



SPEC® CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen9
(3.50 GHz, Intel Xeon E5-2637 v4)

SPECint®_rate2006 = 506

SPECint_rate_base2006 = 482

CPU2006 license: 3

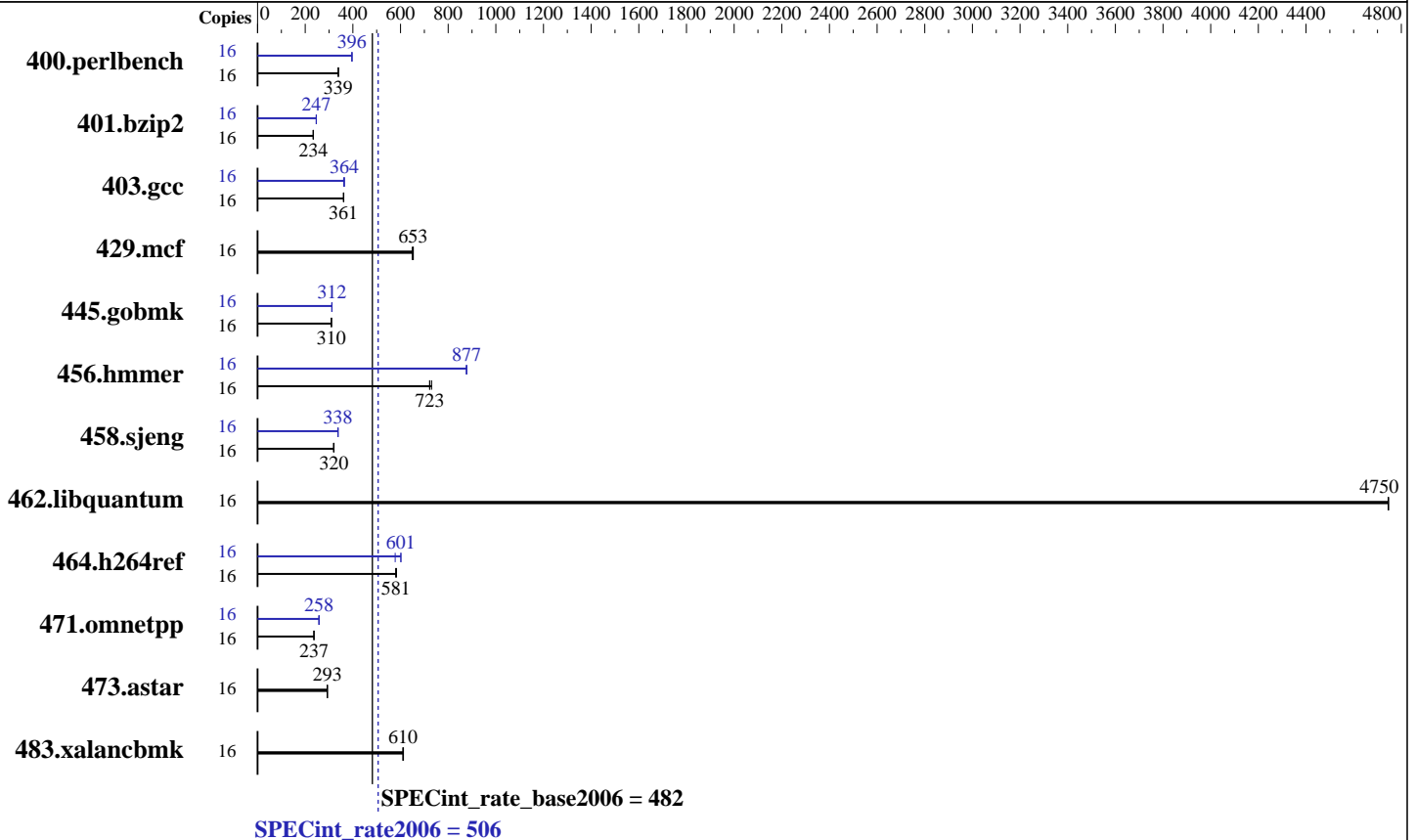
Test sponsor: HPE

Tested by: HPE

Test date: Oct-2016

Hardware Availability: Dec-2016

Software Availability: Sep-2016



Hardware

CPU Name: Intel Xeon E5-2637 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
 CPU MHz: 3500
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 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: 15 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)
 Disk Subsystem: 1 x 600 GB 10 K SAS, RAID 0
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 12 (x86_64) SP1, Kernel 3.12.49-11-default
 Compiler: C/C++; Version 17.0.0.098 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 V10.2



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen9

(3.50 GHz, Intel Xeon E5-2637 v4)

SPECint_rate2006 = 506

SPECint_rate_base2006 = 482

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Oct-2016

Hardware Availability: Dec-2016

Software Availability: Sep-2016

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	16	<u>461</u>	<u>339</u>	461	339	461	339	16	<u>395</u>	<u>396</u>	394	396	395	396
401.bzip2	16	660	234	662	233	<u>660</u>	<u>234</u>	16	625	247	628	246	<u>626</u>	<u>247</u>
403.gcc	16	<u>357</u>	<u>361</u>	357	360	356	362	16	354	364	357	361	<u>354</u>	<u>364</u>
429.mcf	16	<u>223</u>	<u>653</u>	223	653	225	649	16	<u>223</u>	<u>653</u>	223	653	225	649
445.gobmk	16	541	310	<u>541</u>	<u>310</u>	542	310	16	537	313	<u>537</u>	<u>312</u>	539	311
456.hammer	16	<u>206</u>	<u>723</u>	204	731	207	722	16	170	878	<u>170</u>	<u>877</u>	170	876
458.sjeng	16	608	319	<u>605</u>	<u>320</u>	603	321	16	573	338	573	338	<u>573</u>	<u>338</u>
462.libquantum	16	69.8	4750	<u>69.9</u>	<u>4750</u>	69.9	4740	16	69.8	4750	<u>69.9</u>	<u>4750</u>	69.9	4740
464.h264ref	16	611	580	<u>609</u>	<u>581</u>	607	583	16	<u>589</u>	<u>601</u>	588	602	613	578
471.omnetpp	16	423	236	422	237	<u>422</u>	<u>237</u>	16	388	258	<u>388</u>	<u>258</u>	388	258
473.astar	16	384	292	<u>384</u>	<u>293</u>	383	294	16	384	292	<u>384</u>	<u>293</u>	383	294
483.xalancbmk	16	180	612	181	610	<u>181</u>	<u>610</u>	16	180	612	181	610	<u>181</u>	<u>610</u>

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:
Power Profile set to Custom
Power Regulator 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 No Package State
Energy/Performance Bias set to Maximum Performance
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

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen9

(3.50 GHz, Intel Xeon E5-2637 v4)

SPECint_rate2006 = 506

SPECint_rate_base2006 = 482

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Oct-2016

Hardware Availability: Dec-2016

Software Availability: Sep-2016

Platform Notes (Continued)

Sysinfo program /home/cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-hiyk Wed Oct 19 14:21:58 2016

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 E5-2637 v4 @ 3.50GHz
 2 "physical id"s (chips)
 16 "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      : 4
siblings       : 8
physical 0:    cores 0 1 2 3
physical 1:    cores 0 1 2 3
cache size     : 15360 KB
```

From /proc/meminfo

```
MemTotal:      264549336 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 linux-hiyk 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 3 Oct 19 14:21

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen9

(3.50 GHz, Intel Xeon E5-2637 v4)

SPECint_rate2006 = 506

SPECint_rate_base2006 = 482

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Oct-2016

Hardware Availability: Dec-2016

Software Availability: Sep-2016

Platform Notes (Continued)

SPEC is set to: /home/cpu2006

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda4	xfs	331G	78G	253G	24%	/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 I37 09/14/2016

Memory:

8x UNKNOWN NOT AVAILABLE

16x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2400 MHz

(End of data from sysinfo program)

Regarding the sysinfo display about the memory installed, the correct amount of memory is 256 and the dmidecode description should have one line reading as:

16x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2400 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/sh10.2"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM memory using Redhat Enterprise Linux 7.2

Base Compiler Invocation

C benchmarks:

icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32

C++ benchmarks:

icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32

Base Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32

401.bzip2: -D_FILE_OFFSET_BITS=64

403.gcc: -D_FILE_OFFSET_BITS=64

429.mcf: -D_FILE_OFFSET_BITS=64

445.gobmk: -D_FILE_OFFSET_BITS=64

456.hmmer: -D_FILE_OFFSET_BITS=64

458.sjeng: -D_FILE_OFFSET_BITS=64

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen9

(3.50 GHz, Intel Xeon E5-2637 v4)

SPECint_rate2006 = 506

SPECint_rate_base2006 = 482

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Oct-2016

Hardware Availability: Dec-2016

Software Availability: Sep-2016

Base Portability Flags (Continued)

462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
464.h264ref: -D_FILE_OFFSET_BITS=64
471.omnetpp: -D_FILE_OFFSET_BITS=64
473.astar: -D_FILE_OFFSET_BITS=64
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:

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

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh10.2 -lsmartheap

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/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/compilers_and_libraries_2017/linux/lib/ia32

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen9

(3.50 GHz, Intel Xeon E5-2637 v4)

SPECint_rate2006 = 506

SPECint_rate_base2006 = 482

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Oct-2016

Hardware Availability: Dec-2016

Software Availability: Sep-2016

Peak Portability Flags (Continued)

401.bzip2: -DSPEC_CPU_LP64
 403.gcc: -D_FILE_OFFSET_BITS=64
 429.mcf: -D_FILE_OFFSET_BITS=64
 445.gobmk: -D_FILE_OFFSET_BITS=64
 456.hmmer: -DSPEC_CPU_LP64
 458.sjeng: -DSPEC_CPU_LP64
 462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
 464.h264ref: -D_FILE_OFFSET_BITS=64
 471.omnetpp: -D_FILE_OFFSET_BITS=64
 473.astar: -D_FILE_OFFSET_BITS=64
 483.xalanbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
 -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -auto-ilp32 -qopt-mem-layout-trans=3

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
 -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -qopt-prefetch -auto-ilp32
 -qopt-mem-layout-trans=3

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div
 -qopt-mem-layout-trans=3

429.mcf: basepeak = yes

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
 -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -qopt-mem-layout-trans=3

456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
 -qopt-mem-layout-trans=3

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
 -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -unroll4 -auto-ilp32
 -qopt-mem-layout-trans=3

462.libquantum: basepeak = yes

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
 -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -unroll2 -qopt-mem-layout-trans=3

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen9

(3.50 GHz, Intel Xeon E5-2637 v4)

SPECint_rate2006 = 506

SPECint_rate_base2006 = 482

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Oct-2016

Hardware Availability: Dec-2016

Software Availability: Sep-2016

Peak Optimization Flags (Continued)

C++ benchmarks:

```
471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
             -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
             -no-prec-div(pass 2)
             -qopt-ra-region-strategy=block
             -qopt-mem-layout-trans=3 -Wl,-z,muldefs
             -L/shl0.2 -lsmartheap
```

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

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/HP-Platform-Flags-Intel-V1.2-HSW-revE.html>

<http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.html>

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

<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revE.xml>

<http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.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 Nov 15 16:08:16 2016 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 15 November 2016.