SPEC® CINT2006 Result
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Huawei

Huawei CH240 (Intel Xeon E5-4640 v2)

SPECint®2006 = 47.1

SPECint_base2006 = 43.7

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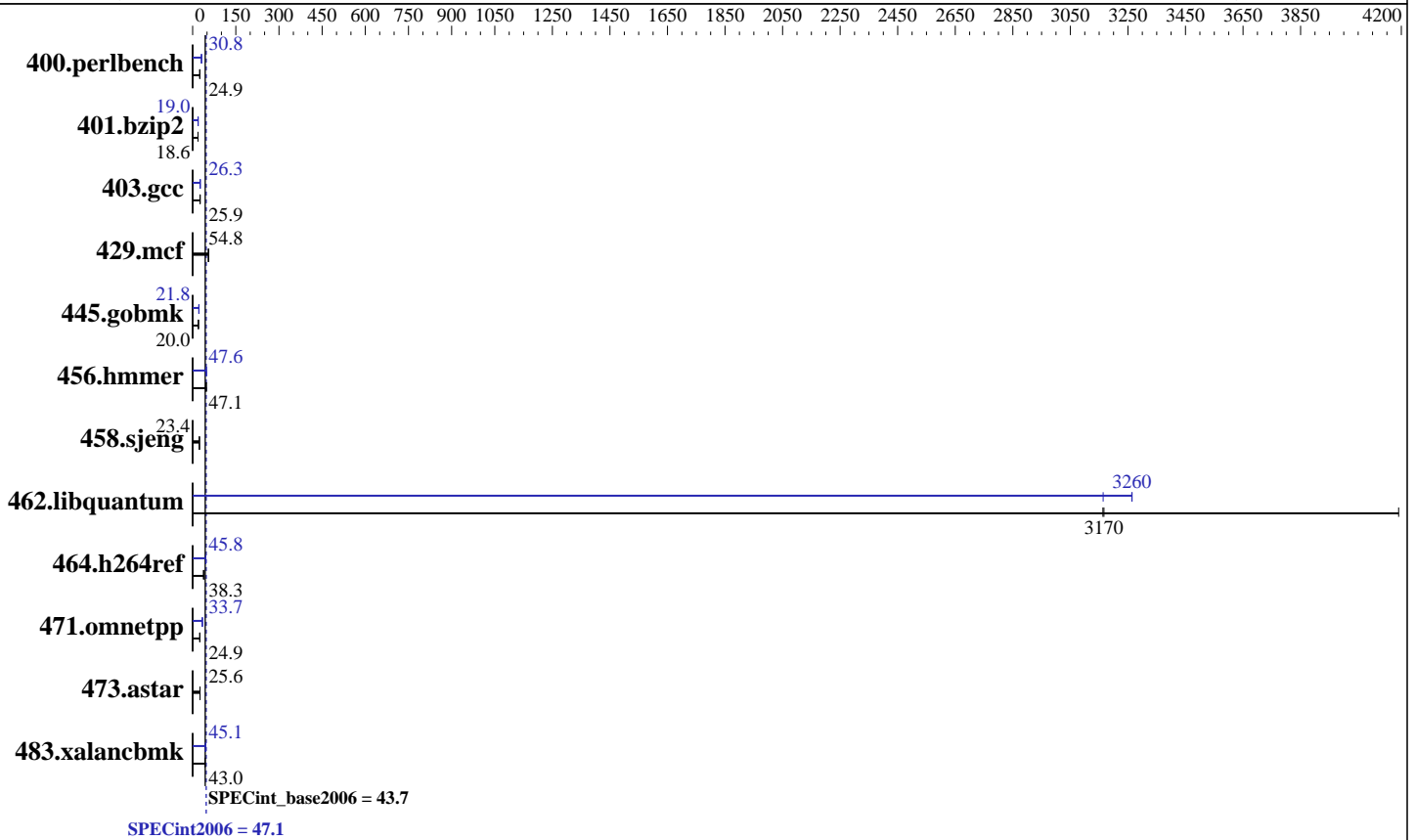**Test sponsor:** Huawei
Tested by: Huawei

Test date: Sep-2014
Hardware Availability: Apr-2014
Software Availability: Nov-2013

Benchmark	Peak	Base
400.perlbench	30.8	24.9
401.bzip2	19.0	18.6
403.gcc	26.3	25.9
429.mcf	54.8	
445.gobmk	21.8	20.0
456.hmmer	47.6	47.1
458.sjeng	23.4	
462.libquantum	3260	3170
464.h264ref	45.8	38.3
471.omnetpp	33.7	24.9
473.astar	25.6	
483.xalancbmk	45.1	43.0

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Hardware

CPU Name: Intel Xeon E5-4640 v2
CPU Characteristics: Intel Turbo Boost Technology up to 2.70 GHz
CPU MHz: 2200
FPU: Integrated
CPU(s) enabled: 40 cores, 4 chips, 10 cores/chip
CPU(s) orderable: 2,4 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: 20 MB I+D on chip per chip
Other Cache: None
Memory: 512 GB (32 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem: 1 x 500 GB SATA, 7200 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 12.1.0.225 of Intel C++ Studio XE for Linux
Auto Parallel: Yes
File System: ext4
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V9.01

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	393	24.9	**392**	**24.9**	391	25.0	**317**	**30.8**	317	30.8	318	30.7
401.bzip2	518	18.6	**518**	**18.6**	517	18.7	508	19.0	507	19.0	**507**	**19.0**
403.gcc	311	25.9	**311**	**25.9**	311	25.9	306	26.3	**307**	**26.3**	307	26.3
429.mcf	**166**	**54.8**	164	55.5	167	54.7	**166**	**54.8**	164	55.5	167	54.7
445.gobmk	524	20.0	525	20.0	**525**	**20.0**	**482**	**21.8**	482	21.8	482	21.8
456.hmmer	199	46.9	**198**	**47.1**	198	47.2	**196**	**47.6**	195	47.8	198	47.0
458.sjeng	516	23.4	**517**	**23.4**	517	23.4	516	23.4	**517**	**23.4**	517	23.4
462.libquantum	4.94	4190	6.55	3160	**6.54**	**3170**	6.35	3260	6.55	3160	**6.35**	**3260**
464.h264ref	578	38.3	**578**	**38.3**	580	38.1	483	45.8	**483**	**45.8**	483	45.8
471.omnetpp	**251**	**24.9**	249	25.1	251	24.9	186	33.6	185	33.8	**185**	**33.7**
473.astar	275	25.5	274	25.6	**275**	**25.6**	275	25.5	274	25.6	**275**	**25.6**
483.xalancbmk	160	43.0	161	42.9	**161**	**43.0**	153	45.1	**153**	**45.1**	153	45.2

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

Platform Notes

```
BIOS configuration:
Set Power Efficiency Mode to Custom
Set Hyper-Threading to Disabled
Sysinfo program /spec/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost.localdomain Tue Sep  2 11:50:34 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 E5-4640 v2 @ 2.20GHz
     4 "physical id"s (chips)
     40 "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 : 10
     siblings  : 10
     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
     physical 2: cores 0 1 2 3 4 8 9 10 11 12
```

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Platform Notes (Continued)

```
     physical 3: cores 0 1 2 3 4 8 9 10 11 12
   cache size : 20480 KB

 From /proc/meminfo
    MemTotal:       529228328 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 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 Sep 2 11:44

 SPEC is set to: /spec
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sda2       ext4  411G   15G  376G   4% /

 Additional information from dmidecode:
   Memory:
    16x Micron 36JSF2G72PZ-1G9E1 16 GB 1866 MHz 2 rank
    16x Samsung M393B2G70DB0-CMA 16 GB 1866 MHz 2 rank

 (End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,0,1"
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64"
OMP_NUM_THREADS = "40"

 Binaries compiled on a system with 2 x Xeon X5645 CPU + 16GB memory
 using RHEL 6.1
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

Base Compiler Invocation

C benchmarks:
```
     icc  -m64
```

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Base Compiler Invocation (Continued)

C++ benchmarks:
    icpc -m64

Base Portability Flags

              400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
                  401.bzip2: -DSPEC_CPU_LP64
                    403.gcc: -DSPEC_CPU_LP64
                    429.mcf: -DSPEC_CPU_LP64
                 445.gobmk: -DSPEC_CPU_LP64
                 456.hmmer: -DSPEC_CPU_LP64
                  458.sjeng: -DSPEC_CPU_LP64
            462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
                464.h264ref: -DSPEC_CPU_LP64
                471.omnetpp: -DSPEC_CPU_LP64
                   473.astar: -DSPEC_CPU_LP64
              483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
    -Wl,-z,muldefs -L/smartheap -lsmartheap64

Base Other Flags

C benchmarks:

        403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
    icc -m64

    400.perlbench: icc -m32

      445.gobmk: icc -m32

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Peak Compiler Invocation (Continued)

    464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):
    `icpc -m32`

    473.astar: `icpc -m64`

Peak Portability Flags

    400.perlbench: `-DSPEC_CPU_LINUX_IA32`
    401.bzip2: `-DSPEC_CPU_LP64`
    403.gcc: `-DSPEC_CPU_LP64`
    429.mcf: `-DSPEC_CPU_LP64`
    456.hmmer: `-DSPEC_CPU_LP64`
    458.sjeng: `-DSPEC_CPU_LP64`
    462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
    473.astar: `-DSPEC_CPU_LP64`
    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)`
        `-opt-prefetch -ansi-alias`

    401.bzip2: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`
        `-O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32`
        `-opt-prefetch -ansi-alias`

    403.gcc: `-xAVX -ipo -O3 -no-prec-div -inline-calloc`
        `-opt-malloc-options=3 -auto-ilp32`

    429.mcf: `basepeak = yes`

    445.gobmk: `-xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)`
        `-ansi-alias`

    456.hmmer: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`
        `-ansi-alias`

    458.sjeng: `basepeak = yes`

    462.libquantum: `-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch`
        `-auto-p32`

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Peak Optimization Flags (Continued)

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)
-opt-ra-region-strategy=block   -ansi-alias
-Wl,-z,muldefs -L/smartheap -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
-Wl,-z,muldefs -L/smartheap -lsmartheap

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-ic12.1-official-linux64.20120425.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-ic12.1-official-linux64.20120425.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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