



SPEC® CINT2006 Result

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Huawei

SPECint®2006 = 42.8

Huawei BH620, Intel Xeon X5670

SPECint_base2006 = 40.6

CPU2006 license: 3175

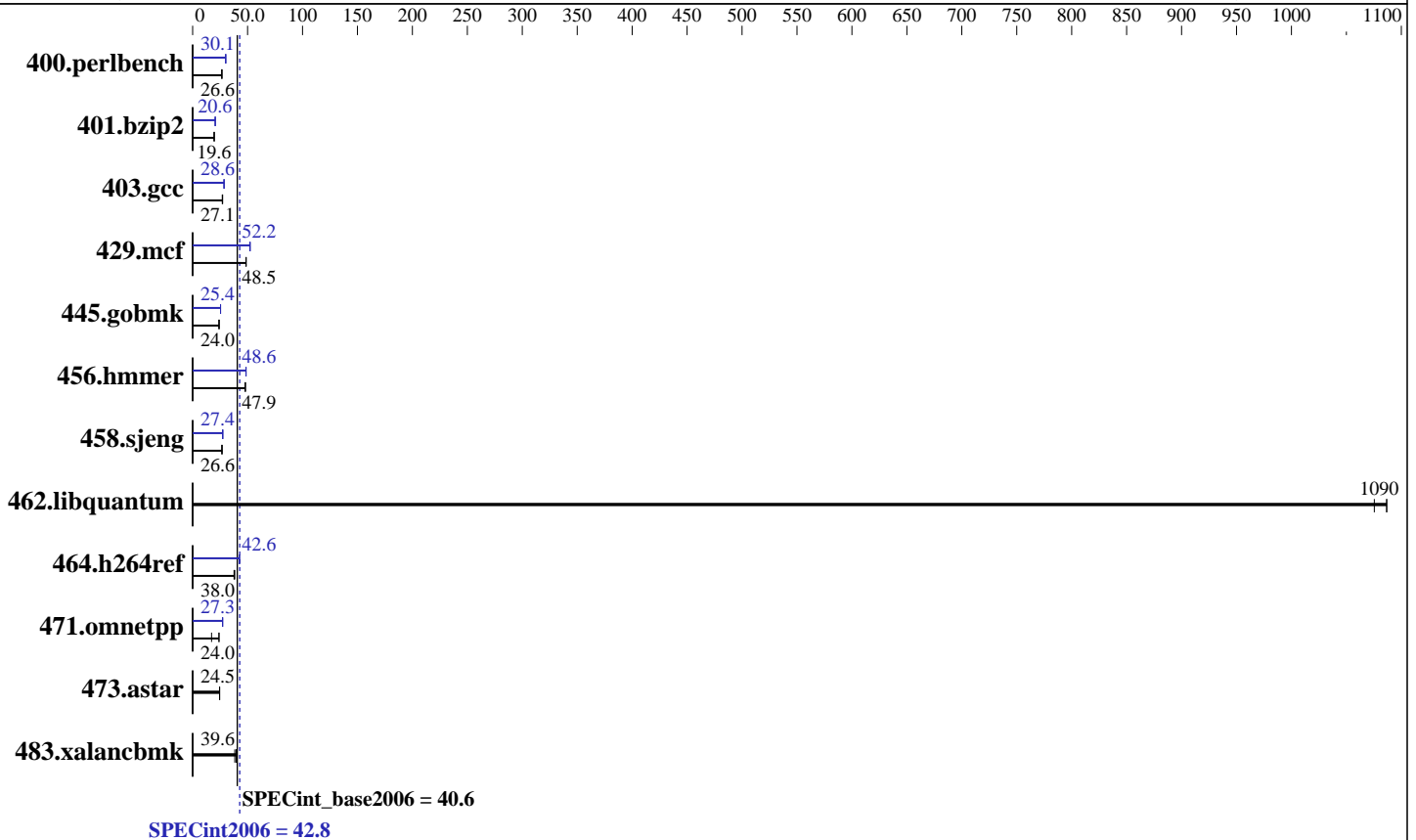
Test sponsor: Huawei

Tested by: Huawei

Test date: Sep-2011

Hardware Availability: May-2011

Software Availability: Jan-2011



Hardware

CPU Name: Intel Xeon X5670
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz
 CPU MHz: 2933
 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: 12 MB I+D on chip per chip
 Other Cache: None
 Memory: 48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)
 Disk Subsystem: 1 x 300 GB SAS, 15K RPM
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default
 Compiler: C++: Version 12.0.1.116 of Intel 64 Compiler XE Build 20101116
 Auto Parallel: Yes
 File System: ext3
 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	367	26.6	<u>368</u>	<u>26.6</u>	368	26.5	<u>325</u>	<u>30.1</u>	324	30.1	325	30.1
401.bzip2	492	19.6	492	19.6	<u>492</u>	<u>19.6</u>	469	20.6	<u>469</u>	<u>20.6</u>	469	20.6
403.gcc	295	27.3	<u>297</u>	<u>27.1</u>	298	27.0	281	28.6	282	28.6	<u>281</u>	<u>28.6</u>
429.mcf	188	48.5	187	48.8	<u>188</u>	<u>48.5</u>	175	52.0	174	52.4	<u>175</u>	<u>52.2</u>
445.gobmk	<u>436</u>	<u>24.0</u>	437	24.0	436	24.0	413	25.4	<u>413</u>	<u>25.4</u>	413	25.4
456.hmmmer	<u>195</u>	<u>47.9</u>	195	47.9	195	47.9	192	48.6	<u>192</u>	<u>48.6</u>	192	48.5
458.sjeng	<u>454</u>	<u>26.6</u>	454	26.6	451	26.8	442	27.4	442	27.4	<u>442</u>	<u>27.4</u>
462.libquantum	19.1	1090	<u>19.1</u>	<u>1090</u>	19.3	1080	19.1	1090	<u>19.1</u>	<u>1090</u>	19.3	1080
464.h264ref	578	38.3	<u>583</u>	<u>38.0</u>	587	37.7	520	42.6	<u>520</u>	<u>42.6</u>	519	42.6
471.omnetpp	<u>261</u>	<u>24.0</u>	261	24.0	363	17.2	<u>229</u>	<u>27.3</u>	230	27.2	229	27.3
473.astar	<u>286</u>	<u>24.5</u>	286	24.5	286	24.5	<u>286</u>	<u>24.5</u>	286	24.5	286	24.5
483.xalancbmk	180	38.3	<u>174</u>	<u>39.6</u>	174	39.7	180	38.3	<u>174</u>	<u>39.6</u>	174	39.7

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

Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

Platform Notes

Data Reuse Optimization disabled in BIOS Setup.
Intel HT technology Disabled in BIOS Setup.

General Notes

Binaries compiled on RHEL 5.5
OMP_NUM_THREADS set to number of cores

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
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

```

C++ benchmarks:

```

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/smartheap -lsmartheap64
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

```

Base Other Flags

C benchmarks:

```

403.gcc: -Dalloca=_alloca

```

Peak Compiler Invocation

C benchmarks (except as noted below):

```

icc -m64

400.perlbench: icc -m32

429.mcf: icc -m32

445.gobmk: icc -m32

464.h264ref: icc -m32

```

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Peak Compiler Invocation (Continued)

C++ benchmarks (except as noted below):
 icpc -m64

471.omnetpp: icpc -m32

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
 401.bzip2: -DSPEC_CPU_LP64
 403.gcc: -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_LP64 -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
 -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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
 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

429.mcf: -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 -ansi-alias
 -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
 -auto-ilp32 -ansi-alias
 -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
 -ansi-alias
 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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Peak Optimization Flags (Continued)

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
 -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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
 -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

473.astar: basepeak = yes

483.xalancbmk: 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/HUAWEI-platform-linux64-revC.html>
<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html>

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

<http://www.spec.org/cpu2006/flags/HUAWEI-platform-linux64-revC.xml>
<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>



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