Hewlett-Packard Company
HP 9000 rp7420-16 (1000MHz PA-8800, 2 cells)

SPECfp_rate2000 = 62.5
SPECfp_rate_base2000 = 57.7

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<tr>
<th>Benchmark</th>
<th>Base Copies</th>
<th>Base Runtime</th>
<th>Base Ratio</th>
<th>Copies</th>
<th>Runtime</th>
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</tbody>
</table>

Notes/Tuning Information

Portability flags:
178.galgel: +source=fixed

Baseline compile flags:
Fortran: +Ofaster -Wl,-a,archive
C      : +I/+P +Oall +Odataprefetch -Wl,-a,archive

Peak compile flags:
168.wupwise: (ONESTEP) +cat +Ofaster -Wl,-a,archive
171.swim: basepeak=true
172.mgrid: basepeak=true
173.applu: basepeak=true
177.mesa: +I/+P +O4 +Odataprefetch -Wl,-a,archive
178.galgel: +Ofaster +Oloop_unroll=6 -Wl,-a,archive
179.art: +I/+P +Oall +Optrs_strongly_typed +Opromote_indirect_calls -Wl,-a,archive
183.equake: +O4 +Olibcalls +Odataprefetch +Optrs_strongly_typed

Hardware
CPU: PA-8800
CPU MHz: 1000
FPU: Integrated
CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip
CPU(s) orderable: 4,8,12,16 (order by # cores)
Parallel: no
Primary Cache: 0.75MBI + 0.75MBD (on chip) per core
Secondary Cache: 32MB (off chip) shared by 2 cores
L3 Cache: N/A
Other Cache: N/A
Memory: 32GB (32 * 1024MB DIMMs)
Disk Subsystem: 1x36GB 10K rpm SCSI
Other Hardware: N/A

Software
Operating System: HPUX11i-TCOE B.11.11.0312
Compiler: HP C/ANSI C B.11.11.08
File System: OnLineJFS
System State: Multi-user

Software
Compiler: HP Fortran90 Compiler B.11.01.74

Notes/Tuning Information

Baseline compile flags:
Fortran: +Ofaster -Wl,-a,archive
C      : +I/+P +Oall +Odataprefetch -Wl,-a,archive

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173.applu: basepeak=true
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178.galgel: +Ofaster +Oloop_unroll=6 -Wl,-a,archive
179.art: +I/+P +Oall +Optrs_strongly_typed +Opromote_indirect_calls -Wl,-a,archive
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Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org
Hewlett-Packard Company
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Notes/Tuning Information (Continued)

+Opromote_indirect_calls -Wl,+FPD -Wl,-a,archive
187.facerec: (ONESTEP) +cat +Ofaster +Ofastaccess -Wl,-a,archive
188.ammp: +I/+P +Oall +Odataprefetch +Optrs_strongly Typed
+Opromote_indirect calls -Wl,-a,archive
189.lucas: basepeak=true
191.fma3d: basepeak=true
200.sixtrack: (ONESTEP) +cat +O3 +Onolibcalls +Onolimit +Onoline
+Onodataprefetch -Wl,+FPD -Wl,-a,archive
301.apsi: basepeak=true

Kernel Tunables:
dbc_max_pct=20
dbc_min_pct=20
maxdsiz=3221225472
maxssiz=401604608
maxdsiz_64bit=4396972761584
maxssiz_64bit=1073741824
vps_pagesize=4096
vps_ceiling=16384

Other notes:
The system under test had the HP-UX 11i v1 December 2003
Technical Computing Operating Environment (version 11.11.0312)
and DART63 (December 2003) compilers installed, with the
following patches applied:

GOLDA1PS11i Gold Applications Patches for HP-UX 11i v1, December 2003
GOLDBASE11i Gold Base Patches for HP-UX 11i v1, December 2003
HWEnable11i Hardware Enablement Patches for HP-UX 11i v1, December 2003
HWETEST11i Hardware Enablement Patches for PA-8800 (prerelease)
PHSS_29483 A C++ compiler cumulative patch (A.03.52)
PHSS_30002 Fortran90 cumulative patch (B.11.01.74)

System was configured with all memory interleaved

System configured as a single partition with 2 cells and
2 PA-8800 modules (each with 2 processors) per cell
(unused processors deconfigured with firmware command
"cpuconfig <cell> <cpu> off" prior to booting)

Filesystem used for spec runs mounted "tmplog"