



# SPEC® CINT2006 Result

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## NEC Corporation

**SPECint®\_rate2006 = 1070**

Express5800/A1080a-S (Intel Xeon E7-8870)

**SPECint\_rate\_base2006 = 1010**

CPU2006 license: 9006

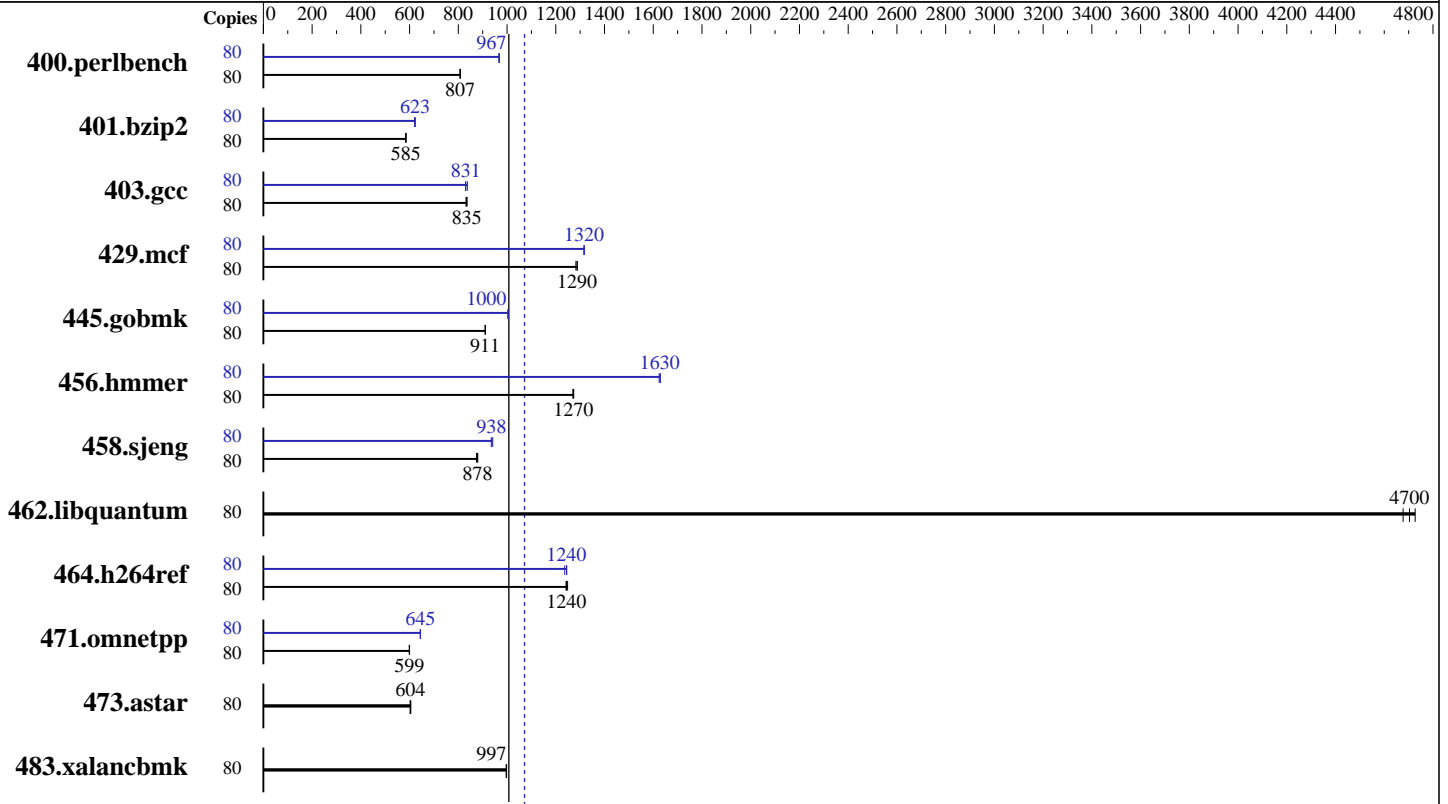
**Test date:** Aug-2011

**Test sponsor:** NEC Corporation

**Hardware Availability:** Nov-2011

**Tested by:** NEC Corporation

**Software Availability:** May-2011



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### 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: 40 cores, 4 chips, 10 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2,3,4 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: 256 GB (64 x 4 GB 2Rx4 PC3-8500R-7, ECC)  
 Disk Subsystem: 2x300 GB SAS, 10000 RPM, RAID 0  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.1, Kernel 2.6.32-131.0.15.el6.x86\_64 on an x86\_64  
 Compiler: C/C++: Version 12.0.4.191 of Intel Compiler XE for applications on IA-32 Build 20110427  
 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 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	80	<b>968</b>	<b>807</b>	969	807	966	809	80	<b>808</b>	<b>967</b>	809	967	807	969
401.bzip2	80	1321	584	<b>1320</b>	<b>585</b>	1319	585	80	<b>1240</b>	<b>623</b>	1244	620	1239	623
403.gcc	80	771	835	<b>772</b>	<b>835</b>	775	831	80	776	830	769	837	<b>775</b>	<b>831</b>
429.mcf	80	566	1290	569	1280	<b>567</b>	<b>1290</b>	80	554	1320	554	1320	<b>554</b>	<b>1320</b>
445.gobmk	80	921	911	<b>922</b>	<b>911</b>	922	911	80	835	1000	<b>835</b>	<b>1000</b>	836	1000
456.hammer	80	588	1270	<b>586</b>	<b>1270</b>	586	1270	80	458	1630	460	1620	<b>459</b>	<b>1630</b>
458.sjeng	80	1100	880	1106	875	<b>1102</b>	<b>878</b>	80	1028	941	1035	935	<b>1032</b>	<b>938</b>
462.libquantum	80	354	4680	<b>352</b>	<b>4700</b>	351	4730	80	354	4680	<b>352</b>	<b>4700</b>	351	4730
464.h264ref	80	1418	1250	<b>1424</b>	<b>1240</b>	1425	1240	80	<b>1423</b>	<b>1240</b>	1422	1250	1432	1240
471.omnetpp	80	833	600	<b>834</b>	<b>599</b>	835	599	80	<b>776</b>	<b>645</b>	775	645	777	643
473.astar	80	929	605	<b>929</b>	<b>604</b>	933	602	80	929	605	<b>929</b>	<b>604</b>	933	602
483.xalancbmk	80	<b>554</b>	<b>997</b>	553	998	554	997	80	<b>554</b>	<b>997</b>	553	998	554	997

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.  
numactl was used to bind copies to the cores

## Operating System Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run  
echo 1 > /proc/sys/vm/zone\_reclaim\_mode  
Huge pages were not configured for this run

## Platform Notes

Patrol Scrubbing set to disabled in Maintenance Console

## General Notes

The Express5800/A1080a-S and the Express5800/A1080a-D models are electronically equivalent.  
The results have been measured on the Express5800/A1080a-S model.  
Binaries were compiled on RHEL 5.6

## Base Compiler Invocation

C benchmarks:  
icc -m32

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## Base Compiler Invocation (Continued)

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/opt/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)  
 -ansi-alias -auto-ilp32

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/opt/SmartHeap\_9/lib -lsmarheap

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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.20110705.html>

<http://www.spec.org/cpu2006/flags/NEC-platform-linux64-revB.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.20110705.xml>

<http://www.spec.org/cpu2006/flags/NEC-platform-linux64-revB.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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