# SPEC® CINT2006 Result

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## Fujitsu

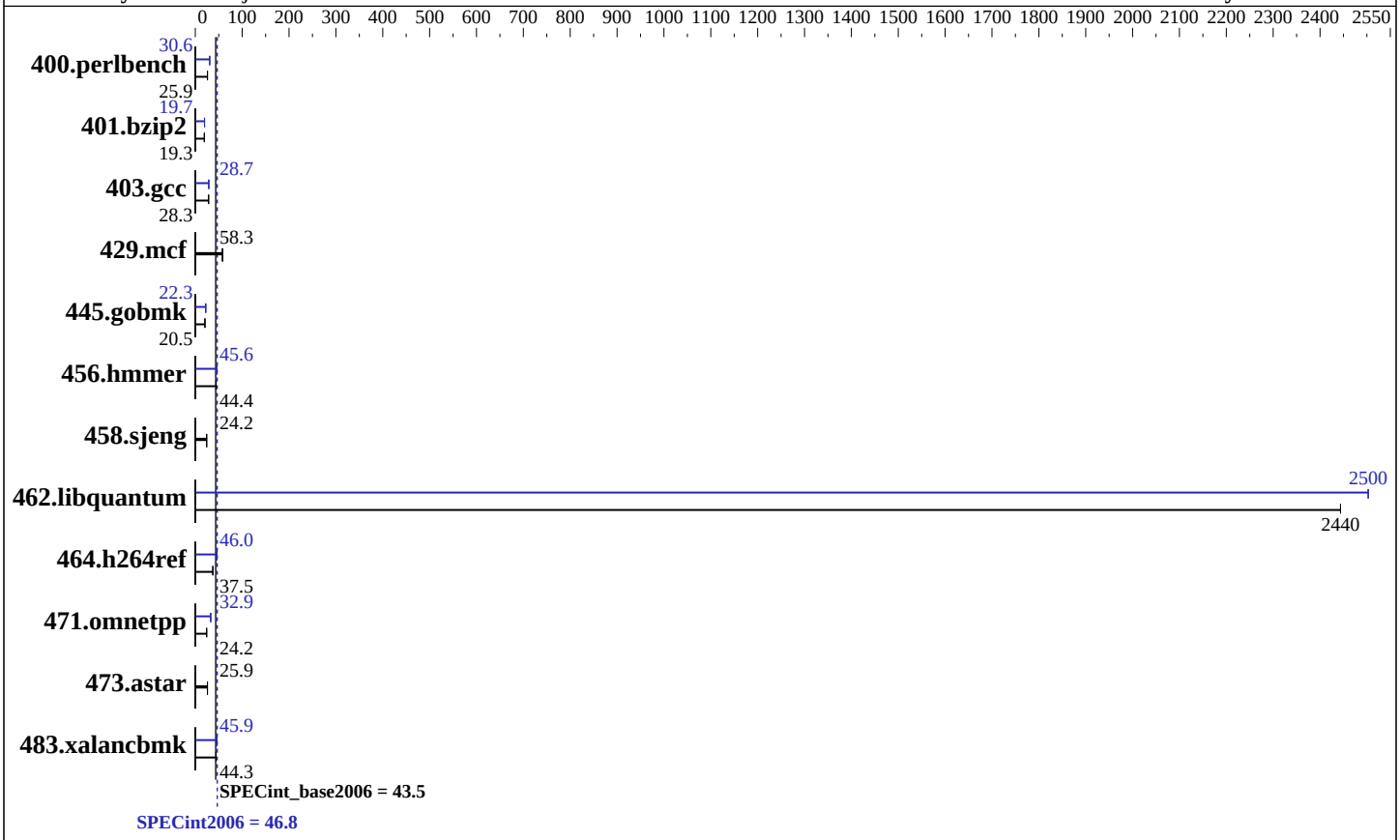
PRIMERGY BX920 S3, Intel Xeon E5-2450, 2.10 GHz

SPECint®2006 = 46.8

SPECint_base2006 = 43.5

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

**Test date:** Apr-2012
**Hardware Availability:** May-2012
**Software Availability:** Feb-2012




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2450 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.90 GHz |
| CPU MHz: | 2100 |
| FPU: | Integrated |
| CPU(s) enabled: | 16 cores, 2 chips, 8 cores/chip |
| 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: | 20 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 96 GB (12 x 8 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 6.2 (Santiago)<br>2.6.32-220.el6.x86_64 |
| Compiler: | C/C++: Version 12.1.0.293 of Intel C++ Studio XE for Linux |
| Auto Parallel: | Yes |
| File System: | ext4 |
| System State: | Run level 3 (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 | 377 | 25.9 | 377 | 25.9 | **377** | **25.9** | **319** | **30.6** | 319 | 30.6 | 319 | 30.7 |
| 401.bzip2 | 500 | 19.3 | 499 | 19.3 | **500** | **19.3** | 490 | 19.7 | **490** | **19.7** | 490 | 19.7 |
| 403.gcc | 285 | 28.3 | 284 | 28.3 | **285** | **28.3** | 280 | 28.7 | 281 | 28.7 | **280** | **28.7** |
| 429.mcf | 156 | 58.6 | **157** | **58.3** | 159 | 57.4 | 156 | 58.6 | **157** | **58.3** | 159 | 57.4 |
| 445.gobmk | **511** | **20.5** | 511 | 20.5 | 510 | 20.6 | **471** | **22.3** | 471 | 22.3 | 471 | 22.3 |
| 456.hmmer | **210** | **44.4** | 210 | 44.4 | 210 | 44.4 | 206 | 45.4 | 205 | 45.6 | **205** | **45.6** |
| 458.sjeng | 501 | 24.2 | 500 | 24.2 | **500** | **24.2** | 501 | 24.2 | 500 | 24.2 | **500** | **24.2** |
| 462.libquantum | 8.48 | 2440 | 8.48 | 2440 | **8.48** | **2440** | **8.28** | **2500** | 8.28 | 2500 | 8.28 | 2500 |
| 464.h264ref | **590** | **37.5** | 590 | 37.5 | 591 | 37.5 | 482 | 45.9 | 480 | 46.1 | **481** | **46.0** |
| 471.omnetpp | 258 | 24.2 | **259** | **24.2** | 259 | 24.1 | 190 | 32.8 | **190** | **32.9** | 190 | 32.9 |
| 473.astar | 272 | 25.8 | 270 | 26.0 | **271** | **25.9** | 272 | 25.8 | 270 | 26.0 | **271** | **25.9** |
| 483.xalancbmk | **156** | **44.3** | 156 | 44.3 | 155 | 44.4 | 150 | 45.9 | 150 | 45.9 | **150** | **45.9** |

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

## Operating System Notes

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

## Platform Notes

```
BIOS configuration:
Intel HT Technology = Disable
Frequency Floor Override = Enable
```

## General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/SPECcpu2006/libs/32:/SPECcpu2006/libs/64"
OMP_NUM_THREADS = "16"

 Binaries compiled on a system with 1x E3-1270v2 CPU + 32 GB
 memory using RHEL6.2
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 For information about Fujitsu please visit: http://www.fujitsu.com
```

## Base Compiler Invocation

C benchmarks:

```
icc  -m64
```

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## Base Compiler Invocation (Continued)

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:
-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -L/opt/SmartHeap/lib64 -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

445.gobmk: icc -m32

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## Peak Compiler Invocation (Continued)

464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m32`

473.astar: `icpc -m64`

## 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_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) `-prof-use`(pass 2) `-opt-prefetch -ansi-alias`

401.bzip2: `-xSSE4.2`(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: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-prof-use`(pass 2) `-ansi-alias`

456.hmmer: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32 -ansi-alias`

458.sjeng: `basepeak = yes`

462.libquantum: `-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32`

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## Peak Optimization Flags (Continued)

464.h264ref: `-xSSE4.2`(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: `-xSSE4.2`(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/opt/SmartHeap/lib -lsmartheap`

473.astar: `basepeak = yes`

483.xalancbmk: `-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias -Wl,-z,muldefs -L/opt/SmartHeap/lib -lsmartheap`

## 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/Intel-ic12.1-official-linux64.20111122.html
http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120320.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120320.xml


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