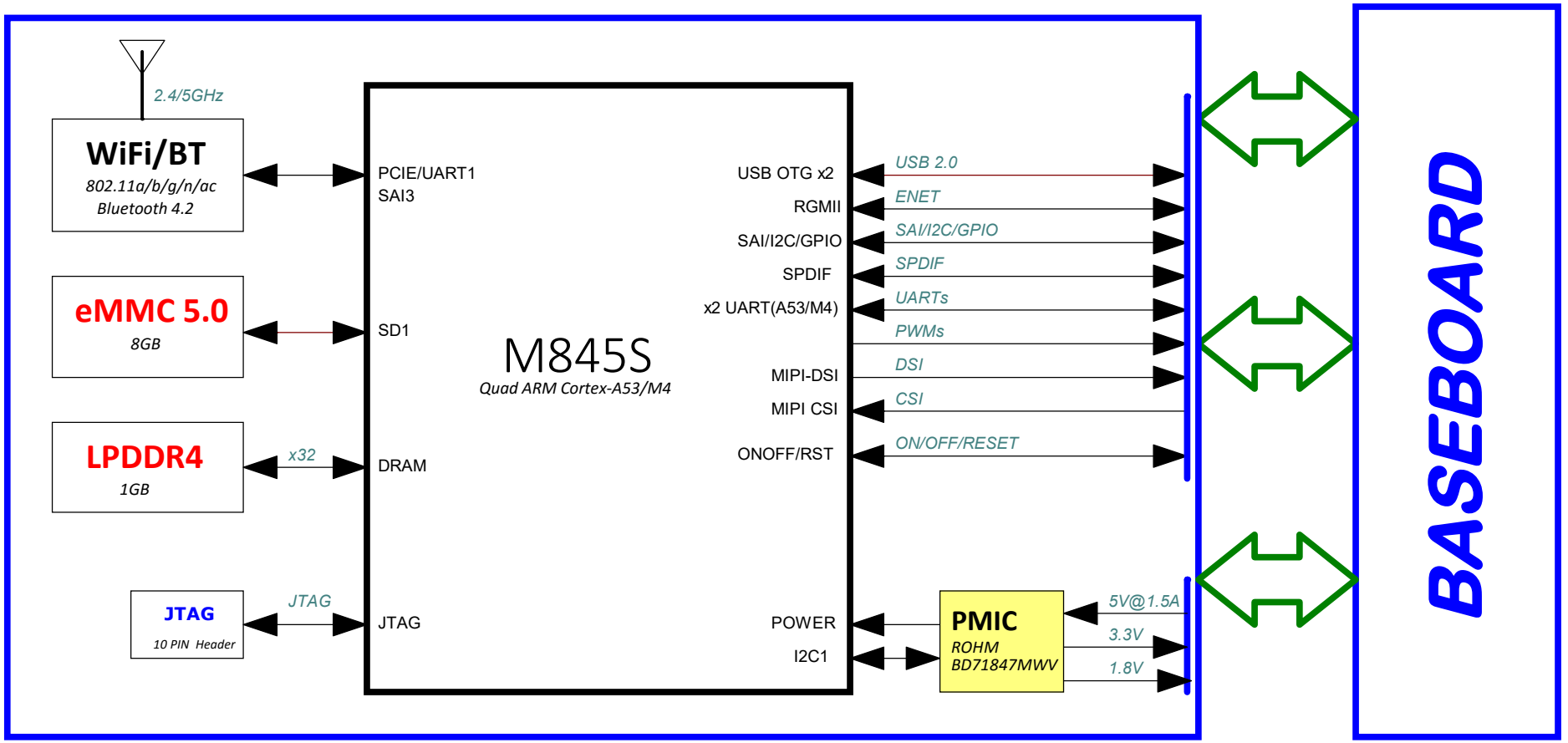
innocomm
InnoComm Mobile Technology Corp.

Schematics

Brand name: InnoComm

Model Name: WB15

Mozart SoM DVT



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EVT1 version

2018/10/26

1. New schematic drawing

EVT2 version

2018/12/13

1. Change WIFI module for PCIe port
2. eMMC use SD1 port
3. All CPU GPIO power change to 3.3V except SD1
4. Add DDR/HW/BTB ID pin
5. Change M.2 and BTB con. pinout
6. C405 change to 1uF Cap.
7. Y201 change part symbol
8. All CPU clock signals add damping resistor
9. All I2C PU resistor change to NM except I2C1
10. Decrease PMIC DC/DC decoupling Cap.
10. R1956 change to NM

DVT version

2019/03/07

1. Change Boot_mode pin PD 100K ----Page3
2. Add JTAG nTRST & TDO PU 10K
   Change TMS & TDI PU NM to 10K --- Page3
3. Change I2C1 PU 10K to 4.7K
   Change I2C4 PU NM to 47K --- Page4
4. Change R2121 for GPIO1_IO00 PU 47K
   Change R2122 for GPIO1_IO02 PU 47K
   Change R2123 for GPIO1_IO03 PU 47K
   Change R2124 for GPIO1_IO04 PD 47K
   Add R2131 for GPIO1_IO05 PU 47K ---- Page4
5. Add R2134~7 for UART1 PU 47K ---- Page4
6. Add R2297 for UART2_RXD PU 47K
   Add R2298 for UART2_TXD PU NM ---- Page4
7. DRAM ID function change to NAND_WE_B,
   NAND_WP_B,QSPIA_DATA3 pins
   and Add PD 47K / PU NM---- Page5
8. Del SD1_RESET_B series resistor R2119 ---- Page6
9. Add SD2 port PU 47K---- Page6
10. Add NAND port for WIFI GPIO function PU 47K---- Page6
11. Change PMIC BUCK VIN Cap to 22UF- Page8
12. Del PMIC_nINT,WDOG_B,I2C1_SDA,I2C1_SCL,SD2_VSEL
    signal series 0R Resistor- Page8
13. Del WIFI module useless testpoint ---- Page10
14. Del WIFI module useless sleep clock circui t---- Page10
15. Del WIFI module GPIO series 0R resistor
    and Add testpoint---- Page10
16. Change WIFI Power Bead to 0R Resistor
    Change WIFI Power Cap to 22UF ---- Page10
17. Add BT ANT matching circuit--- Page10
18. Del Boot Device ID resistor -- Page11
19. HW ID function change to SAI5_RXFS,
    SAI5_MCLK,GPIO1_IO13 pins
    and Add PD 47K / PU NM---- Page11
20. Del BTB ID function resistor --- Page9

2019/03/08

1. Add Testpoint to WIFI pin 91&92 ----Page10
2. Change JTAG header J204 to NM ----Page3
3. Add 100R series resistor to ONOFF and SYS_nRST --- Page9
4. Add C609 & C610 Cap for WIFI Power --- Page10
5. Change HW ID setting to 001 --- Page11
6. Add 22R series resistor to SAI1_TXD7 and QSPIA_SCLK --- Page4,6

2019/03/11

1. Change SDIO port PU to 47K --- Page6
2. Add WIFI JTAG Port testpoint --- Page10

2019/03/19

1. Change REF_CLK_32K PU to NM --- Page4

2019/04/10

1. Change R2298 from NM to 47K --- Page4

2019/04/24

1. Change HW ID to 010 --- Page11

2019/07/11

1. Change HW ID to 011 --- Page11
2. Change C604,C605 to 1uf --- Page10

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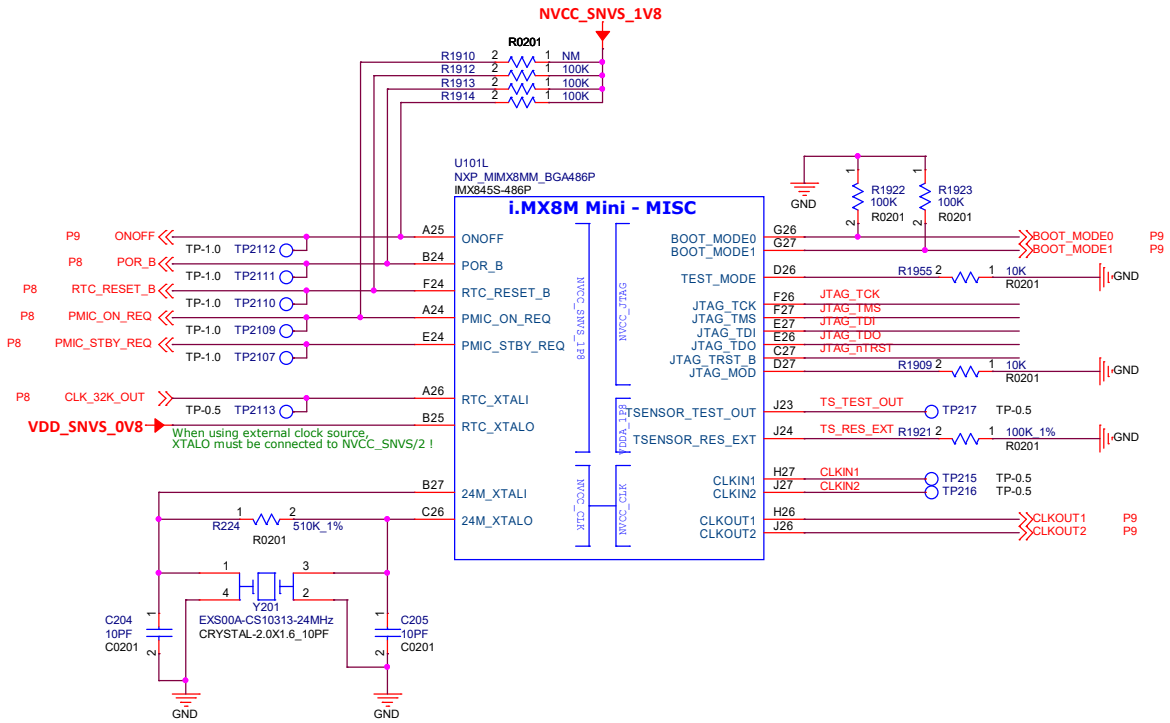
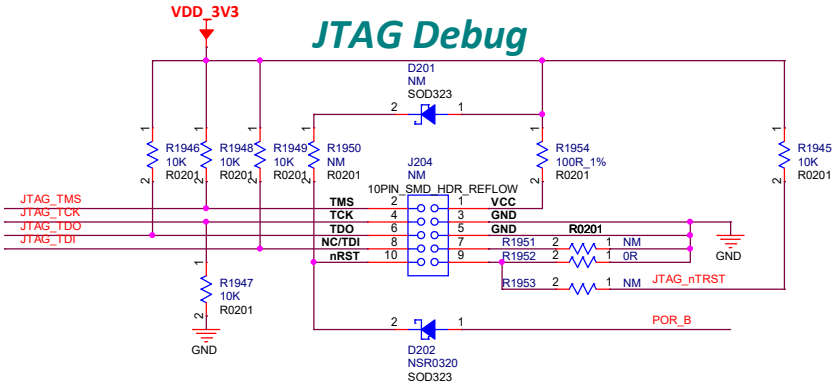
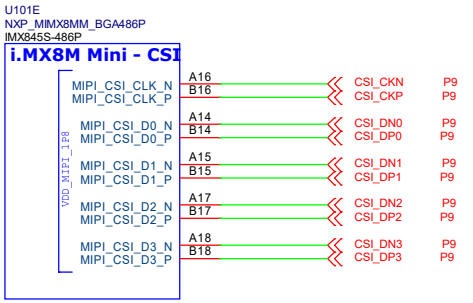
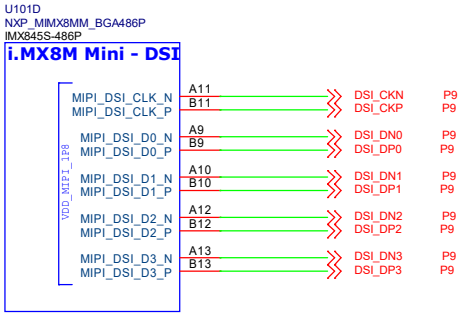
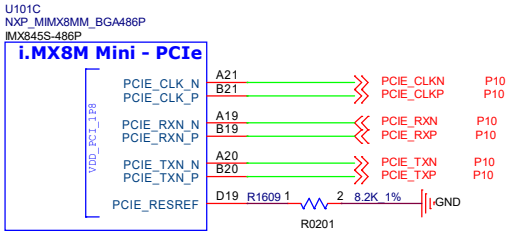


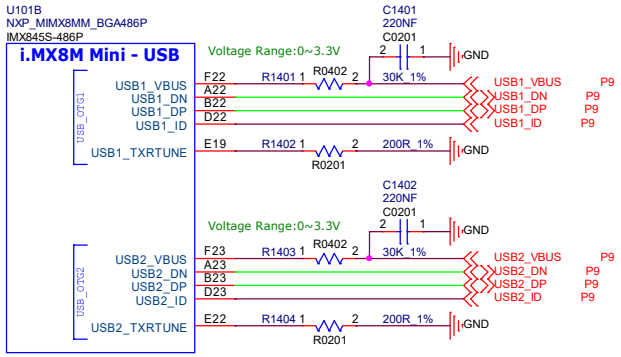


MP : J204 & D202 NM









innocomm InnoComm Mobile Technology Corp.		
Project Name : Mozart	Title : i.MX8M-MINI SoM	
Size : A3	Document Number : CPU MISC/SDHC/DSI/CSI/PCIe/USB	Rev : R003
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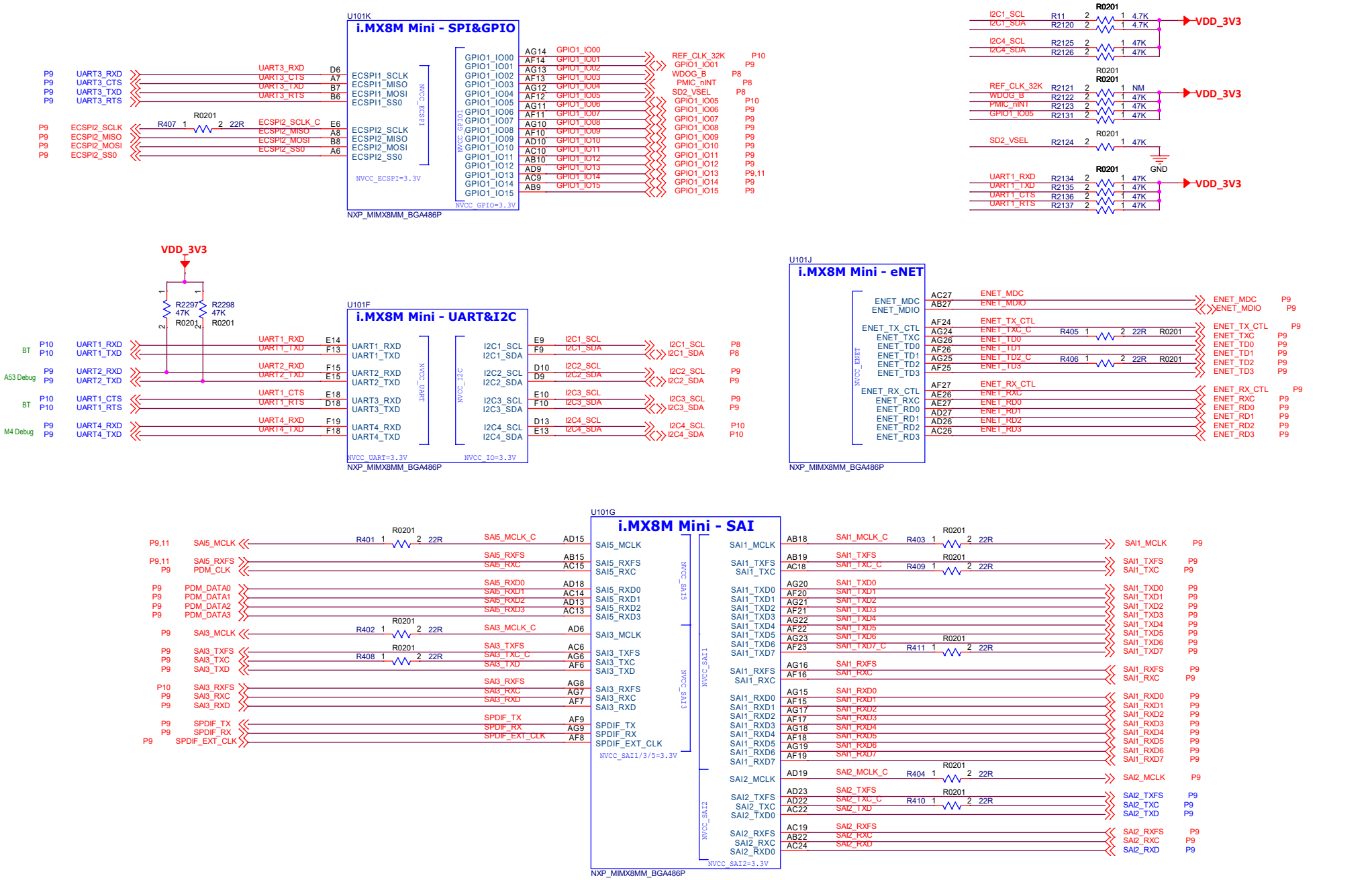

innocomm	InnoComm Mobile Technology Corp.		
Project Name : Mozart	Title : i.MX8M-MINI SoM		
Size : A3	Document Number : CPU SAI/eNET/UART/I2C/SPI/GPIO	Rev : R003	
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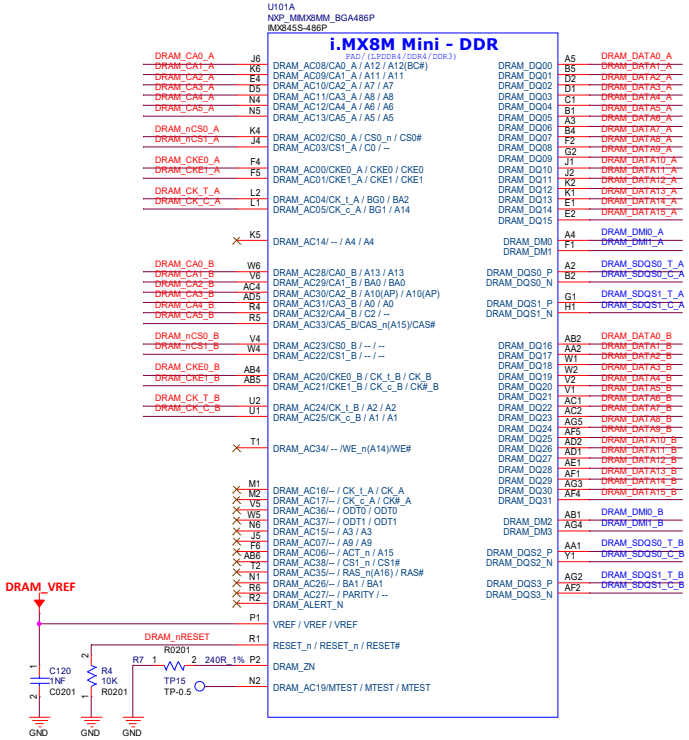
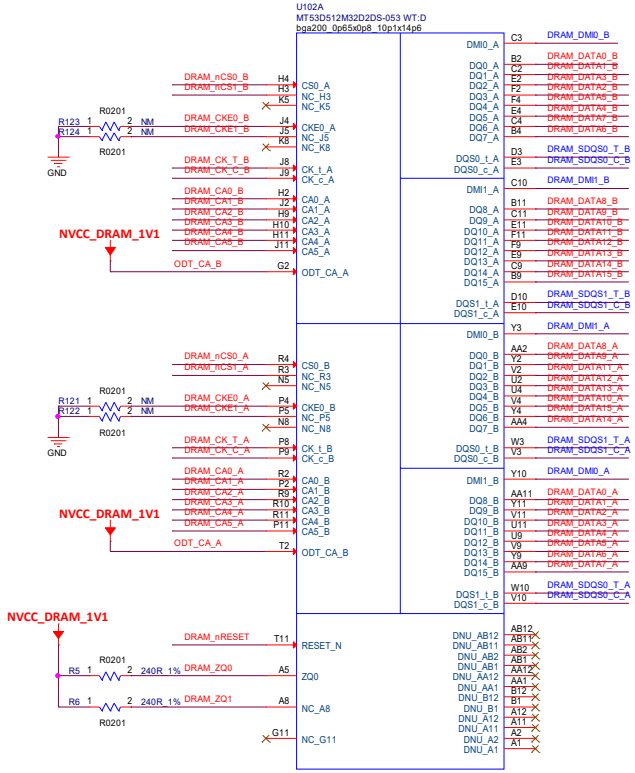
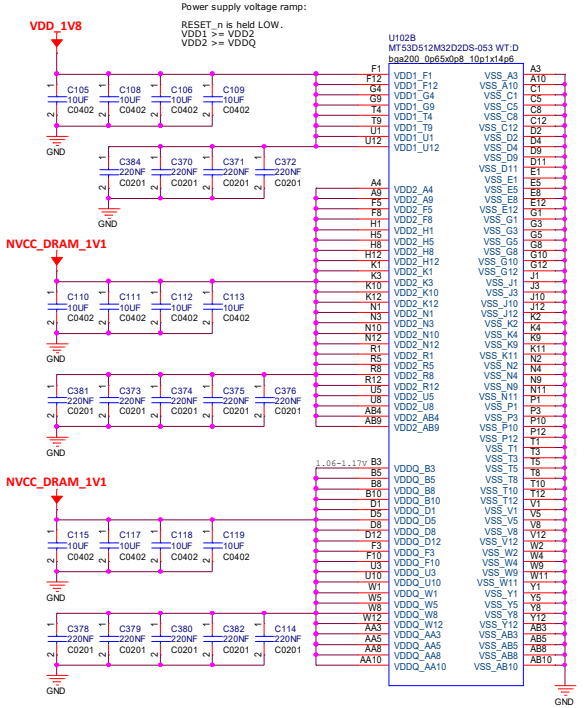
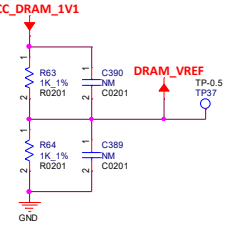
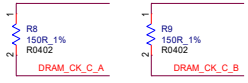
LPDDR4



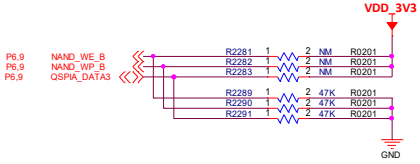








DRAM ID



RAM Size	Vendor	NAND_DATA03	NAND_WP_B	NAND_WE_B
1GB	**Leahkinn**(LTHS0006FS4-ZNG1) **Micron** (MT53B256M32D1) **Kingston**(D2516PC1CDGPLR)	0	0	0

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Size : C	Document Number : LPDDR4	Rev : R003	
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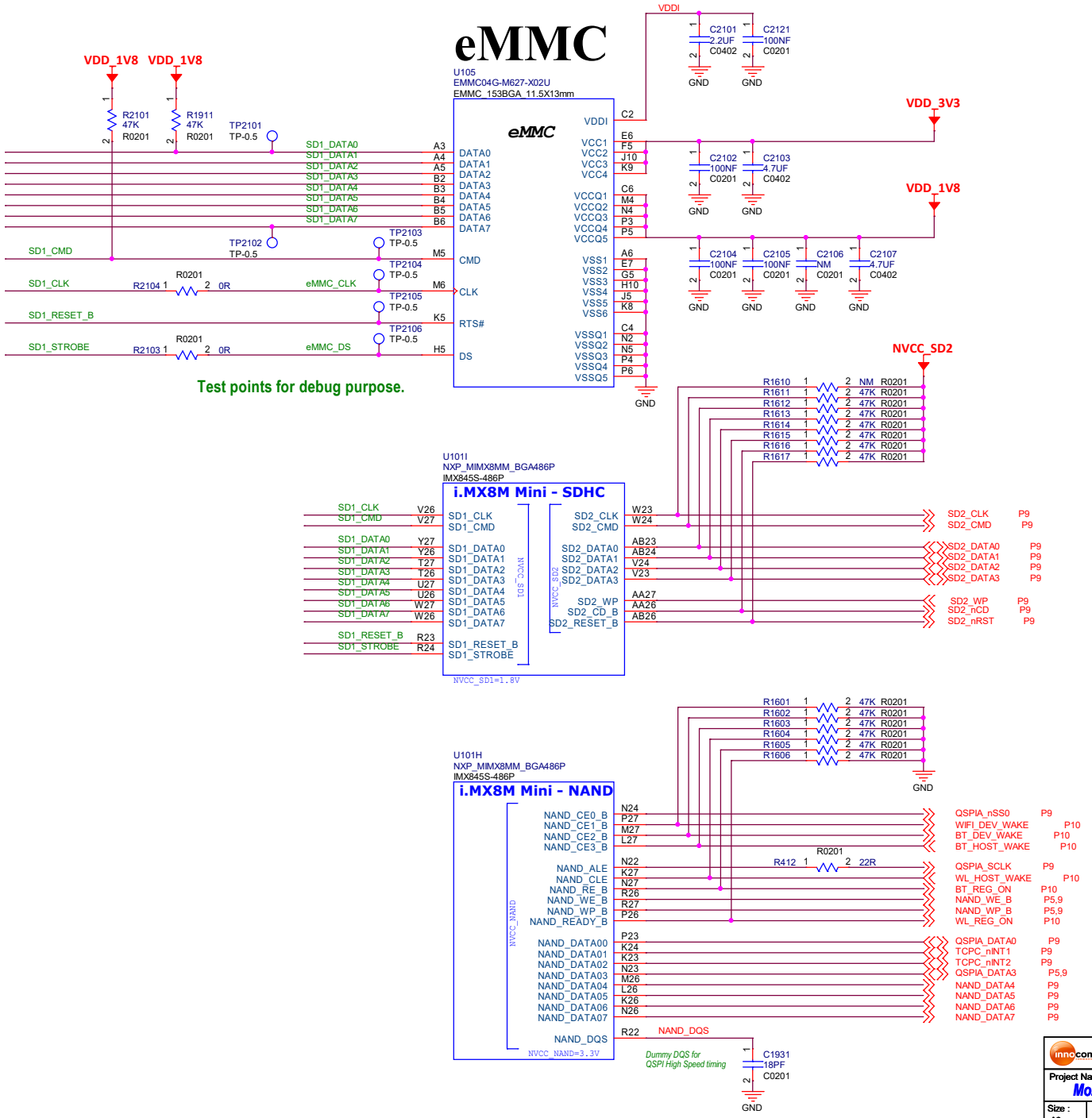
eMMC
U105
EMMC04G-M627-X02U
EMMC_153BGA_11.5X13mm
VDD_1V8
VDD_1V8
R2101 47K R0201
R1911 47K R0201
TP2101 TP-0.5
SD1_DATA0
SD1_DATA1
SD1_DATA2
SD1_DATA3
SD1_DATA4
SD1_DATA5
SD1_DATA6
SD1_DATA7
SD1_CMD
SD1_CLK
SD1_RESET_B
SD1_STROBE
TP2102 TP-0.5
TP2103 TP-0.5
TP2104 TP-0.5
TP2105 TP-0.5
TP2106 TP-0.5
R0201
R2104 0R
R2103 0R
eMMC_CLK
eMMC_DS
DATA0
DATA1
DATA2
DATA3
DATA4
DATA5
DATA6
DATA7
CMD
CLK
RTS#
DS
VDDI
VCC1
VCC2
VCC3
VCC4
VCCQ1
VCCQ2
VCCQ3
VCCQ4
VCCQ5
VSS1
VSS2
VSS3
VSS4
VSS5
VSS6
VSSQ1
VSSQ2
VSSQ3
VSSQ4
VSSQ5
C2101 2.2UF C0402
C2121 100NF C0201
C2102 100NF C0201
C2103 4.7UF C0402
C2104 100NF C0201
C2105 100NF C0201
C2106 NM C0201
C2107 4.7UF C0402
GND
VDD_3V3
VDD_1V8
Test points for debug purpose.
NVCC_SD2
R1610 NM R0201
R1611 47K R0201
R1612 47K R0201
R1613 47K R0201
R1614 47K R0201
R1615 47K R0201
R1616 47K R0201
R1617 47K R0201
U101I
NXP_MIMX8MM_BGA486P
IMX845S-486P
i.MX8M Mini - SDHC
SD2_CLK
SD2_CMD
SD2_DATA0
SD2_DATA1
SD2_DATA2
SD2_DATA3
SD2_WP
SD2_CD_B
SD2_RESET_B
NVCC_SD1
NVCC_SD2
NVCC_SD1=1.8V
SD2_nCD
SD2_nRST
U101H
NXP_MIMX8MM_BGA486P
IMX845S-486P
i.MX8M Mini - NAND
NAND_CE0_B
NAND_CE1_B
NAND_CE2_B
NAND_CE3_B
NAND_ALE
NAND_CLE
NAND_RE_B
NAND_WE_B
NAND_WP_B
NAND_READY_B
NAND_DATA00
NAND_DATA01
NAND_DATA02
NAND_DATA03
NAND_DATA04
NAND_DATA05
NAND_DATA06
NAND_DATA07
NAND_DQS
NVCC_NAND
NVCC_NAND=3.3V
R1601 47K R0201
R1602 47K R0201
R1603 47K R0201
R1604 47K R0201
R1605 47K R0201
R1606 47K R0201
R412 22R
QSPIA_nSS0
WIFI_DEV_WAKE
BT_DEV_WAKE
BT_HOST_WAKE
QSPIA_SCLK
WL_HOST_WAKE
BT_REG_ON
NAND_WE_B
NAND_WP_B
WL_REG_ON
QSPIA_DATA0
TCPC_nINT1
TCPC_nINT2
QSPIA_DATA3
NAND_DATA4
NAND_DATA5
NAND_DATA6
NAND_DATA7
Dummy DQS for QSPI High Speed timing
C1931 18PF C0201
InnoComm Mobile Technology Corp.
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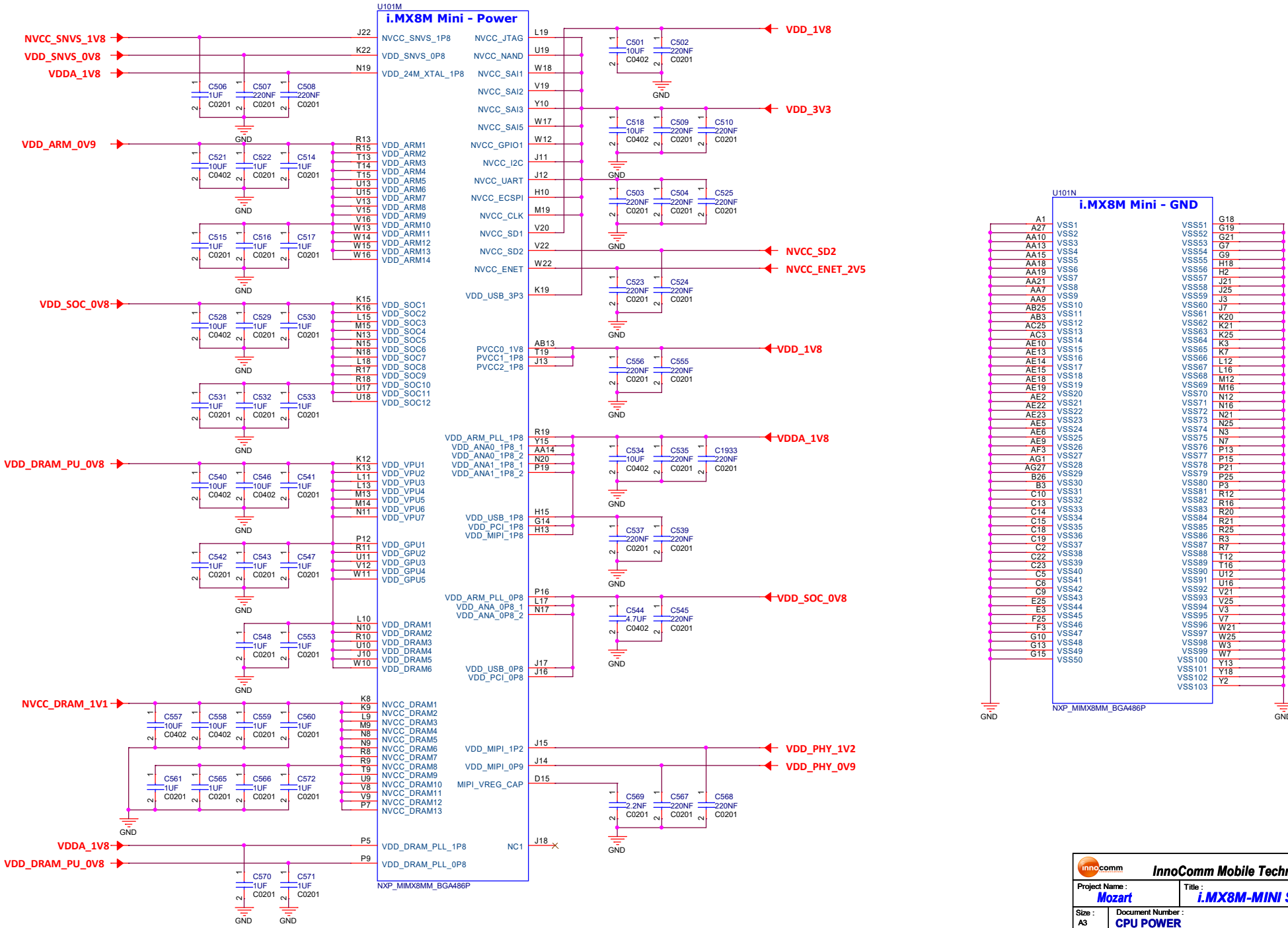
M845S PWR



Company	InnoComm Mobile Technology Corp.
Project Name	Mozart
Title	i.MX8M-MINI SoM
Size	A3
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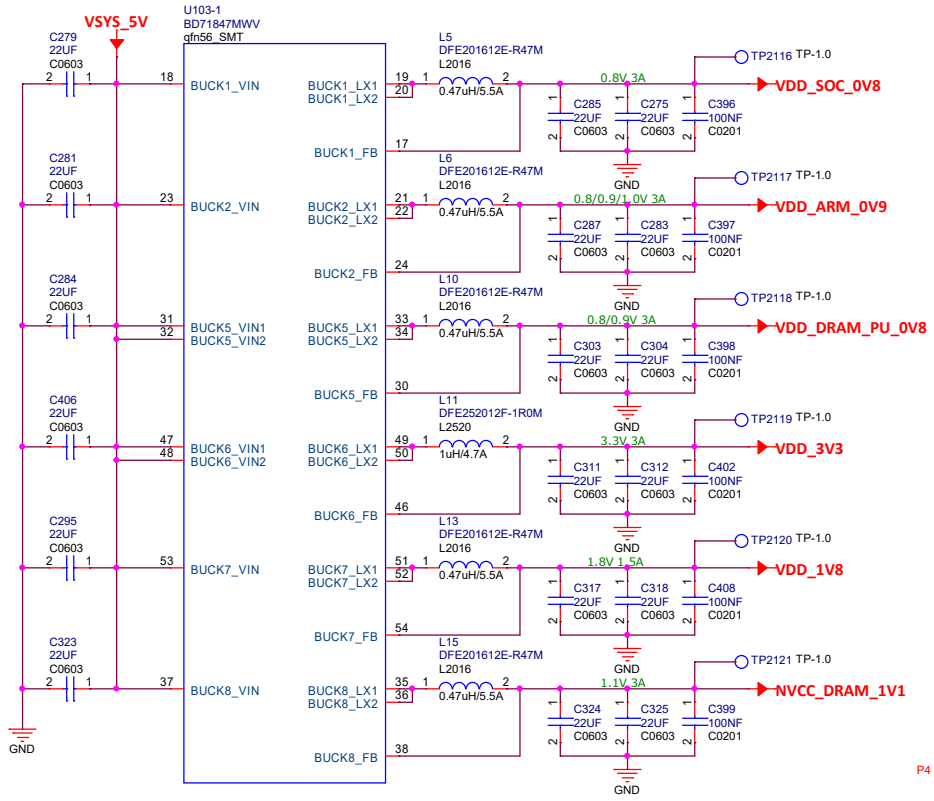

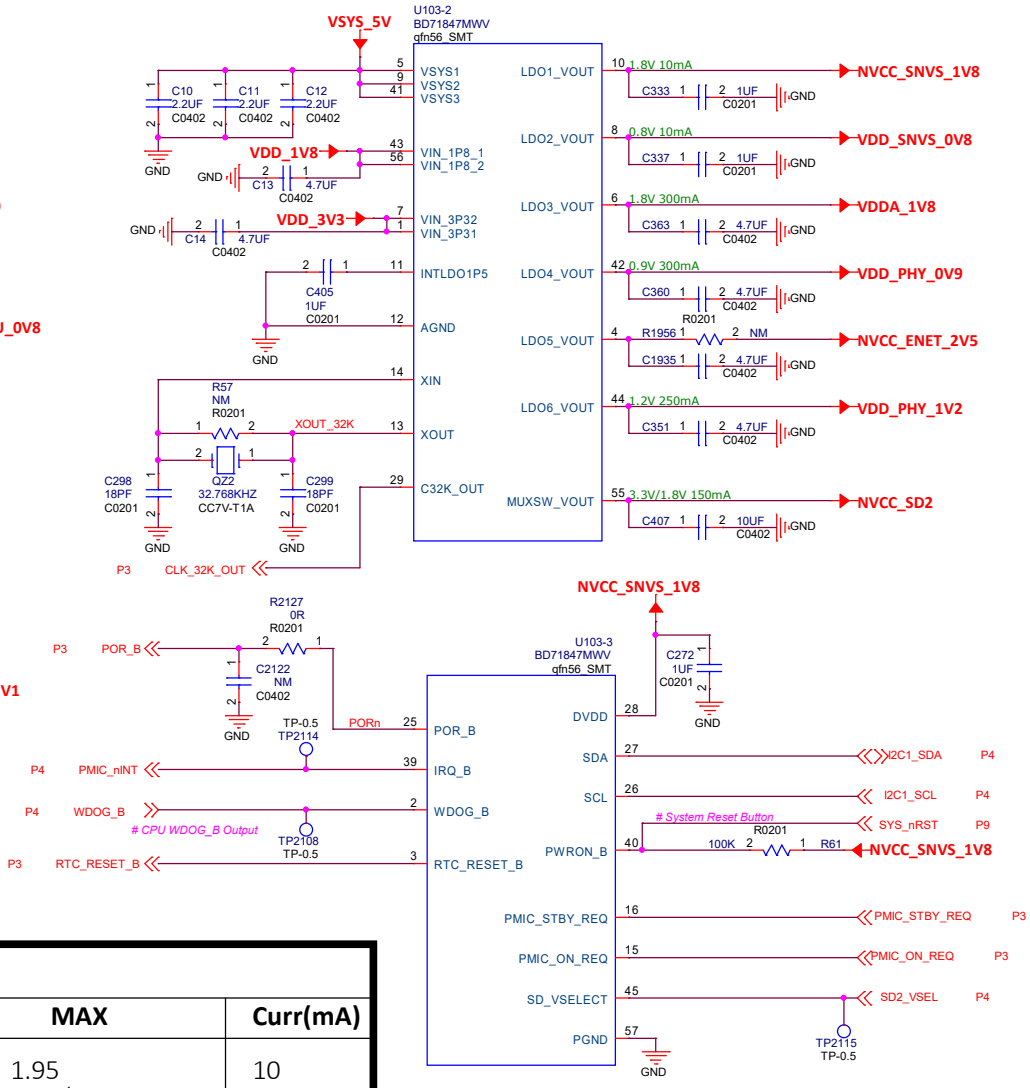

i.MX8M Mini LPDDR4 EVK Power Sequence

SEQ	PWR/Signal	REG	MIN	TYP	MAX	Curr(mA)
1	NVCC_SNVS	LDO1	1.65	1.8	1.95	10
2	VDD_SNVS	LDO2	0.72/0.81	0.8	0.89/0.945	10
3	RTC_RESET_B	RTC_CLK	--	--	--	--
4	32K_OUT	RTC_RESET_B	--	--	--	--
5	VDD_SOC&VDDA_0P8&PHY_0P8	BUCK1	0.72	0.8	0.88	3600
6	VDD_GPU&VPU&DRAM	BUCK5	0.72/0.81	0.8/0.9	0.88/0.945	2500
6	PHY_0V9	LDO4	0.81	0.9	0.945	250
7	VDD_ARM	BUCK2	0.72/0.81/0.9	0.8/0.9/1.0	0.88/0.945/1.025	4000
7	VDDA_1P8&VDDA_DRAM	LDO3	1.71	1.8	1.89	300
8	NVCC_1V8	BUCK7	1.65	1.8	1.95	1500
9	NVCC_DRAM	BUCK8	1.045	1.1	3.6	3000
10	NVCC_3V3	BUCK6	3	3.3	3.6	3000
10	NVCC_SD2	MUXSW	3.0/1.65	3.3/1.8	1.155	150
11	PHY_1V2	LDO6	1.14	1.2	1.26	300
12	POR_B	POR_B	--	--	--	--

innocomm	InnoComm Mobile Technology Corp.		
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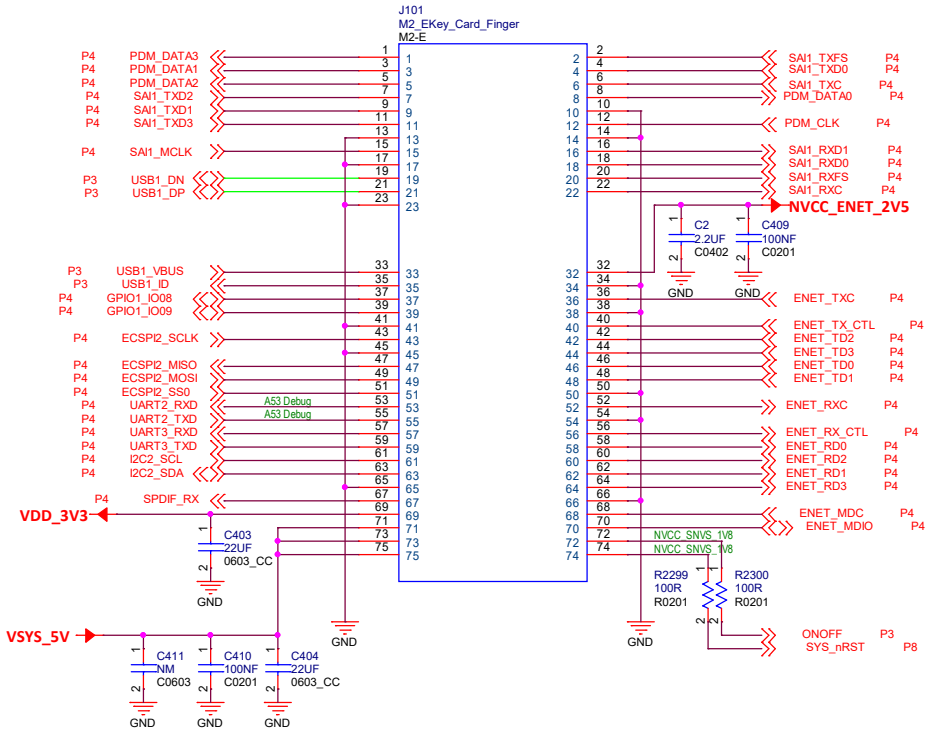
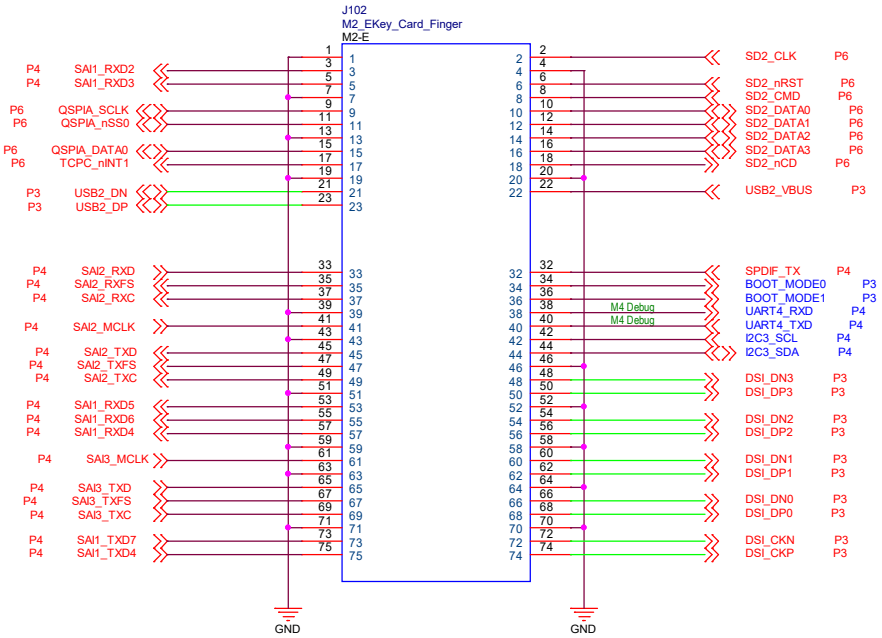
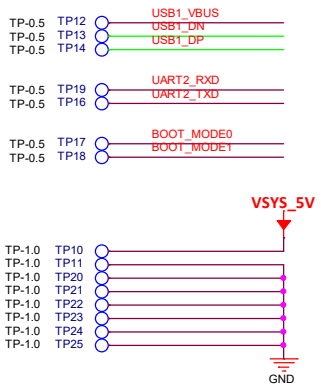
M.2 Con1



M.2 Con2



TP for test fixture



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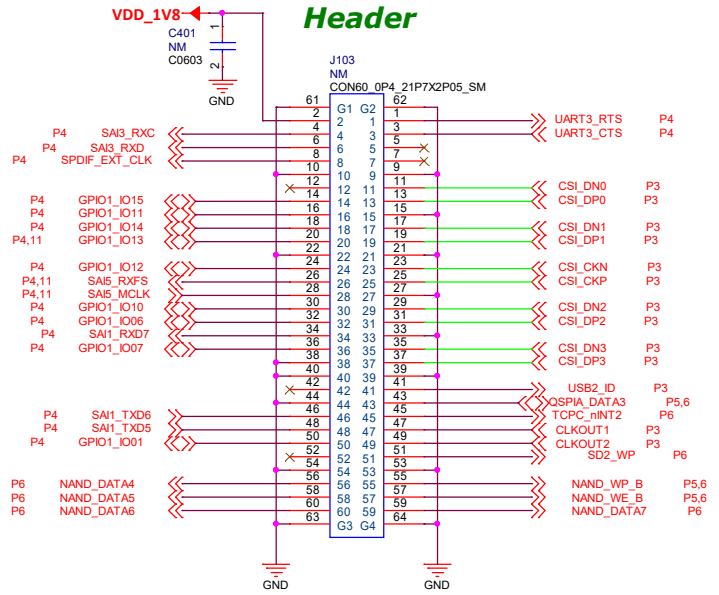

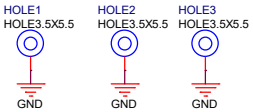

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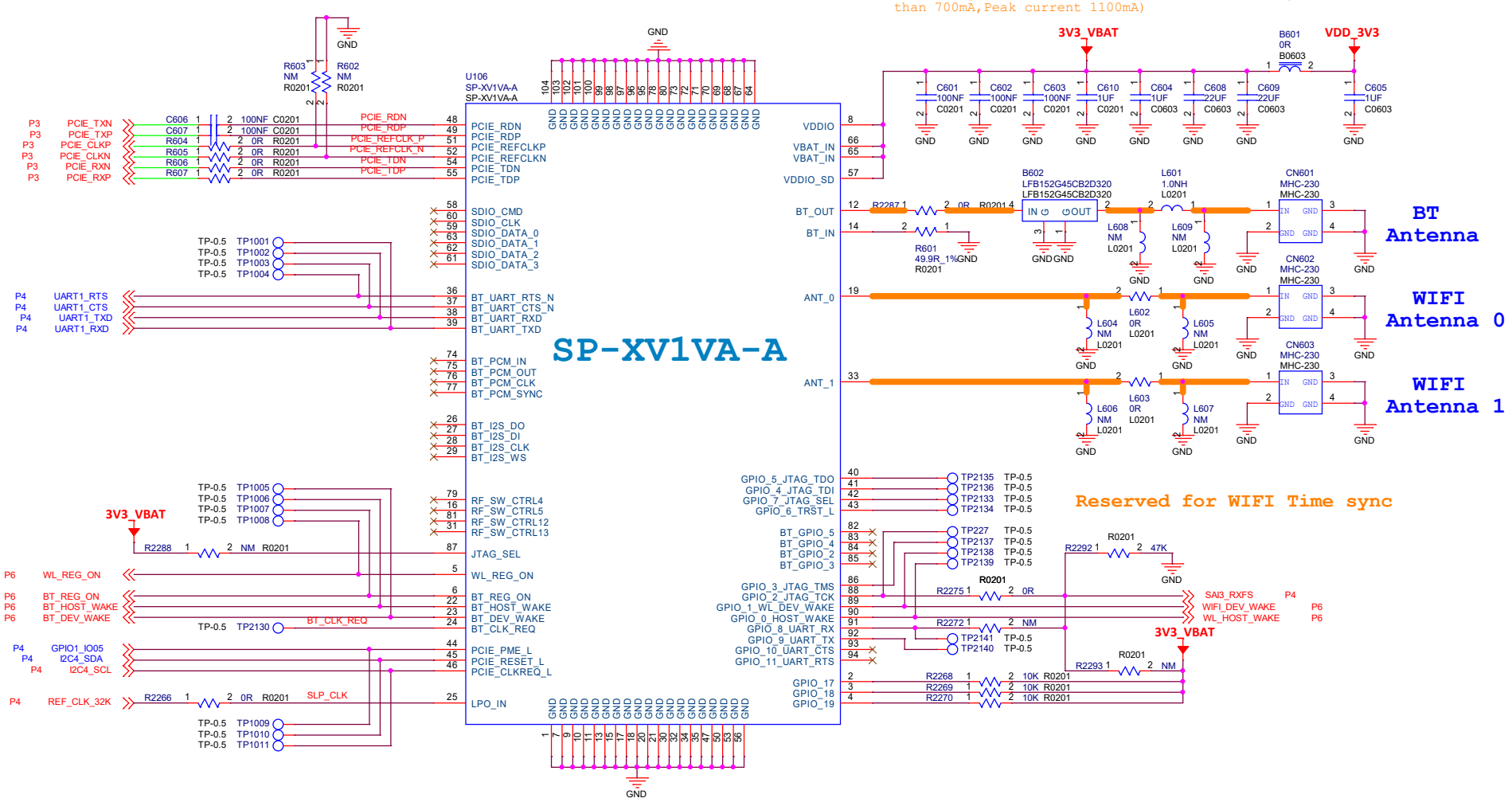

innocomm	InnoComm Mobile Technology Corp.		
Project Name : Mozart	Title : i.MX8M-MINI SoM		
Size : A3	Document Number : Wi-Fi/Bluetooth		Rev : R003
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i.MX8M Mini ROM Fuse

	Address	7	6	5	4	3	2	1	0
	0x470[15:8]	BOOT_CFG[15]	BOOT_CFG[14]	BOOT_CFG[13]	BOOT_CFG[12]	BOOT_CFG[11]	BOOT_CFG[10]	BOOT_CFG[9]	BOOT_CFG[8]
SD/eSD	0x470[15:8]	Infinit-Loop (Debug USE only) 0 - Disable 1 - Enable	001 - SD/eSD			Port Select: 00 - uSDHC1 01 - uSDHC2 10 - uSDHC3		Power Cycle Enable '0' - No power cycle '1' - Enabled via	SD Loopback Clock Source Sel (for SDR50 and SDR104 only) '0' - through SD pad '1' - direct
MMC/eMMC	0x470[15:8]		010 - MMC/eMMC						
NAND	0x470[15:8]		011 - NAND			Pages In Block: 00 - 128 01 - 64 10 - 32 11 - 256		Nand_Row_address_bytes: 00 - 3 01 - 2 10 - 4 11 - 5	
FlexSPI	0x470[15:8]		100 - QSPI			Flash Auto Probe	FLASH_TYPE 000-Device supports 3B read by default 001-Device supports 4B read by default 010-HyperFlash 1V8 011-HyperFlash 3V3 100-MXIC Octal DDR		
SPINOR	0x470[15:8]		110 - SPI NOR			Port Select: 000 - eCSPI1 001 - eCSPI2 010 - eCSPI3			SPI Addressing: 0 - 3-bytes (24-bit) 1 - 2-bytes (16-bit)
	0x470[15:8]	Others - Reserved for future use							
		BOOT_CFG[7]	BOOT_CFG[6]	BOOT_CFG[5]	BOOT_CFG[4]	BOOT_CFG[3]	BOOT_CFG[2]	BOOT_CFG[1]	BOOT_CFG[0]
SD/eSD	0x470[7:0]	Fast Boot: 0 - Regular 1 - Fast Boot	Reserved	Reserved	Bus Width: 0 - 1-bit 1 - 4-bit	Speed 000 - Normal/SDR12 001 - High/SDR25 010 - SDR50 011 - SDR104 101 - Reserved for DDR50 Others - Reserved			Reserved
MMC/eMMC	0x470[7:0]		Bus Width: 000 - 1-bit 001 - 4-bit 010 - 8-bit 101 - 4-bit DDR (MMC 4.4) 110 - 8-bit DDR (MMC 4.4) Else - reserved.			Speed 00 - Normal 01 - High 10 - Reserved for HS200 11 - Reserved		USDHC IO VOLTAGE SELECTION For Normal Boot Mode 0 - 3.3V 1 - 1.8V	USDHC IO VOLTAGE SELECTION For Manufacture Mode 0 - 3.3V 1 - 1.8V
NAND	0x470[7:0]	BT_TOGGLEMODE	BOOT_SEARCH_COUNT: 00 - 2 01 - 2 10 - 4 11 - 8		Toggle Mode 33MHz Preamble Delay, Read Latency: '000' - 16 GPMICLK cycles. '001' - 1 GPMICLK cycles. '010' - 2 GPMICLK cycles. '011' - 3 GPMICLK cycles. '100' - 4 GPMICLK cycles. '101' - 5 GPMICLK cycles. '110' - 6 GPMICLK cycles. '111' - 7 GPMICLK cycles. '1111'- 15 GPMICLK cycles.			Reserved
FlexSPI	0x470[7:0]	HOLD TIME: 00 - 500us 01 - 1ms 10 - 3ms 11 - 10ms		FLASH Auto Probe Type		FlexSPI FLASH Dummy Cycle			
SPINOR	0x470[7:0]	CS select SPI only: 00 - CS#0 default 01 - CS#1 10 - CS#2 11 - CS#3	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved

 # Boot Device: eMMC/SDHC1

BOOT_CFG[0-7]: **11100100**
BOOT_CFG[8-15]: **01000100**

 # Boot Device: MicroSD/SDHC2

BOOT_CFG[0-7]: **01000000**
BOOT_CFG[8-15]: **01101000**

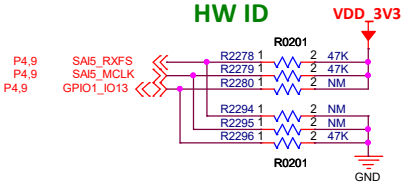
BT_MODE

BOOT_MODE1	BOOT_MODE0

BOOT TYPE:

00 Boot From Fuses
01 Serial Downloader
10 Internal Boot (Development)
11 Reserved

Version	GPIO1_IO13	SAI5_MCLK	SAI5_RXFS
EVT2	0	0	0
DVT-A	0	0	1
DVT-B	0	1	0
DVT-C	0	1	1



innocomm **InnoComm Mobile Technology Corp.**

Project Name : Mozart	Title : i.MX8M-MINI SoM
Size : A3	Document Number : Boot Configurations
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