

Original code

Compute kernel

```
#define N 10000
...
...
//Compute kernel
for(i=0; i<N; i++){
    c[i] = a[i] x b[i]
}
...
```

```
// Group Size: G
#define N 10000
#define G 10

for(i=0; i<N/G; i++){
    To_FPGA(a[G], b[G])
    Group_Execution();
    To_Main_Mem(c[G])
}

```

Group

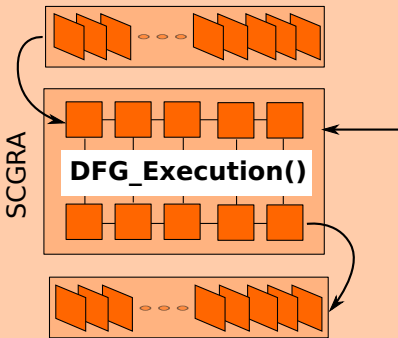
```
// Unrolling factor: 2
#define G 10
#define U 2

for(i=0; i<G/U; i++){
    DFG_Execution();
}

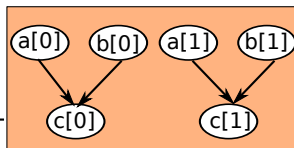
```

Group_Execution()

IBUF with multiple DFG input



DFG



```
c[0] = a[0] x b[0]
c[1] = a[1] x b[1]
```

Unrolled loop

Accelerator drivers

#define U 2

```
for(i=0; i<U; i++){
    c[i] = a[i] x b[i]
}

```

Loop segment to be unrolled

on host processor

on FPGA accelerator