



SPEC® CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint®_rate2006 = 429

Huawei XH321 V3(Intel Xeon E5-2609 v4)

SPECint_rate_base2006 = 412

CPU2006 license: 3175

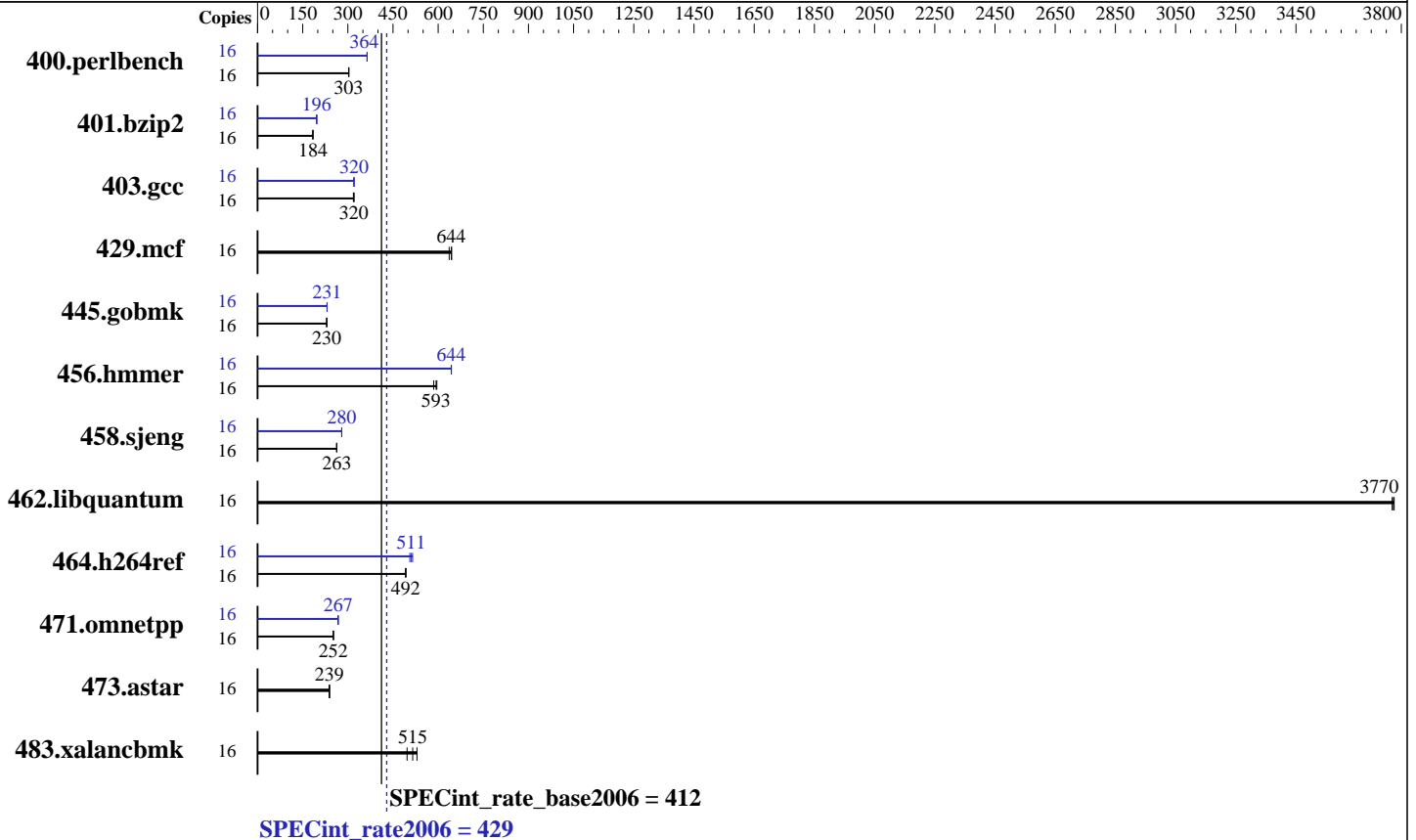
Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2016

Hardware Availability: Oct-2016

Software Availability: Mar-2016



Hardware

CPU Name: Intel Xeon E5-2609 v4
 CPU Characteristics:
 CPU MHz: 1700
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 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: 20 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133T-R, running at 1866 MHz)
 Disk Subsystem: 1 x 1000 GB SATA,7200 RPM
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.2 (Maipo)
 3.10.0-327.el7.x86_64
 Compiler: C/C++: Version 16.0.0.101 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

Huawei

SPECint_rate2006 = 429

Huawei XH321 V3(Intel Xeon E5-2609 v4)

SPECint_rate_base2006 = 412

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Oct-2016
Hardware Availability: Oct-2016
Software Availability: Mar-2016

Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|----------------|--------|------------|------------|-------------|-------------|------------|------------|--------|------------|------------|-------------|-------------|------------|------------|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 16 | 517 | 303 | 515 | 303 | <u>516</u> | <u>303</u> | 16 | <u>429</u> | <u>364</u> | 430 | 364 | 429 | 364 |
| 401.bzip2 | 16 | 839 | 184 | 841 | 184 | <u>839</u> | <u>184</u> | 16 | <u>786</u> | <u>196</u> | 785 | 197 | 786 | 196 |
| 403.gcc | 16 | <u>402</u> | <u>320</u> | 402 | 320 | 405 | 318 | 16 | <u>402</u> | <u>320</u> | 402 | 321 | 402 | 320 |
| 429.mcf | 16 | 229 | 637 | <u>227</u> | <u>644</u> | 226 | 645 | 16 | 229 | 637 | <u>227</u> | <u>644</u> | 226 | 645 |
| 445.gobmk | 16 | 730 | 230 | <u>730</u> | <u>230</u> | 730 | 230 | 16 | <u>727</u> | <u>231</u> | 727 | 231 | 727 | 231 |
| 456.hammer | 16 | 251 | 596 | <u>252</u> | <u>593</u> | 255 | 585 | 16 | <u>232</u> | <u>644</u> | 232 | 644 | 232 | 644 |
| 458.sjeng | 16 | <u>736</u> | <u>263</u> | 736 | 263 | 736 | 263 | 16 | 693 | 280 | 692 | 280 | <u>693</u> | <u>280</u> |
| 462.libquantum | 16 | 87.9 | 3770 | <u>87.8</u> | <u>3770</u> | 87.8 | 3780 | 16 | 87.9 | 3770 | <u>87.8</u> | <u>3770</u> | 87.8 | 3780 |
| 464.h264ref | 16 | <u>719</u> | <u>492</u> | 720 | 492 | 718 | 493 | 16 | <u>693</u> | <u>511</u> | 687 | 515 | 700 | 506 |
| 471.omnetpp | 16 | 398 | 252 | <u>397</u> | <u>252</u> | 397 | 252 | 16 | 373 | 268 | 374 | 267 | <u>374</u> | <u>267</u> |
| 473.astar | 16 | <u>470</u> | <u>239</u> | 469 | 239 | 472 | 238 | 16 | <u>470</u> | <u>239</u> | 469 | 239 | 472 | 238 |
| 483.xalancbmk | 16 | <u>214</u> | <u>515</u> | 208 | 530 | 222 | 497 | 16 | <u>214</u> | <u>515</u> | 208 | 530 | 222 | 497 |

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"

Platform Notes

BIOS configuration:
Set Power Efficiency Mode to Performance
Set Snoop Mode to ES mode
Set Patrol Scrub to Disable
Sysinfo program /spec16/config/sysinfo.rev6914
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Sun Oct 23 06:46:28 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 E5-2609 v4 @ 1.70GHz
2 "physical id"s (chips)
16 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
Continued on next page



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint_rate2006 = 429

Huawei XH321 V3(Intel Xeon E5-2609 v4)

SPECint_rate_base2006 = 412

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Oct-2016
Hardware Availability: Oct-2016
Software Availability: Mar-2016

Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

```
cpu cores : 8
siblings  : 8
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:      263569988 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.2 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.2"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server
```

```
uname -a:
Linux localhost.localdomain 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29
EDT 2015 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Oct 23 06:33
```

```
SPEC is set to: /spec16
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       xfs   391G  9.6G  381G   3% /
```

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 Insyde Corp. 3.33 09/26/2016

Memory:
16x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz, configured at 1867 MHz

(End of data from sysinfo program)



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint_rate2006 = 429

Huawei XH321 V3(Intel Xeon E5-2609 v4)

SPECint_rate_base2006 = 412

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2016

Hardware Availability: Oct-2016

Software Availability: Mar-2016

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/spec16/libs/32:/spec16/libs/64:/spec16/sh"

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

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>

Base Compiler Invocation

C benchmarks:

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

C++ benchmarks:

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

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
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 -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 -lsmarheap



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint_rate2006 = 429

Huawei XH321 V3(Intel Xeon E5-2609 v4)

SPECint_rate_base2006 = 412

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Oct-2016
Hardware Availability: Oct-2016
Software Availability: Mar-2016

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_2016/linux/compiler/lib/ia32_lin

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_2016/linux/compiler/lib/ia32_lin

Peak Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -D_FILE_OFFSET_BITS=64 -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: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
458.sjeng: -D_FILE_OFFSET_BITS=64 -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: -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) -auto-ilp32

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint_rate2006 = 429

Huawei XH321 V3(Intel Xeon E5-2609 v4)

SPECint_rate_base2006 = 412

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2016

Hardware Availability: Oct-2016

Software Availability: Mar-2016

Peak Optimization Flags (Continued)

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

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div

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
-opt-mem-layout-trans=3

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

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
-auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -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) -unroll2
-ansi-alias

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) -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 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint_rate2006 = 429

Huawei XH321 V3(Intel Xeon E5-2609 v4)

SPECint_rate_base2006 = 412

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2016

Hardware Availability: Oct-2016

Software Availability: Mar-2016

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/Huawei-Platform-Settings-BDW-V1.0.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/Huawei-Platform-Settings-BDW-V1.0.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 16:07:58 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 15 November 2016.