全加器

功能：

全加器是一种考虑来自低位进位的加法器，即输入a\_in和输入b\_in和来自低位的进位carry\_in经全加器full\_adder后得到输出和sum\_out与进位输出carry\_out。

端口

|  |  |  |  |
| --- | --- | --- | --- |
| PIN Name | Width | Direction | Function |
| a\_in | 1 | input | Input data1 |
| b\_in | 1 | input | Input data2 |
| carry\_in | 1 | input | Input carry\_in |
| sum\_out | 1 | output | Sum of a\_in + b\_in + carry\_in |
| carry\_out | 1 | output | Carry\_out a\_in + b\_in + carry\_in |

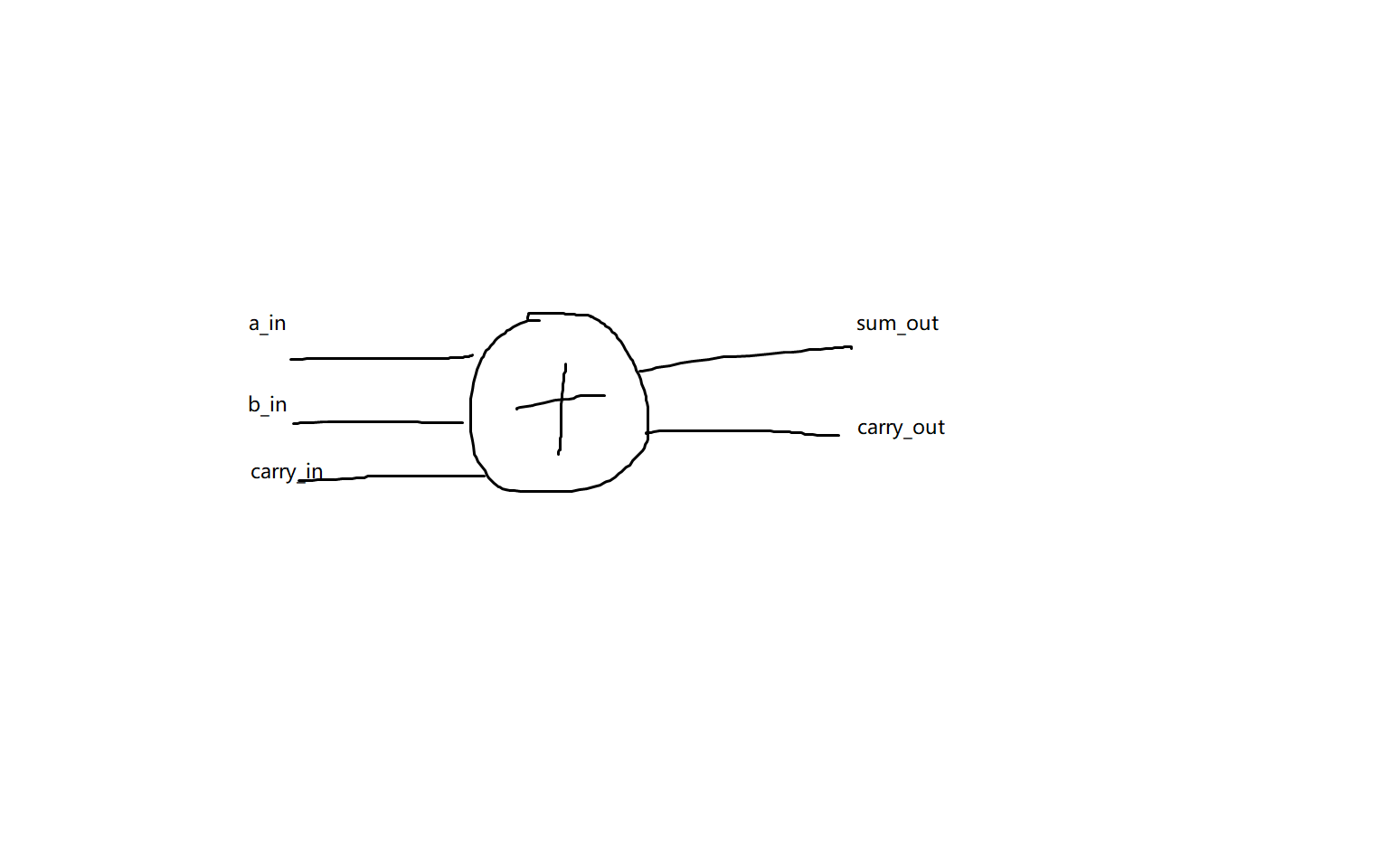
算法

真值表如下

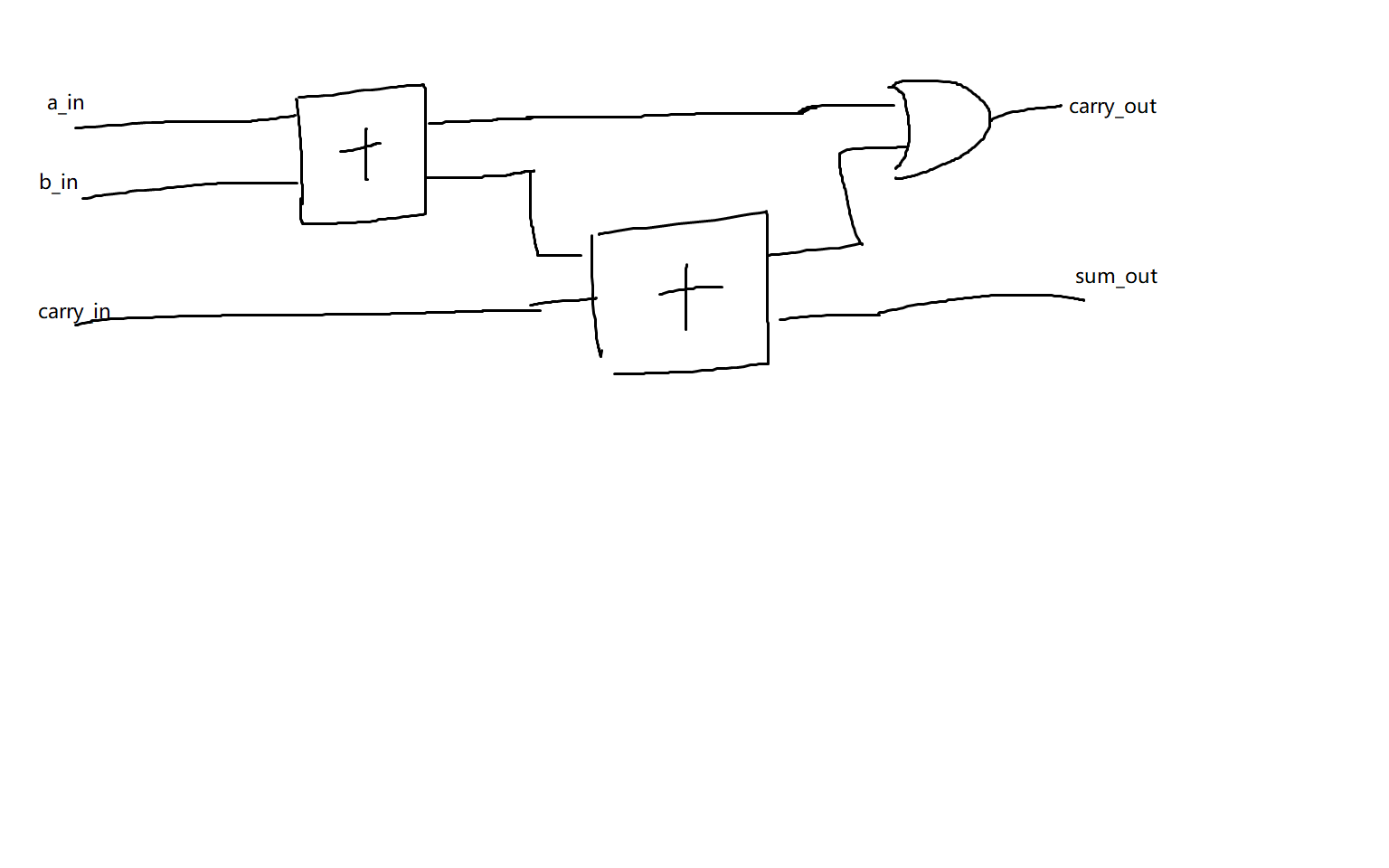
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| a\_in | b\_in | carry\_in | sum\_out | carry\_out |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 1 | 0 |
| 0 | 1 | 0 | 1 | 0 |
| 0 | 1 | 1 | 0 | 1 |
| 1 | 0 | 0 | 1 | 0 |
| 1 | 0 | 1 | 0 | 1 |
| 1 | 1 | 0 | 0 | 1 |
| 1 | 1 | 1 | 1 | 1 |

RTL

（1）直接使用“+”， 由综合器综合



（2）使用已有的半加器



1. 使用门级电路

