SPEC® CINT2006 Result

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Lenovo Group Limited

(Test Sponsor: Intel Corporation)

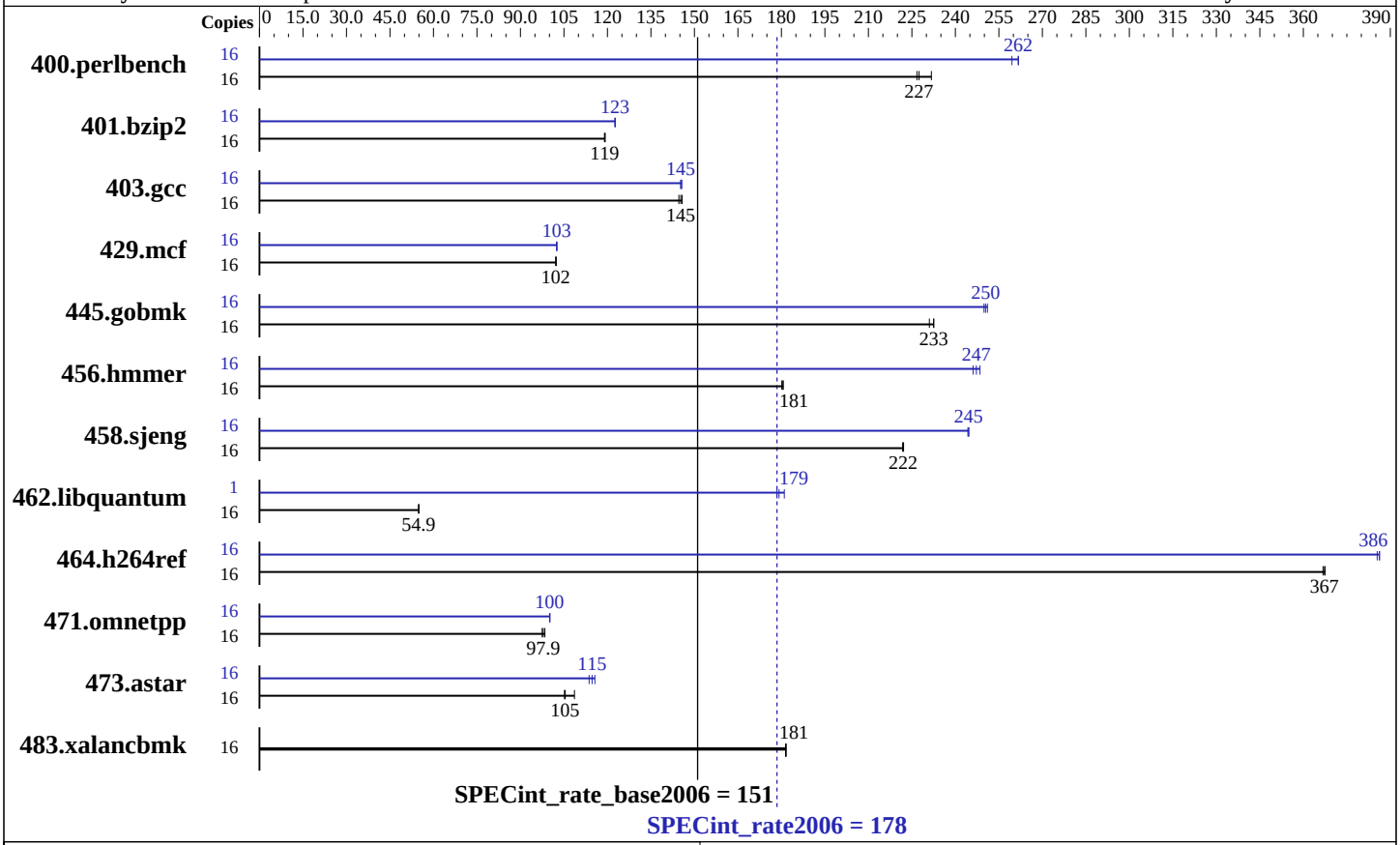
Lenovo R630 G7 (Intel Xeon processor E7330, 2.40 GHz)

SPECint®_rate2006 = 178

SPECint_rate_base2006 = 151

CPU2006 license: 13
Test sponsor: Intel Corporation
Tested by: Intel Corporation

Test date: Aug-2007
Hardware Availability: Oct-2007
Software Availability: Nov-2007



Hardware

CPU Name:	Intel Xeon E7330
CPU Characteristics:	Quad Core, 2.40 GHz
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	16 cores, 4 chips, 4 cores/chip
CPU(s) orderable:	1,2,4 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	6 MB I+D on chip per chip, 3 MB shared / 2 cores
L3 Cache:	None
Other Cache:	None
Memory:	16 GB (16 * 1GB Samsung DDR2 5300F, 2 rank, CL5-5-5, ECC)
Disk Subsystem:	Seagate, SAS, 73GB, 10Krpm, 1 disk only
Other Hardware:	None

Software

Operating System:	64-Bit SUSE LINUX Enterprise Server 10 SP1, Kernel linux-cbgm 2.6.16.43-0.5-smp for x86_64
Compiler:	Intel C++ Compiler for Linux32 and Linux64 Version 10.1 Build 20070725
Auto Parallel:	Yes
File System:	ReiserFS
System State:	Multi-user, run level 3
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	SmartHeap library V8.1 Binutils 2.17.50.0.15

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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	16	675	232	**687**	**227**	689	227	16	602	260	**597**	**262**	597	262
401.bzip2	16	1298	119	**1296**	**119**	1295	119	16	1259	123	1259	123	**1259**	**123**
403.gcc	16	884	146	891	145	**887**	**145**	16	884	146	887	145	**886**	**145**
429.mcf	16	1426	102	**1428**	**102**	1428	102	16	**1423**	**103**	1424	102	1422	103
445.gobmk	16	722	233	726	231	**722**	**233**	16	**670**	**250**	672	250	669	251
456.hmmer	16	829	180	827	181	**827**	**181**	16	**604**	**247**	601	248	607	246
458.sjeng	16	**872**	**222**	873	222	872	222	16	791	245	**792**	**245**	792	244
462.libquantum	16	6034	54.9	6039	54.9	**6038**	**54.9**	1	116	178	**116**	**179**	114	181
464.h264ref	16	965	367	963	368	**964**	**367**	16	**917**	**386**	919	385	917	386
471.omnetpp	16	1026	97.5	**1022**	**97.9**	1016	98.4	16	**999**	**100**	998	100	999	100
473.astar	16	1034	109	1068	105	**1065**	**105**	16	988	114	**979**	**115**	971	116
483.xalancbmk	16	608	181	**608**	**181**	608	182	16	608	181	**608**	**181**	608	182

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

General Notes

```
Bios settings:
Hardware Prefetcher:      Disabled
Adjacent Sector Prefetch: Disabled
High Bandwidth Option:    Disabled
All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmer,
for peak, are compiled in 64-bit mode
```

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 -inline-calloc -opt-malloc-options=3`

C++ benchmarks:
`-xT -ipo -O3 -no-prec-div -Wl,-z,muldefs`
`-L/home/cmplr/usr3/alrahate/cpu2006.1.0/lib -lsmartheap`

Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

Peak Compiler Invocation

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

401.bzip2: `/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux64/bin/icc`
`-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux64/lib`
`-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux64/include`

456.hmmer: `/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux64/bin/icc`
`-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux64/lib`
`-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux64/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`

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`

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/home/cmplr/usr3/alrahate/cpu2006.1.0/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/home/cmplr/usr3/alrahate/cpu2006.1.0/lib -lsmartheap`

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-ic10-ia32-intel64-linux-flags.20090714.46.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic10-ia32-intel64-linux-flags.20090714.46.xml`

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