



# SPEC<sup>®</sup> CINT2006 Result

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## Huawei

SPECint<sup>®</sup>\_rate2006 = 562

Huawei CH121 (Intel Xeon E5-2650L v2)

SPECint\_rate\_base2006 = 542

CPU2006 license: 3175

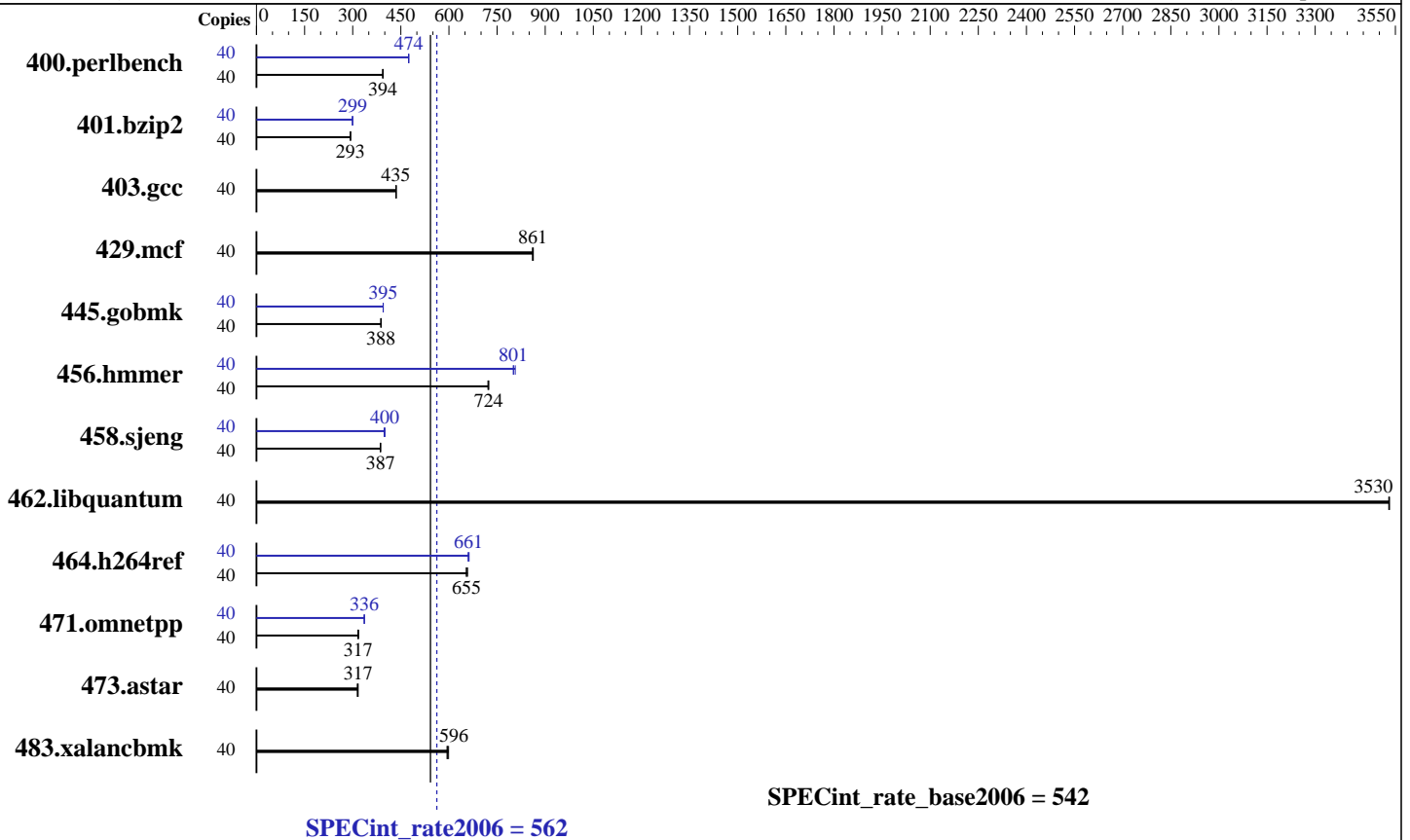
Test date: Aug-2014

Test sponsor: Huawei

Hardware Availability: Sep-2013

Tested by: Huawei

Software Availability: Sep-2013



**Hardware**

CPU Name: Intel Xeon E5-2650L v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.10 GHz  
 CPU MHz: 1700  
 FPU: Integrated  
 CPU(s) enabled: 20 cores, 2 chips, 10 cores/chip, 2 threads/core  
 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: 25 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx8 PC3-12800R-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: No  
 File System: ext4  
 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  | 40     | 994         | 393        | <u>992</u> | <u>394</u>  | 989         | 395        | 40     | 823         | 475        | 824         | 474         | <u>824</u> | <u>474</u> |
| 401.bzip2      | 40     | <u>1318</u> | <u>293</u> | 1315       | 293         | 1318        | 293        | 40     | <u>1289</u> | <u>299</u> | 1288        | 300         | 1290       | 299        |
| 403.gcc        | 40     | 738         | 436        | <u>741</u> | <u>435</u>  | 741         | 435        | 40     | 738         | 436        | <u>741</u>  | <u>435</u>  | 741        | 435        |
| 429.mcf        | 40     | 423         | 863        | 424        | 861         | <u>424</u>  | <u>861</u> | 40     | 423         | 863        | 424         | 861         | <u>424</u> | <u>861</u> |
| 445.gobmk      | 40     | <u>1082</u> | <u>388</u> | 1083       | 388         | 1078        | 389        | 40     | 1062        | 395        | <u>1062</u> | <u>395</u>  | 1063       | 395        |
| 456.hammer     | 40     | 517         | 721        | <u>516</u> | <u>724</u>  | 516         | 724        | 40     | 463         | 807        | <u>466</u>  | <u>801</u>  | 466        | 801        |
| 458.sjeng      | 40     | <u>1251</u> | <u>387</u> | 1254       | 386         | 1251        | 387        | 40     | <u>1210</u> | <u>400</u> | 1209        | 400         | 1216       | 398        |
| 462.libquantum | 40     | 235         | 3530       | <u>235</u> | <u>3530</u> | 235         | 3530       | 40     | 235         | 3530       | <u>235</u>  | <u>3530</u> | 235        | 3530       |
| 464.h264ref    | 40     | 1345        | 658        | 1354       | 654         | <u>1351</u> | <u>655</u> | 40     | <u>1340</u> | <u>661</u> | 1336        | 663         | 1341       | 660        |
| 471.omnetpp    | 40     | 790         | 317        | 785        | 318         | <u>790</u>  | <u>317</u> | 40     | 744         | 336        | 743         | 336         | <u>744</u> | <u>336</u> |
| 473.astar      | 40     | <u>887</u>  | <u>317</u> | 894        | 314         | 887         | 317        | 40     | <u>887</u>  | <u>317</u> | 894         | 314         | 887        | 317        |
| 483.xalancbmk  | 40     | 461         | 599        | <u>463</u> | <u>596</u>  | 465         | 594        | 40     | 461         | 599        | <u>463</u>  | <u>596</u>  | 465        | 594        |

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"

## Platform Notes

BIOS configuration:  
Set Power Efficiency Mode to Custom  
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 wbspeccpu Fri Aug 15 14:10:36 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 E5-2650L v2 @ 1.70GHz  
2 "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  
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## Platform Notes (Continued)

```
caution.)
  cpu cores : 10
  siblings  : 20
  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
  cache size : 25600 KB
```

```
From /proc/meminfo
MemTotal:      132103760 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 wbspeccpu 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 Aug 13 14:56
```

```
SPEC is set to: /spec
Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/sdal        ext4      270G      87G  170G  34% /
```

```
Additional information from dmidecode:
BIOS Insyde Corp. RMIBV629 05/12/2014
Memory:
16x Micron 18JSF1G72PDZ-1G6E 8 GB 1600 MHz 2 rank
8x NO DIMM NO DIMM
```

(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"

```
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>
```



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## Base Compiler Invocation

C benchmarks:  
icc -m32  
  
C++ benchmarks:  
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:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3  
  
C++ benchmarks:  
-xSSE4.2 -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  
  
400.perlbench: icc -m64  
  
401.bzip2: icc -m64  
  
456.hmmer: icc -m64  
  
458.sjeng: icc -m64  
  
C++ benchmarks:  
icpc -m32



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## 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

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

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

473.astar: basepeak = yes

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Software Availability: Sep-2013

## Peak Optimization Flags (Continued)

483.xalanbmk: basepeak = yes

## 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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