



SPEC[®] CINT2006 Result

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Hewlett-Packard Company

SPECint[®]2006 = 56.3

ProLiant DL380 Gen9
(2.00 GHz, Intel Xeon E5-2683 v3)

SPECint_base2006 = 54.2

CPU2006 license: 3

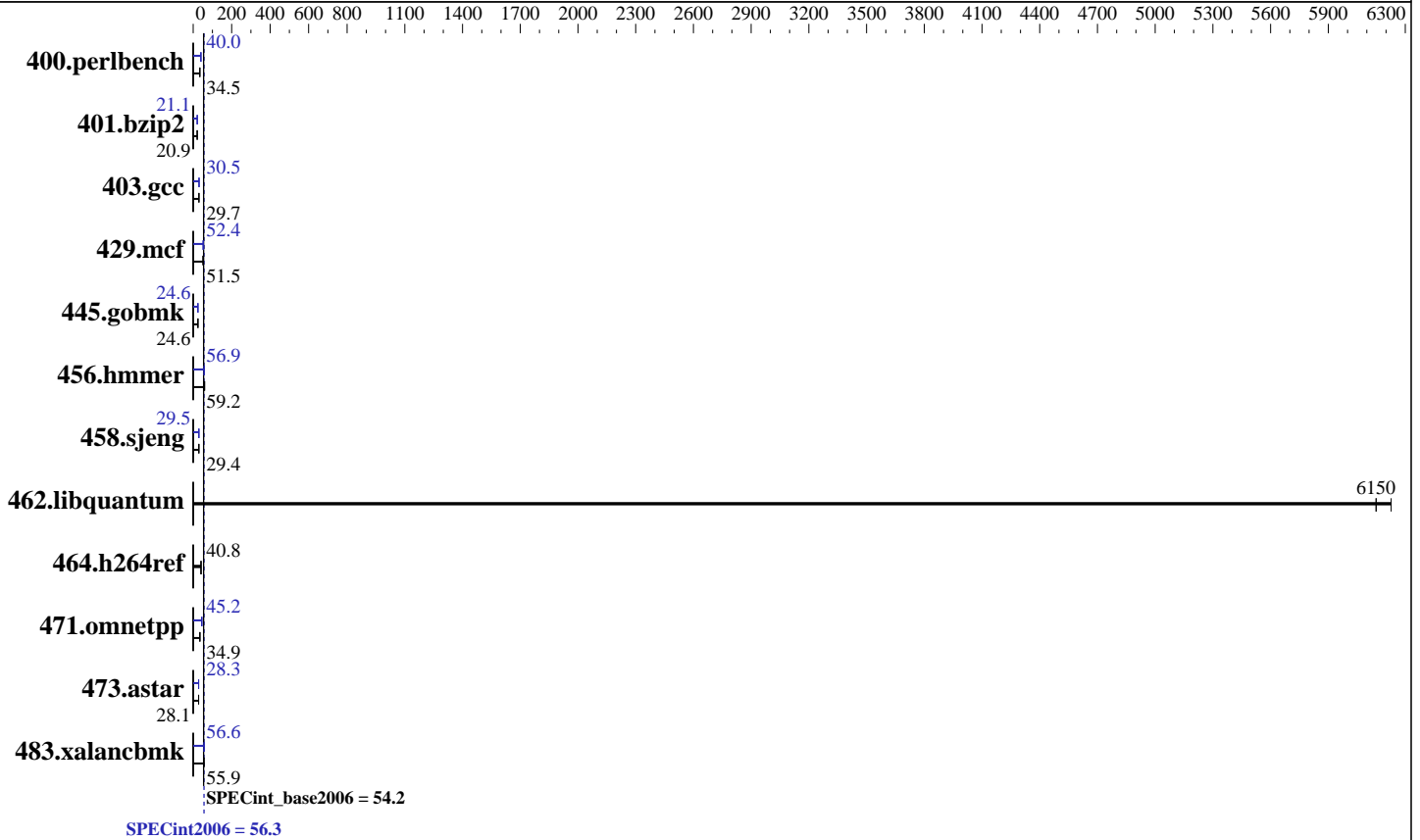
Test date: Nov-2014

Test sponsor: Hewlett-Packard Company

Hardware Availability: Sep-2014

Tested by: Hewlett-Packard Company

Software Availability: Sep-2014



Hardware

CPU Name: Intel Xeon E5-2683 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 28 cores, 2 chips, 14 cores/chip
 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: 35 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
 Disk Subsystem: 1 x 400 GB SSD SAS, RAID 0
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo)
 Kernel 3.10.0-123.el7.x86_64
 Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4
 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	285	34.2	282	34.6	<u>283</u>	<u>34.5</u>	<u>244</u>	<u>40.0</u>	245	39.9	244	40.1
401.bzip2	<u>462</u>	<u>20.9</u>	464	20.8	461	20.9	458	21.1	456	21.1	<u>457</u>	<u>21.1</u>
403.gcc	271	29.7	270	29.8	<u>271</u>	<u>29.7</u>	264	30.5	<u>264</u>	<u>30.5</u>	266	30.3
429.mcf	<u>177</u>	<u>51.5</u>	176	51.7	178	51.2	177	51.5	<u>174</u>	<u>52.4</u>	174	52.4
445.gobmk	428	24.5	426	24.6	<u>426</u>	<u>24.6</u>	427	24.6	427	24.5	<u>427</u>	<u>24.6</u>
456.hammer	158	59.2	158	59.0	<u>158</u>	<u>59.2</u>	<u>164</u>	<u>56.9</u>	164	56.9	164	57.1
458.sjeng	412	29.4	<u>412</u>	<u>29.4</u>	412	29.4	410	29.5	<u>410</u>	<u>29.5</u>	410	29.5
462.libquantum	<u>3.37</u>	<u>6150</u>	3.37	6150	3.33	6230	<u>3.37</u>	<u>6150</u>	3.37	6150	3.33	6230
464.h264ref	545	40.6	<u>543</u>	<u>40.8</u>	542	40.8	545	40.6	<u>543</u>	<u>40.8</u>	542	40.8
471.omnetpp	183	34.2	179	35.0	<u>179</u>	<u>34.9</u>	143	43.6	<u>138</u>	<u>45.2</u>	138	45.4
473.astar	<u>249</u>	<u>28.1</u>	250	28.1	248	28.4	249	28.2	<u>248</u>	<u>28.3</u>	246	28.5
483.xalancbmk	124	55.7	123	56.1	<u>124</u>	<u>55.9</u>	122	56.7	122	56.6	<u>122</u>	<u>56.6</u>

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:
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
Minimum Processor Idle Power Package State set to No Package State
QPI Snoop Configuration set to Early Snoop
Thermal Configuration set to Maximum Cooling
Collaborative Power Control set to Disabled
Processor Power and Utilization Monitoring set to Disabled
Memory Double 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 R110DL380gen9 Thu Nov 6 08:05:52 2014

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



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Platform Notes (Continued)

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

From /proc/cpuinfo

```
model name : Intel(R) Xeon(R) CPU E5-2683 v3 @ 2.00GHz
 2 "physical id"s (chips)
 28 "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
cache size : 35840 KB
```

From /proc/meminfo

```
MemTotal:      263845452 kB
HugePages_Total: 0
Hugepagesize:   2048 kB
```

From /etc/*release* /etc/*version*

```
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server
```

uname -a:

```
Linux R110DL380gen9 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57 EDT 2014
x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Nov 6 07:35

SPEC is set to: /home/cpu2006

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda5        ext4  362G  176G  168G  52% /
```

Additional information from dmidecode:

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 P89 08/26/2014

Memory:

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Platform Notes (Continued)

16x HP 752369-081 16 GB 2 rank 2133 MHz
8x UNKNOWN NOT AVAILABLE

(End of data from sysinfo program)

Regarding the sysinfo display about the memory installed, the correct amount of memory is 256 GB and the dmidecode description should have one line reading as:
16x HP 752369-081 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 = "28"

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
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

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Base Optimization Flags (Continued)

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

445.gobmk: 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

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

483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

Continued on next page



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Peak Optimization Flags (Continued)

- 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: `-xCORE-AVX2(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: `-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: `-xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)`
`-ansi-alias`
- 456.hmmer: `-xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`
`-ansi-alias`
- 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: `-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch`
`-auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64`
 - 483.xalancbmk: `-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch`
`-ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap`

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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