



# SPEC® CINT2006 Result

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## Huawei

**SPECint®2006 = 46.2**

### Huawei BH622 V2 (Intel Xeon E5-2640)

**SPECint\_base2006 = 43.7**

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Apr-2012

Hardware Availability: Mar-2012

Software Availability: Oct-2011



### Hardware

CPU Name: Intel Xeon E5-2640  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz  
 CPU MHz: 2500  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip  
 CPU(s) orderable: 1,2 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: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)  
 Disk Subsystem: 1 x 300 GB SAS, 10K RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.1 (Santiago)  
 2.6.32-131.0.15.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	365	26.8	364	26.9	<b><u>364</u></b>	<b><u>26.8</u></b>	306	32.0	306	31.9	<b><u>306</u></b>	<b><u>31.9</u></b>
401.bzip2	480	20.1	482	20.0	<b><u>481</u></b>	<b><u>20.0</u></b>	474	20.4	<b><u>473</u></b>	<b><u>20.4</u></b>	473	20.4
403.gcc	290	27.8	289	27.8	<b><u>290</u></b>	<b><u>27.8</u></b>	285	28.2	285	28.2	<b><u>285</u></b>	<b><u>28.2</u></b>
429.mcf	158	57.6	159	57.3	<b><u>159</u></b>	<b><u>57.5</u></b>	158	57.6	159	57.3	<b><u>159</u></b>	<b><u>57.5</u></b>
445.gobmk	483	21.7	<b><u>484</u></b>	<b><u>21.7</u></b>	484	21.7	<b><u>461</u></b>	<b><u>22.8</u></b>	460	22.8	461	22.8
456.hammer	206	45.3	206	45.3	<b><u>206</u></b>	<b><u>45.3</u></b>	<b><u>204</u></b>	<b><u>45.7</u></b>	204	45.7	204	45.7
458.sjeng	<b><u>490</u></b>	<b><u>24.7</u></b>	490	24.7	491	24.7	<b><u>489</u></b>	<b><u>24.8</u></b>	489	24.8	489	24.8
462.libquantum	9.10	2280	9.29	2230	<b><u>9.29</u></b>	<b><u>2230</u></b>	9.10	2280	9.29	2230	<b><u>9.29</u></b>	<b><u>2230</u></b>
464.h264ref	<b><u>543</u></b>	<b><u>40.8</u></b>	543	40.7	542	40.9	<b><u>471</u></b>	<b><u>47.0</u></b>	472	46.9	469	47.1
471.omnetpp	293	21.3	293	21.3	<b><u>293</u></b>	<b><u>21.3</u></b>	227	27.6	227	27.5	<b><u>227</u></b>	<b><u>27.5</u></b>
473.astar	<b><u>265</u></b>	<b><u>26.5</u></b>	264	26.5	266	26.3	<b><u>265</u></b>	<b><u>26.5</u></b>	264	26.5	266	26.3
483.xalancbmk	154	44.8	154	44.8	<b><u>154</u></b>	<b><u>44.8</u></b>	150	45.9	149	46.2	<b><u>149</u></b>	<b><u>46.2</u></b>

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:  
Intel Hyper-Threading set to Disabled  
Sysinfo program /spec/config/sysinfo.rev6800  
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
running on BH622-V2-MZY001 Mon Apr 16 23:36:20 2012

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 E5-2640 0 @ 2.50GHz
 2 "physical id"s (chips)
 12 "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 : 6
  siblings  : 6
  physical 0: cores 0 1 2 3 4 5
  physical 1: cores 0 1 2 3 4 5
cache size : 15360 KB
```

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## Platform Notes (Continued)

```

From /proc/meminfo
MemTotal:      132133108 kB
HugePages_Total:    0
Hugepagesize:    2048 kB

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.1 (Santiago)

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
Linux BH622-V2-MZY001 2.6.32-131.0.15.el6.x86_64 #1 SMP Tue May 10 15:42:40
EDT 2011 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Apr 16 23:29

SPEC is set to: /spec
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/vg_bh622v2mzy001-lv_root
                ext4      50G   7.9G   39G   17% /

Additional information from dmidecode:
Memory:
16x Samsung M393B1K70DH0-CK0 8 GB 1600 MHz 2 rank

```

## 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 = "12"

```

```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RHEL5.5
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

```

## 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:

-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:

-xAVX -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

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: -xAVX(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: -xAVX(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: -xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
           -ansi-alias

456.hmmmer: -xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
            -ansi-alias

458.sjeng: -xAVX(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: -xAVX(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: -xAVX(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

```

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## Peak Optimization Flags (Continued)

473.astar: basepeak = yes

483.xalancbmk: -xAVX -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-revD.20120509.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-revD.20120509.xml>

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

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