



# SPEC® CINT2006 Result

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## HITACHI

SPECint®\_rate2006 = 1920

### Compute Blade 2000 (Intel Xeon E7-8870)

SPECint\_rate\_base2006 = 1790

CPU2006 license: 35

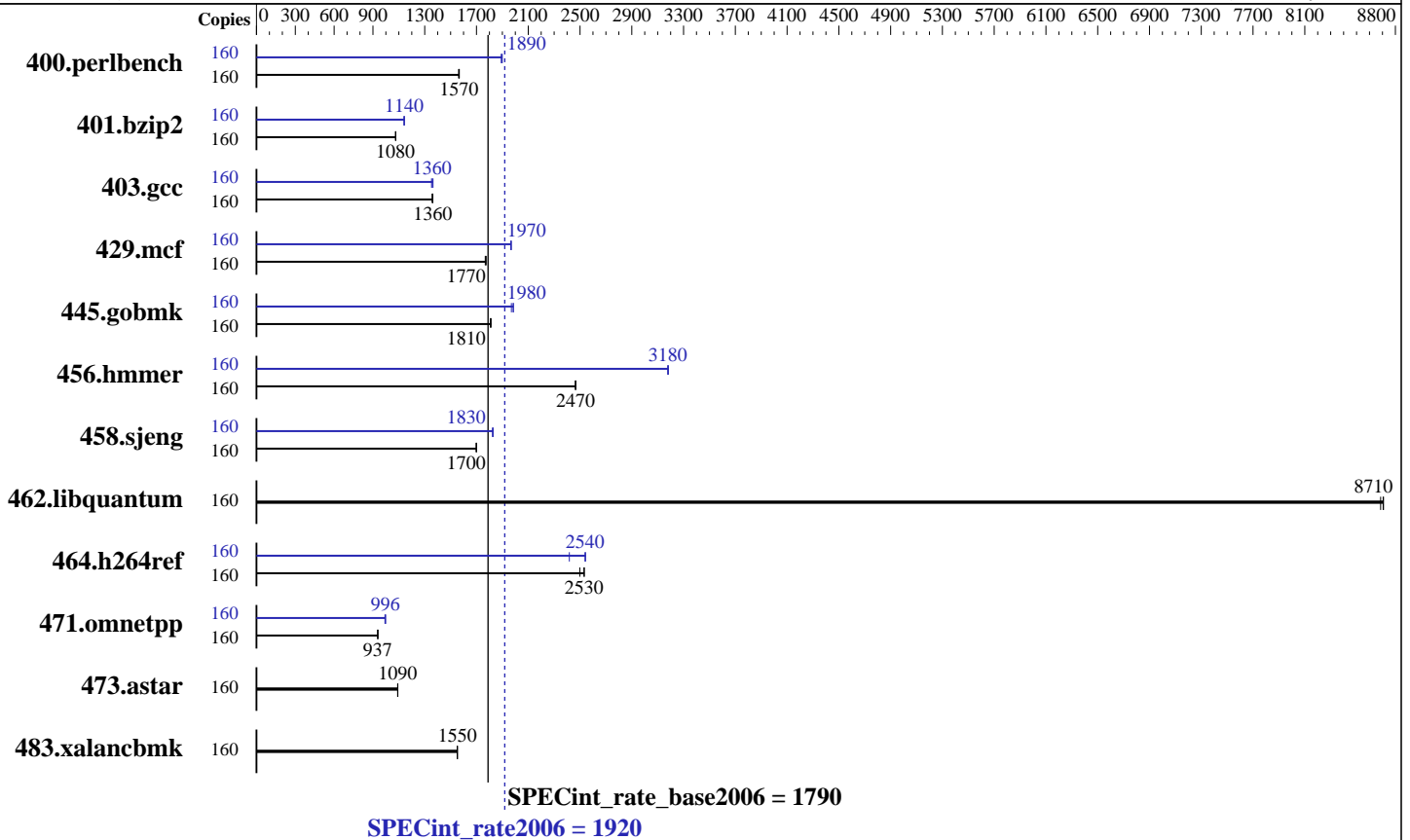
Test sponsor: HITACHI

Tested by: HITACHI

Test date: Jun-2011

Hardware Availability: Aug-2011

Software Availability: May-2011



### Hardware

CPU Name: Intel Xeon E7-8870  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 80 cores, 8 chips, 10 cores/chip, 2 threads/core  
 CPU(s) orderable: 1, 2, 4, 8 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: 30 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 1 TB (128 x 8 GB 2Rx4 PC3-10600R-9, ECC, running at 1066 MHz)  
 Disk Subsystem: 10 x 73 GB 15000 rpm Fibre Channel RAID1+0 configuration  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.1, Advanced Platform, Kernel 2.6.32-131.0.15.el6 on an x86\_64  
 Compiler: Intel C++ Compiler XE for Linux Version 12.0.2.137 Build 20110112  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V9.01



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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	160	1001	1560	998	1570	<u>998</u>	<u>1570</u>	160	<u>825</u>	<u>1890</u>	823	1900	826	1890
401.bzip2	160	1436	1080	1435	1080	<u>1436</u>	<u>1080</u>	160	1351	1140	1354	1140	<u>1353</u>	<u>1140</u>
403.gcc	160	<u>945</u>	<u>1360</u>	949	1360	945	1360	160	<u>948</u>	<u>1360</u>	952	1350	944	1360
429.mcf	160	825	1770	<u>823</u>	<u>1770</u>	823	1770	160	<u>742</u>	<u>1970</u>	742	1970	741	1970
445.gobmk	160	<u>927</u>	<u>1810</u>	929	1810	926	1810	160	846	1980	852	1970	<u>846</u>	<u>1980</u>
456.hammer	160	<u>605</u>	<u>2470</u>	605	2470	606	2460	160	469	3180	470	3180	<u>470</u>	<u>3180</u>
458.sjeng	160	1139	1700	<u>1140</u>	<u>1700</u>	1140	1700	160	<u>1060</u>	<u>1830</u>	1061	1820	1060	1830
462.libquantum	160	381	8710	<u>381</u>	<u>8710</u>	382	8690	160	381	8710	<u>381</u>	<u>8710</u>	382	8690
464.h264ref	160	<u>1399</u>	<u>2530</u>	1397	2530	1417	2500	160	<u>1395</u>	<u>2540</u>	1465	2420	1392	2540
471.omnetpp	160	1067	937	1066	938	<u>1067</u>	<u>937</u>	160	<u>1004</u>	<u>996</u>	1007	993	1003	997
473.astar	160	1028	1090	1029	1090	<u>1029</u>	<u>1090</u>	160	1028	1090	1029	1090	<u>1029</u>	<u>1090</u>
483.xalancbmk	160	712	1550	711	1550	<u>711</u>	<u>1550</u>	160	712	1550	711	1550	<u>711</u>	<u>1550</u>

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

## Submit Notes

The config file option 'submit' was used.  
'/usr/bin/numactl' used to bind processes to CPUs

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run  
Hugepages was not enabled for this run  
echo 1 > /proc/sys/vm/zone\_reclaim\_mode

## Platform Notes

BIOS Settings:  
Adjacent Cache Line Prefetch = enabled

## General Notes

Binaries compiled on RHEL5.4.3  
HITACHI BladeSymphony BS2000 and  
HITACHI Compute Blade 2000 are electronically equivalent.  
The results have been measured on a HITACHI BladeSymphony BS2000.



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

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/home/bsc/SmartHeap\_9/lib -lsmartheap  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32

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\_LINUX\_IA32  
 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) -static(pass 2)  
 -prof-use(pass 2) -ansi-alias

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
 -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)  
 -prof-use(pass 2) -opt-prefetch -ansi-alias -auto-ilp32

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div  
 -B /usr/share/libhugetlbfs/ -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

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -O2  
 -ipo -no-prec-div -ansi-alias

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
 -B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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  
 -B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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/home/bsc/SmartHeap\_9/lib -lsmartheap

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## Peak Optimization Flags (Continued)

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/Intel-ic12.0-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/PlatformHitachi.20110705.html>

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

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

<http://www.spec.org/cpu2006/flags/PlatformHitachi.20110705.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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