

The schematic diagram illustrates the PCB layout for a motor control system, organized into several functional blocks:

- MCU (Microcontroller Unit):** Features an ATmega328P microcontroller (IC1) with its pins connected to various components. Key connections include:
 - Power:** VCC and GND pins are connected to the power supply rails.
 - Reset:** The RESET pin (PC6) is connected to a 10k resistor (R2) and a 100nF capacitor (C8) to ground.
 - Crystal:** A 16MHz crystal (Q2) is connected to the XTAL1 and XTAL2 pins (PB6 and PB7) with 22pF load capacitors (C3 and C4).
 - ADC:** The ADC pins (PC0-PC5) are connected to the corresponding ADC pins (AD0-AD5) on the microcontroller.
 - Digital I/O:** Various digital pins (PD0-PD7, PB0-PB5) are connected to the corresponding pins on the microcontroller.
 - Communication:** The TX, RX, and SCK pins are connected to the corresponding pins on the microcontroller.
- JSP-INTERFACE:** Shows the FTDI module (PROG) connected to the MCU pins (DTR, RX, TX, VCC, GND).
- ICP (Inter-Component Port):** Shows the I2C module (ICP) connected to the MCU pins (SCK, MI, MO, RST).
- CAN-CONTROLLER:** Features an MCP2515 CAN controller (IC2) connected to the MCU pins (TXCAN, RXCAN, CS, CLKOUT/SOF, TXRST, TXRST, NC, SCK, INT, RX0BF, RXIBF, VSS). It is also connected to a CAN transceiver (MCP2551) and a CAN bus (CAN-H, CAN-L) via a 3-794618-4 connector.
- POWER:** Shows a voltage regulation circuit using an LM340MP-05 (IC3) to convert a +12V input to a +5V output. The circuit includes a 100nF input capacitor (C11), a 16uF output capacitor (C13), and a 1nF bypass capacitor (C12). The output is connected to the +5V pin of the MCU.
- SPANNUNGSMESSUNG (Voltage Measurement):** Shows a voltage divider circuit for measuring the motor voltage (MOTOR+) and the battery voltage (BATT-1, BATT-2). The circuit uses resistors (R3, R4, R5, R6, R8, R9, R10, R11) and diodes (D1, D2, D4, D5) to protect the MCU pins.
- CONTROLLER-PORT:** Shows the connection to a 4-794620-0 driver (IC4) via a 3-794618-4 connector. The driver is connected to the MCU pins (D3, D4, D5, D6, D7, D8) and the motor pins (MOTOR+, MOTOR-).