SPEC® CINT2006 Result
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Huawei

Huawei RH2288H V3 (Intel Xeon E5-2660 v3)

$SPECint^{®}\_rate2006 = 928$

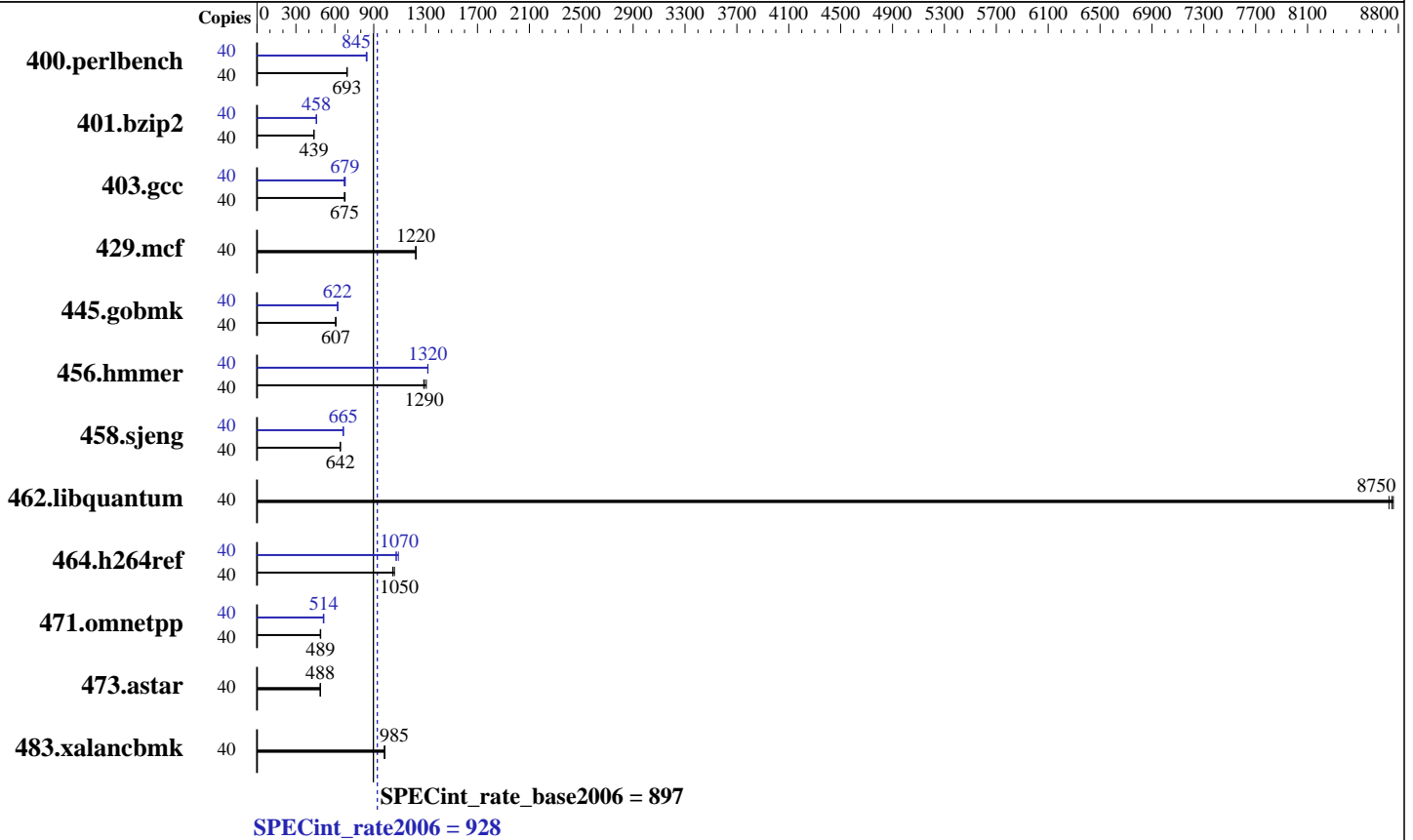$SPECint\_rate\_base2006 = 897$

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

Test date: Jan-2015
Hardware Availability: Sep-2014
Software Availability: Nov-2013

Copies scale: 0 300 600 900 1300 1700 2100 2500 2900 3300 3700 4100 4500 4900 5300 5700 6100 6500 6900 7300 7700 8100 8800

Benchmark	Copies	Peak	Base
400.perlbench	40	845	693
401.bzip2	40	458	439
403.gcc	40	679	675
429.mcf	40		1220
445.gobmk	40	622	607
456.hmmer	40	1320	1290
458.sjeng	40	665	642
462.libquantum	40		8750
464.h264ref	40	1070	1050
471.omnetpp	40	514	489
473.astar	40		488
483.xalancbmk	40		985

SPECint_rate_base2006 = 897

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Hardware

CPU Name: Intel Xeon E5-2660 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz: 2600
FPU: Integrated
CPU(s) enabled: 20 cores, 2 chips, 10 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: 25 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem: 1 x 500 GB SATA, 7200 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 Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	40	564	693	**564**	**693**	561	696	40	464	842	461	847	**462**	**845**
401.bzip2	40	880	439	**879**	**439**	879	439	40	844	458	**842**	**458**	842	459
403.gcc	40	**477**	**675**	477	675	474	679	40	479	672	**474**	**679**	474	680
429.mcf	40	298	1220	**298**	**1220**	297	1230	40	298	1220	**298**	**1220**	297	1230
445.gobmk	40	690	608	**691**	**607**	691	607	40	675	621	**675**	**622**	675	622
456.hmmer	40	**289**	**1290**	286	1310	290	1290	40	283	1320	**283**	**1320**	283	1320
458.sjeng	40	754	642	753	643	**754**	**642**	40	728	665	728	665	**728**	**665**
462.libquantum	40	95.0	8730	**94.7**	**8750**	94.6	8760	40	95.0	8730	**94.7**	**8750**	94.6	8760
464.h264ref	40	845	1050	835	1060	**845**	**1050**	40	812	1090	825	1070	825	1070
471.omnetpp	40	512	488	**511**	**489**	509	491	40	489	511	486	515	**486**	**514**
473.astar	40	573	490	**576**	**488**	576	487	40	573	490	**576**	**488**	576	487
483.xalancbmk	40	281	981	280	986	**280**	**985**	40	281	981	280	986	**280**	**985**

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 Custom
    Set Snoop Mode to COD
    Set Patrol Scrub to Disable
    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 localhost.localdomain Thu Jan 8 08:40:36 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 E5-2660 v3 @ 2.60GHz
         2 "physical id"s (chips)
         40 "processors"

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Platform Notes (Continued)

```
   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 : 10
      siblings  : 20
      physical 0: cores 0 1 2 3 4 8 9 10 11 12
      physical 1: cores 0 1 2 3 4 8 9 10 11 12
   cache size : 12800 KB

 From /proc/meminfo
    MemTotal:      264273708 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 localhost.localdomain 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 Jan 7 21:23

 SPEC is set to: /spec
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sda1       ext4  268G   88G  167G  35% /

 Additional information from dmidecode:
   BIOS Insyde Corp. 1.13 08/12/2014
   Memory:
    8x NO DIMM NO DIMM      3 rank
    8x Samsung M393A2G40DB0-CPB 16 GB 2133 MHz 1 rank
    8x Samsung M393A2G40DB0-CPB 16 GB 2133 MHz 2 rank

 (End of data from sysinfo program)
```

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
 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:
```

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General Notes (Continued)

```
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:
```
-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
```

```
400.perlbench: icc  -m64
```

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Peak Compiler Invocation (Continued)

            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: `-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.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`

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Peak Optimization Flags (Continued)

```
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
```

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.2.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.2.xml

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

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