



# OMPM2001 Result

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Hewlett-Packard Company  
AlphaServer GS1280 Model 64

SPECompMpeak2001 = 50305

SPECompMbase2001 = 35895

SPEC license #HPG0009 | Tested by: HP | Test site: HP-MRO | Test date: Aug-2003 | Hardware Avail: Oct-2003 | Software Avail: Oct-2003

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	94.1	63736	64.4	93103	
312.swim_m	6000	50.0	120104	27.1	221561	
314.mgrid_m	7300	93.5	78097	93.7	77917	
316.applu_m	4000	51.3	77921	34.0	117720	
318.galgel_m	5100	423	12050	298	17117	
320.earthquake_m	2600	145	17872	126	20700	
324.apsi_m	3400	85.2	39918	56.0	60739	
326.gafort_m	8700	229	37954	182	47780	
328.fma3d_m	4600	263	17504	164	27991	
330.art_m	6400	194	32933	109	58740	
332.ammp_m	7000	481	14548	429	16319	

### Hardware

CPU: Alpha 21364  
 CPU MHz: 1150  
 FPU: Integrated  
 CPU(s) enabled: 64  
 CPU(s) orderable: 2 to 64  
 Primary Cache: 64KB(I)+64KB(D) on chip  
 Secondary Cache: 1.75MB on chip per CPU  
 L3 Cache: None  
 Other Cache: None  
 Memory: 256GB (64 \* 10 \* 512MB RIMMs, both controllers populated)  
 2 RIMMS per cpu for error correction  
 Disk Subsystem: 36GB Ultra 160 10KRPM  
 Other Hardware: None

### Software

OpenMP Threads: 64  
 Parallel: OpenMP  
 Operating System: Tru64 UNIX V5.1B (Rev. 2650)  
 +PK3  
 Compiler: Compaq Fortran X5.5-2602-48C8L  
 Compaq C V6.5-011-48C5K  
 File System: UFS  
 System State: Multi-user

## Notes/Tuning Information

OMP\_NUM\_THREADS=64  
 MP\_STACK\_SIZE=10000000  
 4MB pages used (sysconfigtab)  
 no processor sets used

Portability:  
 326.galgel\_m f90 -extended\_source

Baseline F90: -arch ev7 -fast -omp -O5 ONESTEP +PFB +BPD  
 PTHREAD\_CONFIG=feature=def-scs,d4-scs  
 C : -arch ev7 -fast -omp -O4 ONESTEP +PFB +BPD  
 PTHREAD\_CONFIG=feature=def-scs,d4-scs

Peak:  
 All use -arch host -omp ONESTEP  
 Individual benchmark tuning:  
 310.wupwise\_m: f90 -arch host -omp -O5 -call\_shared -inline all  
 -unroll 12 -align commons +PFB +BPD  
 srcalt=ompl.32  
 312.swim\_m: f90 -arch host -omp -O5 +PFB +BPD  
 srcalt=ompl.32



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## Notes/Tuning Information (Continued)

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314.mgrid_m: PTHREAD_CONFIG=feature=def-scs,d4-scs
              f90 -arch host -omp -O5 -transform_loops
              -tune ev7 -unroll 8 +PFB +BPD
              srcalt=ompl.32
316.applu_m:  PTHREAD_CONFIG=feature=def-scs,d4-scs
              f90 -arch host -omp -fast -O5 -unroll 14 +PFB
              srcalt=ompl.32
              PTHREAD_CONFIG=feature=def-scs,d4-scs
              OMP_NUM_THREADS=62
318.galgel_m: f90 -arch host -omp -fast -unroll 5 -O5 +PFB
              OMP_NUM_THREADS=28
320.equake_m: cc -arch host -omp -fast -call_shared -O4 -ldensemalloc
              -assume restricted_pointers -inline speed
              -unroll 13 +PFB +BPD
              srcalt=ompl.32
              PTHREAD_CONFIG=feature=def-scs,d4-scs
324.apsi_m:   f90 -arch host -omp -O5 -transform_loops -unroll 8 +PFB
              srcalt=ompl.32
              PTHREAD_CONFIG=feature=def-scs,d4-scs
326.gafort_m: f90 -arch host -omp -fast -O5 -arch ev67 -tune ev67
              srcalt=ompl.32
              OMP_NUM_THREADS=56
328.fma3d:   f90 -arch host -omp -fast -O4 -transform_loops +PFB +BPD
              srcalt=ompl.32
              PTHREAD_CONFIG=feature=def-scs,d4-scs
330.art_m:   cc -arch host -omp -assume whole_program -ldensemalloc
              -call_shared -assume restricted_pointers
              -fast -O4 -unroll 16 -inline none +PFB +BPD
              srcalt=hpg.1
332.ammp_m:  cc -arch host -omp -O4 -ifo -assume nomath_errno
              -assume trusted_short_alignment -fp_reorder
              -readonly_strings -ldensemalloc
              -assume restricted_pointers -unroll 9
              PTHREAD_CONFIG=feature=def-scs,d4-scs

```

### Alternate sources used for Peak:

SPEC OMPL compatible source for 32 bit systems  
 Available as SPEC OPM2001 source: [ompm2001-src132bit-20020925.tar.gz](http://ftp1.service.digital.com/public/ompl/ompm2001-src132bit-20020925.tar.gz)  
 For 310.wupwise\_m, 312.swim\_m, 314.mgrid\_m, 316.applu\_m, 320.equake\_m  
 324.apsi\_m, 326.gafort\_m, 328.fma3d\_m  
 ISO C and C++ compatible source  
 Available as SPEC OPM2001 source: [ompm2001-isoc-20020619.tar.gz](http://ftp1.service.digital.com/public/ompl/ompm2001-isoc-20020619.tar.gz)  
 For 330.art\_m

Information on UNIX V5.1B Patches can be found at  
<http://ftp1.service.digital.com/public/unix/v5.1/>