SPEC® CINT2006 Result
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Huawei

Huawei RH8100 V3 (Intel Xeon E7-8893 v3)

SPECint®_rate2006 = 1790

SPECint_rate_base2006 = 1700

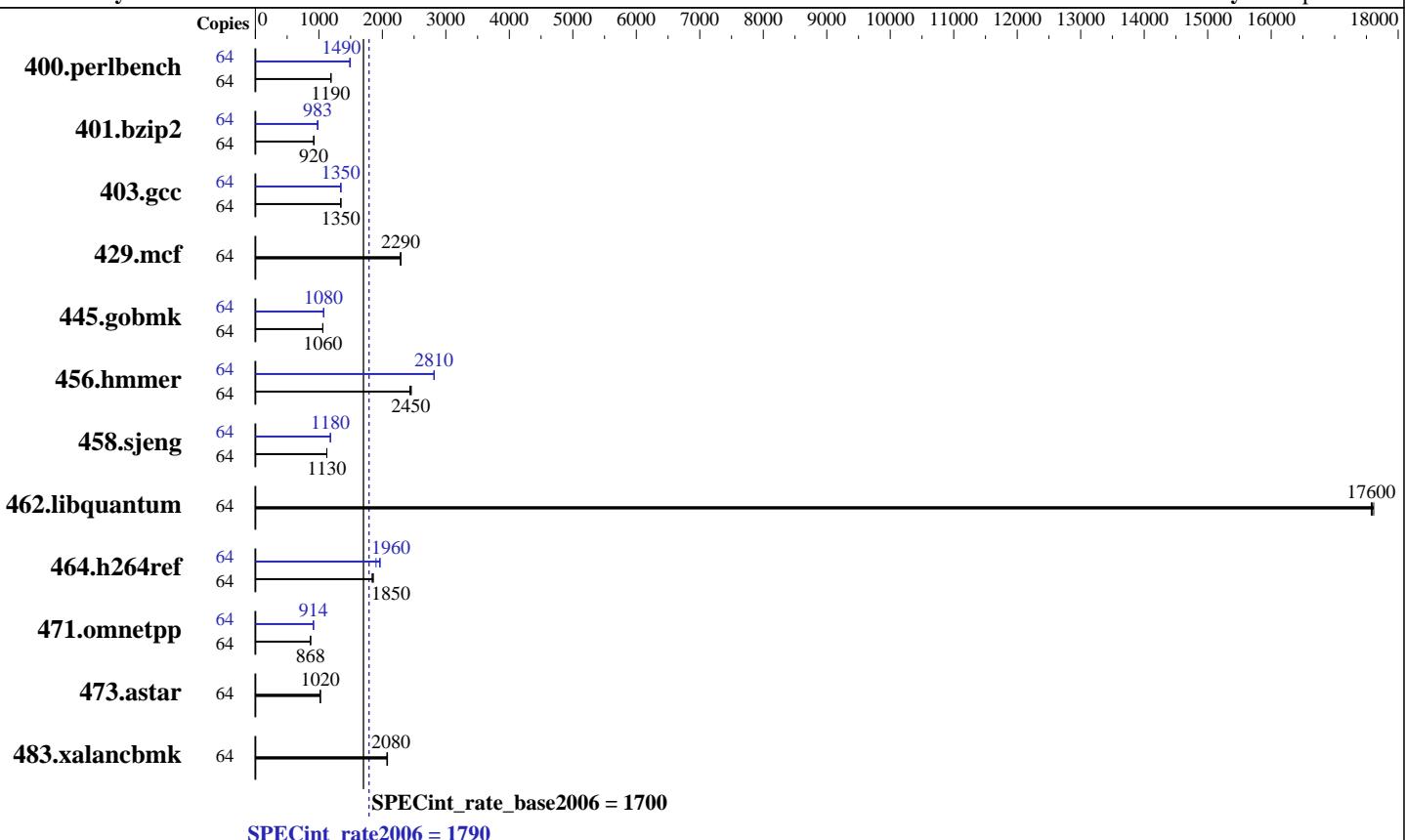|	
CPU2006 license: 3175	**Test date:** Jun-2015
Test sponsor: Huawei	**Hardware Availability:** May-2015
Tested by: Huawei	**Software Availability:** Sep-2014

Benchmark results (Copies = 64 for each, peak / base):

- 400.perlbench: 1490 / 1190
- 401.bzip2: 983 / 920
- 403.gcc: 1350 / 1350
- 429.mcf: 2290
- 445.gobmk: 1080 / 1060
- 456.hmmer: 2810 / 2450
- 458.sjeng: 1180 / 1130
- 462.libquantum: 17600
- 464.h264ref: 1960 / 1850
- 471.omnetpp: 914 / 868
- 473.astar: 1020
- 483.xalancbmk: 2080

SPECint_rate_base2006 = 1700
SPECint_rate2006 = 1790

Hardware

CPU Name:	Intel Xeon E7-8893 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz:	3200
FPU:	Integrated
CPU(s) enabled:	32 cores, 8 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	4,6,8 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:	45 MB I+D on chip per chip
Other Cache:	None
Memory:	2 TB (128 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
Disk Subsystem:	3 x 300 GB SAS, 10K RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64
Compiler:	C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux
Auto Parallel:	No
File System:	xfs
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	64	526	1190	524	1190	**526**	**1190**	64	**419**	**1490**	421	1490	418	1500
401.bzip2	64	672	919	668	924	**672**	**920**	64	**629**	**983**	627	985	632	978
403.gcc	64	383	1340	383	1350	**383**	**1350**	64	**383**	**1350**	382	1350	384	1340
429.mcf	64	255	2280	**255**	**2290**	255	2290	64	255	2280	**255**	**2290**	255	2290
445.gobmk	64	632	1060	**632**	**1060**	631	1060	64	625	1070	624	1080	**624**	**1080**
456.hmmer	64	**244**	**2450**	243	2450	245	2430	64	**212**	**2810**	212	2810	212	2820
458.sjeng	64	**688**	**1130**	689	1120	688	1130	64	655	1180	654	1180	**655**	**1180**
462.libquantum	64	75.4	17600	**75.4**	**17600**	75.3	17600	64	75.4	17600	**75.4**	**17600**	75.3	17600
464.h264ref	64	763	1860	**765**	**1850**	771	1840	64	745	1900	721	1970	**723**	**1960**
471.omnetpp	64	462	867	**461**	**868**	460	870	64	438	914	**438**	**914**	437	916
473.astar	64	439	1020	**439**	**1020**	440	1020	64	439	1020	**439**	**1020**	440	1020
483.xalancbmk	64	**212**	**2080**	212	2080	213	2070	64	**212**	**2080**	212	2080	213	2070

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"
    Turbo mode set with:
     cpupower -c all frequency-set -g performance

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%
    Set DRAM Maintenace to Manual
    Set DRAM Maintenace Mode to pTRR
    Set Patrol Scrub to Enabled
    Set Memory Power Saving to disabled
    Sysinfo program /spec/config/sysinfo.rev6914
    $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
    running on localhost.localdomain Fri Jun 5 06:18:16 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

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Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E7-8893 v3 @ 3.20GHz
      8 "physical id"s (chips)
      64 "processors"
   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 : 4
      siblings  : 8
      physical 0: cores 1 5 16 20
      physical 1: cores 1 5 16 20
      physical 2: cores 1 5 16 20
      physical 3: cores 1 5 16 20
      physical 4: cores 1 5 16 20
      physical 5: cores 1 5 16 20
      physical 6: cores 1 5 16 20
      physical 7: cores 1 5 16 20
   cache size : 46080 KB

From /proc/meminfo
   MemTotal:       2113368776 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

From /etc/*release* /etc/*version*
   os-release:
      NAME="Red Hat Enterprise Linux Server"
      VERSION="7.0 (Maipo)"
      ID="rhel"
      ID_LIKE="fedora"
      VERSION_ID="7.0"
      PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
      ANSI_COLOR="0;31"
      CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
   redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
   system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

uname -a:
   Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57
   EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 5 00:12

SPEC is set to: /spec
   Filesystem      Type   Size  Used Avail Use% Mounted on
   /dev/sda2       xfs    293G   74G  220G  25% /
Additional information from dmidecode:

   Warning: Use caution when you interpret this section. The 'dmidecode' program
   reads system data which is "intended to allow hardware to be accurately
```
Continued on next page

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Platform Notes (Continued)

```
   determined", but the intent may not be met, as there are frequent changes to
   hardware, firmware, and the "DMTF SMBIOS" standard.

 BIOS American Megatrends Inc. BLISV705 03/30/2015
 Memory:
  1x Hynix HMA42GR7MFR4N-TFTD 16 GB 2 rank 2133 MHz, configured at 1600 MHz
  64x NO DIMM NO DIMM
  127x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1600 MHz

 (End of data from sysinfo program)
memory is 2 TB and the dmidecode description should have three lines reading as:
   64x NO DIMM NO DIMM
   1x Hynix HMA42GR7MFR4N-TFTD 16 GB 2 rank 2133 MHz, configured at 1600 MHz
   127x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1600 MHz
```

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 i5-4670K CPU + 16GB
 memory using RedHat EL 7.0
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/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 -L/opt/intel/composer_xe_2015/lib/ia32
```

C++ benchmarks:
```
    icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

Base Portability Flags

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

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Test sponsor: Huawei		**Hardware Availability:**	May-2015
Tested by: Huawei		**Software Availability:**	Sep-2014

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 -L/opt/intel/composer_xe_2015/lib/ia32
```

400.perlbench: `icc -m64`

401.bzip2: `icc -m64`

456.hmmer: `icc -m64`

458.sjeng: `icc -m64`

C++ benchmarks:
```
icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

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`

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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`

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`

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The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-HSW-RevG.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-HSW-RevG.xml

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