



# SPEC® CINT2006 Result

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## Lenovo Group Limited

(Test Sponsor: Intel Corporation)

### Lenovo R630 G7 (Intel Xeon processor E7320, 2.13 GHz)

## SPECint®\_rate2006 = 139

## SPECint\_rate\_base2006 = 127

CPU2006 license: 13

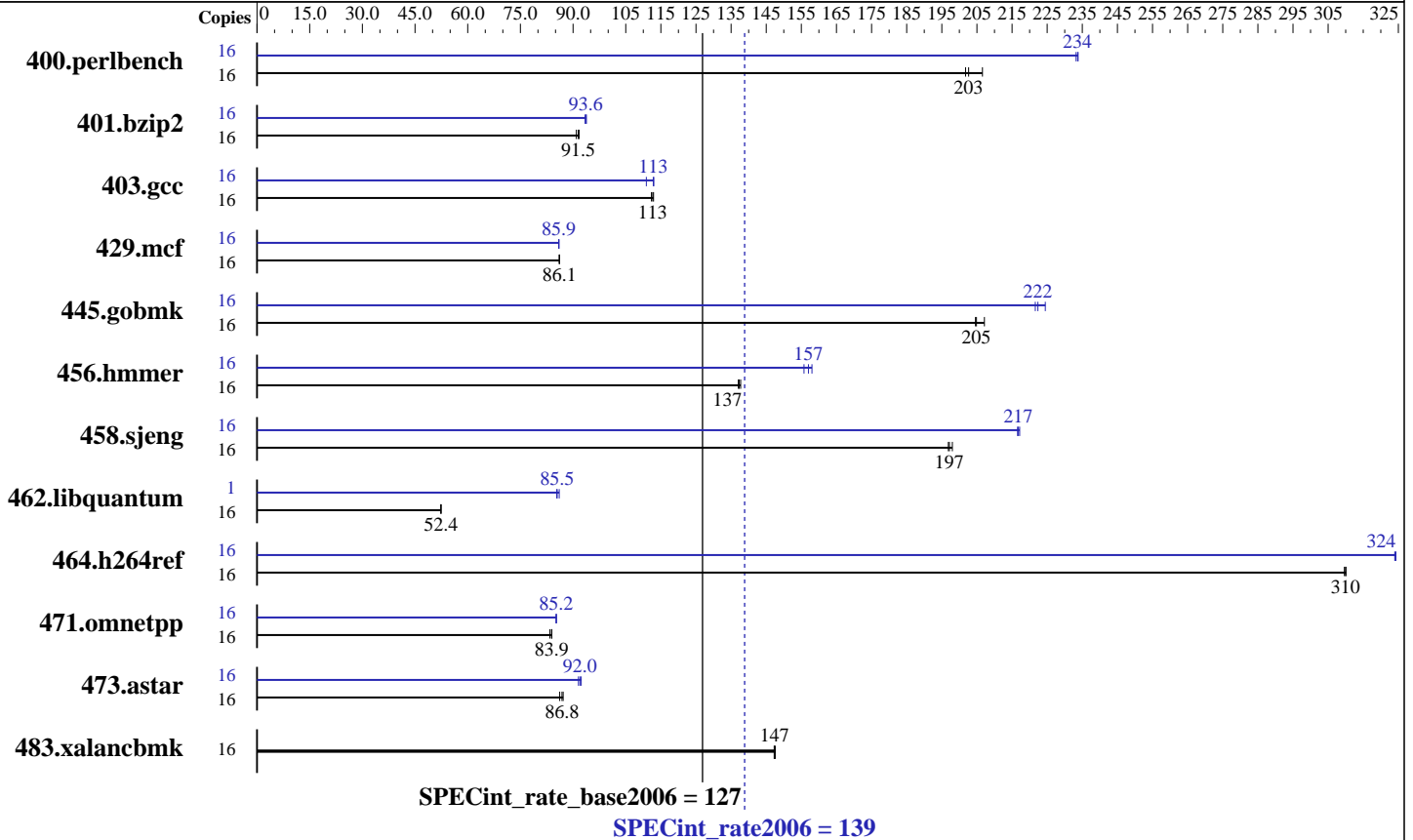
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: Aug-2007

Hardware Availability: Oct-2007

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E7320  
 CPU Characteristics: Quad Core, 2.13 GHz  
 CPU MHz: 2133  
 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: 4 MB I+D on chip per chip, 2 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-cbmg 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	757	207	<u>771</u>	<u>203</u>	775	202	16	<u>669</u>	<u>234</u>	670	233	669	234
401.bzip2	16	<u>1688</u>	<u>91.5</u>	1698	90.9	1684	91.7	16	1653	93.4	1646	93.8	<u>1649</u>	<u>93.6</u>
403.gcc	16	1147	112	<u>1143</u>	<u>113</u>	1141	113	16	1140	113	<u>1141</u>	<u>113</u>	1162	111
429.mcf	16	1695	86.1	1694	86.1	<u>1695</u>	<u>86.1</u>	16	1698	85.9	<u>1698</u>	<u>85.9</u>	1697	86.0
445.gobmk	16	810	207	820	205	<u>819</u>	<u>205</u>	16	<u>755</u>	<u>222</u>	748	224	757	222
456.hmmer	16	1084	138	<u>1087</u>	<u>137</u>	1089	137	16	945	158	958	156	<u>951</u>	<u>157</u>
458.sjeng	16	983	197	978	198	<u>982</u>	<u>197</u>	16	894	217	<u>893</u>	<u>217</u>	891	217
462.libquantum	16	6328	52.4	<u>6330</u>	<u>52.4</u>	6330	52.4	1	<u>242</u>	<u>85.5</u>	241	86.1	243	85.4
464.h264ref	16	1144	310	<u>1142</u>	<u>310</u>	1142	310	16	1092	324	1093	324	<u>1092</u>	<u>324</u>
471.omnetpp	16	1191	84.0	1199	83.4	<u>1192</u>	<u>83.9</u>	16	<u>1174</u>	<u>85.2</u>	1173	85.3	1174	85.2
473.astar	16	1303	86.2	1288	87.2	<u>1293</u>	<u>86.8</u>	16	1227	91.5	1217	92.3	<u>1221</u>	<u>92.0</u>
483.xalancbmk	16	<u>749</u>	<u>147</u>	748	148	750	147	16	<u>749</u>	<u>147</u>	748	148	750	147

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



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## 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



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## 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.hmmr: -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>



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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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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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