PCN-20231110 TE0729-02 to TE0729-03 Hardware Revision Change

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Company	Trenz Electronic GmbH
PCN Number	PCN-20231110
Title	TE0729-02 to TE0729-03 Hardware Revision Change
Subject	Hardware Revision Change
Issue Date	2023-12-13

Products Affected

This change affects all Trenz Electronic TE0729 SoMs: TE0729-02*.

Affected Product	Replacement
TE0729-02-62I63MA	TE0729-03-62I63MA
TE0729-02-62I63MAK	TE0729-03-62I63MAK
TE0729-02-62I63MAS	TE0729-03-62I63MAS
TE0729-02-62I65MM	EOL
TE0729-02-62I63MAY	EOL

Changes

#1 Changed DCDC EN5311QI (U24, U25, U26) to MPM3834C and adapted power circuit.

Type: Schematic Change

Reason: EOL of Component.

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

#2 Changed DCDC EN6347QI (U23) 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.

#3 Changed load switch TPS27082LDDCR (Q1) to MP5077GG-Z and adapted circuit.

Type: Schematic Change

Reason: BOM Optimization.

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

#4 Added power supervisor (U4) for voltage rail VIN handling.

Type: Schematic Change

Reason: Power handling improvement.

Impact: Power supply starts only if voltage rail VIN is in adequate voltage range.

#5 Changed power net name from 1.5V to DDR_VDD.

Type: Schematic Change

Reason: Improve naming.

Impact: None.

#6 Changed power sequencing.

Type: Schematic Change

Reason: Follow AMD and Texas Instruments recommendation.

Impact: Check that the new power-up sequence fits your requirements. Voltage supervisor (U4) enables 1V voltage rail (DCDC U23) via signal EN_Module. 1V DCDC (U23) enables 1.8V voltage rail (DCDC U25) via signal PG_1V0. 1.8V DCDC (U25) enables 2.5V (DCDC U24) and DDR_VDD (DCDC U26) voltage rails via signal PG_1V8. Voltage rail 3.3V (load switch Q1) is logical AND-enabled via power good signal PG_2V5_3V3 from voltage rail 2.5V DCDC (U24) and DDR_VDD DCDC (U26) via diode (D4) and CPLD (U6) signal EN_3V3 via diode (D5).

#7 Added bidirectional level shifter (U7) and capacitors (C185, C186) to separate power domains for signal FPGA_IO. Added fallback resistor (R91).

Type: Schematic Change

Reason: Improve power domain handling for signal FPGA_IO.

Impact: None.

#8 Added diode (D3) between U21 pin 3 net nRST_in and voltage rail 3.3V.

Type: Schematic Change

Reason: Protect manual reset pin.

Impact: None.

#9 Added option to improve noise immunity for signal nRST_in via capacitor C187 (default: not assembled).

Type: Schematic Change

Reason: Improve noise immunity in needed cases.

Impact: None.

#10 Connected exposed pad for SDIO port expander (U15) to GND.

Type: Schematic Change

Reason: Improve thermal situation.

Impact: None.

#11 Added additional decoupling capacitors C166...C179.

Type: Schematic Change

Reason: Improve decoupling.

Impact: None.

#12 Changed 10 µF capacitors (C36, C86) to 22 µF.

Type: Schematic Change

Reason: BOM Optimization.

Impact: None. Minor changes in electrical characteristics.

#13 Changed 22 µF capacitors (C117, C121, C125, and C127) from size 0806 to 0603.

Type: Schematic Change

Reason: BOM Optimization.

Impact: None. Minor changes in electrical characteristics.

#14 Changed capacitor (C144) from 470 nF, 6.3 V, X5R, 20 % to 100 nF, 16 V, X7R, 10 %.

Type: Schematic Change

Reason: Increase battery input voltage range.

Impact: None. Changes in electrical characteristics.

#15 Pulled-up board revision signal (FPGA U2 pin H17) and updated board revision documentation.

Type: Schematic Change

Reason: Update revision information.

Impact: None. Firmware reflects it but custom firmware needs to be updated by customer.

#16 Changed fiducials to standard fiducial type.

Type: Schematic Change

Reason: Use standard fiducials.

Impact: None.

#17 Removed track-it traceability pad S/N.

Type: Schematic Change

Reason: EOL of Component.

Impact: None.

#18 Added testpoints TP1...TP41.

Type: PCB Change

Reason: Improve testing.

Impact: None.

#19 Added serial number box print on bottom overlay.

Type: PCB Change

Reason: Required for manufacturing.

Impact: None.

#20 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 TE0729 series pinout generator. Please check if change in trace length still matches your requirements. Adaption of carrier may be necessary.

#21 Added revision history, block and power diagram. Updated page count and order.

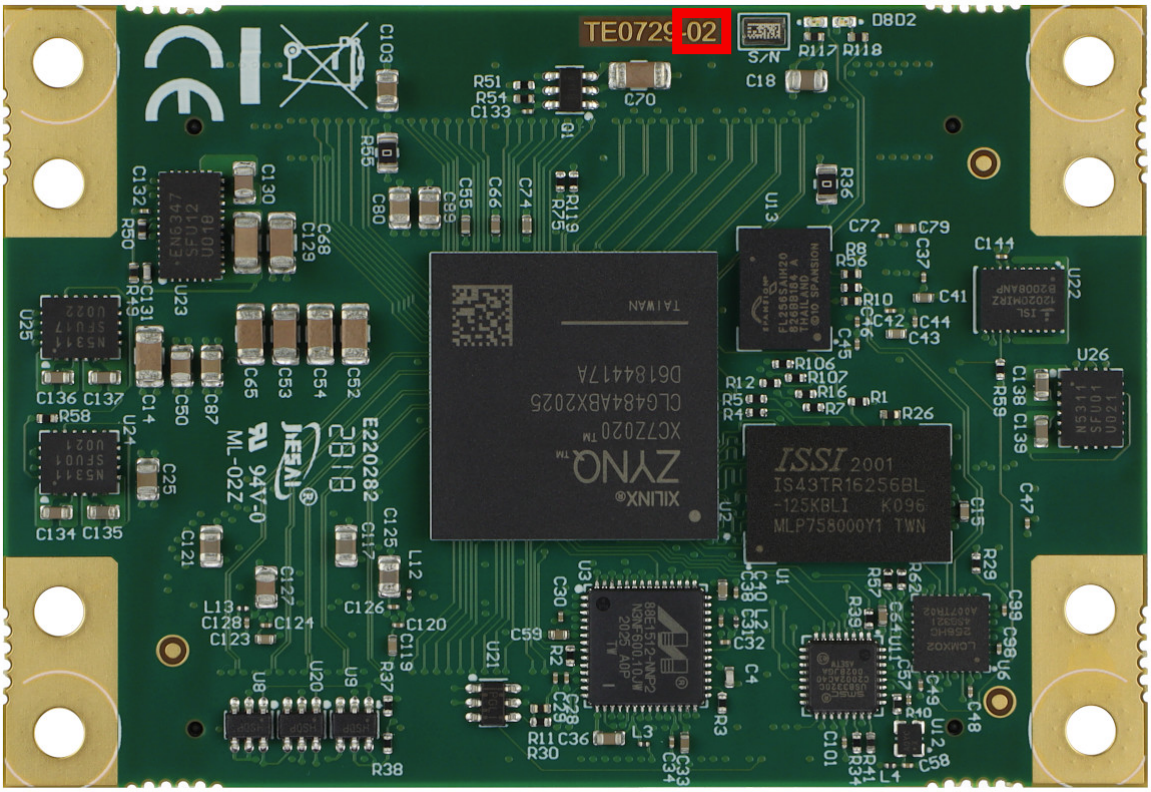
Type: Documentation Update

Reason: Documentation improvement.

Impact: None.

Method of Identification

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



Production Shipment Schedule

From July 2024, 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.

Contact Information

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

- forum.trenz-electronic.de
- wiki.trenz-electronic.de
- support%trenz-electronic.de (subject = PCN-20231110)
- phone
    - national calls: 05741 3200-0

- international calls: 0049 5741 3200-0

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.