Assumptions

- Reference clock = 50 MHz
- Reference clock count = 2^{12}
- Want to count to 5 cycles of 50 MHz

will assume we start count at 0

$$\frac{count}{4096} * 50\,MHz = 250\,MHz$$

$$\frac{count}{4096} = 5$$

or just count how many rising edges seen

count = 16,384 count

minus 1 since we assume to start @ 0

- 16,383 counts = 0x3FFF (15 down to 0)
- Synchronise reset & push_button_1
- out_p idle low
- No timing constraints
- out_n idle high