G5S Connection Guide

Multirotor

Februar 2025

1 Main Components

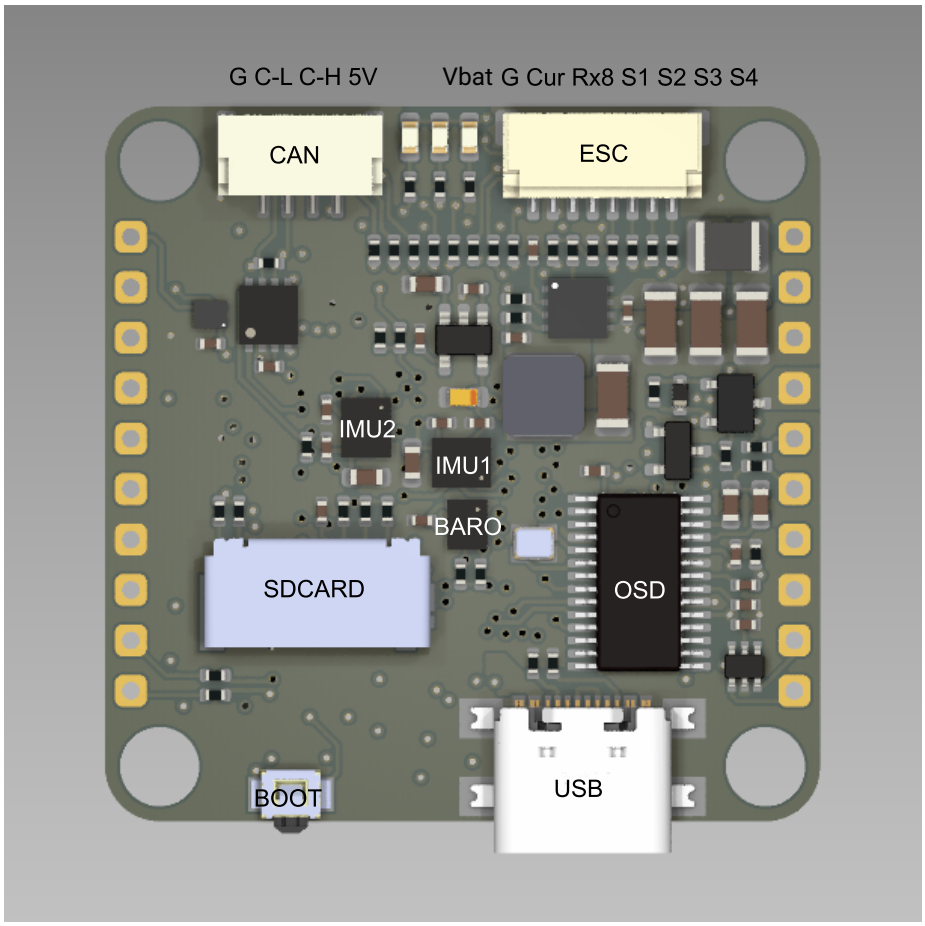

Figure 1: Back side of G5S flight controller.

2 Peripheral Mapping

Section	Pad	Pin	Function	Remarks
PWM	S1	PA0	TIM2 CH1	PWM Group 1
	S2	PA1	TIM2 CH2	
	S3	PA2	TIM5 CH3	PWM Group 2
	S4	PA3	TIM5 CH4	
	S5	PD12	TIM4 CH1	PWM Group 3
	S6	PD13	TIM4 CH2	
	S7	PD14	TIM4 CH3	
	S8	PD15	TIM4 CH4	
	S9	PA8	TIM1 CH1	PWM Group 4
	S10	PE11	TIM1 CH2	
	S11	PE13	TIM1 CH3	
	S12	PE14	TIM1 CH4	
	LED	PA7	TIM3 CH2	PWM Group 5
ADC	Vbt	PC0	ADC1 CH10	
	Cur	PA4	ADC1 CH18	
	Vbt2	PB0	ADC1 CH9	
	Cur2	PB1	ADC1 CH5	
	AirS	PC4	ADC1 CH4	
	Rssi	PC5	ADC1 CH8	
I2C	CL1	PB6	I2C1 SCL	
	DA1	PB7	I2C1 SDA	
	CL2	PB10	I2C2 SCL	
	DA2	PB11	I2C2 SDA	
CAN	C-L	PB8/PB9	CAN1 Low	
	C-H	PB8/PB9	CAN1 High	
		PC3	CAN1 Disable	
UART	Tx1	PA9	UART1 TX	
	Rx1	PB15	UART1 RX	
	Tx2	PD5	UART2 TX	
	Rx2	PD6	UART2 RX	

	Tx3	PD8	UART3 TX	
	Rx3	PD9	UART3 RX	
	Tx4	PD1	UART4 TX	
	Rx4	PD0	UART4 RX	
	Tx5	PB13	UART5 TX	
	Rx5	PB12	UART5 RX	
	Tx6	PC6	UART6 TX	
	Rx6	PC7	UART6 RX	RC Input SBus, IBus format
	Tx7	PE8	UART7 TX	
	Rx7	PE7	UART7 RX	
	Rts7	PE9	UART7 RTS	
	Cts7	PE10	UART7 CTS	
	Tx8	PE1	UART8 TX	
	Rx8	PE0	UART8 RX	
RCIN	PPM	PB14	TIM12 CH1	RC Input PPM format
SPI	SI	PA6	SPI6 MISO	
	SO	PB5	SPI6 MOSI	
	CK	PA5	SPI6 SCK	
	CS1	PD4	Chip Select 1	
	CS2	PA10	Chip Select 2	
BUZZER	Buz-	PA15	GPIO(32)	use active Buzzer only
RELAY		PD10	GPIO(81)	used to switch on/off Vsw supply rail
		PD11	GPIO(82)	used to switch between video inputs C1/C2

3 Signal Connections

Due to the grouping of PWM pins it may be necessary to use non-contiguous servo outputs to connect to the ESCs. If building a quad-copter use S1..S4 as motor signal, for a hexa-copter use S3, S4, S5..S8, for an octo-copter use S1..S8, respectively.

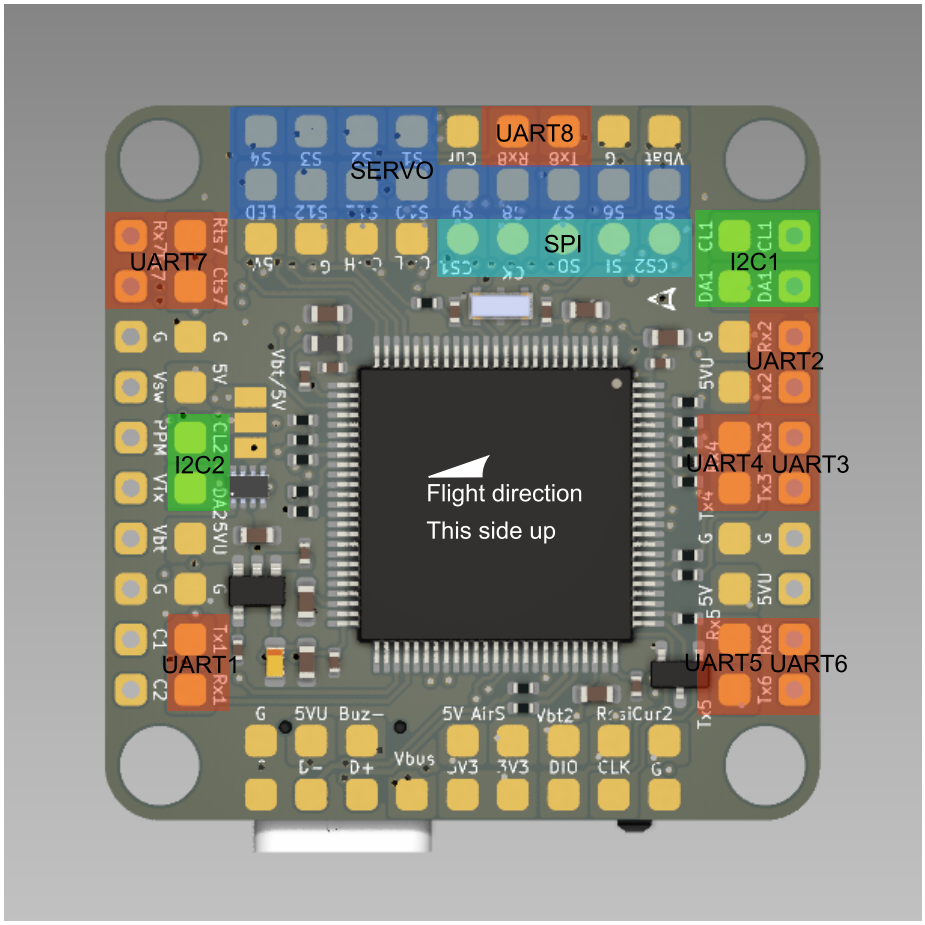

Figure 2: Top side of the G5S flight controller. Colors indicate different interfaces.

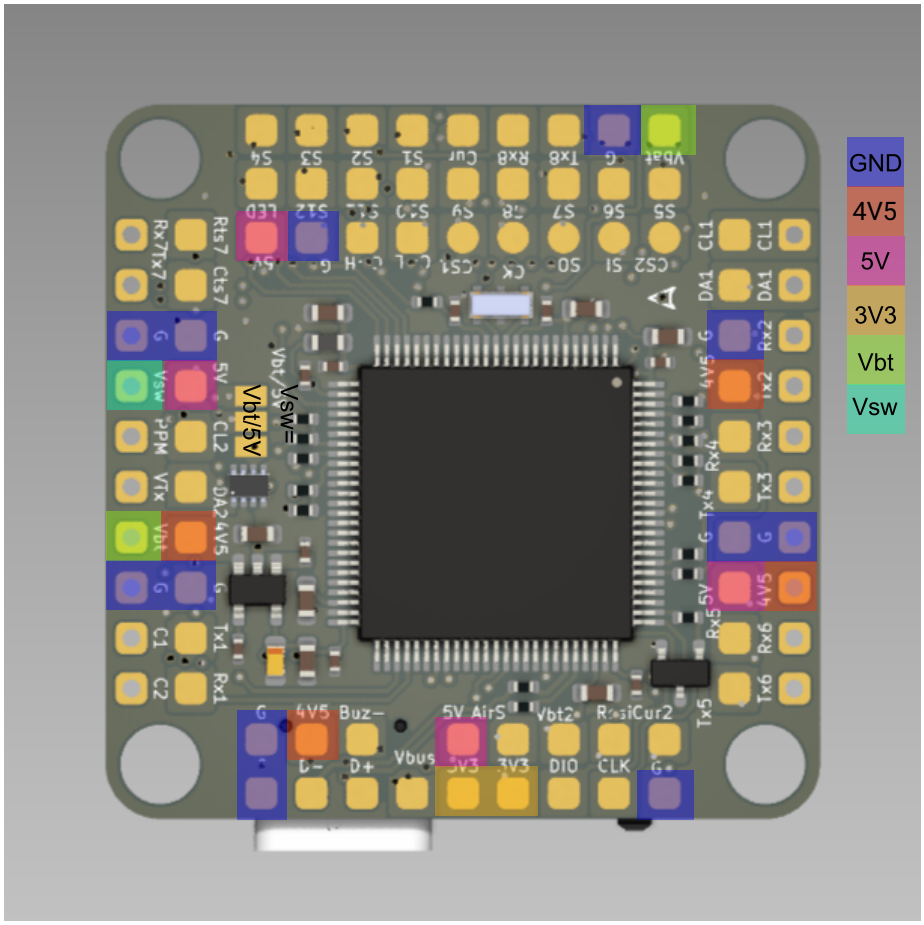

Figure 3: Top side of G5S flight controller. Colors indicating supply rails.

4 Power Supply Pins

The flight controller can be powered from USB or 6-36V battery. Please use the pad **Vbat** or the respective pin on the ESC connector to supply battery power to the flight controller. **Vbt** pads deliver a filtered battery voltage which can be used for sensitive electronics.

There is a switchable power rail Vsw. Please choose a suitable voltage rail to supply Vsw (either Vbt or 5V) using the solder jumper on the front side of the flight controller.

Supply Rail	Powered by Battery	Powered by USB
4V5	yes	yes
5V	yes	-
3V3	yes	yes
Vbt	yes	-
Vsw	yes	-

5 Firmware Upgrade

The flight controller supports both, Fixed Wing and Multicopter models. To set the vehicle type the flight controller must run the respective firmware. Precompiled firmware files for Fixed Wing and Multicopter devices are provided on our website. Complete the following steps to upload the Ardupilot firmware.

1. *Install Mission Planner.* Use version 1.3.82 (recommended) and launch the program once installed.
2. *Connect the flight controller via USB.* Plug it directly into your computer.
3. *Do not hit "Connect" yet.* Mission Planner will detect the board, but avoid connecting for now.
4. *Open the firmware installation page.* In the top menu: Setup → Install Firmware.
5. *Load the custom firmware file.* Click Load custom, Select: arduplane-x.y.z-dev.apj for Fixed Wing, or arducopter-x.y.z-dev.apj for Multicopter.
6. *Let the upload run to completion.* The board will reboot automatically once flashing is done. Keep the USB connected until it fully restarts.
7. *Verify the installation.* Now click Connect in Mission Planner. Check that MissionPlanner shows the desired vehicle type and version.