# LSV Programming Assignment #1

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## 1 Part 1

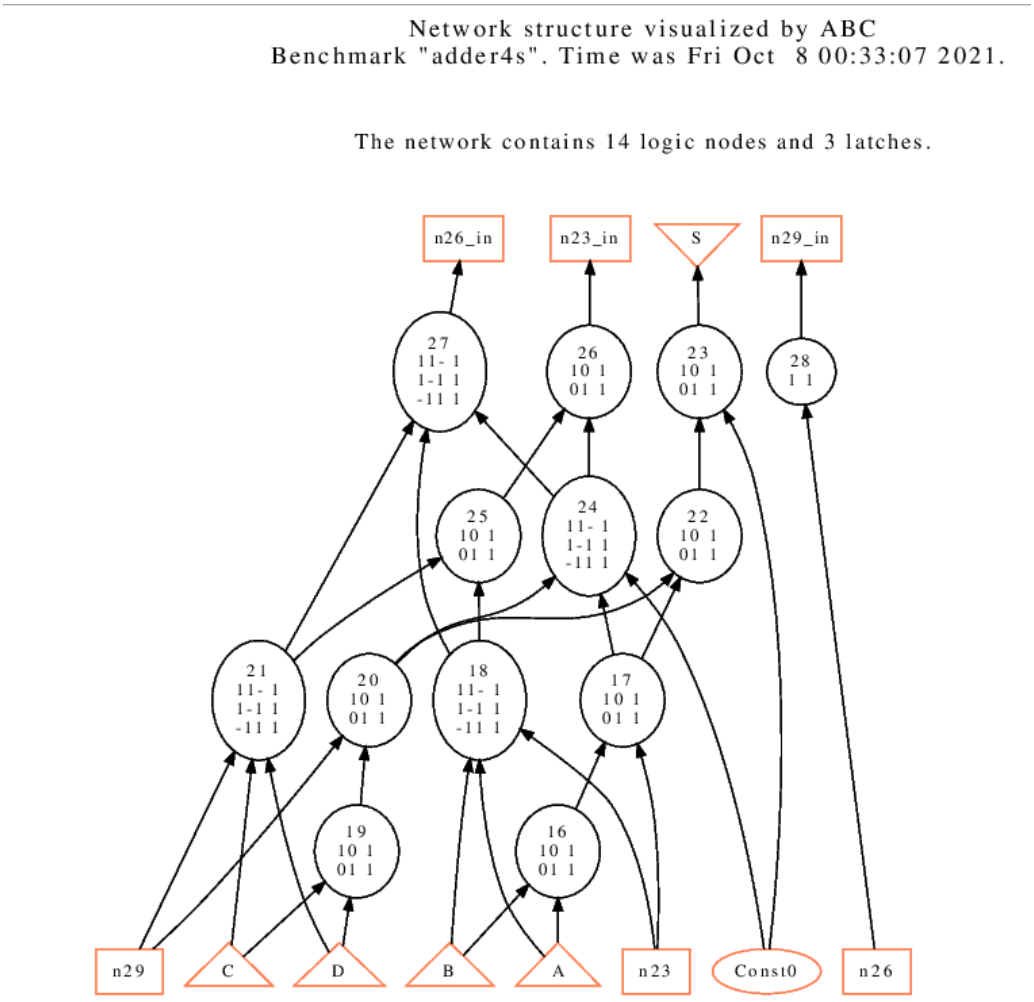


Figure 1: Original network

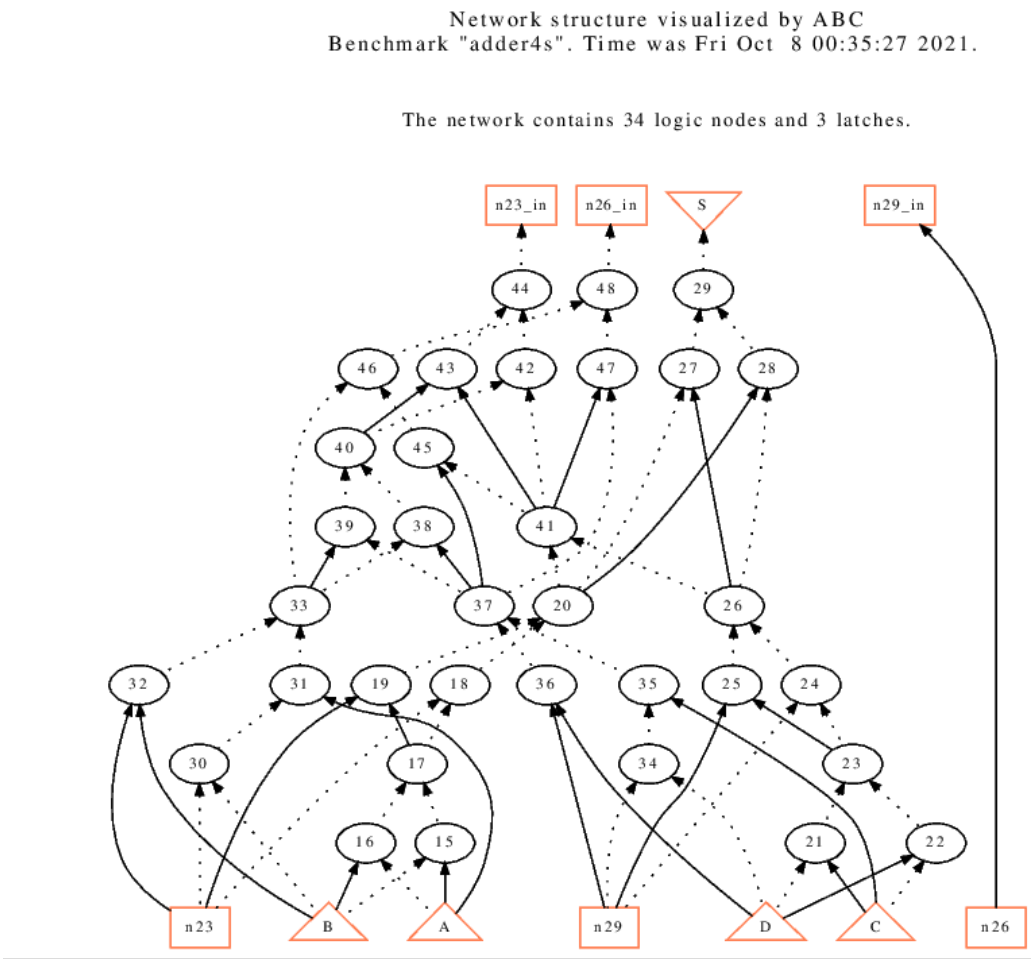


Figure 2: Strashed network

## 2 Part 2

(a) The difference between:

1. logic network in AIG (by command `aig`) vs. structurally hashed AIG (by command `strash`)

   The command `aig` only converts the local functions of each nodes into AIG. The nodes in the network remain the same. After the command, the command `show` will show the exact same network, but the command `print_stats` will show the number of aig nodes.

   The command `strash` structurally hash the whole network and turn it into AIG.

2. logic network in BDD (by command `bdd`) vs. collapsed BDD (by command `collapse`)

   The command `bdd` only converts the local function of each nodes into BDD. The command `show_bdd` can show the bdd of each PO.

   The command `collapse` collapses the network, resulting in one node for each PO, whose fanins are all PIs. A global BDD is built and showing the BDD of a single PO is not available.

(b) The command `logic` transforms the AIG into a logic network with the SOP representation of the two-input AND-gates.

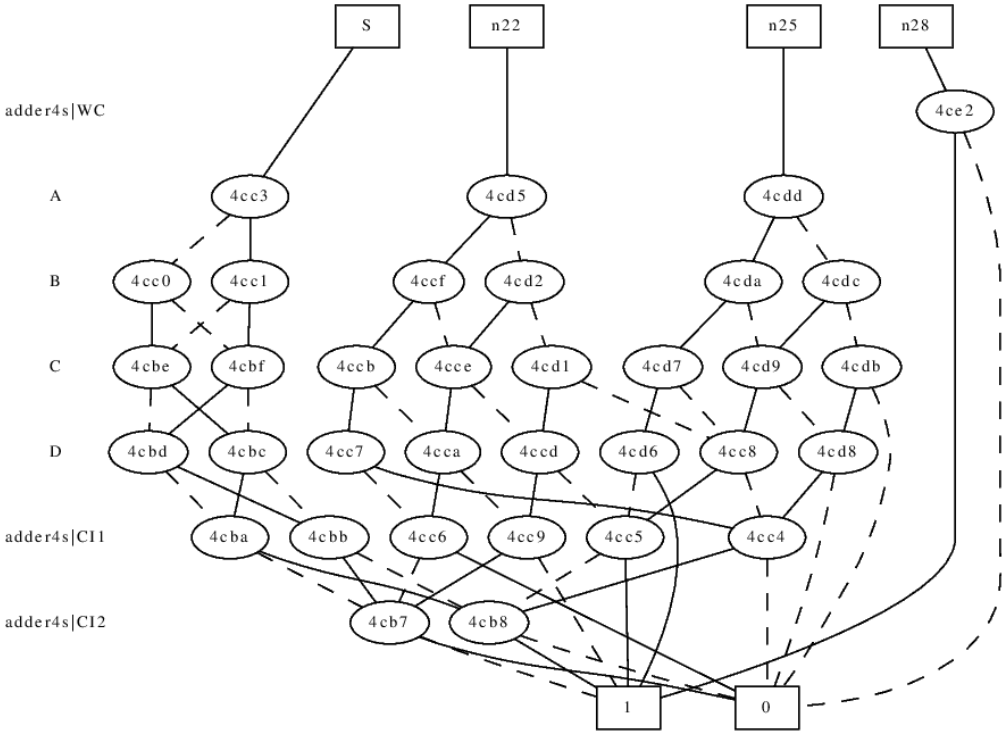


Figure 3: BDD of flattened network