



# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

(Test Sponsor: Advanced Micro Devices)

**SPECint®\_rate2006 = 120**

**A+ Server 1021M-UR+B, AMD Opteron 2376 HE**

**SPECint\_rate\_base2006 = 101**

**CPU2006 license:** 49

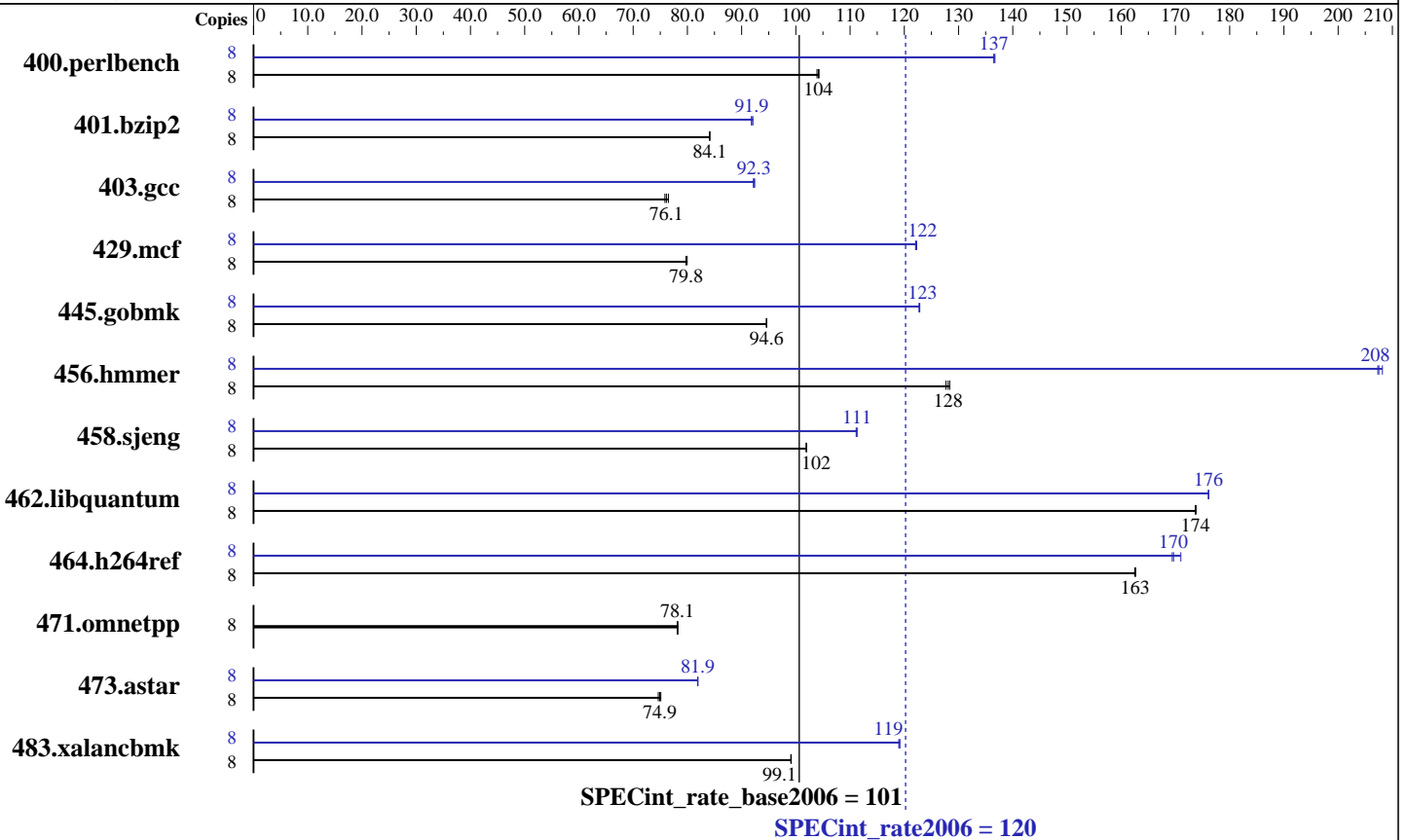
**Test sponsor:** Advanced Micro Devices

**Tested by:** Advanced Micro Devices

**Test date:** Dec-2008

**Hardware Availability:** Jan-2009

**Software Availability:** Jun-2008



### Hardware

CPU Name: AMD Opteron 2376 HE  
 CPU Characteristics:  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 64 KB I + 64 KB D on chip per core  
 Secondary Cache: 512 KB I+D on chip per core  
 L3 Cache: 6 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 32 GB (8x4 GB, DDR2-800, CL5, Reg, Dual Rank)  
 Disk Subsystem: 1 x 250 GB SATA, 7200 RPM  
 Other Hardware: None

### Software

Operating System: SuSE Linux Enterprise Server 10 (x86\_64) SP2, Kernel 2.6.16.60-0.21-smp  
 Compiler: PGI Server Complete Version 7.2 PathScale Compiler Suite Version 3.2  
 Auto Parallel: No  
 File System: ReiserFS  
 System State: Run level 3 (Full multiuser with network)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: binutils 2.18 32-bit and 64-bit libhugetlbfs libraries SmartHeap 8.1 32-bit Library for Linux



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

(Test Sponsor: Advanced Micro Devices)

SPECint\_rate2006 = 120

A+ Server 1021M-UR+B, AMD Opteron 2376 HE

SPECint\_rate\_base2006 = 101

CPU2006 license: 49

Test date: Dec-2008

Test sponsor: Advanced Micro Devices

Hardware Availability: Jan-2009

Tested by: Advanced Micro Devices

Software Availability: Jun-2008

## Results Table

Benchmark	Base						Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	8	752	104	750	104	<b>750</b>	<b>104</b>	8	573	137	<b>572</b>	<b>137</b>	572	137
401.bzip2	8	<b>918</b>	<b>84.1</b>	918	84.1	918	84.1	8	841	91.8	838	92.1	<b>840</b>	<b>91.9</b>
403.gcc	8	<b>846</b>	<b>76.1</b>	849	75.9	842	76.5	8	697	92.4	699	92.2	<b>698</b>	<b>92.3</b>
429.mcf	8	<b>914</b>	<b>79.8</b>	915	79.8	912	80.0	8	597	122	<b>598</b>	<b>122</b>	598	122
445.gobmk	8	887	94.6	<b>887</b>	<b>94.6</b>	887	94.6	8	684	123	683	123	<b>683</b>	<b>123</b>
456.hammer	8	581	128	585	128	<b>583</b>	<b>128</b>	8	359	208	360	207	<b>360</b>	<b>208</b>
458.sjeng	8	<b>949</b>	<b>102</b>	949	102	950	102	8	871	111	<b>870</b>	<b>111</b>	870	111
462.libquantum	8	954	174	954	174	<b>954</b>	<b>174</b>	8	<b>941</b>	<b>176</b>	941	176	942	176
464.h264ref	8	1088	163	<b>1089</b>	<b>163</b>	1090	162	8	1045	169	<b>1044</b>	<b>170</b>	1035	171
471.omnetpp	8	640	78.1	<b>640</b>	<b>78.1</b>	639	78.3	8	640	78.1	<b>640</b>	<b>78.1</b>	639	78.3
473.astar	8	752	74.6	<b>750</b>	<b>74.9</b>	748	75.1	8	686	81.9	<b>685</b>	<b>81.9</b>	685	81.9
483.xalancbmk	8	557	99.1	<b>557</b>	<b>99.1</b>	557	99.2	8	463	119	<b>463</b>	<b>119</b>	464	119

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

## Submit Notes

The config file option 'submit' was used.  
'numactl' was used to bind copies to the cores

## Operating System Notes

The libhugetlbfs libraries were installed using the installation rpms that came with the distribution.

'ulimit -s unlimited' was used to set environment stack size  
'ulimit -l 2097152' was used to set environment locked pages in memory limit

Set vm/nr\_hugepages=7168 in /etc/sysctl.conf  
mount -t hugetlbfs nodev /mnt/hugepages

## General Notes

Environment variables set by runspec before the start of the run:

HUGETLB\_MORECORE = "yes"

LD\_LIBRARY\_PATH = "/root/work/cpu2006v1.1/amd909gh-libs/64:/root/work/cpu2006v1.1/amd909gh-libs/32"



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

(Test Sponsor: Advanced Micro Devices)

SPECint\_rate2006 = 120

A+ Server 1021M-UR+B, AMD Opteron 2376 HE

SPECint\_rate\_base2006 = 101

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Dec-2008

Hardware Availability: Jan-2009

Software Availability: Jun-2008

## Base Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks:

pgcpp

## 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  
 483.xalancbmk: -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:

-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge -Mfprelaxed  
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic\_pgi

C++ benchmarks:

-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge -Mfprelaxed  
--zc\_eh -Mipa=fast -Mipa=inline:10 -tp barcelona-32 -Bstatic\_pgi

## Base Other Flags

C benchmarks:

-Mipa=jobs:4

C++ benchmarks:

-Mipa=jobs:4

## Peak Compiler Invocation

C benchmarks (except as noted below):

pathcc

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

(Test Sponsor: Advanced Micro Devices)

SPECint\_rate2006 = 120

A+ Server 1021M-UR+B, AMD Opteron 2376 HE

SPECint\_rate\_base2006 = 101

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Dec-2008

Hardware Availability: Jan-2009

Software Availability: Jun-2008

## Peak Compiler Invocation (Continued)

456.hmmcr: pgcc

462.libquantum: pgcc

C++ benchmarks (except as noted below):

pgcpp

483.xalancbmk: pathCC

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64  
 401.bzip2: -DSPEC\_CPU\_LP64  
 445.gobmk: -DSPEC\_CPU\_LP64  
 456.hmmcr: -DSPEC\_CPU\_LP64  
 458.sjeng: -DSPEC\_CPU\_LP64  
 462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
 464.h264ref: -DSPEC\_CPU\_LP64  
 483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -march=barcelona -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2)  
 -Wl,-T/usr/share/libhugetlbfs/ldscripts/elf\_x86\_64.xBDT(pass 2)  
 -L/usr/lib64 -lhugetlbfs(pass 2) -Ofast -IPA:plimit=20000  
 -IPA:field\_reorder=on -LNO:opt=0 -WOPT:if\_conv=0  
 -CG:local\_sched\_alg=1

401.bzip2: -march=barcelona -O3 -OPT:alias=disjoint -OPT:Ofast  
 -OPT:goto=off -INLINE:aggressive=on -CG:local\_sched\_alg=1  
 -m3dnow  
 -Wl,-T/usr/share/libhugetlbfs/ldscripts/elf\_x86\_64.xBDT  
 -L/usr/lib64 -lhugetlbfs

403.gcc: -march=barcelona -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -Ofast -OPT:malloc\_alg=1  
 -LNO:trip\_count=256 -LNO:prefetch\_ahead=10  
 -CG:prefer\_lru\_reg=off -m32

429.mcf: -march=barcelona -O3 -ipa -INLINE:aggressive=on  
 -CG:gcm=off -GRA:prioritize\_by\_density=on -m32  
 -L/usr/lib -lhugetlbfs

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

(Test Sponsor: Advanced Micro Devices)

SPECint\_rate2006 = 120

A+ Server 1021M-UR+B, AMD Opteron 2376 HE

SPECint\_rate\_base2006 = 101

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Dec-2008

Hardware Availability: Jan-2009

Software Availability: Jun-2008

## Peak Optimization Flags (Continued)

445.gobmk: -march=barcelona -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2)  
 -Wl,-T/usr/share/libhugetlbfs/ldscripts/elf\_x86\_64.xBDT(pass 2)  
 -L/usr/lib64 -lhugetlbfs(pass 2) -O3 -OPT:alias=restrict  
 -LNO:prefetch=1 -LNO:ignore\_feedback=off -CG:p2align=on

456.hmmcr: -Mvect=cachesize:6291456 -fastsse -Mvect=partial  
 -Munroll=n:8 -Msmartalloc=huge -Msafeptr -Mprefetch=t0  
 -Mfprelaxed -Mipa=const -Mipa=ptr -Mipa=arg -Mipa=inline  
 -tp barcelona-64 -Bstatic\_pgi

458.sjeng: -march=barcelona -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2)  
 -Wl,-T/usr/share/libhugetlbfs/ldscripts/elf\_x86\_64.xBDT(pass 2)  
 -L/usr/lib64 -lhugetlbfs(pass 2) -O3 -ipa  
 -LNO:ignore\_feedback=off -LNO:full\_unroll=10 -LNO:fusion=0  
 -LNO:fission=2 -IPA:pu\_reorder=2 -CG:ptr\_load\_use=0  
 -OPT:unroll\_times\_max=8 -INLINE:aggressive=on

462.libquantum: -Mvect=cachesize:6291456 -fastsse -Munroll=m:8  
 -Msmartalloc=huge -Mprefetch=distance:4 -Mfprelaxed  
 -Mipa=fast -Mipa=inline -Mipa=noarg -tp barcelona-64  
 -Bstatic\_pgi

464.h264ref: -march=barcelona -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2)  
 -Wl,-T/usr/share/libhugetlbfs/ldscripts/elf\_x86\_64.xBDT(pass 2)  
 -L/usr/lib64 -lhugetlbfs(pass 2) -O3 -IPA:plimit=20000  
 -OPT:alias=disjoint -LNO:prefetch=0 -CG:ptr\_load\_use=0  
 -CG:push\_pop\_int\_saved\_regs=off -CG:prefer\_lru\_reg=off

### C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2)  
 -Mipa=inline:6(pass 2) -Mvect=cachesize:6291456 -fastsse  
 -O4 -Msmartalloc=huge -Msafeptr=global -Mfprelaxed  
 --zc\_eh -tp barcelona-32 -Bstatic\_pgi

483.xalancbmk: -march=barcelona -Ofast -INLINE:aggressive=on -m32  
 -L/root/work/libraries/SmartHeap\_8.1/lib -lsmarheap

## Peak Other Flags

### C benchmarks:

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

(Test Sponsor: Advanced Micro Devices)

SPECint\_rate2006 = 120

A+ Server 1021M-UR+B, AMD Opteron 2376 HE

SPECint\_rate\_base2006 = 101

CPU2006 license: 49

Test date: Dec-2008

Test sponsor: Advanced Micro Devices

Hardware Availability: Jan-2009

Tested by: Advanced Micro Devices

Software Availability: Jun-2008

## Peak Other Flags (Continued)

456.hmmmer: -Mipa=jobs:4

462.libquantum: -Mipa=jobs:4

C++ benchmarks (except as noted below):  
-Mipa=jobs:4(pass 2)

483.xalancbmk: No flags used

The flags files that were used to format this result can be browsed at

[http://www.spec.org/cpu2006/flags/pgi72\\_linux\\_flags.html](http://www.spec.org/cpu2006/flags/pgi72_linux_flags.html)  
[http://www.spec.org/cpu2006/flags/CPU2006\\_flags.20090710.html](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090710.html)  
<http://www.spec.org/cpu2006/flags/amd-platform-amd909gh.html>

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

[http://www.spec.org/cpu2006/flags/pgi72\\_linux\\_flags.xml](http://www.spec.org/cpu2006/flags/pgi72_linux_flags.xml)  
[http://www.spec.org/cpu2006/flags/CPU2006\\_flags.20090710.xml](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090710.xml)  
<http://www.spec.org/cpu2006/flags/amd-platform-amd909gh.xml>

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.1.  
Report generated on Tue Jul 22 22:45:20 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 13 January 2009.