SPEC® CINT2006 Result
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Huawei

Huawei RH5885H V3 (Intel Xeon E7-8890 v2)

SPECint®_rate2006 =   1650

SPECint_rate_base2006 = 1560

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

Copies

- 400.perlbench — 120 — 1440; 120 — 1150
- 401.bzip2 — 120 — 882; 120 — 844
- 403.gcc — 120 — 1250; 120 — 1220
- 429.mcf — 120 — 2390
- 445.gobmk — 120 — 1250; 120 — 1150
- 456.hmmer — 120 — 2190; 120 — 2000
- 458.sjeng — 120 — 1220; 120 — 1130
- 462.libquantum — 120 — 10600
- 464.h264ref — 120 — 2030; 120 — 1980
- 471.omnetpp — 120 — 945; 120 — 873
- 473.astar — 120 — 926
- 483.xalancbmk — 120 — 1670

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Hardware

CPU Name:	Intel Xeon E7-8890 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz:	2800
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:	37.5 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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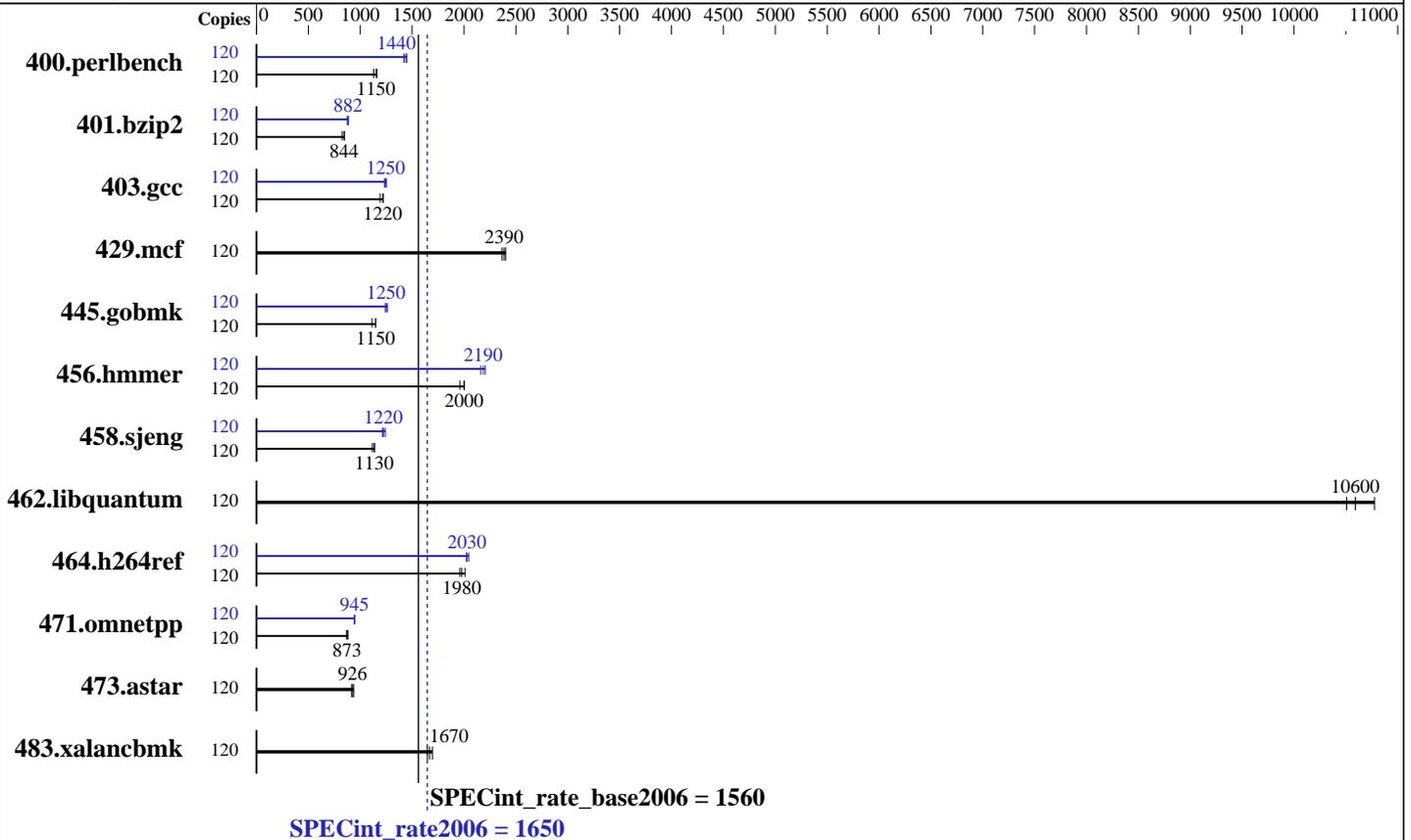SPECint_rate_base2006 = 1560

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Results Table

Benchmark	Base Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
400.perlbench	120	1039	1130	**1017**	**1150**	1010	1160	120	825	1420	**816**	**1440**	809	1450
401.bzip2	120	1404	825	**1373**	**844**	1368	846	120	1326	873	**1313**	**882**	1306	887
403.gcc	120	811	1190	**793**	**1220**	792	1220	120	783	1230	**776**	**1250**	772	1250
429.mcf	120	463	2370	**459**	**2390**	456	2400	120	463	2370	**459**	**2390**	456	2400
445.gobmk	120	1130	1110	**1097**	**1150**	1097	1150	120	1015	1240	997	1260	**1008**	**1250**
456.hmmer	120	571	1960	**560**	**2000**	559	2000	120	518	2160	**512**	**2190**	508	2210
458.sjeng	120	1301	1120	**1280**	**1130**	1277	1140	120	1198	1210	**1186**	**1220**	1171	1240
462.libquantum	120	237	10500	**235**	**10600**	231	10800	120	237	10500	**235**	**10600**	231	10800
464.h264ref	120	1354	1960	**1342**	**1980**	1321	2010	120	1313	2020	**1309**	**2030**	1298	2050
471.omnetpp	120	863	870	**859**	**873**	851	881	120	797	941	**794**	**945**	792	946
473.astar	120	919	917	**909**	**926**	899	937	120	919	917	**909**	**926**	899	937
483.xalancbmk	120	502	1650	**496**	**1670**	488	1700	120	502	1650	**496**	**1670**	488	1700

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 Mon Jul 28 08:19:13 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 E7-8890 v2 @ 2.80GHz
      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 : 38400 KB

  From /proc/meminfo
    MemTotal:       529098332 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 28 06:57

  SPEC is set to: /spec
    Filesystem     Type  Size  Used Avail Use% Mounted on
    /dev/sda3      ext4  357G   15G  325G   5% /

  Additional information from dmidecode:
    BIOS American Megatrends Inc. BLISV038 04/24/2014
    Memory:
    32x   16 GB
    32x Hynix HMT42GR7MFR4A-H9 16 GB 1333 MHz 2 rank
    64x 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 one line reading as:
    32x Hynix HMT42GR7MFR4A-H9 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 -lsmartheap

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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