



# SPEC<sup>®</sup> CINT2006 Result

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## Supermicro

SuperServer 6027R-N3RFT+ (X9DRW-3TF+, Intel E5-2620)

SPECint<sup>®</sup>\_rate2006 = 391

SPECint\_rate\_base2006 = 373

CPU2006 license: 001176

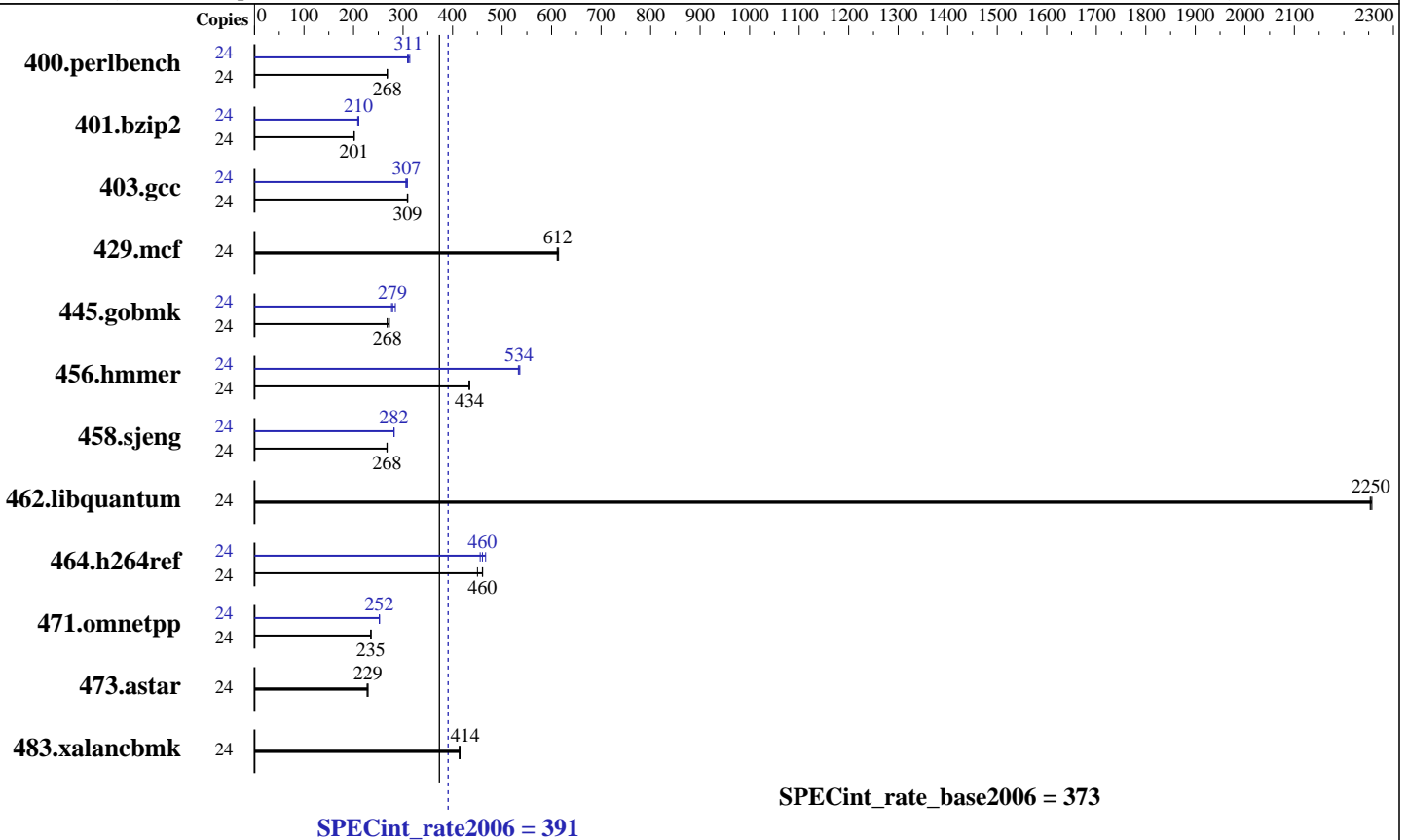
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Apr-2012

Hardware Availability: Mar-2012

Software Availability: Oct-2011



### Hardware

CPU Name: Intel Xeon E5-2620  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz  
 CPU MHz: 2000  
 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: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
 Disk Subsystem: 1 x 1 TB SATA II, 7200 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server Release 6.1, Kernel 2.6.32-131.0.15.el6.x86\_64  
 Compiler: C/C++; Version 12.1.0.225 of Intel C++ Studio XE for Linux  
 Auto Parallel: No  
 File System: ext4  
 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     | 876        | 268         | <b>874</b>  | <b>268</b> | 874         | 268        | 24     | <b>754</b> | <b>311</b>  | 759         | 309        | 748         | 314        |
| 401.bzip2      | 24     | 1148       | 202         | <b>1153</b> | <b>201</b> | 1154        | 201        | 24     | 1111       | 208         | <b>1102</b> | <b>210</b> | 1100        | 211        |
| 403.gcc        | 24     | 624        | 310         | 626         | 309        | <b>625</b>  | <b>309</b> | 24     | 632        | 306         | 626         | 309        | <b>629</b>  | <b>307</b> |
| 429.mcf        | 24     | 356        | 614         | 358         | 611        | <b>358</b>  | <b>612</b> | 24     | 356        | 614         | 358         | 611        | <b>358</b>  | <b>612</b> |
| 445.gobmk      | 24     | 939        | 268         | 924         | 272        | <b>939</b>  | <b>268</b> | 24     | 909        | 277         | <b>903</b>  | <b>279</b> | 885         | 284        |
| 456.hammer     | 24     | 517        | 433         | 515         | 435        | <b>516</b>  | <b>434</b> | 24     | 420        | 533         | <b>419</b>  | <b>534</b> | 418         | 536        |
| 458.sjeng      | 24     | 1086       | 267         | 1084        | 268        | <b>1085</b> | <b>268</b> | 24     | 1030       | 282         | <b>1031</b> | <b>282</b> | 1031        | 282        |
| 462.libquantum | 24     | <b>221</b> | <b>2250</b> | 221         | 2250       | 220         | 2260       | 24     | <b>221</b> | <b>2250</b> | 221         | 2250       | 220         | 2260       |
| 464.h264ref    | 24     | 1180       | 450         | 1153        | 461        | <b>1154</b> | <b>460</b> | 24     | 1165       | 456         | 1138        | 467        | <b>1154</b> | <b>460</b> |
| 471.omnetpp    | 24     | <b>638</b> | <b>235</b>  | 638         | 235        | 638         | 235        | 24     | <b>595</b> | <b>252</b>  | 594         | 253        | 595         | 252        |
| 473.astar      | 24     | 741        | 227         | 735         | 229        | <b>736</b>  | <b>229</b> | 24     | 741        | 227         | 735         | 229        | <b>736</b>  | <b>229</b> |
| 483.xalancbmk  | 24     | <b>400</b> | <b>414</b>  | 400         | 414        | 399         | 415        | 24     | <b>400</b> | <b>414</b>  | 400         | 414        | 399         | 415        |

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>



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## 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



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## 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



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## 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-ic12.1-official-linux64.20111122.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

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