



# CINT2000 Result

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## IBM

eServer 325, 2.0 GHz Opteron, gcc, 64-bit SuSE SLES8 Linux

SPECint2000 = 1226

SPECint\_base2000 = 1115

SPEC license #: 11 | Tested by: IBM, Research Triangle Park, NC | Test date: Aug-2003 | Hardware Avail: Oct-2003 | Software Avail: Jul-2003

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio	
164.gzip	1400	136	1026	131	1072	
175.vpr	1400	145	966	144	970	
176.gcc	1100	80.1	1373	78.7	1398	
181.mcf	1800	352	511	211	853	
186.crafty	1000	57.1	1751	54.8	1824	
197.parser	1800	185	971	169	1067	
252.eon	1300	77.1	1687	70.9	1835	
253.perlbnk	1800	138	1300	137	1311	
254.gap	1100	108	1020	108	1020	
255.vortex	1900	148	1284	133	1425	
256.bzip2	1500	144	1040	141	1063	
300.twolf	3000	286	1047	234	1284	

### Hardware

CPU: AMD Opteron 246  
CPU MHz: 2000  
FPU: Integrated  
CPU(s) enabled: 1 core, 1 chip, 1 core/chip  
CPU(s) orderable: 1,2  
Parallel: No  
Primary Cache: 64KBI + 64KBD on chip  
Secondary Cache: 1024KB(I+D) on chip  
L3 Cache: N/A  
Other Cache: N/A  
Memory: 2 x 512MB PC2700 Reg ECC DDR SDRAM CL2.5  
Disk Subsystem: 1 x 36GB 10Krpm SCSI  
Other Hardware: None

### Software

Operating System: SuSE Linux 8.0 SLES 64 bit Kernel 2.4.19-249 (SP2)  
Compiler: SuSE gcc33 optional compiler (from SLES8 SP2)  
File System: Linux/reiserfs  
System State: Multi-user SuSE Run level 5

## Notes/Tuning Information

Tested by IBM Corporation

gcc is the SuSE optional gcc33 package C compiler (from SLES8 SP2)

+FD0: PASS1=-fprofile-arcs PASS2=-fbranch-probabilities

ONESTEP is used for all base and peak runs

Portability: PORTABILITY=-DSPEC\_CPU2000\_LP64 is applied to all benchmarks

(affecting only 176.gcc, 252.eon, 253.perlbnk, 254.gap, and 255.vortex).

176.gcc: Approved src.alt is used

186.crafty: CPORTABILITY=-DLINUX\_i386

252.eon: CXXPORTABILITY=-DHAS\_ERRLIST -DFMAX\_IS\_DOUBLE

Approved src.alt is used

253.perlbnk: CPORTABILITY=-DSPEC\_CPU2000\_LINUX\_I386 -DSPEC\_CPU2000\_NEED\_BOOL

-DSPEC\_CPU2000\_GLIBC22

254.gap: CPORTABILITY=-DSYS\_IS\_USG -DSYS\_HAS\_IOCTL\_PROTO

-DSYS\_HAS\_TIME\_PROTO -DSYS\_HAS\_SIGNAL\_PROTO

-DSYS\_HAS\_ANSI -DSYS\_HAS\_CALLOC\_PROTO

Baseline C: gcc -O3 -funroll-all-loops +FD0

Baseline C++: g++ -O3 -funroll-all-loops +FD0

Peak tuning:

164.gzip: -O3 -funroll-all-loops -finline-limit=900 -freduce-all-givs +FD0

175.vpr: -O3 -funroll-loops -finline-limit=1000 +FD0

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## Notes/Tuning Information (Continued)

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176.gcc:      -O3 -funroll-all-loops -finline-limit=900 +FDO
181.mcf:      -O3 -funroll-all-loops -m32 +FDO
              ONESTEP=yes
186.crafty:   -O3 -funroll-loops -fprefetch-loop-arrays
197.parser:   -O3 -funroll-all-loops -m32 +FDO
              ONESTEP=yes
252.eon:      -O3 -funroll-all-loops -ffast-math -finline-limit=3000 +FDO
253.perlbmk:  -O3 -funroll-all-loops -finline-limit=1800 +FDO
254.gap:      basepeak=true
255.vortex:   -O3 -funroll-all-loops -finline-limit=1000 +FDO
256.bzip2:    -O3 -funroll-all-loops -freduce-all-givs -finline-limit=2700 +FDO
300.twolf:    -O3 -funroll-all-loops -static -finline-limit=2000 -m32 +FDO
Set the following BIOS parameters:
  DRAM Interleave = AUTO
  Node Interleave = Disabled
  ACPI SRAT       = Disabled
Only 1 CPU installed in system

```