



OMPM2001 Result

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IBM Corporation
IBM eServer pSeries 655 (1700 MHz, 8 CPU)

SPECompMpeak2001 = 14380
SPECompMbase2001 = 13565

SPEC license #HPG0005 | Tested by: IBM | Test site: IBM Austin | Test date: Jan-2004 | Hardware Avail: Feb-2004 | Software Avail: Oct-2003

| Benchmark | Reference Time | Base Runtime | Base Ratio | Peak Runtime | Peak Ratio | |
|------------------|----------------|--------------|------------|--------------|------------|--|
| 310.wupwise_m | 6000 | 403 | 14902 | 403 | 14902 | |
| 312.swim_m | 6000 | 442 | 13585 | 381 | 15739 | |
| 314.mgrid_m | 7300 | 875 | 8340 | 875 | 8340 | |
| 316.applu_m | 4000 | 248 | 16127 | 227 | 17649 | |
| 318.galgel_m | 5100 | 229 | 22266 | 205 | 24869 | |
| 320.earthquake_m | 2600 | 182 | 14272 | 169 | 15424 | |
| 324.apsi_m | 3400 | 224 | 15162 | 224 | 15162 | |
| 326.gafort_m | 8700 | 575 | 15125 | 576 | 15104 | |
| 328.fma3d_m | 4600 | 561 | 8194 | 552 | 8328 | |
| 330.art_m | 6400 | 208 | 30777 | 186 | 34392 | |
| 332.ammp_m | 7000 | 1224 | 5719 | 1118 | 6260 | |

Hardware

CPU: POWER4+
 CPU MHz: 1700
 FPU: Integrated
 CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip, 4 chips/MCM
 CPU(s) orderable: 4,8 (order by # cores)
 Primary Cache: 64KBI+32KBD (on chip)/core
 Secondary Cache: 1536KB unified (on chip)/chip
 L3 Cache: 32MB unified (off chip)/MCM, 1 MCM in SUT
 Other Cache: None
 Memory: 32 GB
 Disk Subsystem: 2x36GB SCSI, 10K RPM
 Other Hardware: None

Software

OpenMP Threads: 8
 Parallel: OpenMP
 Operating System: AIX 5L V5.2 5765-E62 (05/2003)
 Compiler: IBM C for AIX, Version 6.0
 XL FORTRAN for AIX, Version 8.1.1.0
 Other Software: ESSL 4.1.0.0, PESSL 2.3.0.2, MASS 3.2.1
 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
 -qfixed 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: -q64 -O5 -qalign=natural -qipa=partition=large -qmaxmem=-1 -qsmp=omp
 FORTRAN:-O5 -qalign=natural -qipa=partition=large -qmaxmem=-1 -qsmp=omp

Base & Peak User Environment:

ENV_OMP_NUM_THREADS=8
 ENV_OMP_DYNAMIC=FALSE
 ENV_XLSMPOPTS=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)

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314.mgrid_m: basepeak=1
316.applu_m: -O3 -qalign=natural -qtune=pwr4 -qarch=pwr4
318.galgal_m: -O5 -qalign=natural -qhot=arraypad -qessl -qlibessl -lesslsmp
-lpesslsmp -lblacssmp -lmass -qipa=partition=large -qmaxmem=-1
320.quake_m: fdpr -v -R3
-O5 -qalign=natural -qhot=arraypad -Q -lmass
324.apsi_m: basepeak=1
326.gafort_m: -O5 -qalign=natural -qrsqrt -qhot=arraypad -qipa=partition=large
-qmaxmem=-1
328.fma3d_m: -O5 -qalign=natural -qhot=arraypad -qipa=noobject
-qipa=partition=large -qmaxmem=-1
330.art_m: fdpr -v -R3
-q64 -O5 -qalign=natural -qhot=arraypad -Q -lmass
332.ammp_m: -O5 -qalign=natural -qhot=arraypad -Q -lmass

```

Peak sources:

SPEC OMPL2001 source for 32bit systems modified for SPEC OMPM2001 used with 312.swim_m, 316.applu_m, 320.quake_m, 326.gafort_m, 332.ammp_m.

MCM: Acronym for "Multi-Chip Module"
SUT: Acronym for "System Under Test"

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

ulimits set to unlimited.
Memory affinity was set as follows:
export MEMORY_AFFINITY=MCM