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%10:  
%11 = sext i32 %5 to i64  
%12 = icmp slt i64 %11, 32  
%13 = select i1 %12, i64 %11, i64 32  
%14 = icmp slt i64 %11, 8  
%15 = select i1 %14, i64 %11, i64 8  
%mul.i.i = shl i64 %7, 5  
%mul3.i.i = shl i64 %8, 3  
%16 = icmp ugt i64 %13, 1  
%umax = select i1 %16, i64 %13, i64 1  
%17 = icmp ugt i64 %15, 1  
%umax1 = select i1 %17, i64 %15, i64 1  
%min.itors.check = icmp ult i64 %umax1, 8  
br i1 %min.itors.check, label  
... %pregion_for_entry.pregion_for_init.i.preheader, label %vector.ph
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vector.ph:  
%n.vec = and i64 %umax1, -8  
%broadcast.splatinsert = insertelement <8 x i64> undef, i64 %mul3.i.i, i32 0  
%broadcast.splat = shufflevector <8 x i64> %broadcast.splatinsert, <8 x i64>  
... undef, <8 x i32> zeroinitializer  
%broadcast.splatinsert3 = insertelement <8 x i32> undef, i32 %5, i32 0  
%broadcast.splat4 = shufflevector <8 x i32> %broadcast.splatinsert3, <8 x  
... i32> undef, <8 x i32> zeroinitializer  
%broadcast.splatinsert6 = insertelement <8 x i64> undef, i64 %mul.i.i, i32 0  
%broadcast.splat7 = shufflevector <8 x i64> %broadcast.splatinsert6, <8 x  
... i64> undef, <8 x i32> zeroinitializer  
%broadcast.splatinsert12 = insertelement <8 x i64> undef, i64 %umax, i32 0  
%broadcast.splat13 = shufflevector <8 x i64> %broadcast.splatinsert12, <8 x  
... i64> undef, <8 x i32> zeroinitializer  
br label %vector.body
```

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vector.body:  
%index = phi i64 [ 0, %vector.ph ], [ %index.next, %pregion_for_end.i14 ]  
%vec.ind = phi <8 x i64> [ <i64 0, i64 1, i64 2, i64 3, i64 4, i64 5, i64 6,  
... i64 7>, %vector.ph ], [ %vec.ind.next, %pregion_for_end.i14 ]  
%18 = add <8 x i64> %vec.ind, %broadcast.splat, !llvm.access.group !12  
%19 = trunc <8 x i64> %18 to <8 x i32>, !llvm.access.group !12  
%20 = shl <8 x i64> %18, <i64 32, i64 32, i64 32, i64 32, i64 32, i64 32,  
... i64 32, i64 32>, !llvm.access.group !12  
%21 = ashr exact <8 x i64> %20, <i64 32, i64 32, i64 32, i64 32, i64 32, i64  
... 32, i64 32, i64 32>, !llvm.access.group !12  
%22 = getelementptr inbounds float, float* %3, <8 x i64> %21,  
... !llvm.access.group !12  
%23 = getelementptr inbounds float, float* %4, <8 x i64> %21,  
... !llvm.access.group !12  
%24 = mul nsw <8 x i32> %broadcast.splat4, %19, !llvm.access.group !12  
br label %pregion_for_entry.entry.i5
```

```
pregion_for_entry.entry.i5:  
%vec.phi = phi <8 x i64> [ zeroinitializer, %vector.body ], [ %37,  
... %pregion_for_entry.entry.i5 ]  
%25 = add <8 x i64> %vec.phi, %broadcast.splat7, !llvm.access.group !12  
%26 = trunc <8 x i64> %25 to <8 x i32>, !llvm.access.group !12  
%wide.masked.gather = call <8 x float> @llvm.masked.gather.v8f32.v8p0f32(<8  
... x float*> %22, i32 4, <8 x i1> <i1 true, i1 true, i1 true, i1 true,  
... i1 true, i1 true, i1 true>, <8 x float> undef), !tbaa !15, !llvm.access.group  
... !12  
%27 = shl <8 x i64> %25, <i64 32, i64 32, i64 32, i64 32, i64 32, i64 32,  
... i64 32, i64 32>, !llvm.access.group !12  
%28 = ashr exact <8 x i64> %27, <i64 32, i64 32, i64 32, i64 32, i64 32, i64  
... 32, i64 32, i64 32>, !llvm.access.group !12  
%29 = getelementptr inbounds float, float* %1, <8 x i64> %28,  
... !llvm.access.group !12  
%wide.masked.gather8 = call <8 x float> @llvm.masked.gather.v8f32.v8p0f32(<8  
... x float*> %29, i32 4, <8 x i1> <i1 true, i1 true, i1 true, i1 true, i1 true,  
... i1 true, i1 true, i1 true>, <8 x float> undef), !tbaa !15, !llvm.access.group  
... !12  
%wide.masked.gather9 = call <8 x float> @llvm.masked.gather.v8f32.v8p0f32(<8  
... x float*> %23, i32 4, <8 x i1> <i1 true, i1 true, i1 true, i1 true, i1 true,  
... i1 true, i1 true, i1 true>, <8 x float> undef), !tbaa !15, !llvm.access.group  
... !12  
%30 = getelementptr inbounds float, float* %2, <8 x i64> %28,  
... !llvm.access.group !12  
%wide.masked.gather10 = call <8 x float>  
... @llvm.masked.gather.v8f32.v8p0f32(<8 x float*> %30, i32 4, <8 x i1> <i1 true,  
... i1 true, i1 true, i1 true, i1 true, i1 true, i1 true>, <8 x float>  
... undef), !tbaa !15, !llvm.access.group !12  
%31 = fmul <8 x float> %wide.masked.gather9, %wide.masked.gather10,  
... !llvm.access.group !12  
%32 = call <8 x float> @llvm.fmuladd.v8f32(<8 x float> %wide.masked.gather,  
... <8 x float> %wide.masked.gather8, <8 x float> %31), !llvm.access.group !12  
%33 = add nsw <8 x i32> %24, %26, !llvm.access.group !12  
%34 = sext <8 x i32> %33 to <8 x i64>, !llvm.access.group !12  
%35 = getelementptr inbounds float, float* %0, <8 x i64> %34,  
... !llvm.access.group !12  
%wide.masked.gather11 = call <8 x float>  
... @llvm.masked.gather.v8f32.v8p0f32(<8 x float*> %35, i32 4, <8 x i1> <i1 true,  
... i1 true, i1 true, i1 true, i1 true, i1 true, i1 true>, <8 x float>  
... undef), !tbaa !15, !llvm.access.group !12  
%36 = fadd <8 x float> %wide.masked.gather11, %32, !llvm.access.group !12  
call void @llvm.masked.scatter.v8f32.v8p0f32(<8 x float> %36, <8 x float*>  
... %35, i32 4, <8 x i1> <i1 true, i1 true, i1 true, i1 true, i1 true, i1 true,  
... i1 true, i1 true>), !tbaa !15, !llvm.access.group !12  
%37 = add nuw <8 x i64> %vec.phi, <i64 1, i64 1, i64 1, i64 1, i64 1, i64 1,  
... i64 1, i64 1>  
%38 = icmp eq <8 x i64> %37, %broadcast.splat13  
%39 = extractelement <8 x i1> %38, i32 0  
br i1 %39, label %pregion_for_end.i14, label %pregion_for_entry.entry.i5
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pregion_for_end.i14:  
%index.next = add i64 %index, 8  
%vec.ind.next = add <8 x i64> %vec.ind, <i64 8, i64 8, i64 8, i64 8, i64 8,  
... i64 8, i64 8, i64 8>  
%40 = icmp eq i64 %index.next, %n.vec  
br i1 %40, label %middle.block, label %vector.body, !llvm.loop !19
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middle.block:  
%cmp.n = icmp eq i64 %umax1, %n.vec  
br i1 %cmp.n, label %gemver_kernel1.exit, label  
... %pregion_for_entry.pregion_for_init.i.preheader
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pregion_for_entry.pregion_for_init.i.preheader:  
% local_id_y.0.ph = phi i64 [ 0, %10 ], [ %n.vec, %middle.block ]  
br label %pregion_for_entry.pregion_for_init.i
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pregion_for_entry.pregion_for_init.i:  
% local_id_y.0 = phi i64 [ %48, %pregion_for_end.i ], [ % local_id_y.0.ph,  
... %pregion_for_entry.pregion_for_init.i.preheader ]  
%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  
%sext.i = shl i64 %add6.i.i, 32, !llvm.access.group !12  
%idxprom.i = ashr exact i64 %sext.i, 32, !llvm.access.group !12  
%arrayidx.i = getelementptr inbounds float, float* %3, i64 %idxprom.i,  
... !llvm.access.group !12  
%arrayidx9.i = getelementptr inbounds float, float* %4, i64 %idxprom.i,  
... !llvm.access.group !12  
%mul.i = mul nsw i32 %conv2.i, %5, !llvm.access.group !12  
br label %pregion_for_entry.entry.i
```

```
pregion_for_entry.entry.i:  
% local_id_x.0 = phi i64 [ 0, %pregion_for_entry.pregion_for_init.i ], [ ...  
... %47, %pregion_for_entry.entry.i ]  
%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  
%41 = load float, float* %arrayidx.i, align 4, !tbaa !15, !llvm.access.group  
... !12  
%sext26.i = shl i64 %add1.i.i, 32, !llvm.access.group !12  
%idxprom6.i = ashr exact i64 %sext26.i, 32, !llvm.access.group !12  
%arrayidx7.i = getelementptr inbounds float, float* %1, i64 %idxprom6.i,  
... !llvm.access.group !12  
%42 = load float, float* %arrayidx7.i, align 4, !tbaa !15,  
... !llvm.access.group !12  
%43 = load float, float* %arrayidx9.i, align 4, !tbaa !15,  
... !llvm.access.group !12  
%arrayidx11.i = getelementptr inbounds float, float* %2, i64 %idxprom6.i,  
... !llvm.access.group !12  
%44 = load float, float* %arrayidx11.i, align 4, !tbaa !15,  
... !llvm.access.group !12  
%mul12.i = fmul float %43, %44, !llvm.access.group !12  
%45 = tail call float @llvm.fmuladd.f32(float %41, float %42, float  
... %mul12.i) #5, !llvm.access.group !12  
%add.i = add nsw i32 %mul.i, %conv.i, !llvm.access.group !12  
%idxprom13.i = sext i32 %add.i to i64, !llvm.access.group !12  
%arrayidx14.i = getelementptr inbounds float, float* %0, i64 %idxprom13.i,  
... !llvm.access.group !12  
%46 = load float, float* %arrayidx14.i, align 4, !tbaa !15,  
... !llvm.access.group !12  
%add15.i = fadd float %46, %45, !llvm.access.group !12  
store float %add15.i, float* %arrayidx14.i, align 4, !tbaa !15,  
... !llvm.access.group !12  
%47 = add nuw i64 % local_id_x.0, 1  
%exitcond.not = icmp eq i64 %47, %umax  
br i1 %exitcond.not, label %pregion_for_end.i, label  
... %pregion_for_entry.entry.i, !llvm.loop !22
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```
pregion_for_end.i:  
%48 = add nuw i64 % local_id_y.0, 1  
%exitcond2.not = icmp eq i64 %48, %umax1  
br i1 %exitcond2.not, label %gemver_kernel1.exit.loopexit, label  
... %pregion_for_entry.pregion_for_init.i, !llvm.loop !25
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gemver_kernel1.exit.loopexit:  
br label %gemver_kernel1.exit
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gemver_kernel1.exit:  
ret void
```

CFG for ' _pool_kernel_gemver_kernel1' function