



# SPEC® CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

**SPECint®2006 = 52.6**

ProLiant DL560 Gen9  
(2.10 GHz, Intel Xeon E5-4650 v3)

**SPECint\_base2006 = 50.6**

CPU2006 license: 3

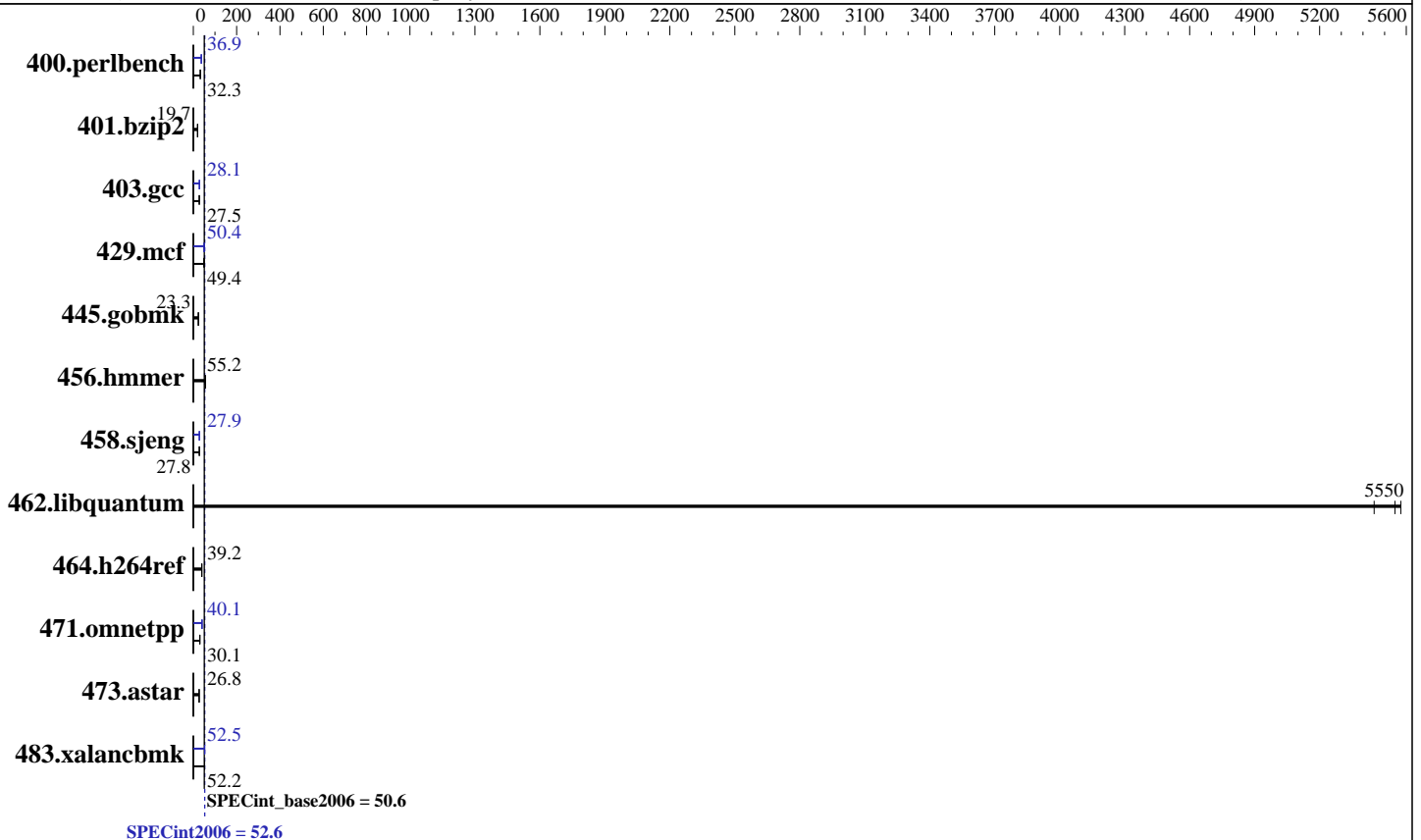
Test date: May-2015

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2015

Tested by: Hewlett-Packard Company

Software Availability: Oct-2014



### Hardware

CPU Name: Intel Xeon E5-4650 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2100  
 FPU: Integrated  
 CPU(s) enabled: 48 cores, 4 chips, 12 cores/chip  
 CPU(s) orderable: 2,4 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: 30 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 512 GB (32 x 16 GB 2Rx4 PC4-2133P-R)  
 Disk Subsystem: 2 x 400 GB SAS SSD, RAID 1  
 Other Hardware: None

### Software

Operating System: SuSE Linux Enterprise Server 12 (x86\_64)  
 Kernel 3.12.28-4-default  
 Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux  
 Auto Parallel: Yes  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V10.0



# SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

ProLiant DL560 Gen9  
(2.10 GHz, Intel Xeon E5-4650 v3)

SPECint2006 = **52.6**

SPECint\_base2006 = **50.6**

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

Test date: May-2015  
Hardware Availability: Jun-2015  
Software Availability: Oct-2014

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	302	32.3	303	32.2	<b><u>302</u></b>	<b><u>32.3</u></b>	265	36.8	<b><u>265</u></b>	<b><u>36.9</u></b>	264	36.9
401.bzip2	491	19.7	489	19.8	<b><u>491</u></b>	<b><u>19.7</u></b>	491	19.7	489	19.8	<b><u>491</u></b>	<b><u>19.7</u></b>
403.gcc	293	27.5	292	27.6	<b><u>292</u></b>	<b><u>27.5</u></b>	<b><u>287</u></b>	<b><u>28.1</u></b>	286	28.1	289	27.9
429.mcf	<b><u>185</u></b>	<b><u>49.4</u></b>	183	49.7	185	49.4	<b><u>181</u></b>	<b><u>50.4</u></b>	182	50.0	181	50.4
445.gobmk	<b><u>450</u></b>	<b><u>23.3</u></b>	450	23.3	449	23.3	<b><u>450</u></b>	<b><u>23.3</u></b>	450	23.3	449	23.3
456.hammer	169	55.3	<b><u>169</u></b>	<b><u>55.2</u></b>	169	55.2	169	55.3	<b><u>169</u></b>	<b><u>55.2</u></b>	169	55.2
458.sjeng	436	27.8	<b><u>435</u></b>	<b><u>27.8</u></b>	435	27.8	<b><u>434</u></b>	<b><u>27.9</u></b>	434	27.9	434	27.9
462.libquantum	<b><u>3.73</u></b>	<b><u>5550</u></b>	3.72	5570	3.80	5450	<b><u>3.73</u></b>	<b><u>5550</u></b>	3.72	5570	3.80	5450
464.h264ref	568	39.0	564	39.2	<b><u>564</u></b>	<b><u>39.2</u></b>	568	39.0	564	39.2	<b><u>564</u></b>	<b><u>39.2</u></b>
471.omnetpp	213	29.4	203	30.7	<b><u>208</u></b>	<b><u>30.1</u></b>	156	40.1	<b><u>156</u></b>	<b><u>40.1</u></b>	155	40.3
473.astar	262	26.8	<b><u>262</u></b>	<b><u>26.8</u></b>	260	27.0	262	26.8	<b><u>262</u></b>	<b><u>26.8</u></b>	260	27.0
483.xalancbmk	132	52.1	<b><u>132</u></b>	<b><u>52.2</u></b>	132	52.3	131	52.7	<b><u>131</u></b>	<b><u>52.5</u></b>	132	52.3

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

## Submit Notes

The config file option 'submit' was used.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/transparent\_hugepage/enabled

## Platform Notes

BIOS Configuration  
Power Profile set to Custom  
Power Regulator set to Static High Performance Mode  
Minimum Processor Idle Power Core C-State set to C6 State  
Minimum Processor Idle Power Package C-State set to Package C6 (retention) State  
Energy/Performance Bias set to Maximum Performance  
Collaborative Power Control set to Disabled  
Thermal Configuration set to Maximum Cooling  
Processor Power and Utilization Monitoring set to Disabled  
Memory Refresh Rate set to 1x Refresh  
Intel Hyperthreading Options set to Disabled  
Sysinfo program /home/cpu2006/config/sysinfo.rev6914  
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
running on dl560gen9jks Thu May 28 18:17:57 2015

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:  
Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

SPECint2006 = 52.6

ProLiant DL560 Gen9  
(2.10 GHz, Intel Xeon E5-4650 v3)

SPECint\_base2006 = 50.6

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

**Test date:** May-2015  
**Hardware Availability:** Jun-2015  
**Software Availability:** Oct-2014

### Platform Notes (Continued)

<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-4650 v3 @ 2.10GHz
 4 "physical id"s (chips)
 48 "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 : 12
  siblings  : 12
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
  physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13
  physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 30720 KB

From /proc/meminfo
MemTotal:      529311936 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

/usr/bin/lsb_release -d
    SUSE Linux Enterprise Server 12

From /etc/*release* /etc/*version*
SuSE-release:
    SUSE Linux Enterprise Server 12 (x86_64)
    VERSION = 12
    PATCHLEVEL = 0
    # This file is deprecated and will be removed in a future service pack or
    # release.
    # Please check /etc/os-release for details about this release.
os-release:
    NAME="SLES"
    VERSION="12"
    VERSION_ID="12"
    PRETTY_NAME="SUSE Linux Enterprise Server 12"
    ID="sles"
    ANSI_COLOR="0;32"
    CPE_NAME="cpe:/o:suse:sles:12"

uname -a:
    Linux dl560gen9jks 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014
    (9879bd4) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 28 18:03 last=5

SPEC is set to: /home/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4       xfs   331G  6.1G  325G  2% /home
Additional information from dmidecode:

```

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECint2006 = 52.6**

ProLiant DL560 Gen9  
(2.10 GHz, Intel Xeon E5-4650 v3)

**SPECint\_base2006 = 50.6**

**CPU2006 license:** 3

**Test date:** May-2015

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Jun-2015

**Tested by:** Hewlett-Packard Company

**Software Availability:** Oct-2014

## Platform Notes (Continued)

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS HP P85 03/05/2015

Memory:

24x HP 752369-081 16 GB 2 rank 2133 MHz

16x UNKNOWN NOT AVAILABLE

8x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2133 MHz

(End of data from sysinfo program)

Regarding the sysinfo display about the memory installed, the correct amount of memory is 512 GB and the dmidecode description should have two lines reading as:

24x HP 752369-081 16 GB 2 rank 2133 MHz

8x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2133 MHz

## General Notes

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

KMP\_AFFINITY = "granularity=fine,scatter"

LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

OMP\_NUM\_THREADS = "48"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0

## Base Compiler Invocation

C benchmarks:

icc -m64

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.hmmer: -DSPEC\_CPU\_LP64

458.sjeng: -DSPEC\_CPU\_LP64

462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



# SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECint2006 = 52.6**

ProLiant DL560 Gen9  
(2.10 GHz, Intel Xeon E5-4650 v3)

**SPECint\_base2006 = 50.6**

**CPU2006 license:** 3

**Test date:** May-2015

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Jun-2015

**Tested by:** Hewlett-Packard Company

**Software Availability:** Oct-2014

## Base Portability Flags (Continued)

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:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-Wl,-z,muldefs -L/sh -lsmartheap64

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

400.perlbench: icc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32

C++ benchmarks (except as noted below):

icpc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32

473.astar: icpc -m64

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
403.gcc: -DSPEC\_CPU\_LP64  
429.mcf: -DSPEC\_CPU\_LP64  
445.gobmk: -DSPEC\_CPU\_LP64  
456.hmmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECint2006 = 52.6**

ProLiant DL560 Gen9  
(2.10 GHz, Intel Xeon E5-4650 v3)

**SPECint\_base2006 = 50.6**

**CPU2006 license:** 3

**Test date:** May-2015

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Jun-2015

**Tested by:** Hewlett-Packard Company

**Software Availability:** Oct-2014

## Peak Portability Flags (Continued)

462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
464.h264ref: -DSPEC\_CPU\_LP64  
473.astar: -DSPEC\_CPU\_LP64  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(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

401.bzip2: basepeak = yes

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc  
-opt-malloc-options=3 -auto-ilp32

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel  
-opt-prefetch -auto-p32

445.gobmk: basepeak = yes

456.hmmer: basepeak = yes

458.sjeng: -xCORE-AVX2(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: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(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/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap



# SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

ProLiant DL560 Gen9  
(2.10 GHz, Intel Xeon E5-4650 v3)

**SPECint2006 = 52.6**

**SPECint\_base2006 = 50.6**

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

**Test date:** May-2015  
**Hardware Availability:** Jun-2015  
**Software Availability:** Oct-2014

## 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-ic15.0-official-linux64.html>  
<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revE.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml>  
<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revE.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 Wed Jun 17 10:50:09 2015 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 16 June 2015.