

Assignment 2 Introduction

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Problem statement

- Helping architecture design decisions
- Assume we have an application
 - ECG (heart rate detection)
- We want to construct a new processor to run it efficiently
 - Let's use a VLIW architecture

Let's make an analysis pass

- Work at the IR level
 - We don't know much yet about the architecture
- Schedule the IR code to find the latency-ILP tradeoff of basic blocks
 - Uses the list-scheduling algorithm explained last week

How does this work

- We'll implement it as an external analysis pass
 - Keeps our code separately from the compiler
 - Run through the *opt* tool
 - LLVM's optimization layer tool (like *llc*)
 - `opt -load pass.so -pass InputIR.ll -S`

Starting point

- You'll get a template project and description to start with
 - Part 1: running optimizations and get ASAP/ALAP intervals for BB operations
 - Part 2: basic list scheduling algorithm implementation
 - Part 3: finding the latency-ILP tradeoff

