

# Schedule Code Generator for SubSystem

Given an affine system with subsystems/useEquations, this page shows how to specify the targetmapping for the system and generate the code.

## Example program with subsystem

The following code is the alpha program for matrix matrix multiplication with dot-product subsystem.

```

affine matrix_product_SubSyst {N,K,M | N>0 && K>0 && M > 0}    // Product
between a N*K matrix and a K*M matrix
input
    float A {i,k | 0<=i<N && 0<=k<K};
    float B {k,j | 0<=k<K && 0<=j<M};
output
    float C {i,j | 0<=i<N && 0<=j<M};
let
    use {iP,jP|0<=iP<N && 0<=jP<M} dot_product[K]
((pi,pj,k->pi,k)@A,(pi,pj,k->k,pj)@B) returns (C);
.

affine dot_product {N| N>0}    // Product between 2 vector of size N
input
    float vect1 {i | 0<=i<N };
    float vect2 {i | 0<=i<N };
output
    float Res;
local
    float temp {i | 0<=i<N};
let
    temp[i] = case
        {i|i==0}    : vect1[0] * vect2[0];
        {i | 0<i<N} : temp[i-1] + vect1[i]*vect2[i];
    esac;
    Res[] = temp[N-1];
.

```

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