



SPEC® CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant BL460c Gen9
(2.10 GHz, Intel Xeon E5-2620 v4)

SPECint®2006 = 58.3

SPECint_base2006 = 55.7

CPU2006 license: 3

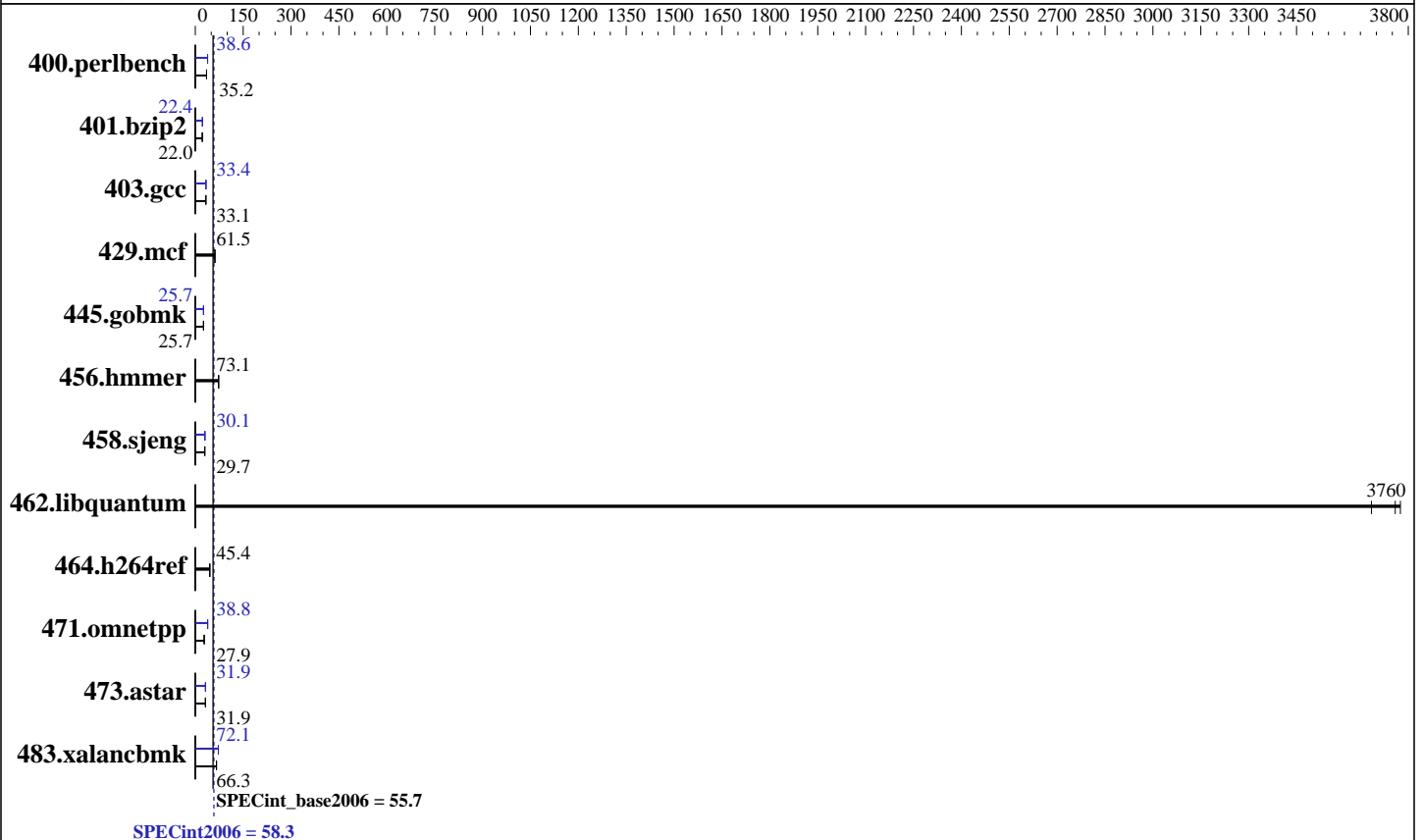
Test sponsor: HPE

Tested by: HPE

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Dec-2015



Hardware

CPU Name: Intel Xeon E5-2620 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
 CPU MHz: 2100
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
 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: 20 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (8 x 32 GB 2Rx4 PC4-2400T-R, running at 2133 MHz)
 Disk Subsystem: 2 x 500 GB SAS HDD 10 K, RAID 1
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 12 (x86_64) SP1, Kernel 3.12.49-11-default
 Compiler: C/C++; Version 16.0.0.101 of Intel C++ Studio XE for Linux
 Auto Parallel: Yes
 File System: xfs
 System State: Run level 5 (multi-user, w/GUI)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V10.2



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant BL460c Gen9

(2.10 GHz, Intel Xeon E5-2620 v4)

SPECint2006 = 58.3

SPECint_base2006 = 55.7

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Dec-2015

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	278	35.2	277	35.3	<u>277</u>	<u>35.2</u>	253	38.6	<u>253</u>	<u>38.6</u>	254	38.5
401.bzip2	437	22.1	440	21.9	<u>439</u>	<u>22.0</u>	431	22.4	<u>431</u>	<u>22.4</u>	431	22.4
403.gcc	<u>243</u>	<u>33.1</u>	243	33.1	244	33.0	241	33.5	<u>241</u>	<u>33.4</u>	241	33.4
429.mcf	<u>148</u>	<u>61.5</u>	148	61.6	149	61.2	<u>148</u>	<u>61.5</u>	148	61.6	149	61.2
445.gobmk	407	25.8	408	25.7	<u>407</u>	<u>25.7</u>	<u>408</u>	<u>25.7</u>	408	25.7	408	25.7
456.hammer	<u>128</u>	<u>73.1</u>	128	72.9	128	73.1	<u>128</u>	<u>73.1</u>	128	72.9	128	73.1
458.sjeng	407	29.7	<u>407</u>	<u>29.7</u>	407	29.7	<u>401</u>	<u>30.1</u>	402	30.1	401	30.2
462.libquantum	5.62	3680	5.49	3780	<u>5.51</u>	<u>3760</u>	5.62	3680	5.49	3780	<u>5.51</u>	<u>3760</u>
464.h264ref	488	45.3	<u>488</u>	<u>45.4</u>	487	45.5	488	45.3	<u>488</u>	<u>45.4</u>	487	45.5
471.omnetpp	224	27.9	224	27.9	<u>224</u>	<u>27.9</u>	162	38.7	<u>161</u>	<u>38.8</u>	161	38.9
473.astar	219	32.0	222	31.6	<u>220</u>	<u>31.9</u>	220	32.0	<u>220</u>	<u>31.9</u>	220	31.8
483.xalancbmk	104	66.4	104	66.3	<u>104</u>	<u>66.3</u>	95.3	72.4	<u>95.6</u>	<u>72.1</u>	95.6	72.1

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 Option set to Enabled
Power Profile set to Custom
Power Regulator set to Static High Performance Mode
Minimum Processor Idle Power Core C-State set to C1E State
Minimum Processor Idle Power Package C-State set to No Package State
Collaborative Power Control set to Disabled
QPI Snoop Configuration set to Home Snoop
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 bl460c2-gen9-b Thu May 26 11:57:16 2016

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 2006-2016 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant BL460c Gen9
(2.10 GHz, Intel Xeon E5-2620 v4)

SPECint2006 = 58.3

SPECint_base2006 = 55.7

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Dec-2015

Platform Notes (Continued)

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

From /proc/cpuinfo

model name : Intel(R) Xeon(R) CPU E5-2620 v4 @ 2.10GHz

2 "physical id"s (chips)

32 "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 : 8

siblings : 16

physical 0: cores 0 1 2 3 4 5 6 7

physical 1: cores 0 1 2 3 4 5 6 7

cache size : 20480 KB

From /proc/meminfo

MemTotal: 264328212 kB

HugePages_Total: 0

Hugepagesize: 2048 kB

/usr/bin/lsb_release -d

SUSE Linux Enterprise Server 12 SP1

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

SuSE-release:

SUSE Linux Enterprise Server 12 (x86_64)

VERSION = 12

PATCHLEVEL = 1

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-SP1"

VERSION_ID="12.1"

PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"

ID="sles"

ANSI_COLOR="0;32"

CPE_NAME="cpe:/o:suse:sles:12:sp1"

uname -a:

Linux bl460c2-gen9-b 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
(8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 5 May 25 17:12

SPEC is set to: /home/cpu2006

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda4	xfs	424G	239G	185G	57%	/home

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program
Continued on next page



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant BL460c Gen9
(2.10 GHz, Intel Xeon E5-2620 v4)

SPECint2006 = 58.3

SPECint_base2006 = 55.7

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Dec-2015

Platform Notes (Continued)

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 I36 04/12/2016

Memory:

8x UNKNOWN NOT AVAILABLE

8x UNKNOWN NOT AVAILABLE 32 GB 2 rank 2400 MHz, configured at 2133 MHz

(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:
8x UNKNOWN NOT AVAILABLE 32 GB 2 rank 2400 MHz, configured at 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 = "32"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1

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



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant BL460c Gen9
(2.10 GHz, Intel Xeon E5-2620 v4)

SPECint2006 = 58.3

SPECint_base2006 = 55.7

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Dec-2015

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/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

445.gobmk: icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

C++ benchmarks (except as noted below):

icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32

401.bzip2: -DSPEC_CPU_LP64

403.gcc: -DSPEC_CPU_LP64

429.mcf: -DSPEC_CPU_LP64

445.gobmk: -D_FILE_OFFSET_BITS=64

456.hmmer: -DSPEC_CPU_LP64

458.sjeng: -DSPEC_CPU_LP64

462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

464.h264ref: -DSPEC_CPU_LP64

471.omnetpp: -D_FILE_OFFSET_BITS=64

473.astar: -DSPEC_CPU_LP64

483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant BL460c Gen9

(2.10 GHz, Intel Xeon E5-2620 v4)

SPECint2006 =

58.3

SPECint_base2006 =

55.7

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Dec-2015

Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -opt-prefetch
-ansi-alias

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div
-par-num-threads=1(pass 1) -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: basepeak = yes

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias

456.hmmer: basepeak = yes

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -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:

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant BL460c Gen9
(2.10 GHz, Intel Xeon E5-2620 v4)

SPECint2006 = 58.3

SPECint_base2006 = 55.7

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Dec-2015

Peak Other Flags (Continued)

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-ic16.0-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-ic16.0-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.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jun 30 14:07:16 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 14 June 2016.