

Company	Trenz Electronic GmbH
PCN Number	PCN-20230327
Title	TE0745-02 to TE0745-03 Hardware Revision Change
Subject	Hardware Revision Change
Issue Date	2023-06-27

1 Products Affected

This change affects all Trenz Electronic TE0745 SoMs: TE0745-02*.

Affected Product	Changes	Replacement
TE0745-02-71I31-A	#2...#32	TE0745-03-71I31-A
TE0745-02-72I31-A	#2...#32	TE0745-03-72I31-A
TE0745-02-81C31-A	#2...#32	TE0745-03-81C31-A
TE0745-02-91C31-A	#2...#32	TE0745-03-91C31-A
TE0745-02-92I31-A	#2...#32	TE0745-03-92I31-A
TE0745-02-93E31-A	#2...#32	TE0745-03-93E31-A
TE0745-02-93E31-AK	#2...#32	TE0745-03-93E31-AK
TE0745-02-71I31-AK	#2...#32	TE0745-03-71I31-AK
TE0745-02-73E31-A	#2...#32	TE0745-03-73E31-A
TE0745-02-81C31-AK	#2...#32	TE0745-03-81C31-AK
TE0745-02-92I31-AK	#2...#32	TE0745-03-92I31-AK
TE0745-02-82I31-A	#2...#32	TE0745-03-82I31-A

Affected Product	Changes	Replacement
TE0745-02-71I31-AZ	#1...#32	TE0745-03-71I31-A
TE0745-02-72I31-AZ	#1...#32	TE0745-03-72I31-A
TE0745-02-81C31-AZ	#1...#32	TE0745-03-81C31-A
TE0745-02-91C31-AZ	#1...#32	TE0745-03-91C31-A
TE0745-02-92I31-AZ	#1...#32	TE0745-03-92I31-A
TE0745-02-93E31-AZ	#1...#32	TE0745-03-93E31-A
TE0745-02-92I31-B	#2...#33	TE0745-03-92I31-A

2 Changes

2.1 #1 Changed DCDC MUN3CAD03-SE (U10, U13, U15, U19, U30, U31) to TPS82085SIL and adapted voltage divider resistors.

Type: BOM Change

Reason: TPS82085SIL availability.

Impact: Minor changes in electrical characteristics.

2.2 #2 Remove serial number S/N. Connected CPLD (U2) pin 20 to net "BOOTMODE".

Type: Schematic Change

Reason: EOL of Component.

Impact: None. Custom system controller firmware needs to be adapted if system controller (U2) pin 20 is used inside the firmware because pin functionality changes.

2.3 #3 Changed DCDC EN63A0QI (U4) to MP8869SGL-Z and adapted power circuit.

Type: Schematic Change

Reason: EOL of Component.

Impact: None. Minor changes in electrical characteristics.

2.4 #4 Added assembly option (Default: not fitted) to connect DCDC (U4) to I2C bus via resistors (R91 and R101) with I2C address 0x61.

Type: Schematic change

Reason: Optional MP8869SGL-Z I2C monitoring.

Impact: None. Consider possibly I2C address conflicts before connecting DCDC (U4) to I2C bus.

2.5 #5 Increased voltage rating from 6.3 V to 25 V for capacitors C108, C142, C147, C148, and C149.

Type: BOM change

Reason: Functionality change for capacitor C108 and BOM optimization.

Impact: None.

2.6 #6 Added diode D3 between signal "RST_IN_N" and "PS_1.8V" to protect manual reset input signal.

Type: Schematic Change

Reason: Protect manual reset pin.

Impact: None.

2.7 #7 Added series resistor R106 between CPLD (U2) pin 25 and signal "RST_IN_N".

Type: Schematic Change

Reason: Current limitation between different voltage regions.

Impact: None.

2.8 #8 Added option for diode D4 population between signal "INIT" and "PROG_B".

Type: Schematic Change

Reason: Keep FPGA in reset while signal "PROG_B" is low during initial power-up if necessary.

Impact: None.

2.9 #9 Changed clock (U33) from SiT8008AI-73-XXS-52.000000E to SiT8008BI-73-XXS-52.000000E.

Type: Schematic Change

Reason: Use new clock revision.

Impact: None.

2.10 #10 Added testpoints (TP1...TP43).

Type: Schematic Change

Reason: Voltage supervision improvement.

Impact: None.

2.11 #11 Added voltage detector BD39040MUF-CE2 (U22) and connected output to signal "PWR_PL_OK".

Type: Schematic Change

Reason: Power management improvement.

Impact: None.

2.12 #12 Added voltage detector BD39040MUF-CE2 (U20) and connected output to signal "PWR_PS_OK".

Type: Schematic Change

Reason: Power management improvement.

Impact: None. Refer to change #13.

2.13 #13 Added resistor R103 to optionally connect DCDC (U31) PG to handle signal "PWR_PS_OK" or use the voltage monitor U20 to handle signal "PWR_PS_OK".

Type: Schematic Change

Reason: Power management improvement.

Impact: None. Refer to change #12.

2.14 #14 Added pull-up resistor R73 for net "PWR_PL_OK".

Type: Schematic Change

Reason: Use pull-up resistor on SoM.

Impact: None.

2.15 #15 Changed supply voltage for VCCPLL from PL_1.8V to PS_1.8V.

Type: Schematic Change

Reason: Use AMD recommended power supply.

Impact: None.

2.16 #16 Tied DXP/DXN (U1 pins R14 and R13) directly to GND.

Type: Schematic Change

Reason: Use AMD recommendation for not used DXP/DXN pins.

Impact: None.

2.17 #17 Added soft start capacitor C62 option for TPS74401RGW (U8).

Type: Schematic Change

Reason: Added larger startup time option for DCDC U8.

Impact: None. For assembled capacitor larger startup times are possible.

2.18 #18 Added soft start capacitor C78 option for TPS74401RGW (U11).

Type: Schematic Change

Reason: Added larger startup time option for DCDC U11.

Impact: None. For assembled capacitor larger startup times are possible.

2.19 #19 Added decoupling capacitors C126...C131, C144, C150...C157.

Type: Schematic Change

Reason: Improve decoupling.

Impact: None.

2.20 #20 Changed voltage rating from 6.3 V to 10 V for 100 uF capacitors.

Type: BOM Change

Reason: BOM Optimization.

Impact: None.

2.21 #21 Changed voltage rating from 6.3 V to 16 V for 10 uF capacitors.

Type: BOM Change

Reason: BOM Optimization.

Impact: None.

2.22 #22 Changed voltage rating from 6.3 V to 10 V and size from 0402 to 0603 for capacitors C21 and C29.

Type: Schematic Change

Reason: Adapted capacitor voltage rating to possibly used voltage.

Impact: None.

2.23 #23 Changed size from 0201 to 0402 for 1 kOhm resistors R104 and R105.

Type: Schematic Change

Reason: BOM Optimization.

Impact: None.

2.24 #24 Added 100 Ohm termination resistor assemble option for MGT_REF_CLKs (R109 and R110).

Type: Schematic Change

Reason: Improvement.

Impact: None.

2.25 #25 Changed VCCADC_0 supply from VCCIO_0 to PL_1.8V.

Type: Schematic Change

Reason: Follow AMD recommendation for VCCADC_0 power supply.

Impact: None.

2.26 #26 Added UKCA logo.

Type: PCB Change

Reason: Required for export to UK.

Impact: None.

2.27 #27 Changed voltage divider R21 and R22 to set voltage threshold to 0.936 V for voltage monitor (U41).

Type: Schematic Change

Reason: Improve voltage monitoring.

Impact: None.

2.28 #28 Changed DDR clock termination resistor R9 placement position.

Type: PCB Change

Reason: Improve DDR clock termination.

Impact: None.

2.29 #29 Changed fiducials to standard fiducial type.

Type: Schematic Change

Reason: Use standard fiducials.

Impact: None.

2.30 #30 Signal trace lengths changed

Type: PCB change

Reason: Result of changes above.

Impact: Changed trace length have to be taken into account in existing designs. The trace length for new revision will be available in [TE0745 series pinout generator](https://shop.trenz-electronic.de/trenzdownloads/Trenz_Electronic/Pinout/TE0745_series_pinout_generator)¹. Please check if change in trace length still matches your requirements. Adaption of carrier may be necessary.

2.31 #31 Updated power overview.

Type: Documentation Update

Reason: Documentation improvement.

Impact: None.

2.32 #32 Removed page "ZYNQ.SchDoc" and added pages Legal Notices and System Overview.

Type: Documentation Update

Reason: Documentation improvement.

Impact: None.

2.33 #33 Change PCB color from black to standard green.

Type: PCB Update

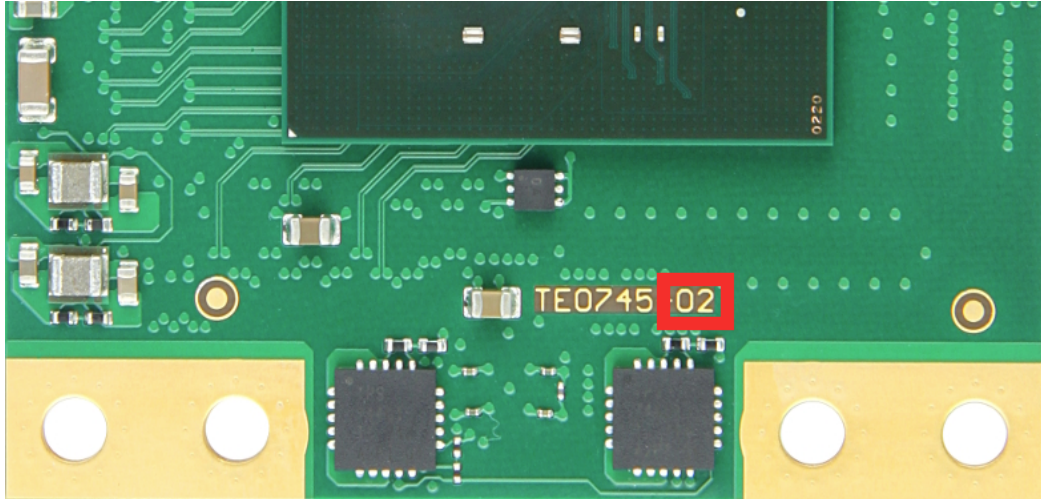
Reason: Standardization.

¹ https://shop.trenz-electronic.de/trenzdownloads/Trenz_Electronic/Pinout/TE0745_series_pinout_tracelength.xlsx

Impact: None.

3 Method of Identification

The revision number is shown on the top side of the PCB.



4 Production Shipment Schedule

This change takes place with immediate effect. If the new revision is not suitable for your application and still the former revision of the board is needed, please contact us.

5 Contact Information

If you have any questions related to this PCN, please contact Trenz Electronics Technical Support at

- forum.trenz-electronic.de²
- wiki.trenz-electronic.de³
- support@trenz-electronic.de⁴ (subject = PCN-20230327)
- phone
 - national calls: 05741 3200-0
 - international calls: 0049 5741 3200-0

6 Disclaimer

Any projected dates in this PCN are based on the most current product information at the time this PCN is being issued, but they may change due to unforeseen circumstances. For the latest schedule and any other information, please contact your local Trenz Electronic sales office, technical support or local distributor.

This PCN follows JEDEC Standard J-STD-046.

² <http://forum.trenz-electronic.de/>

³ <http://wiki.trenz-electronic.de/>

⁴ <mailto:support@trenz-electronic.de?subject=PCN-20230327>