SPEC® CINT2006 Result

IBM Corporation

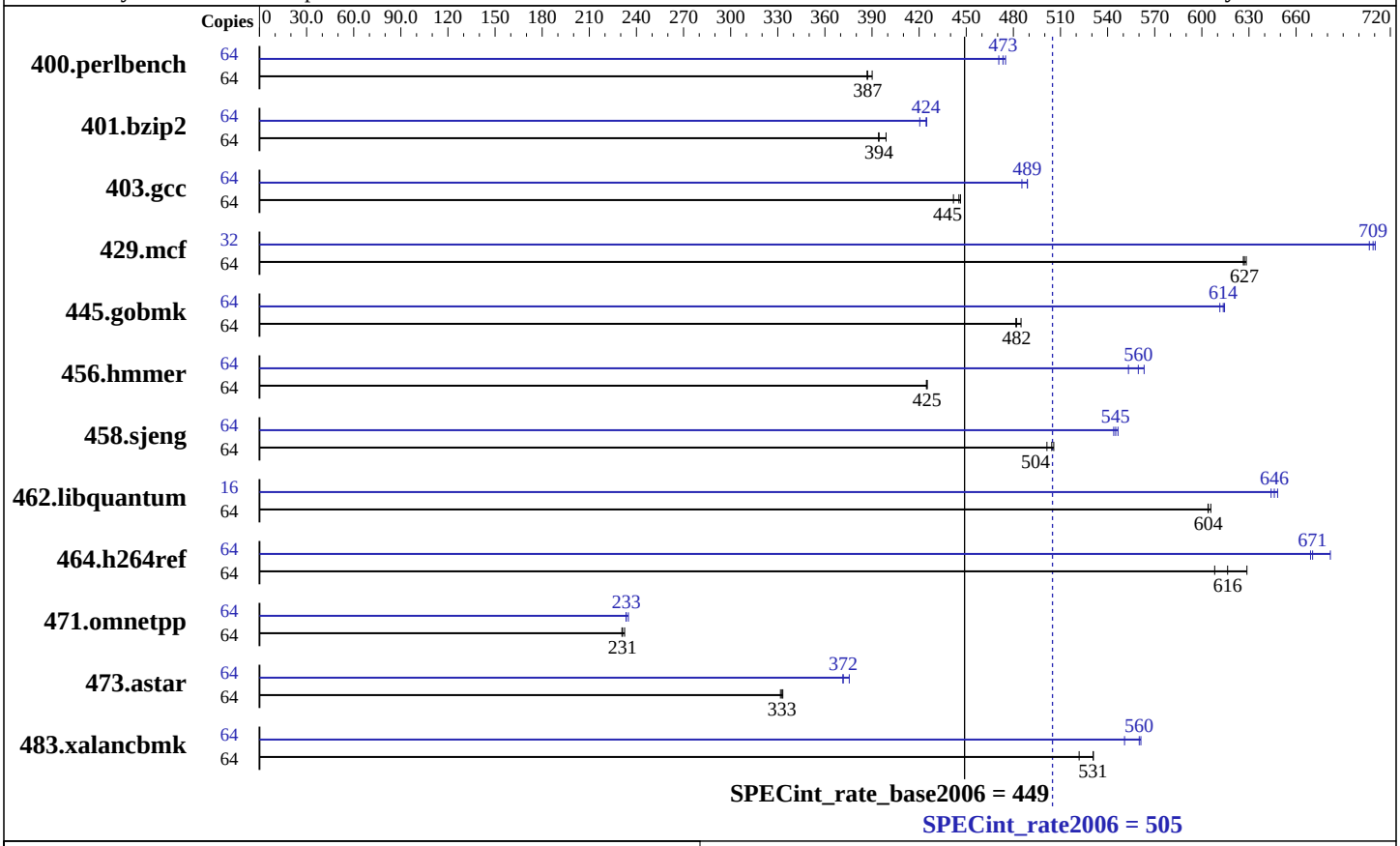
IBM BladeCenter PS702 Express (3.0 GHz, 16 core, SLES)

SPECint®_rate2006 = 505

SPECint_rate_base2006 = 449

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Mar-2010
Hardware Availability: Jun-2010
Software Availability: Dec-2009



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 (ppc64), Kernel 2.6.27.19-5-ppc64
Compiler:	IBM XL C/C++ for Linux, V10.1 Updated with the Oct2009 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 5.5.0-1 -MicroQuill SmartHeap 9

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	64	1616	387	**1615**	**387**	1603	390	64	1328	471	1316	475	**1321**	**473**
401.bzip2	64	1548	399	1567	394	**1566**	**394**	64	**1455**	**424**	1469	420	1454	425
403.gcc	64	**1157**	**445**	1154	446	1166	442	64	1061	485	**1054**	**489**	1054	489
429.mcf	64	929	628	932	626	**931**	**627**	32	413	707	411	710	**412**	**709**
445.gobmk	64	**1393**	**482**	1394	482	1385	485	64	1098	611	1093	614	**1094**	**614**
456.hmmer	64	**1405**	**425**	1406	425	1405	425	64	1060	563	**1067**	**560**	1079	553
458.sjeng	64	1545	501	**1535**	**504**	1531	506	64	1417	547	1424	544	**1421**	**545**
462.libquantum	64	2196	604	**2195**	**604**	2189	606	16	511	648	515	644	**513**	**646**
464.h264ref	64	2329	608	**2298**	**616**	2253	629	64	2077	682	2116	669	**2112**	**671**
471.omnetpp	64	1721	232	1733	231	**1731**	**231**	64	1703	235	1714	233	**1713**	**233**
473.astar	64	1354	332	**1351**	**333**	1348	333	64	1196	376	**1209**	**372**	1210	371
483.xalancbmk	64	846	522	832	531	**832**	**531**	64	802	551	787	561	**788**	**560**

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
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
```

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
```

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General Notes (Continued)

```
        -isf 88 -lu 8 -hrf 0.10 -sdp 4 -lun 27 -omullX" used for
   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
```

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.20100302.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/IBM-Linux-XL.20100302.xml`

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

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