



# SPEC<sup>®</sup> CINT2006 Result

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## Supermicro

Motherboard X8DTT-IBQF (Intel Xeon E5640, 2.67 GHz)

SPECint<sup>®</sup>\_rate2006 = 239

SPECint\_rate\_base2006 = 225

CPU2006 license: 001176

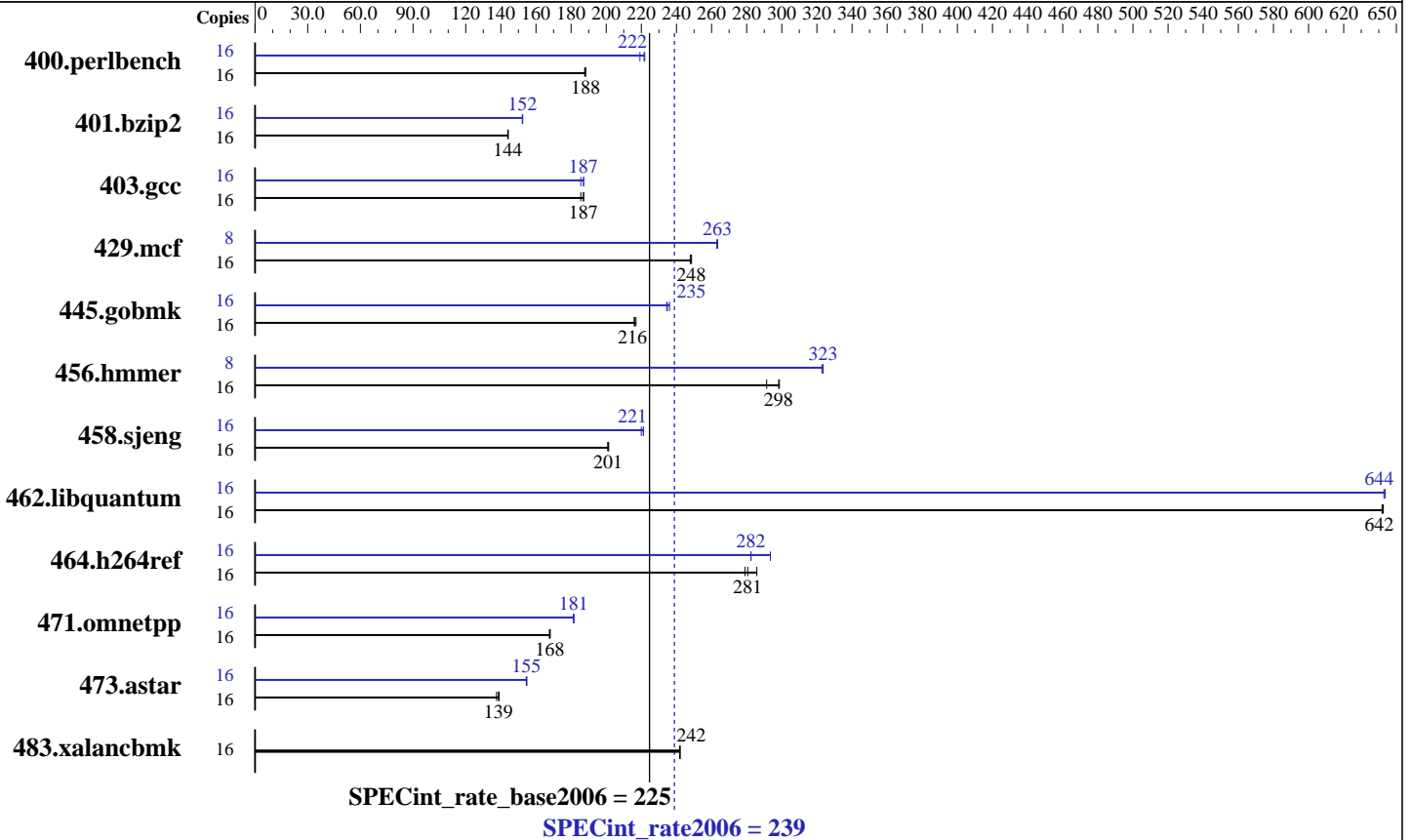
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Jun-2010

Hardware Availability: Mar-2010

Software Availability: Jan-2010



### Hardware

CPU Name: Intel Xeon E5640  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.93 GHz  
 CPU MHz: 2667  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 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: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 48 GB (12 x 4 GB DDR3-1066 RDIMM, ECC, CL7)  
 Disk Subsystem: 1 x 500 GB SATA II, 7200 RPM  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 11 (x86\_64)  
 Kernel 2.6.27.19-5-default  
 Compiler: Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1  
 Build 20091130 Package ID: l\_cproc\_p\_11.1.064  
 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 V8.1



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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  | 16     | 830        | 188        | 833         | 188        | <b>831</b> | <b>188</b> | 16     | <b>706</b>  | <b>222</b> | 713         | 219        | 704        | 222        |
| 401.bzip2      | 16     | 1071       | 144        | <b>1072</b> | <b>144</b> | 1073       | 144        | 16     | 1013        | 152        | <b>1014</b> | <b>152</b> | 1014       | 152        |
| 403.gcc        | 16     | 694        | 186        | <b>689</b>  | <b>187</b> | 688        | 187        | 16     | <b>689</b>  | <b>187</b> | 694         | 186        | 688        | 187        |
| 429.mcf        | 16     | <b>588</b> | <b>248</b> | 589         | 248        | 587        | 249        | 8      | 277         | 263        | <b>277</b>  | <b>263</b> | 277        | 263        |
| 445.gobmk      | 16     | <b>777</b> | <b>216</b> | 777         | 216        | 774        | 217        | 16     | 711         | 236        | 716         | 234        | <b>715</b> | <b>235</b> |
| 456.hammer     | 16     | 512        | 291        | 500         | 299        | <b>501</b> | <b>298</b> | 8      | 231         | 324        | <b>231</b>  | <b>323</b> | 231        | 323        |
| 458.sjeng      | 16     | <b>963</b> | <b>201</b> | 961         | 201        | 963        | 201        | 16     | 880         | 220        | 875         | 221        | <b>876</b> | <b>221</b> |
| 462.libquantum | 16     | 517        | 642        | 516         | 643        | <b>516</b> | <b>642</b> | 16     | 516         | 643        | <b>515</b>  | <b>644</b> | 515        | 644        |
| 464.h264ref    | 16     | 1239       | 286        | <b>1262</b> | <b>281</b> | 1269       | 279        | 16     | <b>1254</b> | <b>282</b> | 1254        | 282        | 1206       | 293        |
| 471.omnetpp    | 16     | 595        | 168        | <b>596</b>  | <b>168</b> | 596        | 168        | 16     | <b>551</b>  | <b>181</b> | 551         | 182        | 552        | 181        |
| 473.astar      | 16     | <b>810</b> | <b>139</b> | 817         | 138        | 808        | 139        | 16     | 726         | 155        | <b>726</b>  | <b>155</b> | 727        | 154        |
| 483.xalancbmk  | 16     | 456        | 242        | 456         | 242        | <b>456</b> | <b>242</b> | 16     | 456         | 242        | 456         | 242        | <b>456</b> | <b>242</b> |

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.  
numactl was used to bind copies to the cores

## Operating System Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run

## Platform Notes

Fan speed set to Full Speed in BIOS Setup.  
As tested, the system used a Supermicro CSE-827H-R1400B chassis.  
The chassis is bundled with a PWS-1K41P-1R power supply, 2 SNK-P0037P heatsinks, and 4 FAN-001111L4 cooling fans.

## General Notes

Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502

## 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:  
-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/home/cmplr/usr3/alrahate/cpu2006.1.1.icl1.1/libicl1.1-32bit -lsmarheap

## Base Other Flags

C benchmarks:  
403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

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

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

462.libquantum: icc -m64

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

473.astar: icpc -m64



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## Peak Portability Flags

```
400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -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) -static(pass 2)
               -prof-use(pass 2) -ansi-alias

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
            -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
            -prof-use(pass 2) -opt-prefetch -ansi-alias -auto-ilp32

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -static

429.mcf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -O2
            -ipo -no-prec-div -ansi-alias

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

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
            -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
            -prof-use(pass 2) -unroll4 -auto-ilp32

462.libquantum: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32
                -opt-prefetch

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
              -O3(pass 2) -no-prec-div(pass 2) -static(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)
              -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
              -L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -lsmartheap
```

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## Peak Optimization Flags (Continued)

```
473.astar: -xSSE4.2(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=routine -Wl,-z,muldefs
           -L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmartheap64
```

483.xalancbmk: basepeak = yes

## 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-ic11.1-linux64-revE.20100804.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100804.xml>

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

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