SPEC® CINT2006 Result

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IBM Corporation

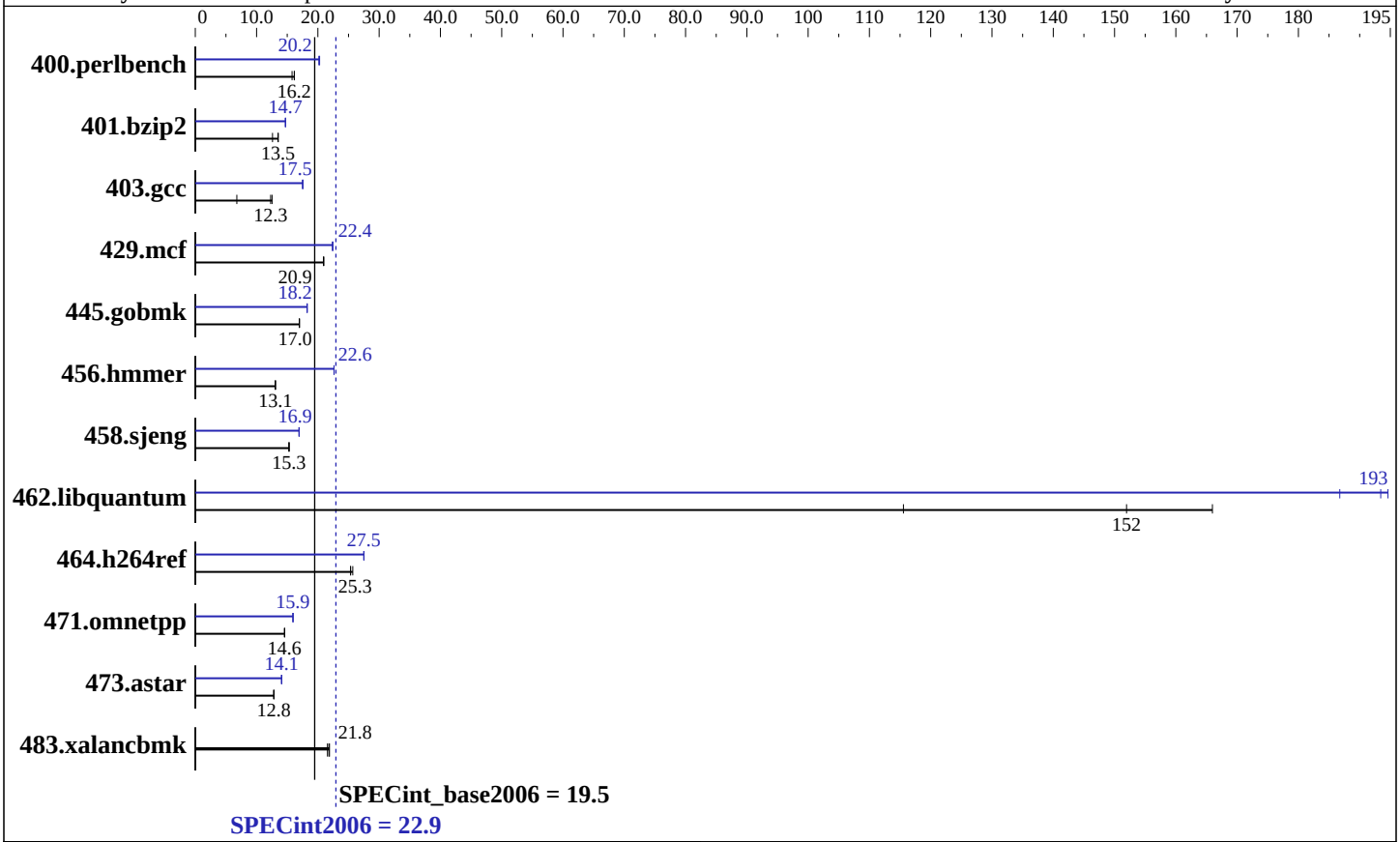
IBM System x iDataPlex dx320 (Intel Xeon L5420)

SPECint®2006 = 22.9

SPECint_base2006 = 19.5

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

Test date: Sep-2008
Hardware Availability: Nov-2008
Software Availability: Jul-2008



Hardware

CPU Name:	Intel Xeon L5420
CPU Characteristics:	1333MHz system bus
CPU MHz:	2500
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	12 MB I+D on chip per chip, 6 MB shared / 2 cores
L3 Cache:	None
Other Cache:	None
Memory:	16 GB(4 x 4 GB DDR2-5300P ECC)
Disk Subsystem:	1 x 250 GB SATA, 7200 RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux AS release 4 (x86_64)(Nahant Update 7), Kernel 2.6.9-78.ELsmp
Compiler:	Intel C++ Compiler 10.1 for Linux Build 20080312 Package ID: l_cc_p_10.1.015
Auto Parallel:	Yes
File System:	ReiserFS
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V8.1 Binutils 2.18.50.0.7.20080502

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	619	15.8	604	16.2	**605**	**16.2**	**484**	**20.2**	482	20.3	484	20.2
401.bzip2	766	12.6	712	13.5	**715**	**13.5**	656	14.7	656	14.7	**656**	**14.7**
403.gcc	1188	6.78	**655**	**12.3**	643	12.5	460	17.5	458	17.6	**459**	**17.5**
429.mcf	435	21.0	**436**	**20.9**	436	20.9	406	22.4	**407**	**22.4**	407	22.4
445.gobmk	**618**	**17.0**	618	17.0	617	17.0	576	18.2	**575**	**18.2**	574	18.3
456.hmmer	714	13.1	**714**	**13.1**	714	13.1	412	22.6	**412**	**22.6**	412	22.6
458.sjeng	791	15.3	**791**	**15.3**	791	15.3	**714**	**16.9**	714	16.9	715	16.9
462.libquantum	179	116	125	166	**136**	**152**	**107**	**193**	111	187	106	195
464.h264ref	861	25.7	874	25.3	**873**	**25.3**	805	27.5	804	27.5	**804**	**27.5**
471.omnetpp	**429**	**14.6**	429	14.6	429	14.6	392	15.9	392	15.9	**392**	**15.9**
473.astar	**548**	**12.8**	547	12.8	548	12.8	498	14.1	**498**	**14.1**	498	14.1
483.xalancbmk	315	21.9	**316**	**21.8**	320	21.6	315	21.9	**316**	**21.8**	320	21.6

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

General Notes

```
All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmer,
for peak, are compiled in 64-bit mode
Hardware Prefetch Enabled and Adjacent Sector Prefetch Enabled
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
```

Base Compiler Invocation

C benchmarks:
`icc`

C++ benchmarks:
`icpc`

Base Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Base Optimization Flags

C benchmarks:
```
-fast -vec-guard-write -parallel -par-runtime-control
```

C++ benchmarks:
```
-xT -ipo -O3 -no-prec-div -Wl,-z,muldefs
-L/spec/cpu2006.1.1/lib -lsmartheap
```

Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc
```

401.bzip2:
```
/opt/intel/cce/10.1.015/bin/icc
-L/opt/intel/cce/10.1.015/lib
-I/opt/intel/cce/10.1.015/include
```

456.hmmer:
```
/opt/intel/cce/10.1.015/bin/icc
-L/opt/intel/cce/10.1.015/lib
-I/opt/intel/cce/10.1.015/include
```

C++ benchmarks:
```
icpc
```

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
401.bzip2: `-DSPEC_CPU_LP64`
456.hmmer: `-DSPEC_CPU_LP64`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

400.perlbench: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -ansi-alias -prefetch`

401.bzip2: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -prefetch -auto-ilp32`

403.gcc: `-fast -inline-calloc -opt-malloc-options=3`

429.mcf: `-fast -prefetch`

445.gobmk: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xT -O2 -ipo -no-prec-div -ansi-alias`

456.hmmer: `-fast -unroll2 -ansi-alias -opt-multi-version-aggressive -auto-ilp32`

458.sjeng: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll4`

462.libquantum: `-fast -unroll4 -Ob0 -prefetch -opt-streaming-stores always -vec-guard-write -opt-malloc-options=3 -parallel -par-runtime-control`

464.h264ref: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll2 -ansi-alias`

C++ benchmarks:

471.omnetpp: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xT -O3 -ipo -no-prec-div -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap`

473.astar: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xT -O3 -ipo -no-prec-div -ansi-alias -opt-ra-region-strategy=routine -Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap`

483.xalancbmk: `basepeak = yes`

Peak Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.09.html
http://www.spec.org/cpu2006/flags/Intel-ic10.1-int-linux64-revD.20090713.html

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.09.xml
http://www.spec.org/cpu2006/flags/Intel-ic10.1-int-linux64-revD.20090713.xml

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