Company	Trenz Electronic GmbH
PCN Number	PCN-20230119
Title	TEI0006-03 to TEI0006-04 Hardware Revision Change
Subject	Hardware Revision Change
Issue Date	2023-05-02

1 Products Affected

This change affects all Trenz Electronic TEI0006 SoMs: TEI0006-03*.

Affected Product	Replacement
TEI0006-03-220-5I	TEI0006-04-API23A
TEI0006-03-ALC13A	TEI0006-04-ALE13A

2 Changes

2.1 #1 Changed system controller from 10M08SAU169C8G to 10M08SAU169I7G.

Type: Schematic Change

Reason: Use industrial and faster system controller.

Impact: Speed and temperature grade improved.

2.2 #2 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.

2.3 #3 Added I2C connection between MP8869SGL-Z (U4) and system controller (U18) pins D11 (signal "I2C1_SCL") and C13 (signal "I2C1_SDA").

Type: Schematic Change

Reason: Improve MP8869SGL-Z handling.

Impact: None. Custom system controller firmware needs to be adapted if system controller (U18) pin D11 is used inside the firmware because system controller (U18) pin D11 was used as power good signal (PG_VTT) for EV1320QI (U9) as detailed in change #7.

2.4 #4 Added testpoints (TP19 for signal "I2C1_SCL" and TP20 for signal "I2C1_SDA") for I2C connection between MP8869SGL-Z (U4) and system controller (U18).

Type: Schematic Change

Reason: Improve I2C debugging capabilities.

Impact: None.

2.5 #5 Changed DCDC EN6340QI (U5, U6, U7, U8) to MPM3840GQV-Z and adapted power circuit.

Type: Schematic Change

Reason: EOL of Component.

Impact: None. Minor changes in electrical characteristics.

2.6 #6 Changed DCDC EV1320QI (U9) to TPS51206DSQ and adapted power circuit.

Type: Schematic Change

Reason: EOL of Component.

Impact: None. Minor changes in electrical characteristics.

2.7 #7 Changed system controller (U18) pin D11 from DCDC EV1320QI (U9) signal PG_VTT to new added I2C interface signal I2C1_SCL.

Type: Schematic Change

Reason: EOL of EV1320QI.

Impact: None. Custom system controller firmware needs to be adapted as discussed in change #3.

2.8 #8 Changed DCDC EP53A8HQI (U10, U11) to MPM3834CGPA and adapted power circuit.

Type: Schematic Change

Reason: EOL of Component.

Impact: None. Minor changes in electrical characteristics.

2.9 #9 Added transistor (T8) to MPM3834CGPA (U11) feedback circuit to optionally select different output voltages (1.8 V / 2.5 V / 3.0 V).

Type: Schematic Change

Reason: EOL of EP53A8HQI.

Impact: None. Minor changes in electrical characteristics.

2.10 #10 Added MPM3834CGPA (U11) power good signal "PG_VADJ" to system controller (U18) pin G10.

Type: Schematic Change

Reason: Improve power handling.

Impact: None. Custom system controller firmware could be changed to use this signal.

2.11 #11 Changed system controller (U18) pin F13 from signal VADJ_VS2 to not connected.

Type: Schematic Change

Reason: EOL of EP53A8HQI.

Impact: None. Custom system controller firmware needs to be adapted.

2.12 #12 Changed NC7WZ16P6X (U16) to SN74AUP2G17DCKR.

Type: Schematic Change

Reason: BOM Optimization.

Impact: None. Minor changes in electrical characteristics.

2.13 #13 Changed MEMS oscillator SiT8008AI-73-XXS-25.000000E (U15, U21) to SiT8008BI-73-XXS-25.000000E.

Type: Schematic Change

Reason: Not recommended for new design of component.

Impact: None. Minor changes in electrical characteristics.

2.14 #14 Added optional MEMS LVDS Oscillators (Y2, Y3, Y4, Y5).

Type: Schematic Change

Reason: BOM Optimization.

Impact: None. Minor changes in electrical characteristics.

2.15 #15 Removed voltage divider resistors for DDR3 SDRAM (U12, U13) reference voltages.

Type: Schematic Change

Reason: BOM Optimization.

Impact: None. Minor changes in electrical characteristics.

2.16 #16 Added resistor options for REFCLK_EMIF clock (signals "REFCLK_EMIF_P"/"REFCLK_EMIF_N") for common mode voltage setting.

Type: Schematic Change

Reason: Optionally common mode voltage setting.

Impact: None. Minor changes in electrical characteristics.

2.17 #17 Changed I2C bus connection for CryptoAuthentication Device (U19) from 1.8 V bus "I2C" to 3.3 V bus "I2C1".

Type: Schematic Change

Reason: Simplify power handling.

Impact: None. Custom firmwares with CryptoAuthentication Device (U19) usage needs to be adapted.

2.18 #18 Added diode (D5) to power Cyclone 10 VCCBAT power supply either from 1.8 V module power rail or from baseboard via signal "VCCBAT".

Type: Schematic Change

Reason: Simplify VCCBAT/reset handling.

Impact: Check power sequencing and reset handling for your use case.

2.19 #19 Changed LED LTST-C191KRKT (D1) to 19-213/R6C-AL1M2VY/3T.

Type: Schematic Change

Reason: Not recommended for new design of component.

Impact: None.

2.20 #20 Changed LED LTST-C191KGKT (D2, D3, D4) to 19-213/G6C-BM1N2/DT.

Type: Schematic Change

Reason: Not recommended for new design of component.

Impact: None.

2.21 #21 Added testpoint (TP21) for signal "PG_3.3V".

Type: Schematic Change

Reason: Improve debugging possibility.

Impact: None.

2.22 #22 Added testpoint (TP22) for signal "PG_VADJ".

Type: Schematic Change

Reason: Improve debugging possibility.

Impact: None.

2.23 #23 Changed ferrid bead BKP0603HS121-T (L13) to MPZ0603S121HT000.

Type: Schematic Change

Reason: EOL of component.

Impact: None.

2.24 #24 Updated components from library.

Type: Schematic Change

Reason: Use latest component data.

Impact: None.

2.25 #25 Added UKCA logo.

Type: PCB Change

Reason: Requiered for export to UK.

Impact: None.

2.26 #26 Added system overview and power diagram. Updated page count and order.

Type: Documentation Update

Reason: Documentation improvement.

Impact: None.

2.27 #27 Firmware update.

Type: Firmware Update

Reason: Hardware changes needs to be reflected in firmware.

Impact: None. TEI0006-04 will be shipped with new firmware but custom firmwares needs to be updated by customer.

3 Method of Identification

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

4 Production Shipment Schedule

From November 2023, 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.de[1]
- wiki.trenz-electronic.de[2]
- support%trenz-electronic.de[3] (subject = PCN-20230119)
- 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.

1 http://forum.trenz-electronic.de/
2 http://wiki.trenz-electronic.de/
3 mailto:support@trenz-electronic.de?subject=PCN-20230119