# SPEC® CINT2006 Result

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## Supermicro

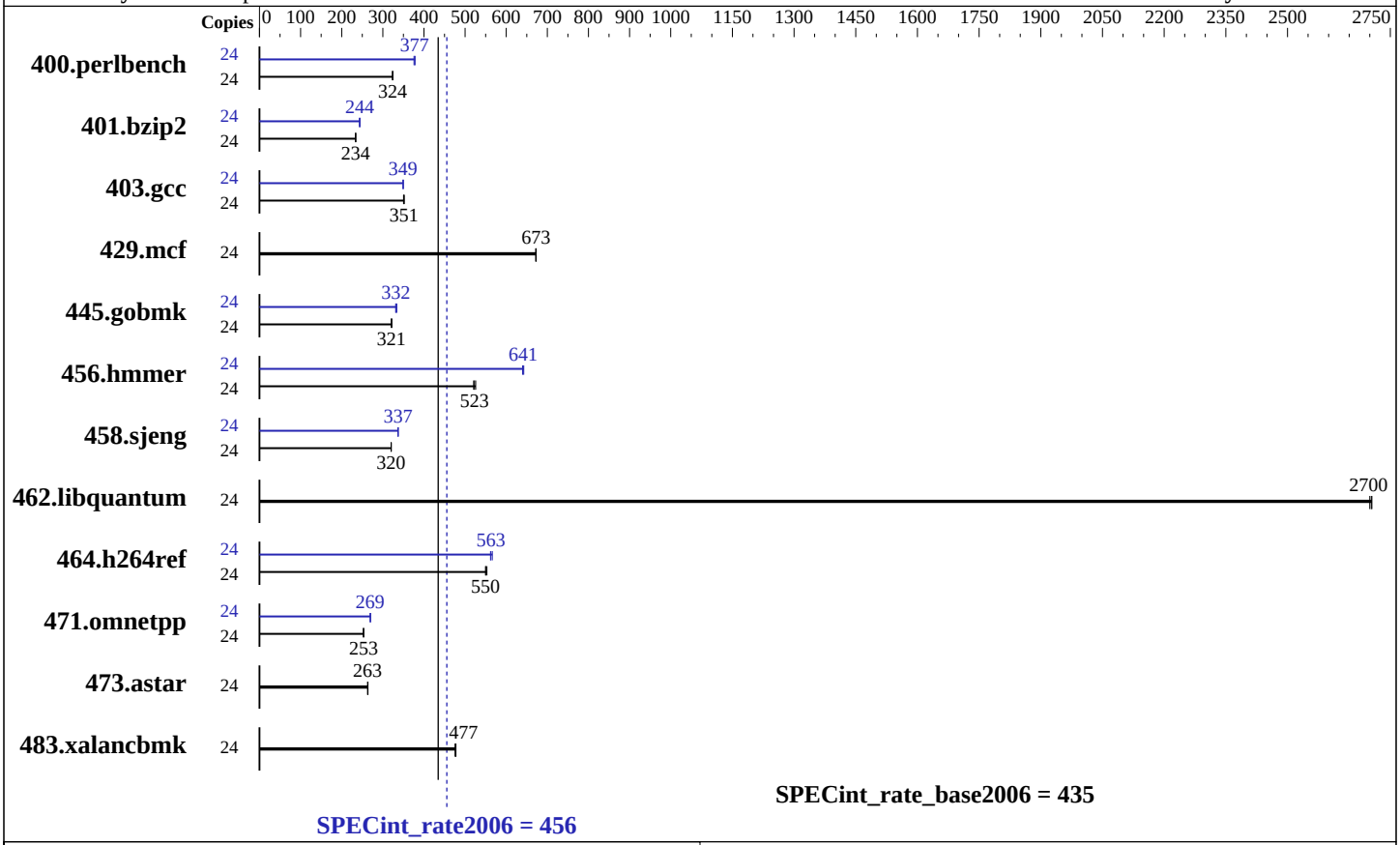
SuperServer 7047R-TXRF (X9DRX+-F, Intel Xeon E5-2640)

**SPECint®_rate2006 = 456**

**SPECint_rate_base2006 = 435**

**CPU2006 license:** 001176
**Test sponsor:** Supermicro
**Tested by:** Supermicro

**Test date:** May-2012
**Hardware Availability:** Mar-2012
**Software Availability:** Dec-2011




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2640 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.00 GHz |
| CPU MHz: | 2500 |
| FPU: | Integrated |
| CPU(s) enabled: | 12 cores, 2 chips, 6 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: | 15 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 256 GB (16 x 16 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz) |
| Disk Subsystem: | 1 x 2 TB SATA II, 7200 RPM |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server Release 6.2, Kernel 2.6.32-220.el6.x86_64 |
| Compiler: | C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux |
| Auto Parallel: | No |
| File System: | ext3 |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | Microquill SmartHeap V9.01 |

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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 | 24 | 725 | 324 | **724** | **324** | 724 | 324 | 24 | **621** | **377** | 620 | 378 | 624 | 376 |
| 401.bzip2 | 24 | **990** | **234** | 991 | 234 | 989 | 234 | 24 | 953 | 243 | 948 | 244 | **950** | **244** |
| 403.gcc | 24 | 551 | 350 | 549 | 352 | **550** | **351** | 24 | 552 | 350 | 553 | 349 | **553** | **349** |
| 429.mcf | 24 | 326 | 672 | **325** | **673** | 325 | 673 | 24 | 326 | 672 | **325** | **673** | 325 | 673 |
| 445.gobmk | 24 | 785 | 321 | 782 | 322 | **784** | **321** | 24 | 754 | 334 | **758** | **332** | 760 | 331 |
| 456.hmmer | 24 | 426 | 526 | **428** | **523** | 430 | 521 | 24 | 348 | 643 | **349** | **641** | 350 | 640 |
| 458.sjeng | 24 | 907 | 320 | **907** | **320** | 906 | 321 | 24 | 863 | 337 | 861 | 337 | **861** | **337** |
| 462.libquantum | 24 | 184 | 2700 | 184 | 2710 | **184** | **2700** | 24 | 184 | 2700 | 184 | 2710 | **184** | **2700** |
| 464.h264ref | 24 | 966 | 550 | 960 | 553 | **966** | **550** | 24 | 945 | 562 | **944** | **563** | 938 | 566 |
| 471.omnetpp | 24 | **593** | **253** | 592 | 253 | 593 | 253 | 24 | **557** | **269** | 555 | 270 | 557 | 269 |
| 473.astar | 24 | **640** | **263** | 640 | 263 | 639 | 264 | 24 | **640** | **263** | 640 | 263 | 639 | 264 |
| 483.xalancbmk | 24 | 348 | 476 | **347** | **477** | 347 | 478 | 24 | 348 | 476 | **347** | **477** | 347 | 478 |

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

## Submit Notes

```
The numactl mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate numactl commands to bind each copy to a specific processor.
For details, please see the config file.
```

## Operating System Notes

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

## General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RHEL5.5
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 Filesystem page cache cleared with:
 echo 1>       /proc/sys/vm/drop_caches
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
```

## Base Compiler Invocation

C benchmarks:
```
icc  -m32
```

C++ benchmarks:
```
icpc -m32
```

## Base Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

## Base Optimization Flags

C benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
-Wl,-z,muldefs -L/smartheap -lsmartheap
```

## Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

## Peak Compiler Invocation

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

400.perlbench: `icc -m64`

401.bzip2: `icc -m64`

456.hmmer: `icc -m64`

458.sjeng: `icc -m64`

C++ benchmarks:
```
icpc -m32
```

## Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -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) -auto-ilp32

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

403.gcc: -xAVX -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

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 -auto-ilp32

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) -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs -L/smartheap -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/Intel-ic12.1-official-linux64.20111122.html`
`http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-revA.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/Supermicro-Platform-Settings-revA.xml`


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