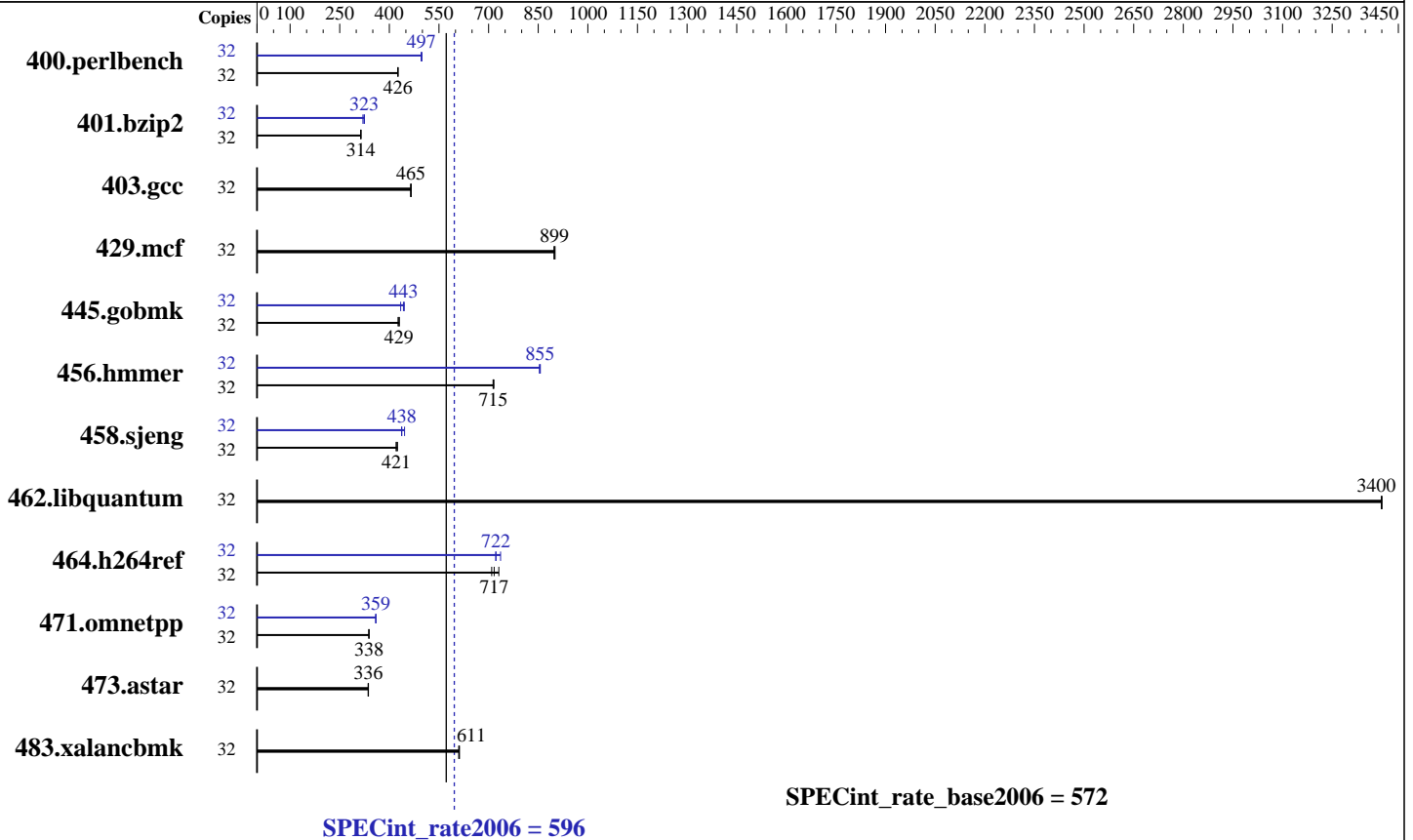
Test date: Apr-2012

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2012

Tested by: Hewlett-Packard Company

Software Availability: Mar-2012



### Hardware

CPU Name: Intel Xeon E5-2660  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz  
 CPU MHz: 2200  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 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: 20 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
 Disk Subsystem: 2 x 146 GB 15 K SAS, RAID 1  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.2 (Santiago)  
 Kernel 2.6.32-220.el6.x86\_64  
 Compiler: C/C++: Version 12.1.2.273 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 V9.01  
 HP Array Configuration Utility, CLI version



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

SPECint\_rate2006 = 596

ProLiant BL460c Gen8  
(2.20 GHz, Intel Xeon E5-2660)

SPECint\_rate\_base2006 = 572

CPU2006 license: 3

Test date: Apr-2012

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2012

Tested by: Hewlett-Packard Company

Software Availability: Mar-2012

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	32	<b>734</b>	<b>426</b>	733	426	734	426	32	630	496	627	499	<b>629</b>	<b>497</b>
401.bzip2	32	986	313	<b>983</b>	<b>314</b>	983	314	32	951	325	<b>955</b>	<b>323</b>	965	320
403.gcc	32	<b>554</b>	<b>465</b>	555	464	553	466	32	<b>554</b>	<b>465</b>	555	464	553	466
429.mcf	32	<b>325</b>	<b>899</b>	324	901	325	898	32	<b>325</b>	<b>899</b>	324	901	325	898
445.gobmk	32	<b>783</b>	<b>429</b>	780	430	788	426	32	754	445	773	434	<b>758</b>	<b>443</b>
456.hammer	32	417	716	<b>418</b>	<b>715</b>	418	714	32	350	854	<b>349</b>	<b>855</b>	349	856
458.sjeng	32	912	425	<b>919</b>	<b>421</b>	920	421	32	868	446	<b>884</b>	<b>438</b>	886	437
462.libquantum	32	<b>195</b>	<b>3400</b>	195	3400	195	3400	32	<b>195</b>	<b>3400</b>	195	3400	195	3400
464.h264ref	32	998	709	969	731	<b>988</b>	<b>717</b>	32	<b>980</b>	<b>722</b>	982	721	962	736
471.omnetpp	32	591	338	591	338	<b>591</b>	<b>338</b>	32	<b>557</b>	<b>359</b>	557	359	557	359
473.astar	32	667	337	<b>668</b>	<b>336</b>	669	336	32	667	337	<b>668</b>	<b>336</b>	669	336
483.xalancbmk	32	362	610	<b>361</b>	<b>611</b>	361	612	32	362	610	<b>361</b>	<b>611</b>	361	612

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>
Drive Write Cache set to Enabled in HP Array Configuration Utility, CLI version
Accelerator Ratio for Reads/Writes set to = 100% Read / 0% Write in HP Array Configuration Utility, CLI version
```

## Platform Notes

```
BIOS Configuration:
HP Power Profile set to Custom
Energy/Performance Bias is set to Maximum Performance
Thermal Configuration set to Maximum Cooling
Collaborative Power Control set to Disabled
Processor Power and Utilization Monitoring set to Disabled
Sysinfo program /cpu2006/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 # $ 6f2ebdff5032aaa42e583f96b07f99d3
running on BL460G8-2 Mon Jan 2 16:32:09 2012
Continued on next page
```



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

SPECint\_rate2006 = 596

ProLiant BL460c Gen8  
(2.20 GHz, Intel Xeon E5-2660)

SPECint\_rate\_base2006 = 572

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

**Test date:** Apr-2012  
**Hardware Availability:** Jun-2012  
**Software Availability:** Mar-2012

### Platform Notes (Continued)

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 E5-2660 0 @ 2.20GHz
 2 "physical id"s (chips)
 32 "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 : 8
  siblings  : 16
  physical 0: cores 0 1 2 3 4 5 6 7
  physical 1: cores 0 1 2 3 4 5 6 7
 cache size : 20480 KB
```

```
From /proc/meminfo
MemTotal:      132120004 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.2 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux BL460G8-2 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011
x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Jan 1 23:48
```

```
SPEC is set to: /cpu2006
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/vg_rh62-lv_root
                ext4      50G   21G   27G  45% /
```

```
Additional information from dmidecode:
BIOS HP I31 02/21/2012
Memory:
 16x Not Specified Not Specified 8 GB 1600 MHz 2 rank
```

(End of data from sysinfo program)



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECint\_rate2006 = 596**

ProLiant BL460c Gen8  
(2.20 GHz, Intel Xeon E5-2660)

**SPECint\_rate\_base2006 = 572**

**CPU2006 license:** 3

**Test date:** Apr-2012

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Jun-2012

**Tested by:** Hewlett-Packard Company

**Software Availability:** Mar-2012

## General Notes

Environment variables set by runspec before the start of the run:

KMP\_AFFINITY = "granularity=fine,compact,1,0"

LD\_LIBRARY\_PATH = "/cpu2006/libs2/32:/cpu2006/libs2/64"

Binaries compiled on a system with 2x Xeon E5-2667 CPU + 256GB  
memory using SLES11 SP2,RC3

## 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/spec/libs2/32 -lsmartheap

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECint\_rate2006 = 596**

ProLiant BL460c Gen8  
(2.20 GHz, Intel Xeon E5-2660)

**SPECint\_rate\_base2006 = 572**

**CPU2006 license:** 3

**Test date:** Apr-2012

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Jun-2012

**Tested by:** Hewlett-Packard Company

**Software Availability:** Mar-2012

## Peak Compiler Invocation (Continued)

400.perlbench: `icc -m64`

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`

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECint\_rate2006 = 596**

ProLiant BL460c Gen8  
(2.20 GHz, Intel Xeon E5-2660)

**SPECint\_rate\_base2006 = 572**

**CPU2006 license:** 3

**Test date:** Apr-2012

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Jun-2012

**Tested by:** Hewlett-Packard Company

**Software Availability:** Mar-2012

## Peak Optimization Flags (Continued)

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) -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/spec/libs2/32 -lsmarheap

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-A.20120425.html>

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.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-A.20120425.xml>

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml>

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Thu Jul 24 04:44:45 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 9 May 2012.