



# SPEC® CINT2006 Result

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## Fujitsu

**SPECint®2006 = 35.7**

PRIMERGY TX300 S6, Intel Xeon E5645, 2.40 GHz

**SPECint\_base2006 = 33.7**

CPU2006 license: 19

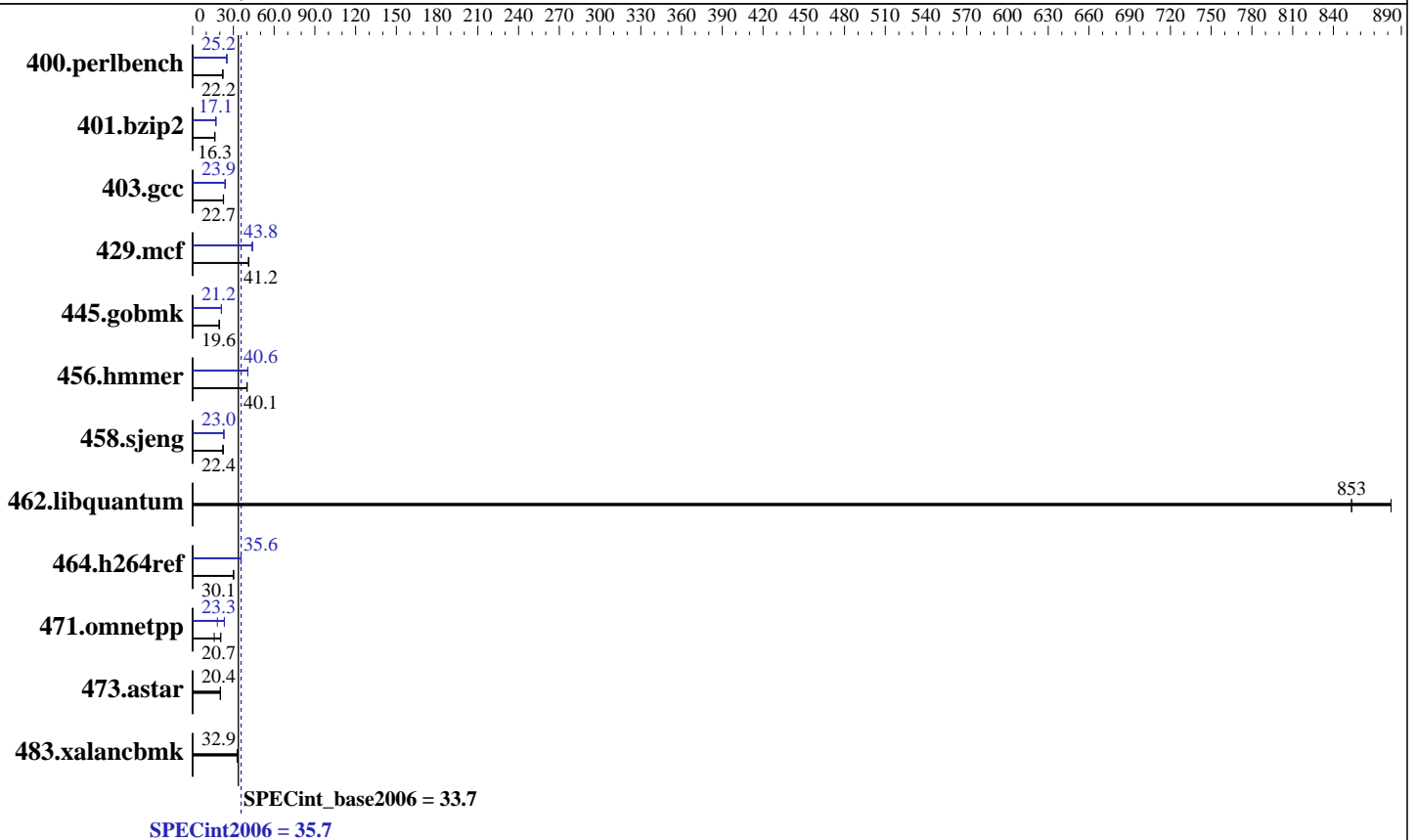
Test date: Mar-2011

Test sponsor: Fujitsu

Hardware Availability: Feb-2011

Tested by: Fujitsu

Software Availability: Jan-2011



### Hardware

CPU Name: Intel Xeon E5645  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2400  
 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: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)  
 Disk Subsystem: 1 x SAS, 300 GB, 10000 RPM  
 Other Hardware: --

### Software

Operating System: SUSE Linux Enterprise Server 11 (x86\_64) with SP1, Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V9.01



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	440	22.2	<b>440</b>	<b>22.2</b>	440	22.2	387	25.2	<b>388</b>	<b>25.2</b>	389	25.1
401.bzip2	591	16.3	591	16.3	<b>591</b>	<b>16.3</b>	564	17.1	<b>564</b>	<b>17.1</b>	564	17.1
403.gcc	<b>355</b>	<b>22.7</b>	354	22.8	356	22.6	337	23.9	337	23.9	<b>337</b>	<b>23.9</b>
429.mcf	221	41.2	<b>221</b>	<b>41.2</b>	221	41.3	208	43.8	<b>208</b>	<b>43.8</b>	207	44.1
445.gobmk	<b>536</b>	<b>19.6</b>	537	19.5	529	19.8	497	21.1	<b>494</b>	<b>21.2</b>	494	21.2
456.hammer	<b>233</b>	<b>40.1</b>	233	40.1	233	40.0	229	40.7	230	40.6	<b>230</b>	<b>40.6</b>
458.sjeng	<b>541</b>	<b>22.4</b>	542	22.3	538	22.5	526	23.0	527	23.0	<b>527</b>	<b>23.0</b>
462.libquantum	24.3	853	<b>24.3</b>	<b>853</b>	23.5	882	24.3	853	<b>24.3</b>	<b>853</b>	23.5	882
464.h264ref	737	30.0	<b>736</b>	<b>30.1</b>	733	30.2	622	35.6	<b>622</b>	<b>35.6</b>	621	35.6
471.omnetpp	302	20.7	<b>303</b>	<b>20.7</b>	393	15.9	343	18.2	<b>268</b>	<b>23.3</b>	268	23.4
473.astar	<b>344</b>	<b>20.4</b>	345	20.4	343	20.5	<b>344</b>	<b>20.4</b>	345	20.4	343	20.5
483.xalancbmk	210	32.8	209	33.1	<b>210</b>	<b>32.9</b>	210	32.8	209	33.1	<b>210</b>	<b>32.9</b>

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 stacksize to unlimited prior to run
'nodenv /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

## Platform Notes

BIOS configuration:  
Data Reuse Optimization = Disable  
Intel HT Technology = Disable

## General Notes

OMP\_NUM\_THREADS set to number of cores  
This result was measured on the PRIMERGY TX300 S6. The PRIMERGY TX300 S6 and the PRIMERGY RX300 S6 are electronically equivalent.  
For information about Fujitsu please visit: <http://www.fujitsu.com>  
Binaries were compiled on RHEL5.5 with binutils-2.17.50.0.6-14.el5

Submitted\_by: "Klassen, Peter" <peter.klassen@ts.fujitsu.com>  
Submitted: Mon Mar 28 12:08:25 EDT 2011  
Submission: cpu2006-20110328-15217.sub



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## Base Compiler Invocation

C benchmarks:  
icc -m64  
  
C++ benchmarks:  
icpc -m64

## 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 -parallel -opt-prefetch -auto-p32  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT  
  
C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/smartheap -lsmartheap64  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

## Base Other Flags

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

## Peak Compiler Invocation

C benchmarks (except as noted below):  
icc -m64

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## Peak Compiler Invocation (Continued)

400.perlbench: `icc -m32`

429.mcf: `icc -m32`

445.gobmk: `icc -m32`

464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):  
`icpc -m64`

471.omnetpp: `icpc -m32`

## 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_LP64 -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) -prof-use(pass 2)`  
`-opt-prefetch -ansi-alias`  
`-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT`

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

403.gcc: `-xSSE4.2 -ipo -O3 -no-prec-div -inline-alloc`  
`-opt-malloc-options=3 -auto-ilp32`  
`-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT`

429.mcf: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`  
`-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)`  
`-auto-ilp32 -ansi-alias`  
`-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT`

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## Peak Optimization Flags (Continued)

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-auto-ilp32 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
-ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll2 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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)  
-opt-ra-region-strategy=block -ansi-alias -Wl,-z,muldefs  
-L/smartheap -lsmartheap  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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-ic12.0-linux64-revB.20110316.html>  
<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.20110316.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.20110316.xml>  
<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.20110316.xml>



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

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