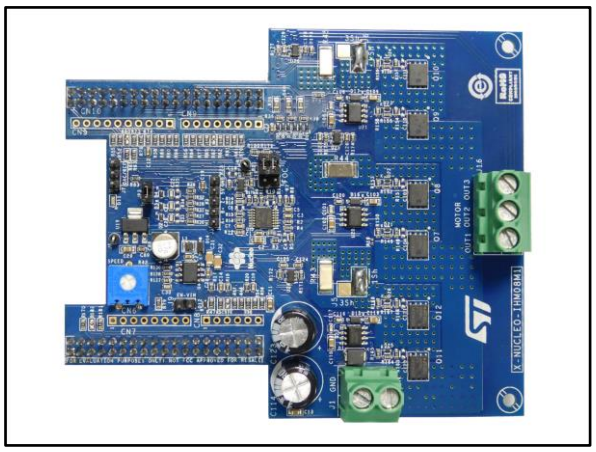
X-NUCLEO-IHM08M1

Low-Voltage BLDC motor driver expansion board based on STL220N6F7 for STM32 Nucleo

Data brief



Features

- 3-phase driver board for BLDC/PMSM motors
- Nominal operating voltage range from 10 V to 48 V DC
- 15 A_{RMS} output current
- Operating frequency selectable by firmware
- Overcurrent detection and protection (30 A_{peak})
- Thermal monitoring and overheating protection
- Compatible with STM32 Nucleo boards
- Equipped with ST morpho connectors
- 3-Shunt and 1-Shunt configurable jumpers for motor current sensing
- Hall/Encoder motor sensor connector and circuit
- Debug connector for DAC, GPIOs, etc.
- Potentiometer available for speed regulation
- User LED
- RoHS compliant

Description

The X-NUCLEO-IHM08M1 is a three-phase brushless DC motor driver expansion board based on the STL220N6F7 STripFET™ F7 Power MOSFET for STM32 Nucleo. It provides an affordable and easy-to-use solution for driving three-phase brushless DC motors as part of our STM32 Nucleo project. The X-NUCLEO-IHM08M1 is compatible with the ST morpho connector and supports the addition of other boards which can be connected with a single STM32 Nucleo board. The user can also mount the Arduino™ UNO R3 connector. The IC driver used on this expansion board is the L6398 single-chip half bridge gate driver for the N-channel power MOSFET. The L6398 gate driver plus STL220N6F7 Power MOSFET combination forms the high current power platform for the BLDC motor and the digital section based on the STM32 Nucleo board offers 6-step or FOC algorithm control solutions, which you can select in the firmware.

Schematic diagram

Figure 1: Schematic - Power section (1/2)

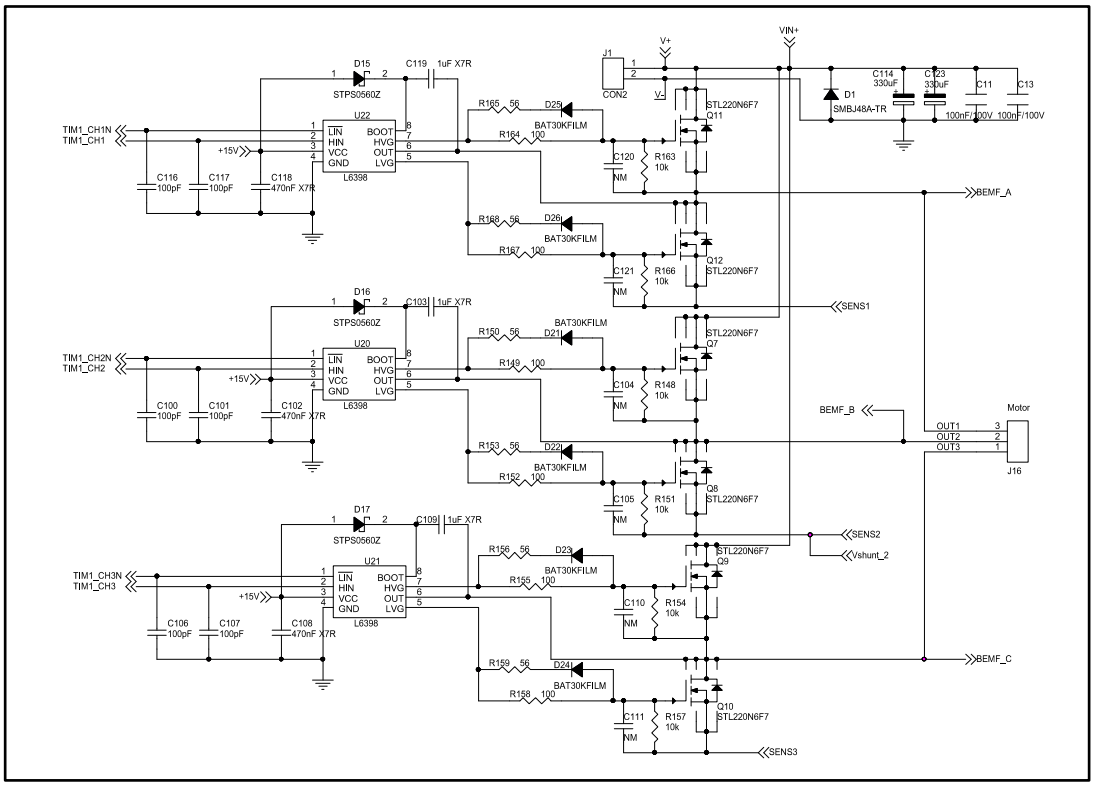


Figure 2: Schematic - Power section (2/2)

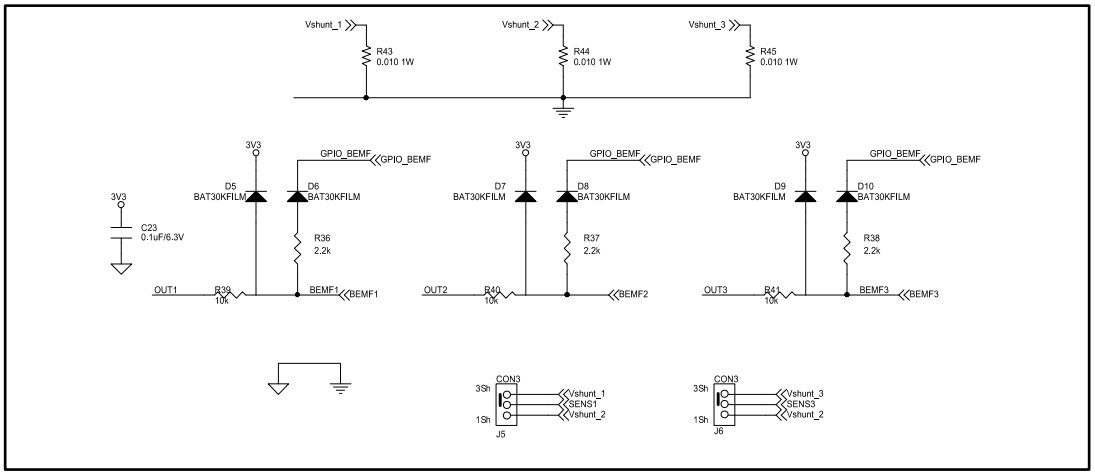


Figure 3: Schematic - Auxiliary power supply circuit

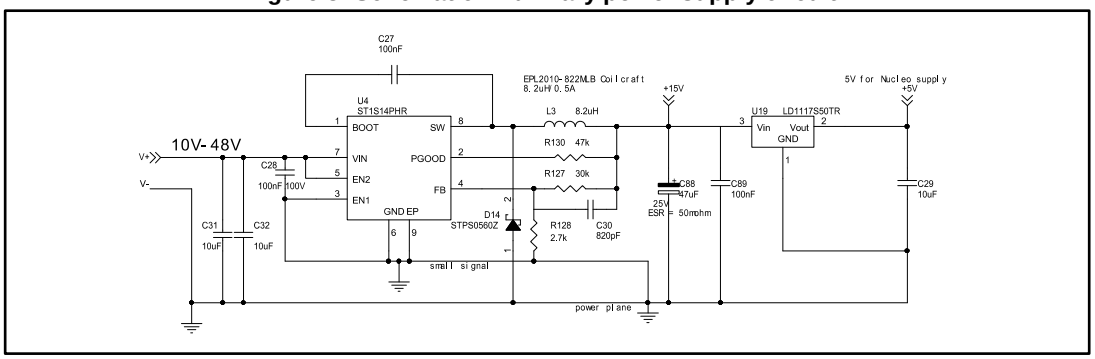


Figure 4: Schematic - Sensing and Hall/Encoder circuit

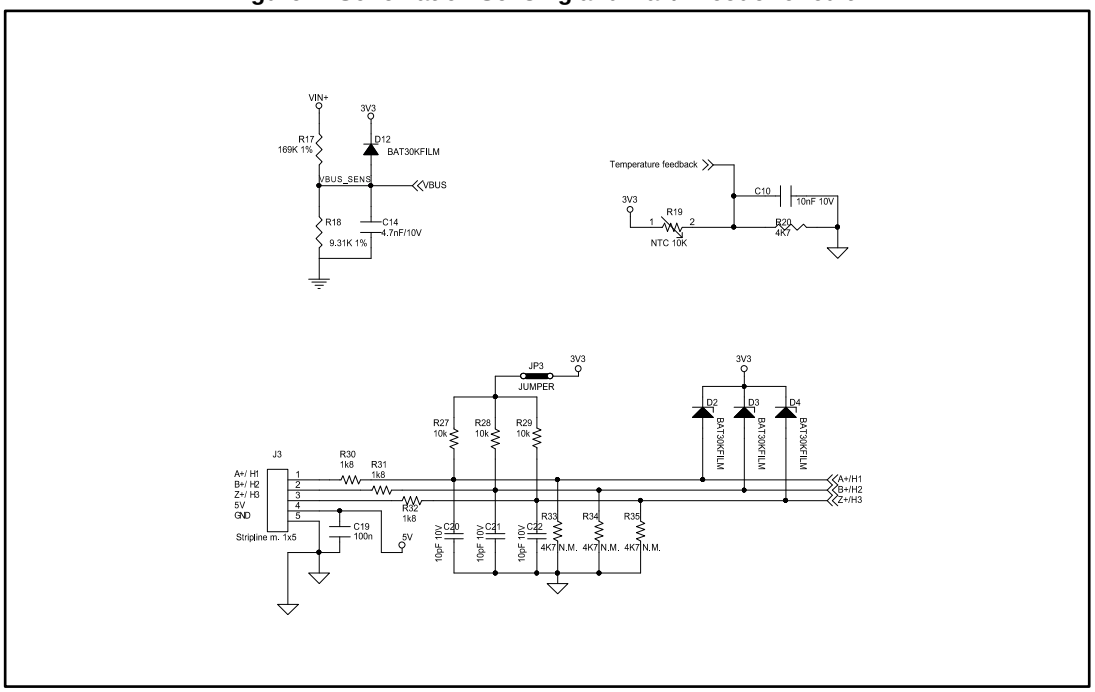


Figure 5: Schematic - Analog conditioning and Current protection circuit

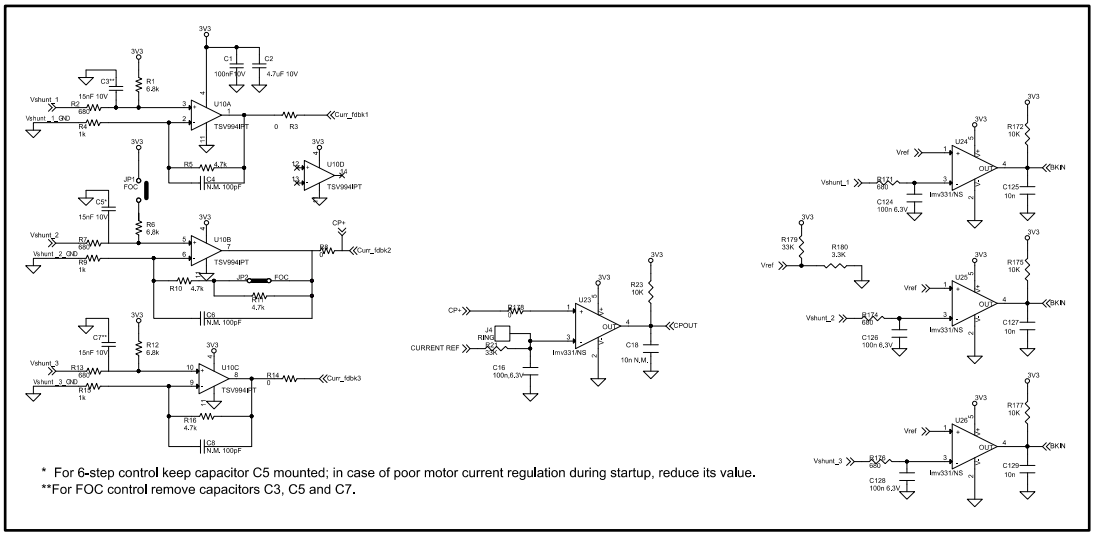
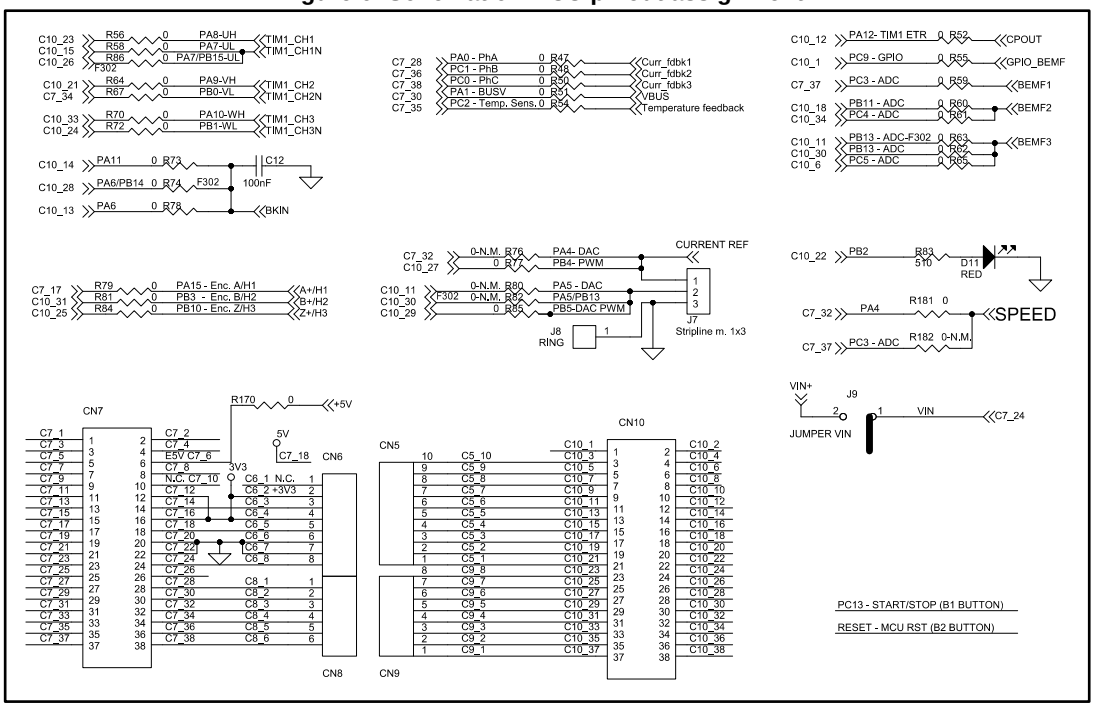


Figure 6: Schematic - MCU pinout assignment



Revision history

Table 1: Document revision history

Date	Version	Changes
04-Dec-2015	1	Initial release.
04-Apr-2016	2	Updated cover page description.
06-Jun-2017	3	Updated cover image. In *Section 6: "Schematic diagram"* added suggestions for FOC settings (C3, C5 and C7 capacitors).

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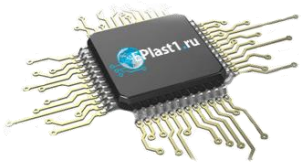

Как с нами связаться

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