# SPEC® CINT2006 Result

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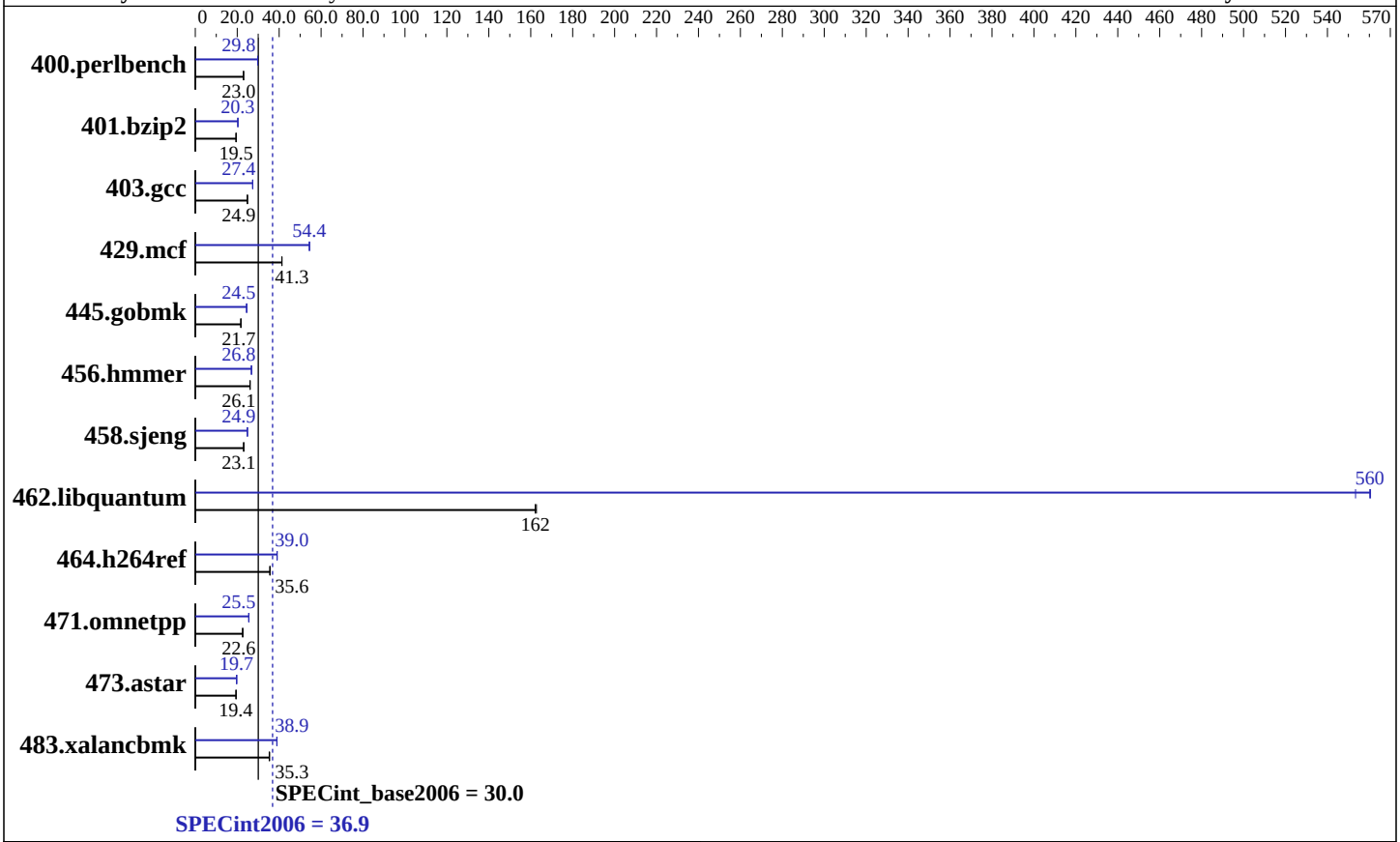
## Sun Microsystems

## Sun Blade X6270 (Intel Xeon X5570 2.93GHz)

| | |
|---|---|
| SPECint®2006 = | 36.9 |
| SPECint_base2006 = | 30.0 |

**CPU2006 license:** 6
**Test sponsor:** Sun Microsystems
**Tested by:** Sun Microsystems

**Test date:** Apr-2009
**Hardware Availability:** Apr-2009
**Software Availability:** Jun-2009




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X5570 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.33 GHz |
| CPU MHz: | 2933 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 2 chips, 4 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1 or 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: | 8 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 24 GB (6 x 4 GB DDR3-1333) |
| Disk Subsystem: | 134 GB using 1x ST914602SSUN146GSAS SAS 10 K RPM |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | OpenSolaris 2008.11 |
| Compiler: | Sun Studio 12 Update 1 (internal build 39.0) |
| Auto Parallel: | Yes |
| File System: | zfs with gzip compression |
| System State: | Default |
| Base Pointers: | 64-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | MicroQuill SmartHeap Library 9.01 for x64 |

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## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 425 | 23.0 | 424 | 23.0 | **424** | **23.0** | **328** | **29.8** | 328 | 29.8 | 329 | 29.7 |
| 401.bzip2 | 496 | 19.4 | 496 | 19.5 | **496** | **19.5** | 475 | 20.3 | **475** | **20.3** | 475 | 20.3 |
| 403.gcc | 324 | 24.9 | **324** | **24.9** | 324 | 24.8 | **294** | **27.4** | 294 | 27.4 | 294 | 27.4 |
| 429.mcf | 221 | 41.3 | **221** | **41.3** | 221 | 41.3 | **167** | **54.4** | 167 | 54.5 | 168 | 54.4 |
| 445.gobmk | 482 | 21.7 | **482** | **21.7** | 482 | 21.8 | 427 | 24.5 | **428** | **24.5** | 429 | 24.4 |
| 456.hmmer | 357 | 26.1 | 357 | 26.1 | **357** | **26.1** | 348 | 26.8 | **348** | **26.8** | 348 | 26.8 |
| 458.sjeng | 524 | 23.1 | **524** | **23.1** | 524 | 23.1 | **487** | **24.9** | 487 | 24.8 | 487 | 24.9 |
| 462.libquantum | **128** | **162** | 128 | 162 | 127 | 163 | **37.0** | **560** | 37.4 | 553 | 37.0 | 561 |
| 464.h264ref | 621 | 35.6 | 622 | 35.6 | **621** | **35.6** | 567 | 39.0 | **567** | **39.0** | 567 | 39.0 |
| 471.omnetpp | 276 | 22.7 | 277 | 22.6 | **277** | **22.6** | 244 | 25.6 | **245** | **25.5** | 245 | 25.5 |
| 473.astar | 361 | 19.4 | 361 | 19.4 | **361** | **19.4** | 356 | 19.7 | 356 | 19.7 | **356** | **19.7** |
| 483.xalancbmk | 195 | 35.5 | **195** | **35.3** | 196 | 35.2 | 177 | 39.0 | **177** | **38.9** | 177 | 38.9 |

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

## Operating System Notes

```
ulimit -s 131072  (shell): increases stack

/etc/system parameters
   tune_t_fsflushr=10
   autoup=900
   set lpg_alloc_prefer=1
   set zfs:zfs_arc_max = 0x10000000
```

## Platform Notes

```
AMIBIOS Build Date 1/26/09 ID 07.01.36.00
  Default BIOS settings used except:
  Intel VT-d: Disabled.  VT-d, if enabled, supports
  remapping of I/O DMA transfers for virtualization.
```

## General Notes

```
Environment variables set by runspec before the start of the run:
OMP_NUM_THREADS = "8"
SUNW_MP_PROCBIND = "true"
SUNW_MP_THR_IDLE = "SPIN"
```

## Base Compiler Invocation

C benchmarks:
```
/data1/SUNWspro.b39/SUNWspro/bin/cc
```

C++ benchmarks:
```
/data1/SUNWspro.b39/SUNWspro/bin/CC
```

## Base Portability Flags

400.perlbench: `-DSPEC_CPU_LP64 -DSPEC_CPU_SOLARIS_X64`
401.bzip2: `-DSPEC_CPU_LP64`
403.gcc: `-DSPEC_CPU_LP64 -DSPEC_CPU_SOLARIS`
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_SOLARIS`
464.h264ref: `-DSPEC_CPU_LP64`
471.omnetpp: `-DSPEC_CPU_LP64`
473.astar: `-DSPEC_CPU_LP64`
483.xalancbmk: `-DSPEC_CPU_LP64 -DSPEC_CPU_SOLARIS`

## Base Optimization Flags

C benchmarks:
```
-fast -xipo=2 -m64 -xpagesize=2M -xprefetch -xalias_level=std
```

C++ benchmarks:
```
-fast -xipo=2 -m64 -xpagesize=2M -xvector=simd -xprefetch=no%auto
-xalias_level=compatible
-L/data1/SmartHeap_9/lib -R/data1/SmartHeap_9/lib -lsmartheap64
-library=stlport4
```

## Base Other Flags

C benchmarks:
```
-V -# -xjobs=16
```

C++ benchmarks:
```
-verbose=diags,version -xjobs=16
```

## Peak Compiler Invocation

C benchmarks:
/data1/SUNWspro.b39/SUNWspro/bin/cc

C++ benchmarks:
/data1/SUNWspro.b39/SUNWspro/bin/CC

## Peak Portability Flags

400.perlbench: -DSPEC_CPU_SOLARIS_IA32
403.gcc: -DSPEC_CPU_LP64 -DSPEC_CPU_SOLARIS
462.libquantum: -DSPEC_CPU_SOLARIS
483.xalancbmk: -DSPEC_CPU_SOLARIS

## Peak Optimization Flags

C benchmarks:

400.perlbench: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=2M -xvector=simd -xalias_level=std
-xprefetch=no%auto -lbsdmalloc -lumem

401.bzip2: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xpagesize=2M -xalias_level=strong -xprefetch=no%auto
-lumem

403.gcc: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=2M -xalias_level=std -m64 -xprefetch=no%auto

429.mcf: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xalias_level=strict -xprefetch=no%auto -lbsdmalloc

445.gobmk: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -m64 -xpagesize=2M
-xrestrict -xalias_level=strong -xdepend -xautopar -lmvec

456.hmmer: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64

458.sjeng: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xpagesize=2M -xvector=simd -xrestrict -xalias_level=std
-xprefetch=no%auto

Continued on next page

## Peak Optimization Flags (Continued)

462.libquantum: `-fast -xipo=2 -m64 -xpagesize=2M -xautopar -xreduction`

464.h264ref: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xipo=2 -m64`
`-xpagesize=2M -xalias_level=strong -xautopar`

C++ benchmarks:

471.omnetpp: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xipo=2`
`-xpagesize=2M`
`-L/data1/SmartHeap_9/lib -R/data1/SmartHeap_9/lib -lsmartheap`
`-library=stlport4`

473.astar: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xipo=2 -m64`
`-xpagesize=2M`
`-L/data1/SmartHeap_9/lib -R/data1/SmartHeap_9/lib -lsmartheap_mt64`
`-xalias_level=compatible -library=stlport4 -xautopar`

483.xalancbmk: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xipo=2 -m64`
`-xpagesize=2M -xunroll=12`
`-L/data1/SmartHeap_9/lib -R/data1/SmartHeap_9/lib -lsmartheap64`
`-library=stlport4`

## Peak Other Flags

C benchmarks:
`-V -# -xjobs=16`

C++ benchmarks:
`-verbose=diags,version -xjobs=16`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Sun-OpenSolaris-Studio-x86_64.20090710.00.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Sun-OpenSolaris-Studio-x86_64.20090710.00.xml`

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