SPEC® CINT2006 Result
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Huawei

Huawei RH2288 V3 (Intel Xeon E5-2660 v3)

$SPECint®_rate2006 = $ 895

$SPECint_rate_base2006 = $ 868

CPU2006 license: 3175	**Test date:**	Aug-2014
Test sponsor: Huawei	**Hardware Availability:**	Sep-2014
Tested by: Huawei	**Software Availability:**	Nov-2013

Results graph:

- 400.perlbench: 40 / 807; 40 / 666
- 401.bzip2: 40 / 445; 40 / 425
- 403.gcc: 40 / 662
- 429.mcf: 40 / 1190
- 445.gobmk: 40 / 604; 40 / 590
- 456.hmmer: 40 / 1230
- 458.sjeng: 40 / 640; 40 / 624
- 462.libquantum: 40 / 8320
- 464.h264ref: 40 / 1050; 40 / 1030
- 471.omnetpp: 40 / 505; 40 / 479
- 473.astar: 40 / 476
- 483.xalancbmk: 40 / 938

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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 256 GB SATA, SSD
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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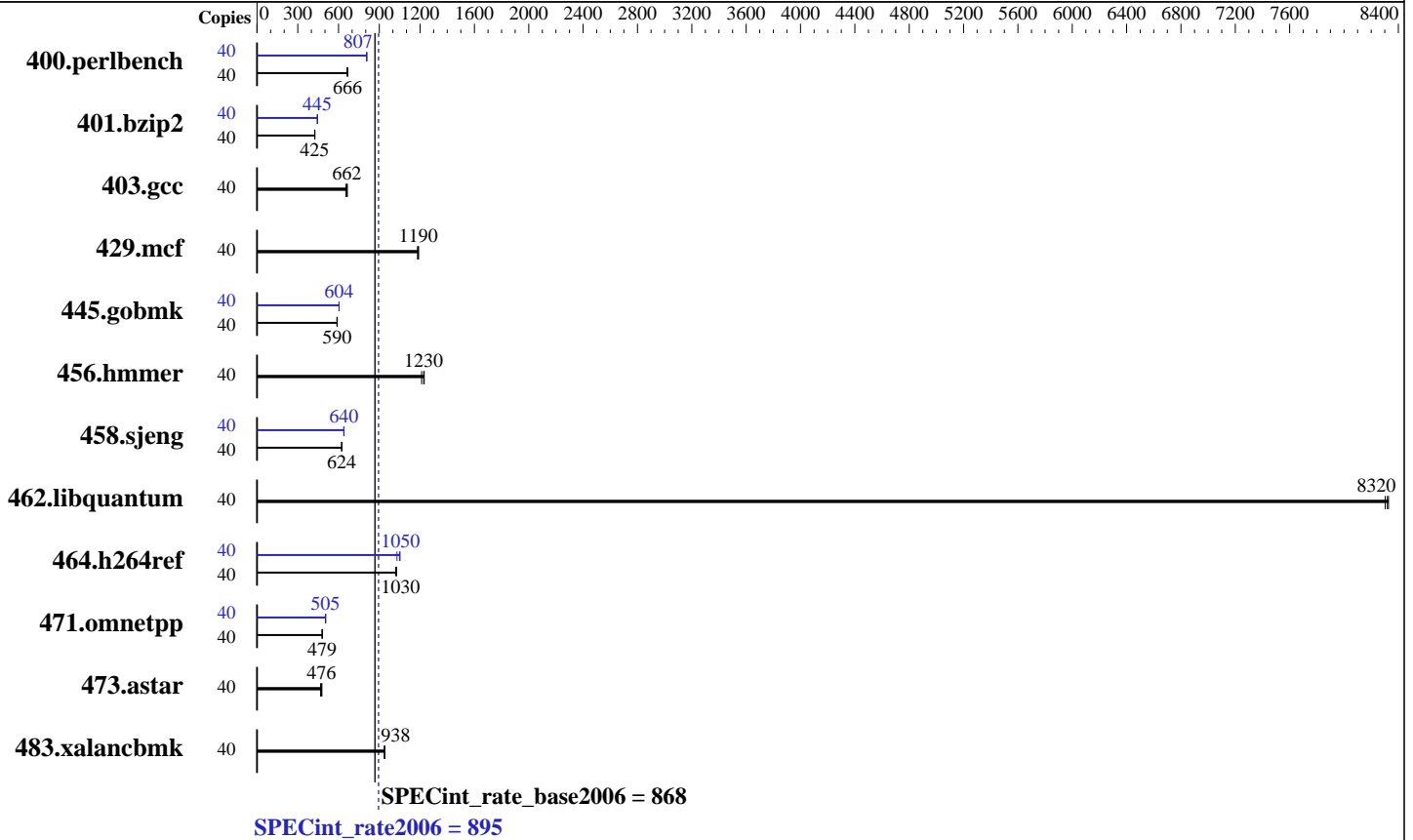
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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	40	586	667	589	663	**587**	**666**	40	484	807	**484**	**807**	484	808
401.bzip2	40	909	424	**908**	**425**	906	426	40	869	444	**868**	**445**	868	445
403.gcc	40	493	654	485	665	**486**	**662**	40	493	654	485	665	**486**	**662**
429.mcf	40	307	1190	309	1180	**307**	**1190**	40	307	1190	309	1180	**307**	**1190**
445.gobmk	40	710	591	714	588	**712**	**590**	40	695	604	**695**	**604**	694	604
456.hmmer	40	308	1210	303	1230	**304**	**1230**	40	308	1210	303	1230	**304**	**1230**
458.sjeng	40	777	623	775	624	**776**	**624**	40	758	639	756	640	**757**	**640**
462.libquantum	40	99.8	8300	99.5	8330	**99.6**	**8320**	40	99.8	8300	99.5	8330	**99.6**	**8320**
464.h264ref	40	**863**	**1030**	868	1020	861	1030	40	**844**	**1050**	859	1030	841	1050
471.omnetpp	40	522	479	518	482	**522**	**479**	40	**495**	**505**	494	506	497	503
473.astar	40	**590**	**476**	589	477	600	468	40	**590**	**476**	589	477	600	468
483.xalancbmk	40	**294**	**938**	294	937	293	941	40	**294**	**938**	294	937	293	941

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
    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 xjt Sun Aug 31 00:25:16 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 E5-2660 v3 @ 2.60GHz
          2 "physical id"s (chips)
          40 "processors"
       cores, siblings (Caution: counting these is hw and system dependent. The

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Platform Notes (Continued)

```
    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:       264299332 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 xjt 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 Aug 30 13:23

  SPEC is set to: /spec
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sda1       ext4  222G   59G  152G  28% /

  Additional information from dmidecode:
    BIOS Insyde Corp. 8.09 07/14/2014
    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:
  echo 1>       /proc/sys/vm/drop_caches
```

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General Notes (Continued)

```
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
```

```
401.bzip2: icc -m64
```

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Peak Compiler Invocation (Continued)

    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`
       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: `basepeak = yes`

         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: `basepeak = yes`

       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:

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Peak Optimization Flags (Continued)

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-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-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.xml

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

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