



# SPEC® CINT2006 Result

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## ASUSTeK Computer Inc.

SPECint®2006 = 39.4

ASUS TS500-E6 (Z8NA-D6) server system (Intel Xeon X5670)

SPECint\_base2006 = 36.7

CPU2006 license: 9016

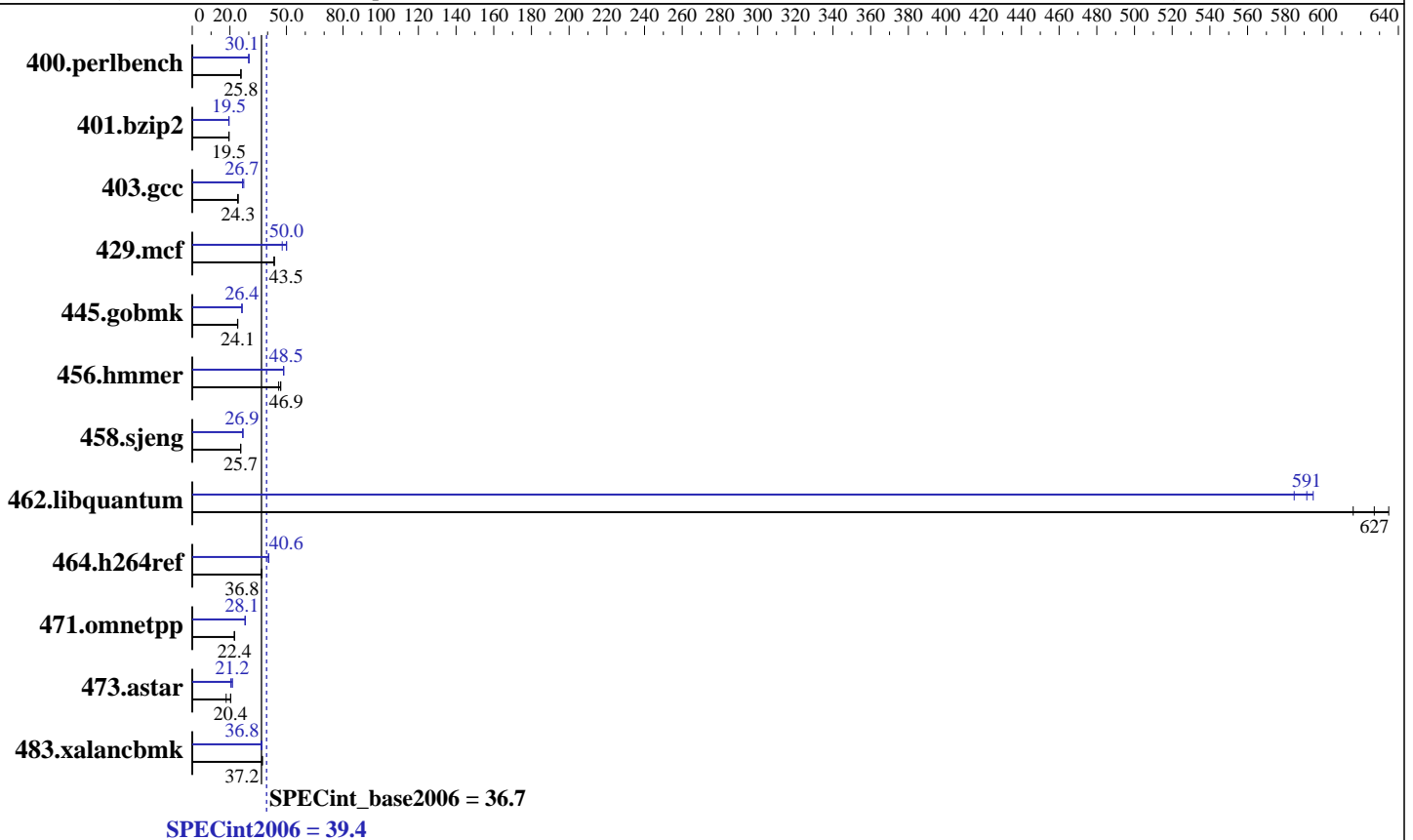
Test date: Jul-2010

Test sponsor: ASUSTeK Computer Inc.

Hardware Availability: Mar-2010

Tested by: ASUSTeK Computer Inc.

Software Availability: Jan-2010



### Hardware

CPU Name: Intel Xeon X5670  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz  
 CPU MHz: 2933  
 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: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 24 GB (6 x 4 GB PC3-10600R, CL=9)  
 Disk Subsystem: HITACHI HDP725050GLA380 1 x 500 GB SATAII, 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: Yes  
 File System: ReiserFS  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V8.1



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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	379	25.8	<b><u>378</u></b>	<b><u>25.8</u></b>	<b><u>325</u></b>	<b><u>30.1</u></b>	325	30.1	325	30.0
401.bzip2	496	19.5	495	19.5	<b><u>495</u></b>	<b><u>19.5</u></b>	495	19.5	497	19.4	<b><u>495</u></b>	<b><u>19.5</u></b>
403.gcc	<b><u>331</u></b>	<b><u>24.3</u></b>	330	24.4	334	24.1	<b><u>301</u></b>	<b><u>26.7</u></b>	302	26.7	294	27.4
429.mcf	210	43.5	210	43.4	<b><u>210</u></b>	<b><u>43.5</u></b>	191	47.7	<b><u>182</u></b>	<b><u>50.0</u></b>	182	50.1
445.gobmk	<b><u>436</u></b>	<b><u>24.1</u></b>	437	24.0	434	24.2	<b><u>397</u></b>	<b><u>26.4</u></b>	398	26.4	397	26.4
456.hammer	203	45.9	<b><u>199</u></b>	<b><u>46.9</u></b>	198	47.0	<b><u>192</u></b>	<b><u>48.5</u></b>	193	48.5	192	48.5
458.sjeng	<b><u>470</u></b>	<b><u>25.7</u></b>	471	25.7	470	25.7	451	26.8	450	26.9	<b><u>450</u></b>	<b><u>26.9</u></b>
462.libquantum	<b><u>33.0</u></b>	<b><u>627</u></b>	32.6	635	33.6	616	34.8	595	35.4	585	<b><u>35.0</u></b>	<b><u>591</u></b>
464.h264ref	<b><u>601</u></b>	<b><u>36.8</u></b>	602	36.7	598	37.0	545	40.6	547	40.4	<b><u>545</u></b>	<b><u>40.6</u></b>
471.omnetpp	279	22.4	279	22.4	<b><u>279</u></b>	<b><u>22.4</u></b>	222	28.1	223	28.1	<b><u>222</u></b>	<b><u>28.1</u></b>
473.astar	390	18.0	344	20.4	<b><u>344</u></b>	<b><u>20.4</u></b>	<b><u>330</u></b>	<b><u>21.2</u></b>	330	21.3	344	20.4
483.xalancbmk	186	37.2	<b><u>186</u></b>	<b><u>37.2</u></b>	186	37.1	188	36.7	<b><u>188</u></b>	<b><u>36.8</u></b>	187	36.9

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

## Operating System Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run  
OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to granularity=fine,scatter

## Component Notes

Tested system case compliance with Intel EEB 3.61 spec  
SSI Server Power Supply 650W or higher  
System was configured with ASPEED AST2050 VGA (on board VGA)

## General Notes

Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502

## Base Compiler Invocation

C benchmarks:  
icc -m64

C++ benchmarks:  
icpc -m64



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## 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 -static -parallel -opt-prefetch
```

C++ benchmarks:

```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -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
```

```
429.mcf: icc -m32
```

```
445.gobmk: icc -m32
```

```
464.h264ref: icc -m32
```

C++ benchmarks (except as noted below):

```
icpc -m32
```

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## Peak Compiler Invocation (Continued)

473.astar: icpc -m64

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
 401.bzip2: -DSPEC\_CPU\_LP64  
 403.gcc: -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 -opt-prefetch

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

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc  
 -opt-malloc-options=3 -auto-ilp32

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

462.libquantum: -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel  
 -opt-prefetch -par-schedule-static=32768 -ansi-alias

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

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## Peak Optimization Flags (Continued)

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

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: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch
              -Wl,-z,muldefs
              -L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -lsmartheap

```

## 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-revF.20100609.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revF.20100609.xml>

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