```
3:
                                     br label %4
                     4:
                     \%.037 = \text{phi i} 32 [0, \%3], [\%31, \%30]
                      br label %5
                     5:
                     \%.026 = \text{phi i} 32 [0, \%4], [\%27, \%26]
                      br label %6
6:
\%.05 = \text{phi i} 32 [0, \%5], [\%19, \%18]
%.014 = phi double [ 0.000000e+00, %5 ], [ %17, %18 ]
\%7 = \text{sext i} 32 \%.037 \text{ to i} 64
%8 = getelementptr inbounds [512 x double], ptr %0, i64 %7
\%9 = \text{sext i} 32 \%.05 \text{ to i} 64
%10 = getelementptr inbounds [512 x double], ptr %8, i64 0, i64 %9
%11 = load double, ptr %10, align 8
%12 = \text{sext i} 32 \%.05 \text{ to i} 64
%13 = getelementptr inbounds [512 x double], ptr %1, i64 %12
%14 = \text{sext i} 32 \%.026 \text{ to i} 64
%15 = getelementptr inbounds [512 x double], ptr %13, i64 0, i64 %14
%16 = load double, ptr %15, align 8
%17 = call double @llvm.fmuladd.f64(double %11, double %16, double %.014)
br label %18
                  18:
                  %19 = add \text{ nsw } i32 \%.05, 1
                   %20 = icmp slt i32 %19, 512
                   br i1 %20, label %6, label %21, !llvm.loop !6
    21:
    %.01.lcssa = phi double [ %17, %18 ]
     %22 = \text{sext i} 32 \%.037 \text{ to i} 64
     %23 = getelementptr inbounds [512 x double], ptr %2, i64 %22
     %24 = \text{sext i} 32 \%.026 \text{ to i} 64
     %25 = getelementptr inbounds [512 x double], ptr %23, i64 0, i64 %24
     store double %.01.lcssa, ptr %25, align 8
     br label %26
                  26:
                  %27 = add \text{ nsw } i32 \%.026, 1
                   %28 = icmp slt i32 \%27, 512
                   br i1 %28, label %5, label %29, !llvm.loop !8
                                     29:
                                     br label %30
                  30:
                  %31 = add \text{ nsw } i32 \%.037, 1
                   %32 = icmp slt i32 %31, 512
                   br i1 %32, label %4, label %33, !llvm.loop !9
                                       33:
                                       ret void
```

Dominator tree for 'matmul' function