SPEC® CINT2006 Result

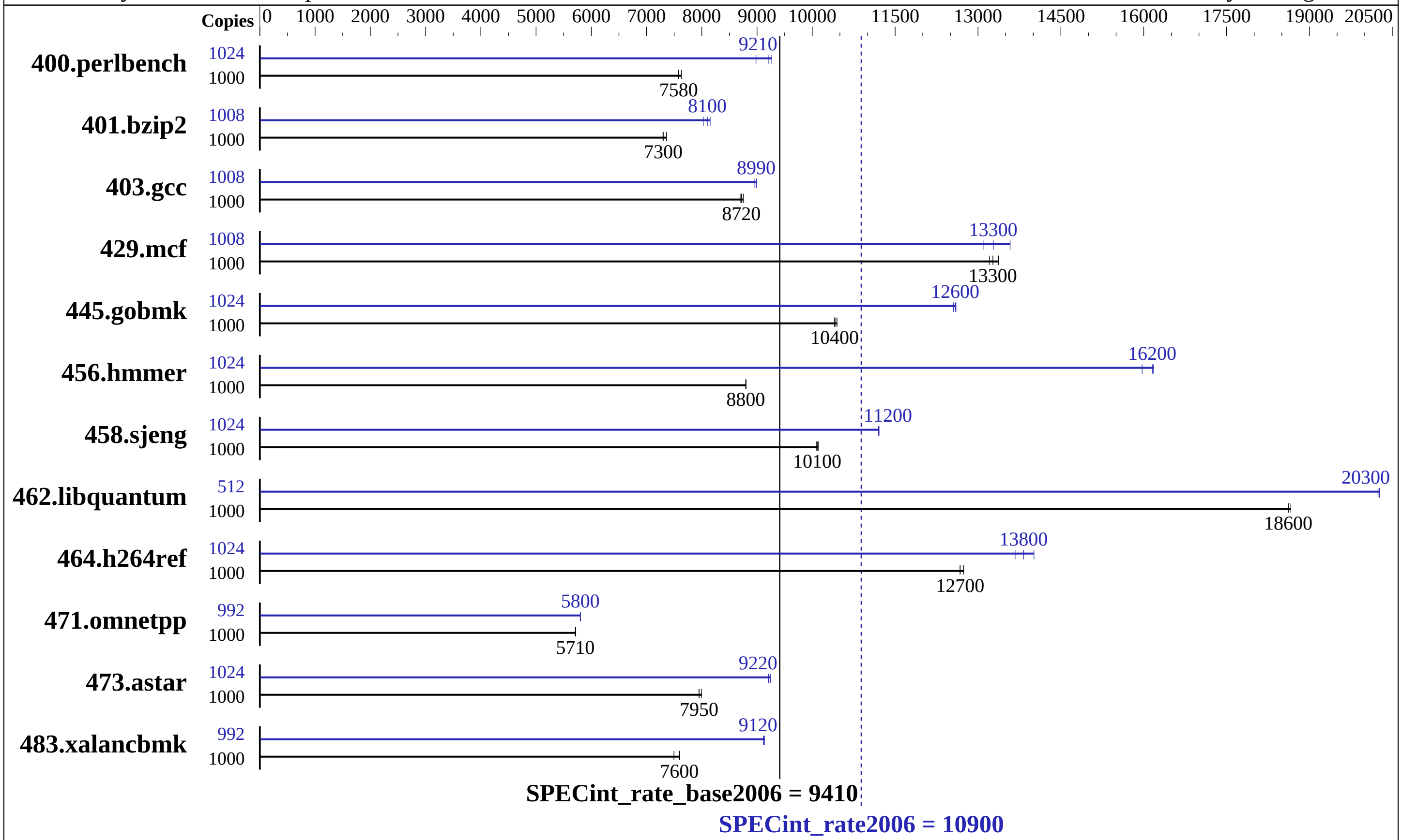
IBM Corporation

SPECint®_rate2006 = 10900

IBM Power 795 (4.0 GHz, 256 core, SLES)

SPECint_rate_base2006 = 9410

CPU2006 license: 11		**Test date:**	Aug-2010
Test sponsor:	IBM Corporation	**Hardware Availability:**	Sep-2010
Tested by:	IBM Corporation	**Software Availability:**	Aug-2010



Hardware

CPU Name:	POWER7
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 4.14 GHz
CPU MHz:	4004
FPU:	Integrated
CPU(s) enabled:	256 cores, 32 chips, 8 cores/chip, 4 threads/core
CPU(s) orderable:	32,64,96,128,160,192,224,256 cores
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	4 MB I+D on chip per core
Other Cache:	None
Memory:	2 TB (256x8 GB) DDR3 1066 MHz
Disk Subsystem:	42x146 GB Raid0 SAS SFF 15K RPM
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 SP1 (ppc64), Kernel 2.6.32.12-0.7-ppc64
Compiler:	IBM XL C/C++ for Linux, V11.1
Auto Parallel:	No
File System:	xfs
System State:	Run level 5 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	-Post-Link Optimization for Linux on POWER, Version 5.5.0-3 -MicroQuill Smartheap 9

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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	1000	1289	7580	**1289**	**7580**	1281	7630	1024	1114	8980	1080	9270	**1086**	**9210**
401.bzip2	1000	1322	7300	1311	7360	**1321**	**7300**	1008	1193	8150	1212	8030	**1201**	**8100**
403.gcc	1000	920	8750	**923**	**8720**	926	8690	1008	903	8990	906	8960	**903**	**8990**
429.mcf	1000	**687**	**13300**	682	13400	690	13200	1008	**692**	**13300**	702	13100	677	13600
445.gobmk	1000	**1006**	**10400**	1008	10400	1004	10400	1024	**853**	**12600**	852	12600	856	12600
456.hmmer	1000	**1061**	**8800**	1061	8800	1060	8800	1024	**591**	**16200**	598	16000	590	16200
458.sjeng	1000	1197	10100	1200	10100	**1199**	**10100**	1024	1105	11200	**1106**	**11200**	1106	11200
462.libquantum	1000	1110	18700	1113	18600	**1113**	**18600**	512	**523**	**20300**	523	20300	524	20200
464.h264ref	1000	1737	12700	1746	12700	**1746**	**12700**	1024	1617	14000	**1639**	**13800**	1658	13700
471.omnetpp	1000	**1094**	**5710**	1094	5710	1093	5720	992	1069	5800	**1069**	**5800**	1068	5800
473.astar	1000	**883**	**7950**	878	8000	883	7950	1024	777	9250	**780**	**9220**	781	9210
483.xalancbmk	1000	908	7600	920	7500	**908**	**7600**	992	751	9120	749	9140	**751**	**9120**

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

Peak Tuning Notes

```
fdpr binary optimization tool used for:
400.perlbench
    with options -O4 -omullX for optimization phase,
    and -imullX for instrumentation phase
401.bzip2
    with options -O4 -vrox
403.gcc
    with options -O4 -nodp -rtb
429.mcf 445.gobmk 458.sjeng 473.astar
    with options -O3
456.hmmer
    with options -O4 -nodp -m power7
462.libquantum
    with options -O4 -vrox -nodp
464.h264ref
    with options -O4 -vrox -nodp -rtb
471.omnetpp
    with options -O3 -lu -1 -nodp -sdp 9
483.xalancbmk
    with options -O3 -m power7
```

Submit Notes

```
The config file option 'submit' was used.
Benchmarks bound to a processor using numactl on the submit command.
```

Operating System Notes

```
ulimit -s (stack) set to 1048576.
Large pages reserved as follows by root user:
    echo 56320 > /proc/sys/vm/nr_overcommit_hugepages
The following environment varibles were set before the runspec command:
    export HUGETLB_VERBOSE=0
    export HUGETLB_MORECORE=yes
    export XLFRTEOPTS=intrinthds=1
```

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 -qarch=pwr7 -qtune=pwr7 -qalias=noansi -qalloca -lhugetlbfs`

C++ benchmarks:
`-O5 -qarch=pwr7 -qtune=pwr7 -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`

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_PPC`
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` `-qarch=pwr7` `-qtune=pwr7` `-qalias=noansi` `-qipa=level=2` `-lsmartheap`

401.bzip2: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O3` `-qarch=pwr7` `-qtune=pwr7` `-lhugetlbfs`

403.gcc: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4` `-qarch=pwr7` `-qtune=pwr7` `-qalloca` `-lhugetlbfs`

429.mcf: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5` `-qarch=pwr7` `-qtune=pwr7` `-lhugetlbfs`

445.gobmk: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4` `-qarch=pwr7` `-qtune=pwr7` `-lhugetlbfs`

456.hmmer: `-Wl,-q` `-O5` `-qarch=pwr7` `-qtune=pwr7` `-qsimd` `-qassert=refalign` `-qipa=inline=threshold=2888` `-qipa=inline=limit=11880` `-lhugetlbfs`

458.sjeng: Same as 429.mcf

462.libquantum: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5` `-qarch=pwr7` `-qtune=pwr7` `-q64` `-lhugetlbfs`

464.h264ref: Same as 429.mcf

C++ benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

471.omnetpp: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qarch=pwr7 -qtune=pwr7 -qrtti -lsmartheap

473.astar: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qarch=pwr7 -qtune=pwr7 -qipa=inline=threshold=2468 -qipa=inline=limit=11060 -qipa=partition=large -lhugetlbfs -lsmartheap

483.xalancbmk: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qarch=pwr5 -qtune=pwr5 -qipa=inline=threshold=2468 -qipa=inline=limit=11060 -qipa=partition=large -lsmartheap

Peak Other Flags

C benchmarks:
-qipa=noobject -qipa=threads

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/IBM-Linux-XL.20100901.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/IBM-Linux-XL.20100901.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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