



SPEC® CINT2006 Result

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Huawei

SPECint®_rate2006 = 1900

Huawei RH5885H V3 (Intel Xeon E7-8870 v2)

SPECint_rate_base2006 = 1820

CPU2006 license: 3175

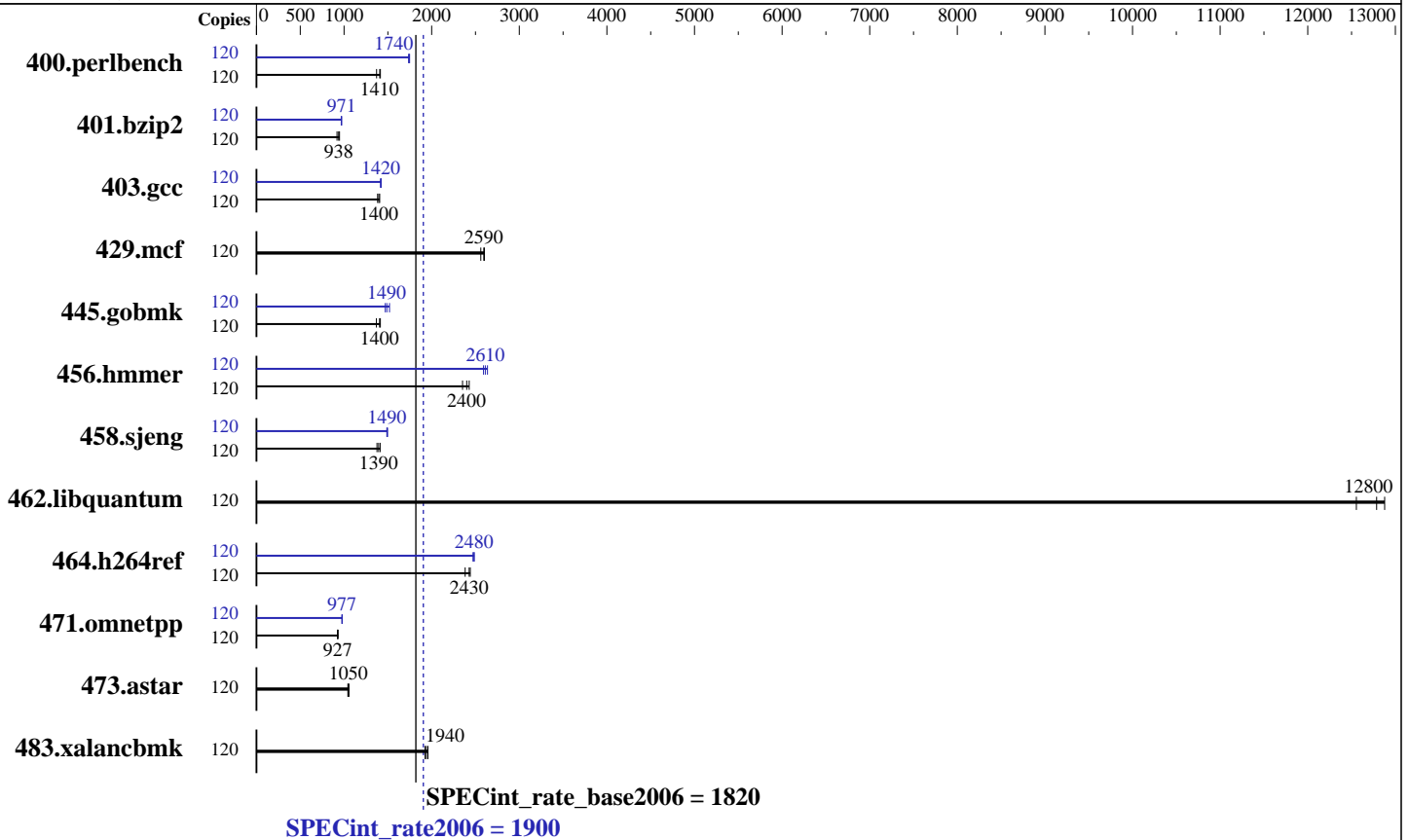
Test sponsor: Huawei

Tested by: Huawei

Test date: Jul-2014

Hardware Availability: Feb-2014

Software Availability: Nov-2013



Hardware

CPU Name: Intel Xeon E7-8870 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 60 cores, 4 chips, 15 cores/chip, 2 threads/core
 CPU(s) orderable: 2,4 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: 30 MB I+D on chip per chip
 Other Cache: None
 Memory: 512 GB (32 x 16 GB 2Rx4 PC3L-10600R-9, ECC, running at 1333 MHz)
 Disk Subsystem: 2 x 600 GB SAS, 10K RPM
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)
 2.6.32-431.el6.x86_64
 Compiler: C/C++: Version 14.0.0.080 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 | 120 | 855 | 1370 | 833 | 1410 | 829 | 1410 | 120 | 675 | 1740 | 671 | 1750 | 673 | 1740 |
| 401.bzip2 | 120 | 1260 | 919 | 1235 | 938 | 1221 | 948 | 120 | 1197 | 968 | 1191 | 972 | 1193 | 971 |
| 403.gcc | 120 | 699 | 1380 | 692 | 1400 | 687 | 1410 | 120 | 679 | 1420 | 680 | 1420 | 682 | 1420 |
| 429.mcf | 120 | 427 | 2560 | 422 | 2590 | 421 | 2600 | 120 | 427 | 2560 | 422 | 2590 | 421 | 2600 |
| 445.gobmk | 120 | 920 | 1370 | 896 | 1400 | 890 | 1410 | 120 | 856 | 1470 | 829 | 1520 | 846 | 1490 |
| 456.hammer | 120 | 476 | 2350 | 466 | 2400 | 461 | 2430 | 120 | 429 | 2610 | 425 | 2640 | 432 | 2590 |
| 458.sjeng | 120 | 1056 | 1380 | 1041 | 1390 | 1029 | 1410 | 120 | 975 | 1490 | 974 | 1490 | 970 | 1500 |
| 462.libquantum | 120 | 198 | 12600 | 194 | 12800 | 193 | 12900 | 120 | 198 | 12600 | 194 | 12800 | 193 | 12900 |
| 464.h264ref | 120 | 1115 | 2380 | 1094 | 2430 | 1088 | 2440 | 120 | 1070 | 2480 | 1068 | 2490 | 1075 | 2470 |
| 471.omnetpp | 120 | 811 | 924 | 809 | 927 | 805 | 932 | 120 | 767 | 977 | 767 | 977 | 767 | 977 |
| 473.astar | 120 | 807 | 1040 | 803 | 1050 | 798 | 1060 | 120 | 807 | 1040 | 803 | 1050 | 798 | 1060 |
| 483.xalancbmk | 120 | 430 | 1920 | 427 | 1940 | 423 | 1960 | 120 | 430 | 1920 | 427 | 1940 | 423 | 1960 |

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 Lock_step to disabled
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on RH5885HV3 Sat Jul 26 13:08:48 2014

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 E7-8870 v2 @ 2.30GHz
4 "physical id"s (chips)
120 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
Continued on next page



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Platform Notes (Continued)

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

```

cpu cores : 15
siblings  : 30
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
cache size : 30720 KB

```

From /proc/meminfo

```

MemTotal:      529098320 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

```

/usr/bin/lsb_release -d

Red Hat Enterprise Linux Server release 6.5 (Santiago)

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

```

redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

```

uname -a:

```

Linux RH5885HV3 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013
x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Jul 26 07:35

SPEC is set to: /spec

```

Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext4  433G   13G  399G   3% /spec

```

Additional information from dmidecode:

BIOS American Megatrends Inc. BLISV038 04/24/2014

Memory:

```

32x  16 GB
64x NO DIMM NO DIMM
32x Samsung M393B2G70BH0-YH9 16 GB 1333 MHz 2 rank

```

(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 one line reading as:

```

32x Samsung M393B2G70BH0-YH9 16 GB 1333 MHz 2 rank

```

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 i7-860 CPU + 8GB

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General Notes (Continued)

```

memory using RedHat EL 6.4
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_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

C++ benchmarks:
  icpc -m32

```

Base Portability Flags

```

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

```

Base Optimization Flags

```

C benchmarks:
  -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3

C++ benchmarks:
  -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
  -Wl,-z,muldefs -L/sh -lsmarthearp

```

Base Other Flags

```

C benchmarks:
  403.gcc: -Dalloca=_alloca

```

Peak Compiler Invocation

```

C benchmarks (except as noted below):
  icc -m32

```

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Peak Compiler Invocation (Continued)

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:

icpc -m32

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

Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4 -auto-ilp32

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Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(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: -xSSE4.2(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

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64-revC.html>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64-revC.xml>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.xml>

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For other inquiries, please contact webmaster@spec.org.

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