Bull... ...17

4ns ticks

3-bit time:

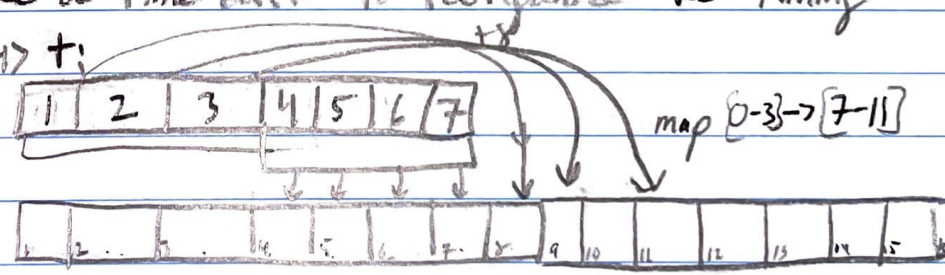|			
0 0 0	= 0
0 0 1	= 1
0 1 0	= 2
0 1 1	= 3
1 0 0	= 4
1 0 1	= 5
1 1 0	= 6
1 1 1	= 7

==**Hanjie's Code:**==

The time reported by the FADEs are backwards.

→ B/c of the clock cycle, it reports early events as occurring longer ago ==(they reach the fade the "sit", waiting for the next clock cycles.)==

Fade reports time in 3-bit data
$2^3 - 1 = 7$ (in 4ns ticks.)

"Early Events"		"Later Events"			
Actually later events		Actually early events			
1	2	3	4	5	6	7

→ Early events, $t \geq 4$
→ Later events, $t < 4$

4ns ticks →
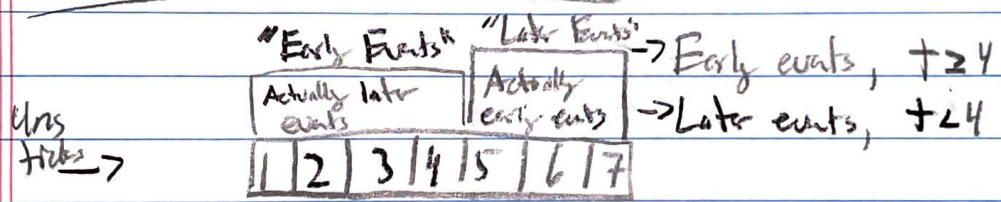
——→ Make a time buffer to reorganize the timing

ap_uint<4> t;

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

map $[0-3] \rightarrow [7-11]$

$2^4 - 1 = 16$

| 1 | 2 | ... | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

Then we truncate back down to a 3-bit integer via $t - 4$

| 1 | 2 | 3 | 4 | x | x | x | x | x | x | x | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

$t - 4$

| x | x | x | x | x | x | x |

Actual Early Events   Actual late events.