



SPEC® CINT2006 Result

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Fujitsu

SPECint®2006 = 43.9

PRIMERGY BX920 S4, Intel Xeon E5-2420 v2, 2.20 GHz

SPECint_base2006 = 41.4

CPU2006 license: 19

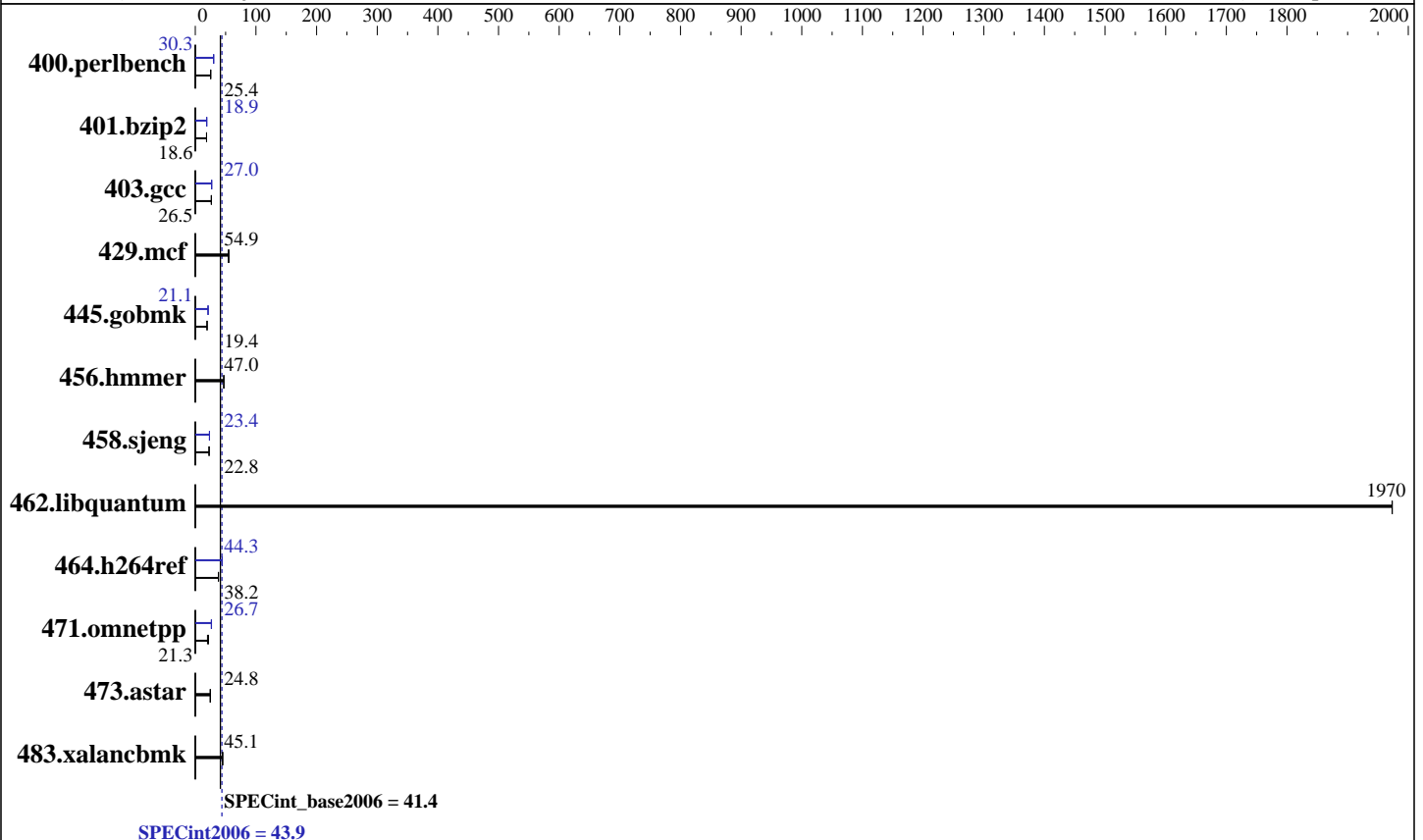
Test date: Dec-2013

Test sponsor: Fujitsu

Hardware Availability: Jan-2014

Tested by: Fujitsu

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2420 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 2.70 GHz
 CPU MHz: 2200
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 15 MB I+D on chip per chip
 Other Cache: None
 Memory: 192 GB (12 x 16 GB 2Rx4 PC3L-12800R-11, ECC)
 Disk Subsystem: 1 x SATA, 500 GB, 7200 RPM
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)
 2.6.32-358.11.1.el6.x86_64
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4
 System State: Run level 5 (multi-user)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V10.0



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Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|----------------|--------------------|--------------------|-------------------|--------------------|-------------------|--------------------|--------------------|--------------------|-------------------|--------------------|-------------------|--------------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 386 | 25.3 | <u>385</u> | <u>25.4</u> | 384 | 25.4 | <u>322</u> | <u>30.3</u> | 323 | 30.2 | <u>323</u> | <u>30.3</u> |
| 401.bzip2 | 520 | 18.6 | <u>520</u> | <u>18.6</u> | 520 | 18.6 | <u>512</u> | <u>18.9</u> | 512 | 18.9 | 512 | 18.8 |
| 403.gcc | 303 | 26.5 | 304 | 26.5 | <u>304</u> | <u>26.5</u> | <u>298</u> | <u>27.0</u> | 298 | 27.0 | 299 | 27.0 |
| 429.mcf | 167 | 54.6 | <u>166</u> | <u>54.9</u> | 165 | 55.4 | 167 | 54.6 | <u>166</u> | <u>54.9</u> | 165 | 55.4 |
| 445.gobmk | <u>540</u> | <u>19.4</u> | 539 | 19.5 | 541 | 19.4 | 497 | 21.1 | 498 | 21.1 | <u>497</u> | <u>21.1</u> |
| 456.hammer | 198 | 47.1 | 199 | 47.0 | <u>198</u> | <u>47.0</u> | 198 | 47.1 | 199 | 47.0 | <u>198</u> | <u>47.0</u> |
| 458.sjeng | 532 | 22.7 | 532 | 22.8 | <u>532</u> | <u>22.8</u> | 518 | 23.4 | 517 | 23.4 | <u>518</u> | <u>23.4</u> |
| 462.libquantum | <u>10.5</u> | <u>1970</u> | 10.5 | 1970 | 10.5 | 1970 | <u>10.5</u> | <u>1970</u> | 10.5 | 1970 | 10.5 | 1970 |
| 464.h264ref | 580 | 38.1 | 579 | 38.2 | <u>580</u> | <u>38.2</u> | 499 | 44.4 | 499 | 44.3 | <u>499</u> | <u>44.3</u> |
| 471.omnetpp | <u>294</u> | <u>21.3</u> | 311 | 20.1 | 287 | 21.8 | <u>234</u> | <u>26.7</u> | 234 | 26.7 | 237 | 26.3 |
| 473.astar | 281 | 25.0 | <u>283</u> | <u>24.8</u> | 286 | 24.6 | 281 | 25.0 | <u>283</u> | <u>24.8</u> | 286 | 24.6 |
| 483.xalancbmk | <u>153</u> | <u>45.1</u> | 153 | 45.0 | 153 | 45.1 | <u>153</u> | <u>45.1</u> | 153 | 45.0 | 153 | 45.1 |

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

Submit Notes

The config file option 'submit' was used.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

BIOS configuration:
Energy Performance = Performance
Utilization Profile = Unbalanced

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/SPECcpu2006/libs/32:/SPECcpu2006/libs/64:/SPECcpu2006/sh"
OMP_NUM_THREADS = "12"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RedHat EL 6.4
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

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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
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:
-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs
-L/sh -lsmartheap64

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

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

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Peak Compiler Invocation (Continued)

400.perlbench: `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_IA32`

401.bzip2: `-DSPEC_CPU_LP64`

403.gcc: `-DSPEC_CPU_LP64`

429.mcf: `-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: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch -ansi-alias`

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

403.gcc: `-xAVX -ipo -O3 -no-prec-div -inline-calloc -opt-malloc-options=3 -auto-ilp32`

429.mcf: `basepeak = yes`

445.gobmk: `-xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -ansi-alias`

456.hmmer: `basepeak = yes`

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Peak Optimization Flags (Continued)

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

462.libquantum: basepeak = yes

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

C++ benchmarks:

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

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20131009.html>

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20131009.xml>

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

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

Tested with SPEC CPU2006 v1.2.

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