SPEC® CINT2006 Result

IBM Corporation

IBM System p 570 (4.7 GHz, 8 core, RHEL)

SPECint®_rate2006 = 243

SPECint_rate_base2006 = 210

CPU2006 license: 11		**Test date:**	Oct-2007
Test sponsor: IBM Corporation		**Hardware Availability:**	Jun-2007
Tested by: IBM Corporation		**Software Availability:**	Oct-2007

Copies

Benchmark	Copies	Value
400.perlbench	16	183
	16	144
401.bzip2	16	201
	16	180
403.gcc	16	227
	16	200
429.mcf	16	363
	16	362
445.gobmk	16	230
	16	200
456.hmmer	16	188
	16	177
458.sjeng	16	199
	16	178
462.libquantum	8	662
	16	425
464.h264ref	16	352
	16	291
471.omnetpp	16	161
	16	155
473.astar	16	185
	16	155
483.xalancbmk	16	229
	16	216

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Hardware

CPU Name:	POWER6
CPU Characteristics:	
CPU MHz:	4700
FPU:	Integrated
CPU(s) enabled:	8 cores, 4 chips, 2 cores/chip, 2 threads/core
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:	64 GB (32x2 GB) DDR2 667 MHz
Disk Subsystem:	2x73 GB SAS 15K RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Advanced Platform 5.1 for IBM POWER
Compiler:	IBM XL C/C++ Advanced Edition for Linux, V9.0
Auto Parallel:	No
File System:	ext3
System State:	Multi-User
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	-IBM Post-Link Optimization for Linux on POWER, Version 5.4.0-10 -MicroQuill SmartHeap 8.1

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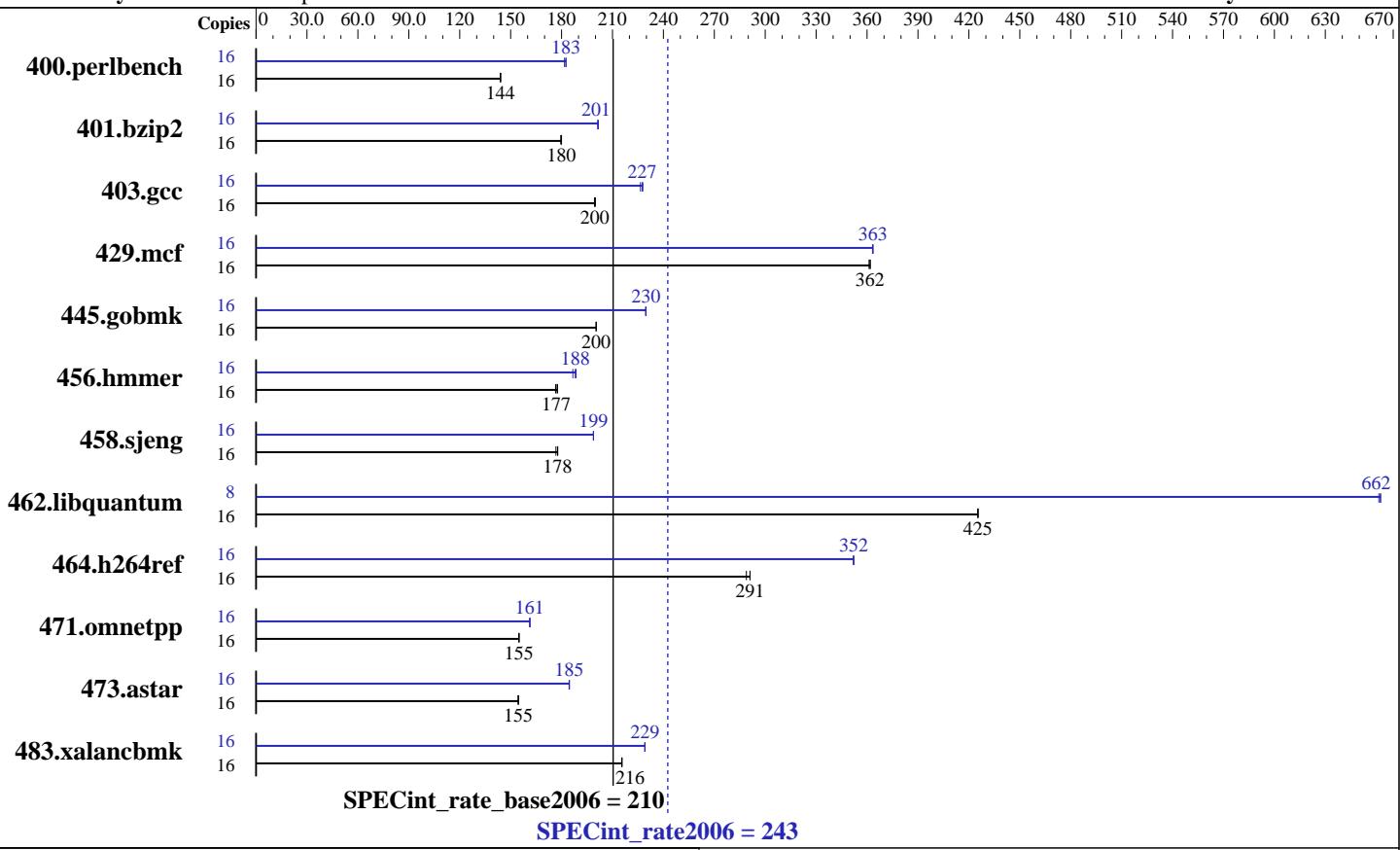SPECint_rate_base2006 = 210

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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	16	1086	144	**1085**	**144**	1085	144	16	860	182	856	183	**856**	**183**
401.bzip2	16	860	180	858	180	**858**	**180**	16	**766**	**201**	766	202	767	201
403.gcc	16	**645**	**200**	646	199	644	200	16	565	228	569	226	**566**	**227**
429.mcf	16	403	362	**403**	**362**	404	361	16	**402**	**363**	401	363	402	363
445.gobmk	16	**837**	**200**	837	200	838	200	16	**730**	**230**	730	230	731	229
456.hmmer	16	846	176	**844**	**177**	840	178	16	800	187	792	189	**794**	**188**
458.sjeng	16	**1089**	**178**	1096	177	1089	178	16	**974**	**199**	974	199	974	199
462.libquantum	16	**780**	**425**	779	425	780	425	8	251	662	250	663	**250**	**662**
464.h264ref	16	1217	291	1226	289	**1217**	**291**	16	**1006**	**352**	1006	352	1006	352
471.omnetpp	16	**646**	**155**	646	155	645	155	16	620	161	**620**	**161**	620	161
473.astar	16	726	155	727	154	**727**	**155**	16	609	184	608	185	**609**	**185**
483.xalancbmk	16	**512**	**216**	512	216	512	216	16	482	229	**482**	**229**	482	229

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

General Notes

```
    kernel release 2.6.18-52.el5.

    See flags file for details on following settings.

    ulimit -s (stack) set to 262144.


    System set to Enhanced mode when defining partition on HMC

    Large pages reserved as follows by root user:
        echo 1600 > /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 XLFRTEOPTS=intrinthds=1

    fdpr binary optimization tool used for
        400.perlbench 401.bzip2 403.gcc 429.mcf 456.hmmer 458.sjeng
        462.libquantum 464.h264ref 473.astar 483.xalancbmk

    Benchmarks bound to a processor using numactl 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
                 -lsmartheap

   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.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/lop-xl-flags.20090714.xml

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