



SPEC® CINT2006 Result

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Intel Corporation

SPECint®2006 = 22.5

Lenovo SureServer R630 G7 (Intel Xeon E7440)

SPECint_base2006 = 19.7

CPU2006 license: 13

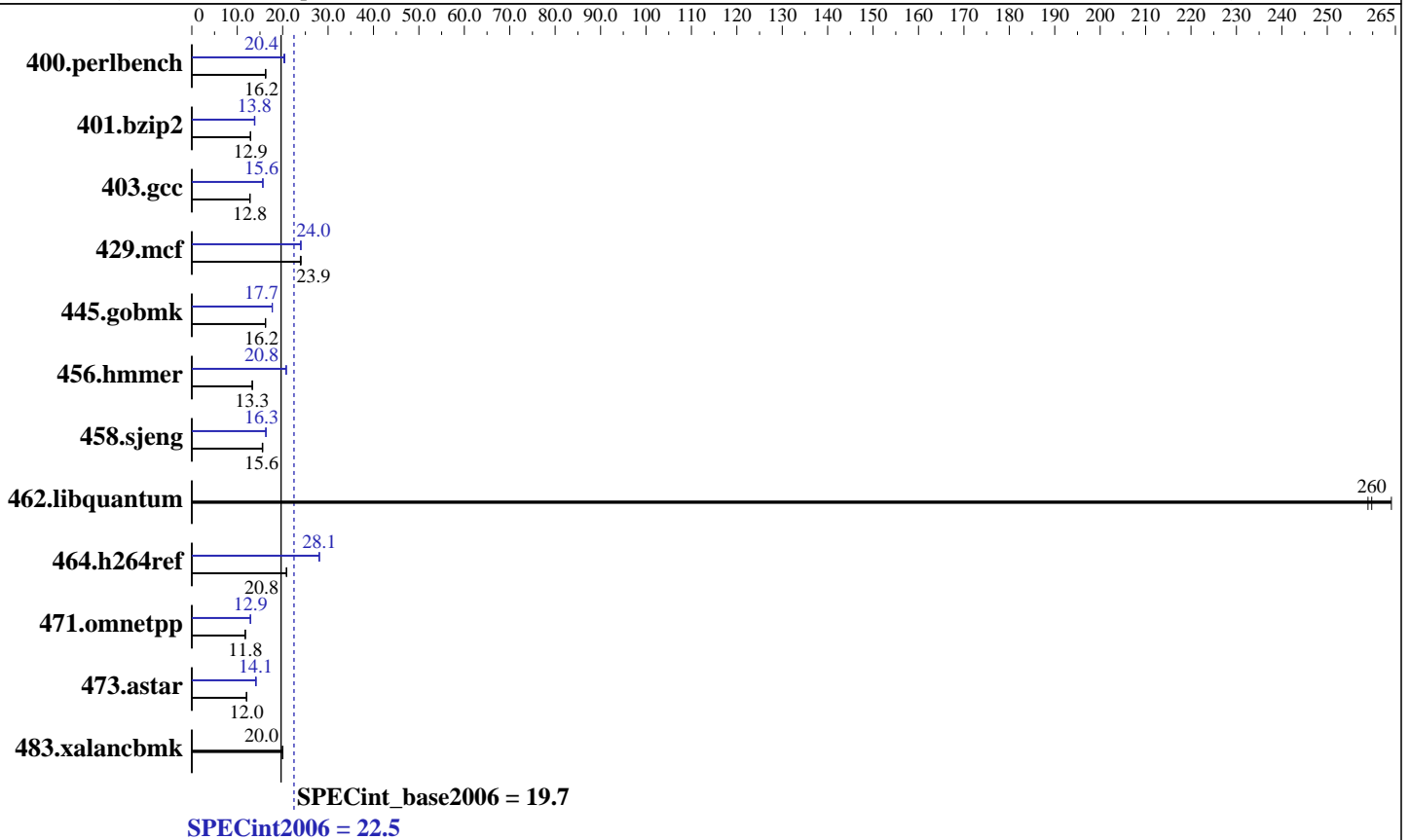
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: Sep-2008

Hardware Availability: Sep-2008

Software Availability: Nov-2008



Hardware

CPU Name: Intel Xeon E7440
 CPU Characteristics:
 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: 16 MB I+D on chip per chip
 Other Cache: None
 Memory: 32 GB (16x2 GB Micron DDR2 5300F, CL5-5-5, 2 rank, ECC)
 Disk Subsystem: 73 GB Seagate SAS, 10K RPM
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16-60.0.21-smp
 Compiler: Intel C++ Compiler 11.0 for Linux Build 20080730 Package ID: l_cc_b_11.0.042
 Auto Parallel: Yes
 File System: ReiserFS
 System State: Run level 3 (multi-user)
 Base Pointers: 32-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V8.1 Binutils 2.18.50.0.7.20080502



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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	603	16.2	599	16.3	<u>602</u>	<u>16.2</u>	<u>478</u>	<u>20.4</u>	482	20.3	478	20.4
401.bzip2	749	12.9	744	13.0	<u>746</u>	<u>12.9</u>	695	13.9	<u>699</u>	<u>13.8</u>	699	13.8
403.gcc	631	12.8	<u>629</u>	<u>12.8</u>	627	12.8	515	15.6	<u>515</u>	<u>15.6</u>	515	15.6
429.mcf	382	23.9	<u>381</u>	<u>23.9</u>	379	24.1	<u>380</u>	<u>24.0</u>	380	24.0	380	24.0
445.gobmk	647	16.2	<u>647</u>	<u>16.2</u>	646	16.2	<u>592</u>	<u>17.7</u>	592	17.7	592	17.7
456.hmmmer	701	13.3	<u>701</u>	<u>13.3</u>	700	13.3	449	20.8	<u>449</u>	<u>20.8</u>	449	20.8
458.sjeng	<u>776</u>	<u>15.6</u>	775	15.6	780	15.5	740	16.3	743	16.3	<u>742</u>	<u>16.3</u>
462.libquantum	80.0	259	<u>79.8</u>	<u>260</u>	78.4	264	80.0	259	<u>79.8</u>	<u>260</u>	78.4	264
464.h264ref	1059	20.9	<u>1062</u>	<u>20.8</u>	1063	20.8	789	28.0	788	28.1	<u>788</u>	<u>28.1</u>
471.omnetpp	<u>531</u>	<u>11.8</u>	531	11.8	531	11.8	484	12.9	485	12.9	<u>484</u>	<u>12.9</u>
473.astar	582	12.1	<u>583</u>	<u>12.0</u>	583	12.0	<u>499</u>	<u>14.1</u>	495	14.2	499	14.1
483.xalancbmk	345	20.0	<u>345</u>	<u>20.0</u>	345	20.0	345	20.0	<u>345</u>	<u>20.0</u>	345	20.0

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

General Notes

All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmmer, for peak, are compiled in 64-bit mode
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
Hardware Prefetcher: Enabled
Adjacent Cache Line Prefetcher: Enabled
High Bandwidth Option: Disabled

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:

-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel
-par-runtime-control -opt-prefetch

C++ benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/spec/cpu2006.1.1/lib -lsmartheap

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

icc

401.bzip2: /opt/intel/Compiler/11.0/042/bin/intel64/icc
-L/opt/intel/Compiler/11.0/042/ipp/em64t/lib
-I/opt/intel/Compiler/11.0/042/ipp/em64t/include

456.hmmer: /opt/intel/Compiler/11.0/042/bin/intel64/icc
-L/opt/intel/Compiler/11.0/042/ipp/em64t/lib
-I/opt/intel/Compiler/11.0/042/ipp/em64t/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) -xSSE4.1 -ipo -O3
-no-prec-div -static -ansi-alias -opt-prefetch

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

403.gcc: -xSSE4.1 -ipo -O3 -no-prec-div -static -inline-alloc
-opt-malloc-options=3

429.mcf: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

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

456.hmmcr: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2
-ansi-alias -auto-ilp32

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

462.libquantum: basepeak = yes

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

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -ansi-alias -opt-ra-region-strategy=block
-Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine
-Wl,-z,muldefs -L/spec/cpu2006.1.1/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-ic11.0-int-linux64-revA.20090713.14.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-ic11.0-int-linux64-revA.20090713.14.xml>

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For other inquiries, please contact webmaster@spec.org.

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