



# SPEC® CINT2006 Result

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## Hewlett-Packard Company

**SPECint®2006 = 53.8**

ProLiant DL580 Gen9  
(2.20 GHz, Intel Xeon E7-4850 v3)

**SPECint\_base2006 = 51.8**

CPU2006 license: 3

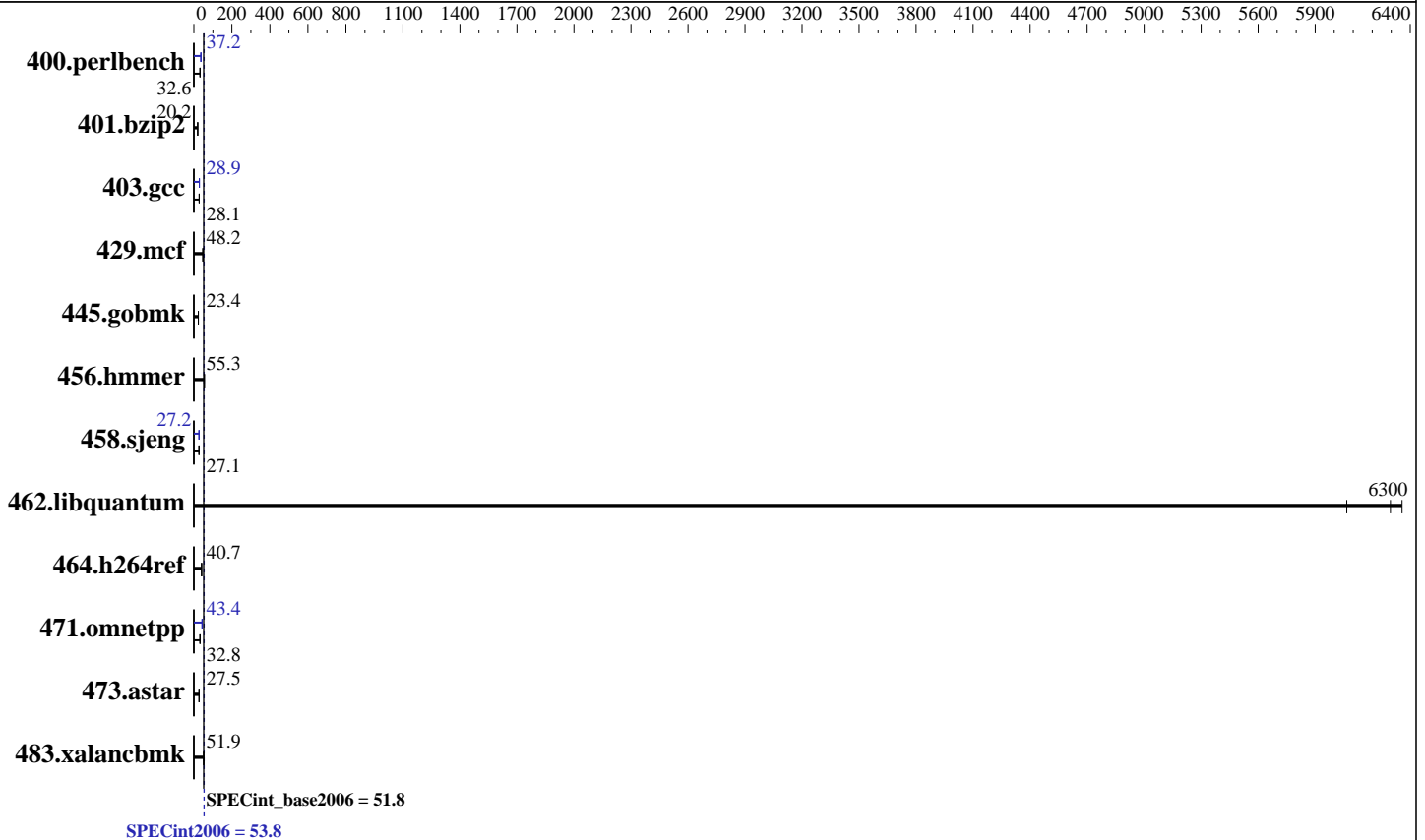
Test date: Jun-2015

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2015

Tested by: Hewlett-Packard Company

Software Availability: Oct-2014



### Hardware

CPU Name: Intel Xeon E7-4850 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2200  
 FPU: Integrated  
 CPU(s) enabled: 56 cores, 4 chips, 14 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: 35 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 512 GB (32 x 16 GB 2Rx4 PC4-2133P-R, running at 1333 MHz)  
 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



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	299	32.7	302	32.4	<b>300</b>	<b>32.6</b>	264	37.0	<b>263</b>	<b>37.2</b>	263	37.2
401.bzip2	477	20.2	<b>479</b>	<b>20.2</b>	479	20.1	477	20.2	<b>479</b>	<b>20.2</b>	479	20.1
403.gcc	<b>287</b>	<b>28.1</b>	287	28.0	287	28.1	280	28.8	<b>279</b>	<b>28.9</b>	278	28.9
429.mcf	195	46.8	<b>189</b>	<b>48.2</b>	189	48.3	195	46.8	<b>189</b>	<b>48.2</b>	189	48.3
445.gobmk	<b>448</b>	<b>23.4</b>	448	23.4	447	23.5	<b>448</b>	<b>23.4</b>	448	23.4	447	23.5
456.hammer	168	55.4	169	55.2	<b>169</b>	<b>55.3</b>	168	55.4	169	55.2	<b>169</b>	<b>55.3</b>
458.sjeng	<b>447</b>	<b>27.1</b>	447	27.1	446	27.1	444	27.2	445	27.2	<b>445</b>	<b>27.2</b>
462.libquantum	<b>3.29</b>	<b>6300</b>	3.42	6070	3.26	6360	<b>3.29</b>	<b>6300</b>	3.42	6070	3.26	6360
464.h264ref	544	40.7	543	40.8	<b>543</b>	<b>40.7</b>	544	40.7	543	40.8	<b>543</b>	<b>40.7</b>
471.omnetpp	<b>190</b>	<b>32.8</b>	190	33.0	199	31.4	144	43.4	145	43.1	<b>144</b>	<b>43.4</b>
473.astar	255	27.5	<b>256</b>	<b>27.5</b>	256	27.4	255	27.5	<b>256</b>	<b>27.5</b>	256	27.4
483.xalancbmk	131	52.6	<b>133</b>	<b>51.9</b>	133	51.8	131	52.6	<b>133</b>	<b>51.9</b>	133	51.8

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:  
Intel Hyperthreading set to Disabled  
HP Power Profile set to Custom  
HP Power Regulator to HP Static High Performance Mode  
Minimum Processor Idle Power Core State set to C6 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  
Sysinfo program /home/cpu2006/config/sysinfo.rev6914  
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
running on dl580gen9jks Fri Jun 5 13:22:16 2015

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>

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### Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E7-4850 v3 @ 2.20GHz
 4 "physical id"s (chips)
 56 "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 : 14
  siblings  : 14
  physical 0: cores 0 2 4 5 6 8 9 10 11 12 13 14
  physical 1: cores 0 2 4 5 6 8 9 10 11 12 13 14
  physical 2: cores 0 2 4 5 6 8 9 10 11 12 13 14
  physical 3: cores 0 2 4 5 6 8 9 10 11 12 13 14
cache size : 35840 KB

From /proc/meminfo
MemTotal:      529319752 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 dl580gen9jks 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 Jun 5 13:20 last=5

SPEC is set to: /home/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4       xfs   331G  5.4G  325G   2% /home
Additional information from dmidecode:

```

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### 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 U17 03/13/2015

Memory:

32x HP 752369-081 16 GB 2 rank 2133 MHz, configured at 1333 MHz  
64x UNKNOWN NOT AVAILABLE

(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 one line reading as:

32x HP 752369-081 16 GB 2 rank 2133 MHz, configured at 1333 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 = "56"

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.hmmmer: -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

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## Base Portability Flags (Continued)

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 -m64

471.omnetpp: icpc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32

## 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.hmmer: -DSPEC\_CPU\_LP64

458.sjeng: -DSPEC\_CPU\_LP64

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

464.h264ref: -DSPEC\_CPU\_LP64

473.astar: -DSPEC\_CPU\_LP64

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## Peak Portability Flags (Continued)

483.xalancbmk: -DSPEC\_CPU\_LP64 -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: basepeak = yes

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: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca



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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>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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