



SPEC® CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECint®_rate2006 = 1230

ProLiant DL560 Gen9
(2.90 GHz, Intel Xeon E5-4655 v3)

SPECint_rate_base2006 = 1180

CPU2006 license: 3

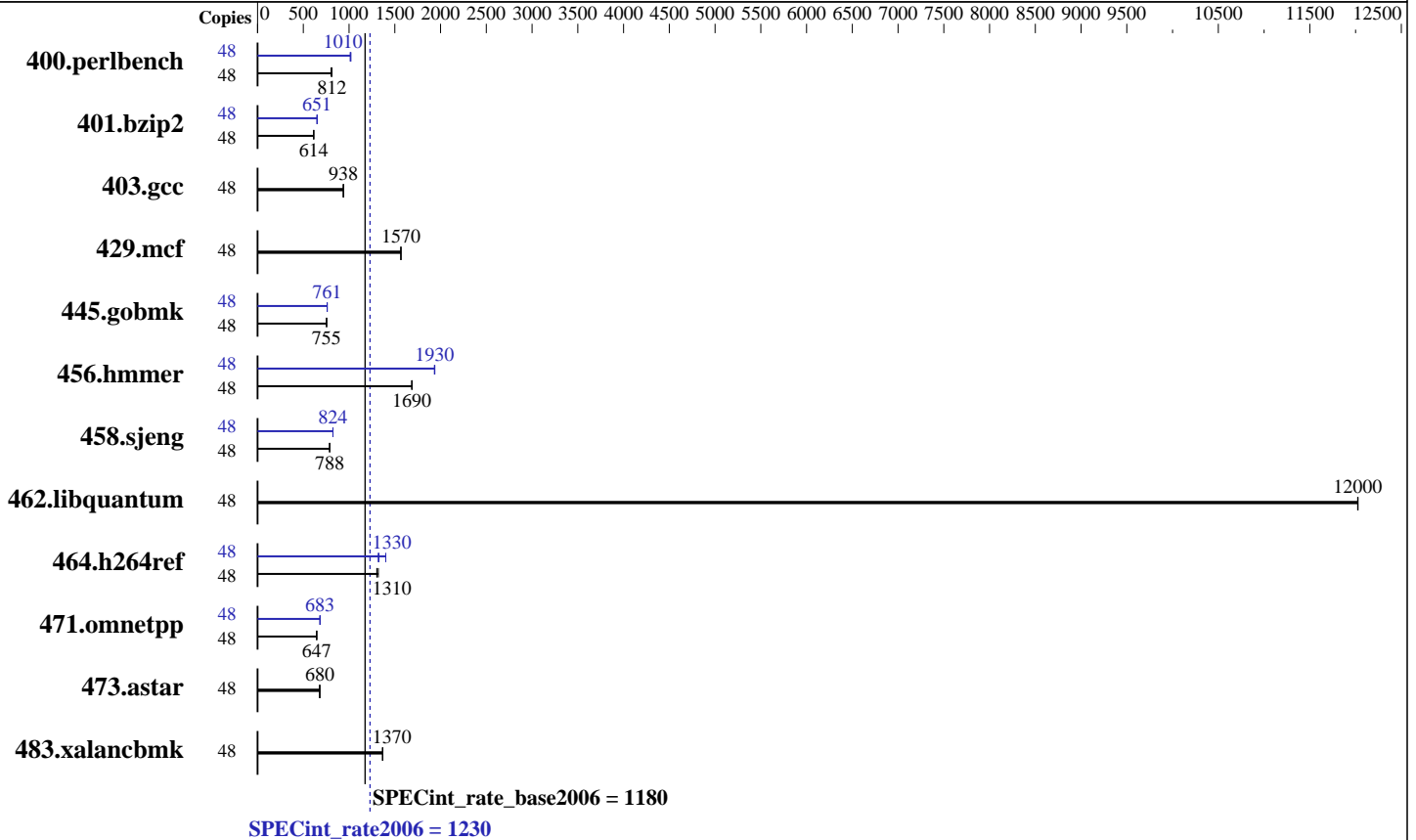
Test date: Jun-2015

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2015

Tested by: Hewlett-Packard Company

Software Availability: Mar-2015



Hardware

CPU Name: Intel Xeon E5-4655 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
 CPU MHz: 2900
 FPU: Integrated
 CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip, 2 threads/core
 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: No
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 32-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

SPECint_rate2006 = 1230

ProLiant DL560 Gen9
(2.90 GHz, Intel Xeon E5-4655 v3)

SPECint_rate_base2006 = 1180

CPU2006 license: 3

Test date: Jun-2015

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2015

Tested by: Hewlett-Packard Company

Software Availability: Mar-2015

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	48	584	803	577	813	<u>578</u>	<u>812</u>	48	463	1010	<u>462</u>	<u>1010</u>	460	1020
401.bzip2	48	754	614	<u>755</u>	<u>614</u>	755	614	48	711	651	<u>712</u>	<u>651</u>	712	650
403.gcc	48	413	935	410	942	<u>412</u>	<u>938</u>	48	413	935	410	942	<u>412</u>	<u>938</u>
429.mcf	48	279	1570	280	1570	<u>279</u>	<u>1570</u>	48	279	1570	280	1570	<u>279</u>	<u>1570</u>
445.gobmk	48	<u>667</u>	<u>755</u>	667	755	668	754	48	662	761	<u>662</u>	<u>761</u>	662	761
456.hammer	48	266	1680	265	1690	<u>265</u>	<u>1690</u>	48	232	1930	<u>232</u>	<u>1930</u>	231	1940
458.sjeng	48	<u>737</u>	<u>788</u>	737	788	737	788	48	705	824	705	824	<u>705</u>	<u>824</u>
462.libquantum	48	82.7	12000	82.7	12000	<u>82.7</u>	<u>12000</u>	48	82.7	12000	82.7	12000	<u>82.7</u>	<u>12000</u>
464.h264ref	48	815	1300	<u>813</u>	<u>1310</u>	805	1320	48	758	1400	<u>801</u>	<u>1330</u>	806	1320
471.omnetpp	48	465	645	463	648	<u>464</u>	<u>647</u>	48	440	682	439	683	<u>439</u>	<u>683</u>
473.astar	48	<u>495</u>	<u>680</u>	497	677	494	682	48	<u>495</u>	<u>680</u>	497	677	494	682
483.xalancbmk	48	242	1370	<u>242</u>	<u>1370</u>	242	1370	48	242	1370	<u>242</u>	<u>1370</u>	242	1370

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

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
Filesystem page cache cleared with:
echo 1 > /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

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
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
Continued on next page



SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECint_rate2006 = 1230

ProLiant DL560 Gen9
(2.90 GHz, Intel Xeon E5-4655 v3)

SPECint_rate_base2006 = 1180

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

Test date: Jun-2015
Hardware Availability: Jun-2015
Software Availability: Mar-2015

Platform Notes (Continued)

running on dl560gen9jks Mon Jun 1 11:58:44 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>

```
From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-4655 v3 @ 2.90GHz
 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 : 6
  siblings  : 12
  physical 0: cores 1 3 5 9 11 12
  physical 1: cores 1 3 5 9 11 12
  physical 2: cores 1 3 5 9 11 12
  physical 3: cores 1 3 5 9 11 12
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 Jun 1 11:53
```

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECint_rate2006 = 1230

ProLiant DL560 Gen9
(2.90 GHz, Intel Xeon E5-4655 v3)

SPECint_rate_base2006 = 1180

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

Test date: Jun-2015
Hardware Availability: Jun-2015
Software Availability: Mar-2015

Platform Notes (Continued)

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:

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:
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

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

Base Compiler Invocation

C benchmarks:
icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

C++ benchmarks:
icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX



SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECint_rate2006 = 1230

ProLiant DL560 Gen9
(2.90 GHz, Intel Xeon E5-4655 v3)

SPECint_rate_base2006 = 1180

CPU2006 license: 3

Test date: Jun-2015

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2015

Tested by: Hewlett-Packard Company

Software Availability: Mar-2015

Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=3

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh -lsmartheap

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:

icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64

401.bzip2: -DSPEC_CPU_LP64

456.hmmer: -DSPEC_CPU_LP64

458.sjeng: -DSPEC_CPU_LP64

462.libquantum: -DSPEC_CPU_LINUX

483.xalancbmk: -DSPEC_CPU_LINUX



SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECint_rate2006 = 1230

ProLiant DL560 Gen9
(2.90 GHz, Intel Xeon E5-4655 v3)

SPECint_rate_base2006 = 1180

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

Test date: Jun-2015
Hardware Availability: Jun-2015
Software Availability: Mar-2015

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)
-auto-ilp32

401.bzip2: -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 -auto-ilp32 -ansi-alias

403.gcc: basepeak = yes

429.mcf: basepeak = yes

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

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 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll2 -ansi-alias

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)
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
-L/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca



SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECint_rate2006 = 1230

ProLiant DL560 Gen9
(2.90 GHz, Intel Xeon E5-4655 v3)

SPECint_rate_base2006 = 1180

CPU2006 license: 3

Test date: Jun-2015

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2015

Tested by: Hewlett-Packard Company

Software Availability: Mar-2015

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.

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Jun 30 16:17:21 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 30 June 2015.