SPEC® CINT2006 Result
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IBM Corporation

IBM System x3455 (AMD Opteron 2222 SE)

$SPECint^{®}2006 =$ 14.8
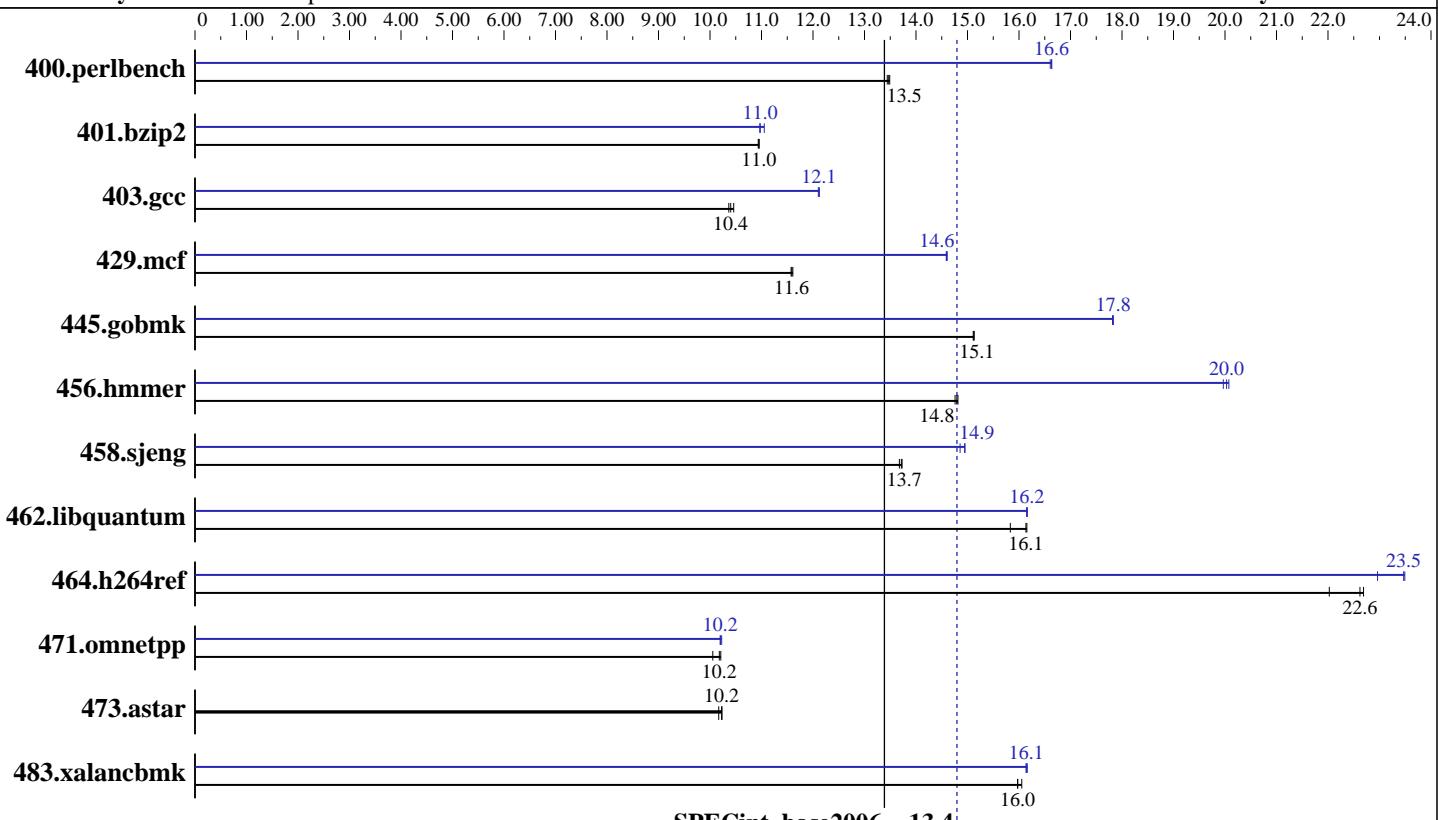
$SPECint\_base2006 =$ 13.4

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

Test date: Jul-2007
Hardware Availability: Apr-2007
Software Availability: Mar-2007

Benchmark results (blue = peak, black = base):

Benchmark	Peak	Base
400.perlbench	16.6	13.5
401.bzip2	11.0	11.0
403.gcc	12.1	10.4
429.mcf	14.6	11.6
445.gobmk	17.8	15.1
456.hmmer	20.0	14.8
458.sjeng	14.9	13.7
462.libquantum	16.2	16.1
464.h264ref	23.5	22.6
471.omnetpp	10.2	10.2
473.astar	10.2	10.2
483.xalancbmk	16.1	16.0

SPECint_base2006 = 13.4
SPECint2006 = 14.8

Hardware

CPU Name:	AMD Opteron 2222 SE
CPU Characteristics:	
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip
CPU(s) orderable:	1, 2 chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core
L3 Cache:	None
Other Cache:	None
Memory:	16 GB (8 x 2GB DDR2-5300 ECC)
Disk Subsystem:	1 x 160 GB Serial ATA, 7200 RPM
Other Hardware:	None

Software

Operating System:	SLES 10 (x86_64), 2.6.16.21-0.8-smp
Compiler:	QLogic PathScale Compiler Suite, Release 3.0
Auto Parallel:	No
File System:	ext3
System State:	Multi-user, run level 3
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	MicroQuill SmartHeap 8.1

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	727	13.4	**725**	**13.5**	724	13.5	588	16.6	**587**	**16.6**	587	16.6
401.bzip2	**881**	**11.0**	882	10.9	881	11.0	873	11.1	880	11.0	**879**	**11.0**
403.gcc	770	10.5	**774**	**10.4**	777	10.4	664	12.1	665	12.1	**664**	**12.1**
429.mcf	786	11.6	**787**	**11.6**	788	11.6	**625**	**14.6**	625	14.6	624	14.6
445.gobmk	693	15.1	**694**	**15.1**	694	15.1	**588**	**17.8**	589	17.8	588	17.8
456.hmmer	632	14.8	**631**	**14.8**	630	14.8	465	20.1	**466**	**20.0**	467	20.0
458.sjeng	885	13.7	**882**	**13.7**	881	13.7	814	14.9	809	15.0	**810**	**14.9**
462.libquantum	1309	15.8	**1284**	**16.1**	1283	16.2	1283	16.1	1282	16.2	**1283**	**16.2**
464.h264ref	975	22.7	1005	22.0	**978**	**22.6**	964	23.0	**943**	**23.5**	942	23.5
471.omnetpp	622	10.1	612	10.2	**614**	**10.2**	611	10.2	613	10.2	**613**	**10.2**
473.astar	686	10.2	**687**	**10.2**	690	10.2	686	10.2	**687**	**10.2**	690	10.2
483.xalancbmk	430	16.1	**432**	**16.0**	432	16.0	427	16.2	**427**	**16.1**	428	16.1

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

General Notes

    taskset utility used to bind CPU(s) to processes

Base Compiler Invocation

C benchmarks:
    pathcc

C++ benchmarks:
    pathCC

Base Portability Flags

        400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
           401.bzip2: -DSPEC_CPU_LP64
             403.gcc: -DSPEC_CPU_LP64
             429.mcf: -DSPEC_CPU_LP64
          445.gobmk: -DSPEC_CPU_LP64
          456.hmmer: -DSPEC_CPU_LP64
           458.sjeng: -DSPEC_CPU_LP64
       462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
         464.h264ref: -DSPEC_CPU_LP64
       483.xalancbmk: -DSPEC_CPU_LINUX

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Base Optimization Flags

C benchmarks:
```
-Ofast -OPT:malloc_alg=1
```

C++ benchmarks:
```
-Ofast -m32 -L/tools/SmartHeap_8.1/lib -lsmartheap
```

Base Other Flags

C benchmarks:
```
-IPA:max_jobs=2
```

C++ benchmarks:
```
-IPA:max_jobs=2
```

Peak Compiler Invocation

C benchmarks:
```
pathcc
```

C++ benchmarks:
```
pathCC
```

Peak Portability Flags

```
 400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
     401.bzip2: -DSPEC_CPU_LP64
     445.gobmk: -DSPEC_CPU_LP64
     456.hmmer: -DSPEC_CPU_LP64
      458.sjeng: -DSPEC_CPU_LP64
 462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
    464.h264ref: -DSPEC_CPU_LP64
  483.xalancbmk: -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

```
 400.perlbench: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
                 -LNO:opt=0

     401.bzip2: -O3 -LNO:ou_prod_max=10 -OPT:Ofast -OPT:alias=disjoint
```

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Peak Optimization Flags (Continued)

403.gcc: `-fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -m32 -O3 -OPT:Ofast`

429.mcf: `-m32 -O3 -ipa -L/tools/SmartHeap_8.1/lib -lsmartheap`

445.gobmk: `-fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3 -OPT:alias=disjoint -LNO:simd=0 -LNO:minvariant=off -WOPT:retype_expr=on`

456.hmmer: `-O2 -OPT:alias=disjoint -OPT:malloc_alg=1 -CG:cflow=0`

458.sjeng: `-fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3 -IPA:plimit=50000 -IPA:pu_reorder=2`

462.libquantum: `-O3 -ipa -CG:local_fwd_sched=on -IPA:space=1000`

464.h264ref: `-fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3 -IPA:plimit=20000 -OPT:alias=disjoint -LNO:prefetch=0`

C++ benchmarks:

471.omnetpp: `-Ofast -CG:gcm=off -m32 -L/tools/SmartHeap_8.1/lib -lsmartheap`

473.astar: `basepeak = yes`

483.xalancbmk: `-Ofast -m32 -OPT:unroll_times_max=8 -L/tools/SmartHeap_8.1/lib -lsmartheap`

Peak Other Flags

C benchmarks:
`-IPA:max_jobs=2`

C++ benchmarks:
`-IPA:max_jobs=2`

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.13.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.13.xml

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