Huawei RH5885H v3 (Intel Xeon E7-4820 v2)

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

CPU Name: Intel Xeon E7-4820 v2
CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz
CPU MHz: 2000
FPU: Integrated
CPU(s) enabled: 32 cores, 4 chips, 8 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: 16 MB I+D on chip per core
Other Cache: None

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)
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

Non-Compliant
SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the submitter has notified SPEC that the system was run with a BIOS which included a version of the Intel MRC (Memory Reference Code) that is not supported by Huawei or Intel.
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**Memory:** 512 GB (64 x 8 GB 2Rx4 PC3-10600R-9, ECC)

**Disk Subsystem:** 2 x 300 GB SAS, 10K RPM

**Other Hardware:** None

**Other Software:** Microquill SmartHeap V10.0

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"
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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 localhost.localdomain Wed May 7 12:07:03 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 E7-4820 v2 @ 2.00GHz
 4 "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
  siblings : 16
  physical 1: cores 0 1 2 3 4 5 6 7
  physical 2: cores 0 1 2 3 4 5 6 7
  physical 3: cores 0 1 2 3 4 5 6 7
cache size : 16384 KB

From /proc/meminfo
MemTotal:       529105288 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)

uname -a:

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Platform Notes (Continued)

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 May 7 11:58

SPEC is set to: /spec

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 154G 23G 124G 16% /

Additional information from dmidecode:

BIOS American Megatrends Inc. BLISV099 02/09/2014
Memory:
64x 8 GB
32x NO DIMM NO DIMM
10x Samsung M393B1K70CH0-CH9 8 GB 1333 MHz 2 rank
54x Samsung M393B1K70CH0-CH9 8 GB 1333 MHz 2 rank

(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:

10x Samsung M393B1K70CH0-CH9 8 GB 1333 MHz 2 rank
54x Samsung M393B1K70CH0-CH9 8 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 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>
SPEC CINT2006 Result

Huawei

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<table>
<thead>
<tr>
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CPU2006 license: 3175  
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Tested by: Huawei  
Test date: May-2014  
Hardware Availability: Feb-2014  
Software Availability: Nov-2013

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### Base Compiler Invocation

C benchmarks:

```shell
icc  -m32
```

C++ benchmarks:

```shell
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:

```shell
-xSSE4.2 -ipo -D-no-prec-div -opt-prefetch -opt-mem-layout-trans=3
```

C++ benchmarks:

```shell
-xSSE4.2 -ipo -D-no-prec-div -opt-prefetch -opt-mem-layout-trans=3
-W,-z,n undefs -I/sh -lsmartheap
```

### Base Other Flags

C benchmarks:

```shell
403.gcc: -Dalloca=_alloca
```

### Peak Compiler Invocation

C benchmarks (except as noted below):

```shell
icc  -m32
```

Non-Compliant
SPEC CINT2006 Result

Huawei

Huawei RH5885H v3 (Intel Xeon E7-4820 v2)

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SPECint_rate_base2006 = NC

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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: basepeak = yes
429.mcf: basepeak = yes

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PEG int rate 2006 = NC
SPEC int rate base 2006 = NC

CPU2006 license: 3175
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**Peak Optimization Flags (Continued)**

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
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
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 = marcheap
473.astar: basepeak = yes
483.xalancbmk: basepeak = yes

**Peak Other Flags**

C benchmarks:

485.3gcc: -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
### SPEC CINT2006 Result

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You can also download the XML flags sources by saving the following links: