



SPEC® CINT2006 Result

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Huawei

SPECint®_rate2006 = 5120

Huawei RH8100 V3 (Intel Xeon E7-8867 v3)

SPECint_rate_base2006 = 4930

CPU2006 license: 3175

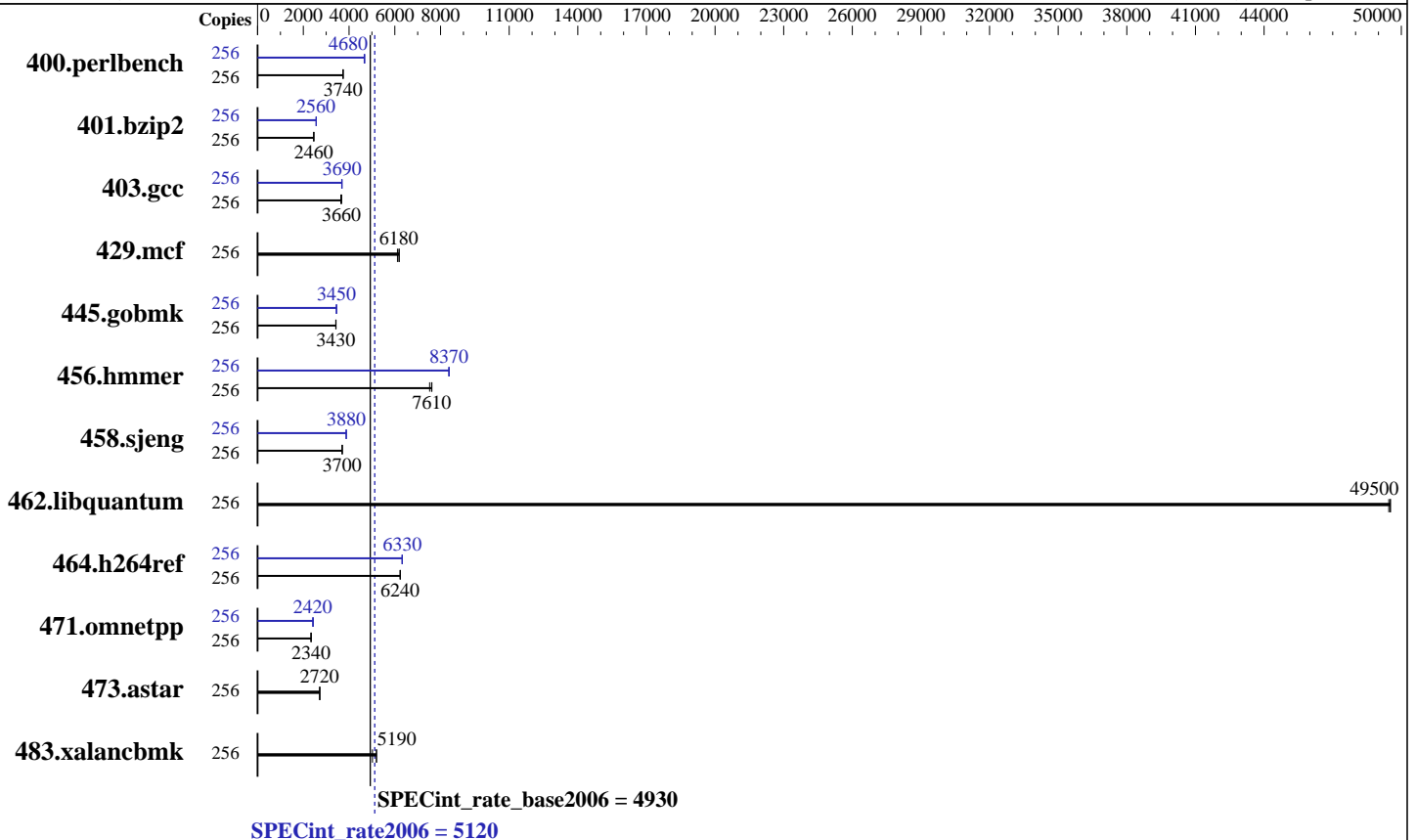
Test date: Jun-2015

Test sponsor: Huawei

Hardware Availability: May-2015

Tested by: Huawei

Software Availability: Sep-2014



Hardware

CPU Name: Intel Xeon E7-8867 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
 CPU MHz: 2500
 FPU: Integrated
 CPU(s) enabled: 128 cores, 8 chips, 16 cores/chip, 2 threads/core
 CPU(s) orderable: 4,6,8 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 45 MB I+D on chip per chip
 Other Cache: None
 Memory: 2 TB (128 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
 Disk Subsystem: 3 x 300 GB SAS, 10K RPM
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo)
 3.10.0-123.el7.x86_64
 Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux
 Auto Parallel: No
 File System: ext4
 System State: Run level 3 (multi-user)
 Base Pointers: 32-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V10.0



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Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|----------------|--------|------------|-------------|-------------|--------------|------------|-------------|--------|------------|-------------|------------|--------------|------------|-------------|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 256 | 669 | 3740 | 670 | 3740 | 669 | 3740 | 256 | 535 | 4680 | 534 | 4680 | 537 | 4660 |
| 401.bzip2 | 256 | 1007 | 2450 | 1005 | 2460 | 1003 | 2460 | 256 | 965 | 2560 | 962 | 2570 | 964 | 2560 |
| 403.gcc | 256 | 566 | 3640 | 561 | 3680 | 563 | 3660 | 256 | 559 | 3690 | 560 | 3680 | 558 | 3690 |
| 429.mcf | 256 | 382 | 6120 | 378 | 6180 | 377 | 6190 | 256 | 382 | 6120 | 378 | 6180 | 377 | 6190 |
| 445.gobmk | 256 | 783 | 3430 | 783 | 3430 | 785 | 3420 | 256 | 778 | 3450 | 778 | 3450 | 779 | 3450 |
| 456.hammer | 256 | 313 | 7620 | 314 | 7610 | 318 | 7520 | 256 | 285 | 8380 | 286 | 8360 | 285 | 8370 |
| 458.sjeng | 256 | 837 | 3700 | 837 | 3700 | 837 | 3700 | 256 | 798 | 3880 | 800 | 3870 | 799 | 3880 |
| 462.libquantum | 256 | 107 | 49500 | 107 | 49500 | 107 | 49500 | 256 | 107 | 49500 | 107 | 49500 | 107 | 49500 |
| 464.h264ref | 256 | 908 | 6240 | 909 | 6230 | 908 | 6240 | 256 | 897 | 6320 | 895 | 6330 | 895 | 6330 |
| 471.omnetpp | 256 | 685 | 2340 | 684 | 2340 | 682 | 2350 | 256 | 663 | 2410 | 656 | 2440 | 662 | 2420 |
| 473.astar | 256 | 661 | 2720 | 661 | 2720 | 661 | 2720 | 256 | 661 | 2720 | 661 | 2720 | 661 | 2720 |
| 483.xalancbmk | 256 | 340 | 5200 | 340 | 5190 | 352 | 5020 | 256 | 340 | 5200 | 340 | 5190 | 352 | 5020 |

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"
Turbo mode set with:
cpupower -c all frequency-set -g performance

Platform Notes

BIOS configuration:
Set Power Efficiency Mode to Performance
Set Lock_step to disabled
Baseboard Management Controller used to adjust the fan speed to 100%
Set DRAM Maintenance to Manual
Set DRAM Maintenance Mode to pTRR
Set Patrol Scrub to Enabled
Set Memory Power Saving to disabled
Sysinfo program /spec/config/sysinfo.rev6914
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
running on RH8100V3 Tue Jun 2 06:13:53 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>

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Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E7-8867 v3 @ 2.50GHz
 8 "physical id"s (chips)
256 "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 : 16
  siblings  : 32
  physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 20 24 25 27
  physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 20 24 25 27
  physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 20 24 25 27
  physical 3: cores 0 1 2 3 4 8 9 10 11 16 17 18 20 24 25 27
  physical 4: cores 0 1 2 3 4 8 9 10 11 16 17 18 20 24 25 27
  physical 5: cores 0 1 2 3 4 8 9 10 11 16 17 18 20 24 25 27
  physical 6: cores 0 1 2 3 4 8 9 10 11 16 17 18 20 24 25 27
  physical 7: cores 0 1 2 3 4 8 9 10 11 16 17 18 20 24 25 27
cache size : 46080 KB

```

```

From /proc/meminfo
MemTotal:      2113346500 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 RH8100V3 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 Jun 2 06:06

```

SPEC is set to: /spec
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext4  452G  5.8G  424G   2% /spec

```

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

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Platform Notes (Continued)

determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS American Megatrends Inc. BLISV705 03/30/2015

Memory:

1x Hynix HMA42GR7MFR4N-TFTD 16 GB 2 rank 2133 MHz, configured at 1600 MHz

64x NO DIMM NO DIMM

127x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1600 MHz

(End of data from sysinfo program)

Regarding the sysinfo display about the memory installed, the correct amount of memory is 2 TB and the dmidecode description should have three lines reading as:

64x NO DIMM NO DIMM

1x Hynix HMA42GR7MFR4N-TFTD 16 GB 2 rank 2133 MHz, configured at 1600 MHz

127x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1600 MHz

General Notes

Environment variables set by runspec before the start of the run:

LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64:/spec/sh"

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

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/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



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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



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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: -xCORE-AVX2 -ipo -O3 -no-prec-div

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.hmmcr: -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



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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/Huawei-Platform-Settings-V1.0-HSW-RevG.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/Huawei-Platform-Settings-V1.0-HSW-RevG.xml>

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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