Quad Vectorization

- Bifrost uses quad-parallel execution
 - Four scalar threads executed in lockstep in a "quad"
 - One quad at a time executes in each pipeline stage
 - Each thread fills one 32-bit lane of the hardware
 - 4 threads doing a vec3 FP32 add takes 3 cycles
 - Improves utilization
- Quad vectorization is compiler friendly
 - Each thread only sees a stream of scalar operations
 - Vector operations can always be split into scalars

