



# SPEC® CINT2006 Result

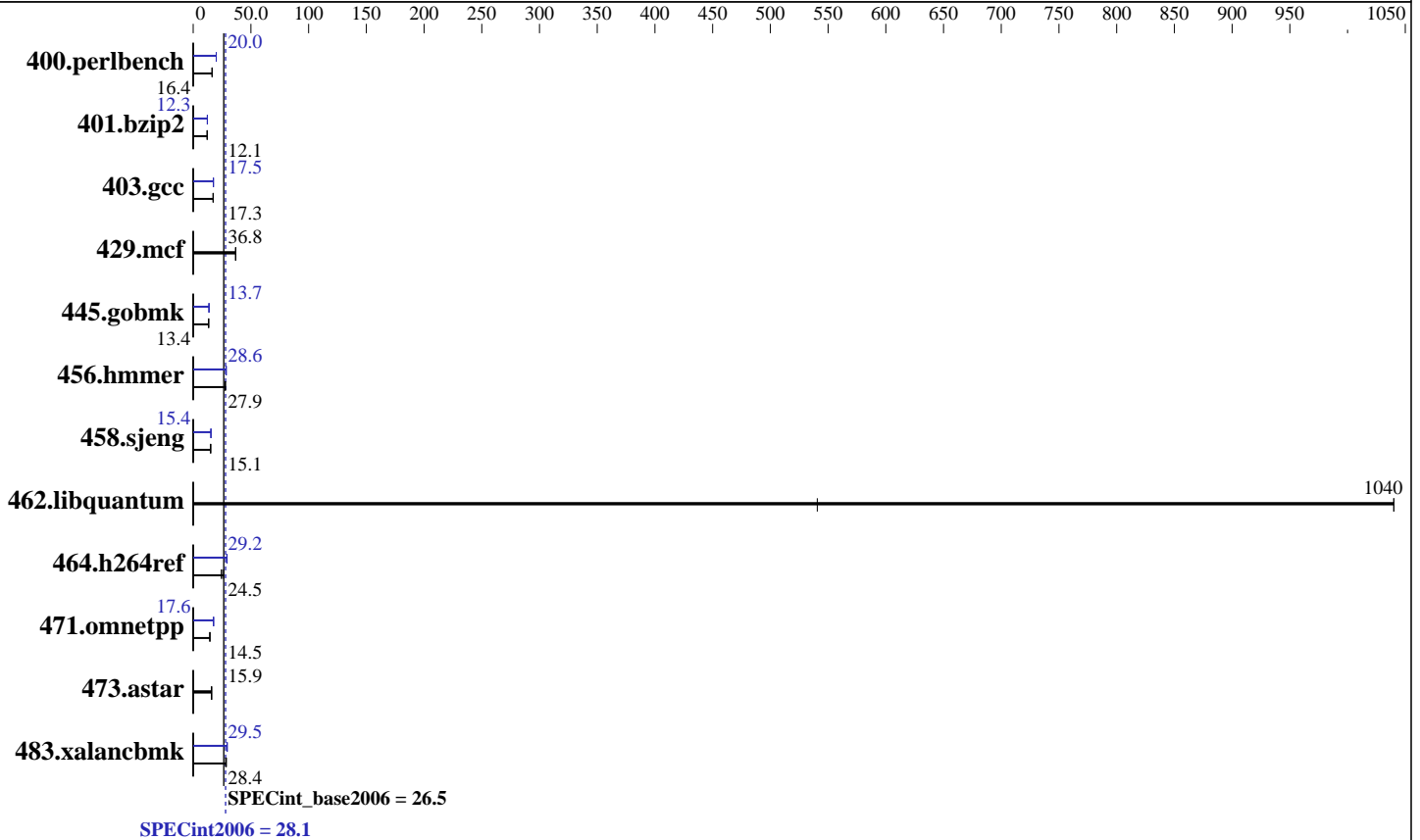
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## Huawei Huawei BH621

**SPECint®2006 = 28.1**  
**SPECint\_base2006 = 26.5**

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

Test date: Mar-2014  
Hardware Availability: May-2012  
Software Availability: Nov-2013



### Hardware

CPU Name: Intel Xeon E5-2403  
 CPU Characteristics:  
 CPU MHz: 1800  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 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: 10 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 96 GB (12 x 8 GB 2Rx4 PC3L-12800R-11, ECC)  
 Disk Subsystem: 1 x 300 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: 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 V10.0



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	596	16.4	595	16.4	<b>596</b>	<b>16.4</b>	490	20.0	<b>489</b>	<b>20.0</b>	489	20.0
401.bzip2	795	12.1	797	12.1	<b>796</b>	<b>12.1</b>	<b>786</b>	<b>12.3</b>	786	12.3	787	12.3
403.gcc	<b>466</b>	<b>17.3</b>	466	17.3	465	17.3	460	17.5	459	17.5	<b>460</b>	<b>17.5</b>
429.mcf	248	36.8	<b>248</b>	<b>36.8</b>	248	36.8	248	36.8	<b>248</b>	<b>36.8</b>	248	36.8
445.gobmk	779	13.5	<b>786</b>	<b>13.4</b>	787	13.3	765	13.7	766	13.7	<b>766</b>	<b>13.7</b>
456.hammer	338	27.6	334	28.0	<b>334</b>	<b>27.9</b>	326	28.6	327	28.6	<b>326</b>	<b>28.6</b>
458.sjeng	<b>800</b>	<b>15.1</b>	800	15.1	801	15.1	786	15.4	<b>786</b>	<b>15.4</b>	787	15.4
462.libquantum	19.9	1040	38.3	541	<b>19.9</b>	<b>1040</b>	19.9	1040	38.3	541	<b>19.9</b>	<b>1040</b>
464.h264ref	<b>902</b>	<b>24.5</b>	842	26.3	904	24.5	758	29.2	753	29.4	<b>757</b>	<b>29.2</b>
471.omnetpp	432	14.5	<b>432</b>	<b>14.5</b>	432	14.5	<b>354</b>	<b>17.6</b>	355	17.6	354	17.7
473.astar	<b>441</b>	<b>15.9</b>	443	15.8	438	16.0	<b>441</b>	<b>15.9</b>	443	15.8	438	16.0
483.xalancbmk	246	28.1	<b>243</b>	<b>28.4</b>	239	28.8	234	29.5	<b>234</b>	<b>29.5</b>	235	29.4

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

Sysinfo program /spec/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date: 2012-07-17 # \$ e86d102572650a6e4d596a3cee98f191  
running on spec Tue Mar 11 05:31:05 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 E5-2403 0 @ 1.80GHz
 2 "physical id"s (chips)
 8 "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 : 4
physical 0: cores 0 1 2 3
physical 1: cores 0 1 2 3
cache size : 10240 KB
```

```
From /proc/meminfo
MemTotal: 99010156 kB
```

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## Platform Notes (Continued)

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 spec 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 Mar 11 05:27
```

```
SPEC is set to: /spec
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal        ext4  289G   29G  246G  11% /
```

```
Additional information from dmidecode:
BIOS Insyde Corp. RMIBV372 12/21/2013
Memory:
12x Samsung M393B1K70QB0-YK0 8 GB 1066 MHz 2 rank
```

(End of data from sysinfo program)

## General Notes

Environment variables set by runspec before the start of the run:  
 LD\_LIBRARY\_PATH = "/spec/libs/32:/spec/libs/64:/spec/sh"  
 OMP\_NUM\_THREADS = "8"

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  
 runspec command invoked through numactl i.e.:  
 numactl --interleave=all runspec <etc>

## Base Compiler Invocation

C benchmarks:  
 icc -m64

C++ benchmarks:  
 icpc -m64



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## 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/sh -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  
464.h264ref: icc -m32  
C++ benchmarks (except as noted below):  
icpc -m32  
473.astar: icpc -m64



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## 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.hmmmer: -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: -xSSE4.2 -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.hmmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
-ansi-alias

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

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

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## Peak Optimization Flags (Continued)

473.astar: basepeak = yes

483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias  
-Wl,-z,muldefs -L/sh -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-ic14.0-official-linux64.20140128.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-linux64.20140128.xml>  
<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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