



# SPEC® CINT2006 Result

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## Supermicro

SuperServer 2027R-WRF (X9DRW-iF, Intel Xeon E5-2650)

SPECint®\_rate2006 = 539

SPECint\_rate\_base2006 = 514

CPU2006 license: 001176

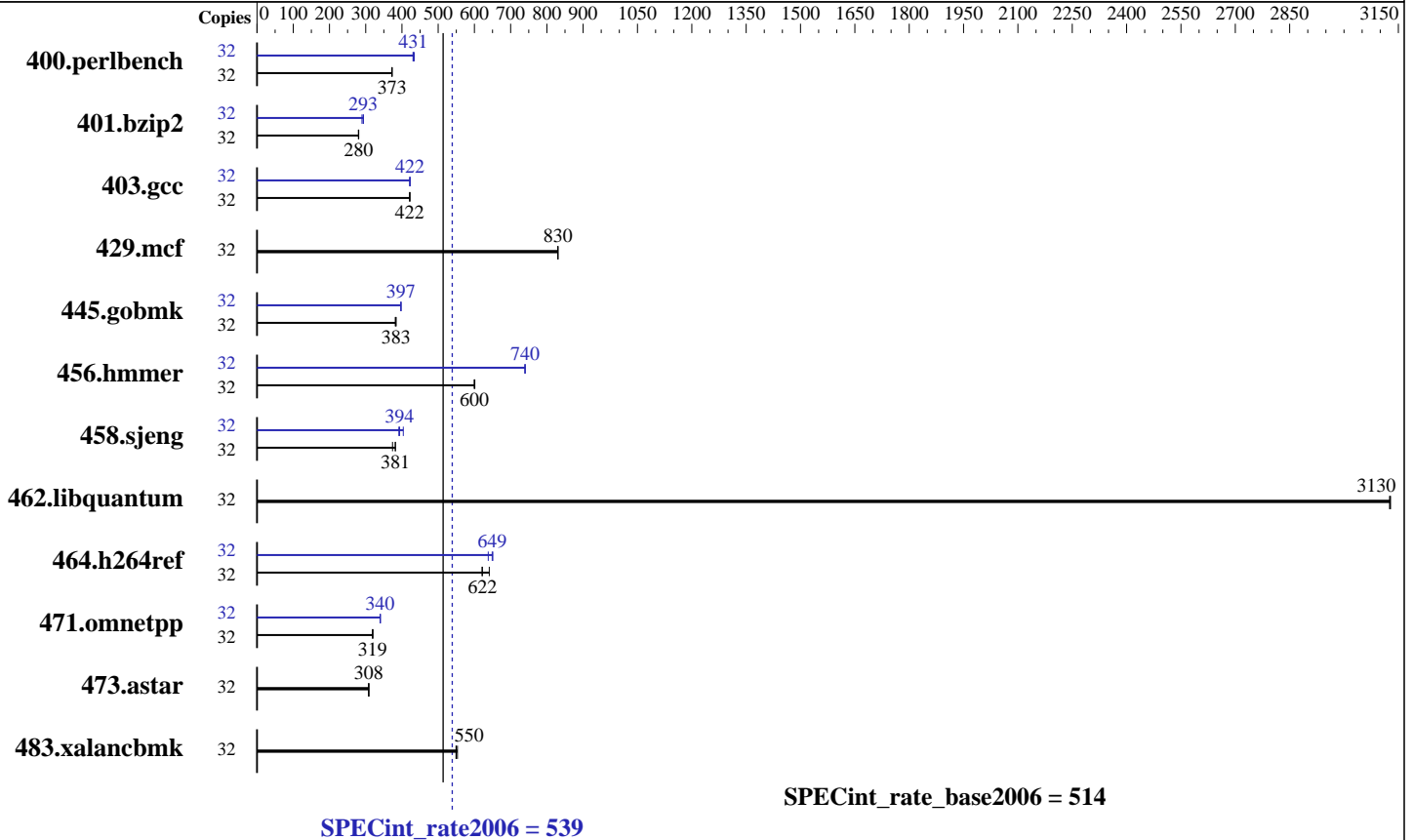
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Jun-2012

Hardware Availability: Mar-2012

Software Availability: Dec-2011



### Hardware

CPU Name: Intel Xeon E5-2650  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 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: 20 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 750 GB SATA III, 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: 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  | 32     | <b>839</b>  | <b>373</b> | 840        | 372        | 838         | 373         | 32     | <b>725</b> | <b>431</b> | 720         | 434        | 726        | 431         |
| 401.bzip2      | 32     | <b>1102</b> | <b>280</b> | 1103       | 280        | 1100        | 281         | 32     | 1066       | 290        | <b>1054</b> | <b>293</b> | 1051       | 294         |
| 403.gcc        | 32     | 611         | 421        | 611        | 422        | <b>611</b>  | <b>422</b>  | 32     | <b>610</b> | <b>422</b> | 612         | 421        | 609        | 423         |
| 429.mcf        | 32     | <b>351</b>  | <b>830</b> | 351        | 831        | 351         | 830         | 32     | <b>351</b> | <b>830</b> | 351         | 831        | 351        | 830         |
| 445.gobmk      | 32     | 875         | 384        | <b>876</b> | <b>383</b> | 880         | 382         | 32     | 845        | 397        | 845         | 397        | <b>845</b> | <b>397</b>  |
| 456.hammer     | 32     | 497         | 601        | 498        | 600        | <b>498</b>  | <b>600</b>  | 32     | <b>404</b> | <b>740</b> | 404         | 739        | 403        | 740         |
| 458.sjeng      | 32     | 1013        | 382        | 1035       | 374        | <b>1015</b> | <b>381</b>  | 32     | <b>984</b> | <b>394</b> | 989         | 391        | 959        | 404         |
| 462.libquantum | 32     | 212         | 3130       | 212        | 3130       | <b>212</b>  | <b>3130</b> | 32     | 212        | 3130       | 212         | 3130       | <b>212</b> | <b>3130</b> |
| 464.h264ref    | 32     | 1140        | 621        | 1105       | 641        | <b>1138</b> | <b>622</b>  | 32     | 1110       | 638        | <b>1091</b> | <b>649</b> | 1088       | 651         |
| 471.omnetpp    | 32     | 626         | 320        | <b>626</b> | <b>319</b> | 627         | 319         | 32     | 587        | 341        | <b>588</b>  | <b>340</b> | 588        | 340         |
| 473.astar      | 32     | 729         | 308        | 728        | 309        | <b>728</b>  | <b>308</b>  | 32     | 729        | 308        | 728         | 309        | <b>728</b> | <b>308</b>  |
| 483.xalancbmk  | 32     | <b>402</b>  | <b>550</b> | 402        | 549        | 399         | 553         | 32     | <b>402</b> | <b>550</b> | 402         | 549        | 399        | 553         |

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"  
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

## Platform Notes

Sysinfo program /usr/cpu2006/Docs/sysinfo  
\$Rev: 6775 \$ \$Date:: 2011-08-16 #\$ 8787f7622badcf24e01c368b1db4377c  
running on localhost.localdomain Tue Jun 19 15:53:55 2012

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:  
<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

From /proc/cpuinfo  
model name : Intel(R) Xeon(R) CPU E5-2650 0 @ 2.00GHz  
2 "physical id"s (chips)  
32 "processors"  
cores, siblings (Caution: counting these is hw and system dependent. The  
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### Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

```
cpu cores : 8
siblings  : 16
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB
```

```
From /proc/meminfo
MemTotal:      132139336 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.2 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux localhost.localdomain 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13
EST 2011 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Jun 19 15:51
```

```
SPEC is set to: /usr/cpu2006
Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/sda2       ext4      577G      70G  479G  13% /
```

(End of data from sysinfo program)

### 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  
runspec command invoked through numactl i.e.:  
numactl --interleave=all runspec <etc>

### Base Compiler Invocation

C benchmarks:  
icc -m32

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## Base Compiler Invocation (Continued)

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.xalanbmk: -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.xalanbmk: basepeak = yes



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## 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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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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