

Implementation Chapter3 Chapter 3. Implementation

shaded SPolly in its entirety is a compound of three parts. The first one is called region speculation and it is embedded into Polly. The second and the third part are Sambamba modules, one for the compile time and the other one for the runtime. The region speculation part acts like a storage and interface for all discovered sSCoPs, thus it contains most of the transformation code. The Sambamba passes concentrate on the program wrappable. 0.45 Lines of code for Polly, SPolly and Sambamba components center tabular 1 r component LOC

[TODO rephrase] Table tab:CommandLineOptions lists all available command line options added in the context of SPolly. Although all of these options work without the Sambamba modules, yet Sambamba at all, the last three would only produce sequential executable code without any parallelization. [TODO] As for now I am not quite sure if this could be of any practical use, but to my understanding Polly could get a similar option in the near future.

Speculative Polly It would be feasible to look at SPolly as extension to Polly, especially designed to interact with Sambamba. As such it was crucial to preserve all functionality of Polly and supplement it with (mostly speculative) new ones. Most of them are implemented in the region speculation, but there are some new options in the code generation too. Apart from these two locations the SCoP detection was the only component which has been touched. It is ideally suited to serve as the bridge between Polly and the speculative part as speculative valid regions would be rejected here. The information currently needed for region speculation is also available at this point and can be directly reused.

As the Polly architecture is nicely illustrated by figure fig:PollyArchitecture, it has been extended in figure fig:SPollyArchitecture to capture the changes introduced by SPolly. In comparison the region speculation, the fork join backend and the sSCoP backend have been added as they can be used without Sambamba.