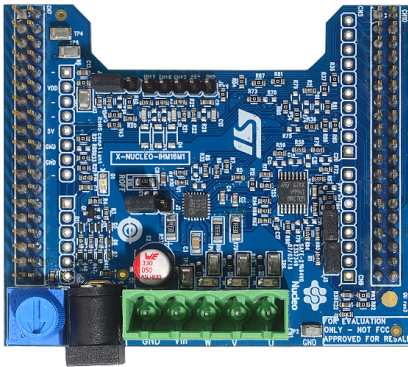


Three-phase brushless DC motor driver expansion board based on STSPIN830 for STM32 Nucleo



Features

- Operative voltage from 7 to 45 V
- Output current up to 1.5 A_{rms}
- Supporting single shunt and three-shunt sensing
- Standby mode
- Flexible direct driving settable between 3 or 6 PWM inputs
- Current limiter with adjustable reference
- Overcurrent, short-circuit and interlocking protections
- Thermal shutdown and undervoltage lockout
- BEMF sensing circuitry
- Bus voltage and PCB temperature sensing
- Input connector for Hall-effect based sensors and encoder

Description

The X-NUCLEO-IHM16M1 motor driver expansion board is based on the STSPIN830 monolithic driver for three-phase brushless motors.

It represents an affordable, easy-to-use solution for driving brushless motors in your STM32 Nucleo project, implementing single and three-shunt current sensing.

The STSPIN830 embeds a PWM current limiter with adjustable threshold together with a full set of protections.

The X-NUCLEO-IHM16M1 expansion board is compatible with the Arduino and ST morpho connectors, so it can be plugged to an STM32 Nucleo development board and stacked with additional STM32 Nucleo expansion boards.

| Product summary | |
|---|------------------|
| Three-phase brushless DC motor driver expansion board based on STSPIN830 for STM32 Nucleo | X-NUCLEO-IHM16M1 |
| Three-phase brushless monolithic motor driver | STSPIN830 |
| STM32 Nucleo development board | STM32 Nucleo |

1 X-NUCLEO-IHM16M1 schematic diagrams

Figure 1. X-NUCLEO-IHM16M1 circuit schematic (1 of 5)

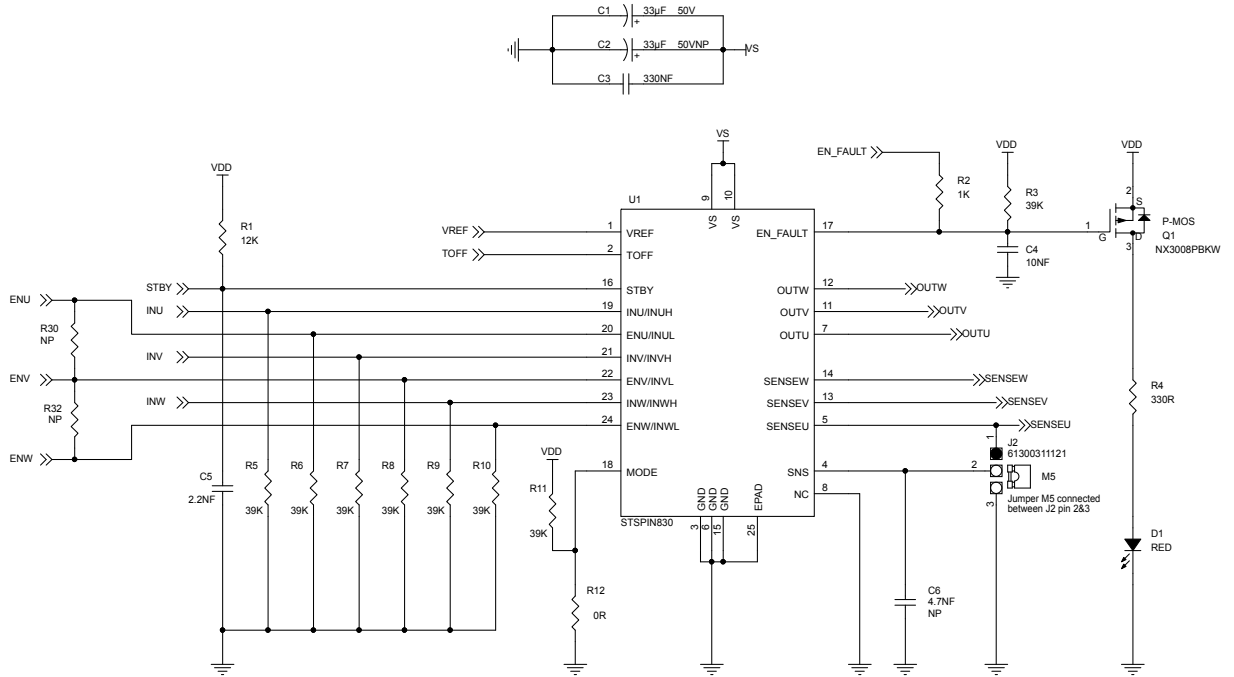


Figure 2. X-NUCLEO-IHM16M1 circuit schematic (2 of 5)

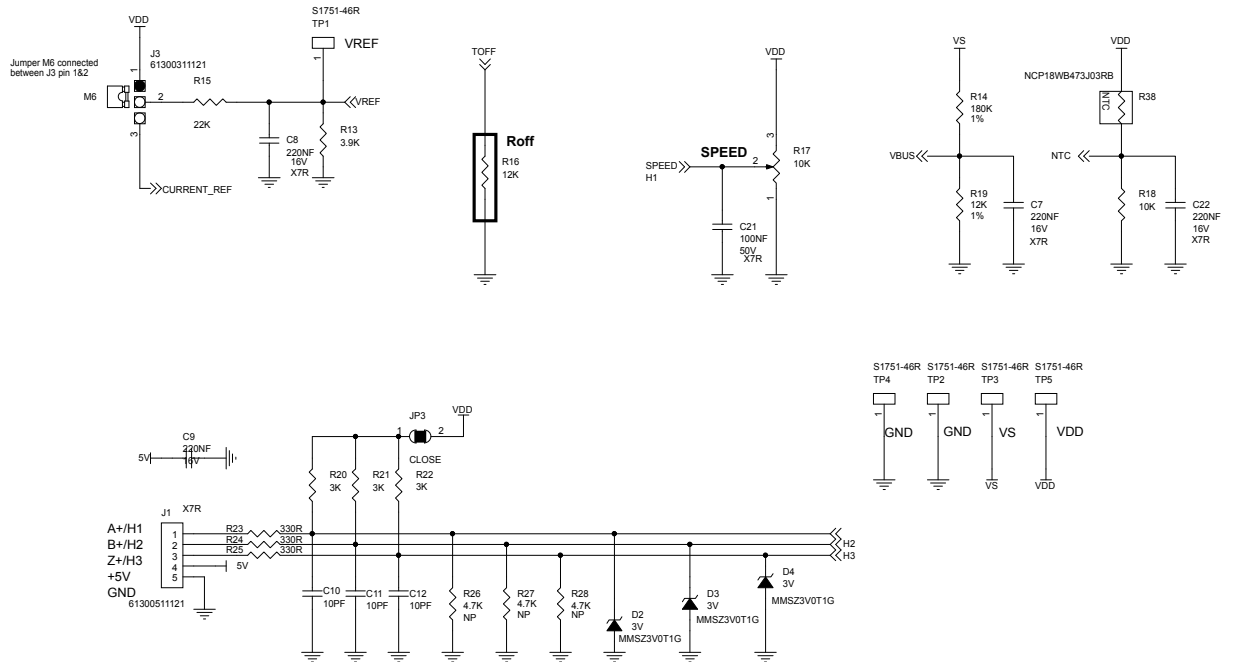


Figure 3. X-NUCLEO-IHM16M1 circuit schematic (3 of 5)

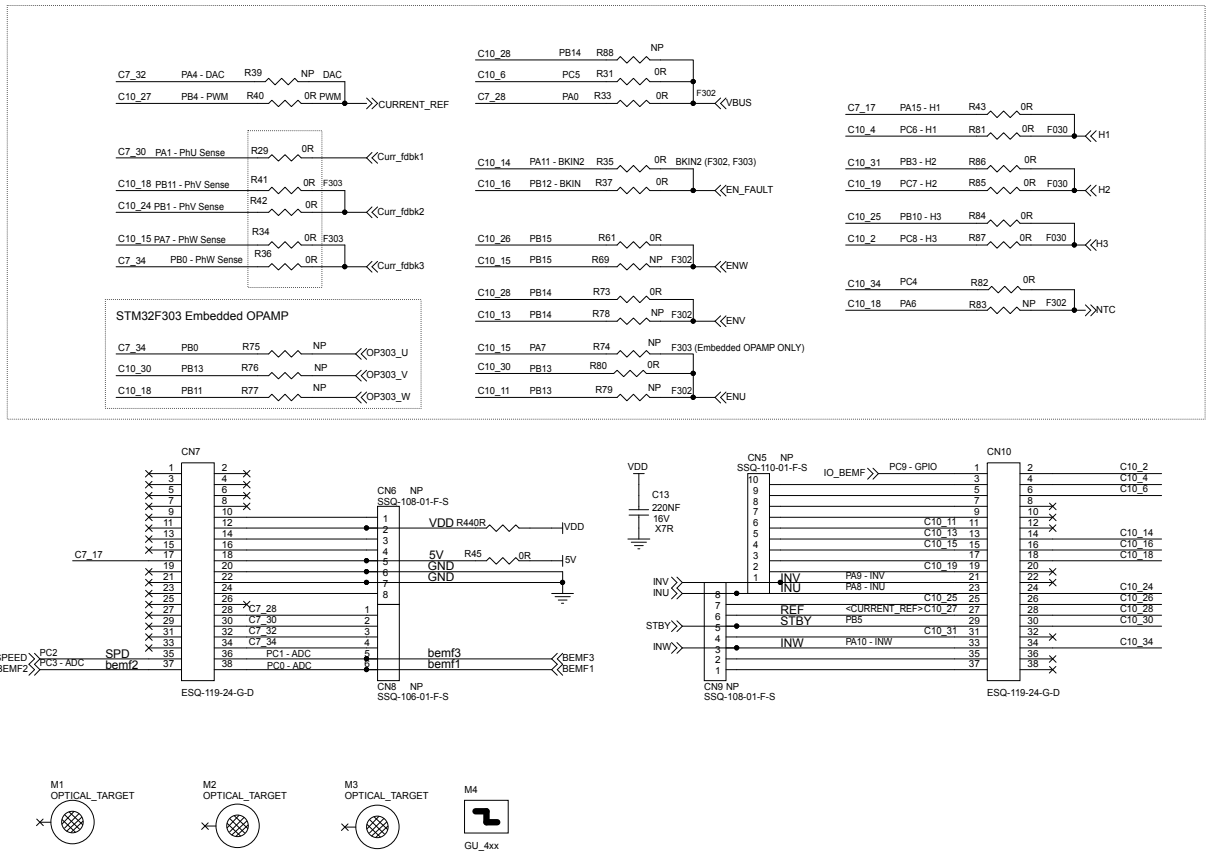


Figure 4. X-NUCLEO-IHM16M1 circuit schematic (4 of 5)

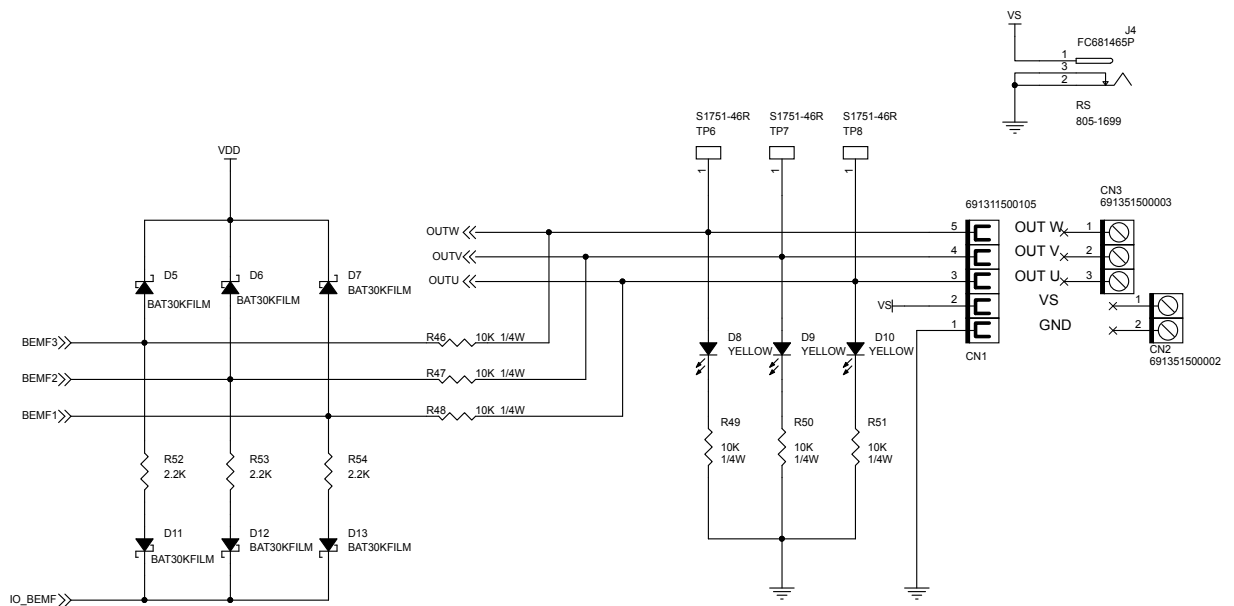
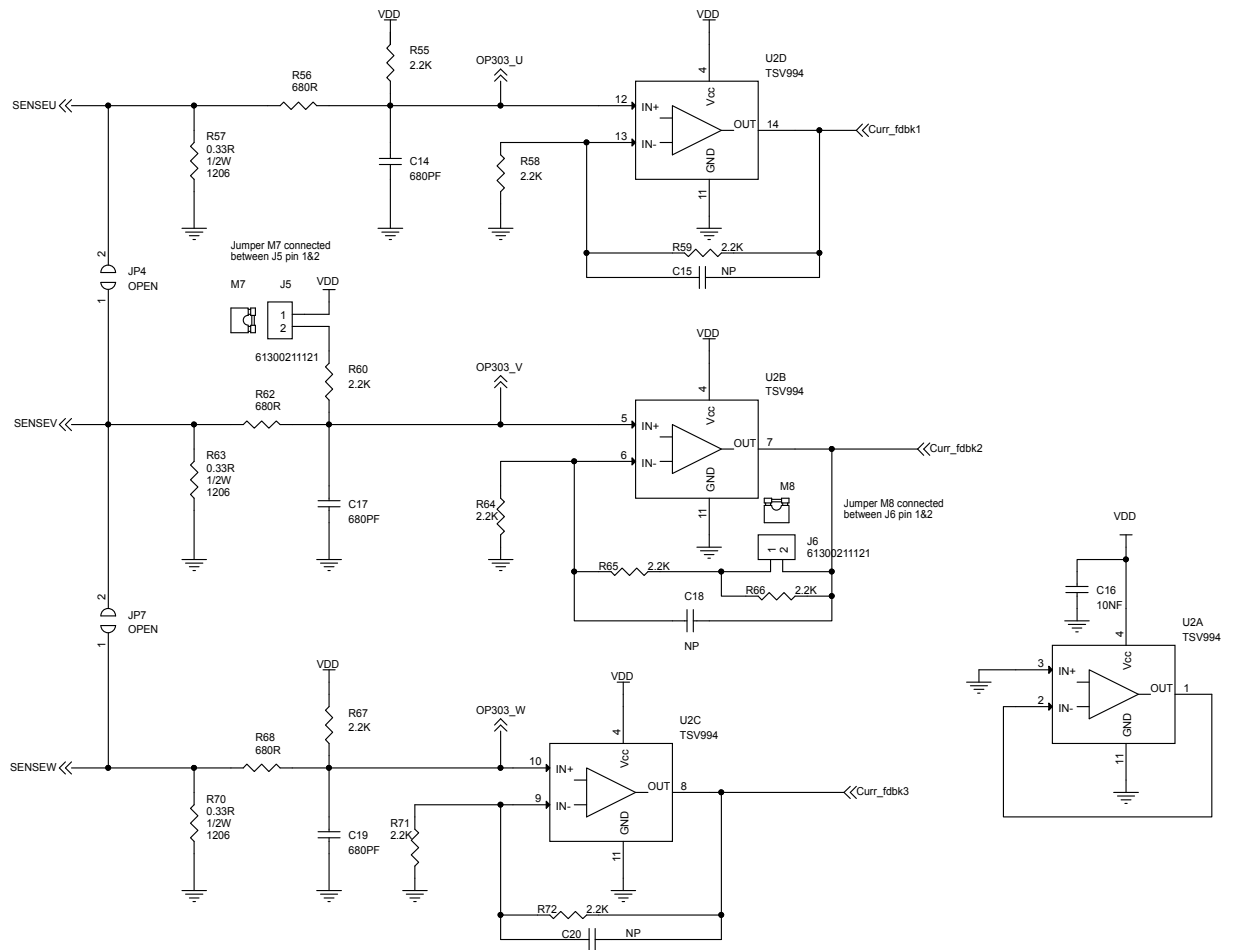


Figure 5. X-NUCLEO-IHM16M1 circuit schematic (5 of 5)



Revision history

Table 1. Document revision history

| Date | Version | Changes |
|-------------|---------|------------------|
| 15-May-2018 | 1 | Initial release. |

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