



# SPEC® CINT2006 Result

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## IBM Corporation

SPECint®\_rate2006 = 770

### IBM System x3850 X5 (Intel Xeon X7560)

SPECint\_rate\_base2006 = 720

CPU2006 license: 11

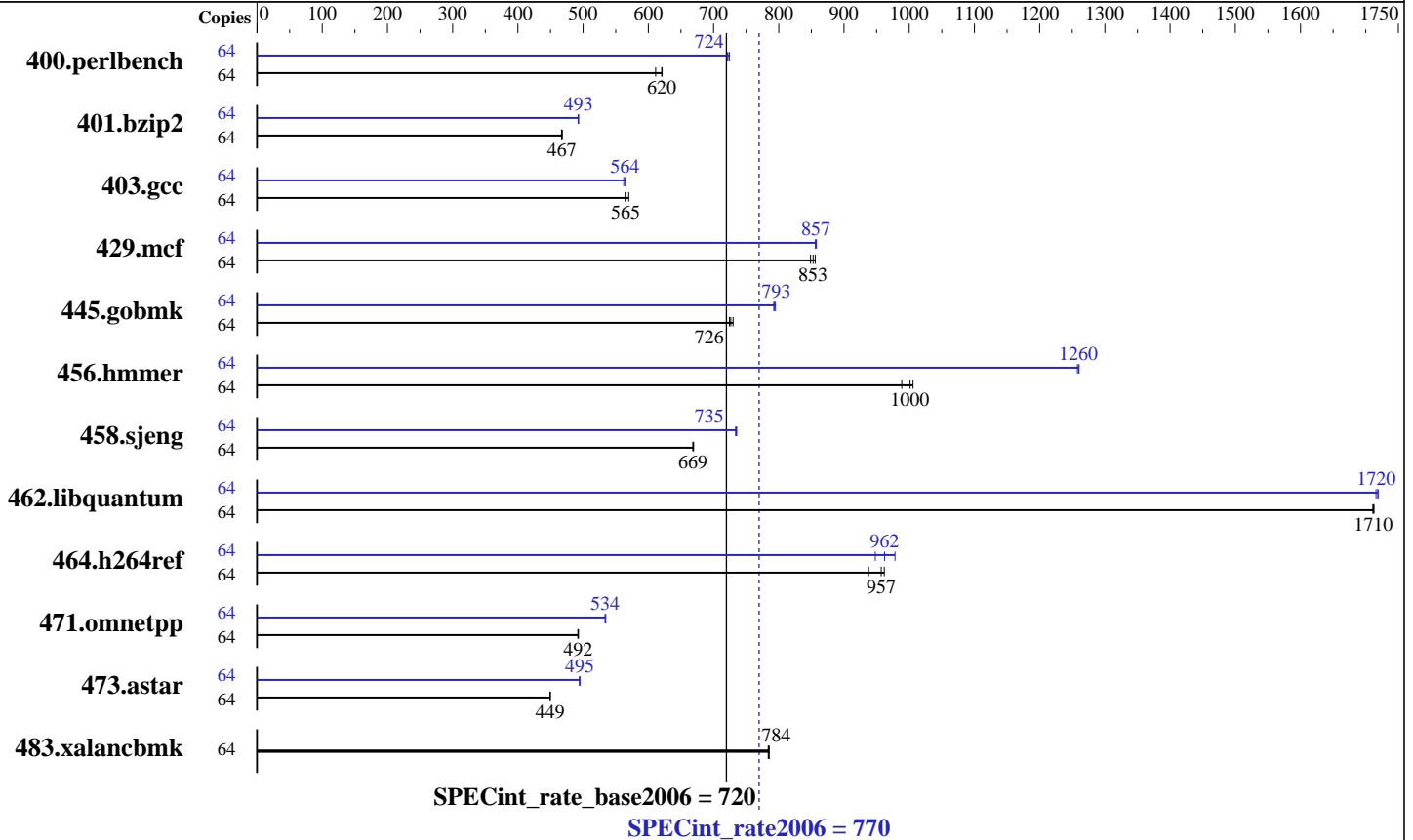
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Mar-2010

Hardware Availability: Mar-2010

Software Availability: Jan-2010



### Hardware

CPU Name: Intel Xeon X7560  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.67 GHz  
 CPU MHz: 2267  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 2 threads/core  
 CPU(s) orderable: 2,4 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: 24 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (64 x 4 GB DDR3-1066 QR RDIMM)  
 Disk Subsystem: 3 x 50 GB SATA, SSD  
 Other Hardware: None

### Software

Operating System: SuSE Linux Enterprise Server 11, Kernel 2.6.27.19-5-default  
 Compiler: Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1  
 Build 20091130 Package ID: l\_cproc\_p\_11.1.064  
 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 V8.1  
 Binutils 2.18.50.0.7.20080502



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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  | 64     | 1007        | 621        | <b>1008</b> | <b>620</b>  | 1023        | 611         | 64     | <b>864</b>  | <b>724</b>  | 867        | 721         | 863         | 724        |
| 401.bzip2      | 64     | 1323        | 467        | <b>1322</b> | <b>467</b>  | 1319        | 468         | 64     | <b>1253</b> | <b>493</b>  | 1255       | 492         | 1253        | 493        |
| 403.gcc        | 64     | 913         | 565        | <b>912</b>  | <b>565</b>  | 904         | 570         | 64     | <b>913</b>  | <b>564</b>  | 911        | 566         | 916         | 562        |
| 429.mcf        | 64     | 682         | 856        | 688         | 849         | <b>685</b>  | <b>853</b>  | 64     | 680         | 858         | <b>681</b> | <b>857</b>  | 682         | 856        |
| 445.gobmk      | 64     | 927         | 724        | <b>924</b>  | <b>726</b>  | 920         | 730         | 64     | 847         | 792         | <b>847</b> | <b>793</b>  | 845         | 795        |
| 456.hammer     | 64     | 604         | 989        | <b>596</b>  | <b>1000</b> | 594         | 1010        | 64     | 474         | 1260        | <b>474</b> | <b>1260</b> | 475         | 1260       |
| 458.sjeng      | 64     | <b>1158</b> | <b>669</b> | 1159        | 668         | 1157        | 669         | 64     | <b>1054</b> | <b>735</b>  | 1053       | 736         | 1056        | 734        |
| 462.libquantum | 64     | 774         | 1710       | 775         | 1710        | <b>775</b>  | <b>1710</b> | 64     | <b>772</b>  | <b>1720</b> | 773        | 1720        | 771         | 1720       |
| 464.h264ref    | 64     | 1510        | 938        | 1473        | 962         | <b>1480</b> | <b>957</b>  | 64     | 1448        | 978         | 1494       | 948         | <b>1472</b> | <b>962</b> |
| 471.omnetpp    | 64     | <b>812</b>  | <b>492</b> | 813         | 492         | 812         | 493         | 64     | 748         | 535         | 749        | 534         | <b>749</b>  | <b>534</b> |
| 473.astar      | 64     | 999         | 450        | 1000        | 449         | <b>1000</b> | <b>449</b>  | 64     | 908         | 495         | <b>908</b> | <b>495</b>  | 908         | 495        |
| 483.xalancbmk  | 64     | 563         | 784        | <b>563</b>  | <b>784</b>  | 562         | 785         | 64     | 563         | 784         | <b>563</b> | <b>784</b>  | 562         | 785        |

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

## Platform Notes

Turbo Boost set to Traditional in BIOS  
Demand Scrub disabled in BIOS

## General Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run  
This result is measured on an IBM System x3850 X5 server.  
Note that the IBM System x3850 X5 and Unisys ES7000 Model 7600R G2 are electrically equivalent.

## Base Compiler Invocation

C benchmarks:  
icc -m32

C++ benchmarks:  
icpc -m32



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## 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 -static -opt-prefetch

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/home/cmplr/usr3/alrahate/cpu2006.1.1.icl1.1/libic11.1-32bit -lsmartheap

## 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

462.libquantum: icc -m64

C++ benchmarks (except as noted below):

icpc -m32

473.astar: icpc -m64

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64

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## Peak Portability Flags (Continued)

456.hmmcr: -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: -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 -static

429.mcf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

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

456.hmmcr: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2  
 -ansi-alias -auto-ilp32

458.sjeng: -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) -unroll4 -auto-ilp32

462.libquantum: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32  
 -opt-prefetch

464.h264ref: -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) -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/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -lsmartheap

473.astar: -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=routine -Wl,-z,muldefs

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## Peak Optimization Flags (Continued)

473.astar (continued):

-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmartheap64

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.03.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.03.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).

Tested with SPEC CPU2006 v1.1.

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