



# OMPM2001 Result

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IBM Corporation  
IBM eServer p5 520 (1650 MHz, 2CPU, Linux)

SPECompMpeak2001 = 5287  
SPECompMbase2001 = 4758

SPEC license #HPG0005 | Tested by: IBM | Test site: Austin, TX | Test date: Jul-2004 | Hardware Avail: Aug-2004 | Software Avail: Oct-2004

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
310.wupwise_m	6000	934	6427	916	6547
312.swim_m	6000	1533	3914	1546	3881
314.mgrid_m	7300	4571	1597	2166	3371
316.applu_m	4000	801	4993	767	5212
318.galgel_m	5100	388	13132	341	14936
320.equake_m	2600	596	4360	519	5009
324.apsi_m	3400	673	5053	675	5040
326.gafort_m	8700	1745	4985	1745	4985
328.fma3d_m	4600	1521	3023	1537	2994
330.art_m	6400	554	11561	552	11593
332.ammp_m	7000	2501	2799	2259	3099

### Hardware

CPU: POWER5  
 CPU MHz: 1650  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip (SMT on)  
 CPU(s) orderable: 2  
 Primary Cache: 64KBI+32KBD (on chip)/core  
 Secondary Cache: 1920KB unified (on chip)/chip  
 L3 Cache: 36MB unified (off chip)/DCM, 1DCM/SUT  
 Other Cache: None  
 Memory: 8x4 GB  
 Disk Subsystem: 1x72GB SCSI, 15K RPM  
 Other Hardware:

### Software

OpenMP Threads: 4  
 Parallel: OpenMP  
 Operating System: RedHat Enterprise Linux 3 Update3  
 Compiler: XL Fortran Enterprise Edition Version 9.1 for Linux  
 XL C/C++ Enterprise Edition Version 7.0 for Linux  
 Other Software: IBM Engineering and Scientific Subroutine Library for Linux on POWER, Version 4 Release 2  
 File System: ext3  
 System State: Single-user

## Notes/Tuning Information

Tested by IBM Corporation

### 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 -q64 -qipa=partition=large -qmaxmem=-1 -qsmp=omp  
 FORTRAN:-O5 -q32 -qipa=partition=large -qmaxmem=-1 -qsmp=omp

### Base & Peak User Environment:

OMP\_NUM\_THREADS=4  
 OMP\_DYNAMIC=FALSE  
 ENV\_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC  
 MALLOCMULTIHEAP=1

### Peak Flags

-qsmp=omp used in all cases  
 310.wupwise\_m: -O5 -q64 -qsmp=omp -qipa=partition=large -qmaxmem=-1  
 FC=/opt/ibmcmp/xf/9.1/bin/xf90\_r  
 312.swim\_m: -O5 -q32 -qhot -qarch=pwr5 -qtune=pwr5  
 314.mgrid\_m: -O5 -qsmp=omp -q64 -qipa=partition=large -qmaxmem=-1



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## Notes/Tuning Information (Continued)

```
FC=/opt/ibmcmp/xf/9.1/bin/xf_r
316.applu_m: -O5 -q32 -qarch=pwr5 -qtune=pwr5
318.galgel_m: -O5 -q64 -qipa=partition=large -qmaxmem=-1 -qessl -lesslsmp
320.quake_m: -O5 -q32 -qarch=pwr5 -qtune=pwr5 -qhot=arraypad -Q
324.apsi_m: -O4 -q32 -qarch=pwr5 -qtune=pwr5
-qipa=partition=large -qmaxmem=-1
326.gafort_m: basepeak=1
328.fma3d_m: -O5 -q64 -qalign=natural -qhot=arraypad -qipa=noobject
-qipa=partition=large -qmaxmem=-1
330.art_m: -O4 -q64 -qhot
332.amp_m: -O5 -q32 -qhot=arraypad -Q
```

### Alternate sources:

Approved src.alt available as ompm-purdue1-20040324.tar.gz  
Used for 330.art\_m, base and peak.

### Peak sources:

SPEC OMPL2001 source for 32bit systems modified for SPEC OMPM2001 used  
with 312.swim\_m, 316.applu\_m, 320.quake\_m.

SMT: Acronym for "Simultaneous Multi-Threading". A processor technology that allows the simultaneous execution of multiple thread contexts within a single processor core. (Enabled by default)

DCM: Acronym for "Dual-Chip Module" (one dual-core processor chip + one L3-cache chip)

SUT: Acronym for "System Under Test"

C: IBM XL C for Linux invoked as xlc\_r  
Fortran 90 and 77: IBM XL Fortran for Linux invoked as xlf90\_r

Stack size set to unlimited using the command "ulimit -s unlimited".