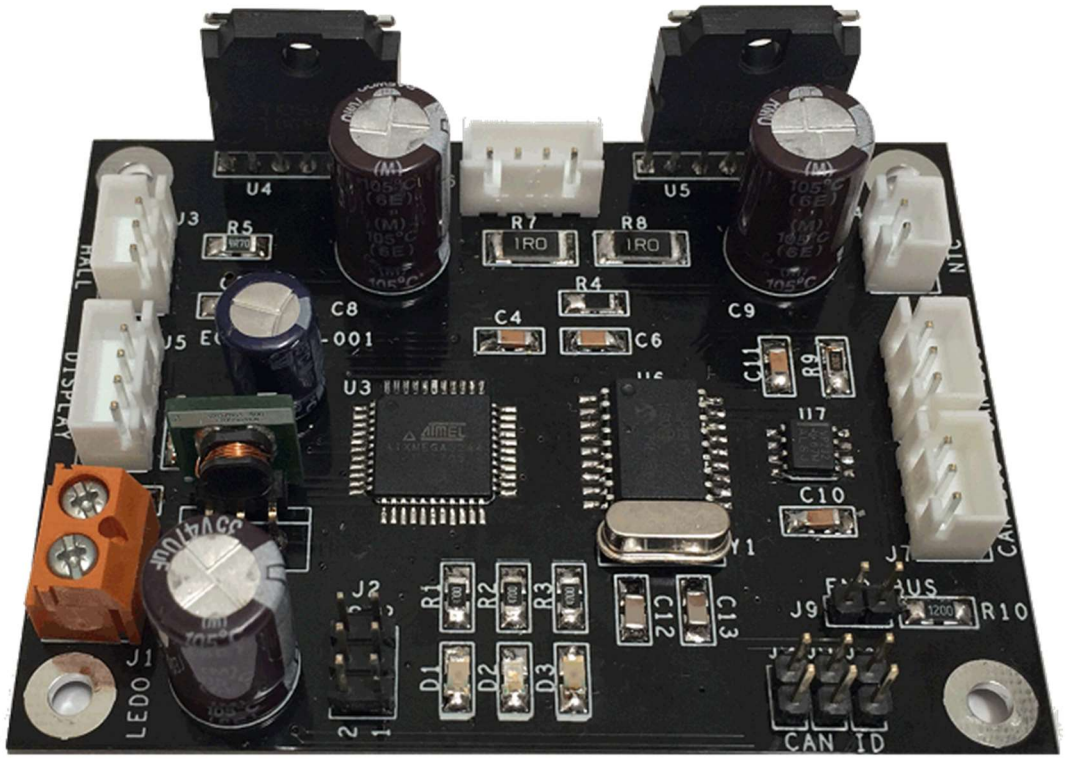
CAN Bus Step Motor Controller



- **Supply voltage: 09V ... 30V**
- **2A Bipolar Stepper Motor control**
- **Two H bridge outputs 2A / 9-30V**
- **Hall sensor input**
- **CAN Bus interface (Can Open compatible)**
- **Xmega32a4u programmable in system.**

The module has the MCP2515 CAN controller compatible with the CAN V2.0B protocol. The Xmega32a4u Controller is responsible for generating the pulses for stepper motor control, and also contains the communication protocol. Jumper J7, J8, J9 allow to set an address on the bus for compatibility with the Can Open protocol. The LEDs D1, D2 and D3 serve as status indication.
The motor control: starting, stopping, braking, reverse, and speed adjustment is done via CAN bus.

Ing. José Emilio Ledo Galano

An Oled I2C screen can be connected to the connector J5 for the purpose of diagnosis and visualization of variables.

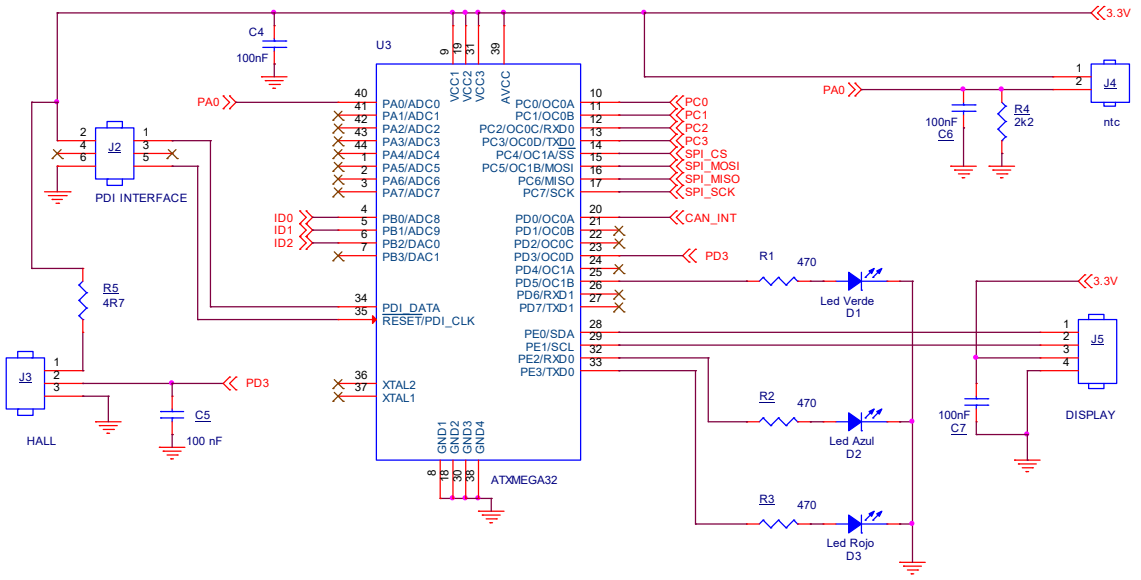


Fig.1. CPU.

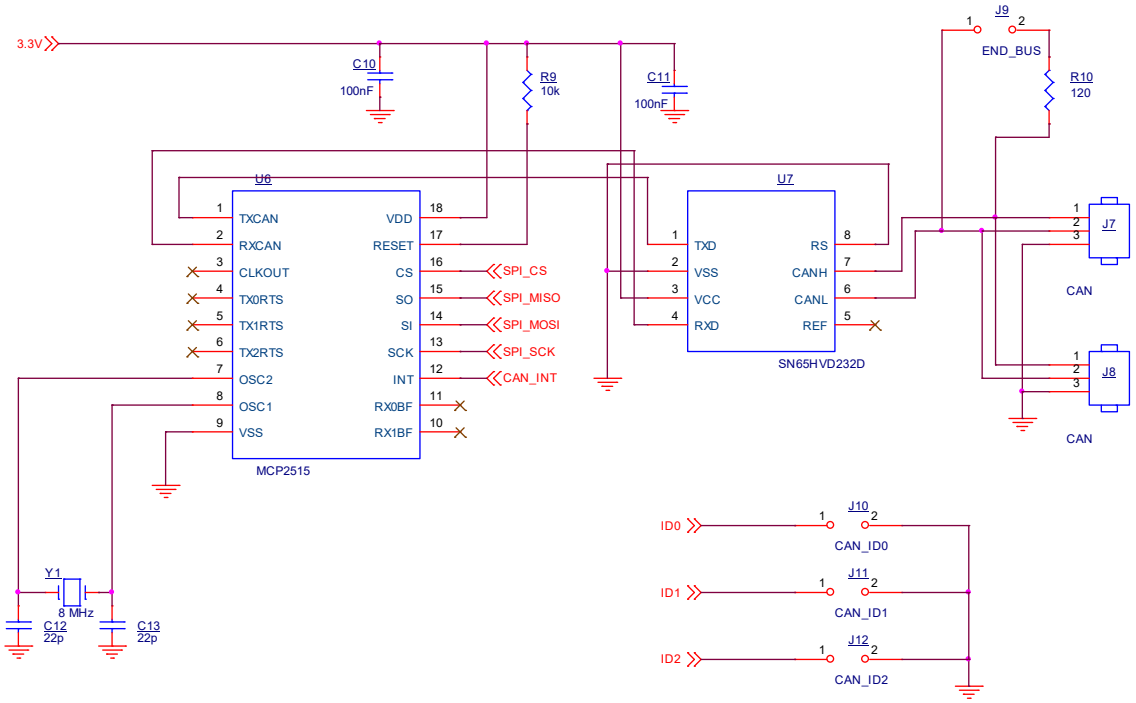


Fig.2. CAN Bus.

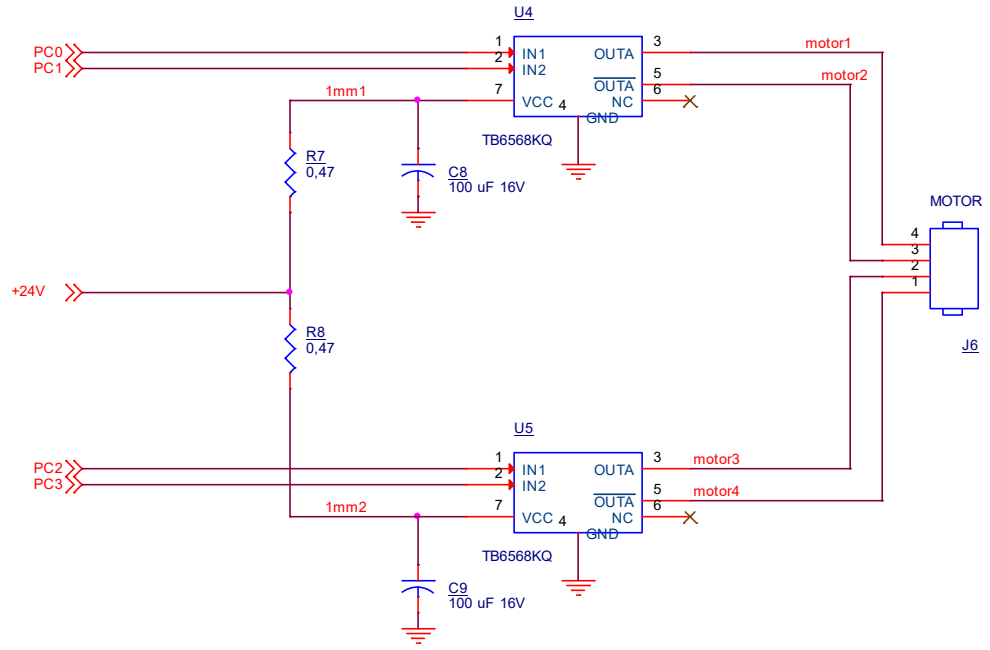


Fig.3. Motor Driver.

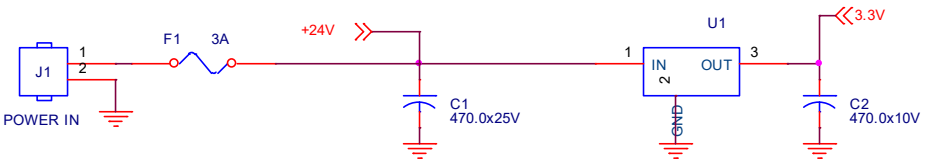


Fig.4.Power supply.

A Buck-type regulator is used to minimize power losses, given the large difference between the input voltage and the output voltage.

CAN BUS REFERENCE

Only messages addressed to the node Id are processed, which can be modified with the jumpers present on the plate according with the formula:

CAN_ID = 1536 + ((PB2 << 2) | (PB1 << 1) | PB0);

CAN_MOTOR_BOARD COMMANDS

COMMAND (BYTE0)	DATA BYTES	DESCRIPTION
1 MOTOR ON	NO	
2 MOTOR OFF	NO	
3 RPM SET	BYTE1	0...100
4 POWER SET	BYTE1	0...100
5 DIR LEFT	NO	

6 DIR RIGHT	NO	
7 BRAKE ON	NO	
8 BRAKE OFF	NO	
9 SET PARAMS	BYTE1=RPM BYTE2=POWER BYTE3=ENABLE BYTE4=DIR BYTE5=BRAKE	
10 READ VARS	NO	

The node responds to all messages with the following data structure:

Byte 0: Motor State: Enabled / Disabled

Byte 1: Motor Brake State

Byte 2: Motor direction of rotation

Byte 3: Motor Speed

Byte 4: Motor Power

Byte 5: Motor Temperature Low Byte

Byte 6: Motor Temperature High Byte

Byte 7: Hall Sensor State

The temperature in ºC is calculated as:

(Byte 6 * 256 + Byte 5) / 10.0

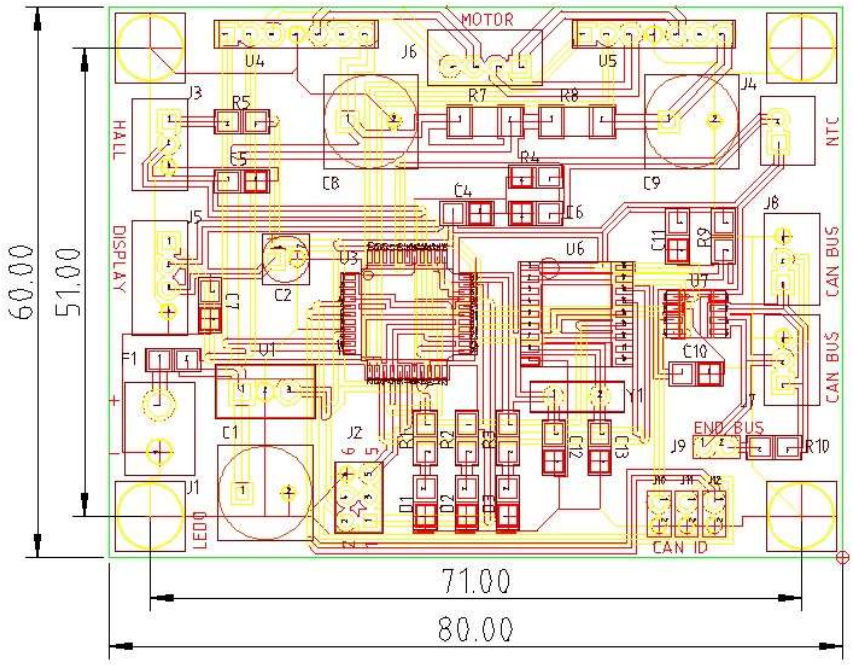


Fig.5. Board outline.