



OMPM2001 Result

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IBM Corporation

IBM eServer pSeries 630 Model 6E4 (1450 MHz, 4 CPU)

SPECompMpeak2001 = 4918

SPECompMbase2001 = 4695

SPEC license #HPG0005 | Tested by: IBM | Test site: Austin, TX | Test date: Feb-2003 | Hardware Avail: Feb-2003 | Software Avail: Feb-2003

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	931	6448	931	6448	
312.swim_m	6000	1270	4725	1218	4925	
314.mgrid_m	7300	2233	3269	2233	3269	
316.applu_m	4000	1263	3168	833	4803	
318.galgel_m	5100	650	7850	632	8067	
320.earthquake_m	2600	424	6135	419	6212	
324.apsi_m	3400	537	6330	537	6330	
326.gafort_m	8700	1726	5041	1730	5030	
328.fma3d_m	4600	1352	3402	1355	3395	
330.art_m	6400	1125	5688	1118	5727	
332.ammp_m	7000	2691	2601	2660	2632	

Hardware

CPU: POWER4+
 CPU MHz: 1450
 FPU: Integrated
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip, 1 chip/SCM
 CPU(s) orderable: 1,2 (order by # SCM)
 Primary Cache: 64KBI+32KBD (on chip)/core
 Secondary Cache: 1536KB unified (on chip)/chip
 L3 Cache: 8MB unified (off chip)/SCM, 2 SCM in SUT
 Other Cache: None
 Memory: 2x8x1 = 16GB
 Disk Subsystem: 1x36GB SCSI
 Other Hardware: None

Software

OpenMP Threads: 4
 Parallel: OpenMP
 Operating System: AIX 5L V5.2
 Compiler: XL Fortran for AIX, Version 8.1 PTF 2
 IBM C for AIX, Version 6.0 PTF 2
 Other Software: ESSL 3.3, MASS 3.0
 File System: AIX/JFS
 System State: Multi-user

Notes/Tuning Information

Tested by IBM

Portability Flags & Environment Variables

-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
 ENV_XLFRTEOPTS=NAMELIST=OLD used in: 326.gafort_m

Base Flags

C: -O5 -qalign=natural -qipa=partition=large -qmaxmem=-1
 -bmaxdata:0x80000000 -qsmp=omp
 FORTRAN: -O5 -qalign=natural -qipa=partition=large -qmaxmem=-1
 -bmaxdata:0x80000000 -qsmp=omp

Base & Peak User Environment:

OMP_NUM_THREADS=4
 OMP_DYNAMIC=FALSE
 XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC
 MALLOCMULTIHEAP=1

Peak Flags

-bmaxdata:0x80000000 used in all cases
 -qsmp=omp used in all cases
 310.wupwise_m: basepeak=true



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Notes/Tuning Information (Continued)

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312.swim_m:      -O3 -qalign=natural -qtune=pwr4 -qarch=pwr4
314.mgrid_m:    basepeak=true
316.applu_m:    -O3 -qalign=natural -qtune=pwr4 -qarch=pwr4
318.galgel_m:   -O5 -qalign=natural -qhot=arraypad -qessl -qlibessl -lesslsmp
                -lpesslsmp -lblacssmp -lmass -qipa=partition=large -qmaxmem=-1
320.equake_m:   -O5 -qalign=natural -qhot=arraypad -Q
324.apsi_m:     basepeak=true
326.gafort_m:   -O5 -qalign=natural -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:      -O5 -qalign=natural -qhot=arraypad -Q
332.ammp_m:     -O5 -qalign=natural -qhot=arraypad -Q

```

Peak Sources:

318.galgel: eigQR.f90 (for portability to lapack version 3).
 Available as SPEC OMP2001 Source: omp2001-galgel-20020117.tar.gz.
 SPEC OMPL2001 source for 32bit systems modified for SPEC OMPM2001.
 Available as SPEC OMPM2001 Source: ompm2001-srcl32bit-20020925.tar.gz.
 For 312.swim_m, 316.applu_m, 320.equake_m, 326.gafort_m, 330.art_m,
 332.ammp_m.

SCM: Acronym for "Single-Chip Module"

SUT: Acronym for "System Under Test"

The 4-way pSeries 630 machine contains 2 CPU boards.

C: IBM VAC++ invoked as xlc_r

Fortran 90: IBM XL Fortran for AIX invoked as xlf90_r

APAR IY 38292 was applied to AIX to enable new hardware support.

ulimits set to unlimited.

Memory affinity was set as follows:

```

vmo -r -o memory_affinity=1
shutdown -r
export MEMORY_AFFINITY=MCM

```

IBM eServer pSeries 630 Model 6C4 (deskside/desktop server) and pSeries 630 Model 6E4 (rack-mount server) are electronically equivalent.