SPEC® CINT2006 Result

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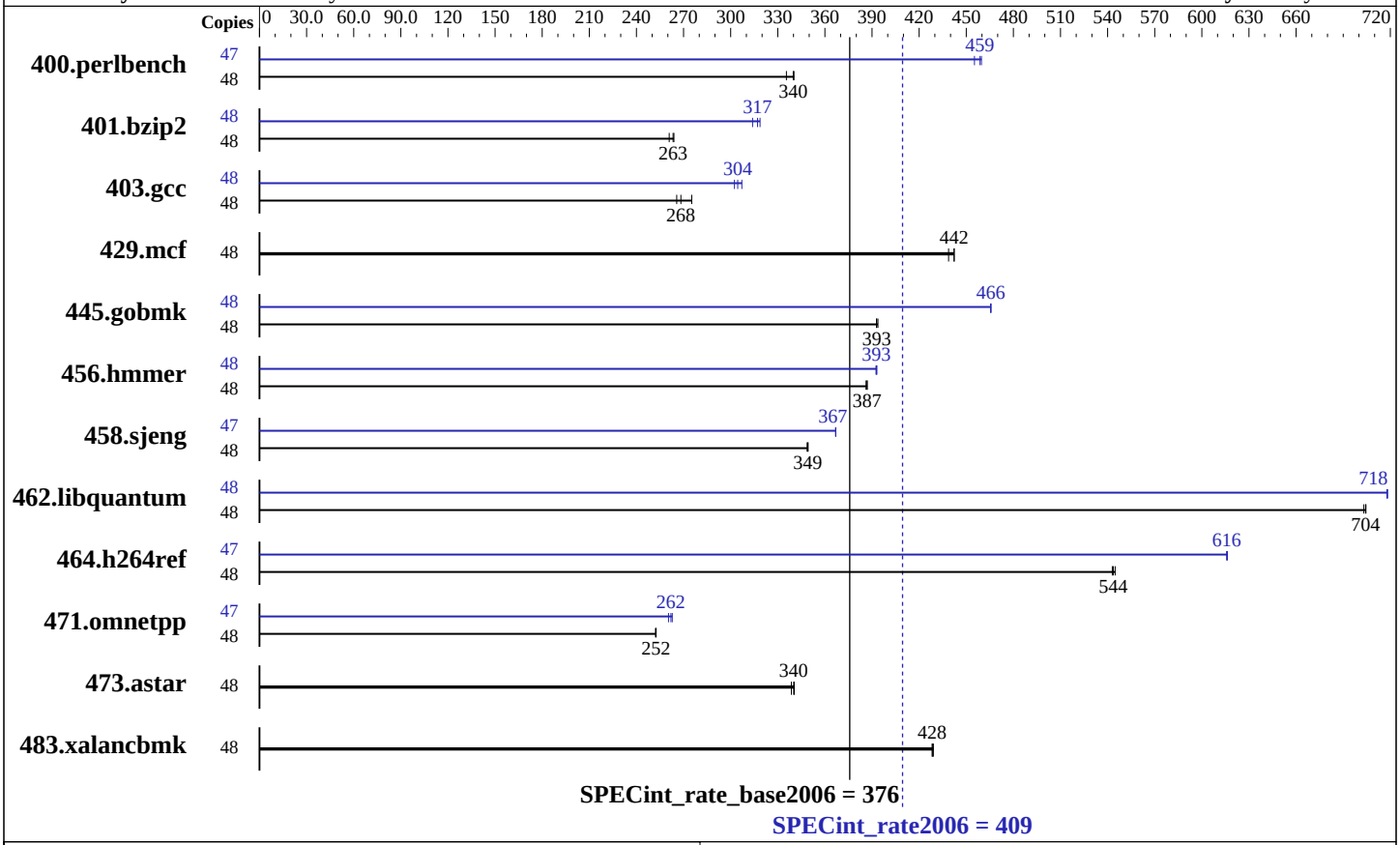
Sun Microsystems
Sun Fire E20K

SPECint®_rate2006 = 409

SPECint_rate_base2006 = 376

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

Test date: Mar-2007
Hardware Availability: Apr-2007
Software Availability: May-2007



Hardware

CPU Name:	UltraSPARC IV+
CPU Characteristics:	
CPU MHz:	1950
FPU:	Integrated
CPU(s) enabled:	48 cores, 24 chips, 2 cores/chip
CPU(s) orderable:	4-36 (order by number of chips, groups of 4)
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	2 MB I+D on chip per chip
L3 Cache:	32 MB I+D off chip per chip
Other Cache:	None
Memory:	96 GB, 8-way interleaved (96 x 1GB)
Disk Subsystem:	System: Sun StorageTek D240 Media Tray (2x73GB) SPEC: Sun StorageTek 6140 (5x146GB 10K FC-AL RAID5)
Other Hardware:	None

Software

Operating System:	Solaris 10 11/06
Compiler:	Sun Studio 12 (pre-release build 43)
Auto Parallel:	No
File System:	ufs
System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	None

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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	48	1398	335	**1380**	**340**	1378	340	47	1009	455	**1001**	**459**	999	460
401.bzip2	48	1776	261	1755	264	**1759**	**263**	48	1475	314	**1461**	**317**	1453	319
403.gcc	48	1455	266	1404	275	**1440**	**268**	48	1278	302	1258	307	**1269**	**304**
429.mcf	48	990	442	**990**	**442**	998	439	48	990	442	**990**	**442**	998	439
445.gobmk	48	1279	394	**1281**	**393**	1282	393	48	**1081**	**466**	1082	466	1081	466
456.hmmer	48	**1158**	**387**	1157	387	1160	386	48	1139	393	**1140**	**393**	1141	393
458.sjeng	48	1663	349	**1664**	**349**	1666	349	47	1550	367	**1550**	**367**	1550	367
462.libquantum	48	1412	704	**1412**	**704**	1414	703	48	1385	718	1386	718	**1385**	**718**
464.h264ref	48	**1954**	**544**	1956	543	1950	545	47	**1689**	**616**	1688	616	1689	616
471.omnetpp	48	1188	253	**1189**	**252**	1190	252	47	1128	260	**1121**	**262**	1118	263
473.astar	48	990	340	995	339	**991**	**340**	48	990	340	995	339	**991**	**340**
483.xalancbmk	48	773	428	772	429	**773**	**428**	48	773	428	772	429	**773**	**428**

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

Operating System Notes

```
Processes were bound to cores using "submit" and "pbind" except
for peak runs of 403.gcc, 456.hmmer, and 483.xalancbmk.

"ulimit -s unlimited"
   Allows stack to grow until system limit.

/etc/system parameters

   tune_t_fsflushr=3
      Controls how many seconds elapse between runs of the
      page flush daemon, fsflush.
   autoup=900
      Causes pages older than the listed number of seconds to
      be written by fsflush.
   bufhwm=3000
      Memory byte limit for caching I/O buffers
   segmap_percent=1
      Set maximum percent memory for file system cache
   ts_dispatch_extended=0
      Selects default dispatch table, rather than large server table
```

Base Compiler Invocation

C benchmarks:
```
/export/ptmp/keeper/build43.0/SUNWspro/bin/cc
```

C++ benchmarks:
```
/export/ptmp/keeper/build43.0/SUNWspro/bin/CC
```

Base Portability Flags

400.perlbench: `-DSPEC_CPU_SOLARIS_SPARC`
403.gcc: `-DSPEC_CPU_SOLARIS`
462.libquantum: `-DSPEC_CPU_SOLARIS`
483.xalancbmk: `-DSPEC_CPU_SOLARIS`

Base Optimization Flags

C benchmarks:
```
-fast -xipo=2 -xpagesize=4M -xprefetch_level=2 -xalias_level=std
```

C++ benchmarks:
```
-library=stlport4 -xdepend -fast -xipo=2 -xpagesize=4M
-xprefetch_level=1 -xalias_level=compatible -lfast
```

Base Other Flags

C benchmarks:
```
-xjobs=24 -V
```

C++ benchmarks:
```
-xjobs=24 -verbose=version
```

Peak Compiler Invocation

C benchmarks:
```
/export/ptmp/keeper/build43.0/SUNWspro/bin/cc
```

C++ benchmarks:
```
/export/ptmp/keeper/build43.0/SUNWspro/bin/CC
```

Peak Portability Flags

400.perlbench: -DSPEC_CPU_SOLARIS_SPARC
403.gcc: -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 -xpagesize=4M
-xalias_level=std -Xc -xipo=2 -xrestrict -lfast

401.bzip2: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xalias_level=strong

403.gcc: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xipo=2 -xalias_level=std -xprefetch_level=2

429.mcf: basepeak = yes

445.gobmk: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xalias_level=std -xrestrict

456.hmmer: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xipo=2 -xalias_level=strong

458.sjeng: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xipo=2

462.libquantum: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xprefetch_level=2 -xipo=2

464.h264ref: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xipo=2 -xalias_level=std -ll2amm

C++ benchmarks:

471.omnetpp: -library=stlport4 -xdepend
-xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xipo=2 -Qoption cg -Qlp-av=0 -lfast

Continued on next page

Peak Optimization Flags (Continued)

473.astar: `basepeak = yes`

483.xalancbmk: `basepeak = yes`

Peak Other Flags

C benchmarks:
`-xjobs=24 -V`

C++ benchmarks:
`-xjobs=24 -verbose=version`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12.20090714.01.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12.20090714.01.xml`

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