

# Algorithm OPT2

Given a synchronous circuit  $G$ , determine a retiming  $r$  such that  $\Phi(G_r)$  is as small as possible.

1. Compute  $W$  and  $D$  using Algorithm WD.
2. Sort the elements in the range of  $D$ .
3. Binary search among the elements  $D(u, v)$  for the minimum achievable clock period. To test whether each potential clock period  $c$  is feasible, apply Algorithm FEAS.
4. For the minimum achievable clock period found in Step 3, use the values for the  $r(v)$  found by Algorithm FEAS as the optimal retiming.

# Algorithm OPT2

## Complexity

- Time complexity:  $\mathcal{O}(VE \log V)$ .
- Space complexity:  $\mathcal{O}(V^2)$ .