```
%12 = \text{sext i} 32 \% 2 \text{ to i} 64
                                                        %13 = icmp slt i64 %12, 32
                                                        %14 = select i1 %13, i64 %12, i64 32
                                                        %15 = \text{sext i} 32 \% 1 \text{ to i} 64
                                                        %16 = icmp slt i64 %15, 8
                                                        %17 = select i1 %16, i64 %15, i64 8
                                                        %mul.i.i = shl i64 %8, 5
                                                        %mul3.i.i = shl i64 %9, 3
                                                       %mul6.i = mul i32 %6, %1, !llvm.access.group !12
                                                        %18 = icmp ugt i64 \%14, 1
                                                       %umax = select i1 %18, i64 %14, i64 1
                                                        %19 = icmp ugt i64 \%17, 1
                                                        %umax1 = select i1 %19, i64 %17, i64 1
                                                        %20 = add nsw i64 %umax, -1
                                                        %21 = \text{trunc } i64 \%9 \text{ to } i32
                                                        %22 = shl i32 \%21.3
                                                       %23 = add i32 %mul6.i, %22
                                                        %24 = \text{mul i} 32 \%23, \%2
                                                        %25 = \text{trunc } i64 \%8 \text{ to } i32
                                                        %26 = \text{shl i} 32 \% 25, 5
                                                        %27 = add i32 %24, %26
                                                        br label %pregion for entry.pregion for init.i
                             pregion for entry pregion for init.i:
                              % [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0
                              \%28 = \text{trunc } i64 \% \text{ local id y.0 to } i32
                              %29 = \text{mul i} 32 \% 28, \%2
                              %30 = add i32 %29, %27
                              %add6.i.i = add i64 %_local_id_y.0, %mul3.i.i, !llvm.access.group !12
                              %conv2.i = trunc i64 %add6.i.i to i32, !llvm.access.group !12
                              %reass.add.i = add i32 %mul6.i, %conv2.i, !llvm.access.group !12
                              %reass.mul.i = mul i32 %reass.add.i, %2, !llvm.access.group !12
                              %min.iters.check = icmp ult i64 %umax, 32
                              br i1 %min.iters.check, label %pregion for entry.entry.i.preheader, label
                             ... %vector.scevcheck
                                                                     Τ
                                                                                                                                                               F
                                                                           vector.scevcheck:
                                                                            %31 = trunc i64 %20 to i32
                                                                             %32 = add i32 %30, %31
                                                                            %33 = icmp slt i32 %32, %30
                                                                             %34 = icmp ugt i64 %20, 4294967295
                                                                            %35 = \text{ or i } 1 \%33, \%34
                                                                            br i1 %35, label %pregion for entry.entry.i.preheader, label %vector.ph
                                                                                                                   Т
                                                                                                                                                                     vector.ph:
                                                                                                                                                                      %n.vec = and i64 %umax, -32
                                                                                                                                                                      br label %vector.body
                                                                                                          vector.body:
                                                                                                           %index = phi i64 [ 0, %vector.ph ], [ %index.next, %vector.body ]
                                                                                                           %36 = add i64 %index, %mul.i.i, !llvm.access.group !12
                                                                                                           %37 = trunc i64 %36 to i32, !llvm.access.group !12
                                                                                                           %38 = add i32 %reass.mul.i, %37, !llvm.access.group !12
                                                                                                           %39 = sext i32 %38 to i64, !llvm.access.group !12
                                                                                                           %40 = getelementptr inbounds float, float* %5, i64 %39, !llvm.access.group
                                                                                                          ... !12
                                                                                                           %41 = bitcast float* %40 to <8 x float>*
                                                                                                           %wide.load = load < 8 \times \text{float} > . < 8 \times \text{float} > * \%41. align 4. !tbaa !15.
                                                                                                          ...!llvm.access.group!12
                                                                                                           %42 = getelementptr inbounds float, float* %40, i64 8
                                                                                                           %43 = bitcast float* %42 to <8 x float>*
                                                                                                           \text{wide.load3} = \text{load} < 8 \times \text{float} > 0.00 \times 0
                                                                                                          ...!llvm.access.group!12
                                                                                                           %44 = getelementptr inbounds float, float* %40, i64 16
                                                                                                           %45 = bitcast float* %44 to <8 x float>*
                                                                                                           %wide.load4 = load <8 x float>, <8 x float>* \%45, align 4, !tbaa !15,
                                                                                                          ...!llvm.access.group!12
                                                                                                           %46 = getelementptr inbounds float, float* %40, i64 24
                                                                                                           %47 = bitcast float* %46 to <8 x float>*
                                                                                                           %wide.load5 = load <8 x float>, <8 x float>* %47, align 4, !tbaa !15,
                                                                                                          ...!llvm.access.group!12
                                                                                                          %48 = getelementptr inbounds float, float* %3, i64 %39, !llvm.access.group
                                                                                                          ... !12
                                                                                                          %49 = bitcast float* %48 to <8 x float>*
                                                                                                          store <8 x float> %wide.load, <8 x float>* %49, align 4, !tbaa !15,
                                                                                                          ...!llvm.access.group!12
                                                                                                          %50 = getelementptr inbounds float, float* %48, i64 8
                                                                                                           \%51 = bitcast float* \%50 to <8 x float>*
                                                                                                           store <8 \times \text{float}> \text{wide.load3}, <8 \times \text{float}> \text{$*$} \%51, \text{ align } 4, \text{!tbaa } \text{!15},
                                                                                                          ...!llvm.access.group!12
                                                                                                           %52 = getelementptr inbounds float, float* %48, i64 16
                                                                                                           \%53 = bitcast float* \%52 to <8 x float>*
                                                                                                           store <8 x float> %wide.load4, <8 x float>* %53, align 4, !tbaa !15,
                                                                                                          ...!llvm.access.group!12
                                                                                                           %54 = getelementptr inbounds float, float* %48, i64 24
                                                                                                           \%55 = bitcast float* \%54 to < 8 x float>*
                                                                                                           store <8 \times \text{float}> \text{wide.load5}, <8 \times \text{float}> \text{*} \%55, \text{ align } 4, \text{!tbaa !15},
                                                                                                          ...!llvm.access.group!12
                                                                                                           %index.next = add i64 %index, 32
                                                                                                           %56 = icmp eq i64 %index.next, %n.vec
                                                                                                           br i1 %56, label %middle.block, label %vector.body, !llvm.loop !19
                                                                                                                                                                                                                                                   \mathbf{F}
                                                                                                    middle.block:
                                                                                                     %cmp.n = icmp eq i64 %umax, %n.vec
                                                                                                     br i1 %cmp.n, label %pregion for end.i, label
                                                                                                    ... %pregion for entry.entry.i.preheader
                                                                                                                            Τ
       pregion for entry.entry.i.preheader:
         % local id x.0.ph = phi i64 [0, %vector.scevcheck], 
        ... %pregion for entry pregion for init.i ]. [ %n.vec. %middle.block ]
        br label %pregion for entry.entry.i
pregion for entry.entry.i:
%_local_id_x.0 = phi i64 [ %58, %pregion_for_entry.entry.i ], [ ... %_local_id_x.0.ph, %pregion_for_entry.entry.i.preheader ]
%add1.i.i = add i64 %_local_id_x.0, %mul.i.i, !llvm.access.group !12
%conv.i = trunc i64 %add1.i.i to i32, !llvm.access.group !12
%add8.i = add i32 %reass.mul.i, %conv.i, !llvm.access.group !12
 %idxprom.i = sext i32 %add8.i to i64. !llvm.access.group !12
 %arrayidx.i = getelementptr inbounds float, float* %5, i64 %idxprom.i,
 ..!llvm.access.group!12
%57 = load float, float* %arrayidx.i, align 4, !tbaa !15, !llvm.access.group
%arrayidx15.i = getelementptr inbounds float, float* %3, i64 %idxprom.i,
...!llvm.access.group!12
store float %57, float* %arrayidx15.i, align 4, !tbaa !15,
...!llvm.access.group!12
%58 = add nuw i64\% local id x.0, 1
 \%exitcond.not = icmp eq i6\overline{4} \%58. \%umax
br i1 %exitcond.not, label %pregion for end.i.loopexit, label
... %pregion for entry.entry.i. !llvm.loop [22]
                                                                                                                                     F
                                                              pregion for end.i.loopexit:
                                                                br label %pregion for end.i
                                                                                                                                pregion for end.i:
                                                                                                                                 %59 = add \text{ nuw } i64 \% \text{ local } id y.0, 1
                                                                                                                                 %exitcond2.not = icm\overline{p} eq i\overline{64} \overline{\%}59, %umax1
                                                                                                                                 br i1 %exitcond2.not, label %doitgen kernel2.exit, label
                                                                                                                                ... %pregion for entry.pregion for init.i, !llvm.loop!23
                                                                                                                                                                                                                                     F
                                                                                                                                      doitgen kernel2.exit:
```

%11:

...!12