Code Generation in VeGen

1 Vector Pack Set

VectorPackSet has a method called codegen. The method takes two parameters: a Builder and Paker (Pkr).

- If AllPacks is not empty, print "Vectorized" and the name of the function from Pkr.
- For each VP in AllPacks, and for each pair of instructions in VP, fuse or co-iterate their loops.
- Create a ControlReifier with the context and the data analysis from Paker. Get the loop info and the vector loop info from Packer.
- Define a function ReifyOneHots that takes a vector loop VL as a parameter. For each instruction I in VL, if I is a phi node and has a one-hot phi, reify its condition.
- For each loop L in LI in preorder, get the vector loop for L, reify the back edge condition of VL, and call ReifyOneHots on VL. Then Call ReifyOneHots on the top vector loop.
- For each VP in AllPacks, reify divergent loads and stores conditions.

2 Lower everything

VeGen defines a class VectorCodeGen with a method run, which takes no parameters and returns nothing.

2.1 emit loop