

# Offline Synthesis of Online Dependence Testing: Parametric Loop Pipelining for HLS

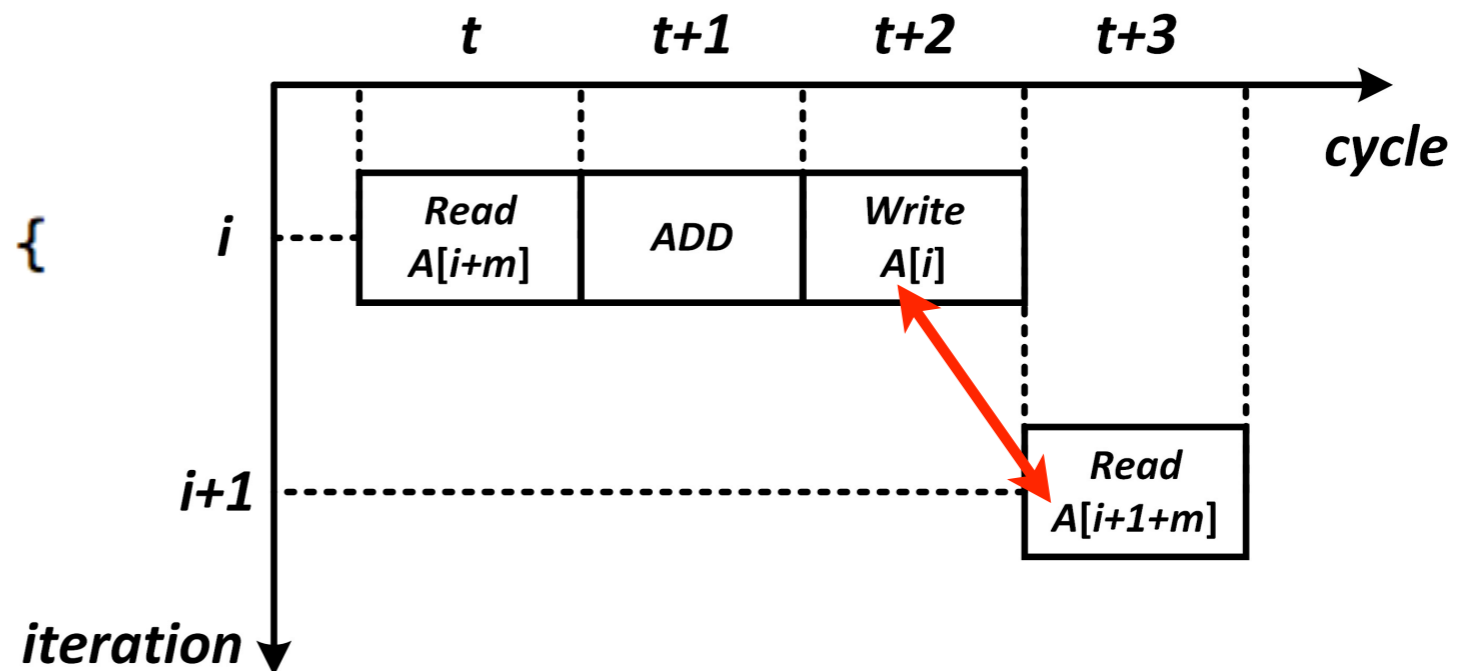
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May 5, 2015

# Loop pipelining with uncertain variables

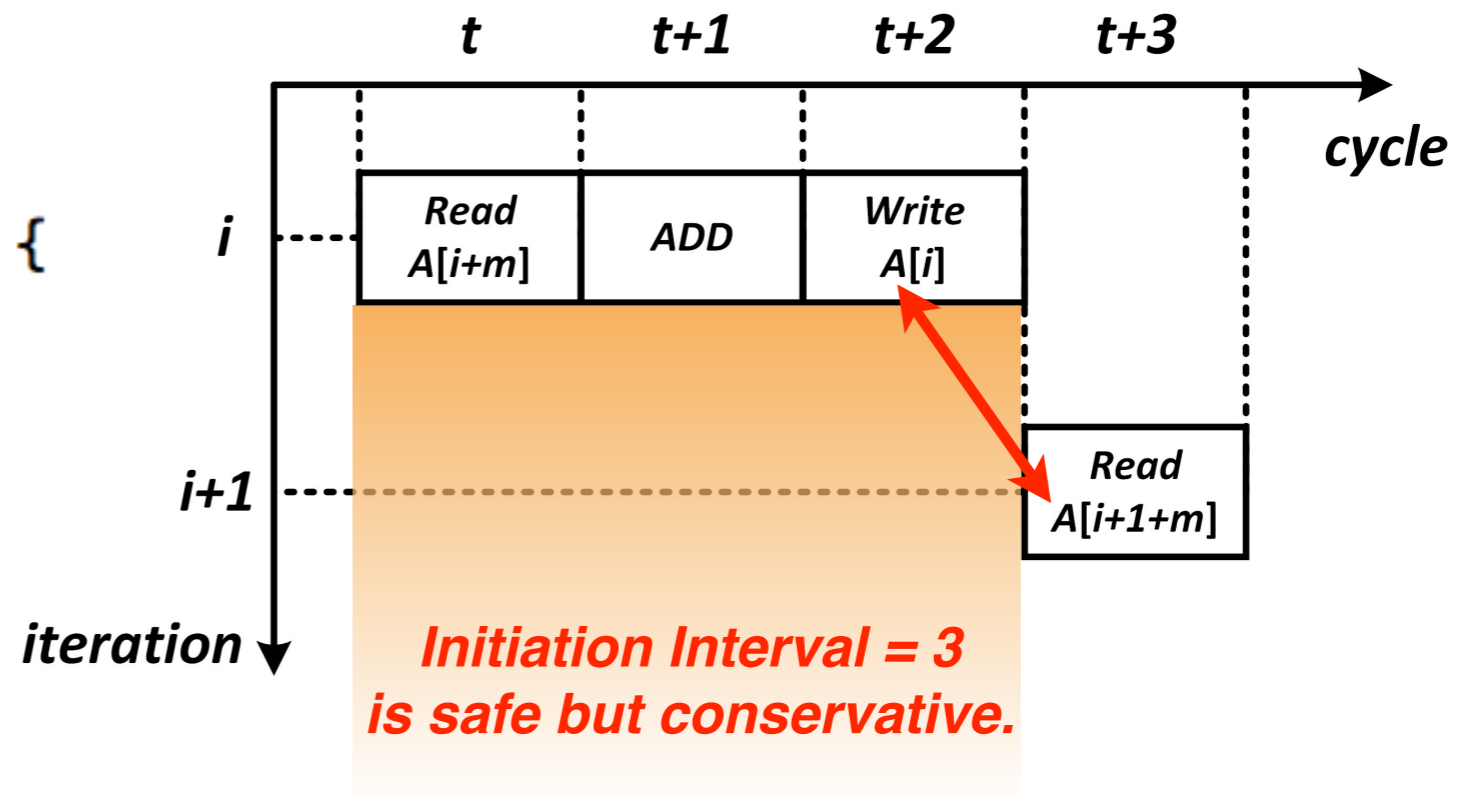
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for (int i=LB; i<=UB; i++) {  
    A[i] = A[i+m] + 1;  
}
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- Smaller initiation interval implies more exploitation of parallelism.

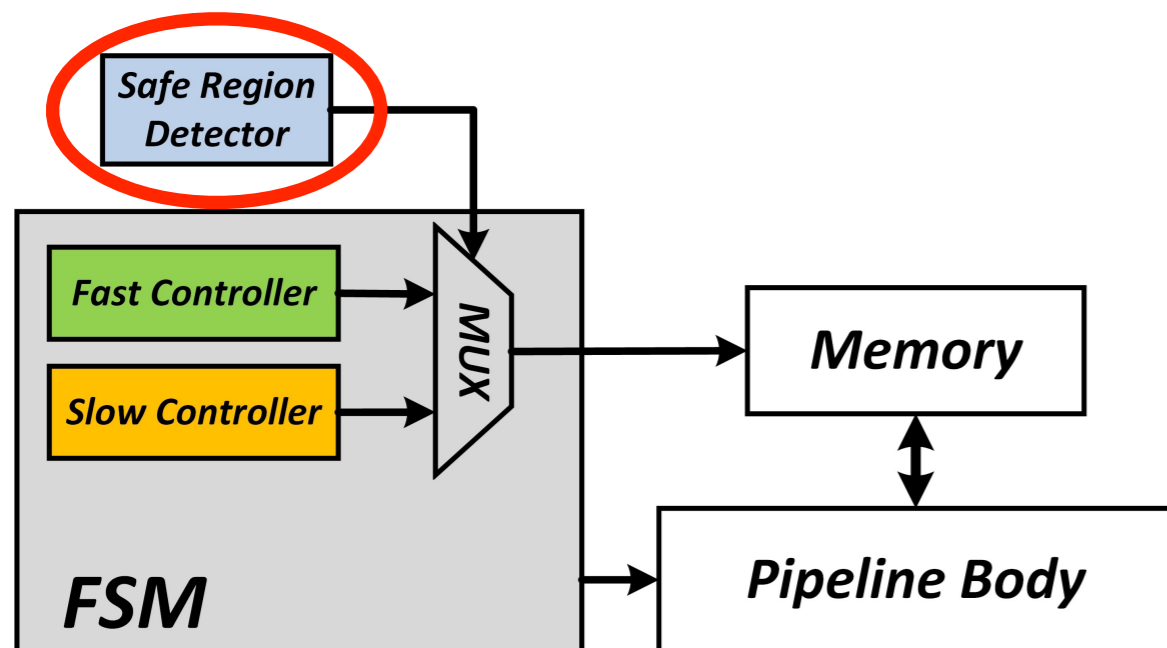
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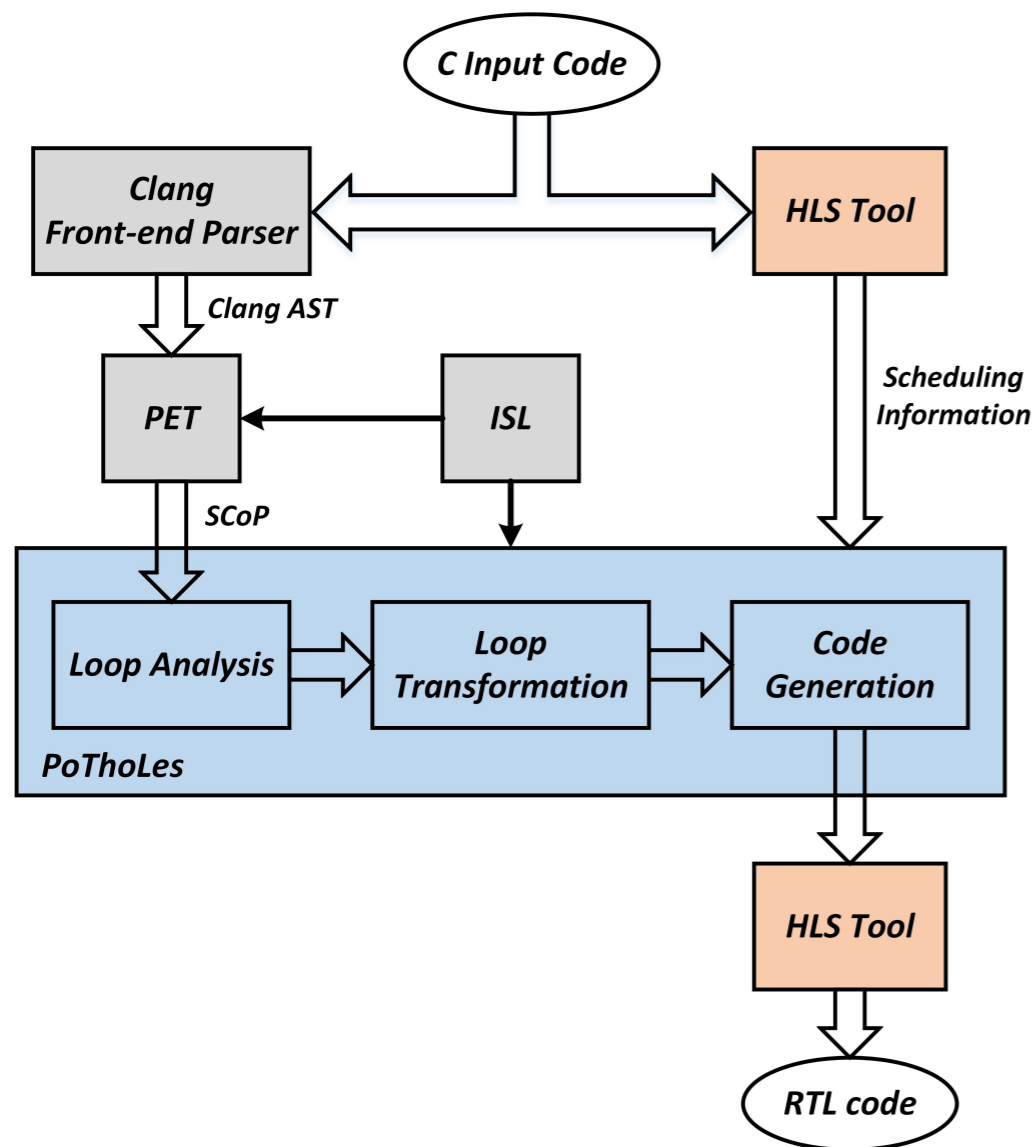
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# Synthesis of online dependence testing



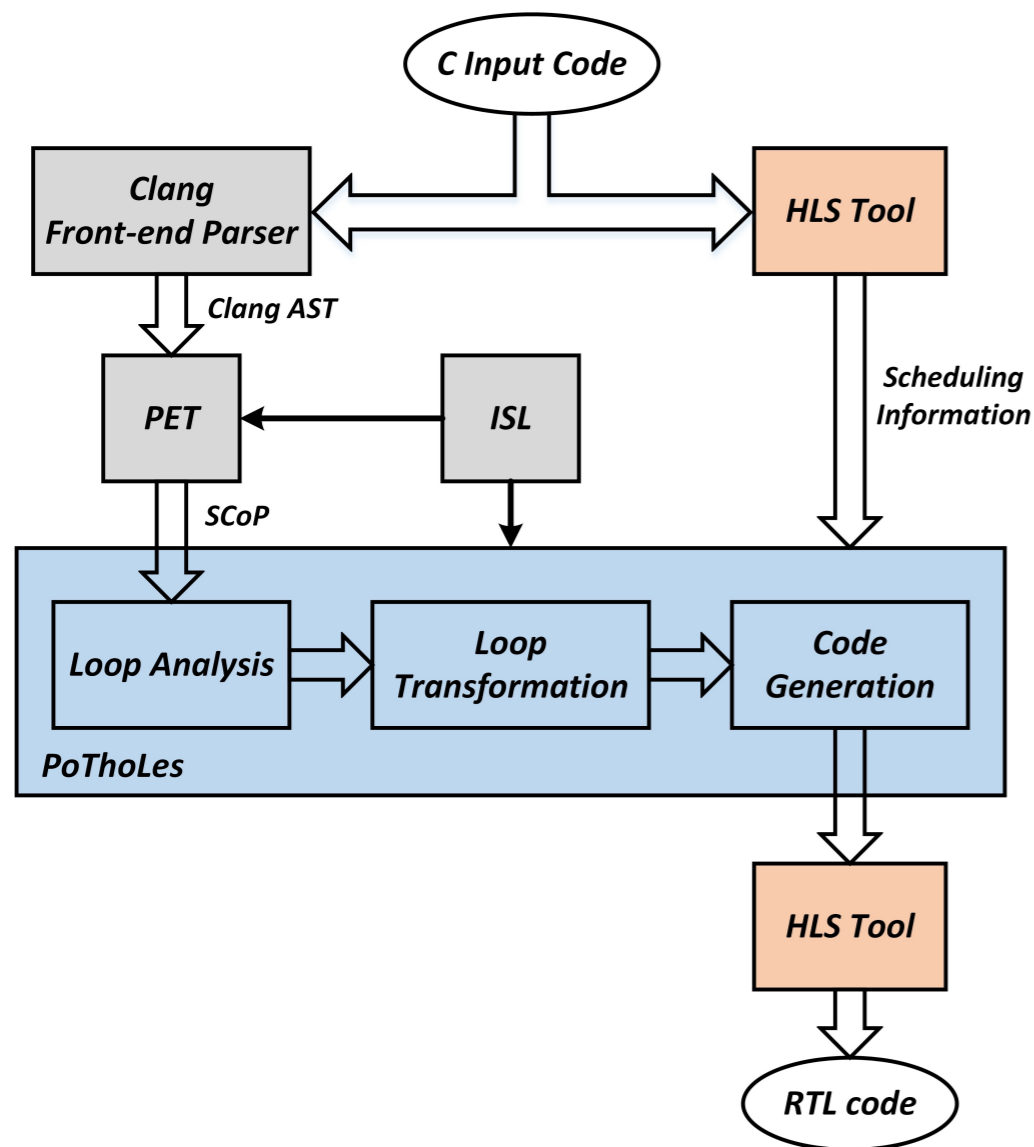
- Parametric Polyhedral Model
- Dependency analysis at compile time
- Light detection logic for safe region

# Source-to-source code transformation



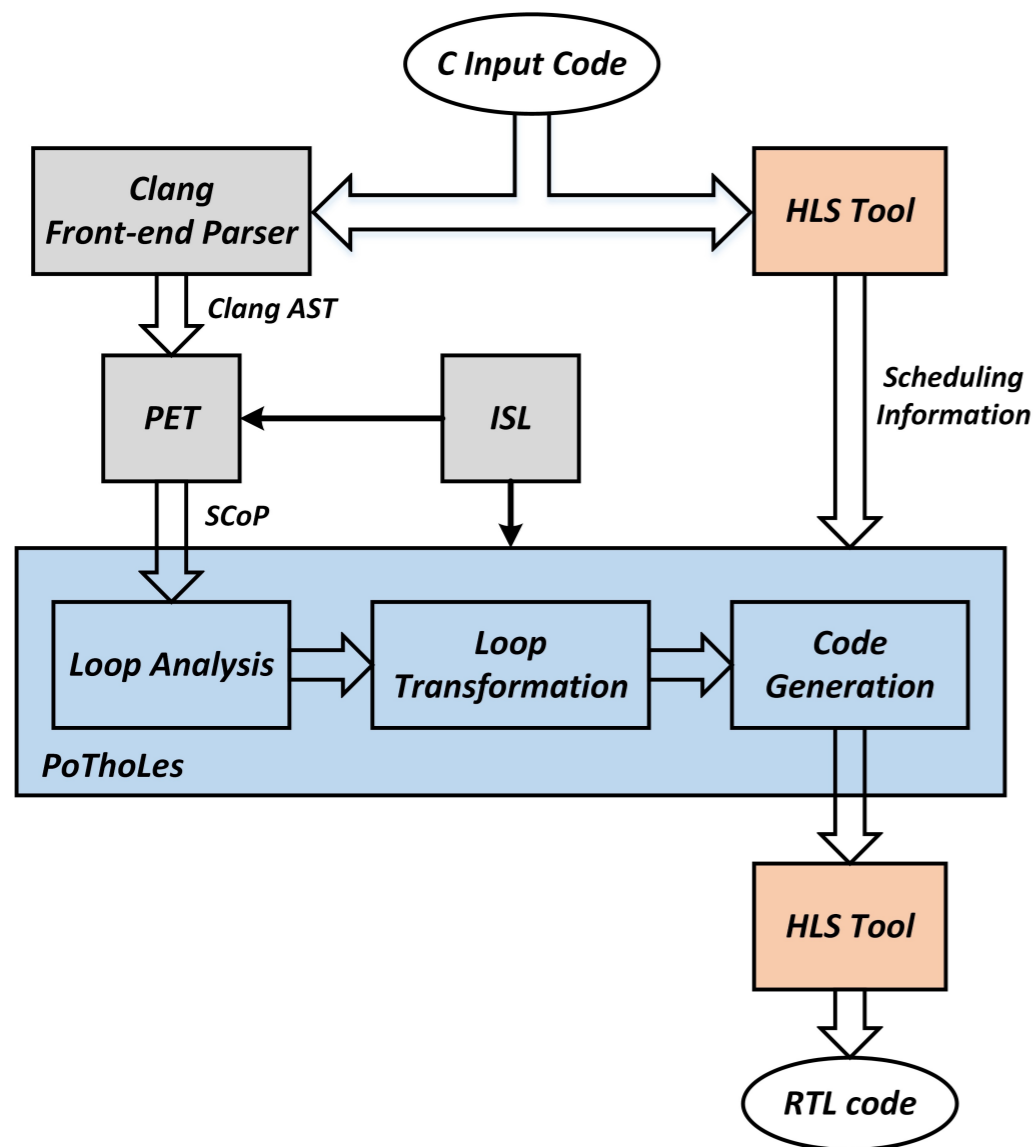
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