

Company	Trenz Electronic GmbH
PCN Number	PCN-20231207
Title	TE0817-01 to TE0817-02 Hardware Revision Change
Subject	Hardware Revision Change
Issue Date	2024-06-07

1 Products Affected

This change affects all Trenz Electronic TE0817 SoMs: TE0817-01*.

Affected Product	Changes	Replacement
TE0817-01-4AI21-A	#1...#29	TE0817-02-4AI81-A
TE0817-01-4BE21-A	#1...#29	TE0817-02-4BE81-A
TE0817-01-7AI21-A	#1...#29	TE0817-02-7AI81-A
TE0817-01-7DE21-A	#1...#29	TE0817-02-7DE81-A
TE0817-01-7DE81-A	#2...#29	TE0817-02-7DE81-A
TE0817-01-7DE81-AS	#2...#29	TE0817-02-7DE81-AS
TE0817-01-7DI21-A	#1...#29	TE0817-02-7DI81-A

2 Changes

2.1 #1 Changed DDR4 SDRAM (U2, U3, U9, U12) from K4A8G165WB-BIRC (1 GByte) to K4A8G165WC-BITDTCV (1 GByte).

Type: Schematic Change

Reason: BOM Optimization.

Impact: DDR timing needs to be considered in customer design. Trenz Reference Design reflects it without changing timing but custom firmware needs to be checked and eventually updated by customer.

2.2 #2 Changed DCDC EN6347QI (U13) to MPM3860GQW-Z and adapted power circuit.

Type: Schematic Change

Reason: EOL of Component.

Impact: None. Increased current output capability. Minor changes in electrical characteristics.

2.3 #3 Added DCDC (U4) VCC supply option via resistors R124 (Default: not fitted) for voltage rail PL_DCIN and R125 (Default: fitted) for voltage rail 3.3VIN.

Type: Schematic Change

Reason: Enabled higher DCDC input voltage usage.

Impact: None. Option for increased input voltage usage with available backward capability.

2.4 #4 Changed current limit to approximately 14.3 A for DCDC MPQ8633BGLE-Z (U4) via changing resistor R76 from 4.22 kOhm to 9.09 kOhm.

Type: Schematic Change

Reason: Fixed wrong resistor value.

Impact: None.

2.5 #5 Changed DCDC (U4) feedback capacitor (C132) from 1 nF, X7R to 1.2 nF, NP0.

Type: Schematic Change

Reason: Voltage regulation improvement.

Impact: None.

2.6 #6 Changed inductor (L9) from XGL4030-301MEC to XGL5030-351MEC.

Type: Schematic Change

Reason: Increased current capability.

Impact: None. Increased inductance and current capability and improved resistance.

2.7 #7 Increased voltage from 1.35 V to 1.45 V via voltage divider resistors (R30) and changed voltage rail name accordingly from PL_GT_1V35 to PL_GT_1V45.

Type: Schematic Change

Reason: Improve voltage rail behaviour.

Impact: None.

2.8 #8 Increased voltage from 1.05 V to 1.15 V via voltage divider resistors (R33, R35) and changed voltage rail name accordingly from PL_GT_1V05 to PL_GT_1V15.

Type: Schematic Change

Reason: Improve voltage rail behaviour.

Impact: None.

2.9 #9 Added option to use remote senses for DCDCs U29 via resistor R128 (Default: not fitted).

Type: Schematic Change

Reason: Remote sense option.

Impact: None.

2.10 #10 Added option to use remote sense for DCDCs U30 via resistor R126 (Default: not fitted).

Type: Schematic Change

Reason: Remote sense option.

Impact: None.

2.11 #11 Added option to use remote senses for DCDCs U31 via resistor R129 (Default: not fitted).

Type: Schematic Change

Reason: Remote sense option.

Impact: None.

2.12 #12 Improved voltage rail VTT layout and added decoupling capacitor (C202...C205).

Type: Schematic Change

Reason: VTT layout and decoupling improvement.

Impact: Improved VTT voltage rail reliability.

2.13 #13 Added diode D2 between U41 pin 3 net MR and voltage rail 3.3VIN.

Type: Schematic Change

Reason: Protect manual reset pin.

Impact: None.

2.14 #14 Enabled DDR4 test usage via connecting DDR4-TEN signals together for DDR4 memory (U2, U3, U9, U12) and pulling them low via 499 Ohm resistor R127. Added testpoint TP3 for signal DDR4-TEN.

Type: Schematic Change

Reason: Enable DDR4 test improvement.

Impact: None.

2.15 #15 Added pull-up resistor for "HOLD"-function (R130) and "WP"-function (R131) for flash (U7).

Type: Schematic Change

Reason: Improved SPI interface usage with different flashes.

Impact: None.

2.16 #16 Added pull-up resistor for "HOLD"-function (R132) and "WP"-function (R133) for flash (U17).

Type: Schematic Change

Reason: Improved SPI interface usage with different flashes.

Impact: None.

2.17 #17 Added additional decoupling capacitors C196...C201, C206...C208, C210...C216.

Type: Schematic Change

Reason: Improve decoupling.

Impact: None.

2.18 #18 Changed 100 nF capacitor (C37, C95, C96, C130, C131) from 6.3 V, X5R, 0201 to 50 V, X7R, 0402.

Type: Schematic Change

Reason: BOM Optimization.

Impact: None.

2.19 #19 Changed 10 nF capacitor (C112) from 16 V, 0402 to 10 V, 0201.

Type: Schematic Change

Reason: BOM Optimization.

Impact: None.

2.20 #20 Changed capacitor (C76, C77, C134, C195) from 1 μ F, 16 V, to 2.2 μ F 10 V.

Type: Schematic Change

Reason: BOM Optimization.

Impact: None.

2.21 #21 Changed capacitor (C129, C140...C148, C153) from 10 μ F, 16 V, to 22 μ F 10 V.

Type: Schematic Change

Reason: BOM Optimization.

Impact: None.

2.22 #22 Changed 22 μ F capacitor (C70, C73...C75) from 0805 to 0603.

Type: Schematic Change

Reason: BOM Optimization.

Impact: None.

2.23 #23 Changed 22 μ F capacitor (C78, C80...C87, C110, C152, C154, C178) from 6.3 V to 10 V.

Type: Schematic Change

Reason: BOM Optimization.

Impact: None.

2.24 #24 Changed 100 Ohm resistor (R7, R10) from 0201, 0.05 W to 0402, 0.063 W.

Type: Schematic Change

Reason: BOM Optimization.

Impact: None.

2.25 #25 Changed resistor (R77) from 12 kOhm to 10 kOhm.

Type: Schematic Change

Reason: BOM Optimization.

Impact: None.

2.26 #26 Changed resistor (R41, R58) from 2 kOhm to 2.49 kOhm.

Type: Schematic Change

Reason: BOM Optimization.

Impact: None.

2.27 #27 Added testpoints (TP4, TP10, TP11, TP13, TP14, TP19, TP21, TP22, TP33...TP72).

Type: Schematic Change

Reason: Improve voltage measuring possibilities.

Impact: None.

2.28 #28 Added UKCA logo.

Type: PCB Change

Reason: Required for export to UK.

Impact: None.

2.29 #29 Updated components from library.

Type: Schematic Change

Reason: Use latest component data.

Impact: None.

2.30 #30 Changed signal trace lengths.

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 [TE081x 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 documentation.

Type: Documentation Update

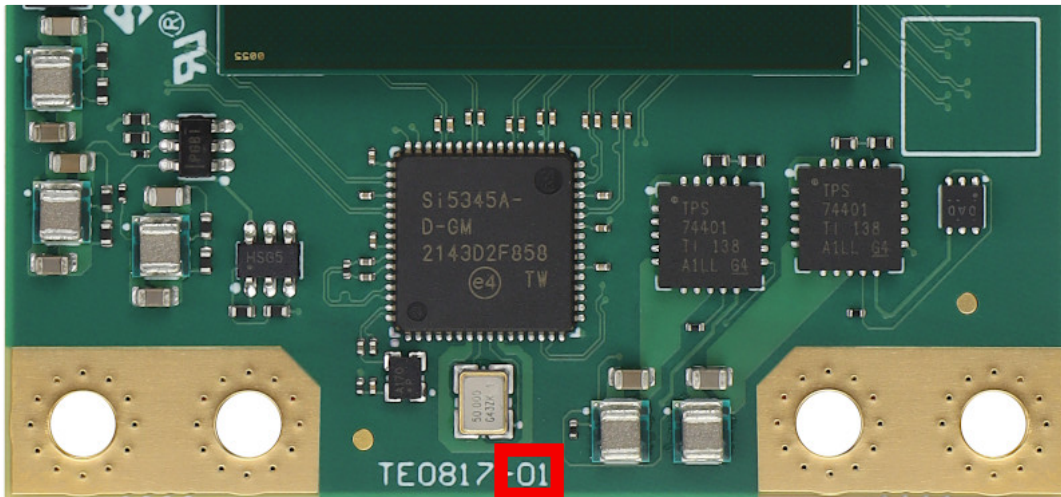
Reason: Documentation improvement.

Impact: None.

¹ https://shop.trenz-electronic.de/trenzdownloads/Trenz_Electronic/Pinout/TE081x_series_pinout_tracelength.xlsx

3 Method of Identification

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



4 Production Shipment Schedule

From January 2025, after old stock is gone. 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-20231207)
- 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.

² <http://forum.trenz-electronic.de/>

³ <http://wiki.trenz-electronic.de/>

⁴ <mailto:support@trenz-electronic.de?subject=PCN-20231207>



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Document Rev: v.13

This PCN follows JEDEC Standard J-STD-046.