SPEC® CINT2006 Result

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Huawei

Huawei RH5885 V3 (Intel Xeon E7-8891 v2)

SPECint®_rate2006 = 1720

SPECint_rate_base2006 = 1660

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

Copies

Benchmark	Copies	Result
400.perlbench	80	1630 (peak)
400.perlbench	80	1380 (base)
401.bzip2	80	998 (peak)
401.bzip2	80	980 (base)
403.gcc	80	1250 (peak)
403.gcc	80	1240 (base)
429.mcf	80	2120
445.gobmk	80	1390 (peak)
445.gobmk	80	1350 (base)
456.hmmer	80	2710 (peak)
456.hmmer	80	2500 (base)
458.sjeng	80	1390 (peak)
458.sjeng	80	1320 (base)
462.libquantum	80	11100
464.h264ref	80	2370 (peak)
464.h264ref	80	2340 (base)
471.omnetpp	80	753 (peak)
471.omnetpp	80	725 (base)
473.astar	80	918
483.xalancbmk	80	1650

SPECint_rate_base2006 = 1660

SPECint_rate2006 = 1720

Hardware

CPU Name:	Intel Xeon E7-8891 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	3200
FPU:	Integrated
CPU(s) enabled:	40 cores, 4 chips, 10 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:	37.5 MB I+D on chip per chip
Other Cache:	None
Memory:	512 GB (32 x 16 GB 2Rx4 PC3-12800R-11, 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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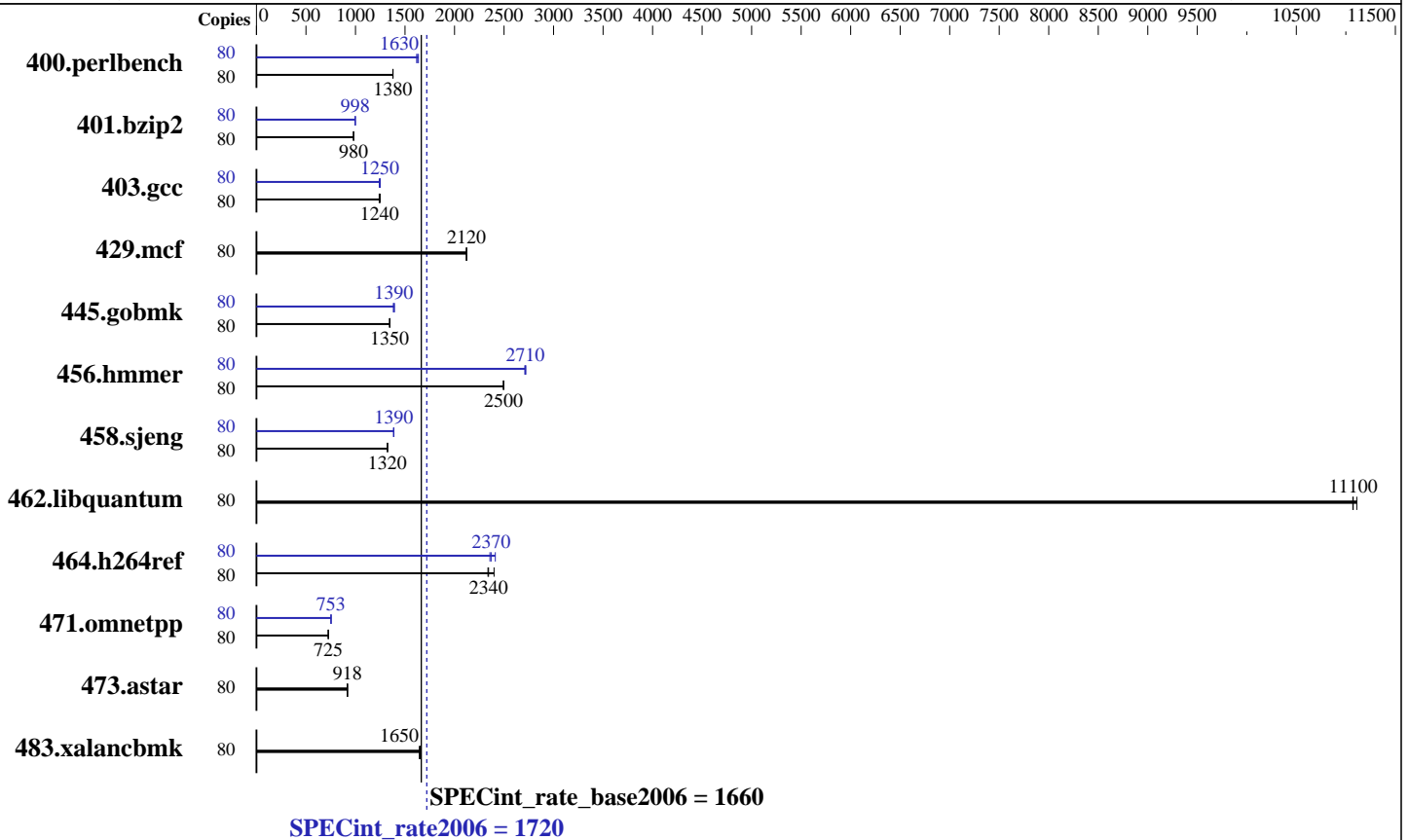
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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	80	568	1380	**_567_**	**_1380_**	567	1380	80	**_480_**	**_1630_**	478	1640	483	1620
401.bzip2	80	788	980	787	980	**_787_**	**_980_**	80	**_774_**	**_998_**	774	998	774	997
403.gcc	80	520	1240	516	1250	**_518_**	**_1240_**	80	519	1240	**_516_**	**_1250_**	515	1250
429.mcf	80	344	2120	344	2120	**_344_**	**_2120_**	80	344	2120	344	2120	**_344_**	**_2120_**
445.gobmk	80	623	1350	**_623_**	**_1350_**	625	1340	80	607	1380	**_605_**	**_1390_**	602	1390
456.hmmer	80	299	2490	299	2500	**_299_**	**_2500_**	80	275	2710	**_275_**	**_2710_**	274	2720
458.sjeng	80	732	1320	731	1320	**_732_**	**_1320_**	80	698	1390	**_698_**	**_1390_**	699	1380
462.libquantum	80	150	11100	149	11100	**_150_**	**_11100_**	80	150	11100	149	11100	**_150_**	**_11100_**
464.h264ref	80	757	2340	738	2400	**_755_**	**_2340_**	80	734	2410	**_747_**	**_2370_**	751	2360
471.omnetpp	80	689	726	**_689_**	**_725_**	690	725	80	664	753	**_664_**	**_753_**	663	754
473.astar	80	613	917	610	921	**_612_**	**_918_**	80	613	917	610	921	**_612_**	**_918_**
483.xalancbmk	80	334	1650	336	1640	**_334_**	**_1650_**	80	334	1650	336	1640	**_334_**	**_1650_**

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 RH5885V3 Mon Sep 22 14:36:13 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 E7-8891 v2 @ 3.20GHz
          4 "physical id"s (chips)
          80 "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 2 3 4 5 6 7 8 10 11 12
       physical 1: cores 2 3 4 5 6 7 8 10 11 12
       physical 2: cores 2 3 4 5 6 7 8 10 11 12
       physical 3: cores 2 3 4 5 6 7 8 10 11 12
    cache size : 38400 KB

From /proc/meminfo
    MemTotal:       529102072 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 RH5885V3 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 Sep 22 14:35

SPEC is set to: /spec
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sda2       ext4  385G   67G  298G  19% /spec

Additional information from dmidecode:
  BIOS American Megatrends Inc. BLISV395 07/25/2014
  Memory:
    32x   16 GB
    30x Hynix HMT42GR7AFR4C-PB 16 GB 1333 MHz 2 rank
    2x Hynix HMT42GR7MFR4C-PB 16 GB 1333 MHz 2 rank
    16x NO DIMM NO DIMM

(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 two lines reading as:
    30x Hynix HMT42GR7AFR4C-PB 16 GB 1333 MHz 2 rank
    2x Hynix HMT42GR7MFR4C-PB 16 GB 1333 MHz 2 rank
```

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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
 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 -lsmartheap
```

Base Other Flags

C benchmarks:
```
        403.gcc: -Dalloca=_alloca
```

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Peak Compiler Invocation

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

    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

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

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