



# SPEC® CINT2006 Result

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## IBM Corporation

**SPECint®2006 = 22.9**

IBM System x iDataPlex dx320 (Intel Xeon L5420)

**SPECint\_base2006 = 19.5**

CPU2006 license: 11

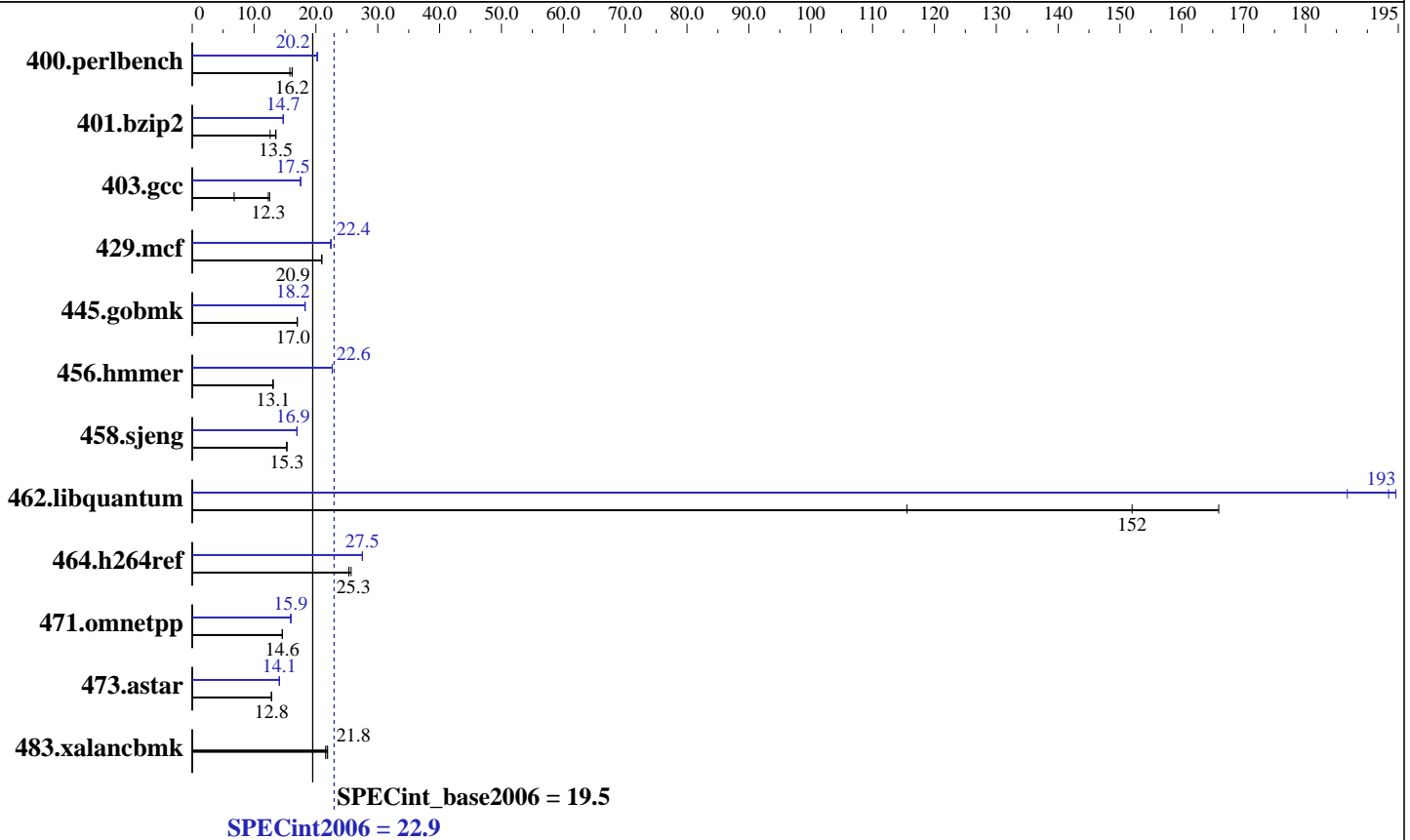
Test date: Sep-2008

Test sponsor: IBM Corporation

Hardware Availability: Nov-2008

Tested by: IBM Corporation

Software Availability: Jul-2008



### Hardware

CPU Name: Intel Xeon L5420  
 CPU Characteristics: 1333MHz system bus  
 CPU MHz: 2500  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores  
 L3 Cache: None  
 Other Cache: None  
 Memory: 16 GB(4 x 4 GB DDR2-5300P ECC)  
 Disk Subsystem: 1 x 250 GB SATA, 7200 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux AS release 4 (x86\_64)(Nahant Update 7), Kernel 2.6.9-78.ELsmp  
 Compiler: Intel C++ Compiler 10.1 for Linux Build 20080312 Package ID: l\_cc\_p\_10.1.015  
 Auto Parallel: Yes  
 File System: ReiserFS  
 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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	619	15.8	604	16.2	<b><u>605</u></b>	<b><u>16.2</u></b>	<b><u>484</u></b>	<b><u>20.2</u></b>	482	20.3	484	20.2
401.bzip2	766	12.6	712	13.5	<b><u>715</u></b>	<b><u>13.5</u></b>	656	14.7	656	14.7	<b><u>656</u></b>	<b><u>14.7</u></b>
403.gcc	1188	6.78	<b><u>655</u></b>	<b><u>12.3</u></b>	643	12.5	460	17.5	458	17.6	<b><u>459</u></b>	<b><u>17.5</u></b>
429.mcf	435	21.0	<b><u>436</u></b>	<b><u>20.9</u></b>	436	20.9	406	22.4	<b><u>407</u></b>	<b><u>22.4</u></b>	407	22.4
445.gobmk	<b><u>618</u></b>	<b><u>17.0</u></b>	618	17.0	617	17.0	576	18.2	<b><u>575</u></b>	<b><u>18.2</u></b>	574	18.3
456.hmmmer	714	13.1	<b><u>714</u></b>	<b><u>13.1</u></b>	714	13.1	412	22.6	<b><u>412</u></b>	<b><u>22.6</u></b>	412	22.6
458.sjeng	791	15.3	<b><u>791</u></b>	<b><u>15.3</u></b>	791	15.3	<b><u>714</u></b>	<b><u>16.9</u></b>	714	16.9	715	16.9
462.libquantum	179	116	125	166	<b><u>136</u></b>	<b><u>152</u></b>	<b><u>107</u></b>	<b><u>193</u></b>	111	187	106	195
464.h264ref	861	25.7	874	25.3	<b><u>873</u></b>	<b><u>25.3</u></b>	805	27.5	804	27.5	<b><u>804</u></b>	<b><u>27.5</u></b>
471.omnetpp	<b><u>429</u></b>	<b><u>14.6</u></b>	429	14.6	429	14.6	392	15.9	392	15.9	<b><u>392</u></b>	<b><u>15.9</u></b>
473.astar	<b><u>548</u></b>	<b><u>12.8</u></b>	547	12.8	548	12.8	498	14.1	<b><u>498</u></b>	<b><u>14.1</u></b>	498	14.1
483.xalancbmk	315	21.9	<b><u>316</u></b>	<b><u>21.8</u></b>	320	21.6	315	21.9	<b><u>316</u></b>	<b><u>21.8</u></b>	320	21.6

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

## General Notes

All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmmer, for peak, are compiled in 64-bit mode  
Hardware Prefetch Enabled and Adjacent Sector Prefetch Enabled  
OMP\_NUM\_THREADS set to number of processors  
KMP\_AFFINITY set to "physical,0"  
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run

## Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX



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## Base Optimization Flags

C benchmarks:

-fast -vec-guard-write -parallel -par-runtime-control

C++ benchmarks:

-xT -ipo -O3 -no-prec-div -Wl,-z,muldefs  
-L/spec/cpu2006.1.1/lib -lsmartheap

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

401.bzip2: /opt/intel/cce/10.1.015/bin/icc  
-L/opt/intel/cce/10.1.015/lib  
-I/opt/intel/cce/10.1.015/include

456.hmmer: /opt/intel/cce/10.1.015/bin/icc  
-L/opt/intel/cce/10.1.015/lib  
-I/opt/intel/cce/10.1.015/include

C++ benchmarks:

icpc

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

Continued on next page



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## Peak Optimization Flags (Continued)

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -fast -ansi-alias  
-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch  
-auto-ilp32

403.gcc: -fast -inline-calloc -opt-malloc-options=3

429.mcf: -fast -prefetch

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

456.hmmer: -fast -unroll2 -ansi-alias -opt-multi-version-aggressive  
-auto-ilp32

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4

462.libquantum: -fast -unroll4 -Ob0 -prefetch  
-opt-streaming-stores always -vec-guard-write  
-opt-malloc-options=3 -parallel -par-runtime-control

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo  
-no-prec-div -ansi-alias -opt-ra-region-strategy=block  
-Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmarheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo  
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine  
-Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmarheap

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-Linux64-Platform.20090713.09.html>

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-int-linux64-revD.20090713.html>



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

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.09.xml>

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-int-linux64-revD.20090713.xml>

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

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