```
%12 = \text{sext i} 32 \% 6 \text{ to i} 64
                                                                                                        %13 = icmp slt i64 %12, 32
                                                                                                        %14 = select i1 %13, i64 %12, i64 32
                                                                                                        %15 = \text{sext i} 32 \% 5 \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
                                                                                                        %idxprom.i = sext i32 %4 to i64
                                                                                                        %arrayidx.i = getelementptr inbounds float, float* %0, i64 %idxprom.i
                                                                                                        %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
                                                                                                        br label %pregion for entry.pregion for init.i
                                                                                                        pregion for entry.pregion for init.i:
                                                                                                        \c^{1}%_local_id_y.0 = phi i64 [0, \c^{1}11], [%26, %pregion_for_end.i]
                                                                                                        %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
                                                                                                         %mul.i = mul nsw i32 %conv2.i, %6, !llvm.access.group !12
                                                                                                         %cmp6.i = icmp eq i32 %conv2.i, 0, !llvm.access.group !12
                                                                                                        %sub.i = add nsw i32 %conv2.i, -1
                                                                                                         %mul22.i = mul nsw i32 %sub.i, %6
                                                                                                         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], [
                                                           ... %25, %if.end34.r exit.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
                                                           br i1 %cmp6.i, label %if.then8.i, label %if.else.i, !llvm.access.group !12
                                                                                        if.else.i:
                                                                                        %add14.i = add nsw i32 %mul.i, %conv.i, !llvm.access.group !12
                                                                                        %idxprom15.i = sext i32 %add14.i to i64, !llvm.access.group !12
                                                                                        %arrayidx16.i = getelementptr inbounds float, float* %2, i64 %idxprom15.i,
                                                                                        ...!llvm.access.group!12
                                                                                        %21 = load float, float* %arrayidx16.i, align 4, !tbaa !15,
                                                                                        ...!llvm.access.group!12
                                                                                        %conv17.i = fpext float %21 to double, !llvm.access.group !12
                                                                                        %arrayidx21.i = getelementptr inbounds float, float* %3, i64 %idxprom15.i,
if.then8.i:
                                                                                        ...!llvm.access.group!12
%20 = load float, float* %arrayidx.i, align 4, !tbaa !15, !llvm.access.group
                                                                                        %22 = load float, float* %arrayidx21.i, align 4, !tbaa !15,
%add10.i = add nuw nsw i32 %mul.i, %conv.i, !llvm.access.group !12
                                                                                        ...!llvm.access.group!12
                                                                                        %add23.i = add nsw i32 %mul22.i, %conv.i, !llvm.access.group !12
%idxprom11.i = sext i32 %add10.i to i64, !llvm.access.group !12
                                                                                        %idxprom24.i = sext i32 %add23.i to i64, !llvm.access.group !12
%arrayidx12.i = getelementptr inbounds float, float* %2, i64 %idxprom11.i,
                                                                                        %arrayidx25.i = getelementptr inbounds float, float* %3, i64 %idxprom24.i,
...!llvm.access.group!12
store float %20, float* %arrayidx12.i, align 4, !tbaa !15,
                                                                                          !llvm.access.group !12
                                                                                        %23 = load float, float* %arrayidx25.i, align 4, !tbaa !15,
...!llvm.access.group!12
br label %if.end34.r exit.i, !llvm.access.group !12
                                                                                        ...!llvm.access.group!12
                                                                                        %sub26.i = fsub float %22, %23, !llvm.access.group !12
                                                                                        %conv27.i = fpext float %sub26.i to double, !llvm.access.group !12
                                                                                        %24 = tail call double @llvm.fmuladd.f64(double %conv27.i, double
                                                                                        ... -5.000000e-01, double %conv17.i) #3, !llvm.access.group !12
                                                                                        %conv29.i = fptrunc double %24 to float, !llvm.access.group !12
                                                                                        store float %conv29.i, float* %arrayidx16.i, align 4, !tbaa !15,
                                                                                        ...!llvm.access.group!12
                                                                                        br label %if.end34.r exit.i, !llvm.access.group !12
                                                                       if.end34.r exit.i:
                                                                        %25 = add nuw i64 \% local id x.0, 1
                                                                        %exitcond.not = icmp eq i6\overline{4} %25, %umax
                                                                        br i1 %exitcond.not, label %pregion for end.i, label
                                                                        ... %pregion for entry.entry.i, !llvm.loop 19
                                                                                             pregion for end.i:
                                                                                             \%26 = add nuw i64 % local id y.0, 1
                                                                                             %exitcond2.not = icm\bar{p} eq i\bar{6}4 %26, %umax1
                                                                                             br i1 %exitcond2.not, label %fdtd kernel1.exit, label
                                                                                             ... %pregion for entry.pregion for init.i, !llvm.loop !22
                                                                                                fdtd kernel1.exit:
                                                                                                 ret void
```

%11: