I2C Address1(7bit):0x70

I2C address for relay control(same as RELAY-BOARD02)

Reg address	Reg Name	Description
0x00	RY1 control	0x00=OFF 0x01=ON
0x01	RY2 control	0x00=OFF 0x01=ON

I2C Address2(7bit):0x71

I2C address for ADC read ,PWM output and SBUS I/F

Reg address	Reg Name	Description
0x00	ADC_A0	ADC result value 0x00=0V 0xFF = 40.96V
0x01	ADC_A1	
0x02	ADC_A2	
0x03	ADC_A3	
0x04	ADC_A4	
0x05	ADC_A5	
0x06	PWM1_H	PWM2 output width in μsec (Upper 8bit)
0x07	PWM1_L	PWM2 output width in μsec (Lower 8bit)
0x08	PWM2_H	PWM3 output width in μsec (Upper 8bit)
0x09	PWM2_L	PWM3 output width in μsec (Lower 8bit)
0x0A	PWM3_H	PWM4 output width in μsec (Upper 8bit)
0x0B	PWM3_L	PWM4 output width in μsec (Lower 8bit)
0x0C	IN_SBUS_CH1_H	input SBUS CH1 value(Upper 3bit)
0x0D	IN_SBUS_CH1_L	input SBUS CH1 value(Lower 8bit)
0x0E	IN_SBUS_CH2_H	input SBUS CH2 value(Upper 3bit)
0x0F	IN_SBUS_CH2_L	input SBUS CH2 value(Lower 8bit)
0x10	IN_SBUS_CH3_H	input SBUS CH3 value(Upper 3bit)
0x11	IN_SBUS_CH3_L	input SBUS CH3 value(Lower 8bit)
0x12	IN_SBUS_CH4_H	input SBUS CH4 value(Upper 3bit)
0x13	IN_SBUS_CH4_L	input SBUS CH4 value(Lower 8bit)
0x14	IN_SBUS_CH5_H	input SBUS CH5 value(Upper 3bit)
0x15	IN_SBUS_CH5_L	input SBUS CH5 value(Lower 8bit)
0x16	IN_SBUS_CH6_H	input SBUS CH6 value(Upper 3bit)
0x17	IN_SBUS_CH6_L	input SBUS CH6 value(Lower 8bit)
0x18	IN_SBUS_CH7_H	input SBUS CH7 value(Upper 3bit)
0x19	IN_SBUS_CH7_L	input SBUS CH7 value(Lower 8bit)
0x1A	IN_SBUS_CH8_H	input SBUS CH8 value(Upper 3bit)
0x1B	IN_SBUS_CH8_L	input SBUS CH8 value(Lower 8bit)
0x1C	IN_SBUS_CH9_H	input SBUS CH9 value(Upper 3bit)
0x1D	IN_SBUS_CH9_L	input SBUS CH9 value(Lower 8bit)
0x1E	IN_SBUS_CH10_H	input SBUS CH10 value(Upper 3bit)
0x1F	IN_SBUS_CH10_L	input SBUS CH10 value(Lower 8bit)
0x20	IN_SBUS_CH11_H	input SBUS CH11 value(Upper 3bit)
0x21	IN_SBUS_CH11_L	input SBUS CH11 value(Lower 8bit)
0x22	IN_SBUS_CH12_H	input SBUS CH12 value(Upper 3bit)
0x23	IN_SBUS_CH12_L	input SBUS CH12 value(Lower 8bit)
0x24	IN_SBUS_CH13_H	input SBUS CH13 value(Upper 3bit)

0x25	IN_SBUS_CH13_L	input SBUS CH13 value(Lower 8bit)	
0x26	IN_SBUS_CH14_H	input SBUS CH14 value(Upper 3bit)	
0x27	IN_SBUS_CH14_L	input SBUS CH14 value(Lower 8bit)	
0x28	IN_SBUS_CH15_H	input SBUS CH15 value(Upper 3bit)	
0x29	IN_SBUS_CH15_L	input SBUS CH15 value(Lower 8bit)	
0x2A	IN_SBUS_CH16_H	input SBUS CH16 value(Upper 3bit)	
0x2B	IN_SBUS_CH16_L	input SBUS CH16 value(Lower 8bit)	
0x2C	IN_SBUS_DG1	input SBUS DG1 bit	
0x2D	IN_SBUS_DG2	input SBUS DG2 bit	
0x2E	IN_SBUS_BLK	input SBUS BLK bit	
0x2F	IN_SBUS_ERD	input SBUS ERD bit	
0x30	CARTIF_SBUS_CH1_H	SBUS ch1 output value to CARTIF-ESC(Upper 3bit)	Steering
0x31	CARTIF_SBUS_CH1_L	SBUS ch1 output value to CARTIF-ESC(Lower 8bit)	
0x32	CARTIF_SBUS_CH2_H	SBUS ch2 output value to CARTIF-ESC(Upper 3bit)	Throttle
0x33	CARTIF_SBUS_CH2_L	SBUS ch2 output value to CARTIF-ESC(Lower 8bit)	
0x34	CARTIF_SBUS_CH3_H	SBUS ch3 output value to CARTIF-ESC(Upper 3bit)	reserved
0x35	CARTIF_SBUS_CH3_L	SBUS ch3 output value to CARTIF-ESC(Lower 8bit)	
0x36	CARTIF_SBUS_CH4_H	SBUS ch4 output value to CARTIF-ESC(Upper 3bit)	reserved
0x37	CARTIF_SBUS_CH4_L	SBUS ch4 output value to CARTIF-ESC(Lower 8bit)	
0x38	CARTIF_SBUS_CH5_H	SBUS ch5 output value to CARTIF-ESC(Upper 3bit)	Handling of
0x39	CARTIF_SBUS_CH5_L	SBUS ch5 output value to CARTIF-ESC(Lower 8bit)	CARTIF_INPUT_SELECT
0x3A	CARTIF_SBUS_CH6_H	SBUS ch6 output value to CARTIF-ESC(Upper 3bit)	Switch control to ESC-Joystick
0x3B	CARTIF_SBUS_CH6_L	SBUS ch6 output value to CARTIF-ESC(Lower 8bit)	
0x3C	CARTIF_SBUS_CH7_H	SBUS ch7 output value to CARTIF-ESC(Upper 3bit)	reserved
0x3D	CARTIF_SBUS_CH7_L	SBUS ch7 output value to CARTIF-ESC(Lower 8bit)	
0x3E	CARTIF_SBUS_CH8_H	SBUS ch8 output value to CARTIF-ESC(Upper 3bit)	reserved
0x3F	CARTIF_SBUS_CH8_L	SBUS ch8 output value to CARTIF-ESC(Lower 8bit)	
0x40	CARTIF_SBUS_CH9_H	SBUS ch9 output value to CARTIF-ESC(Upper 3bit)	reserved
0x41	CARTIF_SBUS_CH9_L	SBUS ch9 output value to CARTIF-ESC(Lower 8bit)	
0x42	CARTIF_SBUS_CH10_H	SBUS ch10 output value to CARTIF-ESC(Upper 3bit)	reserved
0x43	CARTIF_SBUS_CH10_L	SBUS ch10 output value to CARTIF-ESC(Lower 8bit)	
0x44	CARTIF_SBUS_CH11_H	SBUS ch11 output value to CARTIF-ESC(Upper 3bit)	reserved
0x45	CARTIF_SBUS_CH11_L	SBUS ch11 output value to CARTIF-ESC(Lower 8bit)	
0x46	CARTIF_SBUS_CH12_H	SBUS ch12 output value to CARTIF-ESC(Upper 3bit)	reserved
0x47	CARTIF_SBUS_CH12_L	SBUS ch12 output value to CARTIF-ESC(Lower 8bit)	
0x48	CARTIF_SBUS_CH13_H	SBUS ch13 output value to CARTIF-ESC(Upper 3bit)	reserved
0x49	CARTIF_SBUS_CH13_L	SBUS ch13 output value to CARTIF-ESC(Lower 8bit)	
0x4A	CARTIF_SBUS_CH14_H	SBUS ch14 output value to CARTIF-ESC(Upper 3bit)	reserved
0x4B	CARTIF_SBUS_CH14_L	SBUS ch14 output value to CARTIF-ESC(Lower 8bit)	
0x4C	CARTIF_SBUS_CH15_H	SBUS ch15 output value to CARTIF-ESC(Upper 3bit)	reserved
0x4D	CARTIF_SBUS_CH15_L	SBUS ch15 output value to CARTIF-ESC(Lower 8bit)	
0x4E	CARTIF_SBUS_CH16_H	SBUS ch16 output value to CARTIF-ESC(Upper 3bit)	reserved
0x4F	CARTIF_SBUS_CH16_L	SBUS ch16 output value to CARTIF-ESC(Lower 8bit)	
0x50	CARTIF_SBUS_DG1	SBUS DG1 output value to CARTIF-ESC	reserved
0x51	CARTIF_SBUS_DG2	SBUS DG2 output value to CARTIF-ESC	reserved
0x52	CARTIF_INPUT_SELECT	Switches the input source of CARTIF-ESC 0 = Hold 1 = Manual (manual driving) 2 = CARTIF_SBUS (auto driving)	

| 0x53	FW_version	7=v0.7(this FW version)
0x54	AUX_LED1	0 = OFF
0x55	AUX_LED2	
0x56	AUX_LED3	1 = ON
0x57	DISABLE_SBUS_FAILSAFE	0=Enable Failsafe, 1=Disable Failsafe

About CH1 (steering) and CH2 (throttle) of CARTIF_SBUS

A timeout function is added as a countermeasure when Jetson freezes.

If there is no write to the I2C address = 0x71 for 5 seconds, CH1 and CH2 will be forced to overwrite neutral (SBUS value = 0x400).

When controlling from Jetson with CARTIF_INPUT_SELECT (I2C register address 0x52) = 2, make sure to write I2C periodically.

Block diagram
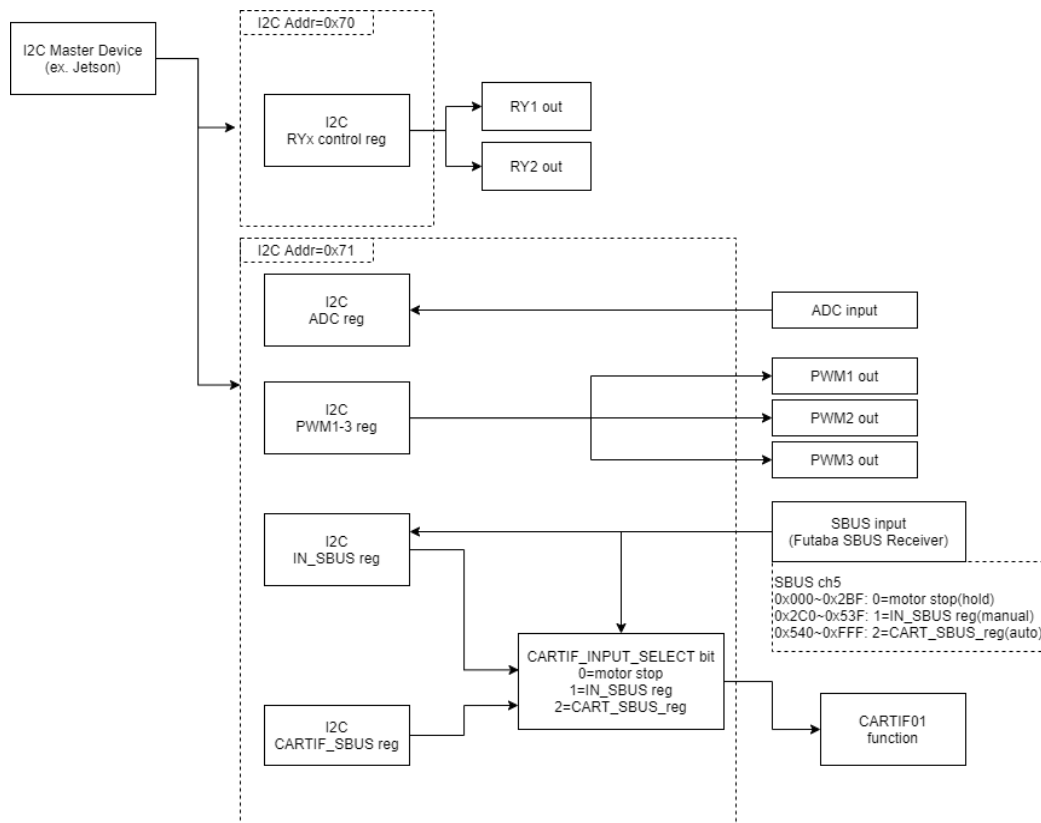
Example of using on Jetson Xavier NX

#RY1 turn on

i2cset -y 8 0x70 0x00 0x01

#RY1 turn off

i2cset -y 8 0x70 0x00 0x00

#ADC0 read

i2cget -y 8 0x71 0x00

#PWM2 set 1920us

i2cset -y 8 0x71 0x06 0x07 0x80 i