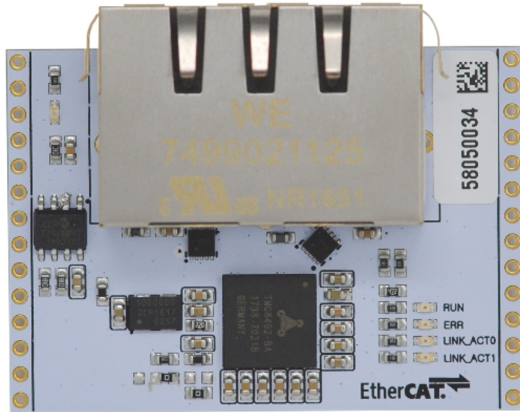


# TMC8462 RJ45 BOB Description

Document Revision V1.20 • 2018-May -04

## Module Top View



## Features and additional Resources

- TMC8462-BA Advanced EtherCAT Slave Controller
- Supply and I/O voltage 3.3V (with blue LED indicator)
- 2x RJ45 TPC connector
- EtherCAT link activity, run, and error LEDs
- Configuration and control via Process Data Interface (PDI) SPI, ECAT, and SII-EEPROM
- Device emulation mode or controller mode via solder option (R5/R6)
- Board width 2.0", board height 1.5"
- 2x14 pin 0.1" header rows for pins/connectors, distance of rows 1.9"
- Link to [additional information and IC data sheet](#)
- Link to [evaluation kit](#)

## Pin List

Left	Signal	Right	Signal
1	VCC (3.3V / = VCCIO)	15	PDI_SPL_SCK
2	GND	16	PDI_SPL_MISO
3	nRESET	17	PDI_SPL_MOSI
4	SYNC_OUT0	18	PDI_SPL_CSN
5	RESET_OUT	19	MFC_CTRL_SPL_CSN
6	LATCH_IN0	20	PDI_SPL_IRQ
7	LATCH_IN1	21	PROM_INIT
8	PDI_SOF	22	MFCIO00
9	PDI_EOF	23	MFCIO01
10	PDI_WDSTATE	24	MFCIO02
11	PDI_WDRIGGER	25	MFCIO03
12	MFCIO09	26	MFCIO04
13	MFCIO08	27	MFCIO05
14	MFCIO07	28	MFCIO06

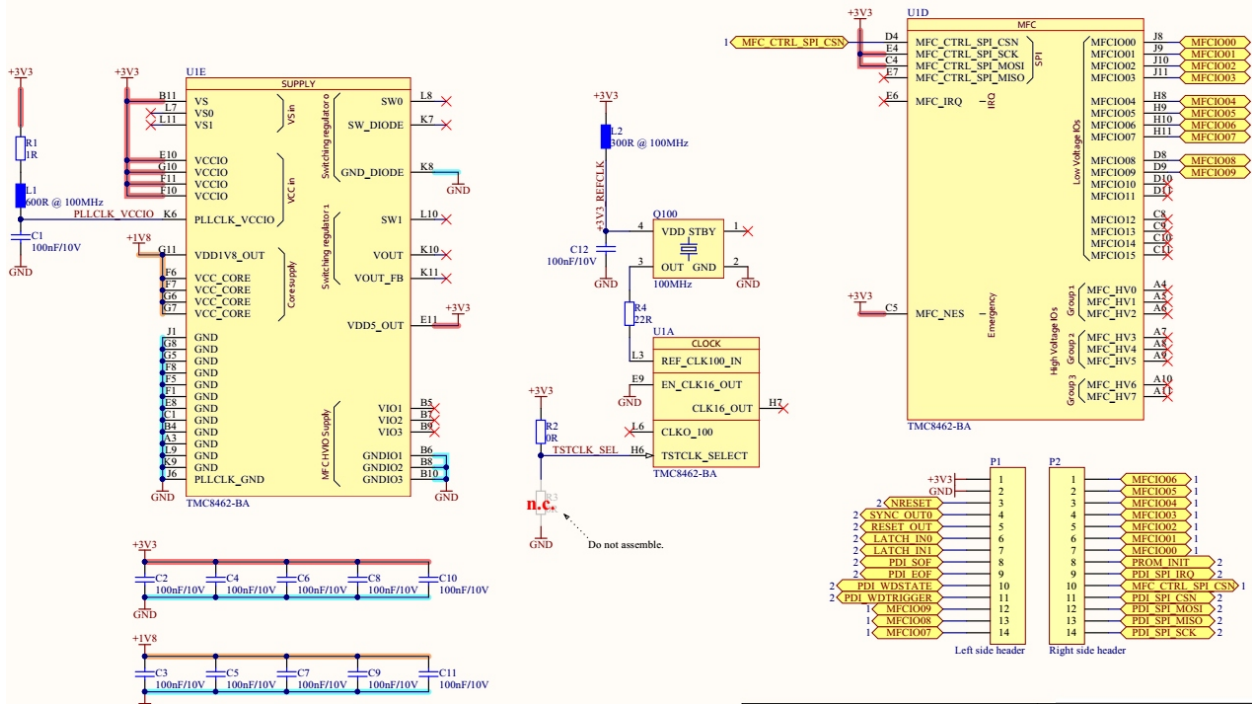
## Bill of Materials

Pcs.	MPN	Value	Footprint	Description
17	MC0603B104K100CT	100nF, 10V	0603	Cap, Multicomp
2	LMK107BJ106MALTD	10uF, 10V	0603	Cap, Taiyo Yuden
1	MC0603B103K500CT	10nF	0603	Cap, various manufacturers
3	LTST-C191KGKT	$V_f = 2V @ I_f = 20mA$	0603	LED, Lite-On
1	LTST-C191KRKT	$V_f = 2V @ I_f = 20mA$	0603	LED, Lite-On
1	LTST-C191KBKT	$V_f = 2V @ I_f = 20mA$	0603	LED, Lite-On
1	24LC64-I/SN	24LC64-I/SN	SO8 (150mil)	EEPROM, Microchip
1	7499021125	dual RJ45 conn.	dual RJ45 conn.	Würth Elektronik
1	TMC8462-BA	TMC8462-BA	BGA121 (9x9)	<a href="#">ECAT Slave Controller</a> , TRINAMIC Motion Control
2	MPZ1608S101A	100R@100MHz	0603	Ferrite bead, TDK
1	742792641	300R@100MHz	0603	Ferrite bead, Würth
1	74279265	600R@100MHz	0603	Ferrite bead, Würth
2	SP3304NUTG	3.3V, 20A	10-UFDN	TVS, Littelfuse
1	ASFLMB-100.000MHZ-LR-T	100MHz, 25ppm, 1.8V-3.3V	4-SMD, no lead	Oscillator, Abracon LLC
2	MCWR06X000PTL	0R	0603	Res, Multicomp
1	MCWR06W1R00FTL	1R, 1/10W, 1%	0603	Res, Multicomp
1	MCWR06X2R00FTLV	22R, 1/10W, 1%	0603	Res, Multicomp
2	WR06X4701FTL	4k7, 1/10W, 1%	0603	Res, Walsin
2	MC0063W060311K	1k, 1/10W, 1%	0603	Res, Multicomp
7	MCWR06X1800FTL	180R, 1/10W, 1%	0603	Res, Multicomp

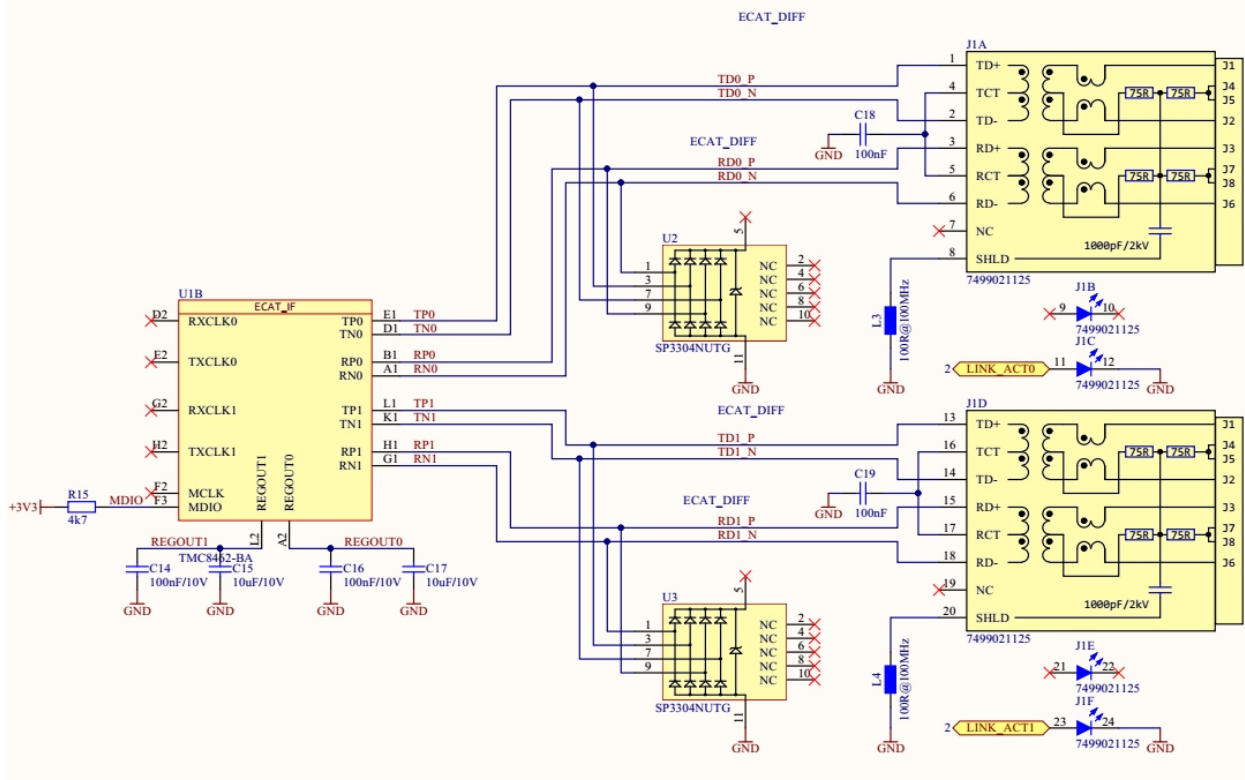


## BOB Schematics

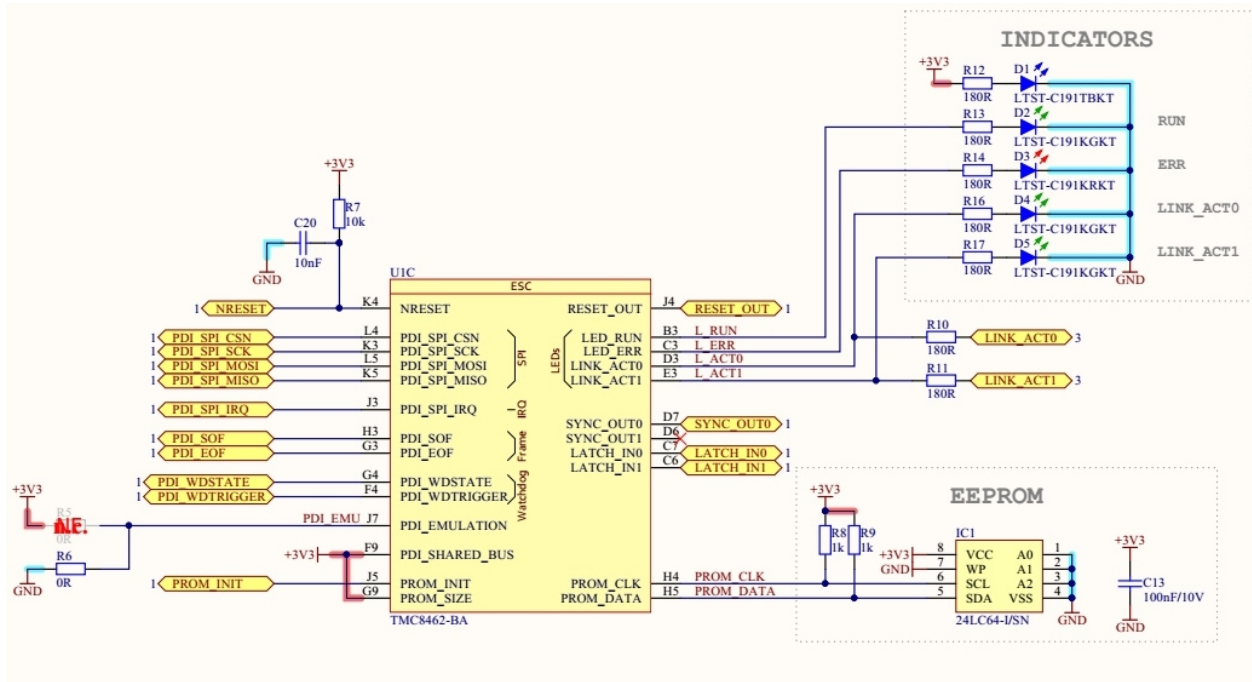
### PSU, Reference Clock, PinHeaders, MFC



### EtherCAT, RJ45

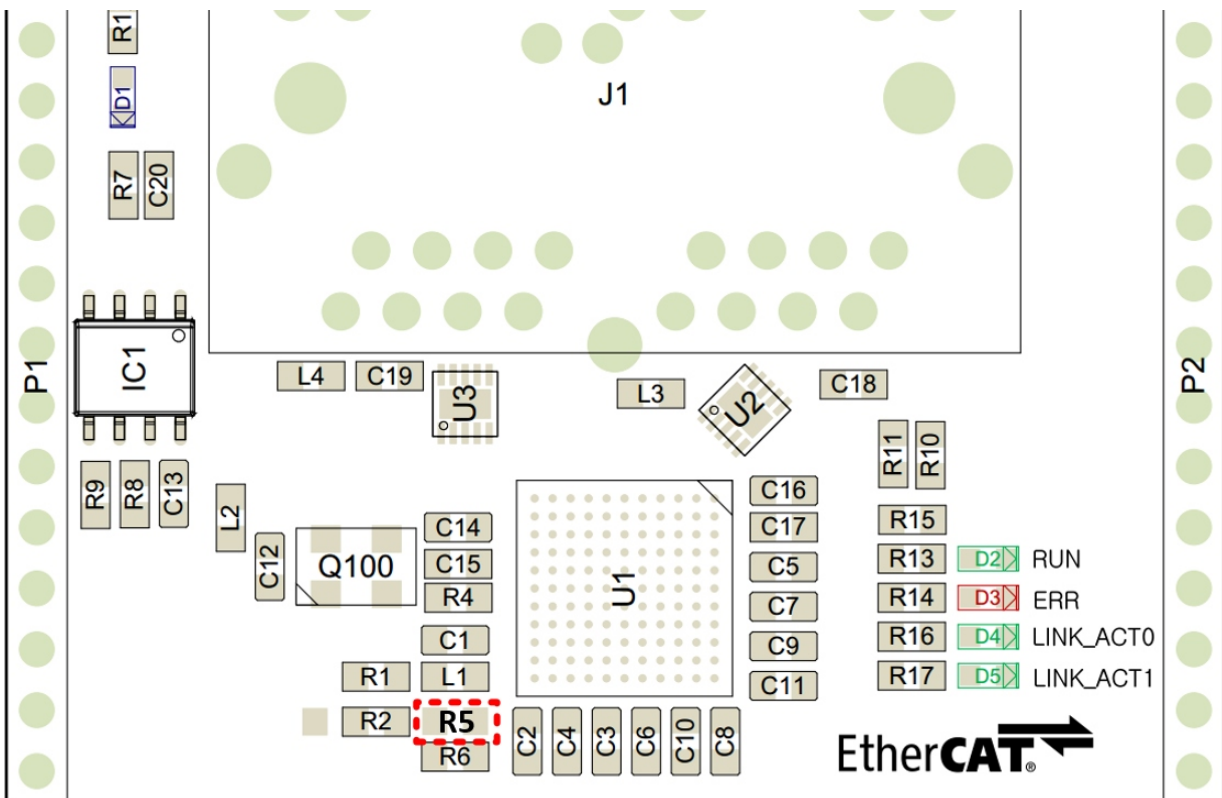


## BOB Schematics



## Mode Selection

- Soldering R5 / not R6 = PDI Emulation by the ESC, no microcontroller required
- Soldering R6 / not R5 = Controller mode, EtherCAT State Machine inside microcontroller





```

49 <Name LcId="1033">TMC8462 - BOB Default</Name>
50 <Name LcId="1031">TMC8462 - BOB Default</Name>
51 <Info>
52   <StateMachine>
53     <Timeout>
54       <PreopTimeout>2000</PreopTimeout>
55       <SafeopOpTimeout>9000</SafeopOpTimeout>
56       <BackToInitTimeout>5000</BackToInitTimeout>
57       <BackToSafeopTimeout>200</BackToSafeopTimeout>
58     </Timeout>
59   </StateMachine>
60   <Mailbox>
61     <Timeout>
62       <RequestTimeout>100</RequestTimeout>
63       <ResponseTimeout>2000</ResponseTimeout>
64     </Timeout>
65   </Mailbox>
66 </Info>
67 <GroupType>TrinamicEVAL</GroupType>
68
69 <Dc>
70   <OpMode>
71     <Name>Synchron</Name>
72     <Desc>FreeRun/SM-Synchron</Desc>
73     <AssignActivate>#x0</AssignActivate>
74   </OpMode>
75   <OpMode>
76     <Name>DC</Name>
77     <Desc>DC-Synchron</Desc>
78     <AssignActivate>#x300</AssignActivate>
79     <CycleTimeSync0 Factor="1">0</CycleTimeSync0>
80     <ShiftTimeSync0>0</ShiftTimeSync0>
81     <CycleTimeSync1 Factor="1">0</CycleTimeSync1>
82     <ShiftTimeSync1>0</ShiftTimeSync1>
83   </OpMode>
84 </Dc>
85
86 <Eeprom>
87   <ByteSize>2048</ByteSize>
88   <ConfigData>050F034EC40900000000</ConfigData>
89
90   <!-- Category 1 data is required for MFC IO configuration parameter
91        loading from memory area 0x0580:0x05FF (ESC Parameter RAM) -->
92   <Category>
93     <CatNo>1</CatNo>
94     <Data>0000000000000000000000000000000000000000000000000000000000000000
95           0000000000000000000000000000000000000000000000000000000000000000
96           0000000000000000000000000000000000000000000000000000000000000000
97           000000000000000000000000
98     </Data>
99   </Category>
100 </Eeprom>
101
102 <ImageData16x14>424dd60200000000000003600000028000000100000000e00000001

```



