SPEC® CINT2006 Result

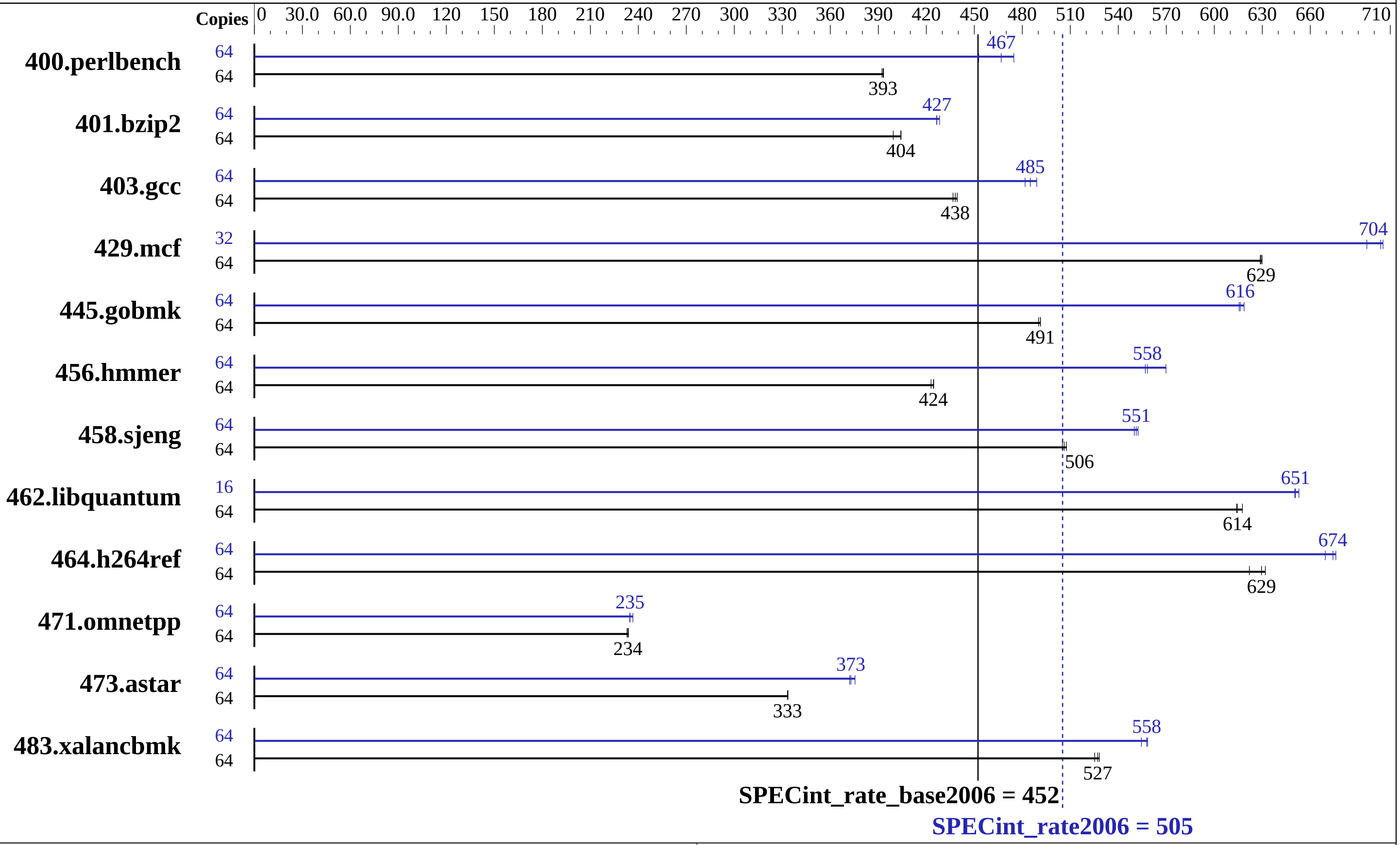
IBM Corporation

IBM BladeCenter PS702 Express (3.0 GHz, 16 core, SLES)

SPECint®_rate2006 = 505

SPECint_rate_base2006 = 452

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



Hardware

CPU Name:	POWER7
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 3.30 GHz
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip, 4 threads/core
CPU(s) orderable:	16 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:	128 GB (32x4 GB) DDR3 1066 MHz
Disk Subsystem:	1x300 GB SAS SFF 10K RPM
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 SP1 (ppc64), Kernel 2.6.32.12-0.3-ppc64
Compiler:	IBM XL C/C++ for Linux, V10.1 Updated with the Aug2010 PTF
Auto Parallel:	No
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	-Post-Link Optimization for Linux on POWER, Version 5.5.0-2 -MicroQuill SmartHeap 9

Results Table

Benchmark	Base Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
400.perlbench	64	1590	393	1594	392	**1591**	**393**	64	**1340**	**467**	1381	453	1317	475
401.bzip2	64	**1528**	**404**	1528	404	1547	399	64	**1448**	**427**	1442	428	1448	426
403.gcc	64	**1176**	**438**	1173	439	1180	437	64	1054	489	1069	482	**1062**	**485**
429.mcf	64	927	630	928	629	**928**	**629**	32	**415**	**704**	414	705	420	695
445.gobmk	64	1366	491	**1367**	**491**	1370	490	64	1085	619	**1089**	**616**	1091	615
456.hmmer	64	1412	423	**1407**	**424**	1406	425	64	1048	570	1072	557	**1070**	**558**
458.sjeng	64	1526	508	1533	505	**1530**	**506**	64	1408	550	1402	552	**1405**	**551**
462.libquantum	64	2160	614	2147	618	**2158**	**614**	16	510	650	508	653	**509**	**651**
464.h264ref	64	2241	632	2277	622	**2250**	**629**	64	2095	676	2116	669	**2101**	**674**
471.omnetpp	64	**1713**	**234**	1717	233	1711	234	64	1690	237	1705	235	**1703**	**235**
473.astar	64	1347	334	**1348**	**333**	1348	333	64	1197	375	**1205**	**373**	1207	372
483.xalancbmk	64	841	525	836	528	**838**	**527**	64	796	554	**792**	**558**	791	558

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.
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 3520 > /proc/sys/vm/nr_hugepages
Environment variables set before executing benchmarks.
    export HUGETLB_VERBOSE=0
    export HUGETLB_MORECORE=yes
    export XLFRTEOPTS=intrinthds=1
```

General Notes

```
IBM Post-Link Optimization tool with
options "-O4 -omullX -see 0 -m power6" used for
    400.perlbench 401.bzip2 403.gcc 456.hmmer 458.sjeng
    483.xalancbmk
options "-bf -dp -hr -las -pca -RC -RD -rmte -si -tlo -A 64 -isf 104 -lu 8 -rt 0.16
        -hrf 0.18 -ihf 40 -sdp 6 -sdpms 128 -shci 65 -si -sidf 45 -omullX" used for
   429.mcf
options "-q -O3 -A 32 -omullX" used for
   445.gobmk
options "-bf -dp -lro -nop -RC -RD -tb -tlo -vro -A 4
        -isf 88 -lu 8 -hrf 0.10 -sdp 4 -lun 27 -omullX" used for
```

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General Notes (Continued)

```
   462.libquantum
options "-O4 -omullX -see 1" used for
   473.astar
options "-O4" used for
   464.h264ref
Whenever option "-omullX" was used during the optimization phase,
   option "-imullX" was also used during the instrumentation phase.
```

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`

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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` `-qalias=noansi` `-lsmartheap`

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

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

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

445.gobmk: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4` `-qnoenablevmx` `-lhugetlbfs`

456.hmmer: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O5` `-lhugetlbfs`

458.sjeng: `-Wl,-q` `-O5` `-lhugetlbfs`

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

464.h264ref: Same as 456.hmmer

C++ benchmarks:

471.omnetpp: `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4` `-qrtti` `-lsmartheap`

473.astar: `-Wl,-q` `-qpdf1`(pass 1) `-qpdf2`(pass 2) `-O4` `-qnoenablevmx` `-lsmartheap`

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Peak Optimization Flags (Continued)

483.xalancbmk: `-Wl,-q -O5 -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.20100609.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/IBM-Linux-XL.20100609.xml