



# SPEC® CINT2006 Result

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## HITACHI

**SPECint®2006 = 45.9**

## HA8000-bd (Intel Xeon E3-1260L)

**SPECint\_base2006 = 42.3**

CPU2006 license: 35

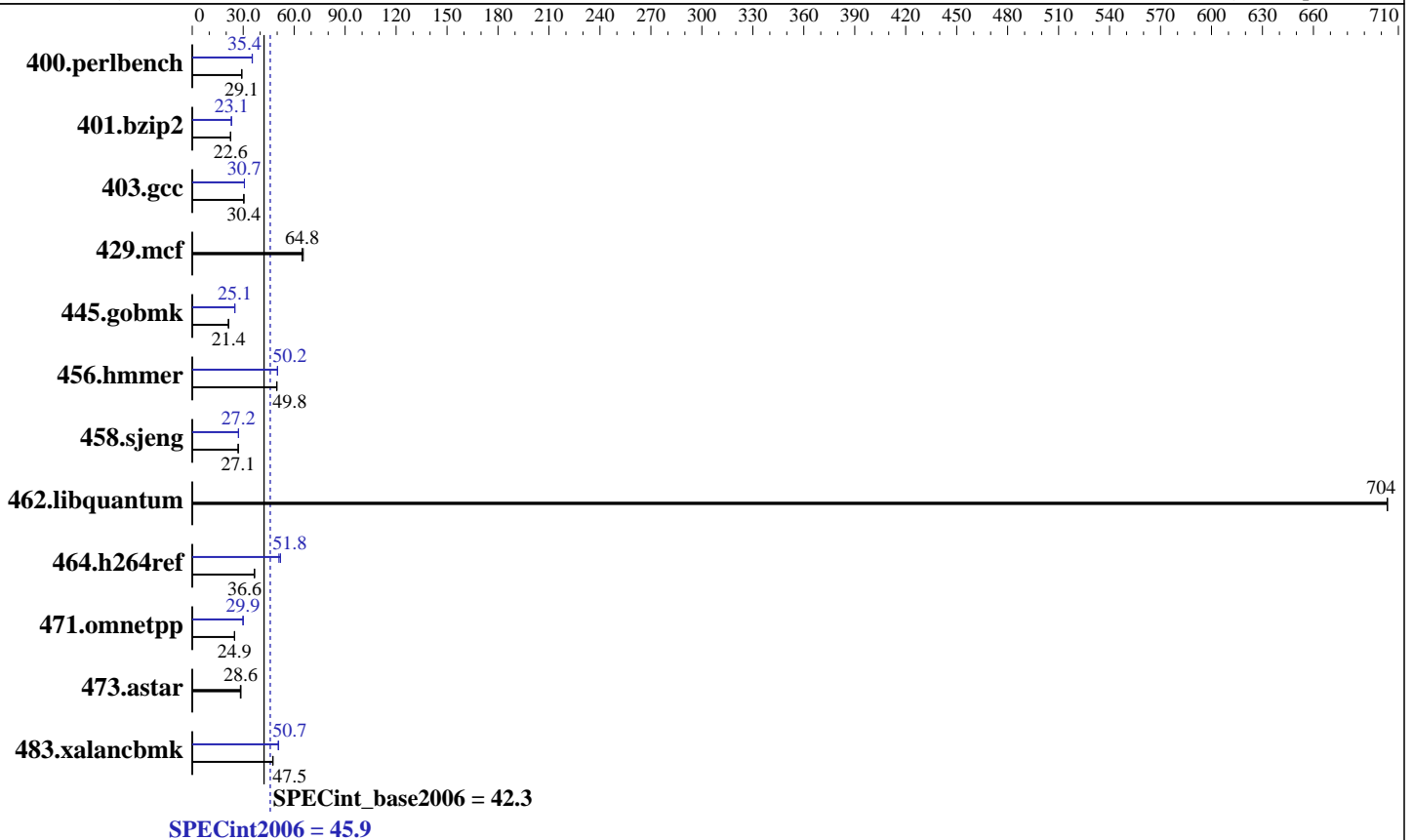
Test sponsor: HITACHI

Tested by: HITACHI

Test date: Dec-2011

Hardware Availability: Feb-2012

Software Availability: Sep-2011



### Hardware

CPU Name: Intel Xeon E3-1260L  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core  
 CPU(s) orderable: 1 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: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 16 GB  
 (2 x 8 GB 2Rx8 PC3-10600E-9, ECC)  
 Disk Subsystem: 1 x 750 GB SATA2, 5400 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.1, Kernel 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	335	29.1	<b>335</b>	<b>29.1</b>	335	29.1	276	35.4	<b>276</b>	<b>35.4</b>	277	35.3
401.bzip2	<b>427</b>	<b>22.6</b>	428	22.6	427	22.6	418	23.1	418	23.1	<b>418</b>	<b>23.1</b>
403.gcc	265	30.4	265	30.3	<b>265</b>	<b>30.4</b>	262	30.7	262	30.7	<b>262</b>	<b>30.7</b>
429.mcf	141	64.7	<b>141</b>	<b>64.8</b>	139	65.4	141	64.7	<b>141</b>	<b>64.8</b>	139	65.4
445.gobmk	491	21.4	<b>491</b>	<b>21.4</b>	492	21.3	419	25.1	418	25.1	<b>418</b>	<b>25.1</b>
456.hammer	188	49.7	187	49.8	<b>187</b>	<b>49.8</b>	186	50.2	<b>186</b>	<b>50.2</b>	186	50.2
458.sjeng	447	27.1	<b>447</b>	<b>27.1</b>	447	27.1	445	27.2	444	27.3	<b>445</b>	<b>27.2</b>
462.libquantum	29.5	704	<b>29.5</b>	<b>704</b>	29.5	704	29.5	704	<b>29.5</b>	<b>704</b>	29.5	704
464.h264ref	604	36.6	604	36.7	<b>604</b>	<b>36.6</b>	426	52.0	434	51.0	<b>427</b>	<b>51.8</b>
471.omnetpp	<b>251</b>	<b>24.9</b>	250	25.0	251	24.9	209	29.9	209	30.0	<b>209</b>	<b>29.9</b>
473.astar	245	28.6	<b>246</b>	<b>28.6</b>	248	28.3	245	28.6	<b>246</b>	<b>28.6</b>	248	28.3
483.xalancbmk	146	47.3	<b>145</b>	<b>47.5</b>	145	47.6	136	50.9	<b>136</b>	<b>50.7</b>	136	50.6

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"

### General Notes

Environment variables set by runspec before the start of the run:  
KMP\_AFFINITY = "granularity=fine,scatter"  
LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"  
OMP\_NUM\_THREADS = "4"

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  
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.hmmmer: -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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<b>CPU2006 license:</b> 35	<b>Test date:</b> Dec-2011
<b>Test sponsor:</b> HITACHI	<b>Hardware Availability:</b> Feb-2012
<b>Tested by:</b> HITACHI	<b>Software Availability:</b> Sep-2011

## 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: -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.hmmer: -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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<b>Tested by:</b> HITACHI	<b>Software Availability:</b> Sep-2011

## 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-linux64.20111122.html>  
<http://www.spec.org/cpu2006/flags/PlatformHitachi-V1.2.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>  
<http://www.spec.org/cpu2006/flags/PlatformHitachi-V1.2.xml>

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

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