



# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

ProLiant DL160 G6  
(3.46 GHz, Intel Xeon X5690)

SPECint®2006 = 44.8

SPECint\_base2006 = 42.7

CPU2006 license: 3

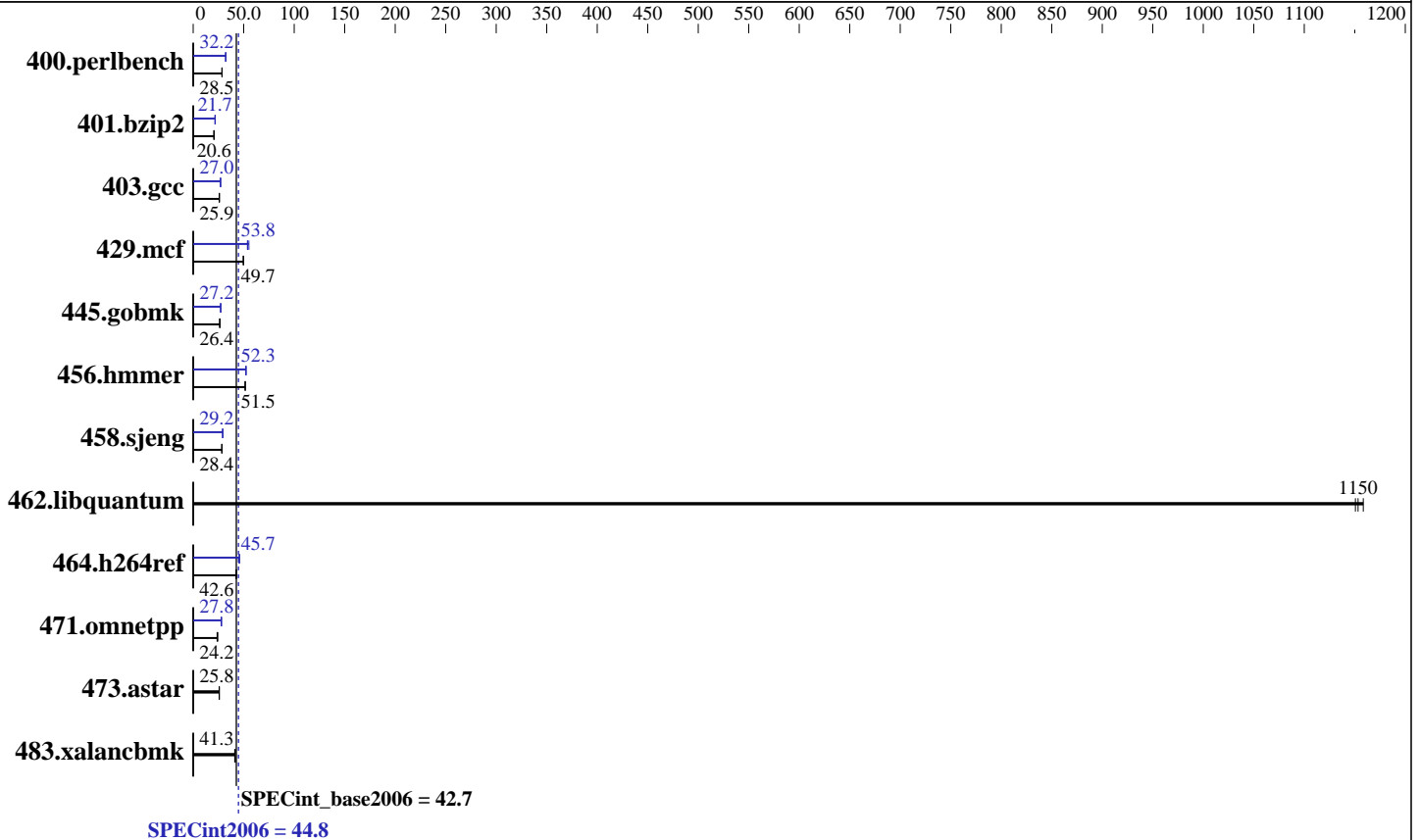
Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Jan-2011

Hardware Availability: Feb-2011

Software Availability: Dec-2010



### Hardware

CPU Name: Intel Xeon X5690  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.73 GHz  
 CPU MHz: 3467  
 FPU: Integrated  
 CPU(s) enabled: 6 cores, 1 chip, 6 cores/chip  
 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 500 GB 7.4 K SATA  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 11 (x86\_64) SP1, Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V9.01



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

ProLiant DL160 G6  
(3.46 GHz, Intel Xeon X5690)

SPECint2006 = 44.8

SPECint\_base2006 = 42.7

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

Test date: Jan-2011  
Hardware Availability: Feb-2011  
Software Availability: Dec-2010

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	343	28.5	<b><u>342</u></b>	<b><u>28.5</u></b>	341	28.6	303	32.2	304	32.2	<b><u>303</u></b>	<b><u>32.2</u></b>
401.bzip2	468	20.6	468	20.6	<b><u>468</u></b>	<b><u>20.6</u></b>	<b><u>445</u></b>	<b><u>21.7</u></b>	445	21.7	444	21.8
403.gcc	<b><u>311</u></b>	<b><u>25.9</u></b>	309	26.0	313	25.7	<b><u>298</u></b>	<b><u>27.0</u></b>	298	27.0	296	27.2
429.mcf	184	49.7	<b><u>183</u></b>	<b><u>49.7</u></b>	183	49.7	170	53.8	<b><u>170</u></b>	<b><u>53.8</u></b>	165	55.2
445.gobmk	<b><u>398</u></b>	<b><u>26.4</u></b>	396	26.5	400	26.2	<b><u>385</u></b>	<b><u>27.2</u></b>	386	27.2	385	27.2
456.hammer	181	51.6	181	51.4	<b><u>181</u></b>	<b><u>51.5</u></b>	<b><u>178</u></b>	<b><u>52.3</u></b>	178	52.3	179	52.2
458.sjeng	<b><u>426</u></b>	<b><u>28.4</u></b>	426	28.4	425	28.4	<b><u>414</u></b>	<b><u>29.2</u></b>	414	29.2	414	29.2
462.libquantum	17.9	1160	<b><u>18.0</u></b>	<b><u>1150</u></b>	18.0	1150	17.9	1160	<b><u>18.0</u></b>	<b><u>1150</u></b>	18.0	1150
464.h264ref	<b><u>519</u></b>	<b><u>42.6</u></b>	516	42.9	523	42.3	484	45.7	484	45.7	<b><u>484</u></b>	<b><u>45.7</u></b>
471.omnetpp	258	24.2	<b><u>259</u></b>	<b><u>24.2</u></b>	264	23.7	222	28.2	<b><u>225</u></b>	<b><u>27.8</u></b>	225	27.7
473.astar	<b><u>273</u></b>	<b><u>25.8</u></b>	273	25.7	270	26.0	<b><u>273</u></b>	<b><u>25.8</u></b>	273	25.7	270	26.0
483.xalancbmk	168	41.1	<b><u>167</u></b>	<b><u>41.3</u></b>	165	41.8	168	41.1	<b><u>167</u></b>	<b><u>41.3</u></b>	165	41.8

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

## 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 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

## Platform Notes

BIOS configuration:  
Power Efficiency Mode set to Performance  
Data Reuse set to Disabled  
Hyperthreading Tech set to Disabled

## General Notes

OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to granularity=fine,scatter  
Binaries were compiled on RHEL5.5 with Binutils binutils-2.17.50.0.6-14.el5

## Base Compiler Invocation

C benchmarks:  
icc -m64

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECint2006 = 44.8**

ProLiant DL160 G6  
(3.46 GHz, Intel Xeon X5690)

**SPECint\_base2006 = 42.7**

**CPU2006 license:** 3

**Test date:** Jan-2011

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Feb-2011

**Tested by:** Hewlett-Packard Company

**Software Availability:** Dec-2010

## Base Compiler Invocation (Continued)

C++ benchmarks:  
icpc -m64

## 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.hmmr: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
464.h264ref: -DSPEC\_CPU\_LP64  
471.omnetpp: -DSPEC\_CPU\_LP64  
473.astar: -DSPEC\_CPU\_LP64  
483.xalancbmk: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/smartheap -lsmartheap64  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

## Base Other Flags

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

## Peak Compiler Invocation

C benchmarks (except as noted below):  
icc -m64  
400.perlbench: icc -m32

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECint2006 = 44.8**

ProLiant DL160 G6  
(3.46 GHz, Intel Xeon X5690)

**SPECint\_base2006 = 42.7**

**CPU2006 license:** 3

**Test date:** Jan-2011

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Feb-2011

**Tested by:** Hewlett-Packard Company

**Software Availability:** Dec-2010

## Peak Compiler Invocation (Continued)

429.mcf: `icc -m32`

445.gobmk: `icc -m32`

464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):

`icpc -m64`

471.omnetpp: `icpc -m32`

## Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`

401.bzip2: `-DSPEC_CPU_LP64`

403.gcc: `-DSPEC_CPU_LP64`

456.hammer: `-DSPEC_CPU_LP64`

458.sjeng: `-DSPEC_CPU_LP64`

462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

473.astar: `-DSPEC_CPU_LP64`

483.xalancbmk: `-DSPEC_CPU_LP64 -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)  
-opt-prefetch -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT`

401.bzip2: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32  
-opt-prefetch -ansi-alias`

403.gcc: `-xSSE4.2 -ipo -O3 -no-prec-div -inline-calloc  
-opt-malloc-options=3 -auto-ilp32  
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -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)  
-auto-ilp32 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT`

445.gobmk: `-xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-auto-ilp32 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT`

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECint2006 = 44.8**

ProLiant DL160 G6  
(3.46 GHz, Intel Xeon X5690)

**SPECint\_base2006 = 42.7**

**CPU2006 license:** 3

**Test date:** Jan-2011

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Feb-2011

**Tested by:** Hewlett-Packard Company

**Software Availability:** Dec-2010

## Peak Optimization Flags (Continued)

456.hmmcr: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
-ansi-alias  
-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

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

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)  
-opt-ra-region-strategy=block -ansi-alias -Wl,-z,muldefs  
-L/smartheap -lsmartheap  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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>



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

ProLiant DL160 G6  
(3.46 GHz, Intel Xeon X5690)

**SPECint2006 = 44.8**

**SPECint\_base2006 = 42.7**

**CPU2006 license:** 3

**Test sponsor:** Hewlett-Packard Company

**Tested by:** Hewlett-Packard Company

**Test date:** Jan-2011

**Hardware Availability:** Feb-2011

**Software Availability:** Dec-2010

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 v1.1.  
Report generated on Wed Jul 23 15:05:57 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 16 February 2011.