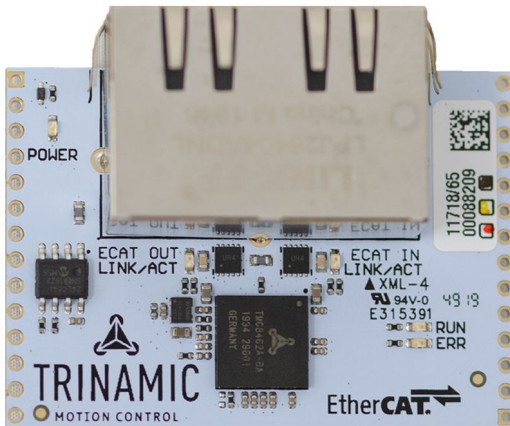


TMC8462A-BOB-ETH Description

Document Revision V1.30 • 2022-Sept-05

Module Top View



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_WDTRIGGER	25	MFCIO03
12	MFCIO09	26	MFCIO04
13	MFCIO08	27	MFCIO05
14	MFCIO07	28	MFCIO06

Bill of Materials

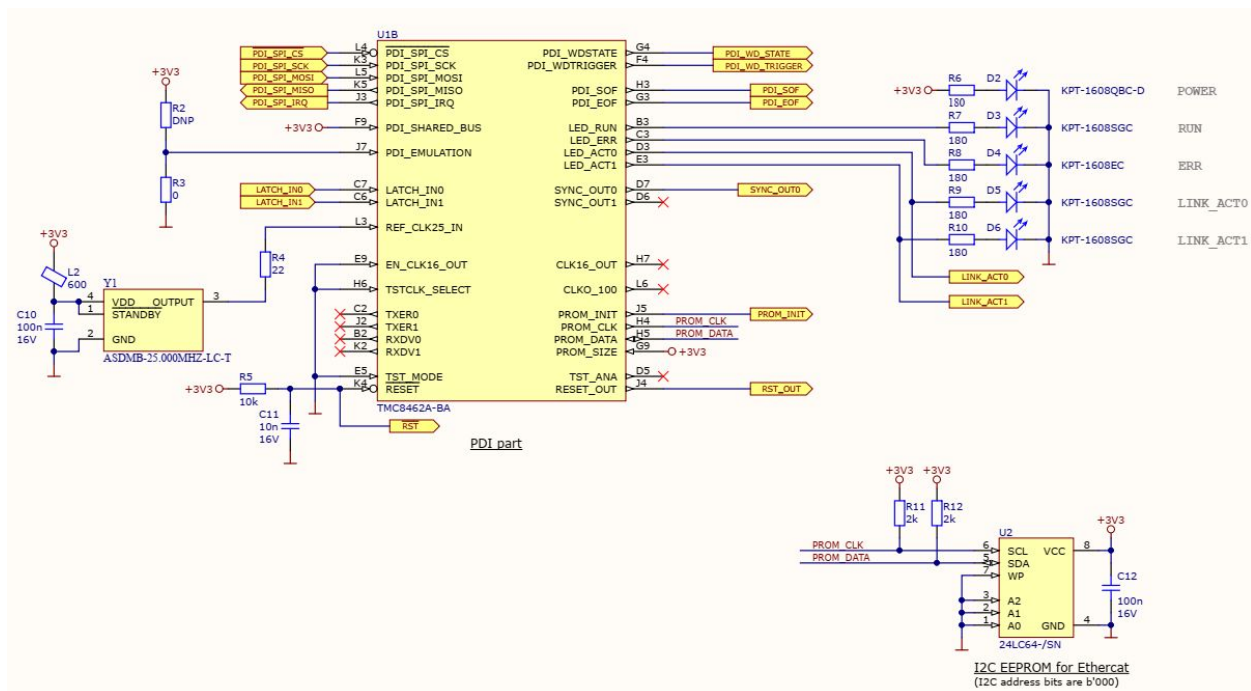
Pcs.	MPN	Value	Footprint	Description
17	MC0603B104K100CT	100nF, 10V	0603	Cap, Multicomp
2	LMK107BJ106MALTD	10uF, 10V	0603	Cap, Taiyo Yuden
1	MC0603B103K500CT	10nF	0603	Cap, various manufacturers
3	LTST-C191KGKT	$V_f = 2V @ I_f = 20mA$	0603	LED, Lite-On
1	LTST-C191KRKT	$V_f = 2V @ I_f = 20mA$	0603	LED, 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	TMC8462A-BA	TMC8462A-BA	BGA121 (9x9)	ECAT Slave Controller , 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-UFDFN	TVS, Littelfuse
1	ASFLMB-25.000MHZ-LR-T	25MHz, 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	MCWR06X22R0FTLV	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

Features and additional Resources

- TMC8462A-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](#)

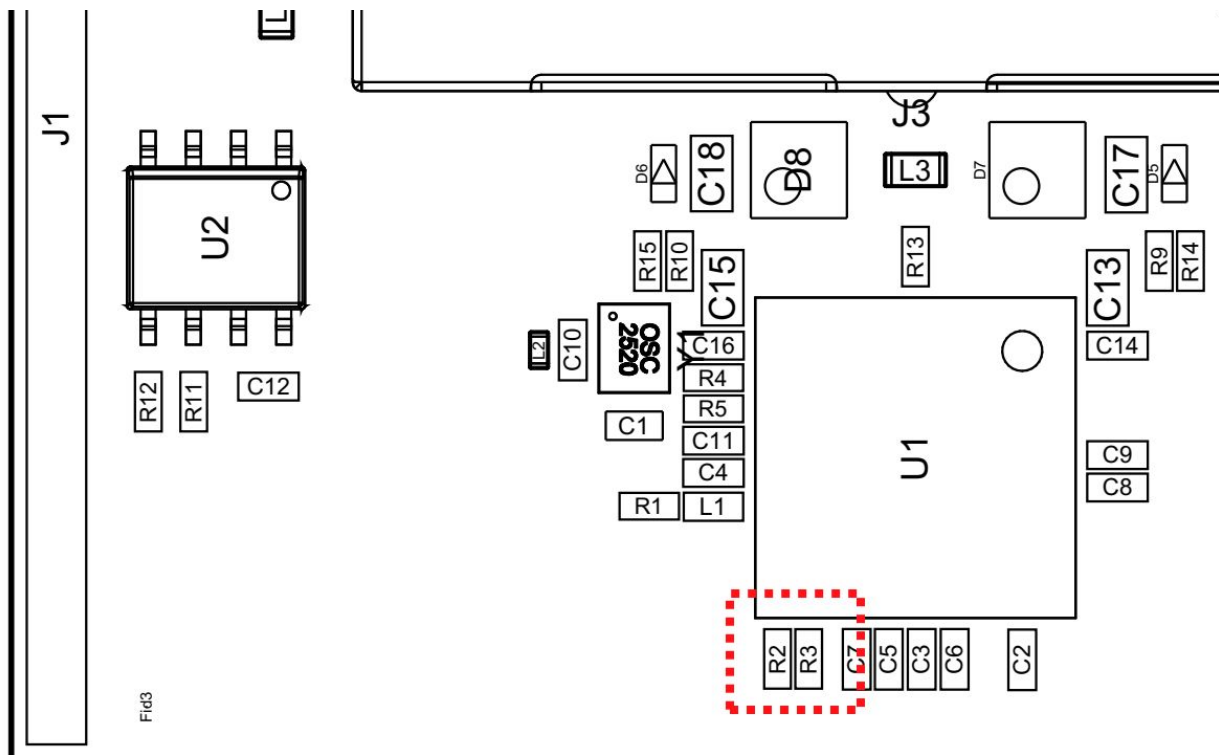


BOB Schematics



Mode Selection

- Soldering R2 / not R3 = PDI Emulation by the ESC, no microcontroller required
- Soldering R3 / not R2 = Controller mode, EtherCAT State Machine inside microcontroller



The following XML description shows the default slave configuration of the TMC8462A-BOB-ETH board, which is pre-programmed into the onboard EEPROM. It can be copied and set up as an XML file to be included and loaded into your EtherCAT master, converted to EEPROM binary format and downloaded to the EtherCAT Slave. With Beckhoff's TwinCAT master tool suite XML files can directly be used and

```

49 <Name LcId="1033">TMC8462 - BOB Default</Name>
<Name LcId="1031">TMC8462 - BOB Default</Name>
51 <Info>
  <StateMachine>
53    <Timeout>
      <PreopTimeout>2000</PreopTimeout>
55      <SafeopOpTimeout>9000</SafeopOpTimeout>
      <BackToInitTimeout>5000</BackToInitTimeout>
57      <BackToSafeopTimeout>200</BackToSafeopTimeout>
    </Timeout>
59  </StateMachine>
  <Mailbox>
61    <Timeout>
      <RequestTimeout>100</RequestTimeout>
63      <ResponseTimeout>2000</ResponseTimeout>
    </Timeout>
65  </Mailbox>
</Info>
67 <GroupType>TrinamicEVAL</GroupType>

69 <Dc>
  <OpMode>
71    <Name>Synchron</Name>
    <Desc>FreeRun/SM-Synchron</Desc>
73    <AssignActivate>#x0</AssignActivate>
  </OpMode>
75  <OpMode>
    <Name>DC</Name>
77    <Desc>DC-Synchron</Desc>
    <AssignActivate>#x300</AssignActivate>
79    <CycleTimeSync0 Factor="1">0</CycleTimeSync0>
    <ShiftTimeSync0>0</ShiftTimeSync0>
81    <CycleTimeSync1 Factor="1">0</CycleTimeSync1>
    <ShiftTimeSync1>0</ShiftTimeSync1>
83  </OpMode>
</Dc>
85

87 <Eeprom>
  <ByteSize>2048</ByteSize>
  <ConfigData>050F034EC40900000000</ConfigData>
89
  <!-- Category 1 data is required for MFC IO configuration parameter
91      loading from memory area 0x0580:0x05FF (ESC Parameter RAM) -->
  <Category>
93    <CatNo>1</CatNo>
    <Data>0000000000000000000000000000000000000000000000000000000000000000
95          0000000000000000000000000000000000000000000000000000000000000000
          0000000000000000000000000000000000000000000000000000000000000000
97          000000000000000000
    </Data>
99    </Category>
  </Eeprom>
101
  <ImageData16x14>424dd60200000000000003600000028000000100000000e00000001

```

```

    </ImageData16x14>
</Device>
</Devices>
</Descriptions>
</EtherCATInfo>

```