



OMPL2001 Result

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Hewlett-Packard Company
HP Integrity Superdome 32-way (1500 MHz Itanium 2)

SPECompLpeak2001 = 178617
SPECompLbase2001 = 171159

SPEC license #HPG2116 | Tested by: Hewlett-Packard Company | Test site: Richardson, Texas | Test date: Sep-2003 | Hardware Avail: Oct-2003 | Software Avail: Oct-2003

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
311.wupwise_1	9200	712	206619	701	210117	
313.swim_1	12500	912	219254	912	219254	
315.mgrid_1	13500	1270	170039	1270	170039	
317.applu_1	13500	847	254944	789	273645	
321.quake_1	13000	3443	60411	3443	60411	
325.apsi_1	10500	1022	164316	765	219601	
327.gafort_1	11000	1112	158281	1112	158281	
329.fma3d_1	23500	2248	167232	2248	167232	
331.art_1	25000	1637	244305	1627	245838	

Hardware

CPU: Intel Itanium 2
 CPU MHz: 1500
 FPU: Integrated
 CPU(s) enabled: 32
 CPU(s) orderable: 6 to 32 by 2
 Primary Cache: L1 Inst/Data: 16 KB, associativity = 4
 Secondary Cache: L2 Unified: 256 KB, associativity = 8
 L3 Cache: L3 Unified: 6144 KB, associativity = 24
 Other Cache: None
 Memory: 128GB (256 * 512MB DIMMs)
 Disk Subsystem: root disk 1x36 SCSI
 9x36GB Fibrechannel (striped)
 Other Hardware: --

Software

OpenMP Threads: 32
 Parallel: OpenMP
 Operating System: HPUX11i-TCOE B.11.23
 Compiler: HP C/ANSI C Compiler B.11.23
 HP aC++ Compiler B.11.23
 HP Fortran 90 Compiler B.11.23
 HP LIBF90 PHSS_29620
 HP F90 Compiler PHSS_29663
 HP aC++ Compiler PHSS_29655
 HP C Compiler PHSS_29656
 u2comp/be/plugin library PHSS_29657
 File System: vxfs
 System State: Multi-user

Notes/Tuning Information

User environment:

```
MP_IDLE_THREADS_WAIT=-1
OMP_FIRST_USE=0
```

Base:

```
F90 +Ofaster +DSitanium2 +Oopenmp
+Oinfo +DD64 -minshared
cc +Ofaster +Oopenmp +DD64 +Oinfo +DSitanium2
-minshared -AOe +Ofltacc=default
submit = chatr -s +id disable +pd 64k +pi 64k $commandexe; \
_M_ARENA_OPTS=64:32 _M_SBA_OPTS=16348:150:256 \
mpsched -T FILL $command
```

Peak:

```
311.wupwise_1: +Ofaster +O3 +DSitanium2 +Oopenmp
+Oinfo +DD64 -minshared +cat -Wl,+pd64k -Wl,+pi64k
ONESTEP = true

313.swim_1: basepeak=true

315.mgrid_1: basepeak=true

317.applu_1: +Ofaster +DSitanium +Oopenmp +Oinfo
+DD64 -minshared
```



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Notes/Tuning Information (Continued)

```
ONESTEP=true
submit = chatr -s +id disable +pd 256k +pi 256k $commandexe;
_M_ARENA_OPTS=64:32 mpsched -T FILL $command
```

321.equake_1: basepeak=true

```
325.apsi_1: +Ofaster +DSitanium2 +Oopenmp +Oinfo +DD64 -minshared
submit = chatr -s +id disable +pd 256k +pi 256k $commandexe;
_M_ARENA_OPTS=64:32 mpsched -T FILL $command
```

327.gafort_1: basepeak=true

329.fma3d_1: basepeak=true

```
331.art_1: +Ofaster +Oopenmp +DD64 +Oinfo +DSitanium2
-minshared -AOe +Ofltacc=default
submit = chatr -s +id disable +pd 256k +pi 256k $commandexe;
_M_ARENA_OPTS=64:32 _M_SBA_OPTS=16348:150:256
mpsched -T FILL $command
```

Alternate Sources:

```
ifdef version of art
from SPEC Web site omp12001-fabs-20030401.tar.gz
used for Base and Peak 331.art_1
```

Kernel Parameters (/stand/system):

```
maxdsiz      0xc0000000
maxdsiz_64bit 0x3fffbfffff
maxssiz      0x17f00000
maxssiz_64bit 0x40000000
maxtsiz      0x40000000
maxtsiz_64bit 0x40000000
vps_pagesize 4096
vps_ceiling  16384
dbc_min_pct  20
dbc_max_pct  20
swapmem_on   0
```

Notes:

System was configured with 1/2 of memory interleaved and 1/2 of memory local to each cell

System configured as a single partition with 8 cells and 4 processors per cell

Threads were assigned to cpus using the FILL strategy from the HP-UX mpsched utility

Memory tuning is documented in man page malloc(3C)

```
_M_ARENA_OPTS=64:32
64 malloc arenas, 32 4k pages expansion
_M_SBA_OPTS=16348:150:256
16384 maxfast size, 150 small blocks, 256 grain size
```