



SPEC® CINT2006 Result

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Lenovo Group Limited

(Test Sponsor: Intel Corporation)

Lenovo R630 G7 (Intel Xeon processor E7310, 1.60 GHz)

SPECint®_rate2006 = 122

SPECint_rate_base2006 = 111

CPU2006 license: 13

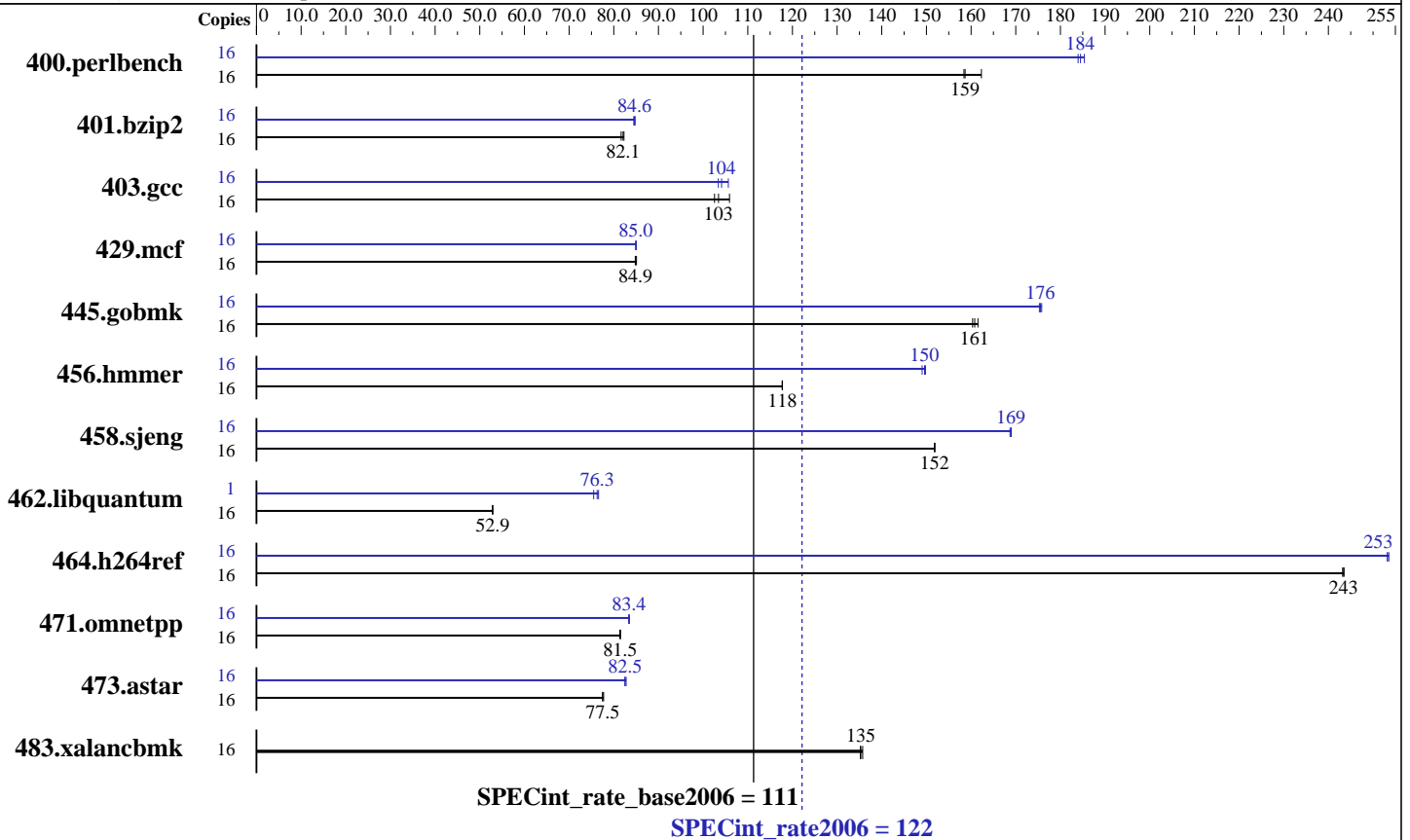
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: Aug-2007

Hardware Availability: Oct-2007

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon E7310
 CPU Characteristics: Quad Core, 1.60 GHz
 CPU MHz: 1600
 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-cbgn 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	963	162	987	158	<u>985</u>	<u>159</u>	16	<u>847</u>	<u>184</u>	843	185	850	184
401.bzip2	16	1891	81.7	<u>1881</u>	<u>82.1</u>	1876	82.3	16	1821	84.8	<u>1824</u>	<u>84.6</u>	1828	84.5
403.gcc	16	1216	106	1256	103	<u>1245</u>	<u>103</u>	16	1219	106	<u>1237</u>	<u>104</u>	1246	103
429.mcf	16	1715	85.1	<u>1719</u>	<u>84.9</u>	1721	84.8	16	1719	84.9	1717	85.0	<u>1717</u>	<u>85.0</u>
445.gobmk	16	1039	162	1047	160	<u>1044</u>	<u>161</u>	16	958	175	955	176	<u>956</u>	<u>176</u>
456.hmmer	16	<u>1268</u>	<u>118</u>	1268	118	1268	118	16	997	150	<u>998</u>	<u>150</u>	1002	149
458.sjeng	16	<u>1275</u>	<u>152</u>	1275	152	1275	152	16	1146	169	1147	169	<u>1146</u>	<u>169</u>
462.libquantum	16	6264	52.9	<u>6272</u>	<u>52.9</u>	6275	52.8	1	274	75.5	271	76.6	<u>272</u>	<u>76.3</u>
464.h264ref	16	1454	243	1456	243	<u>1455</u>	<u>243</u>	16	<u>1398</u>	<u>253</u>	1397	254	1398	253
471.omnetpp	16	1227	81.5	1229	81.4	<u>1227</u>	<u>81.5</u>	16	1200	83.4	1198	83.5	<u>1198</u>	<u>83.4</u>
473.astar	16	1445	77.7	1450	77.5	<u>1449</u>	<u>77.5</u>	16	1362	82.5	<u>1361</u>	<u>82.5</u>	1357	82.8
483.xalancbmk	16	<u>816</u>	<u>135</u>	813	136	817	135	16	<u>816</u>	<u>135</u>	813	136	817	135

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.

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