IBM Corporation
IBM eServer pSeries 690 (1900 MHz, 32 CPU)

SPECompMpeak2001 = 43708
SPECompMbase2001 = 38278

Hardware
CPU: POWER4+
CPU MHz: 1900
FPU: Integrated
CPU(s) enabled: 32 cores, 16 chips, 2 cores/chip, 4 chips/MCM
CPU(s) orderable: 1,2,3,4 (order # of MCMs)
Primary Cache: 64KBI+32KBD (on chip) per core
Secondary Cache: 1536KB unified (on chip) per chip
L3 Cache: 32MB unified (off-chip) per MCM, 4 MCMs in SUT
Other Cache: None
Memory: 128 GB
Disk Subsystem: 1x36GB SCSI, 10K RPM
Other Hardware: None

Software
OpenMP Threads: 32
Parallel: OpenMP
Operating System: AIX 5L V5.2
Compiler: IBM C for AIX, Version 6.0
XL FORTRAN for AIX, Version 8.1.1.0
File System: AIX/JFS2
System State: Multi-user

Notes/Tuning Information
Tested by IBM Corporation
Portability Flags & Environment Variables
- bmaxdata=0x80000000 used in all cases except 330.art_m
- O3 used in: 310.wupwise_m, 312.swim_m, 314.mgrid_m, 316.applu_m, 324.apsi_m
- qfixed=80 used in: 318.galgel_m
- qsuffix=f=f90 used in: 318.galgel_m, 326.gafort_m, 328.fma3d_m
- bmaxdata=0xD0000000 used in 330.art_m (for base and peak)

Base Flags
C: -g64 -O5 -qalign=natural -qipa=partition=large -qmaxmem=-1 -qsmp=omp -w
FORTRAN:-O5 -qalign=natural -qipa=partition=large -qmaxmem=-1 -qsmp=omp -w

Base & Peak User Environment:
ENV_OMP_NUM_THREADS=32
ENV_OMP_DYNAMIC=FALSE
ENV_XLSCOMPPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC
ENV_MALLOCMULTIHEAP=1

Peak Flags
-qsmp=omp used in all cases
310.wupwise_m: basepeak=1
312.swim_m: -O3 -qalign=natural -qtune=pwr4 -qarch=pwr4
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Notes/Tuning Information (Continued)

314.mgrid_m:  basepeak=1
316.applu_m:  -O3 -qalign=natural -qtune=pwr4 -qarch=pwr4
318.galgel_m:  -O5 -qalign=natural -qhot=armarraypad -qessl -qlibessl -lesslsmpp
lpesslsmpp -lbacssmp -lmass -qipa=partition=large -qmaxmem=-1
ENV_OMP_NUM_THREADS=16
320.equake_m:  fdpr -v -R3]
324.apsi_m:  basepeak=1
326.gafort_m:  -O5 -qalign=natural -qrsqrt -qhot=armarraypad -qipa=partition=large
-lqmaxmem=-1
328.fma3d_m:  basepeak=1
330.art_m:  fdpr -v -R3
-q64 -qlargepage -bldata -qhot=armarraypad -Q -lmass
EXTRA_CFLAGS=-DINTS_PER_CACHELINE=32 -DDBLS_PER_CACHELINE=16
EXTRA_LDFLAGS=-bmaxdata:0xD0000000 -blpdata
332.ammp_m:  fdpr -v -R3
-q64 -qlargepage -blpdata -qhot=armarraypad -Q -lmass

Peak sources:
SPEC OMP2001 source for 32bit systems modified for SPEC OMPM2001 used
with 312.swim_m, 316.applu_m, 320.equake_m, 326.gafort_m.

MCM: Acronym for "Multi-Chip Module"
SUT: Acronym for "System Under Test"
L3 Cache: 32MB x 4 = 128MB, shared by all processors

C: IBM VAC++ invoked as xlc_r
Fortran 90: IBM XL Fortran for AIX invoked as xlf90_r

Fixes APAR IY48265 were applied to AIX.

Large page mode and memory affinity were set as follows:
  vmo -r -o lgpg_regions=4096 -o lgpg_size=16777216 -o memory_affinity=1
  chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
  shutdown -r
  export MEMORY_AFFINITY=MCM