AX88279 Demo Board Schematic

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SPI Flash
25MHz Crystal
25MHz Oscillator
USB/RJ-45 Connectors
Power Circuit
SY8089A

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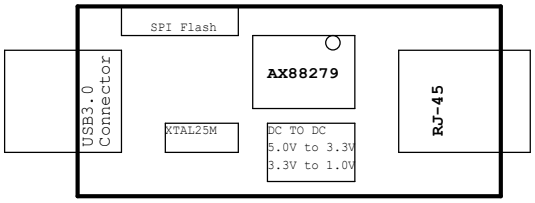

Note:

1.Please refer to AX88279 USB 3.2 Gen1 to 2.5 Gigabit Ethernet Application Design Note for more AX88279 PCB layout design notes.

2.Please deliver us your AX88279 schematic and PCB layout file for further review.

3.Please do full functionlaities testing on your own AX88279 board before running into production stage.

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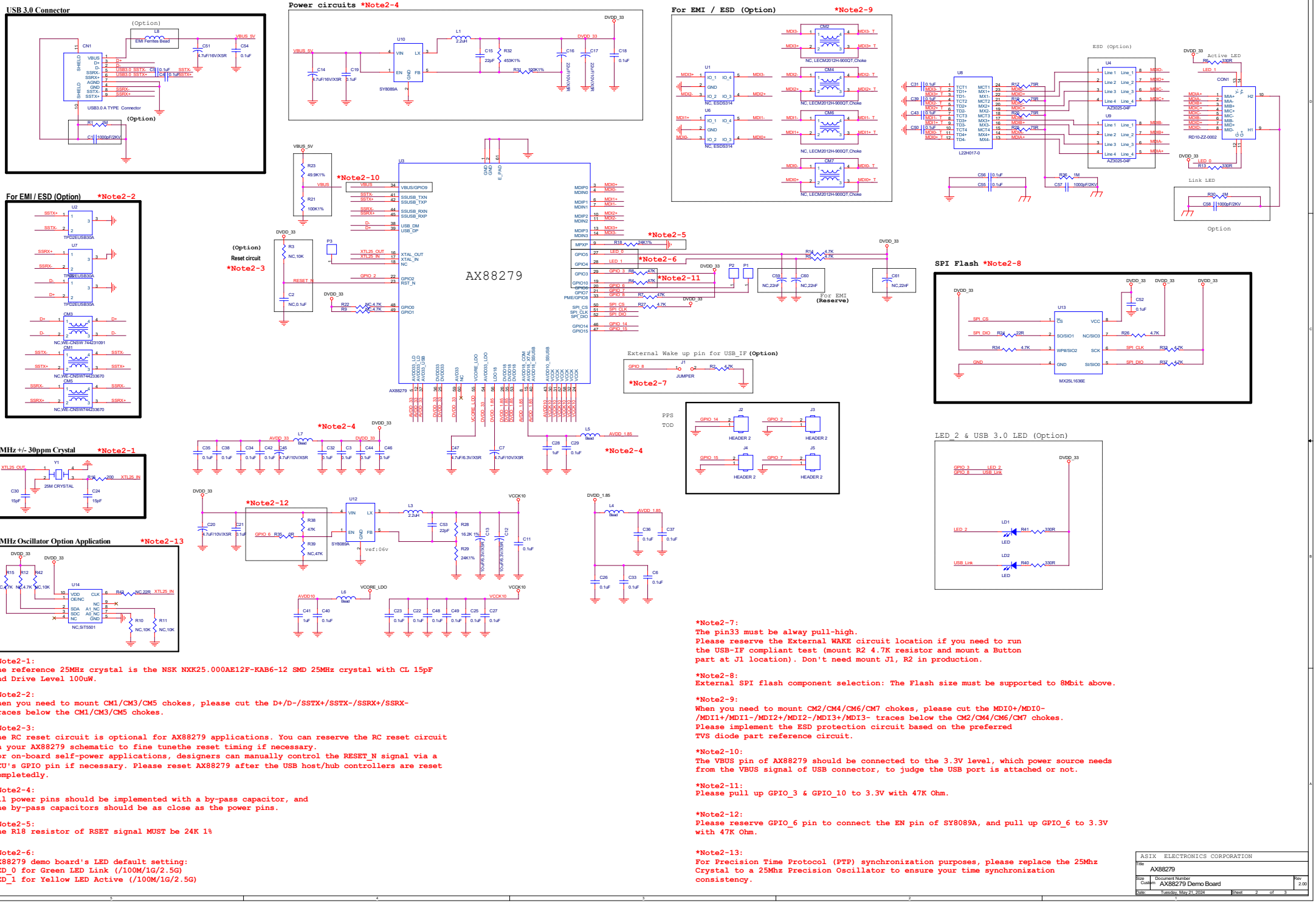

*Note2-1:
The reference 25MHz crystal is the NSK NXK25.000AE12F-KAB6-12 SMD 25MHz crystal with CL 15pF and Drive Level 100uW.

*Note2-2:
When you need to mount CM1/CM3/CM5 chokes, please cut the D+/D-/SSTX+/SSTX-/SSRX+/SSRX- traces below the CM1/CM3/CM5 chokes.

*Note2-3:
The RC reset circuit is optional for AX88279 applications. You can reserve the RC reset circuit on your AX88279 schematic to fine tunethe reset timing if necessary.
For on-board self-power applications, designers can manually control the RESET_N signal via a MCU's GPIO pin if necessary. Please reset AX88279 after the USB host/hub controllers are reset completedly.

*Note2-4:
All power pins should be implemented with a by-pass capacitor, and the by-pass capacitors should be as close as the power pins.

*Note2-5:
The R18 resistor of RSET signal MUST be 24K 1%

*Note2-6:
AX88279 demo board's LED default setting:
LED_0 for Green LED Link (/100M/1G/2.5G)
LED_1 for Yellow LED Active (/100M/1G/2.5G)

*Note2-7:
The pin33 must be alway pull-high.
Please reserve the External WAKE circuit location if you need to run the USB-IF compliant test (mount R2 4.7K resistor and mount a Button part at J1 location). Don't need mount J1, R2 in production.

*Note2-8:
External SPI flash component selection: The Flash size must be supported to 8Mbit above.

*Note2-9:
When you need to mount CM2/CM4/CM6/CM7 chokes, please cut the MDI0+/MDI0-/MDI1+/MDI1-/MDI2+/MDI2-/MDI3+/MDI3- traces below the CM2/CM4/CM6/CM7 chokes.
Please implement the ESD protection circuit based on the preferred TVS diode part reference circuit.

*Note2-10:
The VBUS pin of AX88279 should be connected to the 3.3V level, which power source needs from the VBUS signal of USB connector, to judge the USB port is attached or not.

*Note2-11:
Please pull up GPIO_3 & GPIO_10 to 3.3V with 47K Ohm.

*Note2-12:
Please reserve GPIO_6 pin to connect the EN pin of SY8089A, and pull up GPIO_6 to 3.3V with 47K Ohm.

*Note2-13:
For Precision Time Protocol (PTP) synchronization purposes, please replace the 25Mhz Crystal to a 25Mhz Precision Oscillator to ensure your time synchronization consistency.

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Revision History

Revision	Date	Comment
V1.00	2023/02/23	Initial release.
V1.01	2023/03/20	1.Added Note 2-12 in Page 2. 2.Modified some description in Note 2-8.
V1.02	2023/05/10	Added LED_2 and USB 3.0 LED circuit in page 2.
V1.03	2023/10/24	Added EMI circuit in LED0 & LED1.
V2.00	2024/05/21	1.Added GPIO_2_7_14_15 2.Added Oscillator circuit and Note 2-13 in Page 2.

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