SPEC® CINT2006 Result
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IBM Corporation

IBM Power 750 Express (3.3 GHz, 32 core, SLES)

$SPECint®\_rate2006 = \quad 1030$

$SPECint\_rate\_base2006 = \quad 924$

CPU2006 license: 11	**Test date:** Jan-2010
Test sponsor: IBM Corporation	**Hardware Availability:** Feb-2010
Tested by: IBM Corporation	**Software Availability:** Dec-2009

Copies

Benchmark	Copies (blue)	blue value	Copies (black)	black value
400.perlbench	128	1010	128	843
401.bzip2	128	865	128	817
403.gcc	128	979	128	900
429.mcf	64	1380	128	1240
445.gobmk	128	1320	128	1050
456.hmmer	128	1210	128	919
458.sjeng	128	1170	128	1080
462.libquantum	32	1270	128	1180
464.h264ref	128	1460	128	1360
471.omnetpp	128	433	128	429
473.astar	128	745	128	674
483.xalancbmk	128	1080	128	1030

SPECint_rate_base2006 = 924

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Hardware

CPU Name:	POWER7
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 3.64 GHz
CPU MHz:	3300
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip, 4 threads/core
CPU(s) orderable:	6,8,12,16,18,24,32 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:	256 GB (32x8 GB) DDR3 1066 MHz
Disk Subsystem:	8x146.8 GB SAS SFF 15K 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

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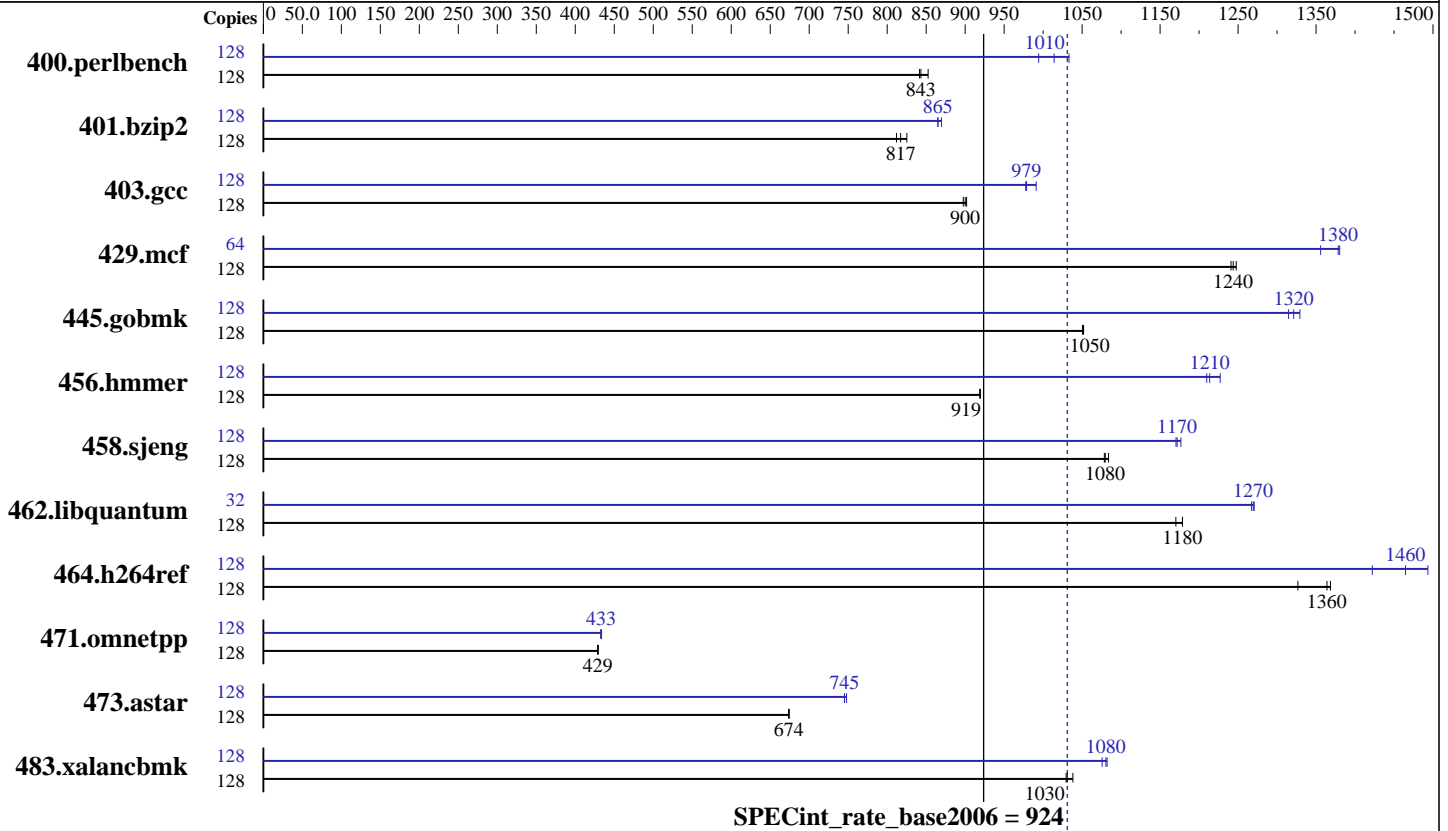
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Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	128	1486	841	**1483**	**843**	1467	853	128	1258	994	1210	1030	**1233**	**1010**
401.bzip2	128	1497	825	1521	812	**1511**	**817**	128	**1428**	**865**	1428	865	1420	870
403.gcc	128	1148	898	1143	902	**1145**	**900**	128	1054	978	1040	991	**1053**	**979**
429.mcf	128	**939**	**1240**	936	1250	941	1240	64	430	1360	423	1380	**423**	**1380**
445.gobmk	128	1278	1050	**1277**	**1050**	1277	1050	128	1010	1330	1021	1310	**1016**	**1320**
456.hmmer	128	1300	919	1299	920	**1300**	**919**	128	973	1230	**984**	**1210**	987	1210
458.sjeng	128	1436	1080	1429	1080	**1434**	**1080**	128	**1322**	**1170**	1323	1170	1316	1180
462.libquantum	128	2250	1180	**2250**	**1180**	2266	1170	32	522	1270	523	1270	**522**	**1270**
464.h264ref	128	2135	1330	**2077**	**1360**	2070	1370	128	1897	1490	**1934**	**1460**	1992	1420
471.omnetpp	128	**1865**	**429**	1865	429	1863	429	128	1849	433	1845	434	**1847**	**433**
473.astar	128	1333	674	1334	674	**1333**	**674**	128	1201	748	1206	745	**1206**	**745**
483.xalancbmk	128	**857**	**1030**	851	1040	858	1030	128	821	1080	**817**	**1080**	816	1080

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.

Operating System Notes

    ulimit -s (stack) set to 1048576.
    Large pages reserved as follows by root user:
        echo 7040 > /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

    The "IBM Power 750 Express (3.3 GHz)" and "IBM Power 755 (3.3 GHz)"
    are electronically equivalent. The results have been measured on the
    "IBM Power 755 (3.3 GHz)"

    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

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General Notes (Continued)

```
    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
    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.

 Benchmarks bound to a processor using numactl on the submit command.
 See flags file for details on settings.
```

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.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

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For other inquiries, please contact webmaster@spec.org.

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