



# OMPM2001 Result

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Hewlett-Packard Company  
AlphaServer GS1280 7/1300

SPECompMpeak2001 = 25932

SPECompMbase2001 = 21981

SPEC license #HPG0009 | Tested by: Hewlett-Packard Company | Test site: Marlborough, MA | Test date: Sep-2004 | Hardware Avail: Aug-2004 | Software Avail: Jul-2004

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	288	20839	158	37900	
312.swim_m	6000	80.9	74149	64.1	93612	
314.mgrid_m	7300	221	33033	208	35110	
316.applu_m	4000	166	24025	153	26085	
318.galgel_m	5100	246	20764	243	20969	
320.earthquake_m	2600	257	10107	170	15266	
324.apsi_m	3400	134	25283	111	30495	
326.gafort_m	8700	445	19559	402	21660	
328.fma3d_m	4600	310	14843	264	17404	
330.art_m	6400	217	29538	222	28866	
332.ammp_m	7000	675	10374	678	10331	

### Hardware

CPU: Alpha 21364  
 CPU MHz: 1300  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 16 chips, 1 core/chip  
 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: 2GB per core; 256MB RIMMs; 32GB total  
 Disk Subsystem: 36GB Ultra 160 10KRPM  
 Other Hardware: None

### Software

OpenMP Threads: 16  
 Parallel: OpenMP  
 Operating System: Tru64 UNIX V5.1B-1 + Patch Kit 4  
 Compiler: HP Fortran V5.5A-3548-48D88  
 Compaq C V6.5-011-48C5K  
 File System: UFS  
 System State: Multi-user

## Notes/Tuning Information

MP\_STACK\_SIZE=10000000  
 4Mb pages used (sysconfigtab)  
 no processor sets used

### Tuning pseudo-switches:

+BPD - Big page disable  
 +PFB - Post-link feedback for prefetches  
 See the flags description or the configuration file for more details.

### Base:

Fortran: f90 -arch ev7 -fast -omp -O5  
 C: cc -arch ev7 -fast -omp -O4  
 alternate source purdual for 330.art\_m

### Peak:

All use -arch host -omp ONESTEP  
 Individual benchmark tuning:  
 310.wupwise\_m: f90 -arch host -omp -call\_shared  
                   -inline all -unroll 12 -align commons  
                   +PFB +BPD  
 alternate source omp1.32  
 312.swim\_m: f90 -arch host -omp -fast -O5



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## Notes/Tuning Information (Continued)

```

+PFB +BPD
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

314.mgrid_m: f90 -arch host -omp -O5 -transform_loops
-tune ev7 -unroll 8
+PFB +BPD
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

316.applu_m: f90 -arch host -omp -fast -O5 -unroll 14
+PFB
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

318.galgel_m: f90 -arch host -omp -fast -unroll 5 -O5
+PFB

320.equake_m: cc -arch host -omp -fast -call_shared
-O4 -ldensemalloc -assume restricted_pointers
-inline speed -unroll 13
+PFB +BPD
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

324.apsi_m: f90 -arch host -omp -O5 -transform_loops
-unroll 8
+PFB
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

326.gafort_m: f90 -arch host -omp -fast -O5
-arch ev67 -tune ev67
alternate source omp1.32

328.fma3d: f90 -arch host -omp -fast -O4
-transform_loops
+PFB +BPD
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

330.art_m: cc -arch host -omp -assume whole_program
-ldensemalloc -call_shared
-assume restricted_pointers -fast -O4 -unroll 16
-inline none
+PFB +BPD
alternate source purduel

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

```

Information on UNIX V5.1B Patches can be found at



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## Notes/Tuning Information (Continued)

<http://h30097.www3.hp.com/docs/patch/51B/bl25/ReleaseNotes.pdf>

The densemalloc library provides an alternate set of malloc routines that implement a "dense malloc" memory allocation strategy. This can improve run time performance by reducing bookkeeping overhead and rounding up padding attached to allocated chunks.

File containing flag descriptions can be found at

<http://www.spec.org/omp/results/flags/HP-ALPHA-TRU64-F90-CompaqC.txt>