深 圳 金 亚 太 科 技 有 限 公 司

Shenzhen Geniatech Co.,Ltd.

SPECIFICATION

MODEL:SoM-iMX8MM-OSM

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Revision History

VERSION	DATE	BOARD ID	PAGE	DESCRIPTION	AUTHOR
V1.0	22/1/12	RNC211116	8		
V1.1	23/12/12	RNC211116	12		

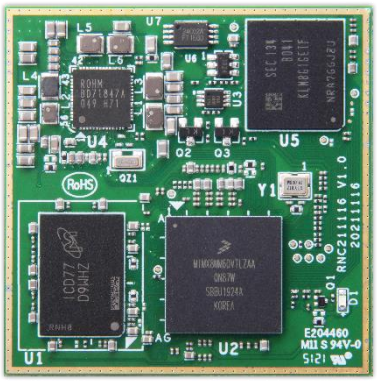
1. GENERAL DESCRIPTION

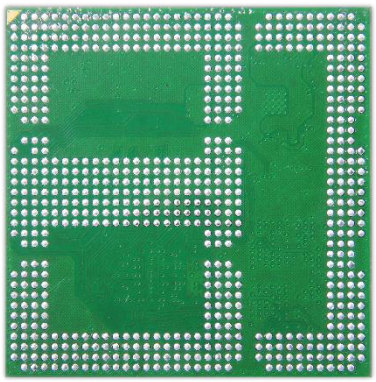
The SoM-IMX8MM-OSM core board is an embedded core board developed according to the latest OSM (Open Standard Modules™) standard released by SGeT (Standardization Group for Embedded Technology eV). It adopts NXP's iMX-8M-Mini processor with 2GB LPDDR4 and 8GB eMMC storage.

LGA package design, without connectors, can be directly soldered on the functional carrier board, which is more stable. The design of OSM-L is adopted, which is small in size, low in power consumption, and has rich functional interfaces for expansion. It can be configured with suitable development boards according to actual applications. It can be flexibly used in related fields such as Industrial Internet of Things and AIoT.

2. PRODUCT OVERVIEW

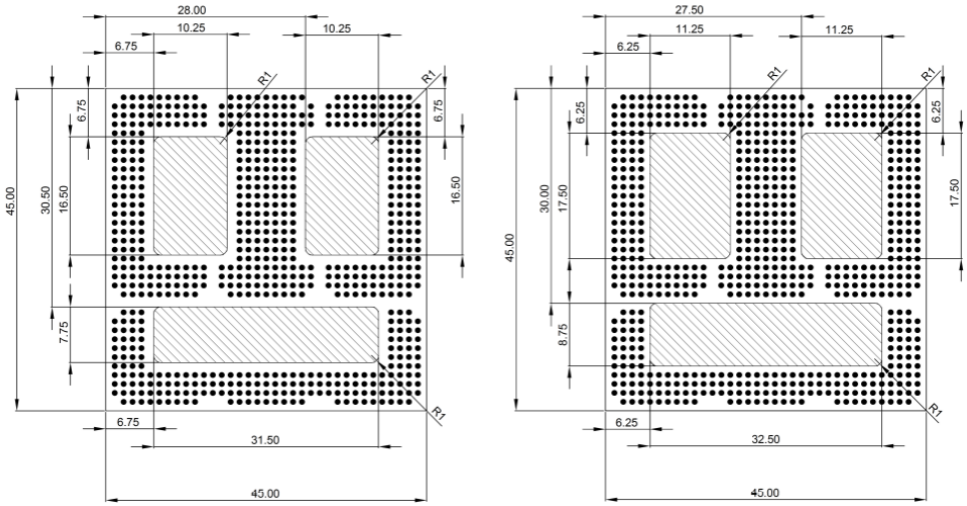
Below picture is for reference only, please prevail in kind.





3.BOARD VIEW

Placement Area (left) and Cut-Out Area (right) - Size L (view from bottom)



4.FEATURES

CHIPSET	NXP iMX8M Mini	
MARKET AREA	Global	
Processor	OS	Yocto(Linux)/Android
	CPU	4xCortex-A53 core up to 1.8GHz per core 1x Cortex-M4 core up to 400MHz
	LPDDR4	2GB（1G-8G optional）
	EMMC FLASH	8GB eMMC5.1(8-32GB Optional)
Interfaces	Ethernet	*1 RGMII
	SDIO	*2
	USB 2.0	*2
	UART	*4 (UART4 --> Console)
	I2C	*4（I2C1-->PMU,I2C3-->MIPI CSI）
	SAI	*3 (SAI1 --> BOOT CFG)
	SPI	*1
	SPDIF	*1
	JTAG	*1
	GPIO	*16
	PCIe	*1
	MIPI DSI	*1
	MIPI CSI	*1 (4 lanes)
Power	5V(PMIC:BD71847MWV)	
Dimensions	45*45mm(Size-L)	

5.SUPPORT FORMATS

Audio

• S/PDIF input and output, including a new Raw Capture input mode

• Five synchronous audio interface (SAI) modules supporting I2S, AC97, TDM, codec/DSP, and DSD interfaces, including one SAI with 8 Tx and 8 Rx lanes, one SAI with 4 Tx and 4 Rx lanes, two SAI with 2 Tx and 2 Rx lanes, and one SAI with 1 Tx and 1Rx lane. Support over 20 channels of audio subject to I/O limitations.

• 8-Channel Pulse Density Modulation (PDM) input

Video

• 1080p60 VP9 Profile 0, 2 (10-bit)

• 1080p60 HEVC/H.265 Decoder

• 1080p60 AVC/H.264 Baseline, Main, High decoder

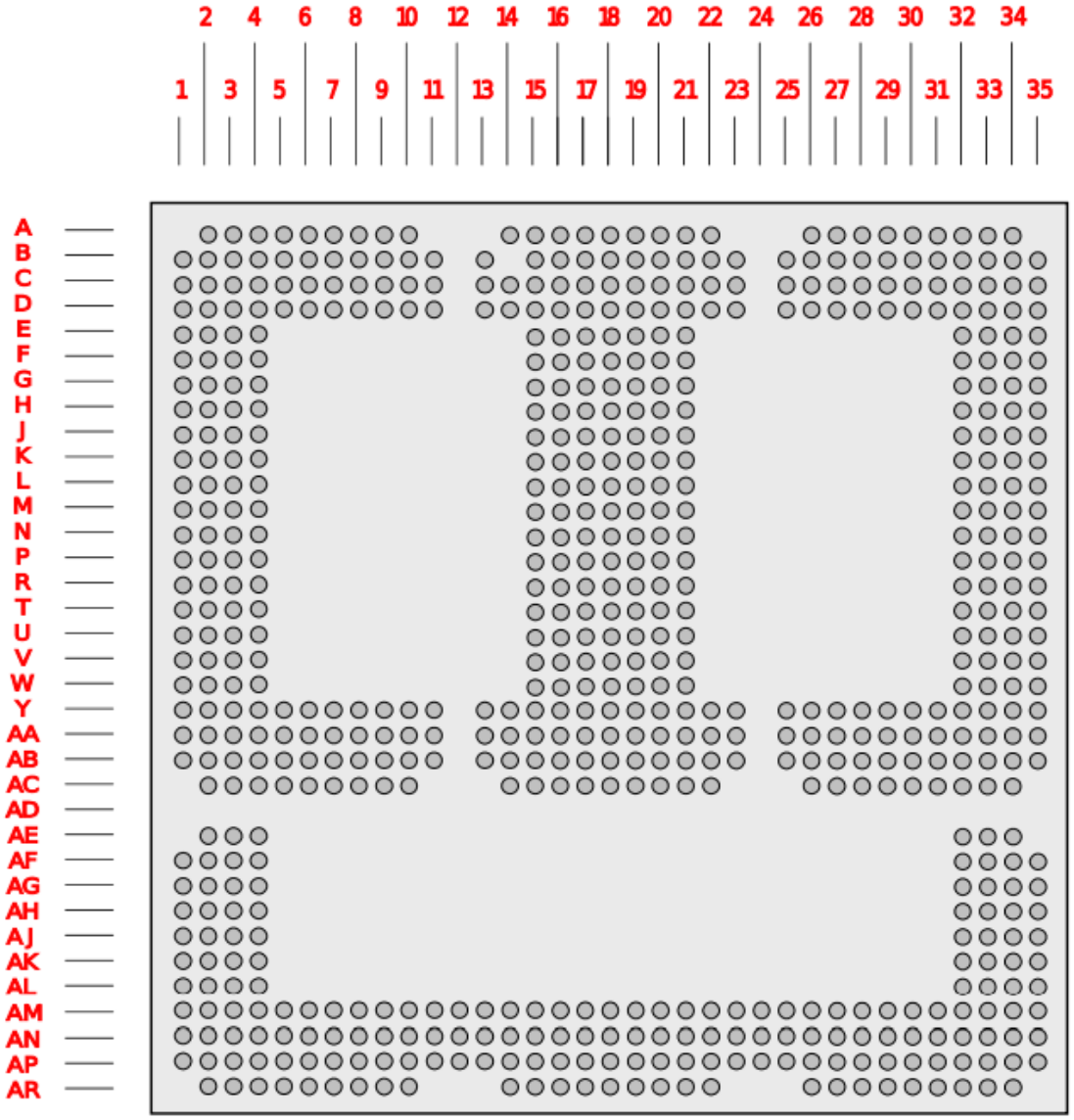
• 1080p60 VP8

• 1080p60 AVC/H.264 Encoder

• 1080p60 VP8

• Trust Zone support

6.Extension GPIO definition



PIN	Default function	PIN	Default function
A2	MIPI_CSI_RX_D1N	A3	MIPI_CSI_RX_D1P
A4	GND	A5	MIPI_CSI_RX_D2N
A6	MIPI_CSI_RX_D2P	A7	GND
A8	NC	A9	NC
A10	GND	A14	UART1_RXD
A15	NC	A16	NC
A17	NC	A18	NC
A19	NC	A20	NC

A21	NC	A22	UART4_RXD
A26	GND	A27	NC
A28	NC	A29	GND
A30	NC	A31	NC
A32	GND	A33	NC
A34	NC	B1	MIPI_CSI_RX_D0P
B2	GND	B3	MIPI_CSI_RX_CLKN
B4	MIPI_CSI_RX_CLKP	B5	GND
B6	MIPI_CSI_RX_D3N	B7	MIPI_CSI_RX_D3P
B8	GND	B9	GND
B10	NC	B11	NC
B13	UART1_TXD	B15	NC
B16	NC	B17	NC
B18	NC	B19	NC
B20	NC	B21	NC
B22	NC	B23	UART4_TXD
B25	NC	B26	NC
B27	GND	B28	GND
B29	VDDA0V9_PMU	B30	GND
B31	NC	B32	NC
B33	GND	B34	NC
B35	NC	C1	MIPI_CSI_RX_D0N
C2	GPIO1_IO14	C3	I2C3_SDA
C4	I2C3_SDA	C5	VCC_DDR_1V1
C6	NC	C7	NC
C8	NC	C9	NC
C10	NC	C11	GND
C13	UART1_RTS	C14	UART1_CTS
C15	NC	C16	NC
C17	GND	C18	TEST_MODE
C19	GND	C20	VCCIO_SD2
C21	GND	C22	NC
C23	NC	C25	GND
C26	NC	C27	NC
C28	NC	C29	NC
C30	NC	C31	NC
C32	GND	C33	NC

C34	NC	C35	GND
D1	GND	D2	NC
D3	SAI5_MCLK	D4	SAI5_RXFS
D5	GND	D6	NC
D7	NC	D8	GND
D9	NC	D10	NC
D11	NC	D13	UART3_TXD
D14	UART3_RXD	D15	UART3_RTS
D16	UART3_CTS	D17	GPIO1_IO05
D18	GND	D19	SD1_STROBE
D20	SD2_WP	D21	SD2_nRST
D22	UART2_RX_M0_DEBUG	D23	UART2_TX_M0_DEBUG
D25	NC	D26	NC
D27	NC	D28	GND
D29	NC	D30	NC
D31	NC	D32	NC
D33	NC	D34	GND
D35	NC	E1	NC
E2	GND	E3	SAI5_RXC
E4	SAI5_RXD0	E15	GND
E16	NC	E17	WIFI_REG_ON
E18	SPDIF_RX	E19	SAI2_RXC
E20	SD2_CMD	E21	GND
E32	NC	E33	NC
E34	NC	E35	NC
F1	NC	F2	NC
F3	SAI5_RXD1	F4	SAI5_RXD2
F15	NC	F16	GND
F17	WIFI_WAKE_HOST	F18	SPDIF_EXT_CLK
F19	GPIO1_IO10	F20	GND
F21	SD2_CLK	F32	NC
F33	GND	F34	NC
F35	GND	G1	NC
G2	NC	G3	GPIO1_IO11
G4	GPIO1_IO06	G15	ETH_TXD1
G16	ETH_TXD3	G17	BT_REG_ON
G18	SPDIF_TX	G19	SAI2_TXC

G20	SD2_D0	G21	SD2_D1
G32	NC	G33	NC
G34	GND	G35	NC
H1	NC	H2	GND
H3	NC	H4	GND
H15	ETH_TXD0	H16	ETH_TXD2
H17	HOST_WAKE_BT	H18	NC
H19	SAI2_TXFS	H20	SD2_D2
H21	SD2_D3	H32	GND
H33	NC	H34	NC
H35	NC	J1	NC
J2	NC	J3	NC
J4	NC	J15	ETH_TXCLK
J16	GND	J17	WAKE_HOST_H
J18	NC	J19	SAI2_MCLK
J20	GND	J21	SD2_nCD
J32	NC	J33	GND
J34	NC	J35	GND
K1	NC	K2	NC
K3	NC	K4	NC
K15	ETH_RXD0	K16	ETH_TXEN
K17	GPIO1_IO09	K18	NC
K19	SAI5_RXD3	K20	SD1_CLK
K21	SD1_CMD	K32	NC
K33	NC	K34	GND
K35	NC	L1	NC
L2	GND	L3	NC
L4	GND	L15	ETH_RXD1
L16	NC	L17	GPIO1_IO08
L18	GND	L19	GPIO1_IO07
L20	SD1_D0	L21	SD1_D1
L32	NC	L33	NC
L34	NC	L35	NC
M1	NC	M2	NC
M3	NC	M4	NC
M15	ETH_RX_CTL	M16	GND
M17	ETH_IOPWR	M18	NC

M19	VDD_1V8	M20	GND
M21	SD1_D2	M32	NC
M33	NC	M34	NC
M35	GND	N1	NC
N2	NC	N3	NC
N4	NC	N15	ETH_RXD2
N16	NC	N17	ARMJTAG_TCK
N18	NC	N19	ARMJTAG_TMS
N20	SD1_D3	N21	NC
N32	NC	N33	NC
N34	GND	N35	NC
P1	NC	P2	GND
P3	NC	P4	GND
P15	ETH_RXD3	P16	NC
P17	ARMJTAG_TDI	P18	GND
P19	NC	P20	NC
P21	NC	P32	NC
P33	NC	P34	NC
P35	NC	R1	GND
R2	NC	R3	NC
R4	NC	R15	ETH_RXCLK
R16	GND	R17	ARMJTAG_TDO
R18	NC	R19	ARMJTAG_nTRST
R20	GND	R21	NC
R32	NC	R33	NC
R34	NC	R35	NC
T1	NC	T2	PCIE_WAKEn
T3	NC	T4	NC
T15	ETH_MDIO	T16	ETH_MDC
T17	RECOVERY	T18	SYS_STATUS
T19	GPIO1_IO00	T20	VDD_1V8
T21	NC	T32	NC
T33	NC	T34	GND
T35	NC	U1	NC
U2	GND	U3	NC
U4	GND	U15	QSPIA_D0
U16	QSPIA_SCLK	U17	SYS_nRST

U18	NC	U19	BOOT_nSEL0
U20	NC	U21	NC
U32	SAI1_RXFS	U33	SAI1_RXC
U34	NC	U35	NC
V1	GND	V2	PCIE_nRST
V3	NC	V4	NC
V15	QSPIA_D1	V16	GND
V17	VDD_3V3	V18	SAI3_MCLK
V19	NC	V20	GND
V21	SAI3_RXD	V32	NC
V33	NC	V34	NC
V35	NC	W1	PCIE_CLKP
W2	PCIE_nCLKREQ	W3	GND
W4	NC	W15	QSPIA_D3
W16	QSPIA_D2	W17	NC
W18	SAI3_TXFS/SAI3_RXFS	W19	NC
W20	SAI3_TXC/SAI3_RXC	W21	SAI3_TXD
W32	NC	W33	NC
W34	GND	W35	NC
Y1	PCIE_CLKN	Y2	GND
Y3	VDD_3V3	Y4	NC
Y5	NC	Y6	NC
Y7	NC	Y8	VCC5V0_SYS
Y9	VCC5V0_SYS	Y10	VCC5V0_SYS
Y11	VCC5V0_SYS	Y13	NC
Y14	NC	Y15	QSPIA_CS0
Y16	VDD_ARM_0V9	Y17	VCC5V0_SYS
Y18	GND	Y19	NC
Y20	VDDA_1V8	Y21	ECSPI2_CLK
Y22	ECSPI2_MISO	Y23	ECSPI2_MOSI
Y25	VCC5V0_SYS	Y26	VCC5V0_SYS
Y27	VCC5V0_SYS	Y28	VCC5V0_SYS
Y29	NC	Y30	NC
Y31	NC	Y32	NC
Y33	NC	Y34	NC
Y35	NC	AA1	GND
AA2	NC	AA3	NC

AA4	GND	AA5	NC
AA6	NC	AA7	GND
AA8	GND	AA9	PMIC_PWRON
AA10	GND	AA11	GND
AA13	NC	AA14	GND
AA15	I2C2_SCL	AA16	I2C2_SDA
AA17	GND	AA18	NC
AA19	GND	AA20	I2C4_SCL
AA21	I2C4_SCL	AA22	GND
AA23	ECSPI2_CS0	AA25	GND
AA26	GND	AA27	GND
AA28	GND	AA29	NC
AA30	NC	AA31	NC
AA32	GND	AA33	VDD_SOC_0V8
AA34	NC	AA35	NC
AB1	PCIE_RXP	AB2	PCIE_RXN
AB3	GND	AB4	MIPI_DSI_TX1_D3P
AB5	MIPI_DSI_TX1_D3N	AB6	GND
AB7	MIPI_DSI_TX1_CLKP	AB8	MIPI_DSI_TX1_CLKN
AB9	GND	AB10	MIPI_DSI_TX1_D0P
AB11	MIPI_DSI_TX1_D0N	AB13	USB1_DM
AB14	USB1_ID	AB15	GND
AB16	USB1 _VBUS	AB17	NC
AB18	NC	AB19	NC
AB20	USB2_VBUS	AB21	GND
AB22	USB2_ID	AB23	USB2_DM
AB25	NC	AB26	NC
AB27	NC	AB28	GND
AB29	NC	AB30	NC
AB31	GND	AB32	NC
AB33	NC	AB34	GND
AB35	NC	AC2	PCIE_TXP
AC3	PCIE_TXN	AC4	GND
AC5	MIPI_DSI_TX1_D2P	AC6	MIPI_DSI_TX1_D2N
AC7	GND	AC8	MIPI_DSI_TX1_D1P
AC9	MIPI_DSI_TX1_D1N	AC10	GND
AC14	USB1_DP	AC15	GPIO1_IO13

AC16	GPIO1_IO12	AC17	NC
AC18	NC	AC19	NC
AC20	GPIO1_IO01	AC21	GPIO1_IO15
AC22	USB2 _DP	AC26	NC
AC27	GND	AC28	NC
AC29	NC	AC30	GND
AC31	NC	AC32	NC
AC33	GND	AC34	NC
AE2	GND	AE3	NC
AE4	VCC5V0_SYS	AE32	NC
AE33	NC	AE34	GND
AF1	NC	AF2	NC
AF3	NC	AF4	VCC5V0_SYS
AF32	NC	AF33	NC
AF34	NC	AF35	GND
AG1	NC	AG2	NC
AG3	GND	AG4	VCC5V0_SYS
AG32	NC	AG33	NC
AG34	NC	AG35	NC
AH1	NC	AH2	GND
AH3	VCC5V0_SYS	AH4	VCC5V0_SYS
AH32	NC	AH33	NC
AH34	GND	AH35	NC
AJ1	NC	AJ2	NC
AJ3	VCC5V0_SYS	AJ4	VCC5V0_SYS
AJ32	NC	AJ33	NC
AJ34	NC	AJ35	GND
AK1	NC	AK2	NC
AK3	GND	AK4	VCC5V0_SYS
AK32	NC	AK33	NC
AK34	NC	AK35	NC
AL1	NC	AL2	GND
AL3	NC	AL4	NC
AL32	NC	AL33	NC
AL34	GND	AL35	NC
AM1	NC	AM2	NC
AM3	NC	AM4	NC

AM5	NC	AM6	NC
AM7	NC	AM8	NC
AM9	NC	AM10	NC
AM11	NC	AM12	NC
AM13	GND	AM14	NC
AM15	NC	AM16	GND
AM17	NC	AM18	NC
AM19	GND	AM20	NC
AM21	NC	AM22	GND
AM23	NC	AM24	NC
AM25	NC	AM26	NC
AM27	NC	AM28	NC
AM29	NC	AM30	NC
AM31	NC	AM32	NC
AM33	NC	AM34	NC
AM35	GND		
AN1	NC	AN2	NC
AN3	GND	AN4	NC
AN5	NC	AN6	GND
AN7	NC	AN8	NC
AN9	GND	AN10	NC
AN11	GND	AN12	NC
AN13	NC	AN14	NC
AN15	GND	AN16	NC
AN17	NC	AN18	GND
AN19	NC	AN20	NC
AN21	GND	AN22	NC
AN23	NC	AN24	NC
AN25	NC	AN26	NC
AN27	NC	AN28	NC
AN29	NC	AN30	NC
AN31	NC	AN32	NC
AN33	GND	AN34	NC
AN35	NC		
AP1	NC	AP2	GND
AP3	NC	AP4	NC
AP5	GND	AP6	NC

AP7	NC	AP8	GND
AP9	NC	AP10	NC
AP11	NC	AP12	NC
AP13	GND	AP14	NC
AP15	NC	AP16	GND
AP17	NC	AP18	NC
AP19	GND	AP20	NC
AP21	NC	AP22	GND
AP23	NC	AP24	NC
AP25	GND	AP26	NC
AP27	NC	AP28	GND
AP29	NC	AP30	NC
AP31	GND	AP32	NC
AP33	NC	AP34	GND
AP35	NC		
AR2	NC	AR3	NC
AR4	NC	AR5	NC
AR6	NC	AR7	NC
AR8	NC	AR9	NC
AR10	NC	AR14	GND
AR15	NC	AR16	NC
AR17	GND	AR18	NC
AR19	NC	AR20	GND
AR21	NC	AR22	NC
AR26	GND	AR27	NC
AR28	NC	AR29	GND
AR30	NC	AR31	NC
AR32	GND	AR33	NC
AR34	NC		

7. Precautions for use

1. Relative humidity: ≤80% .
2. Operation temperature: Commercial field：0~ 75℃； Industrial field: -40~85℃.
3. Keep the Board away from static electricity.
4. Keep the Board away from water and other liquid.
5. Don’t use long connect wires which may affect performance and image quality.