



# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

SPECint®\_rate2006 = 103

ProLiant BL465c G5  
(2.3 GHz AMD Opteron 2356)

SPECint\_rate\_base2006 = 89.5

CPU2006 license: 3

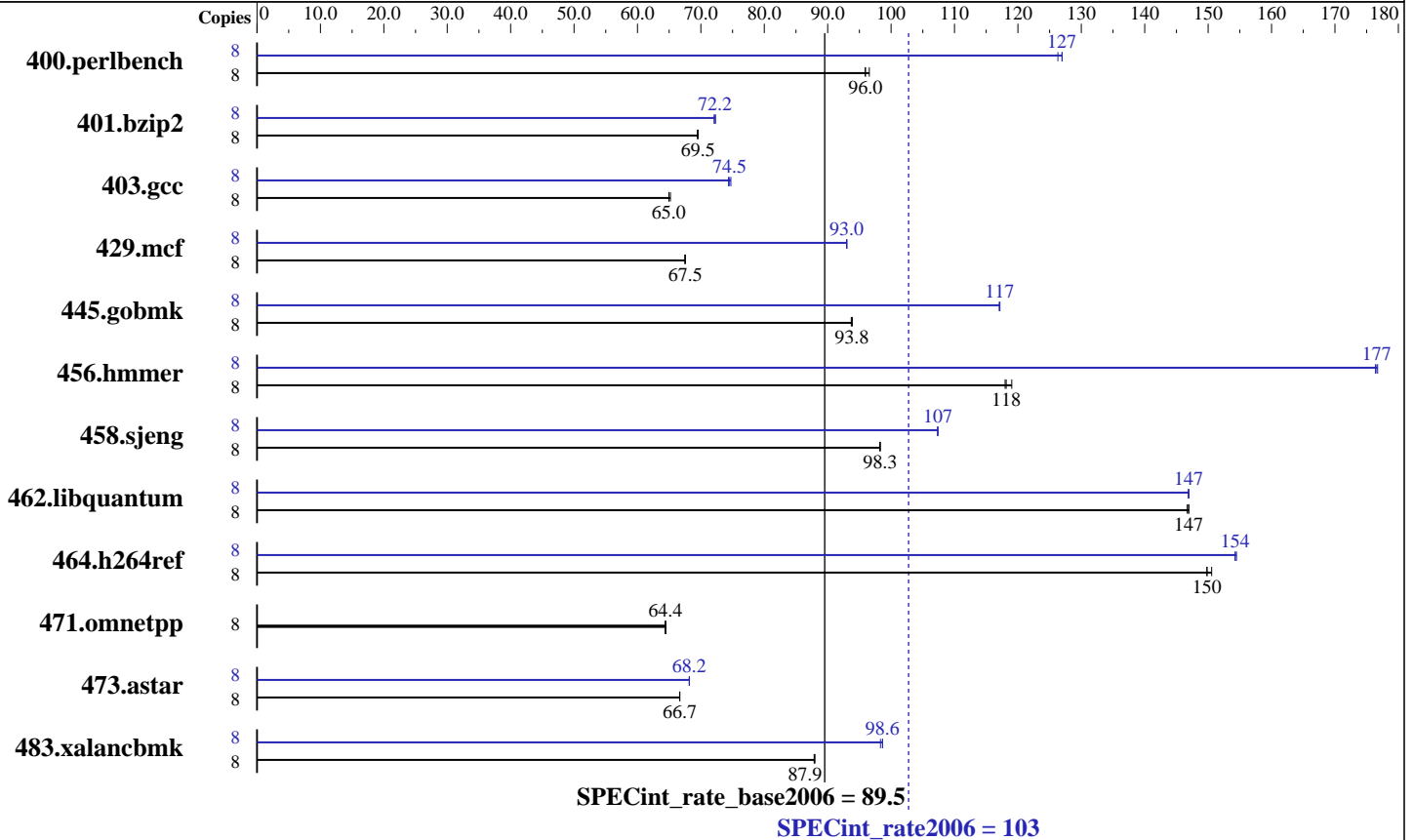
Test date: Mar-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Mar-2008

Tested by: Hewlett-Packard Company

Software Availability: May-2008



### Hardware

CPU Name: AMD Opteron 2356  
 CPU Characteristics:  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 64 KB I + 64 KB D on chip per core  
 Secondary Cache: 512 KB I+D on chip per core  
 L3 Cache: 2 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 32 GB (8x4 GB, PC2-5300P CL5)  
 Disk Subsystem: 1x146 GB 10 K SAS  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 10 (x86\_64) SP1, Kernel 2.6.16.46-0.12-smp  
 Compiler: PGI Server Complete Version 7.2, PathScale Compiler Suite, Release Pre-3.2 Beta  
 Auto Parallel: No  
 File System: ext2  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: binutils-2.18.50, SmartHeap 8.1 32-bit Library for Linux



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

SPECint\_rate2006 = 103

ProLiant BL465c G5  
(2.3 GHz AMD Opteron 2356)

SPECint\_rate\_base2006 = 89.5

CPU2006 license: 3

Test date: Mar-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Mar-2008

Tested by: Hewlett-Packard Company

Software Availability: May-2008

## Results Table

Benchmark	Base						Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	8	809	96.6	<b>815</b>	<b>96.0</b>	815	95.9	8	619	126	<b>616</b>	<b>127</b>	616	127
401.bzip2	8	1110	69.5	<b>1110</b>	<b>69.5</b>	1111	69.5	8	1071	72.1	<b>1069</b>	<b>72.2</b>	1068	72.3
403.gcc	8	991	65.0	988	65.2	<b>991</b>	<b>65.0</b>	8	862	74.7	866	74.3	<b>864</b>	<b>74.5</b>
429.mcf	8	1080	67.6	<b>1080</b>	<b>67.5</b>	1081	67.5	8	784	93.0	785	93.0	<b>785</b>	<b>93.0</b>
445.gobmk	8	895	93.7	894	93.9	<b>894</b>	<b>93.8</b>	8	<b>716</b>	<b>117</b>	717	117	716	117
456.hammer	8	<b>632</b>	<b>118</b>	627	119	633	118	8	423	176	<b>423</b>	<b>177</b>	422	177
458.sjeng	8	985	98.3	986	98.2	<b>985</b>	<b>98.3</b>	8	901	107	<b>902</b>	<b>107</b>	902	107
462.libquantum	8	1130	147	1128	147	<b>1128</b>	<b>147</b>	8	1128	147	<b>1128</b>	<b>147</b>	1129	147
464.h264ref	8	1182	150	<b>1182</b>	<b>150</b>	1176	151	8	1148	154	<b>1148</b>	<b>154</b>	1146	154
471.omnetpp	8	<b>776</b>	<b>64.4</b>	777	64.4	775	64.5	8	<b>776</b>	<b>64.4</b>	777	64.4	775	64.5
473.astar	8	842	66.7	<b>842</b>	<b>66.7</b>	842	66.7	8	824	68.2	<b>824</b>	<b>68.2</b>	823	68.2
483.xalancbmk	8	627	88.0	<b>628</b>	<b>87.9</b>	628	87.9	8	<b>560</b>	<b>98.6</b>	561	98.3	560	98.7

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

## Operating System Notes

Environment stack size set to 'unlimited'  
 Max locked memory set to 2097152  
 PGI\_HUGE\_PAGES set to 896.  
 Total number of huge pages available is 7168.  
 NCPUS set to number of cores  
 numactl used to bind processes to CPUs

## Platform Notes

BIOS configuration:  
 Power Regulator set to Static High Performance Mode

## Base Compiler Invocation

C benchmarks:  
 pgcc  
 C++ benchmarks:  
 pgcpp



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECint\_rate2006 = 103**

ProLiant BL465c G5  
(2.3 GHz AMD Opteron 2356)

**SPECint\_rate\_base2006 = 89.5**

**CPU2006 license:** 3

**Test date:** Mar-2008

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Mar-2008

**Tested by:** Hewlett-Packard Company

**Software Availability:** May-2008

## Base Portability Flags

```

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

```

## Base Optimization Flags

C benchmarks:

```

-fast -Mipa=jobs:4 -Mipa=fast -Mipa=inline -Mfprelaxed
-Msmartalloc=huge:150 -tp barcelona-64 -Bstatic_pgi

```

C++ benchmarks:

```

-fastsse -Mipa=jobs:4 -Mipa=fast -Mipa=inline -Mfprelaxed
-Msmartalloc=huge:150 --zc_eh -tp barcelona -Bstatic_pgi

```

## Base Other Flags

C benchmarks:

-w

C++ benchmarks:

-w

## Peak Compiler Invocation

C benchmarks (except as noted below):

pgcc

400.perlbench: pathcc

403.gcc: pathcc

445.gobmk: pathcc

C++ benchmarks (except as noted below):

pathCC

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECint\_rate2006 = 103**

ProLiant BL465c G5  
(2.3 GHz AMD Opteron 2356)

**SPECint\_rate\_base2006 = 89.5**

**CPU2006 license:** 3

**Test date:** Mar-2008

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Mar-2008

**Tested by:** Hewlett-Packard Company

**Software Availability:** May-2008

## Peak Compiler Invocation (Continued)

471.omnetpp: pgcpp

## Peak Portability Flags

```

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

```

## Peak Optimization Flags

C benchmarks:

```

400.perlbench: -march=barcelona -fb_create fbdata(pass 1)
               -fb_opt fbdata(pass 2) -Ofast -IPA:plimit=20000 -LNO:opt=0
               -WOPT:if_conv=0 -CG:local_sched_alg=1

401.bzip2: -Mpfi(pass 1) -Mpfo(pass 2) -fast -O4
           -Msmartalloc=huge:150 -Mnounroll -tp barcelona-64
           -Bstatic_pgi

403.gcc: -march=barcelona -fb_create fbdata(pass 1)
          -fb_opt fbdata(pass 2) -m32 -O3 -OPT:Ofast
          -OPT:malloc_alg=1

429.mcf: -fastsse -Mipa=jobs:4 -Mipa=fast -Mipa=inline:1
          -Msmartalloc=huge:150 -tp barcelona -Bstatic_pgi

445.gobmk: -march=barcelona -fb_create fbdata(pass 1)
            -fb_opt fbdata(pass 2) -O3 -OPT:alias=restrict
            -LNO:prefetch=1 -LNO:ignore_feedback=off -CG:p2align=on

456.hmmer: -fastsse -Munroll=n:8 -Msmartalloc=huge:150 -Mfprelaxed
            -Mvect=partial -Msafeptr -Mipa=jobs:4 -Mipa=const
            -Mipa=ptr -Mipa=arg -Mipa=inline -tp barcelona-64
            -Bstatic_pgi

458.sjeng: -Mpfi(pass 1) -Mipa=jobs:4(pass 2) -Mipa=fast(pass 2)
            -Mipa=inline:1(pass 2) -Mipa=noarg(pass 2) -Mpfo(pass 2)
            -fastsse -Msmartalloc=huge:150 -Mfprelaxed
            -tp barcelona-64 -Bstatic_pgi

```

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECint\_rate2006 = 103**

ProLiant BL465c G5  
(2.3 GHz AMD Opteron 2356)

**SPECint\_rate\_base2006 = 89.5**

**CPU2006 license:** 3

**Test date:** Mar-2008

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Mar-2008

**Tested by:** Hewlett-Packard Company

**Software Availability:** May-2008

## Peak Optimization Flags (Continued)

462.libquantum: -fastsse -Mfprelaxed -Msmartalloc=huge:150 -Munroll=m:8  
-Mipa=jobs:4 -Mipa=fast -Mipa=inline -Mipa=noarg  
-tp barcelona-64 -Bstatic\_pgi

464.h264ref: -Mpfi=indirect(pass 1) -Mipa=jobs:4(pass 2)  
-Mipa=fast(pass 2) -Mipa=inline(pass 2)  
-Mpfo=indirect(pass 2) -fastsse -Msmartalloc=huge:150  
-Mfprelaxed -tp barcelona-64 -Bstatic\_pgi

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -march=barcelona -Ofast -TENV:frame\_pointer=off  
-WOPT:if\_conv=0 -GRA:optimize\_boundary=on -IPA:plimit=525  
-m32 -lsmartheap

483.xalancbmk: -march=barcelona -Ofast -m32 -OPT:unroll\_times\_max=8  
-CG:push\_pop\_int\_saved\_regs=off -CG:ptr\_load\_use=0  
-lsmartheap

## Peak Other Flags

C benchmarks (except as noted below):

-w

400.perlbench: No flags used

403.gcc: No flags used

445.gobmk: No flags used

C++ benchmarks (except as noted below):

-L/root/work/cpu2006/amd123GH.libs/32

471.omnetpp: -w

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/hp-PGI72-PS32-flags.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/hp-PGI72-PS32-flags.xml>



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

ProLiant BL465c G5  
(2.3 GHz AMD Opteron 2356)

SPECint\_rate2006 = 103

SPECint\_rate\_base2006 = 89.5

**CPU2006 license:** 3

**Test sponsor:** Hewlett-Packard Company

**Tested by:** Hewlett-Packard Company

**Test date:** Mar-2008

**Hardware Availability:** Mar-2008

**Software Availability:** May-2008

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 v1.0.  
Report generated on Tue Jul 22 17:59:18 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 3 April 2008.