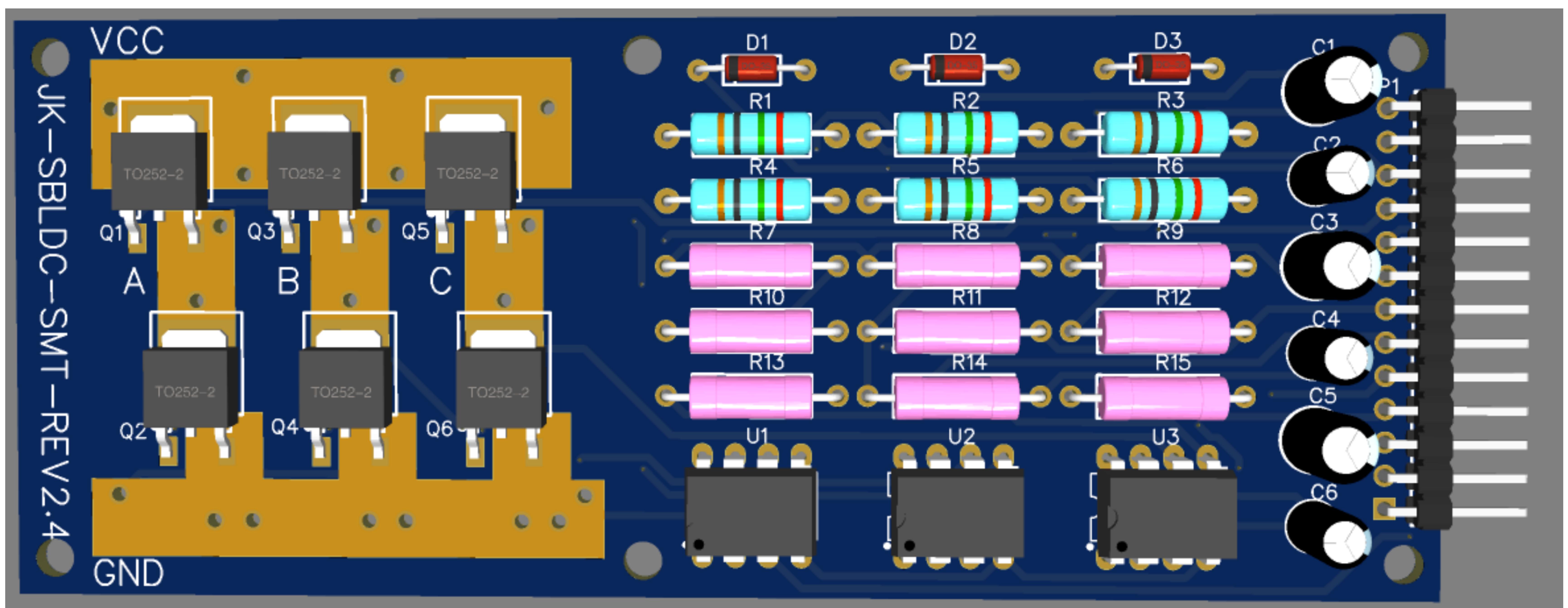
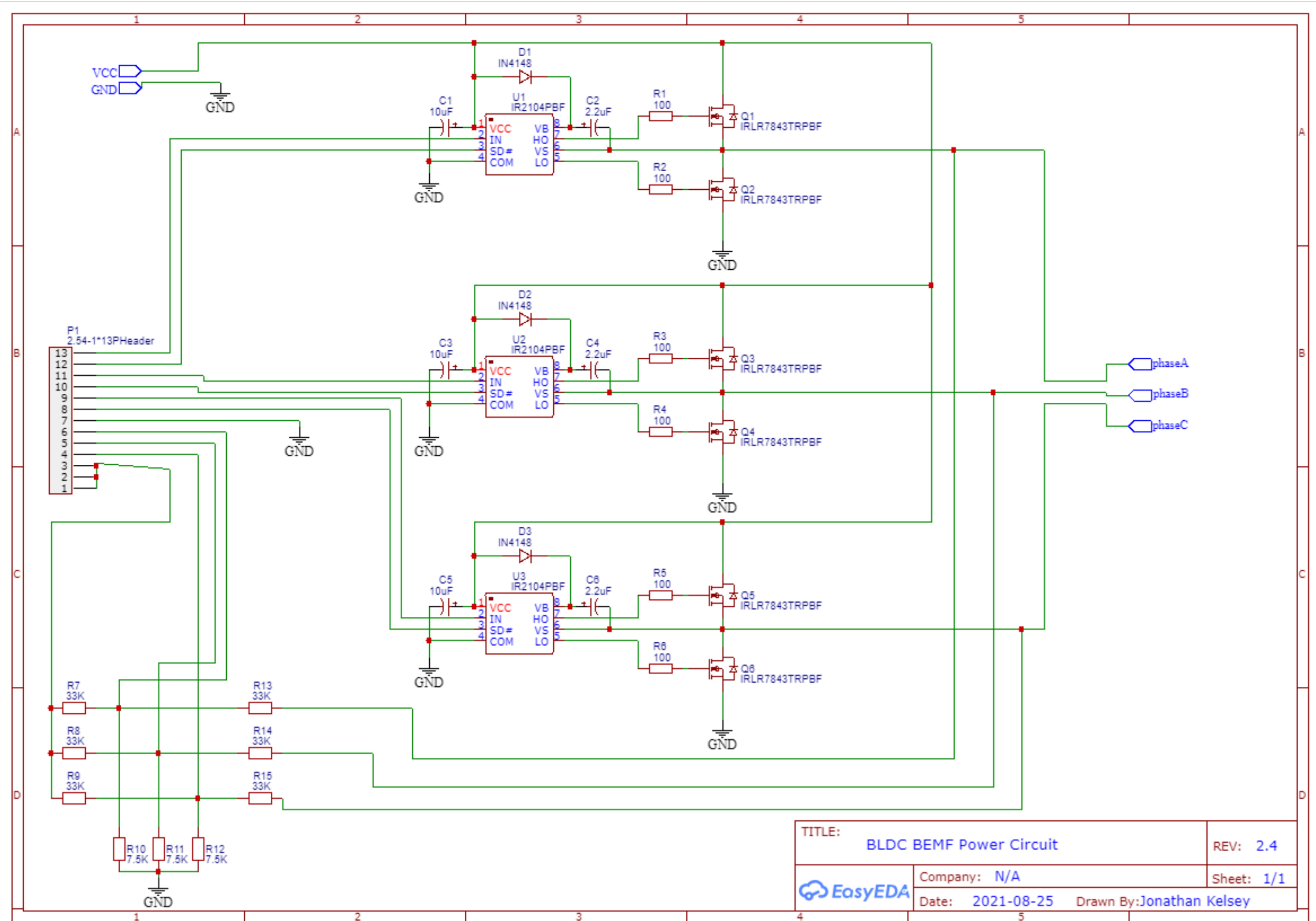


BLDC-SMT-REV2



Schematic



JK-BLDC-SMT To Teensy 4.0 Connections

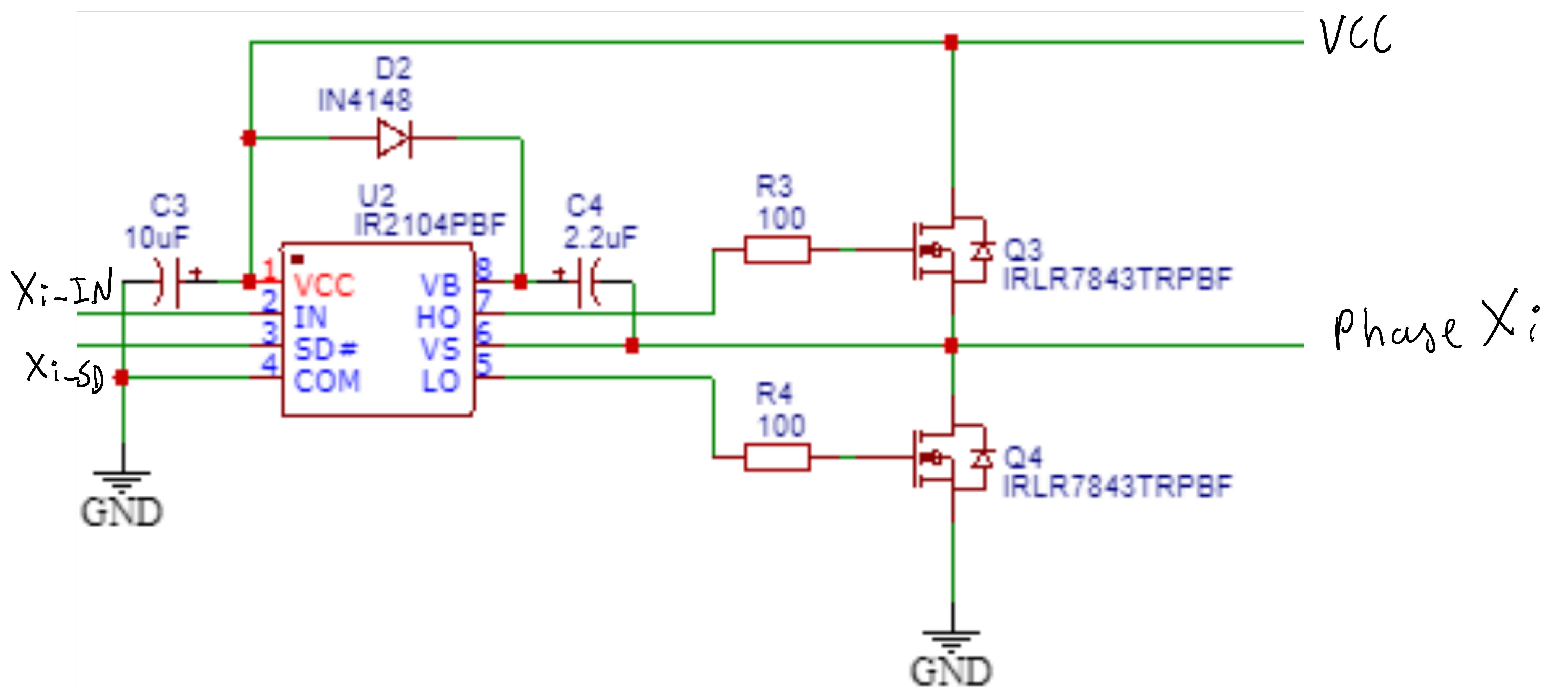
JK-BLDC-SMT pins	Name	Teensy 4.0 pins	Function
P1-13	AIN	PIN 2	HIGH/LOW SELECT
P1-12	ASD	PIN 1	PWM
P1-11	BIN	PIN 9	
P1-10	BSD	PIN 0	PWM
P1-9	CIN	PIN 8	
P1-8	CSD	PIN 7	PWM
P1-7	GND	PIN GND	
P1-6	Phase A BEMF	PIN 21	ACMP1-IN6
P1-5	Phase B BEMF	PIN 22	ACMP2-IN5
P1-4	Phase C BEMF	PIN 23	ACMP3-IN5
P1-3	VN BEMF	PIN 18	ACMP(123)-INO
P1-2	VN BEMF		
P1-1	VN BEMF		

X_iIN are high low pin of IRZ104s

X_iSD are the PWM pin of IRZ104s

1 2 3

X_i are phase {A, B, C} respectively

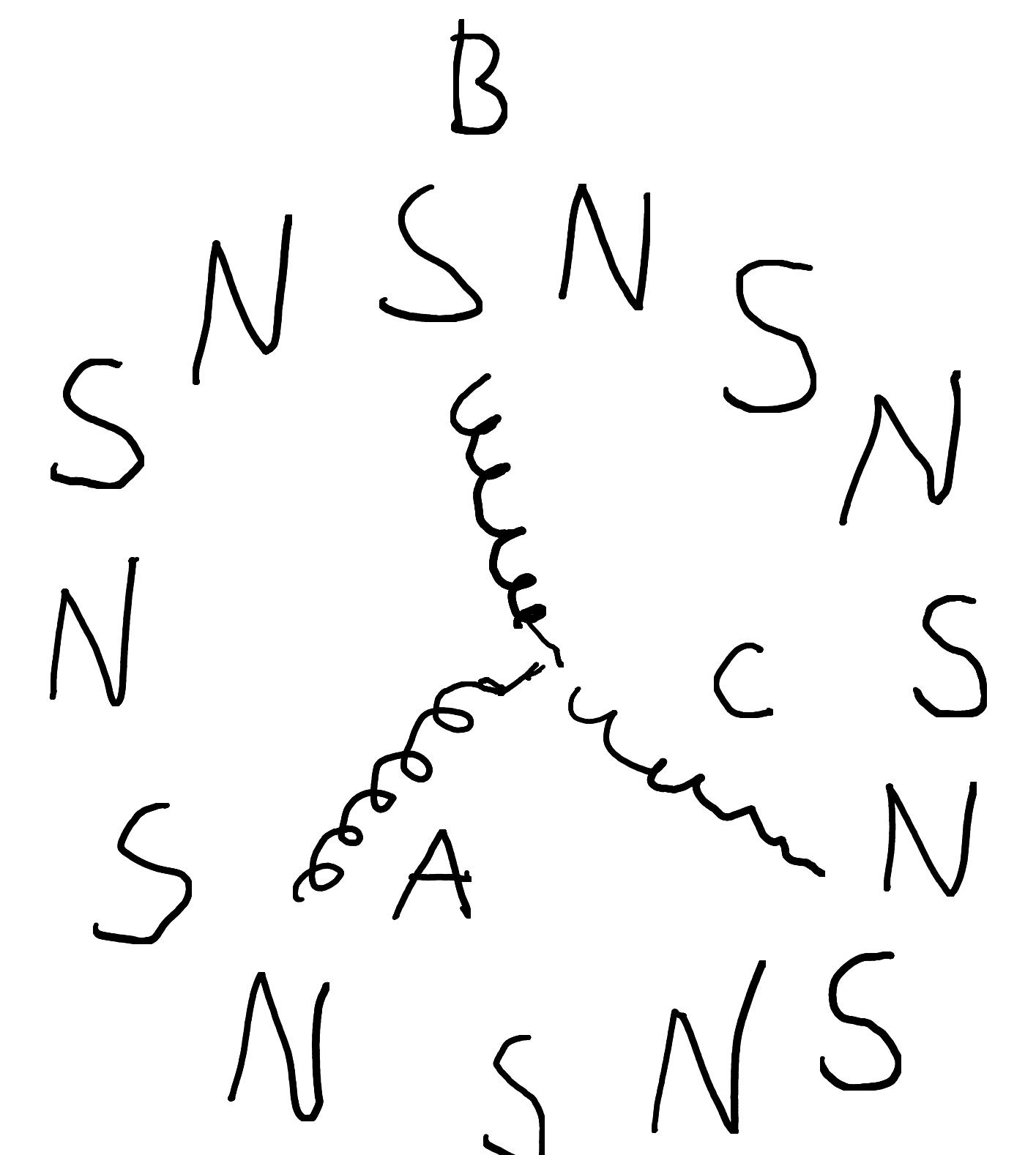


Counter-clockwise rotation (-ve)

ESC	0	1	2	3	4	5
IN	C	C	B	B	A	A
SD	B	A	A	C	C	B
RISING	A	X	C	X	B	X
FALLING	X	B	X	A	X	C

clockwise rotation (+ve)

ESC	0	1	2	3	4	5
IN	A	A	B	B	C	C
SD	B	C	C	A	A	B
RISING	C	X	A	X	B	X
FALLING	X	B	X	C	X	A

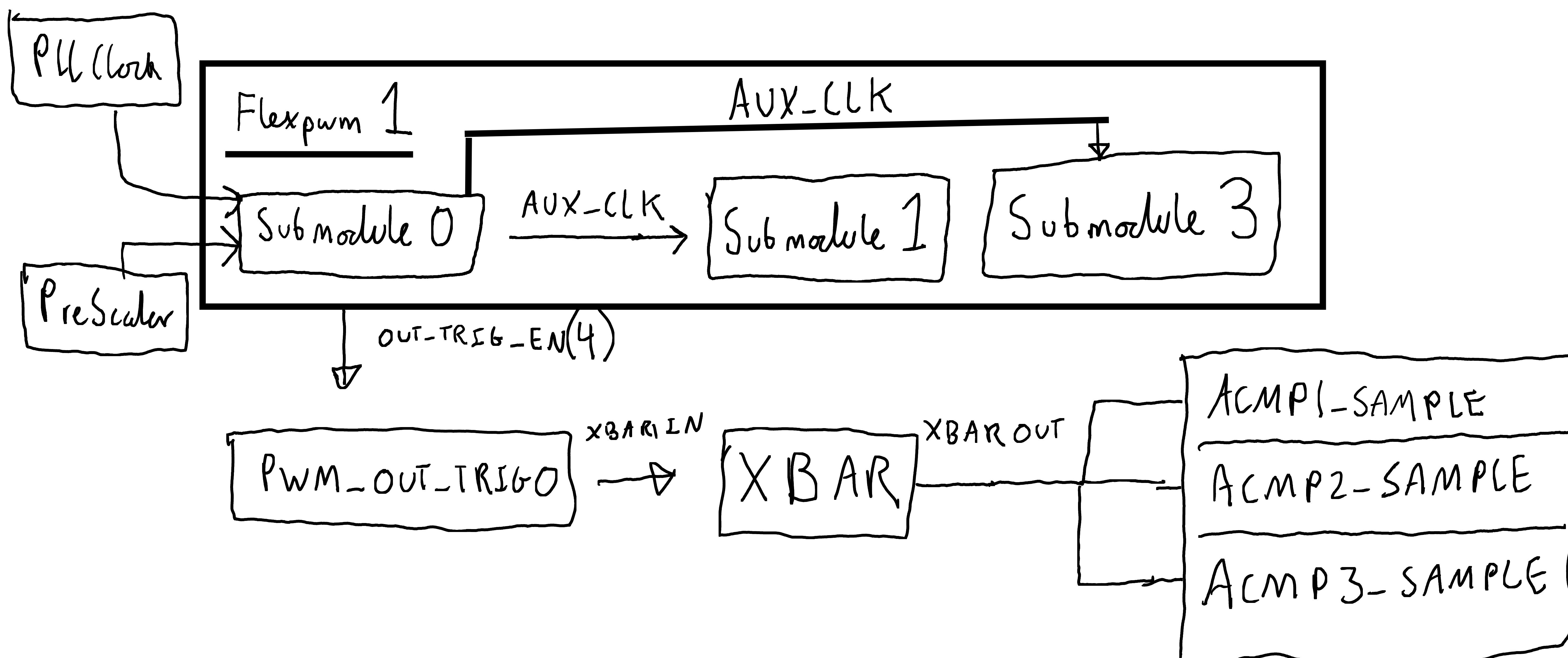
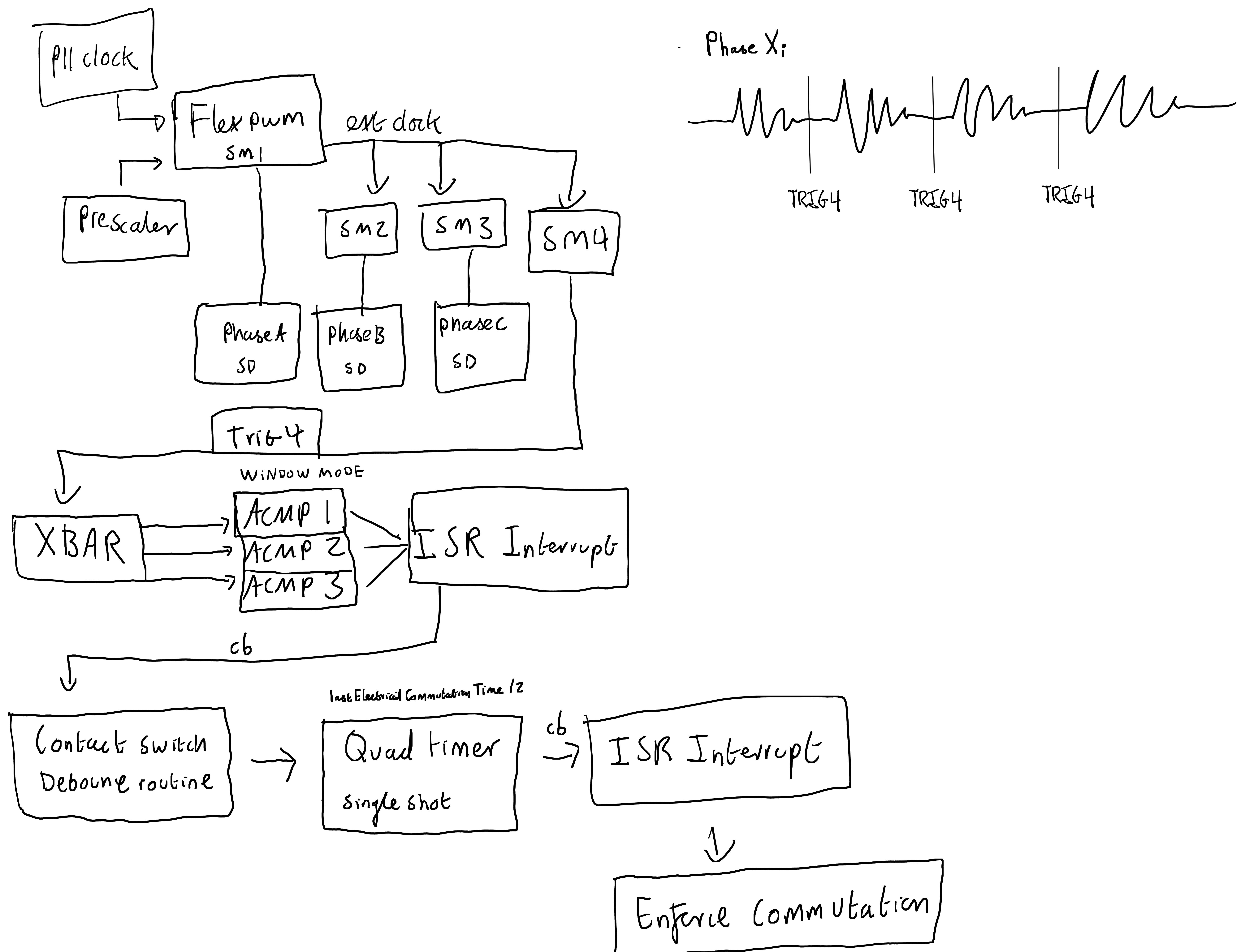


ESC Electrical Step Counter

RISING / FALLING row indicates when phase to sample & whether we would expect a rising/falling edge of the next being zero-crossing

IN identifies which 'IN' phase pin should be high during this commutation step. The other two phases should be low.

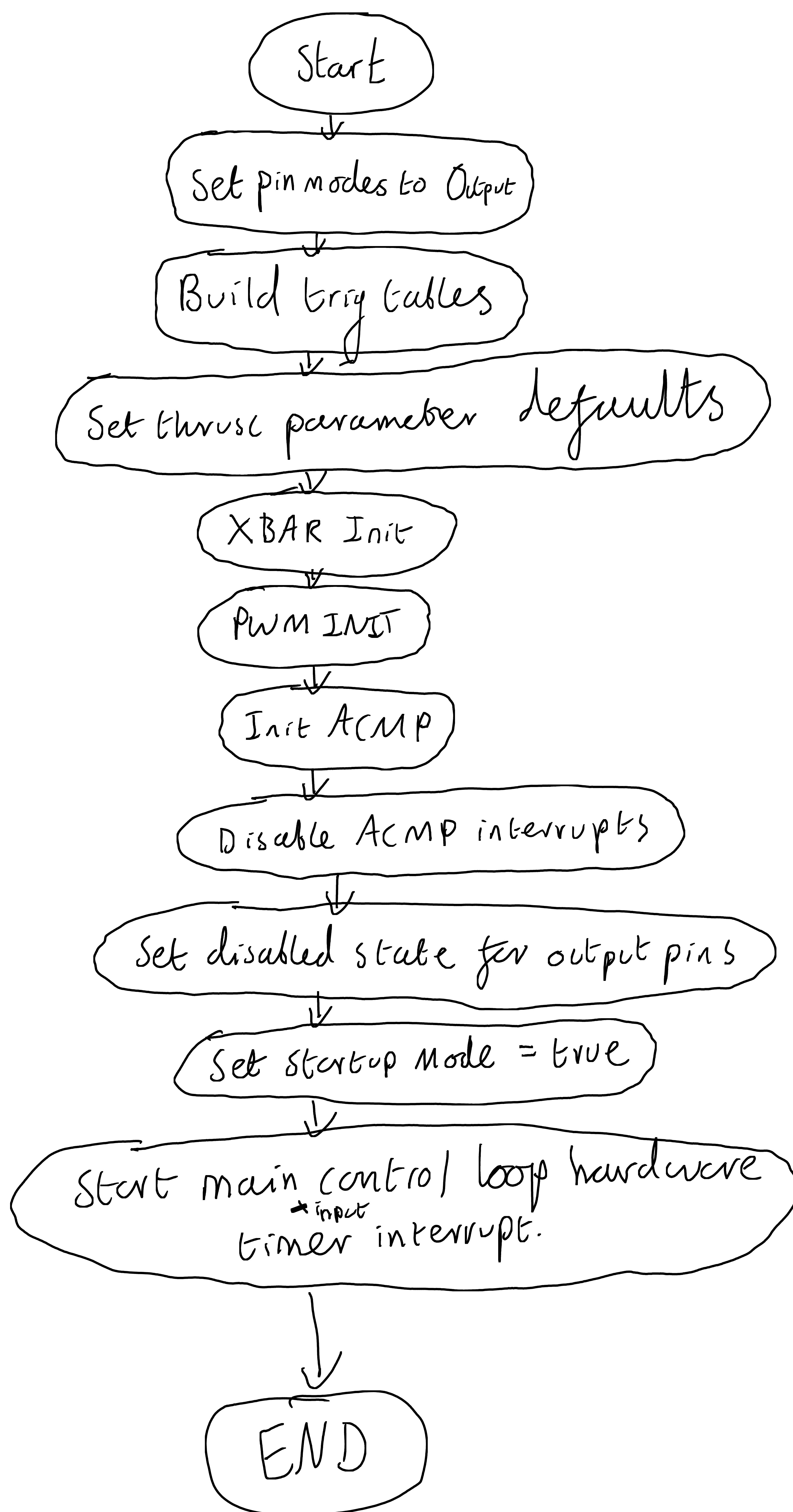
SD indicates which 'SD' phase pin should be written to with a PWM signal with a duty cycle equal to the THRUST variable. The other 'SD' phase pins should be set to low.



Setup

Variables

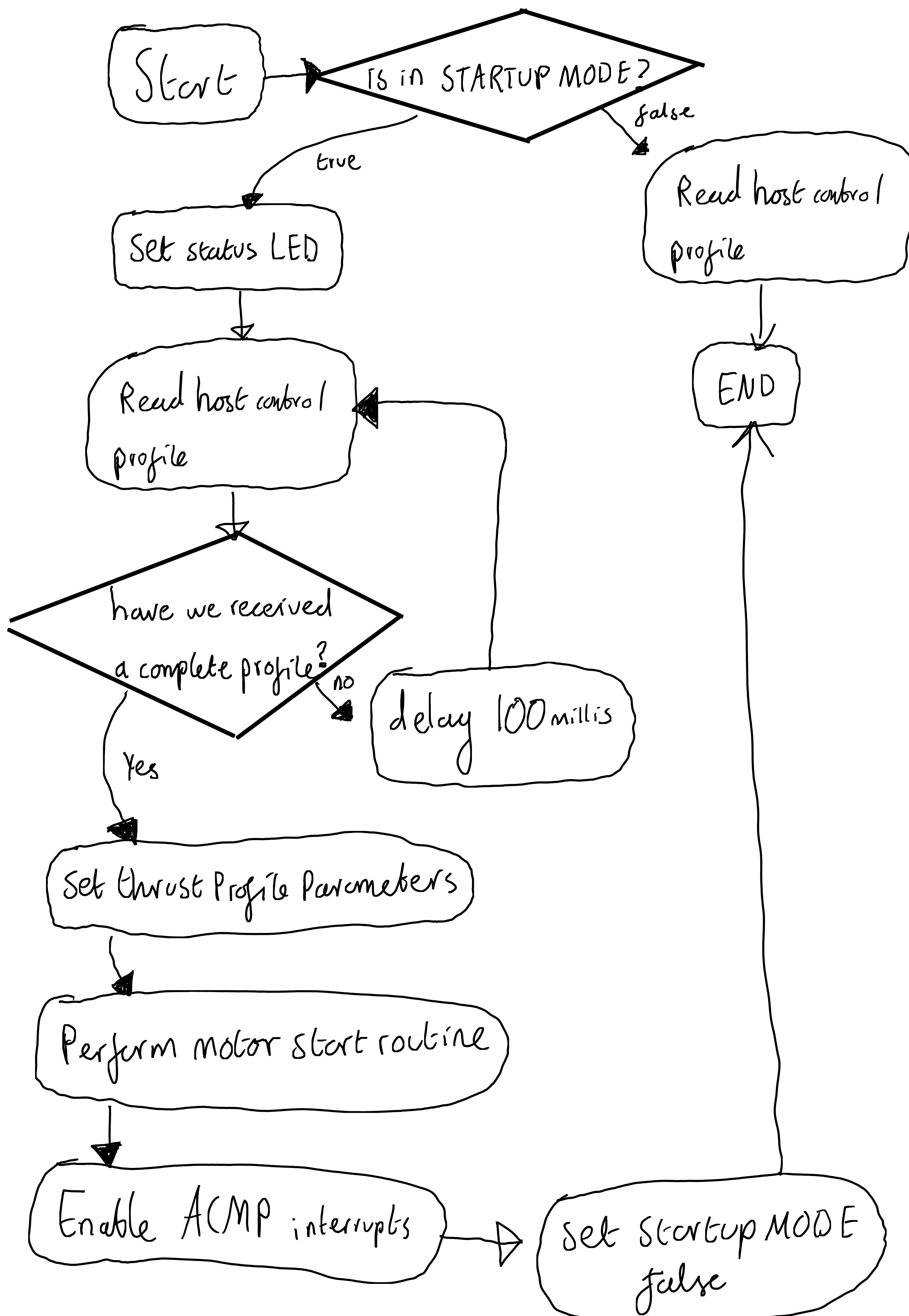
STARTUP-MODE



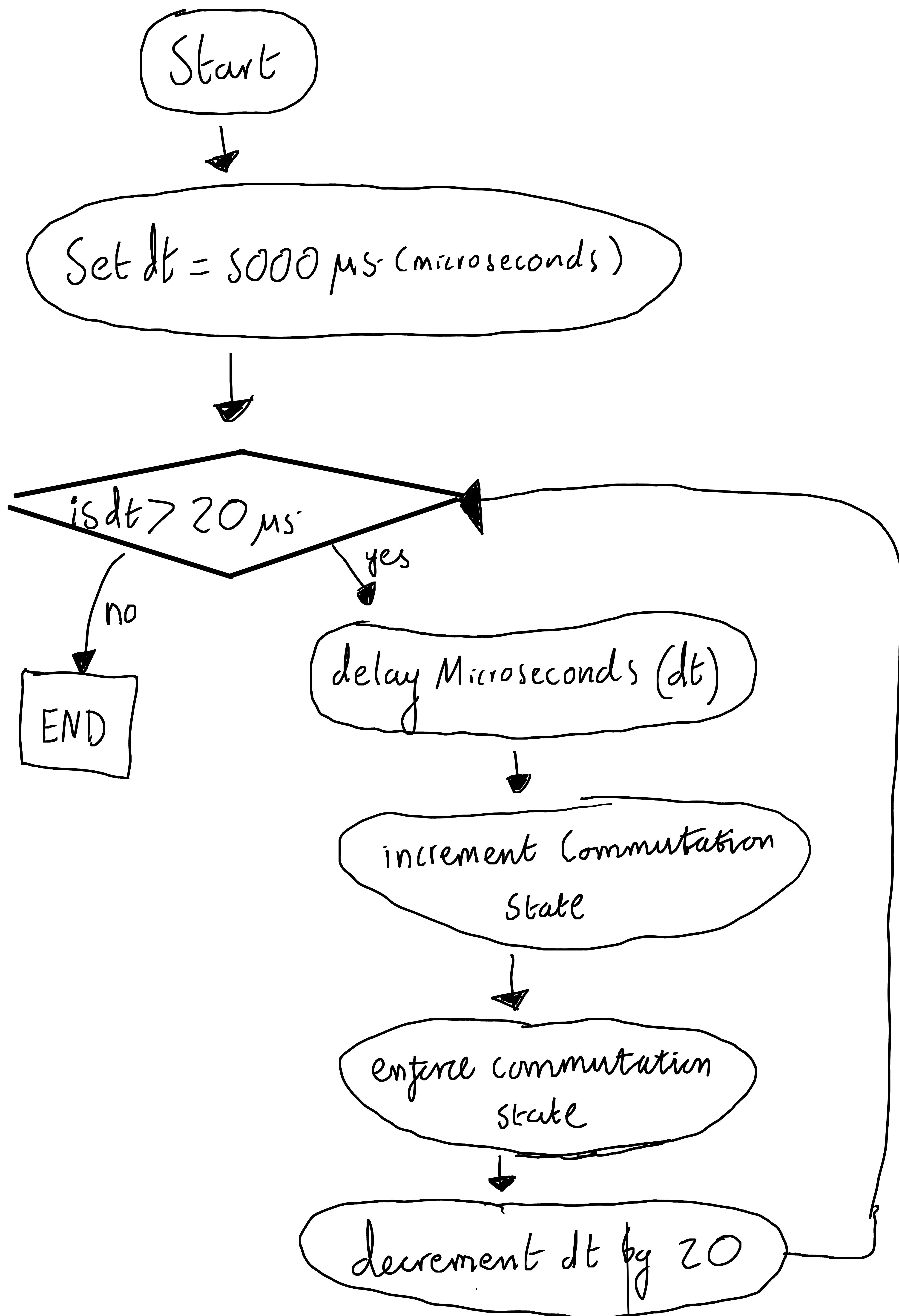
Main Input Control Loop

Variables

STARTUP-MODE

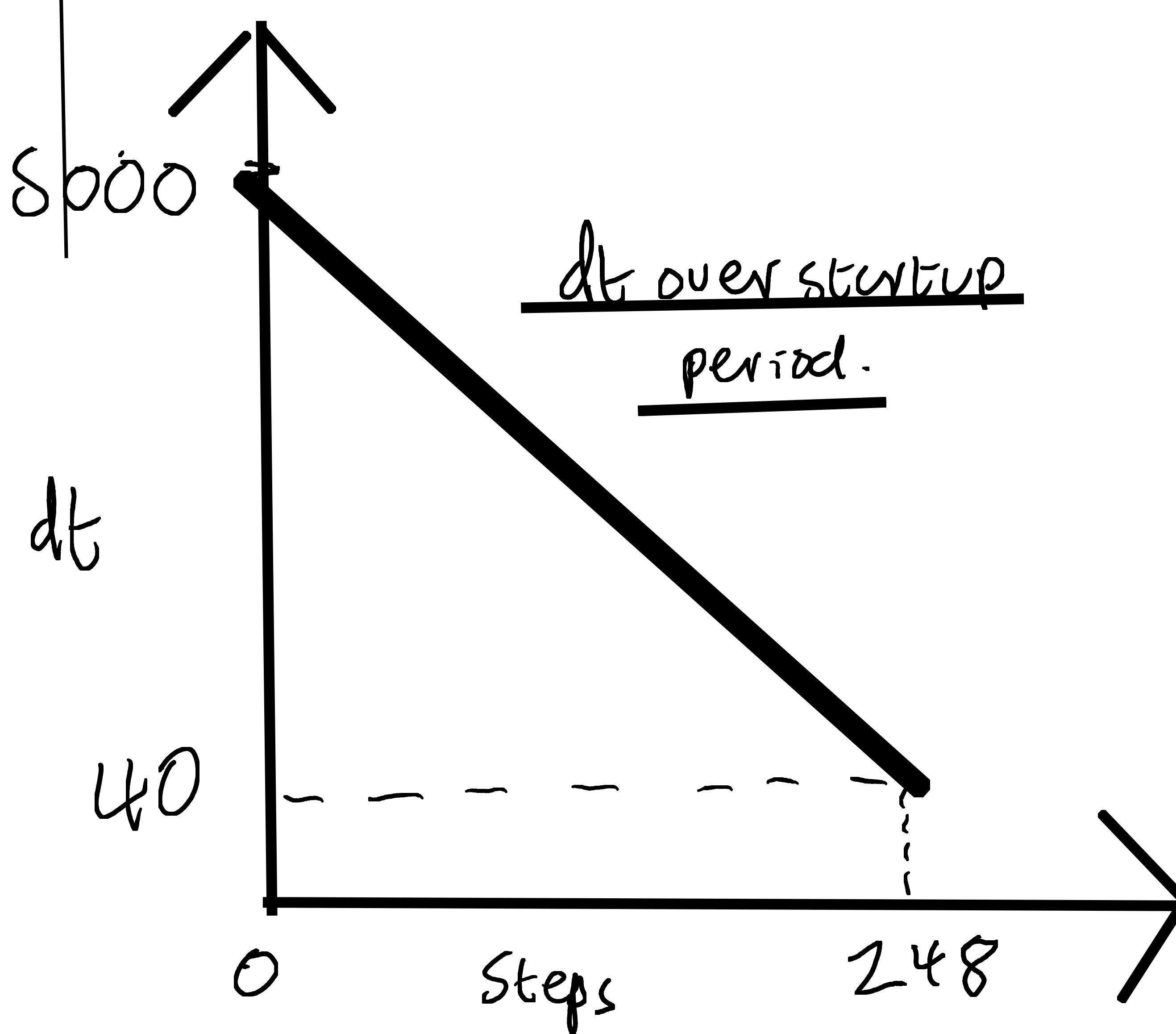
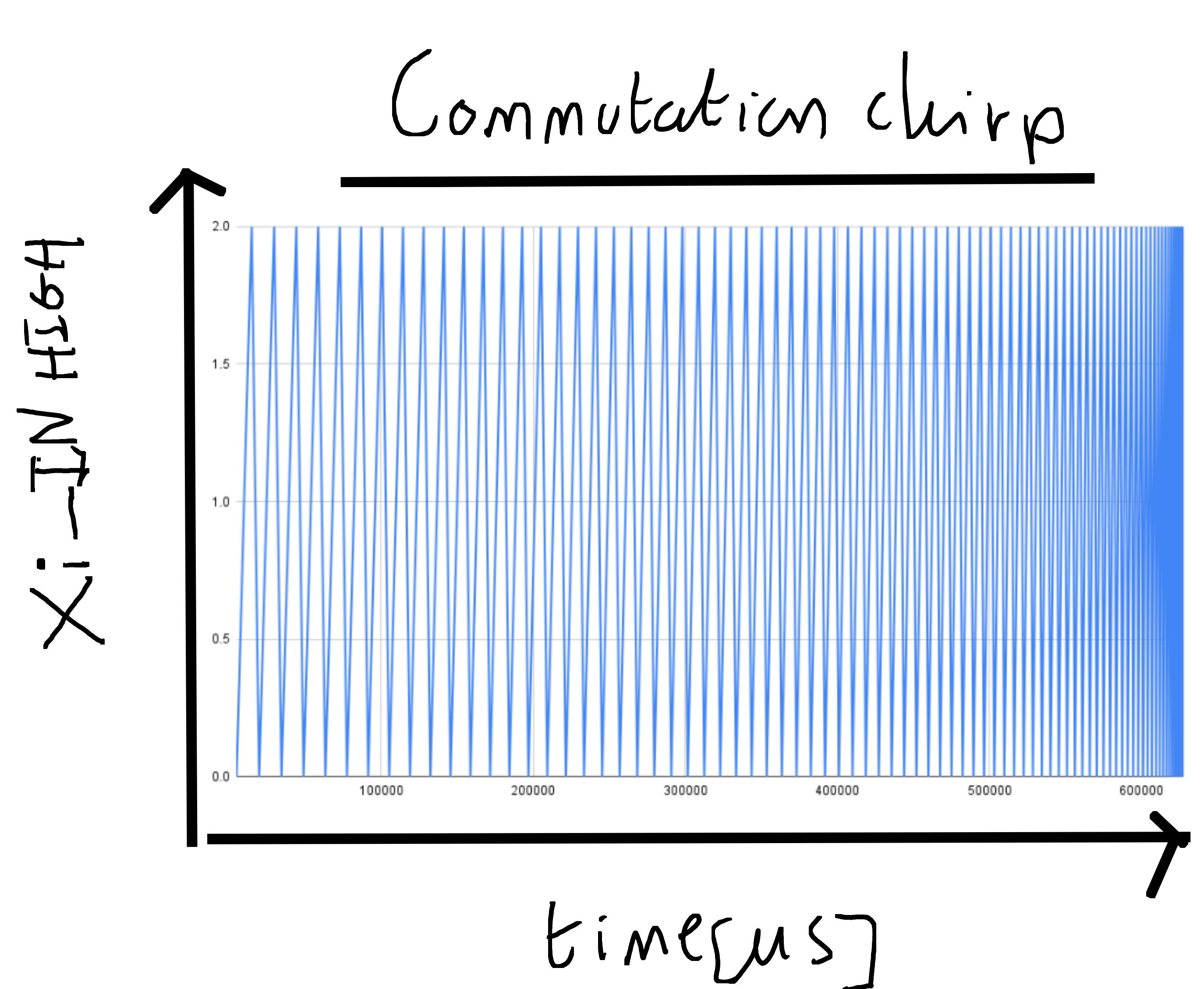


Motor startup routine



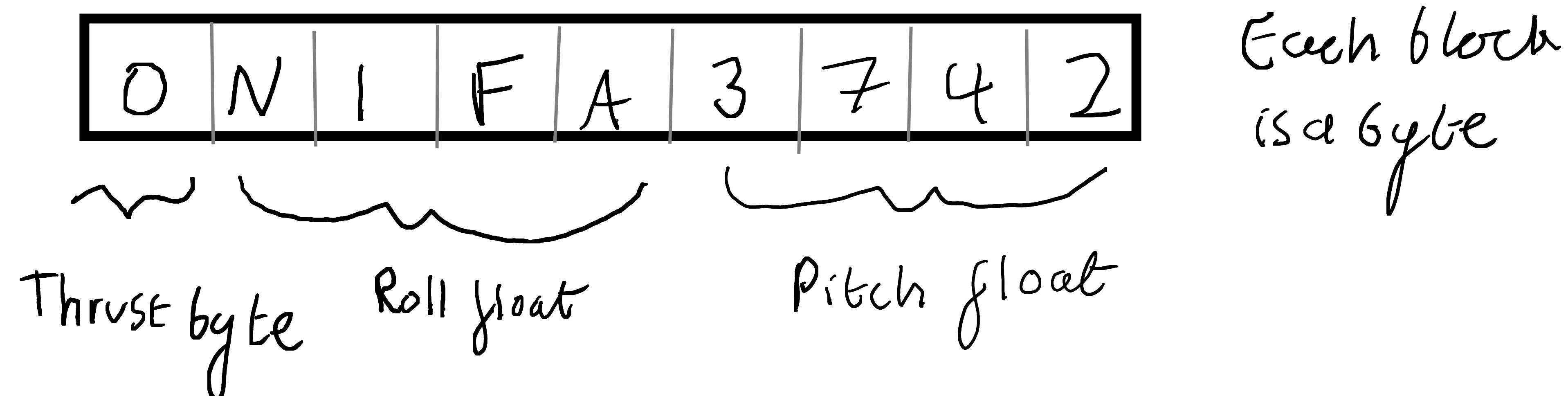
Variables

dt is the commutation delay interval



Read host control profile

HOST PROFILE BUFFER



Variables

HOST_PROFILE_BUFFER
processedAFullProfile = false

HOST_PROFILE_BUFFER-CTR
SIZE_OF_PROFILE 9

THRUST

ROLL

PITCH

