



TE0706 TRM

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Online version of this document:

<https://wiki.trenz-electronic.de/display/PD/TE0706+TRM>

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4 Overview

The Trenz Electronic TE0706 Carrier Board provides functionalities for testing, evaluation and development purposes of company's 4 x 5 cm SoMs. The Carrier Board is equipped with various components and connectors for different configuration setups and needs. The interfaces of the SoM's functional units and PL I/O-banks are connected via board-to-board connectors to the Carrier Board's components and connectors for easy user access.

See "[4 x 5 SoM Carriers](http://wiki.trenz-electronic.de/display/PD/4+x+5+SoM+Carriers)"¹ page for more information about supported 4 x 5 cm SoMs. Refer to <http://trenz.org/te0706-info> for the current online version of this manual and other available documentation.

4.1 Key Features

- 3 x Samtec LSHM Series Board to Board Connectors
- VG96 connector (mounting holes and solder pads, J6) and 50-pin IDC male connector socket (J5) for access to PL I/O-bank pins
- Micro SD card socket
- SDIO port expander with voltage-level translation
- USB2.0 type A connector, optionally Micro USB 2.0 connector
- 1 x user-push button S2, by default configured as system reset button
- 1 x RJ45 GbE MagJack J3, connected via MDI to B2B connector JB1
- 1 x Marvell Alaska 88E1512 GbE PHY, providing Ethernet interface in conjunction with RJ45 GbE MagJack J2
- 5V power supply barrel jack
- 4 A High-Efficiency Power SoC DC-DC Step-Down Converter (Enpirion EN6347) for 3.3V power supply
- XMOD JTAG- / UART-header JX1
- DIP-switch S1 to set Som's System Controller CPLD control signals
- 3 x VCCIO selection jumper J10, J11 and J12 to set SoM's PL I/O-bank voltages

Additional assembly options are available for cost or performance optimization upon request.

¹ <https://wiki.trenz-electronic.de/display/PD/4+x+5+SoM+Carriers>

4.2 Block Diagram

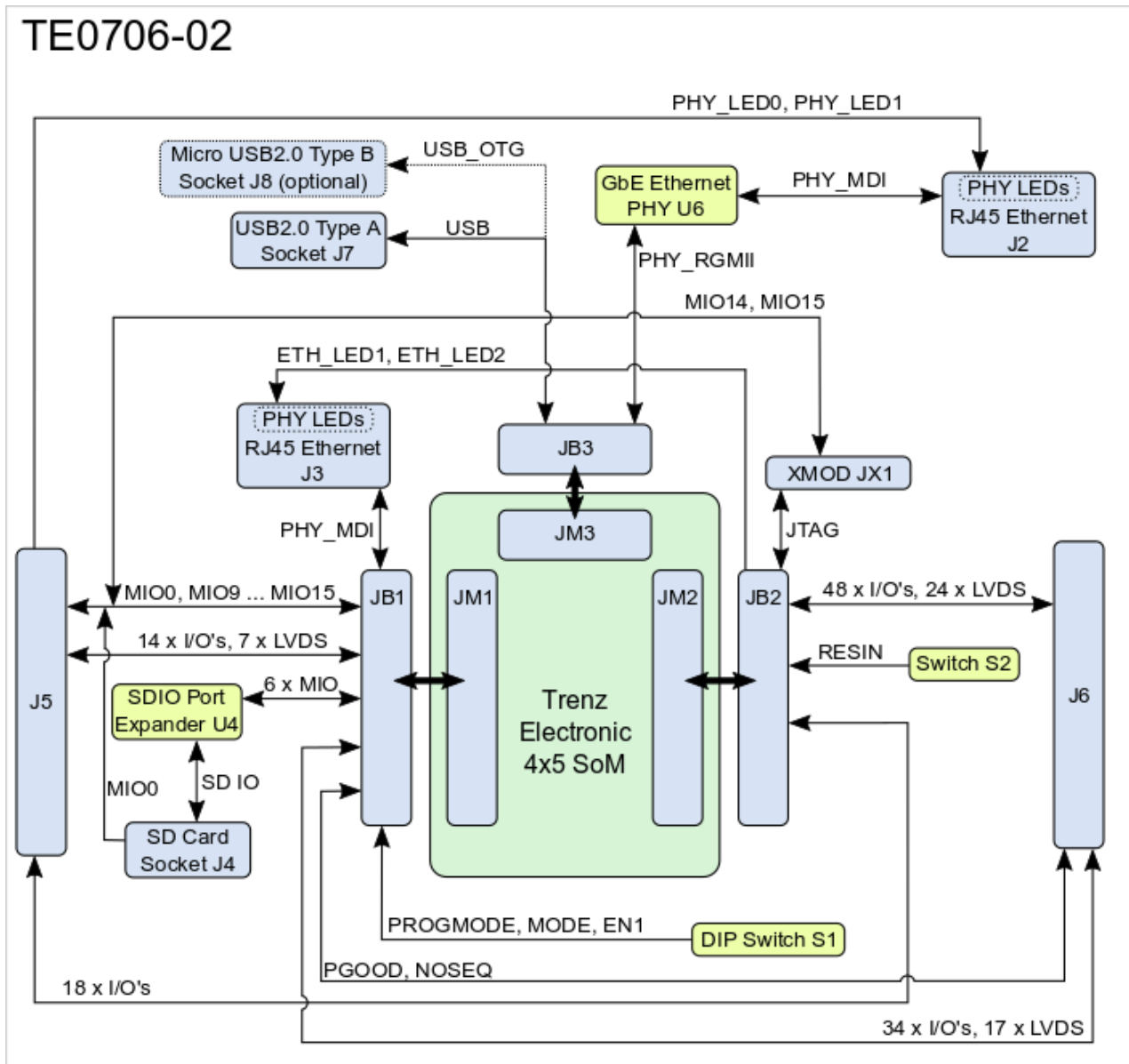


Figure 1: TE0706-02 block diagram.

4.3 Main Components

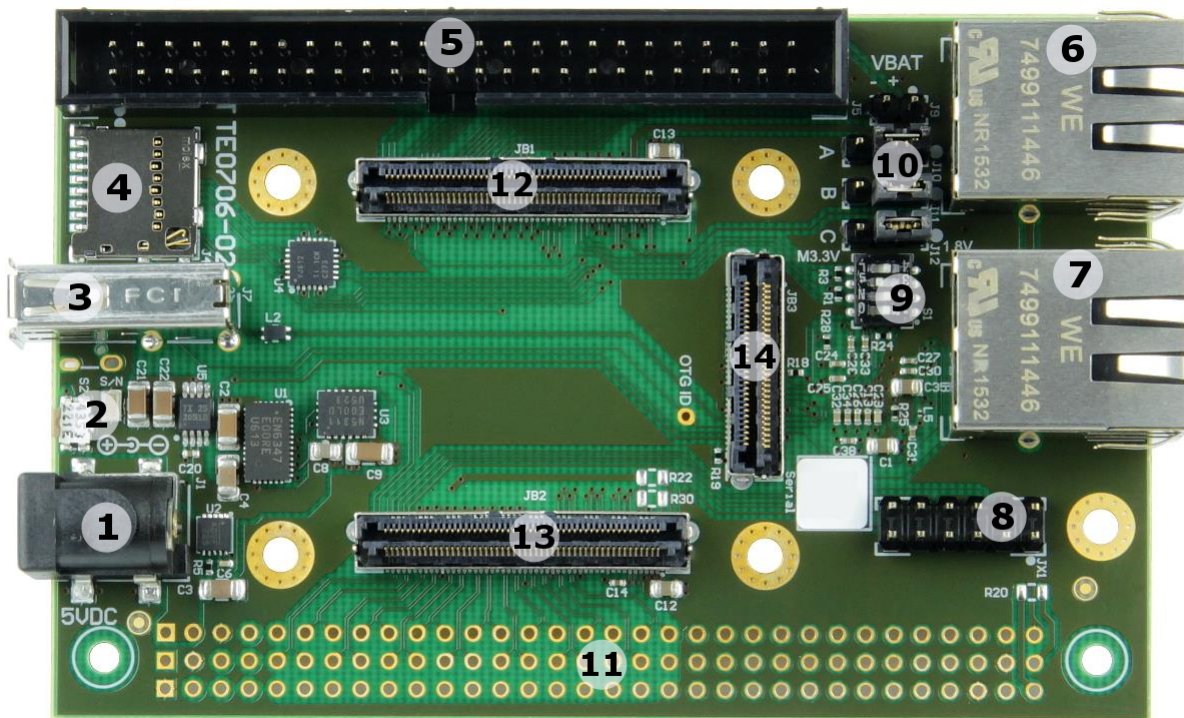


Figure 2: TE0706-02 Carrier Board

1. 5V power connector jack, J1
2. Reset switch, S2
3. USB2.0 type A receptacle, J7
4. Micro SD card socket with Card Detect, J4
5. 50 pin IDC male connector, J5
6. 1000Base-T Gigabit RJ45 Ethernet MagJack, J3
7. 1000Base-T Gigabit RJ45 Ethernet MagJack, J2
8. XMOD JTAG- / UART-header, JX1
9. User DIP-switch, S1
10. VCCIO selection jumper block, J10 - J12
11. External connector (VG96) placeholder, J6
12. Samtec Razor Beam™ LSHM-150 B2B connector, JB1
13. Samtec Razor Beam™ LSHM-150 B2B connector, JB2
14. Samtec Razor Beam™ LSHM-130 B2B connector, JB3

4.4 Initial Delivery State

Board is shipped in following configuration:

- VCCIO voltage selection jumpers are all set to 1.8 V.
- S2 switch configured as reset button.
- One VG96 connector (not soldered to the board, but included in the package as separate component)

Different delivery configurations are available upon request.

5 Signals, Interfaces and Pins

5.1 B2B Connector

With the TE0706 Carrier Board's Board-to-Board Connectors (B2B) the MIO- and PL I/O-bank's pins and further interfaces of the mounted SoM can be accessed. A large quantity of these I/O's are also usable as LVDS-pairs. The connectors provide also VCCIO voltages to operate the I/O's properly.

Following table gives a summary of the available I/O's, interfaces and LVDS-pairs of the B2B connectors JB1, JB2 and JB3:

B2B Connector	Interfaces	Count of I/O's	Notes
JB1	User I/O	48 single ended or 24 differential	-
		8 single ended	MIO with Zynq Modules
	GbE MagJack J3 MDI	8	-
	SD IO	6	-
	SoM control signals	5	EN1, PGOOD, MODE, NOSEQ, PRPGMODE
JB3	GbE PHY U6 RGMII	18	-
	USB2.0 (OTG, device and host mode)	5	-
JB2	User I/O	18 single ended	-
		48 single ended or 24 differential	-
	JTAG	4	-
	SoM control signals	1	RESIN
	GbE MagJack J3 LED's	2	-

Table 1: General overview of PL I/O signals and SoM's interfaces connected to the B2B connectors.

5.2 On-board Connector

The TE0706 Carrier Board has a 50-pin IDC male connector J5 and soldering pads as place-holder to mount a VG96 connectors J6 to get access the PL I/O-bank's pins and further interfaces of the mounted SoM. With these connectors, SoM's PL-I/O's are available to the user, a large quantity of these I/O's are also usable as differential pairs.

Following table gives a summary of the pin-assignment, available interfaces and functional I/O's of the connectors J5 and J6:

On-board Connector	Control Signals and Interfaces	Count of I/O's	Notes
J5	User I/O	18 single ended	-
		14 single ended or 7 differential	-
	MIO	8	-
	GbE MagJack J2 LED's	2	-
J6	User I/O	82 single ended or 41 differential	-
	SoM control signals	2	'PGOOD', 'NOSEQ'

Table 2: General overview of PL I/O signals, SoM's interfaces and control signals connected to the on-board connectors.

5.3 JTAG Interface

JTAG access to the mounted SoM is provided through B2B connector JB2 and is also routed to the XMOD header JX1. With the TE0790 XMOD USB2.0 to JTAG adapter, the device of the mounted SoM can be programed via USB2.0 interface.

JTAG Signal	B2B Connector Pin	XMOD Header JX1	Note
TCK	JB2-100	JX1-4	-
TDI	JB2-96	JX1-10	-
TDO	JB2-98	JX1-8	-
TMS	JB2-94	JX1-12	-

Table 3: JTAG interface signals.

5.4 UART Interface

UART interface is available on B2B connector JB1 and is usually established by MIO-pins of the PS-bank of the mounted SoM's Zynq device. With the TE0790 XMOD USB2.0 adapter, the UART signals can be converted to USB2.0 interface signals:

UART Signal Schematic Name	B2B	XMOD Header JB3	Note
MIO14	JB1-91	JX1-7	UART-RX (receive line)
MIO15	JB1-86	JX1-3	UART-TX (transmit line)

Table 4: UART interface signals.

5.5 I²C Interface

One of the SoM's I²C interface is routed to the on-board connector J5 and is available to the user for general purposes:

I ² C Signal Schematic Name	B2B	On-board Connector	Note
MIO11	JB1-94	J5-27	I ² C data line
MIO10	JB1-96	J5-28	I ² C clock line

Table 5: I²C interface signals.

5.6 SD IO Interface

The SD IO interface of the mounted SoM is routed to the on-board Texas Instruments TXS02612 SDIO port expander U4. This IC provides a necessary VDD/VCCIO translation between the MicroSD Card socket J4 (3.3V) and the SoM's Zynq device MIO-bank (1.8V):

SD IO Signal Schematic Name	B2B	Connected to	Note
SD_DAT0	JB1-24	U4-6	SD IO data
SD_DAT1	JB1-22	U4-7	SD IO data
SD_DAT2	JB1-20	U4-1	SD IO data
SD_DAT3	JB1-18	U4-3	SD IO data
SD_CLK	JB1-28	U4-9	SD IO clock
SD_CMD	JB1-26	U4-4	SD IO command

SD IO Signal Schematic Name	B2B	Connected to	Note
MIO0	JB1-88	J4-9	Card Detect signal

Table 6: SD IO interface signals.

5.7 USB2.0 Interface

TE0706-02 board has one physical USB2.0 type A socket J7, the differential data signals of the USB2.0 socket are routed to the B2B connector JB3, where they can be accessed by the corresponding USB2.0 PHY transceiver of the mounted SoM.

There is also the option to equip the board with a Micro USB 2.0 type B (receptacle) socket (J8) to the board as alternative fitting option. With this fitting option (Micro USB2.0 type B), the USB2.0 interface can also be used for Device mode, OTG and Host Modes.

For USB2.0 Host mode, the Carrier Board is additionally equipped with a power distribution switch U5 to provide the USB2.0 interface with the USB supply voltage USB-VBUS with nominal value of 5V. OTG mode is not available with USB2.0 Type A socket.

Following table gives an overview of the USB2.0 interface signals:

USB2.0 Signal Schematic Name	B2B	Connected to	Note
OTG-D_N	JB2-48	J11-2, (J10-2)	USB2.0 data
OTG-D_P	JB2-50	J11-3, (J10-3)	USB2.0 data
OTG-ID	JB2-52	J11-4	Ground this pin for A-Device (host), left floating this pin for B-Device (peripheral).
VBUS_V_EN	JB2-54	U3, pin 4	Enable USB-VBUS.
USB-VBUS	JB2-56	J11-1, (J10-1)	USB supply voltage in Host mode.

Table 7: USB2.0 interface signals and connections.

5.8 Gigabit Ethernet Interface

The TE0706 Carrier Board is equipped with a Marvell Alaska 88E1512 Gigabit Ethernet PHY (U6), which provides in conjunction with the Gigabit Ethernet MagJack J2 a 1000Base-T Ethernet (GbE) interface. The I/O Voltage is fixed at 1.8V. The reference clock input of the PHY is supplied by on-board 25MHz oscillator (U7).

The GbE MegJack J2 has two integrated LEDs (both green), its signals are routed as MDI (Media Dependent Interface) to the GbE PHY.

PHY U6 pins	B2B-pin	Notes
ETH-MDC/ETH-MDIO	JB3-49, JB3-51	-

PHY U6 pins	B2B-pin	Notes
PHY_LED0	-	Connected to GbE MagJack J2 LED0 (green). Also connected to J5-24 (PHY_LED0_CON).
PHY_LED1	-	Connected to GbE MagJack J2 LED1 (green). Also connected to J5-23 (PHY_LED1_CON).
PHY_INT	JB3-33	-
CONFIG	JB3-60	-
CLK125	JB3-32	PHY Clock (125 MHz) output.
ETH-RST	JB3-53	-
RGMII	JB3-37 - JB-44, JB3-47, JB3-57 - JB-59	Reduced Gigabit Media Independent Interface. 12 pins.
SGMII	-	Serial Gigabit Media Independent Interface. Not connected.
MDI	-	Media Dependent Interface. Connected to Gigabit Ethernet MagJack J2.

Table 8: GbE interface signals and connections.

5.9 RJ45 Gigabit Ethernet MagJack J3

The TE0706-02 carrier board is also equipped with a second Gigabit-Ethernet MagJack J3, which is connected via MDI to the B2B connector JB1.

There is usually a corresponding Gigabit Ethernet PHY on 4 x 5 SoMs (e.g. TE0715 or TE0720), which can be used in conjunction with the baseboard MagJack J3.

GbE PHY Signal Schematic Name	B2B	Connected to	Notes
PHY_MDIO_P	JB1-3	J3-2	-
PHY_MDIO_N	JB1-5	J3-3	-

GbE PHY Signal Schematic Name	B2B	Connected to	Notes
PHY_MDI1_P	JB1-9	J3-4	-
PHY_MDI1_N	JB1-11	J3-5	-
PHY_MDI2_P	JB1-15	J3-6	-
PHY_MDI2_N	JB1-17	J3-7	-
PHY_MDI3_P	JB1-21	J3-8	-
PHY_MDI3_N	JB1-23	J3-9	-
ETH_LED1	JB2-90	Green MegJack J3 LED	-
ETH_LED2	JB2-99	Green MegJack J3 LED	-

Table 9: RJ45 GbE MagJack signals and connections.

5.10 XMOD FTDI JTAG-Adapter Header

The JTAG interface of the mounted SoM can be accessed via XMOD header JX1, which has a 'XMOD FTDI JTAG Adapter'-compatible pin-assignment. So in use with the XMOD-FT2232H adapter-board [TE0790](#)² the mounted SoM can be programmed via USB2.0 interface. The TE0790 board provides also an UART interface to the SoM's Zynq device which can be accessed by the USB2.0 interface of the adapter-board while the signals between these serial interfaces will be converted.

Following table describes the signals and interfaces of the XMOD header JX1:

JX1 pin	Signal Schematic Net Name	B2B	Note
C (pin 4)	TCK	JB2-100	-
D (pin 8)	TDO	JB2-98	-
F (pin 10)	TDI	JB2-96	-
H (pin 12)	TMS	JB2-94	-
A (pin 3)	MIO15	JB1-86	UART-TX (transmit line)
B (pin 7)	MIO14	JB1-91	UART-RX (receive line)
E (pin 9)	-	-	not used

² <https://shop.trenz-electronic.de/de/Produkte/Trenz-Electronic/Open-Hardware/Xmod-FTDI-JTAG-Adapter/>

JX1 pin	Signal Schematic Net Name	B2B	Note
G (pin 11)	-	-	not used

Table 10: XMOD header signals and connections.

When using XMOD FTDI JTAG Adapter TE0790, the adapter-board's VCC and VCCIO will be sourced by the mounted SoM's 'VCCJTAG' (pin JB2-92). Set the DIP-switch with the setting:

XMOD DIP-switches	Position
Switch 1	ON
Switch 2	OFF
Switch 3	OFF
Switch 4	ON

Table 11: XMOD adapter board DIP-switch positions for voltage configuration.

 Use Xilinx compatible TE0790 adapter board (designation TE-0790-xx with out 'L') to program the Xilinx Zynq devices.
The TE0790 adapter board's CPLD have to be configured with the **Standard** variant of the firmware. Refer to the [TE0790 Resources Site](https://wiki.trenz-electronic.de/display/PD/TE0790+Resources)³ for further information and firmware download.

³ <https://wiki.trenz-electronic.de/display/PD/TE0790+Resources>

6 On-board Peripherals

6.1 4-bit DIP-switch

Table below describes DIP-switch S1 settings for configuration of the mounted SoM:

Switch	Signal Name	ON	OFF	Notes
S1-1	-	-	-	Not connected.
S1-2	PROGMODE	JTAG enabled for programming mounted SoM's Zynq-SoC.	JTAG enabled for programming mounted SoM's SC-CPLD.	-
S1-3	MODE	Drive SoM SC CPLD pin 'MODE' low. (SD-Boot)	Leave SoM SC CPLD pin 'MODE' open. (QSPI-Boot)	Boot mode configuration, if supported by SoM. (Depends also on SoM's SC-CPLD firmware).
S1-4	EN1	Drive SoM SC CPLD pin 'EN1' low.	Drive SoM SC CPLD pin 'EN1' high.	Usually used to enable/disable FPGA core-voltage supply. (Depends also on SoM's SC CPLD firmware). Note: Power-on sequence will be intermitted if S1-4 is set to OFF and if functionality is supported by SoM.

Table 12: DIP-switch S1 SoM configuration settings.

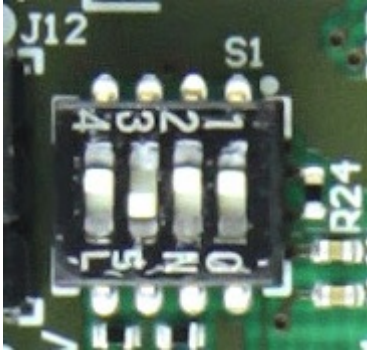


Figure 3: User DIP-switch S1

6.2 VCCIO Selection Jumper

Note: The corresponding PL I/O-bank supply-voltages of the 4 x 5 SoM to the selectable base-board voltages VCCIOA, VCCIOB and VCCIOC are depending on the mounted 4 x 5 SoM and varying in order of the used model.
Refer to the SoM's schematic for information about the specific pin assignments on module's B2B-connectors regarding the PL I/O-bank supply-voltages and to the [4 x 5 Module integration Guide](https://wiki.trenz-electronic.de/display/PD/4x5+Module+Integration+Guide)⁴ for VCCIO voltage options.

The Carrier Board VCCIO for the PL I/O-banks of the mounted SoM are selectable by the jumpers J10, J11 and J12.

Following table describes how to configure the VCCIO of the SoM's PL I/O-banks with jumpers:

Voltage Level	Supply Voltage by Jumper		Supply Voltage by 0-Ohm Resistor		Supply Voltage by Connector J6
	1.8V	3.3V	1.8V	3.3V	Variable
VCCIOA	J10: 1-2 , 3	J10: 1, 2-3	-	R20	J6 pin B32
VCCIOB	J11: 1-2 , 3	J11: 1, 2-3	R29	R21	-
VCCIOC	J12: 1-2 , 3	J12: 1, 2-3	R30	R22	J6 pin B1

Table 13: VCCIO jumper settings.

⁴ <https://wiki.trenz-electronic.de/display/PD/4x5+Module+Integration+Guide>

the mounted SoM. The Micro SD Card has 3.3V signal voltage level, but the PS MIO-bank on the Xilinx Zynq module has VCCIO of 1.8V.

7 Power and Power-On Sequence

7.1 Power Consumption

The maximum power consumption of the Carrier Board depends mainly on the mounted SoM's FPGA design running on the Zynq device.

Xilinx provide a power estimator excel sheets to calculate power consumption. It's also possible to evaluate the power consumption of the developed design with Vivado. See also Trenz Electronic Wiki [FAQ](#)⁶.

Power Input	Typical Current
5VIN	TBD*

Table 14: Typical power consumption.

* TBD - To Be Determined soon with reference design setup.

Power supply with minimum current capability of 3A for system startup is recommended.

⚠ To avoid any damage to the module, check for stabilized on-board voltages and VCCIO's before put voltages on PL I/O-banks and interfaces. All I/Os should be tri-stated during power-on sequence.

7.2 Power Distribution Dependencies

The Carrier Board needs one single power supply voltage with a nominal value of 5V. Following diagram shows the distribution of the input voltage '5VIN' to the on-board components on the mounted SoM:

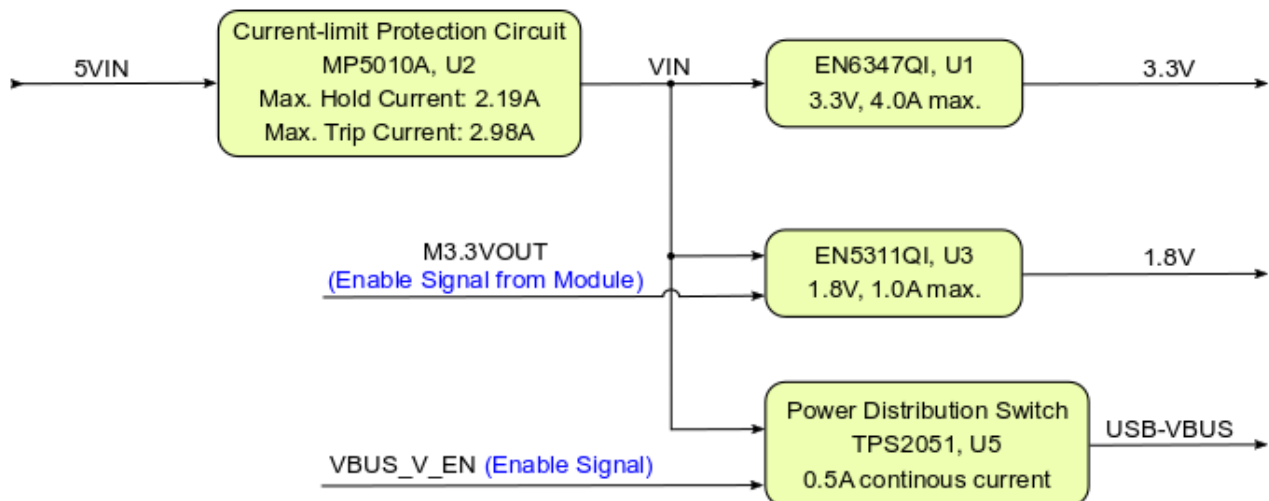


Figure 5: Board power distribution diagram.

⁶ <https://wiki.trenz-electronic.de/display/PD/FAQ>

7.3 Power Rails

The voltage direction of the power rails is directed at on-board connectors' view:

Module Connector (B2B) Designator	VCC / VCCIO	Direction	Pins	Notes
JB1	3.3V	Out	2, 4, 6, 14, 16	3.3V module supply voltage
	VCCIOA	Out	10, 12	PL IO-bank VCCIO
	M1.8VOUT	In	40	1.8V module output voltage
	VBAT	Out	80	RTC buffer voltage
JB2	1.8V	Out	2, 4	1.8V module supply voltage
	VCCIOB	Out	6	PL IO-bank VCCIO
	VCCIOC	Out	8, 10	PL IO-bank VCCIO
	M3.3VOUT	In	9, 11	3.3V module output voltage
	VCCJTAG	In	92	3.3V JTAG VCCIO
JB3	USB-VBUS	Out	56	USB Host supply voltage

Table 15: Power pin description of B2B module connector.

On-board Connector Designator	VCC / VCCIO	Direction	Pins	Notes
J5	3.3V	Out	6, 45	3.3V module supply voltage
	M3.3VOUT	Out	5, 46	3.3V module output voltage

On-board Connector Designator	VCC / VCCIO	Direction	Pins	Notes
J6	VCCIOA	Out / In	B32	PL IO-bank VCCIO, depends on Jumper settings
	VCCIOC	Out / In	B1	PL IO-bank VCCIO, depends on Jumper settings
	M3.3VOUT	Out	C32	3.3V module output voltage
	3.3V	Out	C31	3.3V module supply voltage
	5VIN	Out	A1, A2	Carrier Board supply power

Table 16: Power Pin description of on-board connector.

Jumper / Header Designator	VCC / VCCIO	Direction	Pins	Notes
J10	VCCIOA	In	2	-
	1.8V	Out	1	-
	M3.3VOUT	Out	3	-
J11	VCCIOB	In	2	-
	1.8V	Out	1	-
	M3.3VOUT	Out	3	-
J12	VCCIOC	In	2	-
	1.8V	Out	1	-
	M3.3VOUT	Out	3	-

Table 17: Power Pin description of VCCIO selection jumper pin header.

Main Power Jack and Pins Designator	VCC / VCCIO	Direction	Pins	Notes
J1	5VIN	In	1	Power Jack 2.1mm 90° SMD
J9	VBAT	In	1	Attention: Pin 2 connected to ground. VBAT voltage connected on this pin cause short-circuit.

Table 18: Main Power jack and pins description.

Peripheral Socket Designator	VCC / VCCIO	Direction	Pins	Notes
J7 / J8	USB-VBUS	In / Out	1	Direction depends on USB mode
J4	M3.3VOUT	Out	4	MikroSD Card socket VDD

Table 19: Power pin description of peripheral connector.

XMOD Header Designator	VCC / VCCIO	Direction	Pins	Notes
JX1	3.3V	-	5	not connected
	VIO	Out	6	connected to 'VCCJTAG' (pin JB2-92)

Table 20: Power pin description of XMOD/JTAG Connector.

8 Board to Board Connectors

⚠ These connectors are hermaphroditic. Odd pin numbers on the module are connected to even pin numbers on the baseboard and vice versa.

4 x 5 modules use two or three [Samtec Razor Beam LSHM connectors](#)⁷ on the bottom side.

- 2 x REF-189016-02 (compatible to LSHM-150-04.0-L-DV-A-S-K-TR), (100 pins, "50" per row)
- 1 x REF-189017-02 (compatible to LSHM-130-04.0-L-DV-A-S-K-TR), (60 pins, "30" per row) (depending on module)

8.1 Connector Mating height

When using the same type on baseboard, the mating height is 8mm. Other mating heights are possible by using connectors with a different height

Order number	Connector on baseboard	compatible to	Mating height
23836	REF-189016-01	LSHM-150-02.5-L-DV-A-S-K-TR	6.5 mm
	LSHM-150-03.0-L-DV-A-S-K-TR	LSHM-150-03.0-L-DV-A-S-K-TR	7.0 mm
23838	REF-189016-02	LSHM-150-04.0-L-DV-A-S-K-TR	8.0 mm
	LSHM-150-06.0-L-DV-A-S-K-TR	LSHM-150-06.0-L-DV-A-S-K-TR	10.0mm
26125	REF-189017-01	LSHM-130-02.5-L-DV-A-S-K-TR	6.5 mm
	LSHM-130-03.0-L-DV-A-S-K-TR	LSHM-130-03.0-L-DV-A-S-K-TR	7.0 mm
24903	REF-189017-02	LSHM-130-04.0-L-DV-A-S-K-TR	8.0 mm
	LSHM-130-06.0-L-DV-A-S-K-TR	LSHM-130-06.0-L-DV-A-S-K-TR	10.0mm

Table 1: Connectors.

The module can be manufactured using other connectors upon request.

⁷ <https://www.samtec.com/technical-specifications/Default.aspx?SeriesMaster=LSHM>

8.2 Connector Speed Ratings

The LSHM connector speed rating depends on the stacking height; please see the following table:

Stacking height	Speed rating
12 mm, Single-Ended	7.5 GHz / 15 Gbps
12 mm, Differential	6.5 GHz / 13 Gbps
5 mm, Single-Ended	11.5 GHz / 23 Gbps
5 mm, Differential	7.0 GHz / 14 Gbps

Table 2: Speed rating.

8.3 Current Rating

Current rating of Samtec Razor Beam™ LSHM B2B connectors is 2.0A per pin (2 adjacent pins powered).

8.4 Connector Mechanical Ratings

- Shock: 100G, 6 ms Sine
- Vibration: 7.5G random, 2 hours per axis, 3 axes total

9 Variants Currently In Production

Module Variant	Operating Temperature	USB2.0 Socket	Temperature Range
TE0706-02	-40°C to +85°C	USB2.0 Type A socket fitted	Industrial
TE0706-D-02	-40°C to +85°C	Micro USB2.0 Type B socket fitted	Industrial

Table 21: Board variants.

10 Technical Specifications

10.1 Absolute Maximum Ratings

Parameter	Min	Max	Units	Reference Document
5VIN supply voltage	-0.3	7	V	MP5010A, EN6347QI, EN5311QI data sheet
Storage temperature	-55	+85	°C	Marvell 88E1512 data sheet

Table 22: Module absolute maximum ratings.

10.2 Recommended Operating Conditions

Parameter	Min	Max	Units	Reference Document
5VIN supply voltage	4.75	5.25	V	USB2.0 specification concerning 'VBUS' voltage
Operating temperature	-40	+85	°C	-

Table 23: Module recommended operating conditions.

10.3 Operating Temperature Ranges

Industrial grade: -40°C to +85°C.

The TE0706 Carrier Board itself is capable to be operated at industrial grade temperature range.

Please check the operating temperature range of the mounted SoM, which determine the relevant operating temperature range of the overall system.

10.4 Physical Dimensions

- Board size: PCB 100mm × 64.5mm. Notice that the USB type A socket on the left and the Ethernet RJ-45 jacks on the right are hanging slightly over the edge of the PCB making the total width of the longer side approximately 106mm. Please download the assembly diagram for exact numbers.
- Mating height of the module with standard connectors: 8mm
- PCB thickness: 1.65mm
- Highest parts on the PCB are USB type A socket and the Ethernet RJ-45 jacks, approximately 15mm. Please download the step model for exact numbers.

Technical drawing of a rectangular room layout, oriented horizontally. The overall dimensions are 100,00 (width) by 64,50 (height). The layout includes several rectangular tables, chairs, and other furniture. Key dimensions and features are labeled:

- Overall width: 100,00
- Overall height: 64,50
- Top horizontal dimensions: 60,04, 59,04, 38,04, 16,04, 4,83
- Left vertical dimensions: 43,98, 42,99, 26,98, 10,99, 9,99, 5,32
- Bottom horizontal dimensions: 100,00
- Right vertical dimensions: 64,50
- Internal dimensions and offsets: 38,04, 16,04, 4,83, 60,04, 59,04, 26,98, 10,99, 9,99, 5,32

The drawing shows a detailed arrangement of furniture within the room, including a large rectangular table on the left, a smaller table in the center, and a large rectangular table on the right. There are also several chairs and smaller rectangular objects scattered throughout the space.

<http://www.trenz-electronic.de>

11 Revision History

11.1 Hardware Revision History

Date	Revision	Notes	PC N	Documentation Link
2016-06-28	01	<ul style="list-style-type: none"> Prototypes 	-	TE0706-01⁸
-	02	<ul style="list-style-type: none"> First Production Release Refer to Changes list in Schematic for further details in changes to REV01 	-	TE0706-02⁹

Table 24: Module hardware revision history.

Hardware revision number can be found on the PCB board together with the module model number separated by the dash.



Figure 7: Board hardware revision number.

11.2 Document Change History

Date	Revision	Contributors	Description
 2018-06-13	v.67	John Hartfiel	<ul style="list-style-type: none"> Add note to DIP settings
2017-11-10	v.64	John Hartfiel	<ul style="list-style-type: none"> Replace B2B connector section

⁸ https://shop.trenz-electronic.de/Download/?path=Trenz_Electronic/Modules_and_Module_Carriers/4x5/4x5_Carriers/TE0706/REV01

⁹ https://shop.trenz-electronic.de/Download/?path=Trenz_Electronic/Modules_and_Module_Carriers/4x5/4x5_Carriers/TE0706/REV02

Date	Revision	Contributors	Description
2017-11-09	v.60	Ali Naseri	<ul style="list-style-type: none">• TRM revision to new common style
2017-07-06	v.52	Ali Naseri, Jan Kumann	<ul style="list-style-type: none">• Hardware revision 02 specific changes.
2017-01-06	v.1	Ali Naseri	<ul style="list-style-type: none">• initial document to board revision 02

Table 25: Document change history.

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Trenz Electronic is registered under WEEE-Reg.-Nr. DE97922676.

 2018-09-18

 02 Sep 2017

¹⁰ <http://guidance.echa.europa.eu/>

¹¹ <https://echa.europa.eu/candidate-list-table>

¹² <http://www.echa.europa.eu/>