# LAB1 - Scalar Product

In this lab you will have to code a scalar product with hardcoded data.

## PART 1: The code

1. Write the code as shown below.

```
#define SIZE 10
int tabA[]={0,1,2,3,4,5,6,7,8,9 };
int tabB[]={9,8,7,6,5,4,3,2,1,0 };
// Write the function int AdotB(int *a, int *b)
// Write the loop to compute it for the whoe array res+=a[i]*b[i]
// main : execute the function and print the result
```

2. On paper, calculate the result you're supposed to obtain with your code.
3. Execute your code and compare the result with the one you have calculated on Q2.

## PART 2: Without any optimization

1. How many cycles do you need to execute your code?
2. Comment the assembly code.
3. What DSP-specific optimizations can you think of? What hardware elements are involved in these optimizations?

## PART 3: With optimizations n°3

1. How many cycles do you need to execute your code?
2. Comment the assembly code.
3. What mechanisms are involved in the optimization? Find in the registers the decrementation of one of it and show the flow of it.
4. Turn the variables from int into float. What are the differences in the assembly code between the int and the float? Show the corresponding lines.
5. Turn the variables from float into double. What are the differences in the assembly code between the double and the float? Show the corresponding lines.