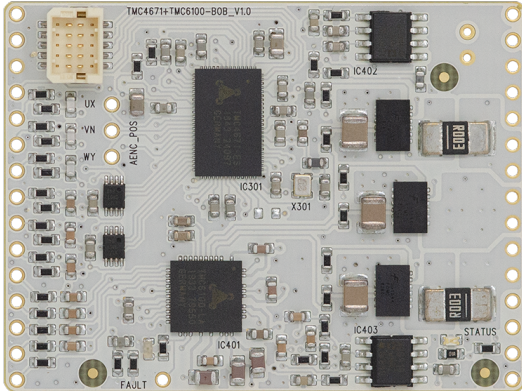


# TMC4671+TMC6100 BOB Description

Document Revision V1.00 • 2020-Jan-09

## Module Top View



## Pin List

Left	Signal	Right	Signal
1	+5V	16	VM (0...50V)
2	VCCIO (3.3V)	17	VM (0...50V)
3	GND	18	GND
4	BRAKE	19	GND
5	ENC_N	20	GND
6	ENC_B	21	U
7	ENC_A	22	U
8	HALL_WY	23	V
9	HALL_V	24	V
10	HALL_UX	25	W
11	nCS_CTRL	26	W
12	nCS_DRV	27	STATUS
13	SPI_SCK	28	STEP
14	SPI_MOSI	29	DIR
15	SPI_MISO	30	CTRL_EN

## Features and additional Resources

- TMC4671-LA Hardware Servo Controller
- TMC6100-LA Hardware Gate Driver + MOSFETs
- Supply and I/O voltage 3.3V and 5V
- Motor supply voltage input (8...50V)
- Motor phase current up to 10A peak (Please consider proper soldering)
- Communication and configuration via SPI
- Real-time Monitoring Interface for live debugging and tuning using [Trinamic's RTMI adapter](#)
- Additional Step/Direction Interface from a motion controller
- Encoder- and Hall-Feedback, analog hall via solder pads
- Driver Fault and Status indicator LEDs
- Board width 2", board height 1.5"
- 2x15 pin 0.1" header rows for pins/connectors, distance of rows 1.9"
- Link to [TMC4671 Product page](#)
- Link to [TMC6100 Product page](#)
- Requirements for Operation:
  - Use a DRV\_STRENGTH setting of **0** = ("weak") in the DRV\_CONF register of TMC6100 for proper operation
  - Use a BBM\_TIME setting of **400ns** in the TMC4671 for proper operation

## RTMI Connector

The real-time monitoring interface connector is used to connect to [Trinamic's RTMI adapter](#) for live monitoring and tuning of the TMC4671 control loops at control loop sampling frequency.

The onboard connector itself is of type [Hirose DF20F-10DP-1V\(56\)](#).

The mating female counter part is of type [Hirose DF20A-10DS-1C](#). A connecting cable comes with the USB-2-RTMI adapter.

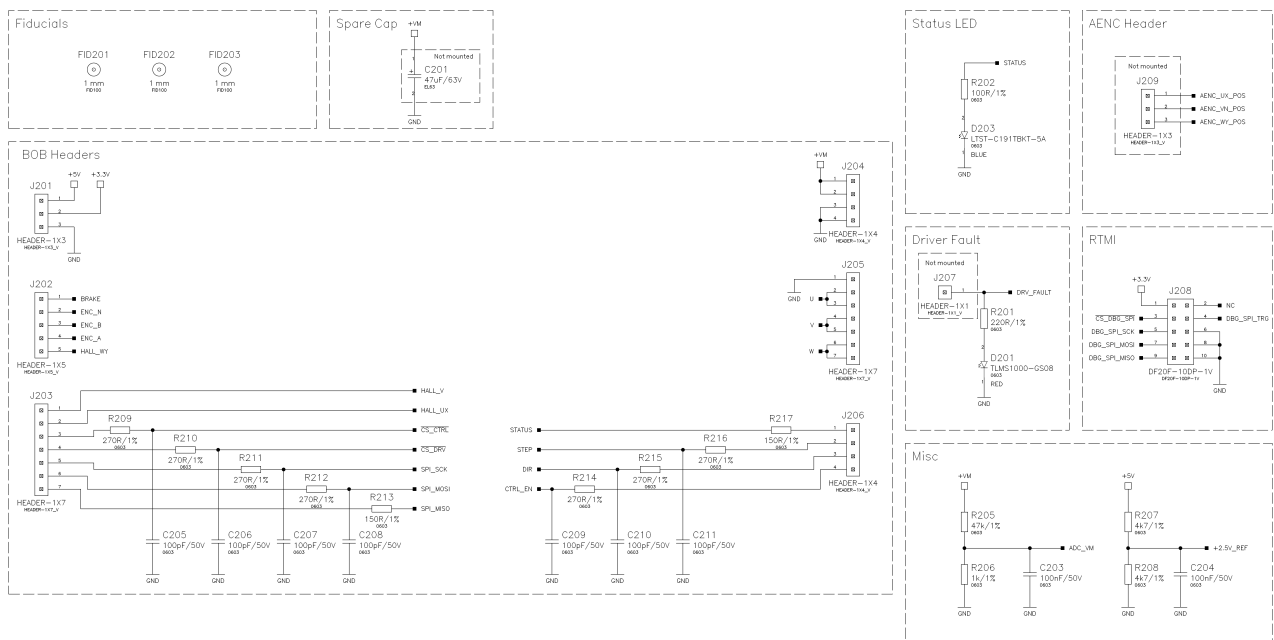
Left	Signal	Right	Signal
1	+3.3V	2	n.c.
3	DBG_SPI_nSCS	4	DBG_SPI_TRG
5	DBG_SPI_SCK	6	GND
7	DBG_SPI_MOSI	8	GND
9	DBG_SPI_MISO	10	GND



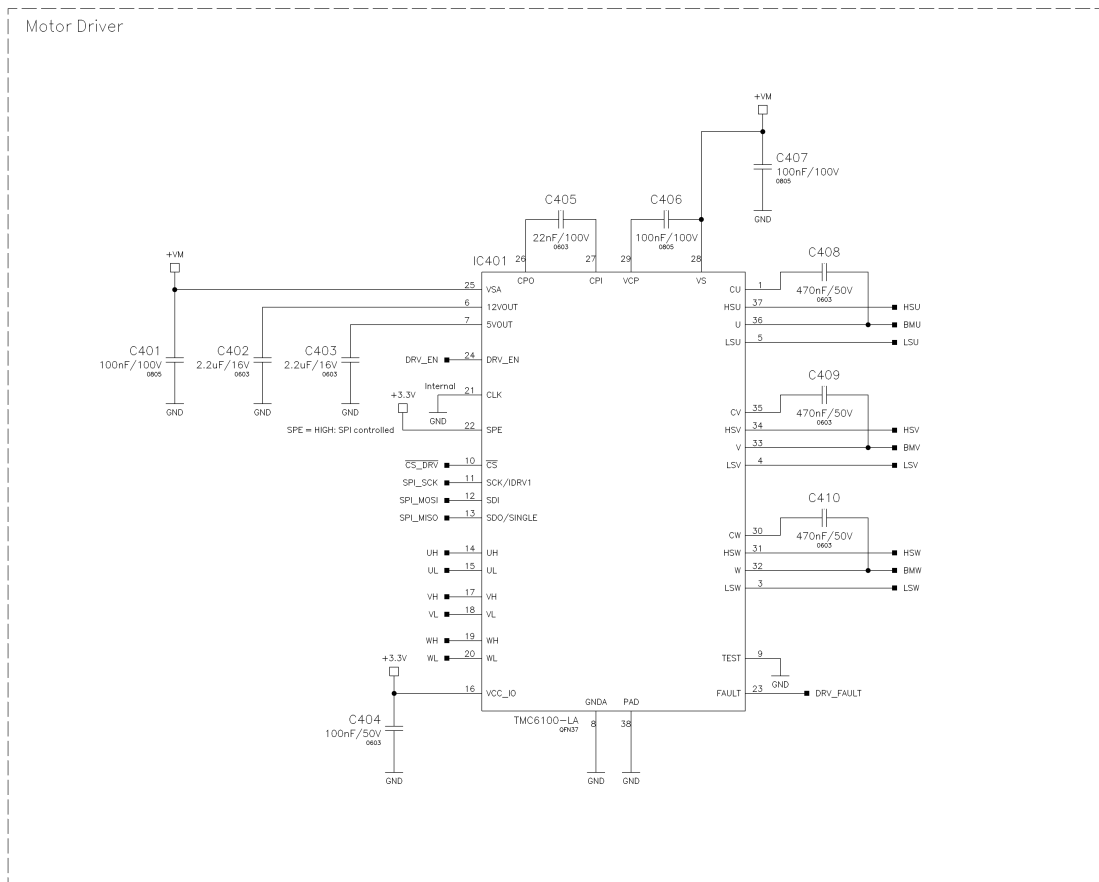
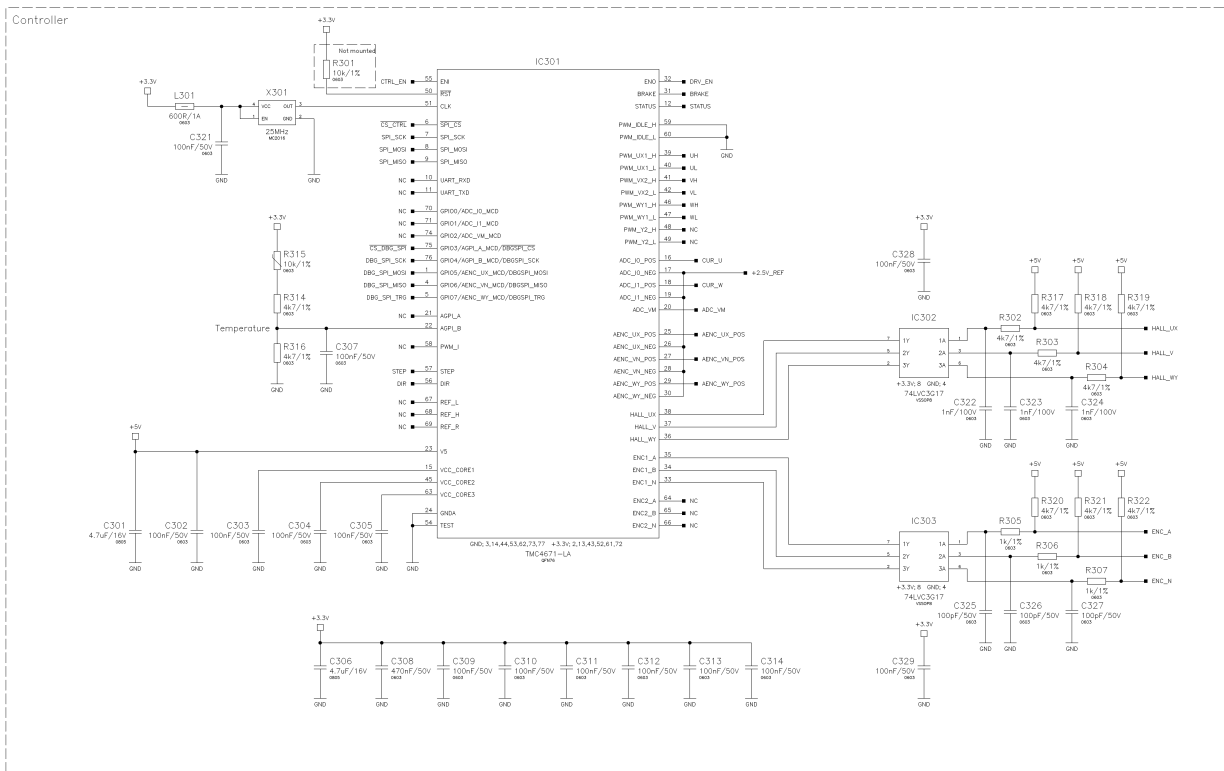
## Bill of Materials

Pcs.	MPN	Value	Footprint	Description
2	CRE2512-FZ-R003E-3	0R003/1%/3W	2512	Bourns
6	ERJ-3EKF1001V	1k/1%	0603	Panasonic
3	C0603C102K1RACTU	1nF/100V	0603	Kemet
2	C0603C222K5RACTU	2.2nF/50V	0603	Kemet
2	EMK107BB7225KA-T	2.2uF/16V	0603	Taiyo Yuden
3	HMK325B7225KN-T	2.2uF/100V	1210	Taiyo Yuden
2	C0805C475K4RACTU	4.7uF/16V	0805	Kemet
13	ERJ-3EKF4701V	4k7/1%	0603	Panasonic
1	NCP18XH103F03RB	10k/1%	0603	Murata
1	C0603C223K1RACTU	22nF/100V	0603	Kemet
1	MC2016K25.0000C16ESH	25MHz	MC2016	Kyocera
6	ERJ-3EKF10R0V	10R/1%	0603	Panasonic
1	ERJ-3EKF4702V	47k/1%	0603	Panasonic
2	74LVC3G17DC,125	74LVC3G17	VSSOP8	Nexperia
21	GRM188R71H104KA93D	100nF/50V	0603	Murata
3	C2012X7R2A104K125AA	100nF/100V	0805	TDK
3	C0603C101K5RACTU	100pF/50V	0603	Kemet
1	ERJ-3EKF1000V	100R/1%	0603	Panasonic
2	ERJ-3EKF1500V	150R/1%	0603	Panasonic
7	C0603C101K5RACTU	100pF/50V	0603	Kemet
1	ERJ-3EKF2200V	220R/1%	0603	Panasonic
7	ERJ-3EKF2700V	270R/1%	0603	Panasonic
4	UMK107B7474KA-TR	470nF/50V	0603	Taiyo Yuden
1	742792651	600R/1A	0603	Würth
2	AD8418WBRZ-RL	AD8418	SO8	Analog Devices
1	DF20F-10DP-1V(56)	DF20F-10DP-1V	DF20F-10DP-1V	Hirose
3	FDMD8260L	FDMD8260L	PQFN12	On Semiconductor
1	LTST-C191TBKT-5A	LTST-C191TBKT-5A	0603	LITE-ON
1	TLMS1000-GS08	TLMS1000-GS08	0603	Vishay
1	TMC4671-LA	TMC4671-LA	QFN76	Trinamic
1	TMC6100-LA	TMC6100-LA	QFN37	Trinamic

## BOB Schematics



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## BOB Schematics

