

The timing diagram illustrates the sequence of operations for adding 13 and 4 using a 4-bit adder. The x-axis represents time in clock cycles, from 0 to 50. The y-axis represents the state of various signals.

Signals and their states:

- load...**: A blue signal that is active (high) during the initial load phase (cycles 0-10) and the final load phase (cycles 40-50).
- T1**: A green signal that is active (high) during the first phase of the addition (cycles 10-30).
- T2**: A red signal that is active (high) during the second phase of the addition (cycles 30-50).
- A3, A2, A1, A0**: The 4-bit output signals, represented by orange, green, red, and purple lines respectively. They show the progression of the 4-bit sum over time.
- Carry**: A brown signal that indicates the carry-out of the 4-bit adder.
- Input 1 (Pink)**: A sequence of 4-bit values (1, 3, 4, 3, 0, 1, 3, 4, 3, 1) representing the first operand (13) being added.
- Input 2 (Gray)**: A sequence of 4-bit values (1, 1, 2, 0, 1, 2) representing the second operand (4) being added.

The diagram shows that the addition of 13 and 4 results in a 4-bit sum of 17 (10100101) and a carry-out of 1.

0 10 20 30 40 50