| Table of Contents | |
|---|---|
| P01 | Cover |
| P02 | Notes |
| P03 | B2B |
| P04 | CAN |
| P05 | Sensors_and_IO |
| P06 | Console |
| P07 | Changelog |

| Revision History | | | |
|---|---|---|---|
| **Rev.** | **Date** | **By** | **Description** |
| X0-X9 | 2025-09-11 | YT (CTO SI) | Initial schematic development and format changes |
| A | 2025-09-26 | YT (CTO SI) | Schematic is released |

# X-MR-NAVQ95E-IO

**NOTES:**

1. Interrupted lines coded with the same letter or letter combinations are electrically connected.
2. Device type number is for reference only. The number varies with the manufacturer.
3. Greyed out components indicate Do Not Populate (DNP) during assembly.
4. Special signal usage:
   _B denotes an active-low signal.
   _P and _N denote a differential signal.
5. Interpret diagram in accordance with American National Standards Institute specifications, current revision, with the exception of logic block symbology.
6. All SILK display properties will be in this color
7. All schematic annotations will be in this color

System Innovation
High Tech Campus 60
5656 AG Eindhoven, The Netherlands

This document contains information proprietary to NXP and shall not be used for engineering design, procurement or manufacture in whole or in part without the express written permission of NXP Semiconductors.

© NXP SEMICONDUCTORS Classification: Company Internal/Proprietary

| | | | |
|---|---|---|---|
| Designer: Youri Tils | Drawing Title: X-MR-NAVQ95E-IO | | |
| Drawn by: Youri Tils | Page Title: Cover | | |
| Approved: Jari van Ewijk | Size C | Document Number SCH-96099 PDF: SPF-96099 | Rev A |
| | Date: Monday, September 29, 2025 | Sheet 1 of 7 | |

| *REF DES* | *ASSY_OPT* | *PAGE NAME* |
|---|---|---|
| R5,R8,R12,R36,R38,R39 | DNP | P04-CAN |
| R23,R24,R25,U19 | DNP | P06-Console |

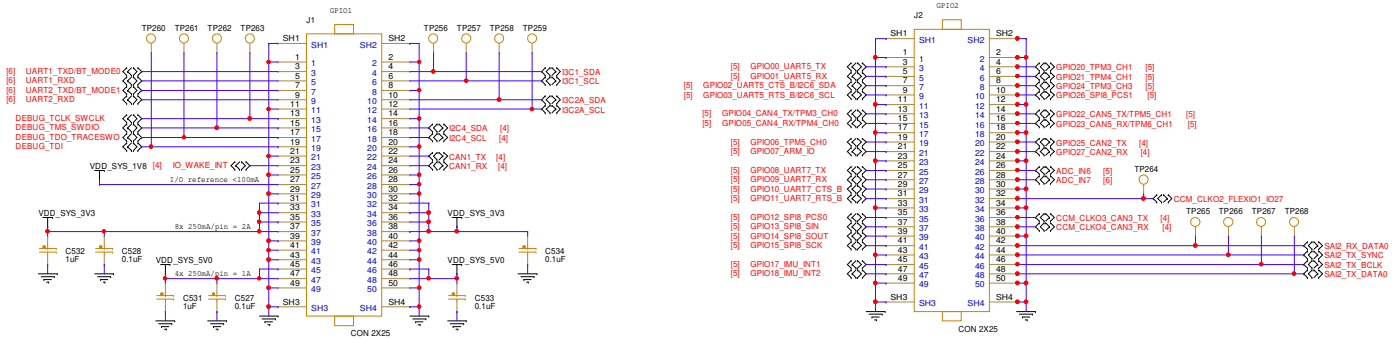
Classification: Company Internal

Drawing Title: **X-MR-NAVQ95E-IO**

Page Title: **Notes**

| Size | Document Number | Rev |
|---|---|---|
| B | SCH-96099 PDF: SPF-96099 | A |

Date: Monday, September 29, 2025 | Sheet 2 of 7



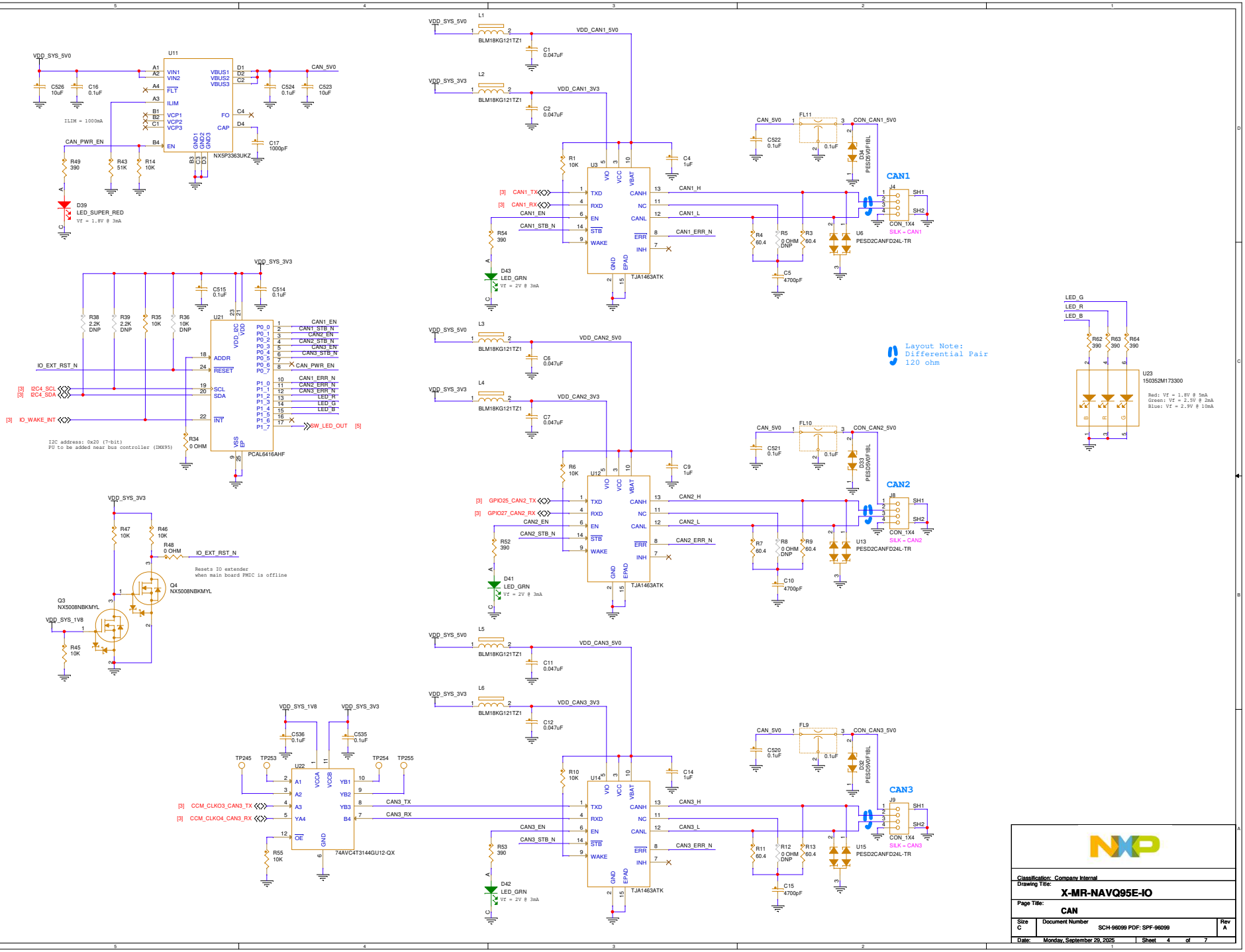

Classification: Company Internal

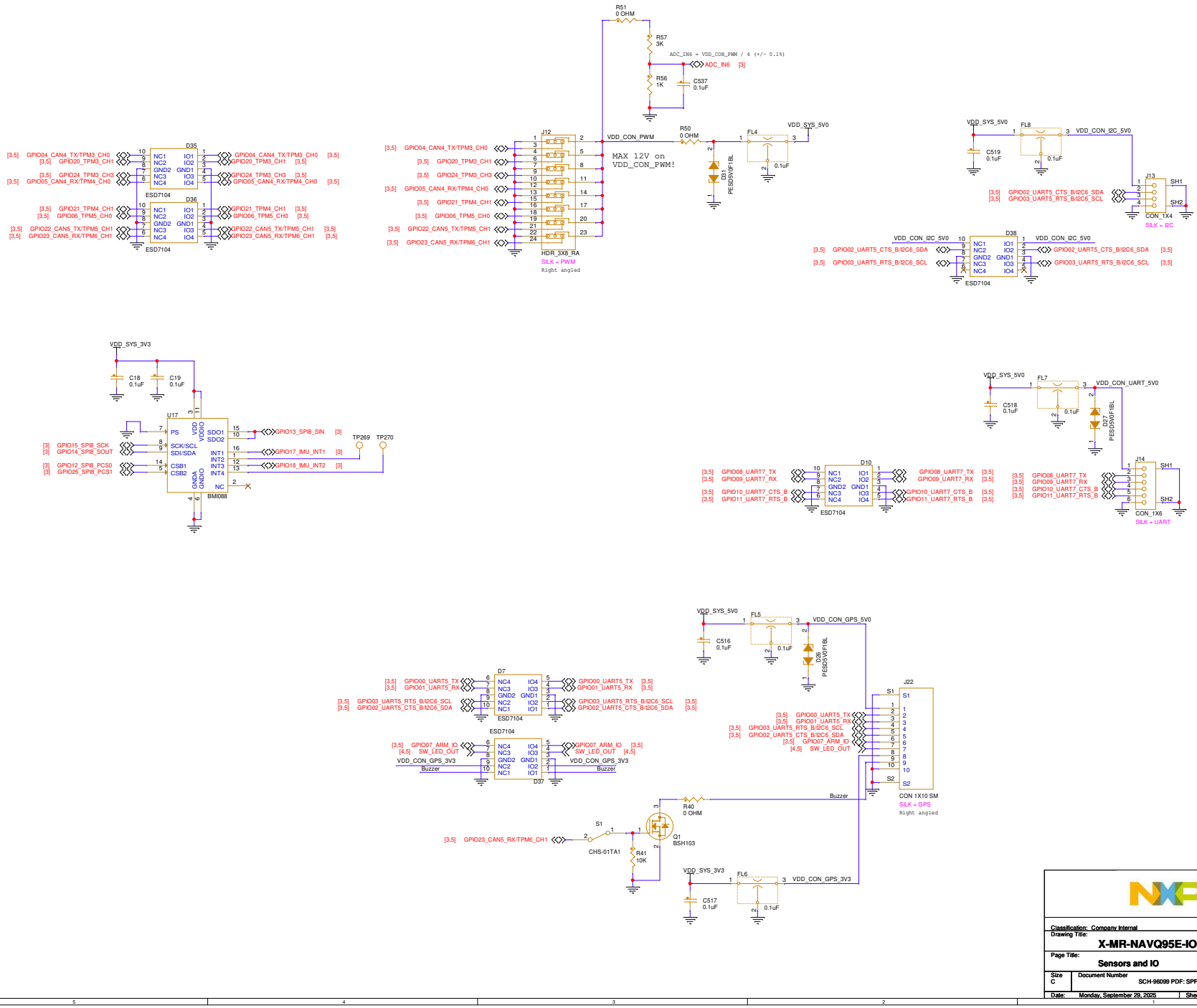
Drawing Title: **X-MR-NAVQ95E-IO**

Page Title: **B2B**

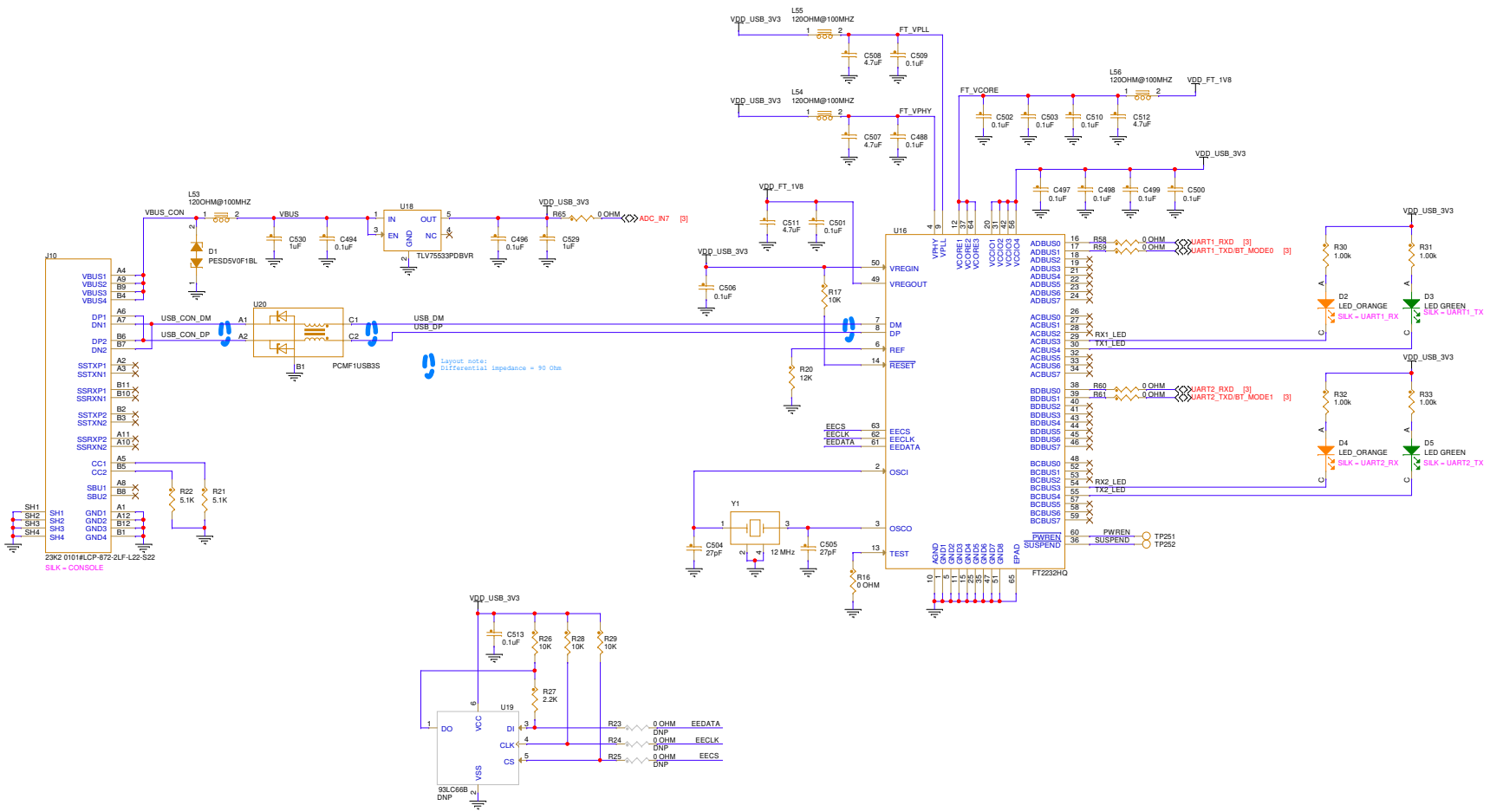
| Size | Document Number | Rev |
|---|---|---|
| C | SCH-96099 PDF: SPF-96099 | A |

Date: Monday, September 29, 2025 | Sheet 3 of 7


U11
NX5P3363UKZ
ILIM = 1000mA
D39
LED_SUPER_RED
Vf = 1.8V @ 3mA
U21
PCAL6416AHF
I2C address: 0x20 (7-bit)
PU to be added near bus controller (IMX95)
Q3
NX5008NBKMYL
Q4
NX5008NBKMYL
Resets IO extender
when main board PMIC is offline
U22
74AVC4T3144GU12-QX
L1
BLM18KG121TZ1
VDD_CAN1_5V0
L2
VDD_CAN1_3V3
U3
TJA1463ATK
D43
LED_GRN
Vf = 2V @ 3mA
FL11
PESD3V0F1BL
CAN1
U6
PESD2CANFD24L-TR
SILK = CAN1
L3
VDD_CAN2_5V0
L4
VDD_CAN2_3V3
U12
TJA1463ATK
D41
LED_GRN
Vf = 2V @ 3mA
FL10
PESD3V0F1BL
CAN2
U13
PESD2CANFD24L-TR
SILK = CAN2
L5
VDD_CAN3_5V0
L6
VDD_CAN3_3V3
U14
TJA1463ATK
D42
LED_GRN
Vf = 2V @ 3mA
FL9
PESD3V0F1BL
CAN3
U15
PESD2CANFD24L-TR
SILK = CAN3
U23
150352M173300
Red: Vf = 1.8V @ 5mA
Green: Vf = 2.5V @ 2mA
Blue: Vf = 2.9V @ 10mA
Layout Note:
Differential Pair
120 ohm
Classification: Company Internal
Drawing Title:
X-MR-NAVQ95E-IO
Page Title:
CAN
Size C
Document Number
SCH-96099 PDF: SPF-96099
Rev A
Date: Monday, September 29, 2025
Sheet 4 of 7




| | | |
|---|---|---|
| Classification: Company Internal | | |
| Drawing Title: | X-MR-NAVQ95E-IO | |
| Page Title: | Sensors and IO | |
| Size C | Document Number SCH-96099 PDF: SPF-96099 | Rev A |
| Date: Monday, September 29, 2025 | Sheet 5 of 7 | |




Classification: Company Internal

Drawing Title: **X-MR-NAVQ95E-IO**

Page Title: **Console**

| Size | Document Number | Rev |
|---|---|---|
| C | SCH-96099 PDF: SPF-96099 | A |

Date: Monday, September 29, 2025 | Sheet 6 of 7

## Changelog

| Rev. | Date | By | Description |
|---|---|---|---|
| X0-X4 | 2025-09-11 | YT (CTO SI) | Initial schematic development and format changes |
| X5 | 2025-09-12 | YT (CTO SI) | Changed 10p GPS connector to right-angle |
| X6 | 2025-09-16 | YT (CTO SI) | Removed 100nF at CAN VDD. Replaced TVS diodes near GPS and I2C connector with ESD7104.<br>Limit USB current to 1A. Wired IO_WAKE_INT to IO extender. IO extender is now reset when main board PMIC is offline. Added net names to USB data lines. DNP part 93LC66B |
| X7 | 2025-09-25 | YT (CTO SI) | Corrected USB_DM net label.<br>Added net labels to unnamed nets. |
| X8 | 2025-09-25 | YT (CTO SI) | Added RGB LED to CAN IO extender unused pins.<br>Connected ADC_INx to PWM VDD and USB VDD.<br>Added 0 ohm resistors at UART TX and RX.<br>Added level shifter for CAN3 RX and TX lines.<br>Added LEDs to CAN enable lines.<br>Added toggle switch to GPS buzzer output. |
| X9 | 2025-09-25 | YT (CTO SI) | Added 0R resistor between VDD_USB_3V3 and ADC_IN7 |

Classification: Company Internal

Drawing Title: X-MR-NAVQ95E-IO

Page Title: Changelog

| Size | Document Number | Rev |
|---|---|---|
| C | SCH-96099 PDF: SPF-96099 | A |

Date: Monday, September 29, 2025 Sheet 7 of 7