



# SPEC® CINT2006 Result

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## IBM Corporation

**SPECint®2006 = 21.3**

IBM System p 570 (4.7 GHz, 1 core, SLES)

**SPECint\_base2006 = 17.5**

CPU2006 license: 11

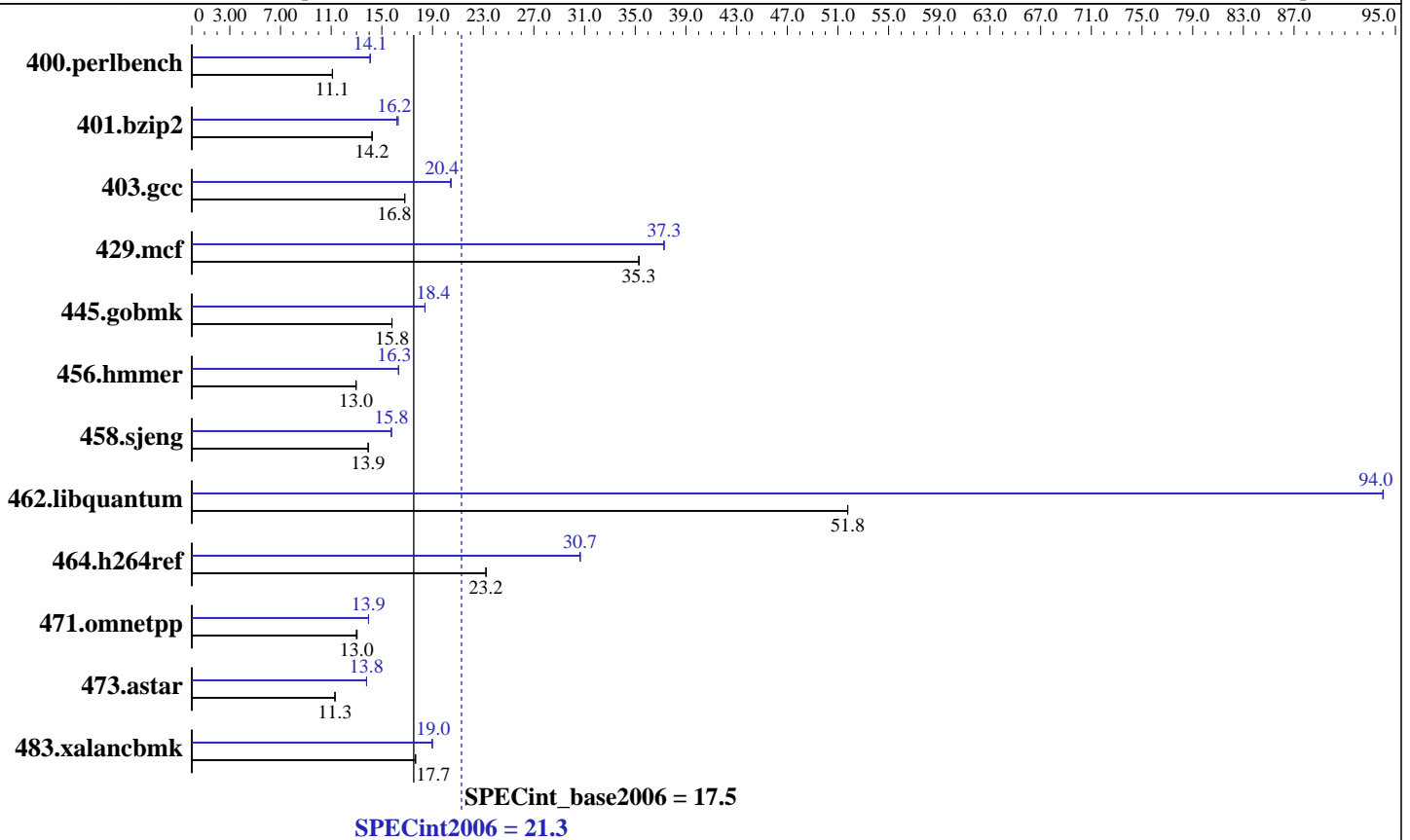
Test date: Jun-2007

Test sponsor: IBM Corporation

Hardware Availability: Jun-2007

Tested by: IBM Corporation

Software Availability: Sep-2007



### Hardware

CPU Name: POWER6  
 CPU Characteristics:  
 CPU MHz: 4700  
 FPU: Integrated  
 CPU(s) enabled: 1 core, 1 chip, 2 cores/chip  
 CPU(s) orderable: 2,4,8,12,16 cores  
 Primary Cache: 64 KB I + 64 KB D on chip per core  
 Secondary Cache: 4 MB I+D on chip per core  
 L3 Cache: 32 MB I+D off chip per chip  
 Other Cache: None  
 Memory: 32 GB (16x2 GB) DDR2 667 MHz  
 Disk Subsystem: 2x73 GB SAS 15K RPM  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise 10 SP1  
 Compiler: IBM XL C/C++ Advanced Edition for Linux, V9.0  
 Auto Parallel: No  
 File System: ReiserFS  
 System State: Multi-User  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: -Post-Link Optimization for Linux on POWER, Version 5.4.0  
 -MicroQuill SmartHeap 7.3



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	881	11.1	880	11.1	<b>880</b>	<b>11.1</b>	<b>694</b>	<b>14.1</b>	694	14.1	694	14.1
401.bzip2	679	14.2	677	14.2	<b>678</b>	<b>14.2</b>	<b>596</b>	<b>16.2</b>	592	16.3	596	16.2
403.gcc	<b>479</b>	<b>16.8</b>	479	16.8	479	16.8	394	20.4	394	20.5	<b>394</b>	<b>20.4</b>
429.mcf	258	35.3	258	35.3	<b>258</b>	<b>35.3</b>	245	37.3	245	37.3	<b>245</b>	<b>37.3</b>
445.gobmk	664	15.8	<b>664</b>	<b>15.8</b>	664	15.8	<b>570</b>	<b>18.4</b>	570	18.4	570	18.4
456.hmmmer	720	13.0	<b>720</b>	<b>13.0</b>	720	13.0	<b>572</b>	<b>16.3</b>	572	16.3	572	16.3
458.sjeng	869	13.9	869	13.9	<b>869</b>	<b>13.9</b>	<b>768</b>	<b>15.8</b>	769	15.7	768	15.8
462.libquantum	<b>400</b>	<b>51.8</b>	400	51.8	400	51.8	220	94.0	220	94.0	<b>220</b>	<b>94.0</b>
464.h264ref	<b>953</b>	<b>23.2</b>	953	23.2	953	23.2	<b>722</b>	<b>30.7</b>	722	30.6	722	30.7
471.omnetpp	479	13.0	<b>480</b>	<b>13.0</b>	481	13.0	448	13.9	448	14.0	<b>448</b>	<b>13.9</b>
473.astar	621	11.3	621	11.3	<b>621</b>	<b>11.3</b>	<b>509</b>	<b>13.8</b>	509	13.8	509	13.8
483.xalancbmk	391	17.6	391	17.7	<b>391</b>	<b>17.7</b>	364	19.0	364	19.0	<b>364</b>	<b>19.0</b>

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

## General Notes

kernel release 2.6.16.46-0.12-ppc64.

See flags file for details on following settings.

ulimit -s (stack) set to unlimited.

System set to Enhanced mode when defining partition on HMC

Large pages reserved as follows by root user:

```
echo 200 > /proc/sys/vm/nr_hugepages
```

System configured with libhugetlbfs library for application access to large pages

Environment variables set before executing benchmarks.

```
export HUGETLB_VERBOSE=0
```

```
export HUGETLB_MORECORE=yes
```

```
export HUGETLB_MORECORE_HEAPBASE=0x50000000
```

```
export XLFRTLOPTS=intrinths=1
```

Linux booted with the options:

```
maxcpus=1 smt-enabled=off
```

fdpr binary optimization tool used for

```
400.perlbench 401.bzip2 403.gcc 429.mcf 456.hmmmer 458.sjeng
```

```
462.libquantum 464.h264ref 473.astar 483.xalancbmk
```

Benchmarks bound to a processor using taskset on the submit command.



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## Base Compiler Invocation

C benchmarks:

xlc -qlanglvl=extc99

C++ benchmarks:

xlC

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_PPC  
462.libquantum: -DSPEC\_CPU\_LINUX  
464.h264ref: -qchars=signed  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:

-O5 -qalias=noansi -qalloca -lhugetlbfs

C++ benchmarks:

-O5 -qrtti -lsmartheap

## Base Other Flags

C benchmarks:

-qipa=noobject -qipa=threads

C++ benchmarks:

-qipa=noobject -qipa=threads

## Peak Compiler Invocation

C benchmarks:

xlc -qlanglvl=extc99

C++ benchmarks:

xlC



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## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_PPC  
403.gcc: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LINUX  
464.h264ref: -qchars=signed  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qalias=noansi  
-lsmartheap

401.bzip2: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -lhugetlbfs

403.gcc: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qalloca -q64  
-lhugetlbfs

429.mcf: -Wl,-q -O5 -qnoenablevmx -lhugetlbfs

445.gobmk: -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qnoenablevmx  
-lhugetlbfs

456.hmmer: Same as 401.bzip2

458.sjeng: Same as 401.bzip2

462.libquantum: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qnoenablevmx  
-q64 -lhugetlbfs

464.h264ref: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -q64  
-lhugetlbfs

C++ benchmarks:

471.omnetpp: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qrtti -lsmartheap

473.astar: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qnoenablevmx  
-lhugetlbfs

483.xalancbmk: -Wl,-q -O4 -lsmartheap

## Peak Other Flags

C benchmarks:

-qipa=noobject -qipa=threads

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## Peak Other Flags (Continued)

C++ benchmarks:  
-qipa=noobject -qipa=threads

The flags file that was used to format this result can be browsed at  
<http://www.spec.org/cpu2006/flags/lop-xl-flags.20090714.01.html>

You can also download the XML flags source by saving the following link:  
<http://www.spec.org/cpu2006/flags/lop-xl-flags.20090714.01.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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