

```
%8:
%mul.i.i = shl i64 %5, 8
%cmp288.i = icmp sgt i32 %3, 1, !llvm.access.group !12
%wide.trip.count.i = sext i32 %3 to i64
%9 = add nsw i32 %3, -2
%scevgep12 = getelementptr float, float* %2, i64 %wide.trip.count.i
%scevgep17 = getelementptr float, float* %1, i64 %wide.trip.count.i
%10 = add nsw i64 %wide.trip.count.i, -2
%11 = trunc i64 %5 to i32
%12 = mul i32 %11, %3
%13 = shl i32 %12, 8
%14 = trunc i64 %5 to i32
%15 = mul i32 %14, %3
%16 = shl i32 %15, 8
br label %pregion_for_entry.entry.i
```

```
pregion_for_entry.entry.i:
% local_id_x.0 = phi i64 [ 0, %8 ], [ %52, %if.end.i ]
%17 = trunc i64 % local_id_x.0 to i32
%18 = mul i32 %17, %3
%19 = add i32 %18, %16
%20 = sext i32 %19 to i64
%scevgep21 = getelementptr float, float* %2, i64 %20
%scevgep22 = getelementptr float, float* %1, i64 %20
%21 = trunc i64 % local_id_x.0 to i32
%22 = mul i32 %21, %3
%23 = add i32 %22, %13
%add1.i.i = add nuw nsw 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
%cmp.i = icmp slt i32 %conv.i, %3, !llvm.access.group !12
%or.cond.i = and i1 %cmp288.i, %cmp.i, !llvm.access.group !12
br i1 %or.cond.i, label %for.body.lver.check.i, label %if.end.i,
... !llvm.access.group !12
```

```
for.body.lver.check.i:
%mul.i = mul i32 %conv.i, %3, !llvm.access.group !12
%24 = sext i32 %mul.i to i64, !llvm.access.group !12
%scevgep.i = getelementptr float, float* %2, i64 %24, !llvm.access.group !12
%25 = add nsw i64 %24, %wide.trip.count.i, !llvm.access.group !12
%scevgep92.i = getelementptr float, float* %2, i64 %25, !llvm.access.group
... !12
%scevgep94.i = getelementptr float, float* %1, i64 %24, !llvm.access.group
... !12
%scevgep96.i = getelementptr float, float* %1, i64 %25, !llvm.access.group
... !12
%bound0.i = icmp ult float* %scevgep.i, %scevgep96.i, !llvm.access.group !12
%bound1.i = icmp ult float* %scevgep94.i, %scevgep92.i, !llvm.access.group
... !12
%found.conflict.i = and i1 %bound0.i, %bound1.i, !llvm.access.group !12
%26 = add i32 %9, %mul.i, !llvm.access.group !12
%27 = icmp slt i32 %26, %mul.i, !llvm.access.group !12
%lver.safe.i = or i1 %27, %found.conflict.i, !llvm.access.group !12
br i1 %lver.safe.i, label %for.body.lver.orig.lver.orig.i.lver.check, label
... %for.body.ph.i, !llvm.access.group !12
```

```
for.body.lver.orig.lver.orig.i.lver.check:
%sub.lver.orig.i = add i32 %mul.i, -1, !llvm.access.group !12
%bound0 = icmp ugt float* %scevgep17, %2
%bound1 = icmp ugt float* %scevgep12, %1
%found.conflict = and i1 %bound0, %bound1
%28 = trunc i64 %10 to i32
%29 = add i32 %23, %28
%30 = icmp slt i32 %29, %23
%31 = icmp ugt i64 %10, 4294967295
%32 = or i1 %30, %31
%lver.safe = or i1 %found.conflict, %32
br i1 %lver.safe, label %for.body.lver.orig.lver.orig.i.lver.orig.preheader,
... label %for.body.lver.orig.lver.orig.i.ph
```

```
for.body.ph.i:
%load_initial.i = load float, float* %scevgep.i, align 4, !llvm.access.group
... !12
%load_initial102.i = load float, float* %scevgep94.i, align 4,
... !llvm.access.group !12
br label %for.body.i, !llvm.access.group !12
```

```
for.body.i:
%indvars.iv.next.i6 = phi i64 [ %indvars.iv.next.i, %for.body.i ], [ 1,
... %for.body.ph.i ]
%sub18.i4 = phi float [ %sub18.i, %for.body.i ], [ %load_initial.i,
... %for.body.ph.i ]
%sub42.i2 = phi float [ %sub42.i, %for.body.i ], [ %load_initial102.i,
... %for.body.ph.i ]
%47 = add nsw i64 %indvars.iv.next.i6, %24, !llvm.access.group !12
%arrayidx.i = getelementptr inbounds float, float* %2, i64 %47,
... !llvm.access.group !12
%48 = load float, float* %arrayidx.i, align 4, !tbaa !14, !llvm.access.group
... !12
%arrayidx11.i = getelementptr inbounds float, float* %0, i64 %47,
... !llvm.access.group !12
%49 = load float, float* %arrayidx11.i, align 4, !tbaa !14,
... !llvm.access.group !12
%mul12.i = fmul float %sub18.i4, %49, !llvm.access.group !12
%div.i = fdiv float %mul12.i, %sub42.i2, !fpmath !18, !llvm.access.group !12
%sub18.i = fsub float %48, %div.i, !llvm.access.group !12
store float %sub18.i, float* %arrayidx.i, align 4, !tbaa !14,
... !llvm.access.group !12
%arrayidx26.i = getelementptr inbounds float, float* %1, i64 %47,
... !llvm.access.group !12
%50 = load float, float* %arrayidx26.i, align 4, !tbaa !14,
... !llvm.access.group !12
%51 = load float, float* %arrayidx11.i, align 4, !tbaa !14,
... !llvm.access.group !12
%mul35.i = fmul float %51, %51, !llvm.access.group !12
%div41.i = fdiv float %mul35.i, %sub42.i2, !fpmath !18, !llvm.access.group
... !12
%sub42.i = fsub float %50, %div41.i, !llvm.access.group !12
store float %sub42.i, float* %arrayidx26.i, align 4, !tbaa !14,
... !llvm.access.group !12
%indvars.iv.next.i = add nuw nsw i64 %indvars.iv.next.i6, 1,
... !llvm.access.group !12
%exitcond.not.i = icmp eq i64 %indvars.iv.next.i, %wide.trip.count.i,
... !llvm.access.group !12
br i1 %exitcond.not.i, label %if.end.i.loopexit30, label %for.body.i,
... !llvm.loop !19, !llvm.access.group !12
```

```
for.body.lver.orig.lver.orig.i.lver.orig.preheader:
br label %for.body.lver.orig.lver.orig.i.lver.orig
```

```
for.body.lver.orig.lver.orig.i.ph:
%load_initial = load float, float* %scevgep21, align 4
%load_initial23 = load float, float* %scevgep22, align 4
br label %for.body.lver.orig.lver.orig.i, !llvm.access.group !12
```

```
for.body.lver.orig.lver.orig.i.lver.orig:
%indvars.iv.next.lver.orig.lver.orig.i8.lver.orig = phi i64 [
... %indvars.iv.next.lver.orig.lver.orig.i.lver.orig,
... %for.body.lver.orig.lver.orig.i.lver.orig ], [ 1,
... %for.body.lver.orig.lver.orig.i.lver.orig.preheader ]
%33 = add nsw i64 %indvars.iv.next.lver.orig.lver.orig.i8.lver.orig, %24,
... !llvm.access.group !12
%arrayidx.lver.orig.lver.orig.i.lver.orig = getelementptr inbounds float,
... float* %2, i64 %33, !llvm.access.group !12
%34 = load float, float* %arrayidx.lver.orig.lver.orig.i.lver.orig, align 4,
... !tbaa !14, !llvm.access.group !12
%35 = trunc i64 %indvars.iv.next.lver.orig.lver.orig.i8.lver.orig to i32,
... !llvm.access.group !12
%add5.lver.orig.lver.orig.i.lver.orig = add i32 %sub.lver.orig.i, %35,
... !llvm.access.group !12
%idxprom6.lver.orig.lver.orig.i.lver.orig = sext i32
... %add5.lver.orig.lver.orig.i.lver.orig to i64, !llvm.access.group !12
%arrayidx7.lver.orig.lver.orig.i.lver.orig = getelementptr inbounds float,
... float* %2, i64 %idxprom6.lver.orig.lver.orig.i.lver.orig, !llvm.access.group
... !12
%36 = load float, float* %arrayidx7.lver.orig.lver.orig.i.lver.orig, align
... 4, !tbaa !14, !llvm.access.group !12
%arrayidx11.lver.orig.lver.orig.i.lver.orig = getelementptr inbounds float,
... float* %0, i64 %33, !llvm.access.group !12
%37 = load float, float* %arrayidx11.lver.orig.lver.orig.i.lver.orig, align
... 4, !tbaa !14, !llvm.access.group !12
%mul12.lver.orig.lver.orig.i.lver.orig = fmul float %36, %37,
... !llvm.access.group !12
%arrayidx17.lver.orig.lver.orig.i.lver.orig = getelementptr inbounds float,
... float* %1, i64 %idxprom6.lver.orig.lver.orig.i.lver.orig, !llvm.access.group
... !12
%38 = load float, float* %arrayidx17.lver.orig.lver.orig.i.lver.orig, align
... 4, !tbaa !14, !llvm.access.group !12
%div.lver.orig.lver.orig.i.lver.orig = fdiv float
... %mul12.lver.orig.lver.orig.i.lver.orig, %38, !fpmath !18, !llvm.access.group
... !12
%sub18.lver.orig.lver.orig.i.lver.orig = fsub float %34,
... %div.lver.orig.lver.orig.i.lver.orig, !llvm.access.group !12
store float %sub18.lver.orig.lver.orig.i.lver.orig, float*
... %arrayidx.lver.orig.lver.orig.i.lver.orig, align 4, !tbaa !14,
... !llvm.access.group !12
%arrayidx26.lver.orig.lver.orig.i.lver.orig = getelementptr inbounds float,
... float* %1, i64 %33, !llvm.access.group !12
%39 = load float, float* %arrayidx26.lver.orig.lver.orig.i.lver.orig, align
... 4, !tbaa !14, !llvm.access.group !12
%40 = load float, float* %arrayidx11.lver.orig.lver.orig.i.lver.orig, align
... 4, !tbaa !14, !llvm.access.group !12
%mul35.lver.orig.lver.orig.i.lver.orig = fmul float %40, %40,
... !llvm.access.group !12
%41 = load float, float* %arrayidx17.lver.orig.lver.orig.i.lver.orig, align
... 4, !tbaa !14, !llvm.access.group !12
%div41.lver.orig.lver.orig.i.lver.orig = fdiv float
... %mul35.lver.orig.lver.orig.i.lver.orig, %41, !fpmath !18, !llvm.access.group
... !12
%sub42.lver.orig.lver.orig.i.lver.orig = fsub float %39,
... %div41.lver.orig.lver.orig.i.lver.orig, !llvm.access.group !12
store float %sub42.lver.orig.lver.orig.i.lver.orig, float*
... %arrayidx26.lver.orig.lver.orig.i.lver.orig, align 4, !tbaa !14,
... !llvm.access.group !12
%indvars.iv.next.lver.orig.lver.orig.i.lver.orig = add nuw nsw i64
... %indvars.iv.next.lver.orig.lver.orig.i8.lver.orig, 1, !llvm.access.group !12
%exitcond.not.lver.orig.lver.orig.i.lver.orig = icmp eq i64
... %indvars.iv.next.lver.orig.lver.orig.i.lver.orig, %wide.trip.count.i,
... !llvm.access.group !12
br i1 %exitcond.not.lver.orig.lver.orig.i.lver.orig, label
... %if.end.i.loopexit, label %for.body.lver.orig.lver.orig.i.lver.orig,
... !llvm.loop !19, !llvm.access.group !12
```

```
for.body.lver.orig.lver.orig.i:
%store_forwarded24 = phi float [ %load_initial23,
... %for.body.lver.orig.lver.orig.i.ph ], [ %sub42.lver.orig.lver.orig.i,
... %for.body.lver.orig.lver.orig.i ]
%store_forwarded = phi float [ %load_initial,
... %for.body.lver.orig.lver.orig.i.ph ], [ %sub18.lver.orig.lver.orig.i,
... %for.body.lver.orig.lver.orig.i ]
%indvars.iv.next.lver.orig.lver.orig.i8 = phi i64 [ 1,
... %for.body.lver.orig.lver.orig.i.ph ], [
... %indvars.iv.next.lver.orig.lver.orig.i, %for.body.lver.orig.lver.orig.i ]
%42 = add nsw i64 %indvars.iv.next.lver.orig.lver.orig.i8, %24,
... !llvm.access.group !12
%arrayidx.lver.orig.lver.orig.i = getelementptr inbounds float, float* %2,
... i64 %42, !llvm.access.group !12
%43 = load float, float* %arrayidx.lver.orig.lver.orig.i, align 4, !tbaa
... !14, !llvm.access.group !12
%arrayidx11.lver.orig.lver.orig.i = getelementptr inbounds float, float* %0,
... i64 %42, !llvm.access.group !12
%44 = load float, float* %arrayidx11.lver.orig.lver.orig.i, align 4, !tbaa
... !14, !llvm.access.group !12
%mul12.lver.orig.lver.orig.i = fmul float %store_forwarded, %44,
... !llvm.access.group !12
%div.lver.orig.lver.orig.i = fdiv float %mul12.lver.orig.lver.orig.i,
... %store_forwarded24, !fpmath !18, !llvm.access.group !12
%sub18.lver.orig.lver.orig.i = fsub float %43, %div.lver.orig.lver.orig.i,
... !llvm.access.group !12
store float %sub18.lver.orig.lver.orig.i, float*
... %arrayidx26.lver.orig.lver.orig.i, align 4, !tbaa !14, !llvm.access.group !12
%arrayidx26.lver.orig.lver.orig.i = getelementptr inbounds float, float* %1,
... i64 %42, !llvm.access.group !12
%45 = load float, float* %arrayidx26.lver.orig.lver.orig.i, align 4, !tbaa
... !14, !llvm.access.group !12
%46 = load float, float* %arrayidx11.lver.orig.lver.orig.i, align 4, !tbaa
... !14, !llvm.access.group !12
%mul35.lver.orig.lver.orig.i = fmul float %46, %46, !llvm.access.group !12
%div41.lver.orig.lver.orig.i = fdiv float %mul35.lver.orig.lver.orig.i,
... %store_forwarded24, !fpmath !18, !llvm.access.group !12
%sub42.lver.orig.lver.orig.i = fsub float %45, %div41.lver.orig.lver.orig.i,
... !llvm.access.group !12
store float %sub42.lver.orig.lver.orig.i, float*
... %arrayidx26.lver.orig.lver.orig.i, align 4, !tbaa !14, !llvm.access.group !12
%indvars.iv.next.lver.orig.lver.orig.i = add nuw nsw i64
... %indvars.iv.next.lver.orig.lver.orig.i8, 1, !llvm.access.group !12
%exitcond.not.lver.orig.lver.orig.i = icmp eq i64
... %indvars.iv.next.lver.orig.lver.orig.i, %wide.trip.count.i,
... !llvm.access.group !12
br i1 %exitcond.not.lver.orig.lver.orig.i, label %if.end.i.loopexit29, label
... %for.body.lver.orig.lver.orig.i, !llvm.loop !19, !llvm.access.group !12
```

```
if.end.i.loopexit:
br label %if.end.i
```

```
if.end.i.loopexit29:
br label %if.end.i
```

```
if.end.i.loopexit30:
br label %if.end.i
```

```
if.end.i:
%52 = add nuw nsw i64 % local_id_x.0, 1
%exitcond.not = icmp eq i64 %52, 256
br i1 %exitcond.not, label %adi_kernel1.exit, label
... %pregion_for_entry.entry.i, !llvm.loop !21
```

```
adi_kernel1.exit:
ret void
```