# SPEC® CINT2006 Result

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## Fujitsu

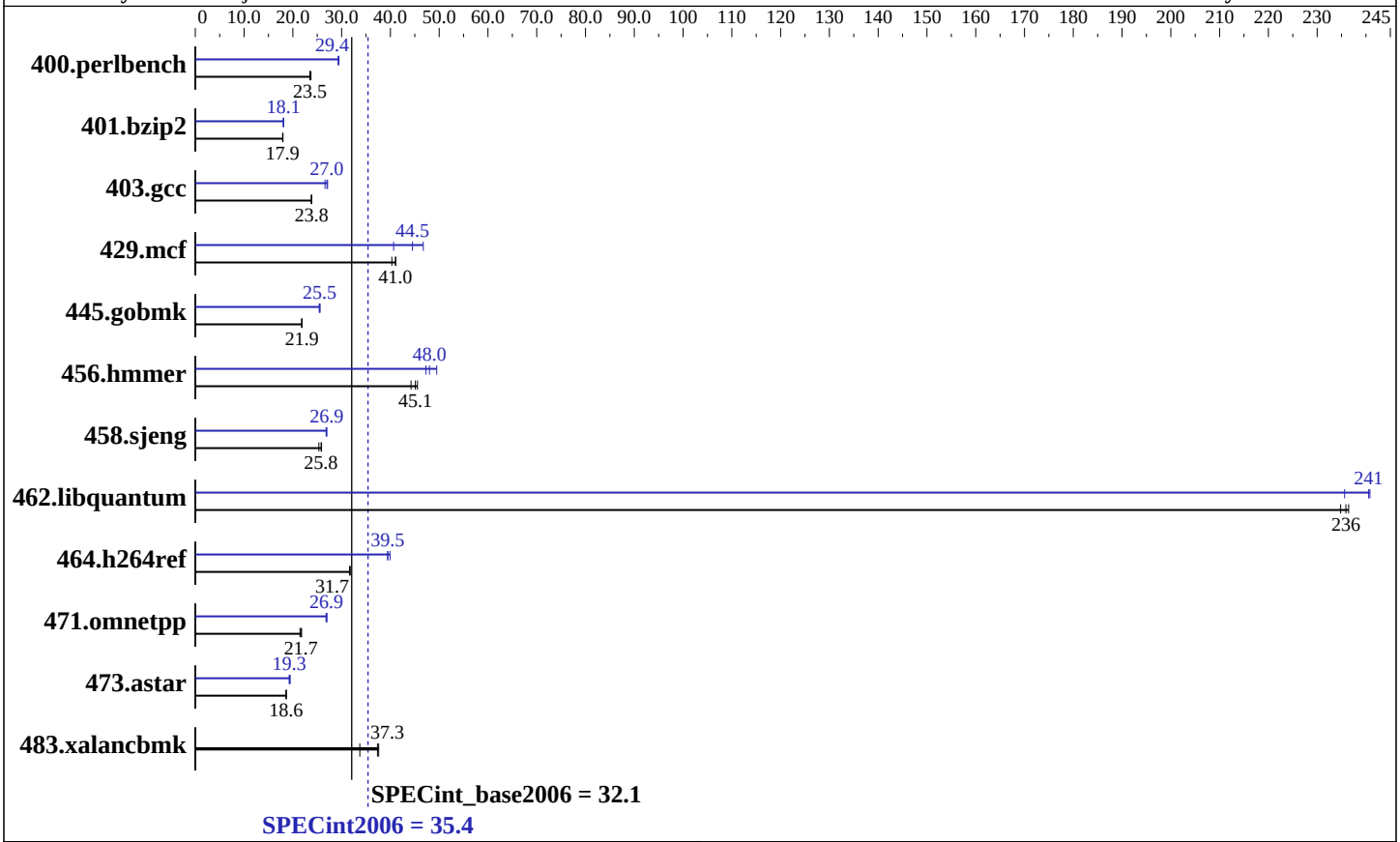
PRIMERGY RX100 S6, Intel Xeon X3460, 2.80 GHz

SPECint®2006 = 35.4

SPECint_base2006 = 32.1

**CPU2006 license:** 19
**Test sponsor:** Fujitsu
**Tested by:** Fujitsu

**Test date:** Dec-2009
**Hardware Availability:** Jan-2010
**Software Availability:** Nov-2009




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X3460 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.46 GHz |
| CPU MHz: | 2800 |
| FPU: | Integrated |
| CPU(s) enabled: | 4 cores, 1 chip, 4 cores/chip |
| CPU(s) orderable: | 1 chip |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 256 KB I+D on chip per core |
| L3 Cache: | 8 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 16 GB (4x4 GB PC3-10600R, 2 rank, CL9-9-9, ECC) |
| Disk Subsystem: | 1 x SATA, 250 GB, 7200 RPM |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-smp |
| Compiler: | Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091012 Package ID: l_cproc_p_11.1.059 |
| Auto Parallel: | Yes |
| File System: | ext3 |
| System State: | Multi-User Run Level 3 |
| Base Pointers: | 64-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 | **415** | **23.5** | 412 | 23.7 | 416 | 23.5 | **333** | **29.4** | 332 | 29.5 | 334 | 29.3 |
| 401.bzip2 | 539 | 17.9 | 537 | 18.0 | **538** | **17.9** | 536 | 18.0 | 532 | 18.1 | **533** | **18.1** |
| 403.gcc | 339 | 23.8 | **338** | **23.8** | 337 | 23.9 | **298** | **27.0** | 297 | 27.1 | 303 | 26.6 |
| 429.mcf | 222 | 41.1 | **222** | **41.0** | 226 | 40.3 | 195 | 46.7 | **205** | **44.5** | 224 | 40.7 |
| 445.gobmk | 480 | 21.9 | 481 | 21.8 | **480** | **21.9** | 410 | 25.6 | 413 | 25.4 | **411** | **25.5** |
| 456.hmmer | 211 | 44.2 | 205 | 45.6 | **207** | **45.1** | 189 | 49.5 | 197 | 47.3 | **194** | **48.0** |
| 458.sjeng | **469** | **25.8** | 478 | 25.3 | 468 | 25.9 | 449 | 26.9 | **449** | **26.9** | 451 | 26.8 |
| 462.libquantum | 88.2 | 235 | **87.8** | **236** | 87.6 | 236 | **86.1** | **241** | 87.9 | 236 | 86.0 | 241 |
| 464.h264ref | **698** | **31.7** | 700 | 31.6 | 697 | 31.7 | **561** | **39.5** | 554 | 39.9 | 561 | 39.4 |
| 471.omnetpp | 287 | 21.8 | **289** | **21.7** | 291 | 21.5 | **232** | **26.9** | 233 | 26.8 | 232 | 27.0 |
| 473.astar | **377** | **18.6** | 377 | 18.6 | 377 | 18.6 | 364 | 19.3 | 361 | 19.5 | **364** | **19.3** |
| 483.xalancbmk | 205 | 33.7 | **185** | **37.3** | 184 | 37.6 | 205 | 33.7 | **185** | **37.3** | 184 | 37.6 |

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

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

## General Notes

OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
For information about Fujitsu please visit: http://www.fujitsu.com

## Base Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

## Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64

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## Base Portability Flags (Continued)

445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

## Base Optimization Flags

C benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel
-par-runtime-control -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/libic11.1-64bit -lsmartheap64

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m64

400.perlbench: icc -m32

429.mcf: icc -m32

445.gobmk: icc -m32

464.h264ref: icc -m32

C++ benchmarks (except as noted below):
icpc -m64

471.omnetpp: icpc -m32

## Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
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_LP64 -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 -opt-prefetch

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

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc
-opt-malloc-options=3 -auto-ilp32

429.mcf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

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

462.libquantum: -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel
-par-runtime-control -opt-prefetch
-par-schedule-static=32768 -ansi-alias

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

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## Peak Optimization Flags (Continued)

471.omnetpp (continued):
-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
-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-int-linux64-revE.html

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


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