Adder

Praktikum Rangkaian Digital

Ilmu Komputer IPB

2019

Half Adder

Half Adder

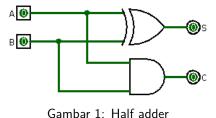
$$ightharpoonup [C_o, S] = A + B$$

masukan: A, B

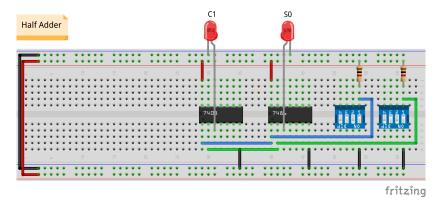
keluaran: carry out, sum

| Ā | В | Co | S |
|---|---|----|---|
| 0 | 0 | 0 | 0 |
| 0 | 1 | 0 | 1 |
| 1 | 0 | 0 | 1 |
| 1 | 1 | 1 | 0 |
| | | | |

Simulasi



Implementasi



Gambar 2: Half adder breadboard

Full Adder

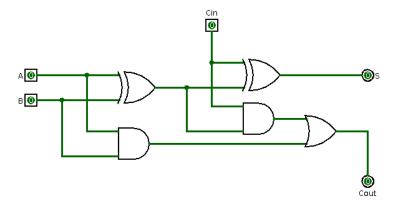
Full Adder

Full Adder

- $ightharpoonup [C_o, S] = C_i + A + B$
 - masukan: carry in, A, B
 - keluaran: carry out, sum

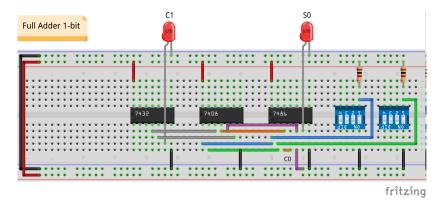
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 1 0 0 1 1 1 1 0 0 1 1 1 1 0 0 1 1 1 1 0 0 1 1 1 1 0 0 1 1 1 1 0 0 1 1 1 0 0 1 1 1 0 0 1 1 1 0 0 1 0 0 1 1 1 0 0 1 0 0 1 0 0 1 0 0 0 1 1 1 1 1 0 0 1 0 0 0 1 1 0 0 0 0 1 1 1 1 1 0 0 1 0 0 0 0 1 1 1 1 0 0 1 0 0 0 0 1 1 1 0 0 1 0 0 0 0 1 1 1 1 0 0 1 0 0 0 0 1 1 1 0 0 1 0 0 0 0 1 1 1 0 0 1 0 0 0 0 0 1 1 1 0 0 1 0 0 0 0 0 1 1 1 0 0 1 0 0 0 0 0 1 1 1 0 0 1 0 0 0 0 0 1 1 1 0 0 1 0 0 0 0 0 1 1 1 0 0 0 0 0 1 1 1 0 | | | | | |
|---|-------|---|---|----|---|
| 0 0 1 0 1 0 1 0 0 1 0 1 1 1 0 1 0 0 0 1 1 0 1 1 0 1 1 0 1 0 | C_i | Α | В | Co | S |
| 0 1 0 0 1 0 1 1 1 0 1 0 0 0 1 1 0 1 1 0 1 1 0 1 0 | 0 | 0 | 0 | 0 | 0 |
| 0 1 1 1 0 1 0 0 0 1 1 0 1 1 0 1 1 0 1 0 | 0 | 0 | 1 | 0 | 1 |
| 1 0 0 0 1 1 0 1 1 0 1 1 0 1 0 | 0 | 1 | 0 | 0 | 1 |
| 1 0 1 1 0 1 0 | 0 | 1 | 1 | 1 | 0 |
| 1 1 0 1 0 | 1 | 0 | 0 | 0 | 1 |
| | 1 | 0 | 1 | 1 | 0 |
| 1 1 1 1 1 | 1 | 1 | 0 | 1 | 0 |
| | 1 | 1 | 1 | 1 | 1 |

Simulasi



Gambar 3: Full adder

Implementasi



Gambar 4: Full adder breadboard

Tugas

Full Adder 2-bit

- ► Rancang rangkaian full adder 2-bit pada Logisim
 - dinilai langsung oleh asprak pada saat praktikum