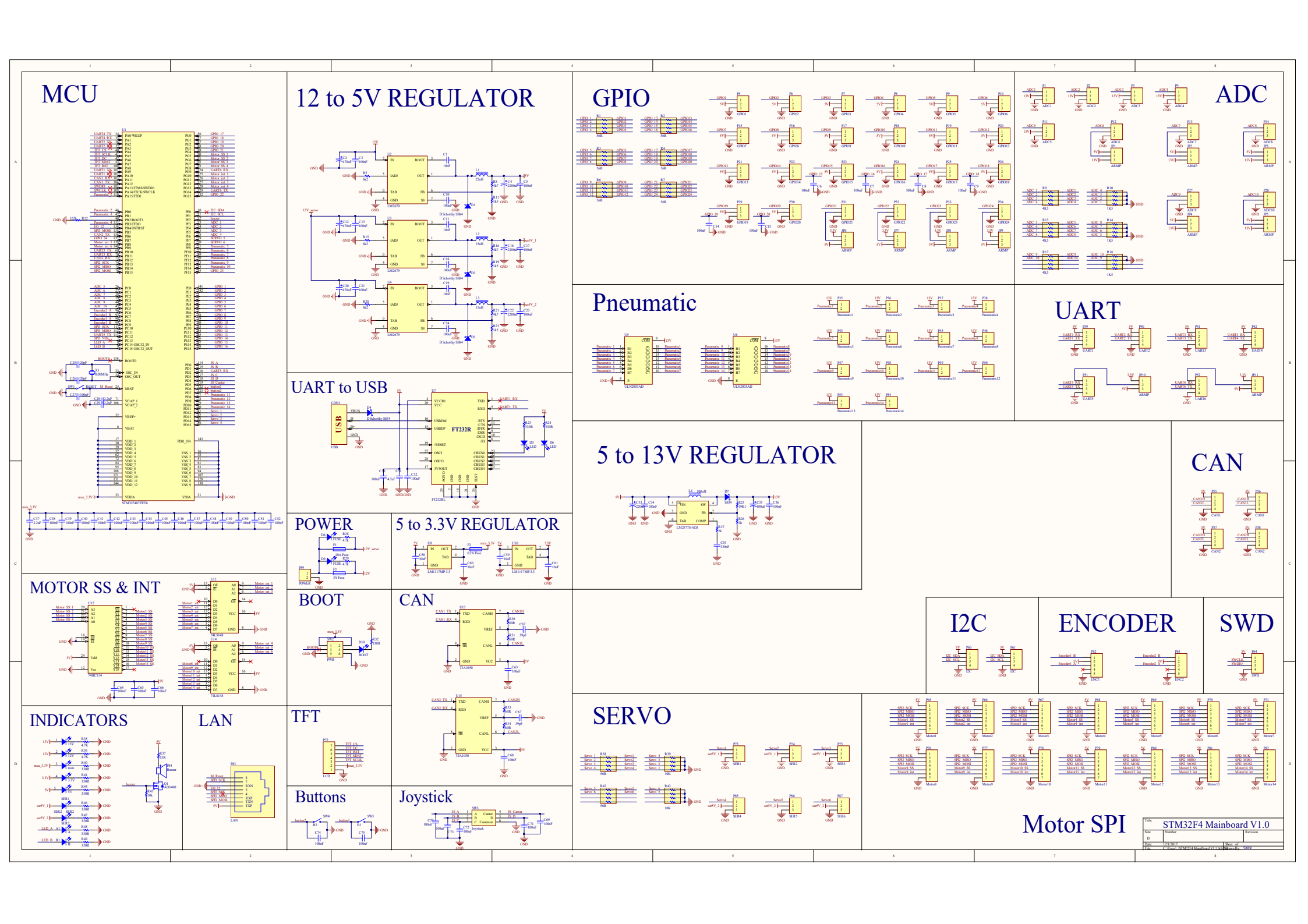
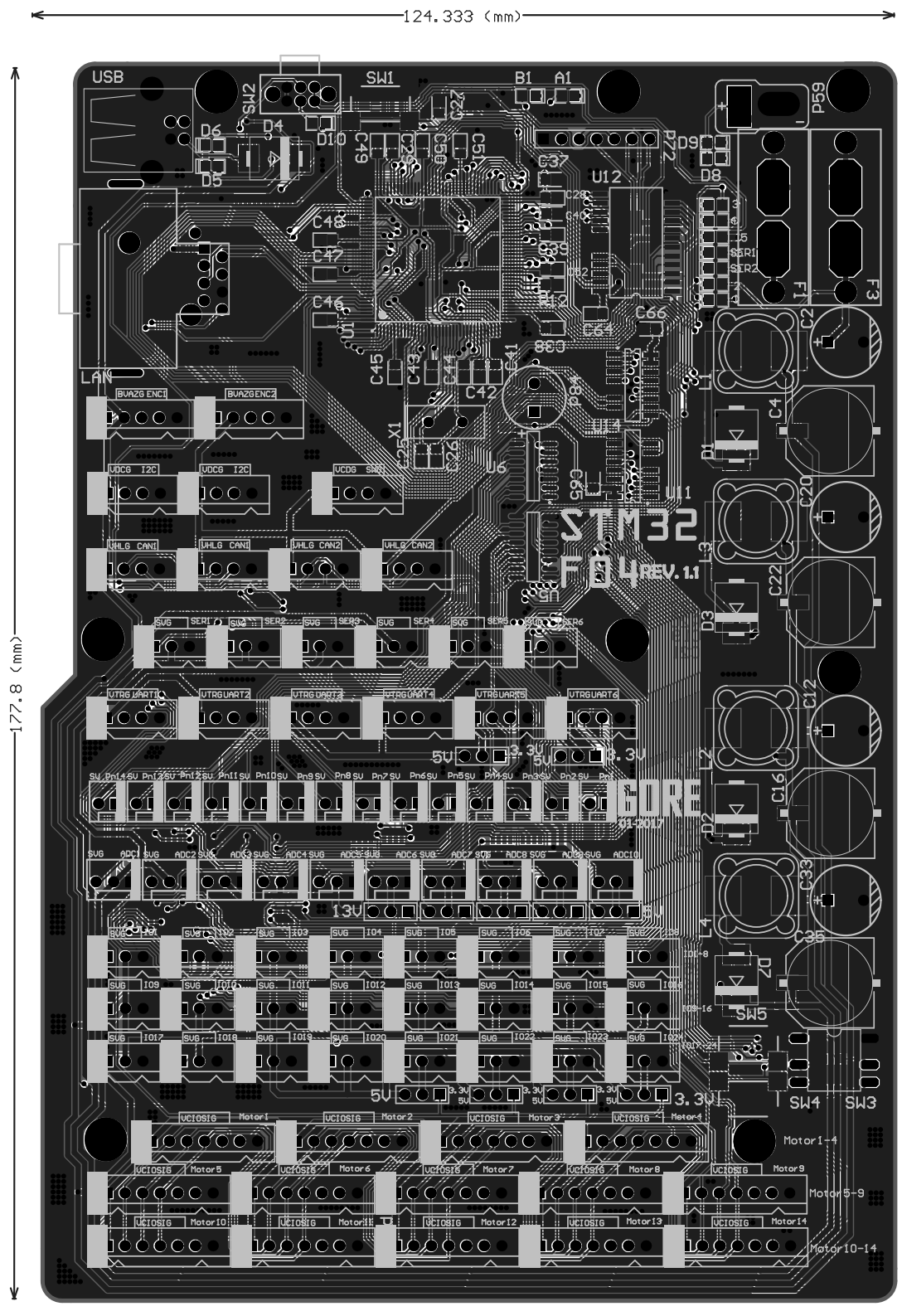

MCU
12 to 5V REGULATOR
GPIO
ADC
Pneumatic
UART
UART to USB
5 to 13V REGULATOR
CAN
POWER
5 to 3.3V REGULATOR
MOTOR SS & INT
BOOT
CAN
I2C
ENCODER
SWD
INDICATORS
LAN
TFT
SERVO
Buttons
Joystick
Motor SPI
STM32F4 Mainboard V1.0


124.333 (mm)
177.8 (mm)
USB
SW1
SW2
LAN
STM32
F04 REV. 1.1
CORE
SW3
SW4
SW5
Motor1-4
Motor5-9
Motor10-14

Comment	Description	Designator	Footprint	LibRef	Quantity
13V	Typical RED GaAs LED	1	D0805	LED	1
12V	Typical RED GaAs LED	2	D0805	LED	1
mcu	Typical RED GaAs LED	3	D0805	LED	1
3.3V	Typical RED GaAs LED	4	D0805	LED	1
5V	Typical RED GaAs LED	5	D0805	LED	1
A	Typical RED GaAs LED	A1	D0805	LED	1
B	Typical RED GaAs LED	B1	D0805	LED	1
10nF	Capacitor (Semiconductor SIM Model)	C1, C11, C19	CC2012-0805	Cap Semi	3
470uF	Polarized Capacitor (Radial)	C2, C12, C20	CAP10x12	Cap Pol DIP	3
100nF	Capacitor (Semiconductor SIM Model)	C3, C5, C6, C7, C8, C9, C10, C13, C14, C15, C17, C18, C21, C23, C24, C27, C30, C32, C34, C36, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C63, C64, C65, C66, C68, C69, C70, C71, C72, C73, C74, C75	CC2012-0805	Cap Semi	47
2200uF	Polarized Capacitor (Axial)	C4, C16, C22	SV-H	Cap Pol SMD	3
20pF	Capacitor (Semiconductor SIM Model)	C25, C26	CC2012-0805	Cap Semi	2
2.2uF	Capacitor (Semiconductor SIM Model)	C28, C29, C37	CC2012-0805	Cap Semi	3
4.7uF	Capacitor (Semiconductor SIM Model)	C31	CC2012-0805	Cap Semi	1
220uF	Polarized Capacitor (Radial)	C33	CAP10x12	Cap Pol DIP	1
680uF	Polarized Capacitor (Axial)	C35	SV-H	Cap Pol SMD	1
330nF	Capacitor (Semiconductor SIM Model)	C53	CC2012-0805	Cap Semi	1
10uF	Capacitor (Semiconductor SIM Model)	C58, C59, C60, C61	CC2012-0805	Cap Semi	4
39pF	Capacitor (Semiconductor SIM Model)	C62, C67	CC2012-0805	Cap Semi	2
USB		CON1	USB-B-H	USB Series A/B	1
D Schottky SS84	Schottky Diode	D1, D2, D3	SMC	D Schottky	3
D Schottky SS34	Schottky Diode	D4	SMC	D Schottky	1
LED	Typical RED GaAs LED	D5, D6	D0805	LED	2
SS34	Schottky Diode	D7	SMC	D Schottky	1
FUSE	Typical RED GaAs LED	D8, D9	D0805	LED	2
BOOT	Typical RED GaAs LED	D10	D0805	LED	1
10A Fuse	Fuse	F1	FUSE SOCKET	Fuse	1
0.2A Fuse	Fuse	F2	CF3216-1206	Fuse	1
3A Fuse	Fuse	F3	FUSE SOCKET	Fuse	1
ARMP	Header, 3-Pin	JP1, JP2, JP3, JP4, JP5, JP6, JP7, JP8, JP9, JP10, JP11	HDR1X3	Header 3	11
22uH	Inductor	L1	MSS1260	Inductor	1
15uH	Inductor	L2, L3	MSS1260	Inductor	2
100uH	Inductor	L4	MSS1260	Inductor	1
ADC1	Header, 3-Pin	P1	Fan_socket_3	Header 3	1
ADC2	Header, 3-Pin	P2	Fan_socket_3	Header 3	1
ADC3	Header, 3-Pin	P3	Fan_socket_3	Header 3	1
ADC4	Header, 3-Pin	P4	Fan_socket_3	Header 3	1
GPIO1	Header, 3-Pin	P5	LOCKEDHDR-3	Header 3	1
GPIO2	Header, 3-Pin	P6	LOCKEDHDR-3	Header 3	1
GPIO3	Header, 3-Pin	P7	LOCKEDHDR-3	Header 3	1
GPIO4	Header, 3-Pin	P8	LOCKEDHDR-3	Header 3	1
GPIO5	Header, 3-Pin	P9	LOCKEDHDR-3	Header 3	1
GPIO6	Header, 3-Pin	P10	LOCKEDHDR-3	Header 3	1
ADC5	Header, 3-Pin	P11	Fan_socket_3	Header 3	1
ADC6	Header, 3-Pin	P12	Fan_socket_3	Header 3	1
ADC7	Header, 3-Pin	P13	Fan_socket_3	Header 3	1
ADC8	Header, 3-Pin	P14	Fan_socket_3	Header 3	1
GPIO7	Header, 3-Pin	P15	LOCKEDHDR-3	Header 3	1
GPIO8	Header, 3-Pin	P16	LOCKEDHDR-3	Header 3	1
GPIO9	Header, 3-Pin	P17	LOCKEDHDR-3	Header 3	1
GPIO10	Header, 3-Pin	P18	LOCKEDHDR-3	Header 3	1
GPIO11	Header, 3-Pin	P19	LOCKEDHDR-3	Header 3	1
GPIO12	Header, 3-Pin	P20	LOCKEDHDR-3	Header 3	1
GPIO13	Header, 3-Pin	P21	LOCKEDHDR-3	Header 3	1
GPIO14	Header, 3-Pin	P22	LOCKEDHDR-3	Header 3	1
GPIO15	Header, 3-Pin	P23	LOCKEDHDR-3	Header 3	1
GPIO16	Header, 3-Pin	P24	LOCKEDHDR-3	Header 3	1
GPIO17	Header, 3-Pin	P25	LOCKEDHDR-3	Header 3	1
GPIO18	Header, 3-Pin	P26	LOCKEDHDR-3	Header 3	1
ADC9	Header, 3-Pin	P27	Fan_socket_3	Header 3	1
ADC10	Header, 3-Pin	P28	Fan_socket_3	Header 3	1
GPIO19	Header, 3-Pin	P29	LOCKEDHDR-3	Header 3	1
GPIO20	Header, 3-Pin	P30	LOCKEDHDR-3	Header 3	1
GPIO21	Header, 3-Pin	P31	LOCKEDHDR-3	Header 3	1
GPIO22	Header, 3-Pin	P32	LOCKEDHDR-3	Header 3	1
GPIO23	Header, 3-Pin	P33	LOCKEDHDR-3	Header 3	1
GPIO24	Header, 3-Pin	P34	LOCKEDHDR-3	Header 3	1
Pneumatic1	Header, 2-Pin	P35	Fan_socket_2	Header 2	1
Pneumatic2	Header, 2-Pin	P36	Fan_socket_2	Header 2	1
Pneumatic3	Header, 2-Pin	P37	Fan_socket_2	Header 2	1
Pneumatic4	Header, 2-Pin	P38	Fan_socket_2	Header 2	1
UART1	Header, 4-Pin	P39	LOCKEDHDR-4	Header 4	1
UART2	Header, 4-Pin	P40	LOCKEDHDR-4	Header 4	1
UART3	Header, 4-Pin	P41	LOCKEDHDR-4	Header 4	1
UART4	Header, 4-Pin	P42	LOCKEDHDR-4	Header 4	1
Pneumatic5	Header, 2-Pin	P43	Fan_socket_2	Header 2	1
Pneumatic6	Header, 2-Pin	P44	Fan_socket_2	Header 2	1
Pneumatic7	Header, 2-Pin	P45	Fan_socket_2	Header 2	1
Pneumatic8	Header, 2-Pin	P46	Fan_socket_2	Header 2	1
Pneumatic9	Header, 2-Pin	P47	Fan_socket_2	Header 2	1
Pneumatic10	Header, 2-Pin	P48	Fan_socket_2	Header 2	1
Pneumatic11	Header, 2-Pin	P49	Fan_socket_2	Header 2	1
Pneumatic12	Header, 2-Pin	P50	Fan_socket_2	Header 2	1
UART5	Header, 4-Pin	P51	LOCKEDHDR-4	Header 4	1
UART6	Header, 4-Pin	P52	LOCKEDHDR-4	Header 4	1
Pneumatic13	Header, 2-Pin	P53	Fan_socket_2	Header 2	1
Pneumatic14	Header, 2-Pin	P54	Fan_socket_2	Header 2	1
CAN1	Header, 4-Pin	P55, P56	LOCKEDHDR-4	Header 4	2
CAN2	Header, 4-Pin	P57, P58	LOCKEDHDR-4	Header 4	2
POWER	Header, 2-Pin	P59	T-CONNECTOR(M)	Header 2	1
I2C	Header, 4-Pin	P60, P61	LOCKEDHDR-4	Header 4	2
ENC1	Header, 5-Pin	P62	lockedHDR-5	Header 5	1
ENC2	Header, 5-Pin	P63	lockedHDR-5	Header 5	1
SWD	Header, 4-Pin	P64	LOCKEDHDR-4	Header 4	1
Motor1	Header, 6-Pin	P65	lockedHDR-7	Header 7	1
Motor2	Header, 6-Pin	P66	lockedHDR-7	Header 7	1
Motor3	Header, 6-Pin	P67	lockedHDR-7	Header 7	1
Motor4	Header, 6-Pin	P68	lockedHDR-7	Header 7	1
Motor5	Header, 6-Pin	P69	lockedHDR-7	Header 7	1
Motor6	Header, 6-Pin	P70	lockedHDR-7	Header 7	1
Motor7	Header, 6-Pin	P71	lockedHDR-7	Header 7	1
LCD	Header, 7-Pin	P72	HDR1X7	Header 7	1
SER1	Header, 3-Pin	P73	LOCKEDHDR-3	Header 3	1
SER2	Header, 3-Pin	P74	LOCKEDHDR-3	Header 3	1
SER3	Header, 3-Pin	P75	LOCKEDHDR-3	Header 3	1
Motor8	Header, 6-Pin	P76	lockedHDR-7	Header 7	1
Motor9	Header, 6-Pin	P77	lockedHDR-7	Header 7	1
Motor10	Header, 6-Pin	P78	lockedHDR-7	Header 7	1
Motor11	Header, 6-Pin	P79	lockedHDR-7	Header 7	1
Motor12	Header, 6-Pin	P80	lockedHDR-7	Header 7	1
Motor13	Header, 6-Pin	P81	lockedHDR-7	Header 7	1
Motor14	Header, 6-Pin	P82	lockedHDR-7	Header 7	1
LAN	Header, 4-Pin, Dual row	P83	JACK1.27- AA	RJ45 Jack	1
Buzzer		P84	BUZ-9.0	Buzzer	1
SER4	Header, 3-Pin	P85	LOCKEDHDR-3	Header 3	1
SER5	Header, 3-Pin	P86	LOCKEDHDR-3	Header 3	1
SER6	Header, 3-Pin	P87	LOCKEDHDR-3	Header 3	1
AO3400	N-Channel MOSFET	Q1	SO-G3/Z3.3	AO3400	1
56R	4x Resistor Array	R1, R2, R3, R4, R6, R7, R38, R42	ARC241-0603x4	Res Array	8
6k2	Semiconductor Resistor	R5, R15, R20	CR2012-0805	Res Semi	3
4k7	Semiconductor Resistor	R8, R16, R21	CR2012-0805	Res Semi	3
4K5	4x Resistor Array	R9, R13, R17	ARC241-0603x4	Res Array	3
1K5	4x Resistor Array	R10, R14, R18	ARC241-0603x4	Res Array	3
1k5	Semiconductor Resistor	R11, R19, R22	CR2012-0805	Res Semi	3
162k	Semiconductor Resistor	R12	CR2012-0805	Res Semi	1
330R	Semiconductor Resistor	R23, R24, R32, R40, R41, R44, R46, R47, R48, R49	CR2012-0805	Res Semi	10
19K1	Semiconductor Resistor	R25	CR2012-0805	Res Semi	1
2k	Semiconductor Resistor	R26, R27	CR2012-0805	Res Semi	2
4.7k	Semiconductor Resistor	R28, R29, R35, R36	CR2012-0805	Res Semi	4
60R	Semiconductor Resistor	R30, R31, R33, R34	CR2012-0805	Res Semi	4
33R	Semiconductor Resistor	R37	CR2012-0805	Res Semi	1
10K	4x Resistor Array	R39, R43	ARC241-0603x4	Res Array	2
10k	Semiconductor Resistor	R45	CR2012-0805	Res Semi	1
SER2	Typical RED GaAs LED	SER1, SER2	D0805	LED	2
RESET	Single-Pole, Single-Throw Switch	SW1	PUSH SWITCH	SW-SPST	1
PWR	Header, 3-Pin, Dual row	SW2	POWER SWITCH	Header 3X2	1
Joystick		SW3	5D_SWITCH	Joystick	1
B2	Single-Pole, Single-Throw Switch	SW4	PUSH SWITCH	SW-SPST	1
B1	Single-Pole, Single-Throw Switch	SW5	PUSH SWITCH	SW-SPST	1
STM32F407ZET6	STM32 ARM-based 32-bit MCU with 64 Kbytes Flash, 144-pin LQFP, Industrial Temperature	U1	LQFP144_N	STM32F407ZET6	1
LM2679	5A Step-Down Switching Mode Voltage Regulator	U2, U3, U4	TO-263(7)	LM2679	3
ULN2003AD	Darlington Transistor Array	U5, U6	D016_N	ULN2003AD	2
FT232RL	USB to UART Communication Chip	U7	SSOP-28	FT232RL	1
LM2577S-ADJ	SIMPLE SWITCHER; Step-Up Voltage Regulator	U8	TS5B_N	LM2577S-12	1
LM1117MP-3.3	800mA Low-Dropout Linear Regulator	U9, U10	MP04A_N	LM1117MP-3.3	2
74LS148	8-Line to 3-Line Priority Encoder	U11, U14	SOP-16	74LS148	2
74HC154	4-to-16 CMOS Decoder	U12	SOP-24	74HC154	1
TJA1050	5V to 12V Charge Pump	U13, U15	SOP-8	TJA1050	2
8.00MHz	Crystal Oscillator	X1	BCY-W2/E4.7	XTAL	1