



# CINT2000 Result

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IBM Corporation

IBM eServer pSeries 670 (1500 MHz, 16 CPU)

SPECint\_rate2000 = 156

SPECint\_rate\_base2000 = 149

SPEC license #: 11 | Tested by: IBM, Austin, TX | Test date: Apr-2003 | Hardware Avail: May-2003 | Software Avail: May-2003

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	16	212	122	16	212	122
175.vpr	16	200	130	16	200	130
176.gcc	16	119	171	16	119	171
181.mcf	16	225	148	16	219	152
186.crafty	16	125	149	16	105	176
197.parser	16	465	71.9	16	462	72.3
252.eon	16	112	215	16	112	215
253.perlbnk	16	259	129	16	226	148
254.gap	16	120	170	16	120	170
255.vortex	16	150	236	16	141	250
256.bzip2	16	172	162	16	168	166
300.twolf	16	367	152	16	327	170

### Hardware

CPU: POWER4+  
CPU MHz: 1500  
FPU: Integrated  
CPU(s) enabled: 16 cores, 8 chips, 2 cores/chip, 4 chips/MCM  
CPU(s) orderable: 4,8,16 (order by # cores)  
Parallel: No  
Primary Cache: 64KBI+32KBD (on chip) per core  
Secondary Cache: 1536KB unified (on chip) per chip  
L3 Cache: 128MB unified (off-chip) per MCM, 2 MCMs in SUT (4 chips per MCM)  
Other Cache: None  
Memory: 64 GB  
Disk Subsystem: 1x36GB SCSI, 10K RPM  
Other Hardware: None

### Software

Operating System: AIX 5L V5.2  
Compiler: IBM C for AIX, Version 6.0  
IBM VisualAge C++ Professional for AIX, Version 6.0  
File System: AIX/JFS  
System State: Multi-User

## Notes/Tuning Information

### Integer Portability Flags:

```
176.gcc: -ma -DHOST_WORDS_BIG_ENDIAN
186.crafty: -DAIX
252.eon: -DNEED_EXPLICIT_SPECIALIZATION
-I. -DNDEBUG
253.perlbnk: -DSPEC_CPU2000_AIX
254.gap: -DSYS_IS_BSD -DSYS_STRING_H -DSYS_HAS_TIME_PROTO
-DSYS_HAS_MALLOC_PROTO -DSYS_HAS_CALLOC_PROTO
300.twolf: -DHAVE_SIGNED_CHAR
```

### Base Optimization Flags:

```
C:
-qpdf1/pdf2
-O5 -blpdata -qalign=natural
C++:
-qpdf1/pdf2
-O5 -lhuu -qalign=natural
```

### Integer Peak Optimization Flags

164.gzip



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## Notes/Tuning Information (Continued)

```

BASEPEAK = 1
"CC      = /usr/vac/bin/xlc"
175.vpr
BASEPEAK = 1
176.gcc
BASEPEAK = 1
181.mcf
fdpr -v -R3
-O5 -blpdata
186.crafty
-qpdf1/pdf2
fdpr -v -R3
-O3 -q64
197.parser
-O5 -blpdata
252.eon
BASEPEAK = 1
253.perlbnk
-qpdf1/pdf2
-O5 -lhmu -qalign=natural
254.gap
BASEPEAK = 1
255.vortex
-qpdf1/pdf2
-O5 -lhmu -qalign=natural
256.bzip2
-qpdf1/pdf2
-O5 -blpdata -qarch=pwr3 -qtune=pwr3
300.twolf
-qpdf1/pdf2
-O5 -lhmu -qalign=natural -blpdata
"CC      = /usr/vac/bin/xlc"

```

MCM: Acronym for "Multi-Chip Module"

SUT: Acronym for "System Under Test"

fpdr: Feedback directed program restructuring tool  
 /usr/spec2000 filesystem mounted with no JFS log file I/O.  
 APAR IY 39795 was applied to AIX to enable new hardware support.  
 ulimits set to unlimited.

C: IBM VAC++ invoked as cc except where noted as xlc

C++: IBM VAC++ invoked as xlc

Large page mode and memory affinity were set as follows:

```

vmo -r -o lpgg_regions=512 -o lpgg_size=16777216 -o memory_affinity=1
chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
shutdown -r
export MEMORY_AFFINITY=MCM

```