SPEC® CINT2006 Result
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IBM Corporation

SPECint®_rate2006 = 274

IBM System x3690 X5 (Intel Xeon E7540)
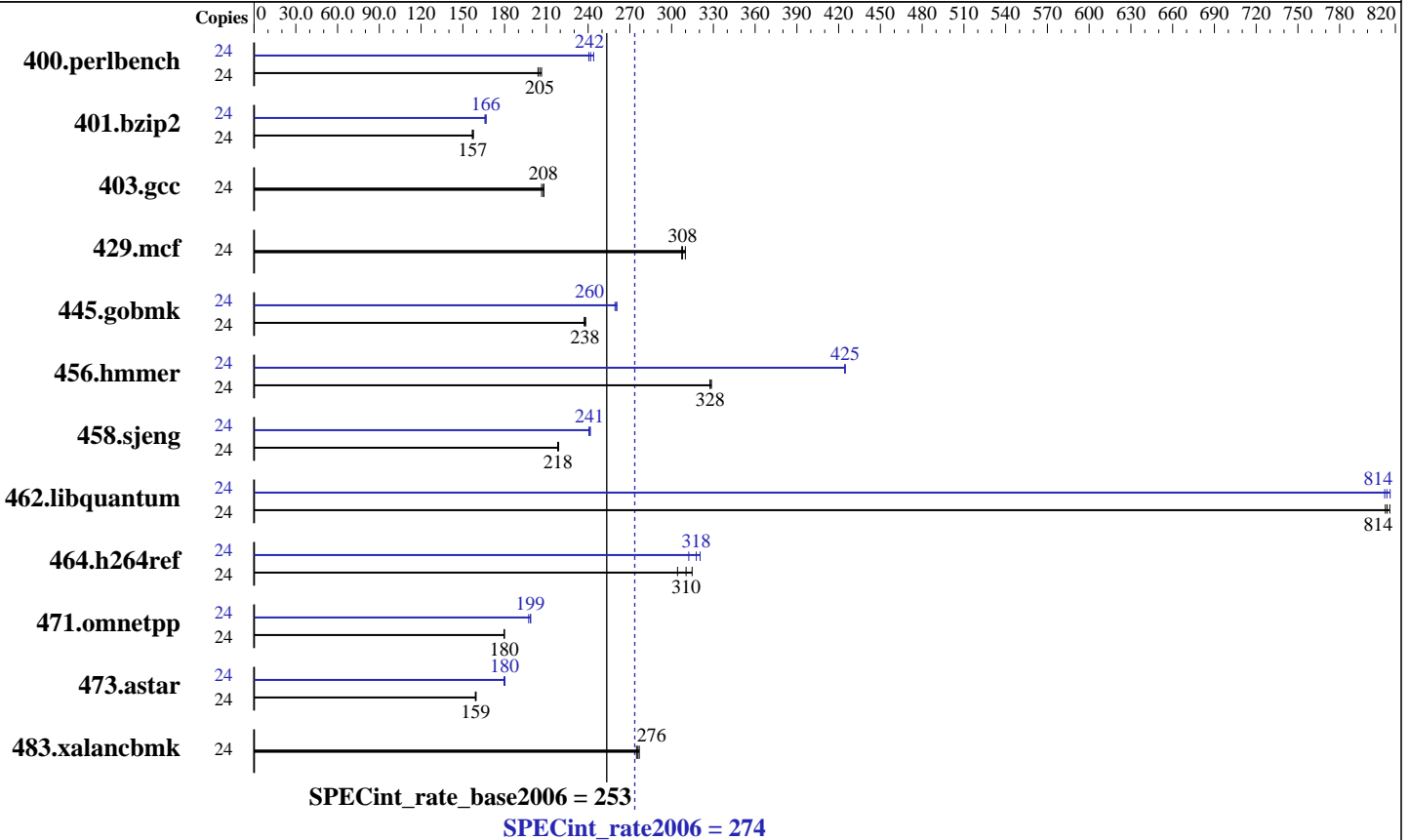
SPECint_rate_base2006 = 253

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

Test date: Jul-2010
Hardware Availability: Aug-2010
Software Availability: Jan-2010

Graph data (Copies / result):

- **400.perlbench**: 24 — 242; 24 — 205
- **401.bzip2**: 24 — 166; 24 — 157
- **403.gcc**: 24 — 208
- **429.mcf**: 24 — 308
- **445.gobmk**: 24 — 260; 24 — 238
- **456.hmmer**: 24 — 425; 24 — 328
- **458.sjeng**: 24 — 241; 24 — 218
- **462.libquantum**: 24 — 814; 24 — 814
- **464.h264ref**: 24 — 318; 24 — 310
- **471.omnetpp**: 24 — 199; 24 — 180
- **473.astar**: 24 — 180; 24 — 159
- **483.xalancbmk**: 24 — 276

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Hardware

CPU Name:	Intel Xeon E7540
CPU Characteristics:	Intel Turbo Boost Technology up to 2.26 GHz
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	18 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (32 x 4 GB PC3-8500R CL7, Quad Rank)
Disk Subsystem:	1 x 146 GB SAS, 15000 RPM
Other Hardware:	None

Software

Operating System:	SuSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-default
Compiler:	Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064
Auto Parallel:	No
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V8.1

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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	24	**1142**	**205**	1135	207	1149	204	24	975	241	**970**	**242**	961	244
401.bzip2	24	1469	158	**1475**	**157**	1477	157	24	**1392**	**166**	1389	167	1396	166
403.gcc	24	935	207	928	208	**929**	**208**	24	935	207	928	208	**929**	**208**
429.mcf	24	712	307	**711**	**308**	706	310	24	712	307	**711**	**308**	706	310
445.gobmk	24	1061	237	1057	238	**1059**	**238**	24	**967**	**260**	971	259	966	261
456.hmmer	24	**683**	**328**	684	328	681	329	24	**527**	**425**	527	425	528	424
458.sjeng	24	**1329**	**218**	1331	218	1327	219	24	1207	241	1202	242	**1203**	**241**
462.libquantum	24	612	813	**611**	**814**	609	816	24	612	812	609	816	**611**	**814**
464.h264ref	24	1688	315	**1711**	**310**	1746	304	24	**1672**	**318**	1700	312	1657	320
471.omnetpp	24	**835**	**180**	834	180	835	180	24	760	197	755	199	**755**	**199**
473.astar	24	1060	159	**1057**	**159**	1056	159	24	935	180	**936**	**180**	938	180
483.xalancbmk	24	598	277	603	275	**601**	**276**	24	598	277	603	275	**601**	**276**

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.
     numactl was used to bind copies to the cores
```

Operating System Notes

```
    echo 1 > /proc/sys/vm/zone_reclaim_mode
```

Platform Notes

```
    Turbo Boost set to Traditional
```

General Notes

```
     'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
     Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
```

Base Compiler Invocation

C benchmarks:
```
      icc -m32
```

C++ benchmarks:
```
      icpc -m32
```

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Base Portability Flags

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

Base Optimization Flags

C benchmarks:
```
        -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
```

C++ benchmarks:
```
        -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
        -L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -lsmartheap
```

Base Other Flags

C benchmarks:

```
        403.gcc: -Dalloca=_alloca
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
        icc  -m32
```

```
        401.bzip2: icc -m64
```

```
        456.hmmer: icc -m64
```

```
        458.sjeng: icc -m64
```

```
        462.libquantum: icc -m64
```

C++ benchmarks (except as noted below):
```
        icpc -m32
```

```
        473.astar: icpc -m64
```

Peak Portability Flags

```
        400.perlbench: -DSPEC_CPU_LINUX_IA32
        401.bzip2: -DSPEC_CPU_LP64
```

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Peak Portability Flags (Continued)

```
    456.hmmer: -DSPEC_CPU_LP64
    458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
    473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

```
  400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                 -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
                 -prof-use(pass 2) -ansi-alias

     401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                 -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
                 -prof-use(pass 2) -opt-prefetch -ansi-alias -auto-ilp32

       403.gcc: basepeak = yes

       429.mcf: basepeak = yes

     445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -O2
                 -ipo -no-prec-div -ansi-alias

     456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2
                 -ansi-alias -auto-ilp32

     458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                 -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
                 -prof-use(pass 2) -unroll4 -auto-ilp32

462.libquantum: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32
                 -opt-prefetch

    464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                 -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
                 -prof-use(pass 2) -unroll2 -ansi-alias
```

C++ benchmarks:

```
   471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                 -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
                 -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
                 -L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -lsmartheap

     473.astar: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                 -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
                 -ansi-alias -opt-ra-region-strategy=routine -Wl,-z,muldefs
```

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Peak Optimization Flags (Continued)

473.astar (continued):
-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmartheap64

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100603.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100603.xml

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