SPEC® CINT2006 Result

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Fujitsu Limited

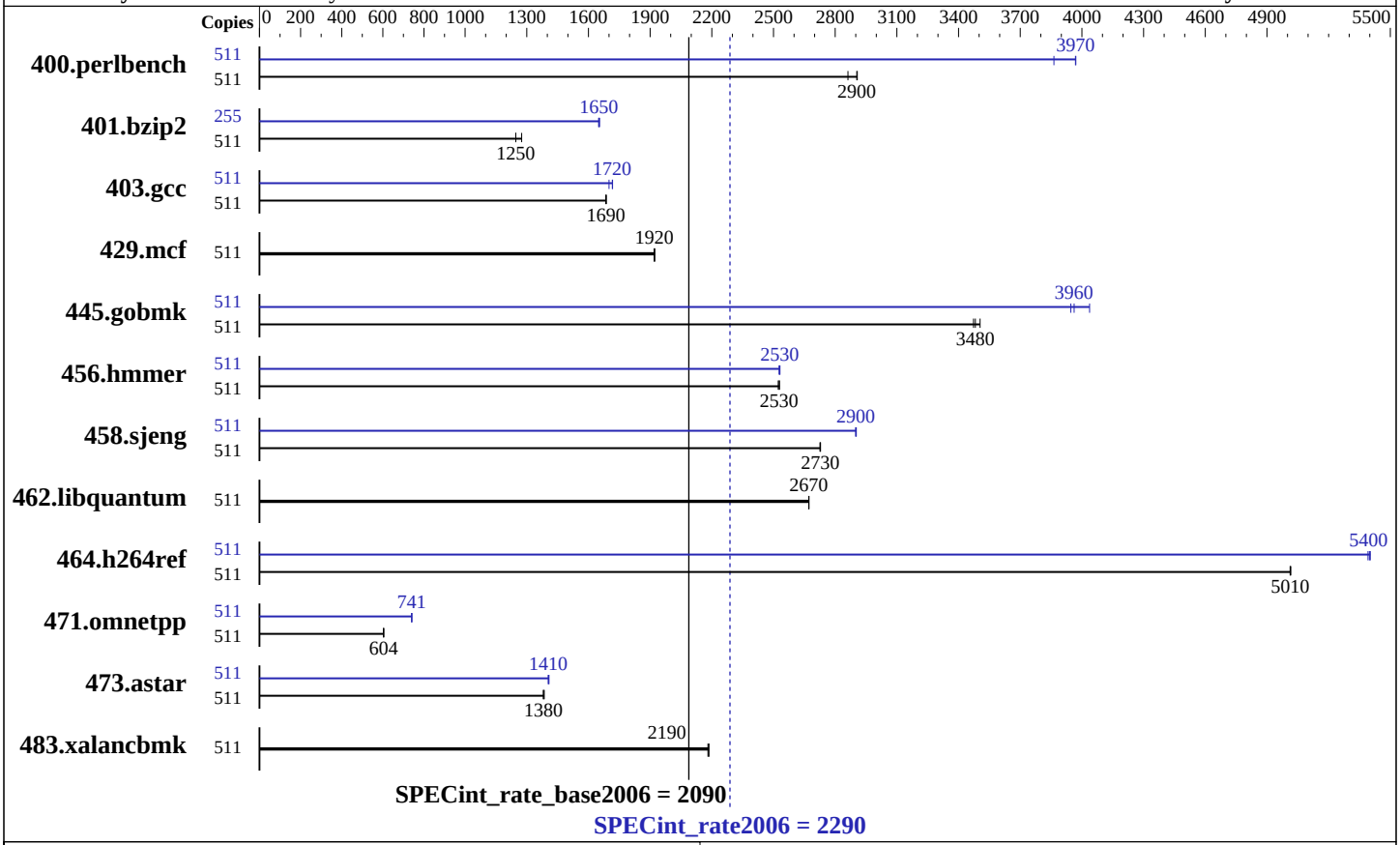
Fujitsu SPARC Enterprise M9000

SPECint®_rate2006 = 2290

SPECint_rate_base2006 = 2090

CPU2006 license: 19
Test sponsor: Fujitsu Limited
Tested by: Sun Microsystems

Test date: Jun-2008
Hardware Availability: Jul-2008
Software Availability: Jul-2008



Hardware

CPU Name:	SPARC64 VII
CPU Characteristics:	
CPU MHz:	2520
FPU:	Integrated
CPU(s) enabled:	256 cores, 64 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 16 CMUs; each CMU contains 2 or 4 chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	6 MB I+D on chip per chip
L3 Cache:	None
Other Cache:	None
Memory:	1 TB (512 x 2 GB)
Disk Subsystem:	12 TB RAID 0 Solaris Volume 24 x 500 GB 15000 RPM disk Stripe interlace size 128Kbytes
Other Hardware:	None

Software

Operating System:	Solaris 10 5/08 with Patch 137111-03
Compiler:	Sun Studio 12 with patches 124867-06, 124861-07, 124863-05 (see patch information below)
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	511	1744	2860	1717	2910	**1719**	**2900**	511	1292	3860	1257	3970	**1258**	**3970**
401.bzip2	511	3867	1280	**3955**	**1250**	3956	1250	255	**1491**	**1650**	1488	1650	1492	1650
403.gcc	511	2442	1680	**2440**	**1690**	2439	1690	511	2420	1700	**2397**	**1720**	2395	1720
429.mcf	511	2424	1920	**2426**	**1920**	2427	1920	511	2424	1920	**2426**	**1920**	2427	1920
445.gobmk	511	1529	3500	1544	3470	**1540**	**3480**	511	**1353**	**3960**	1358	3950	1328	4040
456.hmmer	511	**1886**	**2530**	1890	2520	1885	2530	511	1887	2530	1883	2530	**1884**	**2530**
458.sjeng	511	**2267**	**2730**	2266	2730	2268	2730	511	**2131**	**2900**	2132	2900	2130	2900
462.libquantum	511	3962	2670	3963	2670	**3963**	**2670**	511	3962	2670	3963	2670	**3963**	**2670**
464.h264ref	511	2254	5020	2256	5010	**2255**	**5010**	511	**2095**	**5400**	2093	5400	2098	5390
471.omnetpp	511	5285	604	5296	603	**5287**	**604**	511	4315	740	**4312**	**741**	4312	741
473.astar	511	2590	1380	**2597**	**1380**	2598	1380	511	**2552**	**1410**	2548	1410	2554	1400
483.xalancbmk	511	1614	2190	**1614**	**2190**	1617	2180	511	1614	2190	**1614**	**2190**	1617	2180

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

Compiler Invocation Notes

```
Sun Studio compiler patches are available at
    http://developers.sun.com/sunstudio/downloads/patches/ss12_patches.jsp
```

Submit Notes

```
Processes were assigned to specific processors using 'pbind' commands.  The config
file option 'submit' was used, along with a list of processors in the 'BIND'
variable, to generate the pbind commands.  (For details, please see the config file.)
```

Operating System Notes

```
Environment Variable Settings:

export LD_PRELOAD=mpss.so.1:madv.so.1
export MPSSHEAP=4MB
export MPSSSTACK=4MB
    Requests system to use 4 MB pages when possible.
export MADV access_lwp
    access_lwp requests that the next light weight process to touch
    the specified address range will access it most heavily.
ulimit -s 131072 was used to limit the space consumed
    by the stack (making more space available for the heap)

System Tunables (/etc/system parameters):
```

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Operating System Notes (Continued)

```
autoup=200
    Causes pages older than the listed number of seconds to
    be written by fsflush.
lpg_alloc_prefer=1
    Set lgroup page allocation to strongly prefer local pages

Other System Settings:

The webconsole service was turned off using
    svcadm disable webconsole

The SPEC toolset was bound to processors 1-511 using processor sets:
    psrset -c 1-511
    psrset -e 1 ksh
```

Platform Notes

```
Memory is 8-way interleaved by filling all slots with
the same capacity DIMMs.

This result is measured on a Sun SPARC Enterprise M9000 Server.
Note that the Sun SPARC Enterprise M9000 and Fujitsu SPARC Enterprise
M9000 are electrically equivalent.
```

Base Compiler Invocation

C benchmarks:
`cc`

C++ benchmarks:
`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 -fma=fused -xprefetch_level=1
-xalias_level=std -ll2amm
```

C++ benchmarks:
```
-library=stlport4 -fast -xipo=2 -xpagesize=4M -fma=fused
-xprefetch_level=2 -xalias_level=compatible -ll2amm -lfast
```

Peak Compiler Invocation

C benchmarks:
```
cc
```

C++ benchmarks:
```
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 -xipo=2`
`-xpagesize=4M -fma=fused -xalias_level=std -xrestrict`
`-xprefetch=no -lfast -ll2amm`

401.bzip2: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xipo=2`
`-xpagesize=4M -fma=fused -xalias_level=strong`
`-xprefetch=latx:5 -ll2amm`

403.gcc: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xipo=2`
`-xpagesize=4M -fma=fused -xalias_level=std -ll2amm`

429.mcf: `basepeak = yes`

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Peak Optimization Flags (Continued)

445.gobmk: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=4M -fma=fused -xalias_level=std -xrestrict
-ll2amm

456.hmmer: Same as 403.gcc

458.sjeng: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=4M -fma=fused -ll2amm

462.libquantum: basepeak = yes

464.h264ref: Same as 403.gcc

C++ benchmarks:

471.omnetpp: -library=stlport4 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=4M -fma=fused -xalias_level=compatible -ll2amm

473.astar: -library=stlport4 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=4M -fma=fused -xalias_level=compatible
-xprefetch=latx:3 -lfast -ll2amm

483.xalancbmk: basepeak = yes

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-and-gccfss4.2.20090713.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-and-gccfss4.2.20090713.xml

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