voipac.

iMX Development Baseboard
Rev. V1I2

Datasheet

Date	Revision	Changes
November 23, 2022	1.0	Initial Release
June 9, 2023	1.1	Updated Text and Tables
December 28, 2023	1.2	Connectors Signals and Warranty Terms Update
November 14, 2024	1.3	iMX8M to iMX Version Upgrade

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1. Introduction

1.1 General

The peripheral-rich iMX Development Baseboard is the second generation of this baseboard, designed to present the functionality, connectivity and performance of the soon-coming iMX91 Industrial Module, brand-new iMX93 Industrial Module and high-performance iMX8M Industrial Module. It does not only provide flexible development environment, but offers numerous design features or connectivity options by its own.

The selection of iMX 91/93/8M Industrial Module predetermines the availability of baseboard features.

The baseboard has a 1.6mm thick 6-layer through hole vias PCB thus can be easily modified to fulfill your requirements for the peripherals and to fit the final device housing.

The complete Altium Designer project documentation of the iMX Development Baseboard, including schematic and PCB, is available at the downloads section.

1.2 Software

Voipac fully supports Linux operating system with drivers for all basic interfaces. Custom additional drivers for specific applications can be developed upon request.

Operating system	Description
Linux (iMX93 Industrial Module)	Yocto 5.0 (Scarthgap) (Linux version 6.6) preinstalled on eMMC Flash
Linux (iMX8M Industrial Module)	Yocto Project 3.1 (Dunfell) Linux distribution
Debian	Debian 12 (Bookworm) – porting in progress
Android	Android 12 (Snow Cone) – porting in progress

1.3 Hardware – *Block Diagram*
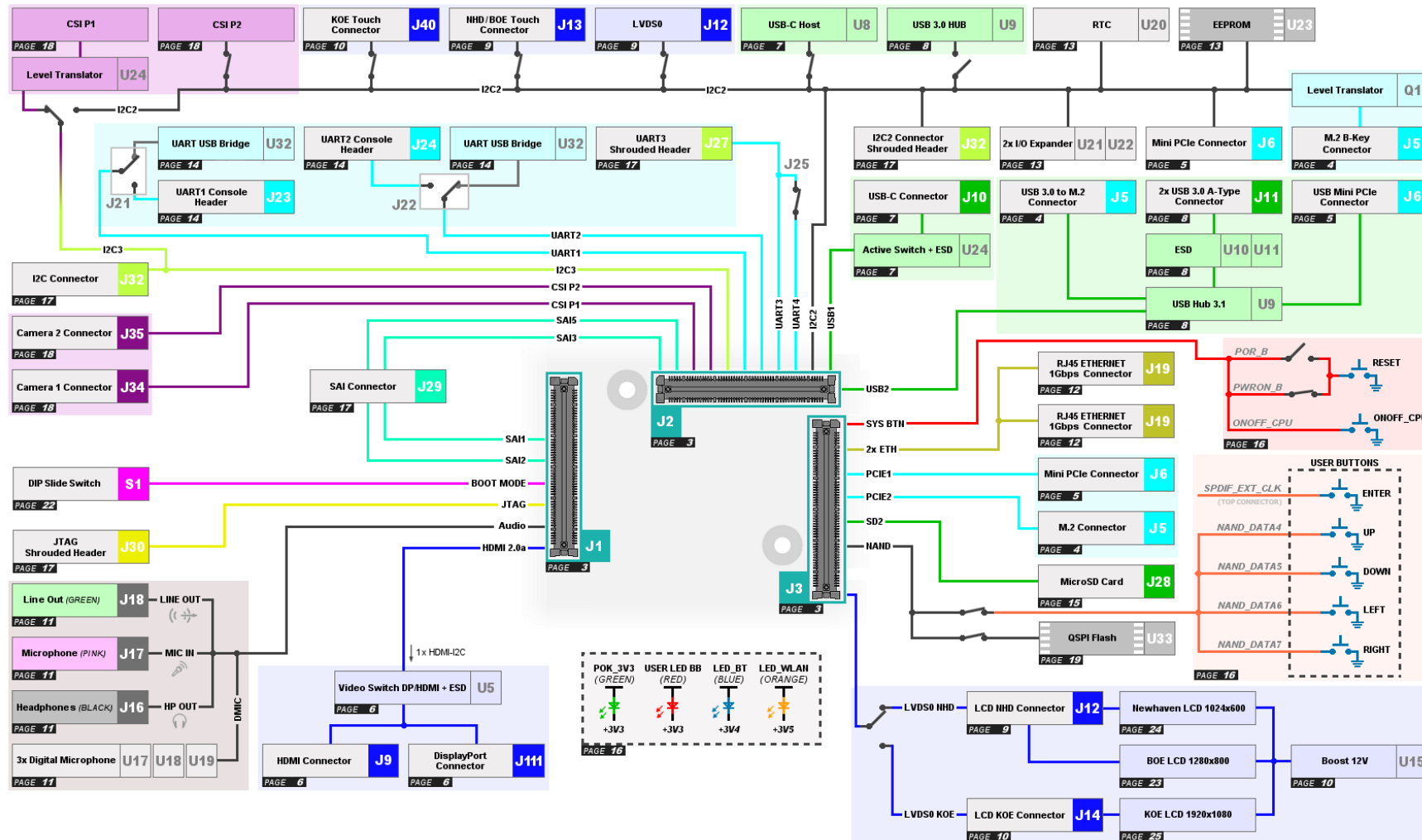
1.4 Features

Interface	Type	Description
POWER SUPPLY		5V DC
Flash Memory	QSPI Flash	On board SPI NOR Flash Memory (256Mb/133MHz)
AUDIO	3.5mm Audio Jack	Line Out / Headphones / Microphone / 3x Digital Microphone
VIDEO	HDMI / DisplayPort / LVDS	HDMI / DisplayPort Output, 2x LVDS Output
CAMERA	CSI	CSI Camera 1 / CSI Camera 2 input (Raspberry Pi Compatible)
ETHERNET	RJ-45	2x 10Mbps / 100Mbps / 1Gbps
Memory Card	MicroSD™	
USB	USB A / USB-C	2x High-Speed USB 3.0 / 1x High-Speed USB 2.0 OTG micro / 1x USB-C
CONSOLE	USB Micro B	
PCIe	PCIe Mini	PCIe Mini Full size / Half size
M.2	Key-B	Size 2230, 2242, 3030, 3042
SERIAL	USB to Serial	TTL-232 3.3V (compatible with FTDI cable)

1.5 Reference Documents

For more detailed technical information about the iMX Development Baseboard components, please refer to the web resources and documents listed below.

Component	Type	Manufacturer's Datasheet	CLI*	
TPD12S016PWR	HDMI Companion Chip with I2C Level Shifting Buffer	Texas Instruments		U4
PI3WVR12412ZHEX	HDMI 2.0, DisplayPort 1.2 Video Switch	Diodes Incorporated		U5
PTN36043ABXY	USB Type-C Active Switch, SuperSpeed USB 3.1	NXP Semiconductors		U6
MIC2039AYMT-TR	High-Accuracy, High-Side, Adjustable Current-Limit Power Switch	Microchip Technology Inc.	U7	U10
			U11	U16
USB5744-I/2G	4-Port SS/HS USB Controller Hub	Microchip Technology Inc.		U9
TPS61378QWRTERQ1	25-µA Quiescent Current Synchronous Boost Converter with Load Disconnect	Texas Instruments		U15
PCF8563TS	Real-time Clock/Calendar	NXP Semiconductors		U20
PCA9535BS	16-bit I²C-Bus and SMBus, Low Power I/O Port with Interrupt	NXP Semiconductors	U21	U22
BR24L02FVM-WTR	I²C Bus EEPROM (2-Wire)	ROHM Semiconductor		U23
CP2105-F01-GM	Single-Chip USB to Dual UART Bridge	Silicon Laboratories Inc.		U32
PCA9306DCTR	Dual Bidirectional I²C Bus and SMBus Voltage-Level Translator	Texas Instruments		U24
MT25QL256ABA1EW9	MT25Q 256Mb, 3V, Multiple I/O Serial Flash Memory	Micron Technology, Inc.		U33
TPS53318DQPT	High-Efficiency, 8A or 14A, Synchronous Buck Converter with Eco-Mode Control	Texas Instruments		U25
TPS74801DRCR	1.5A Low-Dropout Linear Regulator With Programmable Soft-Start	Texas Instruments		U26
TPS62060DSGR	3MHz, 1.6A, Step Down Converter	Texas Instruments		U27
MIC2039AYMT-TR	High-Accuracy, High-Side, Adjustable Current-Limit Power Switch	Microchip Technology Inc.		U41
TPS25942ARVCT	2.7V-18V, 5A eFuse Power MUX With Multiple Protection Modes	Texas Instruments	U28	U29

* CLI – i.MX Development Baseboard Component Location Indication

2. Features Description

2.1 User Interfaces

The following user interfaces are available on the Voipac iMX Development Baseboard.

Interface	Description
HDMI/LVDS/DP	HDMI Output with Audio, LVDS with Touch, DisplayPort
USB	1x USB-C, 2x USB-A
PCIe	Mini PCIe Card Socket (PCIe & USB) with SIM Card Support
M.2	PCIe & USB with SIM Card Support
SD	SD Memory Card Slot
CSI	2x CSI Camera
Ethernet	2x 10/100/1000 Mbps
CAN	Native CPU CAN-FD / CAN Module Compatible Headers
Audio	Digital Audio (SAI), Analog Audio codec (Analog / Digital Microphone, Line In/Out, Headphones Out)
Power	Power input / output header
Headers	UARTs, SPIs, I2Cs, I3Cs, PWMs, GPIOs (can be used for Buttons, LEDs, …)

2.2 Board Layout – *Connectors, Jumpers, LEDs, Buttons and Peripheral selection resistors*

      The top and bottom component placement on the next page shows interfaces layout of the baseboard. All useful interfaces are shown in assembly top and bottom drawings and are sumarized in subsection 2.3.

TOP SIDE
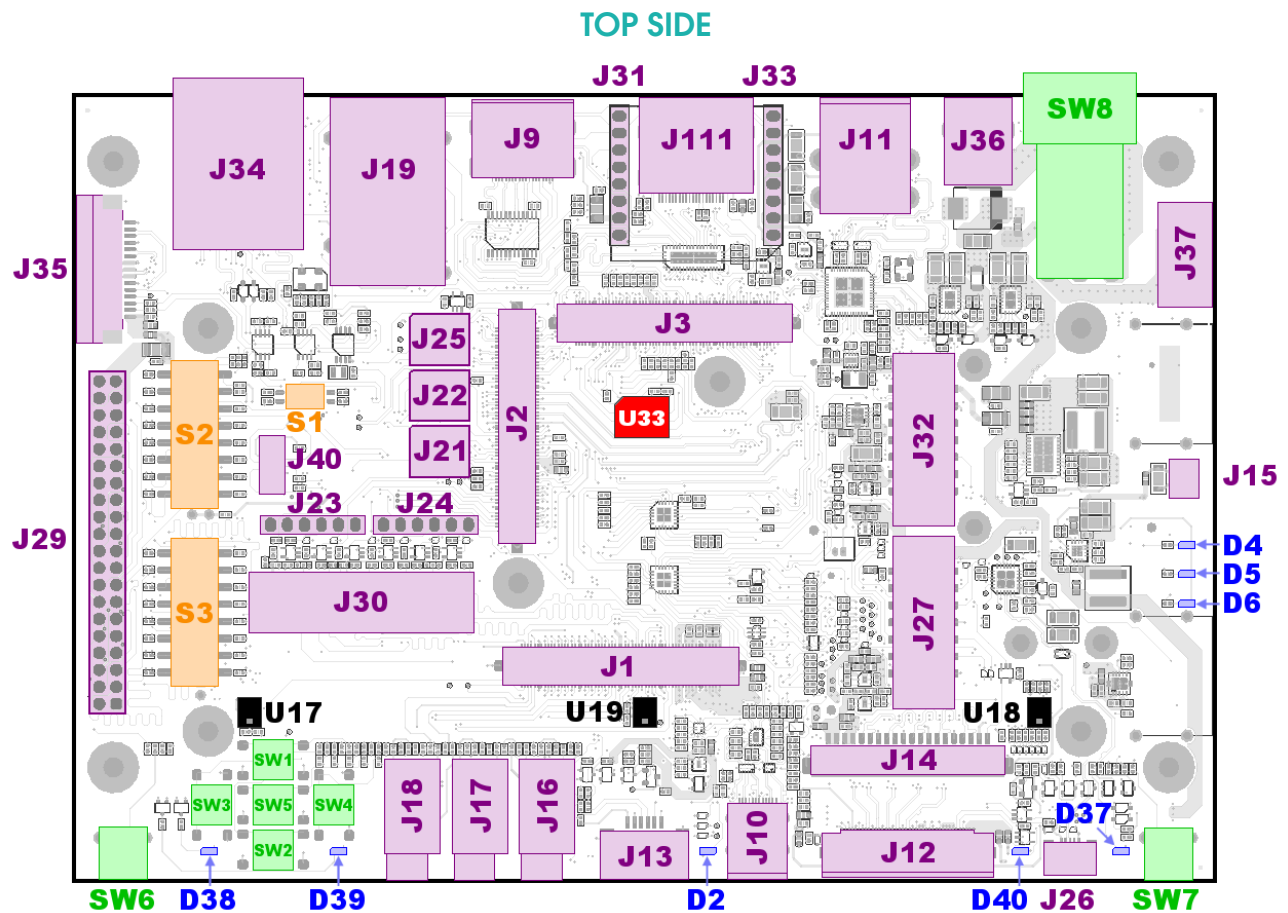
BOTTOM SIDE
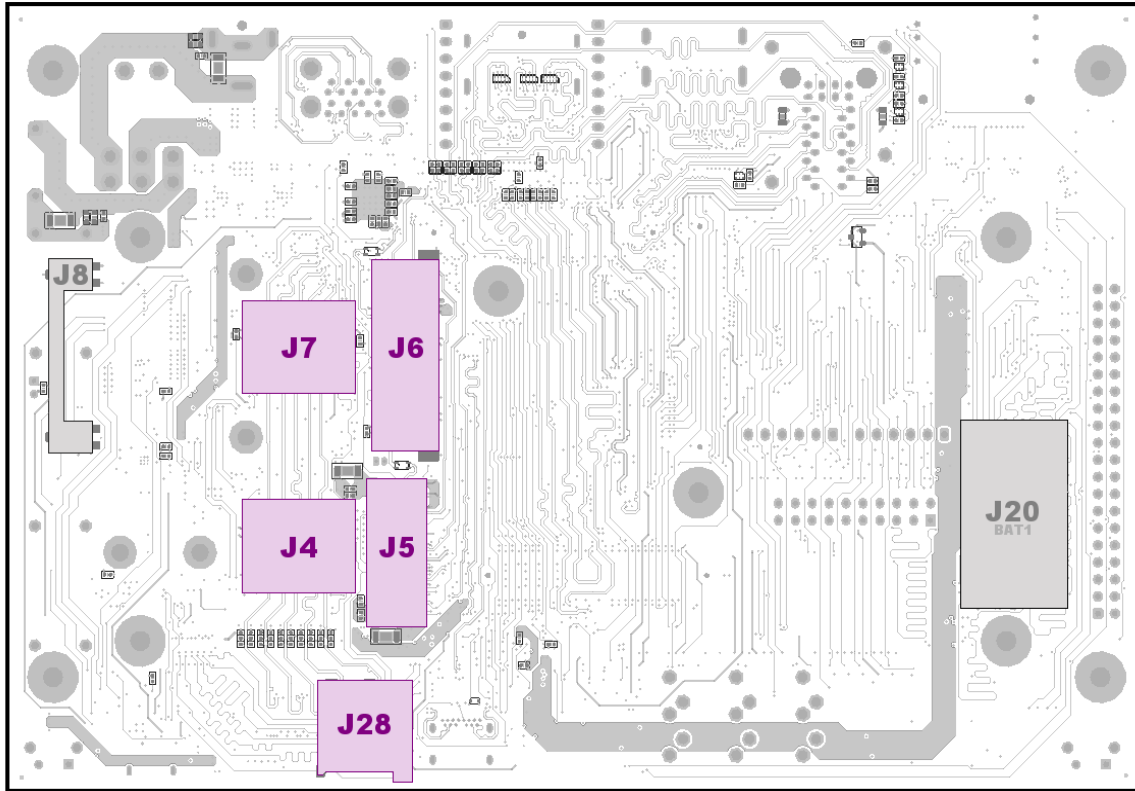
2.3 Connectors, Jumpers, LEDs, Buttons and Resistors list

CONNECTORS		
Ref.Num.	Description	Page
J1	100 Contacts Board Stacking Connector	11
J2	100 Contacts Board Stacking Connector	13
J3	100 Contacts Board Stacking Connector	15
J4	SIM Card Connector for PCIe M2	19
J5	PCI Express M.2 Key B Card Edge Connector	19
J6	PCI Express Connector 52P Mini Card Socket	21
J7	SIM Card Connector for Mini PCI Express	22
J8	PCI Express Mini Card Latch	

DUAL IN-LINE PACKAGE (DIP) SWITCH		
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S2	SAI1 Boot CFG DIP Switch (S2 BOOT)	46
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CONNECTORS		
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J9	HDMI Connector	23
J111	DisplayPort™ Standard Digital Interface Connector	24
J10	USB Type C Connector	25
J11	USB Type A Dual Connector	26
J12	LVDS0 Easy-On FFC Connector	27
J13	Capacitive Touchscreen Easy-On FFC Connector	29
J14	LVDS0 20-pin Shielded Connector	29
J40	Touchscreen Easy-On FFC Connector	31
J15	LVDS0 Backlight Connector	31
J16	Headphones 3.5 MM Audio Jack Connector	32
J17	Microphone In 3.5 MM Audio Jack Connector	32
J18	Line Out 3.5 MM Audio Jack Connector	33
J19	RJ-45 Ethernet Dual Connector	33
J20	Battery Holder	
J21	UART1 Buffer Header Connector	34
J22	UART2 Buffer Header Connector	35
J23	UART1 Console Header Connector	35
J24	UART2 Console Header Connector	36
J25	UART2/UART4 Buffer Header Connector	36
J26	Console Connector (Micro USB Type B)	37
J27	UART3 + UART4 + SPI1 Shrouded Header Connector	37
J28	Micro Card Push & Push Connector	38
J29	SAI1 + SAI2 + SAI3 + SAI5 Header Connector	38
J30	JTAG Shrouded Header Connector	39
J31	CAN MIKROE-3060 Module Header Connector	40
J32	I2C + GPIO Shrouded Header Connector	40
J33	CAN MIKROE-3060 Module Header Connector	41
J34	CSI Camera 1 iPass I/O Connector	41
J35	CSI Camera 2 *(Raspberry Pi Compatible)* FFC Connector	43
J36	DC Power Jack Connector	43
J37	DC Power Fixed Terminal Blocks Connector	44
J38	Power AUX CPU FAN Shrouded Header Connector	44

BUTTONS AND SWITCHES		
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SW1	BUT1 - User Button *(UP)*	48
SW2	BUT2 - User Button *(DOWN)*	48
SW3	BUT3 - User Button *(LEFT)*	48
SW4	BUT4 - User Button *(RIGHT)*	49
SW5	BUT5 - User Button *(ENTER)*	49
SW6	BUT6 - Reset Button *(BLACK)*	49
SW7	BUT7 - ON/OFF Button *(RED)*	50
SW8	Power Rocker Switch	50

LEDS		
Ref.Num.	Description	Page
D2	DSS LED *(GREEN)*	51
D4	Mini PCI Express WWAN *(GREEN)*	51
D5	Mini PCI Express WLAN *(GREEN)*	51
D6	Mini PCI Express WPAN *(GREEN)*	52
D37	Power LED *(GREEN)*	52
D38	User LED *(RED)*	52
D39	Bluetooth LED *(BLUE)*	53
D40	WLAN LED *(ORANGE)*	53

QSPI FLASH MEMORY		
Ref.Num.	Description	Page
U33	NOR Memory 256Mb SPI 133MHz	

MICROPHONES		
Ref.Num.	Description	Page
U17	Microphone *(LEFT)*	
U18	Microphone *(RIGHT)*	
U19	Microphone *(CENTER)*	

3. Connector Description

This chapter describes the connectors of the iMX Development Baseboard. Connectors have dedicated functionality, while most of the header connectors can be multiplexed and used also for other purposes, such as General Purpose Input Output (GPIO) signals or interrupts.

3.1 Pinout Description

3.1.1 J1 – 100 Contacts Board Stacking Connector *(CONN RCPT 100POS SMD GOLD)*

Description: J1 receptacle shielded connector connects the baseboard with the module. It has a space saving design with minimal dimensions while providing superior signal integrity and industrial-grade connection.
(Maximum current for the board to board connector is 0.3A per contact.)

Manufacturer: Hirose Electric Co. Ltd.
Connector: **FX11A-100S/10-SV(71)**
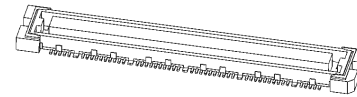
J1

DESCRIPTION	TYPE	PIN NAME		PIN	PIN		PIN NAME	TYPE	DESCRIPTION
Connector Ground Plate	G	GND		111					
Analog Microphone Left	O	MICIN_L	A U D I O	1	2	A U D I O	DMIC1_IN	O	Digital Microphone 1
Analog Microphone Right	O	MICIN_R		3	4		DMIC2_IN	O	Digital Microphone 2
Headphone Output Ground Loop Noise Rejection Feedback	O	HP_OUT_FB		5	6		LINE_OUT_L	I	
Headphone Output Right	I	HP_OUT_R		7	8		LINE_OUT_R	I	
Headphone Output Left	I	HP_OUT_L		9	10		LINE_OUT_FB	O	
Ground	G	GND		101	102		GND	G	Ground
	I	SAI1_TXD7		11	12		DMIC_CLK	I	
	I	SAI1_TXD5	S A I 1	13	14	B O O T	GND	G	Ground
Synchronous Audio Interface	I	SAI1_TXD3		15	16		BOOT_MODE0	O	
	I	SAI1_TXD1		17	18		BOOT_MODE1	O	
	I	SAI1_TXD0		19	20		GND	G	Ground
Ground	G	GND	S A I 1	21	22	S A I 1	SAI1_TXD6	I	
Synchronous Audio Interface	O	SAI1_RXD7		23	24		SAI1_TXD4	I	Synchronous Audio Interface
	O	SAI1_RXD5		25	26		SAI1_TXD2	I	

DESCRIPTION	TYPE	PIN NAME		PIN	PIN	PIN NAME	TYPE	DESCRIPTION
Synchronous Audio Interface	O	SAI1_RXD3		27	28	GND	G	Ground
	O	SAI1_RXD1		29	30	SAI1_MCLK	I	Synchronous Audio Interface
Ground	G	GND	SAI1	103	104	GND	G	Ground
Synchronous Audio Interface	I	SAI1_TXC		31	32	SAI1_RXC	O	Synchronous Audio Interface
	I	SAI1_TXFS		33	34	SAI1_RXFS	O	
Ground	G	GND		35	36	GND	G	Ground
Synchronous Audio Interface	I	SAI2_TXC_CON		37	38	SAI1_RXD6	O	Synchronous Audio Interface
	I	SAI2_TXFS_CON		39	40	SAI1_RXD4	O	
Ground	G	GND	SAI2	41	42	SAI1_RXD2	O	
Synchronous Audio Interface	O	SAI2_RXD_CON		43	44	SAI1_RXD0	O	
	I	SAI2_TXD_CON		45	46	GND	G	Ground
Ground	G	GND		47	48	SAI2_RXC_CON	O	Synchronous Audio Interface
Synchronous Audio Interface	I	SAI2_MCLK_CON		49	50	SAI2_RXFS_CON	O	
Ground	G	GND		105	106	GND	G	Ground
	I	HDMI_TX2_N		51	52	HDMI_DDC_SCL	I	
	I	HDMI_TX2_P		53	54	HDMI_DDC_SDA	I/O	
Ground	G	GND		55	56	GND	G	Ground
	I	HDMI_TX0_N		57	58	HDMI_CLK_P	I	
	I	HDMI_TX0_P	HDMI	59	60	HDMI_CLK_N	I	
Ground	G	GND		61	62	GND	G	Ground
	O	HDMI_AUX_N		63	64	HDMI_TX1_N	I	
	O	HDMI_AUX_P		65	66	HDMI_TX1_P	I	
Ground	G	GND		67	68	GND	G	Ground
	I/O	HDMI_CEC		69	70	HDMI_HPD	O	
Ground	G	GND		107	108	GND	G	Ground
	O	JTAG_TMS		71	72	JTAG_TCK	O	
	I	JTAG_TDO	JTAG	73	74	GND	G	Ground
	O	JTAG_TDI		75	76	JTAG_nTRST	O	
Ground	G	GND		77	78	GND	G	Ground
Ground	G	GND		79	80	GND	G	Ground
Ground	G	GND		81	82	GND	G	Ground
Module Supply Voltage (from +3.4V to +5.5V)	PWR	+VSYS	POWER	83	84	+VSYS	PWR	Module Supply Voltage (from +3.4V to +5.5V)
	PWR	+VSYS		85	86	+VSYS	PWR	
	PWR	+VSYS		87	88	+VSYS	PWR	
	PWR	+VSYS		89	90	+VSYS	PWR	
Ground	G	GND		109	110	GND	G	Ground

DESCRIPTION	TYPE	PIN NAME		PIN	PIN		PIN NAME	TYPE	DESCRIPTION
Module Supply Voltage (from +3.4V to +5.5V)	PWR	+VSYS	**P O W E R**	91	92	**P O W E R**	+VSYS	PWR	Module Supply Voltage (from +3.4V to +5.5V)
	PWR	+VSYS		93	94		+VSYS	PWR	
	PWR	+VSYS		95	96		+VSYS	PWR	
	PWR	+VSYS		97	98		+VSYS	PWR	
	PWR	+VSYS		99	100		+VSYS	PWR	
Connector Ground Plate	G	GND		112					

3.1.2 J2 – 100 Contacts Board Stacking Connector *(CONN RCPT 100POS SMD GOLD)*

Description: J2 receptacle shielded connector connects the baseboard with the module. It has a space saving design with minimal dimensions while providing superior signal integrity and industrial-grade connection.
(Maximum current for the board to board connector is 0.3A per contact.)

Manufacturer: Hirose Electric Co. Ltd.
Connector: **FX11A-100S/10-SV(71)**

J2
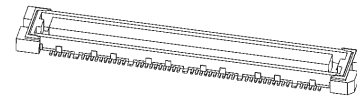
DESCRIPTION	TYPE	PIN NAME		PIN	PIN		PIN NAME	TYPE	DESCRIPTION
Connector Ground Plate	G	GND		111					
Synchronous Audio Interface	O	SAI5_RXD0	**S A I 5**	1	2	**S A I 3**	SAI3_TXC_CON	I	Synchronous Audio Interface
	O	SAI5_RXC		3	4		SAI3_TXFS_CON	I	
	O	SAI5_RXFS		5	6		SAI3_TXD_CON	I	
Ground	G	GND		7	8		GND	G	Ground
Synchronous Audio Interface	I	SAI5_MCLK		9	10		SAI3_MCLK_CON	I	Synchronous Audio Interface
Ground	G	GND		101	102		GND	G	Ground
	I	LED_BT	**L E D**	11	12		SAI3_RXC_CON	O	Synchronous Audio Interface
	I	LED_WLAN		13	14		SAI3_RXFS_CON	O	
	I	I2C2_SCL_1V8	**I 2 C**	15	16		SAI3_RXD_CON	O	
	I/O	I2C2_SDA_1V8		17	18		GND	G	Ground
		NC		19	20	**I 2 C**	I2C2_SCL	I	Signals pulled to +VDD_3V3_MOD by 4k7 resistor on module
		NC		21	22		I2C2_SDA	I/O	
	O	SPDIF_RX	**S P D**	23	24		I2C3_SDA	I/O	
	I	SPDIF_TX		25	26		I2C3_SCL	I	
Ground	G	GND		27	28	**U**	UART1_RXD	O	

DESCRIPTION	TYPE	PIN NAME		PIN	PIN		PIN NAME	TYPE	DESCRIPTION
	O	SPDIF_EXT_CLK	I F	29	30	A R T	UART1_TXD	I	
Ground	G	GND		103	104		GND	G	Ground
	I	ECSPI2_SCLK		31	32		+VDD_3V3	PWR	+3.3V Power Supply Input (max. current 400mA)
Ground	G	GND	E S P I 2	33	34		+VDD_3V3	PWR	
	I	ECSPI2_SS0		35	36	S P I	ECSPI1_SCLK	I	
	I	ECSPI2_MOSI		37	38		GND	G	Ground
	O	ECSPI2_MISO		39	40		ECSPI1_MOSI	I	
Ground	G	GND		41	42	U A	UART3_CTS/ECSPI1_MISO_CON	I/O	
	O	UART3_RXD_CON	U A R T	43	44		UART3_RTS/ECSPI1_SS0_CON		
	I	UART3_TXD_CON		45	46		+NVCC_SNVS_3V3	PWR	+3.3V System Power Supply Intput (max. current 5mA)
	I	UART2_TXD		47	48	R T	UART4_TXD/UART2_RTS	I	
	O	UART2_RXD		49	50		UART4_RXD/UART2_CTS	O	
Ground	G	GND		105	106		GND	G	Ground
USB2 PHY Power Supply Output	PWR	USB2_VBUS		51	52		USB1_VBUS	PWR	USB1 PHY Power Supply Output
Ground	G	GND		53	54		GND	G	Ground
	O	USB2_RX_N		55	56		USB1_RX_N	O	
	O	USB2_RX_P		57	58		USB1_RX_P	O	
Ground	G	GND	U S B 2	59	60	U S B 1	GND	G	Ground
	I	USB2_TX_N		61	62		USB1_TX_N	I	
	I	USB2_TX_P		63	64		USB1_TX_P	I	
Ground	G	GND		65	66		GND	G	Ground
	I/O	USB2_D_N		67	68		USB1_D_N	I/O	
	I/O	USB2_D_P		69	70		USB1_D_P	I/O	
Ground	G	GND		107	108		GND	G	Ground
	O	USB2_ID		71	72		USB1_ID	O	
Ground	G	GND		73	74		GND	G	Ground
	O	CSI_P2_D2_N		75	76		CSI_P2_D3_N	O	
	O	CSI_P2_D2_P		77	78	C S I 2	CSI_P2_D3_P	O	
Ground	G	GND	C S I 2	79	80		GND	G	Ground
	O	CSI_P2_D0_N		81	82		CSI_P2_D1_N	O	
	O	CSI_P2_D0_P		83	84		CSI_P2_D1_P	O	
Ground	G	GND		85	86	C S I	GND	G	Ground
	O	CSI_P2_CK_N		87	88		CSI_P1_CK_N	O	

DESCRIPTION	TYPE	PIN NAME		PIN	PIN		PIN NAME	TYPE	DESCRIPTION
	O	CSI_P2_CK_P		89	90	1	CSI_P1_CK_P	O	
Ground	G	GND		109	110		GND	G	Ground
	O	CSI_P1_D2_N	C	91	92	C	CSI_P1_D3_N	O	
	O	CSI_P1_D2_P	S	93	94	S	CSI_P1_D3_P	O	
Ground	G	GND	I	95	96	I	GND	G	Ground
	O	CSI_P1_D0_N	1	97	98	1	CSI_P1_D1_N	O	
	O	CSI_P1_D0_P		99	100		CSI_P1_D1_P	O	
Connector Ground Plate	G	GND			112				

3.1.3 J3 – 100 Contacts Board Stacking Connector *(CONN RCPT 100POS SMD GOLD)*

Description: J3 receptacle shielded connector connects the baseboard with the module.
It has a space saving design with minimal dimensions while providing superior
signal integrity and industrial-grade connection.
(Maximum current for the board to board connector is 0.3A per contact.)

Manufacturer: Hirose Electric Co. Ltd.
Connector: **FX11A-100S/10-SV(71)**

J3
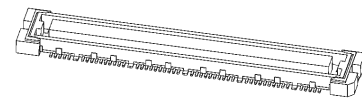
DESCRIPTION	TYPE	PIN NAME		PIN	PIN		PIN NAME	TYPE	DESCRIPTION
Connector Ground Plate	G	GND			111				
	I/O	ETH_TRX0_P		1	2		ETH_TRX1_P	I/O	
	I/O	ETH_TRX0_N	E	3	4	E	ETH_TRX1_N	I/O	
Ground	G	GND	T	5	6	T	GND	G	Ground
	I/O	ETH_TRX2_P	H	7	8	H	ETH_TRX3_P	I/O	
	I/O	ETH_TRX2_N	1	9	10	1	ETH_TRX3_N	I/O	
Ground	G	GND		101	102		GND	G	Ground
	I	LED_ACT	E	11	12		PCIE2_nCLKREQ	I/O	
	I	LED_LINK1000	T	13	14	P	GND	G	
	I	LED_LINK10_100	H	15	16	C	PCIE2_CON_CLK_N	I	
Ehternet Power Supply Input (max. current 20mA)	PWR	+ENET_VDDIO	1	17	18	I E 2	PCIE2_CON_CLK_P	I	
Ground	G	GND		19	20		GND	G	Ground

DESCRIPTION	TYPE	PIN NAME		PIN	PIN		PIN NAME	TYPE	DESCRIPTION
	O	PCIE2_CON_RX_N	P C I E 2	21	22		PCIE2_CON_TX_N	I	
	O	PCIE2_CON_RX_P		23	24		PCIE2_CON_TX_P	I	
Ground	G	GND		25	26		GND	G	Ground
	O	PCIE1_CON_RX_N	P C I E	27	28	P C I E	PCIE1_CON_TX_N	I	
	O	PCIE1_CON_RX_P		29	30		PCIE1_CON_TX_P	I	
Ground	G	GND		103	104		GND	G	Ground
	I	PCIE1_CON_CLK_N	1	31	32	1	PCIE1_nCLKREQ	I/O	
	I	PCIE1_CON_CLK_P		33	34		GND	G	Ground
Ground	G	GND	S Y S T E M	35	36	N A N D	NAND_DATA0	I/O	
+1.8V Power Supply Input (max. current 0.5A)	PWR	+VDD_1V8		37	38		NAND_DATA1	I/O	
	PWR	+VDD_1V8		39	40		NAND_DATA2	I/O	
Internally powered on module	O	ONOFF_CPU		41	42		NAND_DATA3	I/O	
Reset Input, internally powered on module	I	POR_B		43	44		NAND_DATA4	I/O	
Reset Output, internally powered on module	O	PWRON_B		45	46		NAND_DATA5	I/O	
Ground	G	GND		47	48		NAND_DATA6	I/O	
	I/O	NAND_DQS		49	50		NAND_DATA7	I/O	
Ground	G	GND		105	106		GND	G	Ground
	I/O	NAND_nWP	N A N D	51	52	N A N D	NAND_CLE	I/O	
	I/O	NAND_nCE3		53	54		NAND_nWE	I/O	
	I/O	NAND_nCE2		55	56		ETH2_LED2 / CFGLDO1	I	
	I/O	NAND_nCE1		57	58		NAND_nREADY	I/O	
	I/O	NAND_nCE0		59	60		NAND_ALE	I/O	
Ground	G	GND		61	62		GND	G	Ground
	I/O	SD2_DATA3	S D 2	63	64	S D 2	SD2_VSELECT	I	
	I/O	SD2_DATA2		65	66		SD2_CMD	I/O	
	I/O	SD2_DATA1		67	68		+NVCC_SD2	PWR	SD Power Supply Input
	I/O	SD2_DATA0		69	70		SD2_nCD	O	
Ground	G	GND		107	108		GND	G	Ground
	I	SD2_CLK		71	72		SD2_nRST	I	
Ground	G	GND	E T H 2	73	74	L V D S 0	GND	G	Ground
	I/O	ETH2_TRX0_P		75	76		LVDS0_TX0_N	I	
	I/O	ETH2_TRX0_N		77	78		LVDS0_TX0_P	I	
Ground	G	GND		79	80		GND	G	Ground
	I/O	ETH2_TRX1_P		81	82		LVDS0_TX1_N	I	

| DESCRIPTION	TYPE	PIN NAME		PIN	PIN		PIN NAME	TYPE	DESCRIPTION
	I/O	ETH2_TRX1_N	**E T H 2**	83	84	**L V D S 0**	LVDS0_TX1_P	I	
Ground	G	GND		85	86		GND	G	Ground
	I/O	ETH2_TRX2_P		87	88		LVDS0_TX2_N	I	
	I/O	ETH2_TRX2_N		89	90		LVDS0_TX2_P	I	
Ground	G	GND		109	110		GND	G	Ground
	I/O	ETH2_TRX3_P	**E T H 2**	91	92	**L V D S 0**	LVDS0_TX3_N	I	
	I/O	ETH2_TRX3_N		93	94		LVDS0_TX3_P	I	
Ground	G	GND		95	96		GND	G	Ground
	I	ETH2_LED0 / CFG_EXT		97	98		LVDS0_CLK_N	I	
	I	ETH2_LED1 / CFGLDO0		99	100		LVDS0_CLK_P	I	
Connector Ground Plate	G	GND			112				

The standard configuration of iMX Development Baseboard utilizes 3pcs of the following low profile, shielded, board-to-board connectors (3 pcs supplied with each complete development kit, extra pcs available for purchase at VOIPAC website):

Manufacturer: Hirose Electric Co. Ltd.
Connector: Double Row Receptacle Connector **FX11A-100S/10-SV(71)**
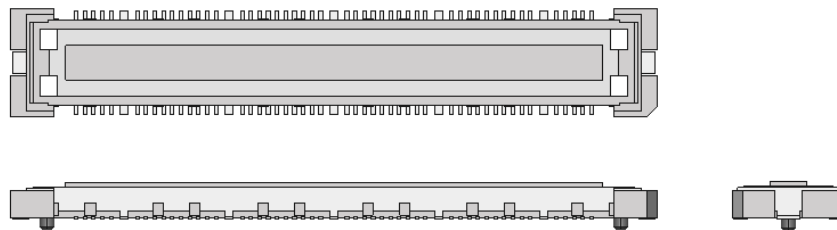
Besides the 3mm connectors mating height used at the Voipac iMX93 Industrial Development Kit, the board-to-board stacking connectors are available also in mating height of 2.5mm or even 2mm, to fit smaller, thinner case designs.
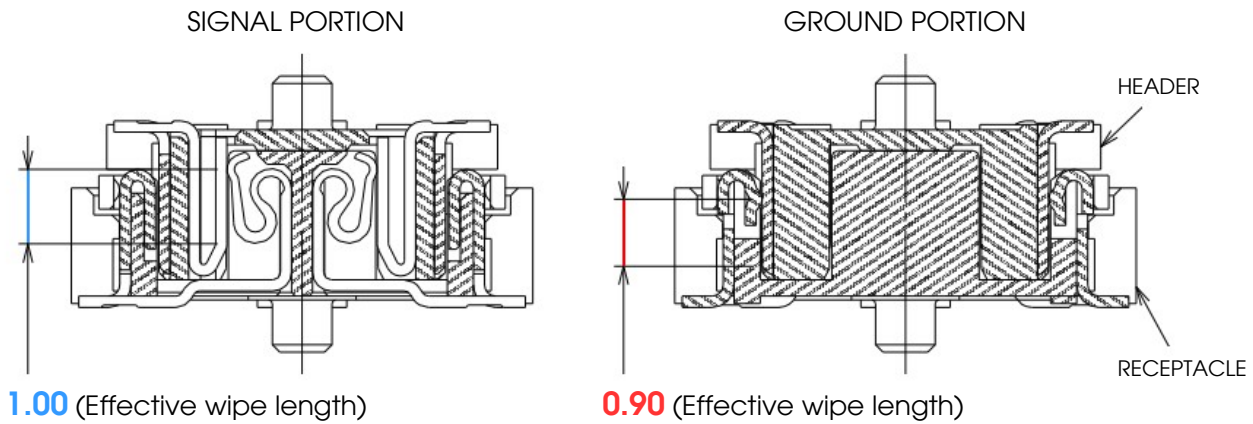
Stacking Height Variation

3.00, 2.50 mm
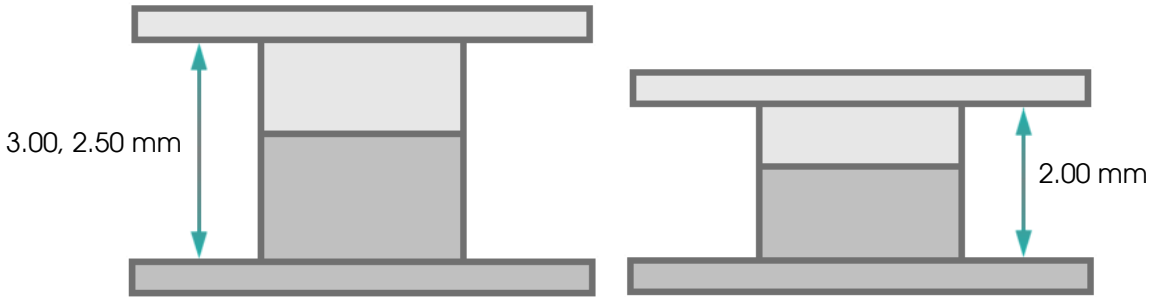
2.00 mm

NOTE: *2.0 mm stacking height type cannot be used or interchanged with the 2.5 mm or 3.0 mm types.*

Cross section of mating

Stacking height: 3.00 mm, 2.50 mm

SIGNAL PORTION

GROUND PORTION

HEADER

RECEPTACLE

1.00 (Effective wipe length)

0.90 (Effective wipe length)

Stacking height: 2.00 mm

SIGNAL PORTION

GROUND PORTION

HEADER

RECEPTACLE

0.55 (Effective wipe length)

0.55 (Effective wipe length)
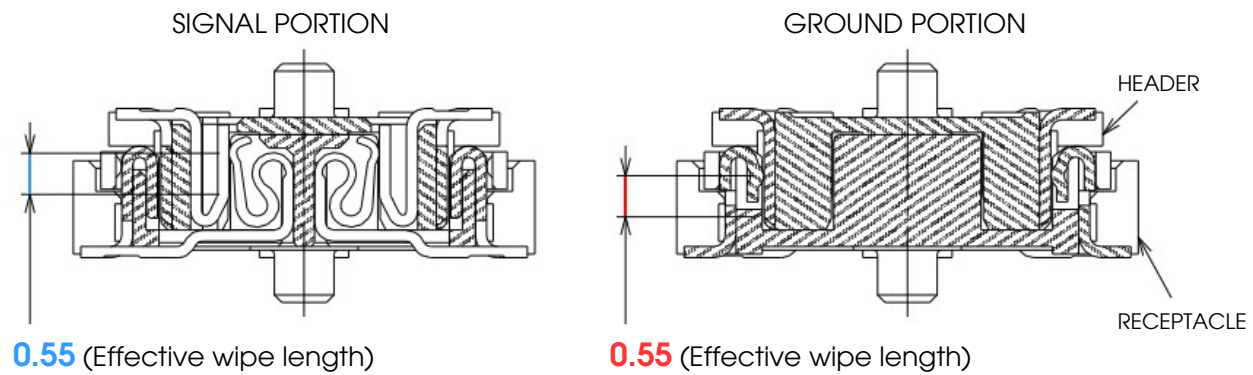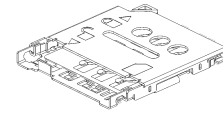
3.1.4 J4 – SIM Card Connector for PCIe M2 *(CONN MICRO SIM CARD HINGED TYPE)*

Description: Connector J4 is 6 Position Card Connector Micro SIM Surface Mount, Right Angle. Hinged type socket ensures secure connection and vibration immunity.

Manufacturer: Molex, LLC
Connector: **0788000001**

J4

PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
C1	VCC	PWR	M2_SIM_PWR	SIM Card Power
C2	RESET	I	M2_SIM_RST	SIM Card Reset
C3	CLK	I	M2_SIM_CLK	SIM Card Clock
C5	GND	G	GND	GND
C6	VPP	PWR	M2_SIM_VPP	SIM Card programming voltage
C7	I/O	IO	M2_SIM_DATA	SIM Card Data
CD1	CD1	O	SIM_DET_M2 / TP_25MIL (TP41)	Card Detection Signal
CD2	CD2	G	GND	Card Detection Signal
H1	H1	G	GND	Mechanical Pad
H2	H2	G	GND	Mechanical Pad

3.1.5 J5 – PCI Express M.2 Key B Card Edge Connector *(CONN FEMALE 67POS 0.020 GOLD)*

Description: Connector J5 is 67 Position Female Connector M.2 (NGFF) Mini Card Gold 0.020" (0.50mm). *NOTE: QUECTEL Card 3.7V powering is supported.*

Manufacturer: FCI / Amphenol
Connector: **MDT420B01001**
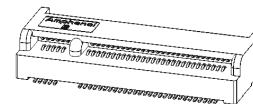
J5

SIGNAL NAME	TYPE	PIN NAME	PIN	PIN	PIN NAME	TYPE	SIGNAL NAME
M2_CONFIG3 (pulled up to +3V3_M2PCIE)	O	CONFIG_3	1	2	3P3_1	PWR	+3V3_M2PCIE
GND	G	GND0	3	4	3P3_2	PWR	+3V3_M2PCIE
GND	G	GND1	5	6	FULL_CARD_POWER_OFF#	I	M2FC_PWR_OFF#
USB2_P3_P	IO	USB_D+	7	8	W_DISABLE1	I	M2_W_DIS#
USB2_P3_N	IO	USB_D-	9	10	GPIO9_DAS_DSS#_LED1#	O	LED_DA_DSS (LED diode

---

SIGNAL NAME	TYPE	PIN NAME	PIN	PIN	PIN NAME	TYPE	SIGNAL NAME
							D2 used for indication)
GND	G	GND2	11	12			
			13	14			
			15	16	Mechanical Notch B		
Mechanical Notch B			17	18			
			19	20	GPIO5	IO	(TP1) TP_25MIL
M2_CONFIG0 (pulled up to +3V3_M2PCIE)	O	CONFIG_0	21	22	GPIO6	IO	(TP2) TP_25MIL
WOWWAN# / M2_GPIO11 / PCIE_WAKE_M2#	IO	GPIO11	23	24	GPIO7	IO	(TP3) TP_25MIL
M2_DPR# / M2_DPR / +1V8_M2PCIE	I	DPR	25	26	GPIO10_W_DISABLE2#	IO	(TP4) TP_25MIL
GND	G	GND3	27	28	GPIO8	IO	(TP5) TP_25MIL
USB2_P3_RX_N	O	PERN1_USB3_RXN	29	30	UIM_RESET	O	M2_SIM_RST
USB2_P3_RX_P	O	PERP1_USB3_RXP	31	32	UIM_CLK	O	M2_SIM_CLK
GND	G	GND4	33	34	UIM_DATA	I/O	M2_SIM_DATA
USB2_P3_TX_N	I	PETN1_USB3_TXN	35	36	UIM_POWER	PWR	M2_SIM_PWR
USB2_P3_TX_P	I	PETP1_USB3_TXP	37	38	DEVSLP	O	(TP6) TP_25MIL
GND	G	GND5	39	40	GPIO0_SMBCLK	IO	SMB_CLK_M2PCIE
PCIE2_CON_RX_N	O	PERN0	41	42	GPIO1_SMBDATA	IO	SMB_DATA_M2PCIE
PCIE2_CON_RX_P	O	PERP0	43	44	GPIO2_ALERT#	IO	SMB_ALERT#_M2PCIE
GND	G	GND6	45	46	GPIO3	IO	(TP7) TP_25MIL
PCIE2_CON_TX_N	I	PETN0	47	48	GPIO4	IO	(TP8) TP_25MIL
PCIE2_CON_TX_P	I	PETP0	49	50	PERST#	I	SYS_RSTn
GND	G	GND7	51	52	$\overline{\text{CLKREQ}}$	I	PCIE2_nCLKREQ
PCIE2_CON_CLK_N	I/O	REFCLKN	53	54	$\overline{\text{PEWAKE}}$	I	PCIE_WAKE_M2#
PCIE2_CON_CLK_P	I	REFCLKP	55	56	NC1	IO	+1V8_M2PCIE manu-facturing pin to determine vendor (56 and 58)
GND	G	GND8	57	58	NC2	IO	+1V8_M2PCIE manu-facturing pin to determine vendor (56 and 58)
TP_25MIL (TP9)	I	ANTCTL0	59	60	COEX3	O	(TP10) TP_25MIL
TP_25MIL (TP11)	I	ANTCTL1	61	62	COEX2	I/O	(TP12) TP_25MIL
TP_25MIL (TP13)	I	ANTCTL2	63	64	COEX1	I/O	(TP14) TP_25MIL
TP_25MIL (TP15)	I	ANTCTL3	65	66	SIM_DETECT	I/O	SIM_DETECT_M2 (pulled down to GND)
M2_RESET# (pulled up to +1V8_M2PCIE)	I	$\overline{\text{RESET}}$	67	68	SUSCLK	I	Pull Down to GND via R21
M2_CONFIG1 (pulled up to +3V3_M2PCIE)	O	CONFIG_1	69	70	3P3_3	PWR	+3V3_M2PCIE
GND	G	GND9	71	72	3P3_4	PWR	+3V3_M2PCIE

SIGNAL NAME	TYPE	PIN NAME	PIN	PIN	PIN NAME	TYPE	SIGNAL NAME
GND	G	GND10	73	74	3P3_5	PWR	+3V3_M2PCIE
M2_CONFIG2 (pulled up to +3V3_M2PCIE)	O	CONFIG_2	75				

3.1.6 J6 – PCI Express Connector 52P Mini Card Socket *(CONN PCI EXP MINI FEMALE 52POS)*

Description: Connector J6 is 52 Position Female Connector PCI Express Mini Card Gold 0.031" (0.80mm). Together with Mini PCIe Latch J8, it provides both secure and quick-release connection.
Manufacturer: JAE Industry
Connector: MM60-52B1-E1-R650
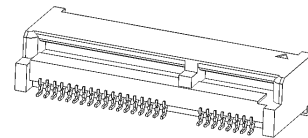
J6
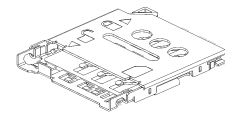
SIGNAL NAME	TYPE	PIN NAME	PIN	PIN	PIN NAME	TYPE	SIGNAL NAME
PCIE1_WAKE	O	WAKE#	1	2	3.3V_1	PWR	+3V3_mPCIE
Not Connected	NC	Reserved_1	3	4	GND_7	G	GND
Not Connected	NC	Reserved_2	5	6	1.5V_1	PWR	+1V5_mPCIE
PCIE1_nCLKREQ	O	CLKREQ#	7	8	UIM_PWR	O	MPCIE_SIM_PWR
GND	G	GND_1	9	10	UIM_DATA	I/O	MPCIE_SIM_DATA
PCIE1_CON_CLK_N	I	REFCLK-	11	12	UIM_CLK	O	MPCIE_SIM_CLK
PCIE1_CON_CLK_P	I	REFCLK+	13	14	UIM_RESET	O	MPCIE_SIM_RST
GND	G	GND_2	15	16	UIM_VPP	PWR	MPCIE_SIM_VPP
Not Connected	NC	Reserved/UIM_C8	17	18	GND_8	G	GND
Not Connected	NC	Reserved/UIM_C4	19	20	W_DISABLE#	I	mPCIE_WDIS# (pulled up to +3V3_mPCIE)
GND	G	GND_3	21	22	PERST#	I	SYS_RSTn
PCIE1_CON_RX_N	O	PERn0	23	24	+3.3Vaux	PWR	+3V3_mPCIE
PCIE1_CON_RX_P	O	PERp0	25	26	GND_9	G	GND
GND	G	GND_4	27	28	1.5V_2	PWR	+1V5_mPCIE
GND	G	GND_5	29	30	SMB_CLK	I	I2C2_SCL
PCIE1_CON_TX_N	I	PETn0	31	32	SMB_DATA	IO	I2C2_SDA
PCIE1_CON_TX_P	I	PETp0	33	34	GND_10	G	GND
GND	G	GND_6	35	36	USB_D-	IO	USB_MPCIE_N
GND	G	Reserved_3	37	38	USB_D+	IO	USB_MPCIE_P
+3V3_mPCIE	PWR	Reserved_4	39	40	GND_11	G	GND

SIGNAL NAME	TYPE	PIN NAME	PIN	PIN	PIN NAME	TYPE	SIGNAL NAME
+3V3_mPCIE	PWR	Reserved_5	41	42	LED_WWAN#	O	LED_MPCIE1_WWAN (LED DIODE D4 used for indication)
GND	G	Reserved_6	43	44	LED_WLAN#	O	LED_MPCIE1_WLAN (LED DIODE D5 used for indication)
Not Connected	NC	Reserved_7	45	46	LED_WPAN#	O	LED_MPCIE1_WPAN (LED DIODE D6 used for indication)
Not Connected	NC	Reserved_8	47	48	1.5V_3	PWR	+1V5_mPCIE
Not Connected	NC	Reserved_9	49	50	GND_12	G	GND
Not Connected	NC	Reserved_10	51	52	3.3V_2	PWR	+3V3_mPCIE
GND	G	S1	53	54	S2	G	GND

3.1.7 J7 – SIM Card Connector for Mini PCI Express *(CONN MICRO SIM CARD HINGED TYPE)*

Description: Connector J7 is 6 Position Card Connector Micro SIM Surface Mount, Right Angle Gold. Hinged type socket ensures secure connection and vibration immunity.

Manufacturer: Molex, LLC
Connector: **0788000001**

PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
C1	VCC	PWR	MPCIE_SIM_PWR	SIM Card Power
C2	RESET	I	MPCIE_SIM_RST	SIM Card Reset
C3	CLK	I	MPCIE_SIM_CLK	SIM Card Clock
C5	GND	G	GND	GND
C6	VPP	PWR	MPCIE_SIM_VPP	SIM Card programming voltage
C7	I/O	IO	MPCIE_SIM_DATA	SIM Card Data
CD1	CD1	O	Not Connected	Card detection signal
CD2	CD2	G	Not Connected	Card detection signal
H1	H1	G	GND	Mechanical Pad
H2	H2	G	GND	Mechanical Pad

3.1.8 J9 – HDMI Connector *(CONN RCPT HDMI 19POS PNL MNT R/A)*

Description: Connector J9 is HDMI - Receptacle Connector 19 Position Panel Mount.

Manufacturer: TE Connectivity
Connector: 17479811

J9
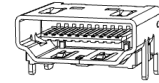
PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
1	TMDS DATA2+	O	HDMI_D2_A_P	TMDS Data 2+
2	TMDS DATA2 SHIELD	G	GND	TMDS Data 2 Shield
3	TMDS DATA2-	O	HDMI_D2_A_N	TMDS Data 2-
4	TMDS DATA1+	O	HDMI_D1_A_P	TMDS Data 1+
5	TMDS DATA1 SHIELD	G	GND	TMDS Data 1 Shield
6	TMDS DATA1-	O	HDMI_D1_A_N	TMDS Data 1-
7	TMDS DATA0+	O	HDMI_D0_A_P	TMDS Data 0+
8	TMDS DATA0 SHIELD	G	GND	TMDS Data 0 Shield
9	TMDS DATA0-	O	HDMI_D0_A_N	TMDS Data 0-
10	TMDS CLOCK+	O	HDMI_D3_A_P	TMDS Data 3+
11	TMDS CLOCK SHIELD	G	GND	TMDS Data 3 Shield
12	TMDS CLOCK-	O	HDMI_D3_A_N	TMDS Data 3-
13	CEC	I/O	HDMI_CEC_CON	Consumer Electronics Control (CEC)
14	N.C.	I/O	HDMI_Utility/HEAC+_P	Optional, HDMI Ethernet Channel (HEC) and Audio Return Channel (ARC)
15	SCL	O	HDMI_SCL	I2C Serial Clock for DDC (Display Data Channel)
16	SDA	I/O	HDMI_SDA	I2C Serial Data for DDC (Display Data Channel)
17	DDC/CEC GROUND	G	GND	Ground
18	+5V POWER	PO	+5V_HDMI	+5V Power
19	HOT PLUG DETECT	I/O	HDMI_HPD/HEAC-_N	Optional, HDMI Hot Plug Detect (HPD) and Audio Return Channel (ARC)
M1	SHLD1	G	GND	Mechanical Pad
M2	SHLD2	G	GND	Mechanical Pad
M3	SHLD3	G	GND	Mechanical Pad
M4	SHLD4	G	GND	Mechanical Pad

3.1.9 J111 – DisplayPort™ Standard Digital Interface Connector *(CONN RCP 1.1A DISPLAYPORT SMD RA)*

Description: Connector J111 is DisplayPort™ 1.1a Receptacle Connector 20 Position Surface Mount.

Manufacturer: JAE Industry
Connector: **DP1RD20JQ1R400**
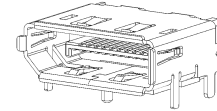
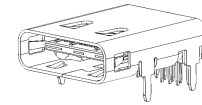| PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
1	LANE0_P	O	HDMI_D2_B_P	Lane 0+
2	GND1	G	GND	Lane 0 Shield
3	LANE0_N	O	HDMI_D2_B_N	Lane 0-
4	LANE1_P	O	HDMI_D1_B_P	Lane 1+
5	GND2	G	GND	Lane 1 Shield
6	LANE1_N	O	HDMI_D1_B_N	Lane 1-
7	LANE2_P	O	HDMI_D0_B_P	Lane 2+
8	GND3	G	GND	Lane 2 Shield
9	LANE2_N	O	HDMI_D0_B_N	Lane 2-
10	LANE3_P	O	HDMI_D3_B_P	Lane 3+
11	GND4	G	GND	Lane 3 Shield
12	LANE3_N	O	HDMI_D3_B_N	Lane 3-
13	CONFIG1		DP_CFG1	CONFIG1
14	CONFIG2		DP_CFG2	CONFIG2
15	AUX_P	I/O	HDMI_AUX_B_C_P	Auxiliary Channel +
16	GND5	G	GND	Auxiliary Channel Shield
17	AUX_N	I/O	HDMI_AUX_B_C_N	Auxiliary Channel -
18	HOT_PLUG_DET	I	HDMI_HPD_B	Hot Plug Detect
19	3V3_RETURN	G	GND	Return for Power (GND)
20	3V3	PWR	+VDD_3V3 / +VDD_3V3_DP	Power for Connector (3.3V 500mA)
M1	M1	G	GND	Mechanical Pad
M2	M2	G	GND	Mechanical Pad
M3	M3	G	GND	Mechanical Pad
M4	M4	G	GND	Mechanical Pad

3.1.10 J10 – USB Type C Connector (CONN RCP USB3.1 TYPEC 24P SMD RA)

Description: Connector J10 is USB 3.1 Type C Horizontal Receptacle with 24 THR / SMT positions.

NOTE: **It is not possible to power the baseboard using USB-C interface as the power requirements cannot be met via USB-C connector.**

Manufacturer: Würth Electronik
Connector: **632723300011**

J10

PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
A1	GND1	G	GND	
A2	SSTXP1	O	USBC_SSTX1_C_P	SuperSpeed Differential Pair 1, TX+
A3	SSTXN1	O	USBC_SSTX1_C_N	SuperSpeed Differential Pair 1, TX-
A4	VBUS1	PWR	+USB_SS3_VBUS	Bus Power
A5	CC1	I/O	USB_SS3_CC1	Configuration Channel
A6	DP1	I/O	USBC_D_P	USB 2.0 Differential Pair +
A7	DN1	I/O	USBC_D_N	USB 2.0 Differential Pair -
A8	SBU1		SBU1 / TP42 TP_25MIL	Sideband Use (SBU)
A9	VBUS2	PWR	+USB_SS3_VBUS	Bus Power
A10	SSRXN2	I	USBC_SSRX2_C_N	SuperSpeed Differential Pair 2, RX-
A11	SSRXP2	I	USBC_SSRX2_C_P	SuperSpeed Differential Pair 2, RX+
A12	GND2	G	GND	Ground
B1	GND4	G	GND	Ground
B2	SSTXP2	O	USBC_SSTX2_C_P	SuperSpeed Differential Pair 2, TX+
B3	SSTXN2	O	USBC_SSTX2_C_N	SuperSpeed Differential Pair 2, TX-
B4	VBUS4	PWR	+USB_SS3_VBUS	Bus Power
B5	CC2	I/O	USB_SS3_CC2	Configuration Channel
B6	DP2	I/O	USBC_D_P	USB 2.0 Differential Pair +
B7	DN2	I/O	USBC_D_N	USB 2.0 Differential Pair -
B8	SBU2		SBU2 / P43 TP_25MIL	Sideband Use (SBU)
B9	VBUS3	PWR	+USB_SS3_VBUS	Bus Power
B10	SSRXN1	I	USBC_SSRX1_C_N	SuperSpeed Differential Pair 1, RX-
B11	SSRXP1	I	USBC_SSRX1_C_P	SuperSpeed Differential Pair 1, RX+
B12	GND3	G	GND	Ground
M1	M1	G	GND	Mechanical Pad
M2	M2	G	GND	Mechanical Pad
M3	M3	G	GND	Mechanical Pad
M4	M4	G	GND	Mechanical Pad

3.1.11 J11 – USB Type A Dual Connector *(CONN RCPT USB3.0 TYPEA STACK R/A)*

Description: Connector J11 is Universal Serial Bus (USB 3.0) I/O Receptacle, Dual Port Stacked, Right-Angle, Tape A Connector.

Manufacturer: Molex, LLC
Connector: **0484060003**

J11
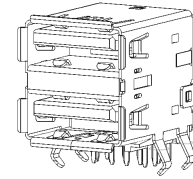
PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
1	VBUS	PWR	+5V_USB2_CTL1	+5V Power
2	D-	I/O	USB2_P1_L_N	Top USB Port – USB 2.0 Differential Pair -
3	D+	I/O	USB2_P1_L_P	Top USB Port – USB 2.0 Differential Pair +
4	GND	G	GND	Ground
5	SSRX-	I	USB2_P1_L_RX_N	Top USB Port – SuperSpeed Differential Pair RX-
6	SSRX+	I	USB2_P1_L_RX_P	Top USB Port – SuperSpeed Differential Pair RX+
7	GND_DRAIN	G	GND	Ground
8	SSTX-	O	USB2_P1_L_TX_N	Top USB Port – SuperSpeed Differential Pair TX-
9	SSTX+	O	USB2_P1_L_TX_P	Top USB Port – SuperSpeed Differential Pair TX+
10	VBUS	PWR	+5V_USB2_CTL2	+5V Power
11	D-	I/O	USB2_P2_L_N	Bottom USB Port – USB 2.0 Differential Pair -
12	D+	I/O	USB2_P2_L_P	Bottom USB Port – USB 2.0 Differential Pair +
13	GND	G	GND	Ground
14	SSRX-	I	USB2_P2_L_RX_N	Bottom USB Port – SuperSpeed Differential Pair RX-
15	SSRX+	I	USB2_P2_L_RX_P	Bottom USB Port – SuperSpeed Differential Pair RX+
16	GND_DRAIN	G	GND	Ground
17	SSTX-	O	USB2_P2_L_TX_N	Bottom USB Port – SuperSpeed Differential Pair TX-
18	SSTX+	O	USB2_P2_L_TX_P	Bottom USB Port – SuperSpeed Differential Pair TX+
M1	M1	G	GND	Mechanical Pad
M2	M2	G	GND	Mechanical Pad
M3	M3	G	GND	Mechanical Pad
M4	M4	G	GND	Mechanical Pad

3.1.12 J12 – LVDS0 NHD Easy-On FFC Connector *(CONN FFC BOTTOM 40POS 0.50MM R/A)*

Description: LVDS0 connector J12 is 40 Position FFC, FPC Connector Contacts, Bottom 0.020"
(0.50mm) Surface Mount

Manufacturer: Molex, LLC
Connector: **0541324062**   Wiki: LVDS NHD Display
Wiki: LVDS BOE Display
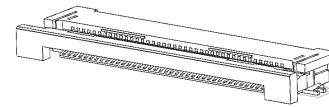
PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION	
1	GND	G	GND	Ground	
2	VDD	PWR	+VDD_LVDS0 (connected to +VDD_3V3 via bead)	Supply Voltage for LCD (+3.3V)	
3	VDD	PWR	+VDD_LVDS0 (connected to +VDD_3V3 via bead)	Supply Voltage for LCD (+3.3V)	
4	V_EDID	PWR	+VDD_EDID (connected to +VDD_3V3 via 0R resistor)	Supply Voltage for EDID (+3.3V)	
5	GND	G	GND	Ground	
6	SCL	O	I2C_SCL_LCD0	Serial Clock for EDID	
7	SDA	IO	I2C_SDA_LCD0	Serial Data for EDID	
8	Rin0-	O	LVDS0_TX0_N	LVDS Differential Data Output CH0-	
9	Rin0+	O	LVDS0_TX0_P	LVDS Differential Data Output CH0+	
10	GND	G	GND	Ground	
11	Rin1-	O	LVDS0_TX1_N	LVDS Differential Data Output CH1-	
12	Rin1+	O	LVDS0_TX1_P	LVDS Differential Data Output CH1+	
13	GND	G	GND	Ground	
14	Rin2-	O	LVDS0_TX2_N	LVDS Differential Data Output CH2-	
15	Rin2+	O	LVDS0_TX2_P	LVDS Differential Data Output CH2+	
16	GND	G	GND	Ground	
17	CLKIN-	O	LVDS0_CLK_N	LVDS Differential Clock-	
18	CLKIN+	O	LVDS0_CLK_P	LVDS Differential Clock+	
19	GND	G	GND	Ground	
20	Rin3-	O	LVDS0_TX3_N	LVDS Differential Data Output CH3-	
21	Rin3+	O	LVDS0_TX3_P	LVDS Differential Data Output CH3+	
22	GND	G	GND	Ground	
23	INSEL (HSD)		LVDS0_INSEL (pulled down to GND by default)	Data Input Format:	INSEL = L 8-Bit LVDS (Default) INSEL = H 6-Bit LVDS
24	GND	G	GND	Ground	
25	GND	G	GND	Ground	
26	UPDN		LVDS0_UPDN (pulled down to GND by default)	Gate Driver Up/Down Scan Setting:	UPDN = H: Reverse Scan UPDN = L: Normal Scan (Default)

PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION	
27	SHLR		LVDS0_SHLR (pulled up to +VDD_LVDS0 by default)	Gate Driver Left/Right Scan Setting:	SHLR = H: Normal Scan(Default) SHLR = L: Reverse Scan
28	GND	G	GND	Ground	
29	RESET	O	SYS_RSTn	Active Low Reset Signal	
30	STBY	O	LVDS0_EN	Active Low Standby Signal	
31	LED_GND	G	GND	Ground for Backlight Driver	
32	LED_GND	G	GND	Ground for Backlight Driver	
33	LED_GND	G	GND	Ground for Backlight Driver	
34	GND	G	GND	Ground	
35	LED_PWM	O	LVDS0_BKL_PWM	Backlight PWM Signal	
36	LED_EN	O	LVDS0_BKL_EN	Backlight Enable:	H: Backlight On L: Backlight Off
37	BIST		LVDS0_BIST (pulled down to GND by default)	Built in self-Test:	BIST=H: Self-Test Enabled BIST=L: Normal Operation (Default)
38	LED_VDD	PWR	+VDD_BCKL0	Supply Voltage for Backlight Driver	
39	LED_VDD	PWR	+VDD_BCKL0	Supply Voltage for Backlight Driver	
40	LED_VDD	PWR	+VDD_BCKL0	Supply Voltage for Backlight Driver	
M1	M1	G	GND	Mechanical Pad	
M2	M2	G	GND	Mechanical Pad	
M3	M3	G	GND	Mechanical Pad	
M4	M4	G	GND	Mechanical Pad	

NOTE: The iMX Development Baseboard in standard configuration is assembled to support the Newhaven / BOE displays by default. This is achieved by configurable 0R resistors on the bottom side of the baseboard which must be fitted as shown in the pictures below:
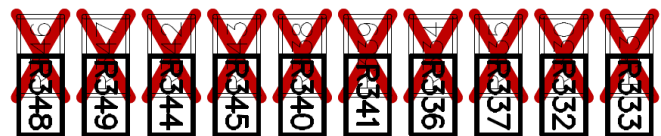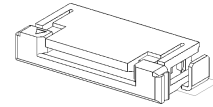

More information available on Wiki: LVDS NHD Display page.

3.1.13 J13 – *Capacitive Touchscreen Easy-On FFC Connector* (CONN FFC FPC TOP 6POS 1.00MM R/A)

Description: Capacitive Touchscreen connector J13 is 6 Position FFC, FPC Connector Contacts, Top 0.039" (1.00mm) Surface Mount.

Manufacturer: Molex, LLC
Connector: **0522070660**   Wiki: LVDS NHD Display
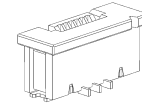   Wiki: LVDS BOE Display

J13

PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
1	1	PWR	+VDD_TOUCH1 (connected to +VDD_3V3 via bead)	Tuchpad Supply Voltage
2	2	G	GND	Ground
3	3	O	I2C2_SCL	I2C Serial Clock
4	4	I/O	I2C2_SDA	I2C Serial Data
5	5	I	TOUCH1_INT#	Touch Interrupt
6	6	O	SYS_RSTn	System Reset
M1	M1	G	GND	Mechanical Pad
M2	M2	G	GND	Mechanical Pad

3.1.14 J14 – *LVDS0 20-pin Shielded Connector* (CONN HEADER SMD R/A 20POS 1.25MM)

Description: LVDS0 Connector J14 is 20 Position Connector Header Surface Mount, Right Angle 20 position 0.049" (1.25mm)

Manufacturer: JAE Industry
Connector: **FI-SE20P-HFE**   Wiki: LVDS KOE Display
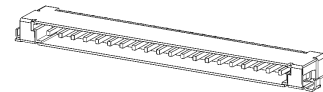
J14

PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
1	VCC_1	PWR	+VDD_LVDS1	Power Supply for Logic
2	VCC_2	PWR	+VDD_LVDS1	Power Supply for Logic
3	GND_1	G	GND	Ground
4	GND_2	G	GND	Ground

PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
5	D0-	O	LVDS1_TX0_N	R0~R5, G0 signals of RGB data
6	D0+	O	LVDS1_TX0_P	R0~R5, G0 signals of RGB data
7	GND_3	G	GND	Ground
8	D1-	O	LVDS1_TX1_N	G1~G5, B0~B1 signals of RGB data
9	D1+	O	LVDS1_TX1_P	G1~G5, B0~B1 signals of RGB data
10	GND_4	G	GND	Ground
11	D2-	O	LVDS1_TX2_N	B2~B5, DE signals of RGB data
12	D2+	O	LVDS1_TX2_P	B2~B5, DE signals of RGB data
13	GND_5	G	GND	Ground
14	CK-	O	LVDS1_CLK_N	Pixel Clock
15	CK+	O	LVDS1_CLK_P	Pixel Clock
16	GND_6	G	GND	Ground
17	FRC	O	LVDS1_TX3_N	R6~R7, G6~G7, B6~B7 signals of RGB data
18	DPS	O	LVDS1_TX3_P	R6~R7, G6~G7, B6~B7 signals of RGB data
19	D3-/GND_7	NC	+VDD_BCKL1_AUX	For TX18D200VM0EAA Not Connected
20	D3+/GND_8	O	BUF_LVDS1_PWM	Backlight PWM Signal
M1	M1	G	GND	Mechanical Pad
M2	M2	G	GND	Mechanical Pad

NOTE: The iMX Development Baseboard in standard configuration is assembled to support the Newhaven / BOE displays by default. To enable KOE Display usage, the configurable 0R resistors on the bottom side of the baseboard must be fitted as shown in the pictures below:

More information available on Wiki: LVDS KOE Display page.

3.1.15 J40 – Touchscreen Easy-On FFC Connector *(CONN FFC VERT 6POS 0.50MM SMD)*

Description: Connector J40 is 6 Position FFC, FPC Connector Contacts.

Manufacturer: TE Connectivity
Connector: **1734742-6**   Wiki: LVDS KOE Display

J40

PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
1	1	PWR	+VDD_TOUCH2 (connected to +VDD_3V3 via bead)	Tuchpad Supply Voltage
2	2	I	TOUCH2_INT#	Touch Interrupt
3	3	O	SYS_RSTn	System Reset
4	4	O	I2C2_SCL	I2C Serial Clock
5	5	I/O	I2C2_SDA	I2C Serial Data
6	6	G	GND	Ground
M1	M1	G	GND	Mechanical Pad
M2	M2	G	GND	Mechanical Pad

3.1.16 J15 – LVDS0 Backlight Connector *(CONN HEADER VERT 2POS 2MM)*

Description: Connector J15 is Header Through Hole 2 position 0.079" (2.00mm).

Manufacturer: JST Sales America Inc.
Connector: **B2BPHKSLFSN**
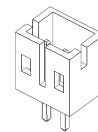
J15

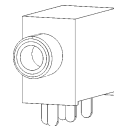| PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
1	1	PWR	+VDD_BCKL1 (connected to +VDD_12V via bead)	Display Backlight Power Supply +12V
2	2	G	GND	Ground

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3.1.17 J16 – Headphones 3.5mm Audio Jack Connector *(CONN JACK STEREO 3.5MM R/A)*

Description: Connector J16 is 3.50mm (0.141", 1/8", Mini Plug) - Headphone Phone Jack Stereo (3 Conductor, TRS) Connector.

Manufacturer: CUI Devices
Connector: **SJ1-3535NG**   Wiki: AUDIO Test
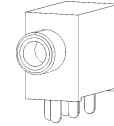
J16

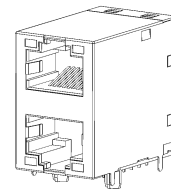| PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
1	SLEEVE	O/G	HP_OUT_FB	Headphone Output Ground Loop Noise Rejection Feedback, connected to Ground
2	TIP	I	FIL_HP_OUT_L	Left Headphone Channel
3	RING	I	FIL_HP_OUT_R	Right Headphone Channel
4	TIP SWITCH	NC		Not Connected
5	RING SWITCH	NC		Not Connected

3.1.18 J17 – Microphone In 3.5mm Audio Jack Connector *(CONN JACK STEREO 3.5MM R/A)*

Description: Connector J17 is 3.50mm (0.141", 1/8", Mini Plug) - Headphone Phone Jack Stereo (3 Conductor, TRS) Connector. Microphone In Jack can be configured as a Line Input.

Manufacturer: CUI Devices
Connector: **SJ1-3535NG-PI**   Wiki: AUDIO Test

J17

PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
1	SLEEVE	G	GND	Ground
2	TIP	O	FIL_MICIN_L / MICIN_L	Left Microphone Channel
3	RING	O	FIL_MICIN_R / MICIN_R	Right Microphone Channel
4	TIP SWITCH	NC		Not Connected
5	RING SWITCH	NC		Not Connected

3.1.19 J18 – Line Out 3.5mm Audio Jack Connector *(CONN JACK STEREO 3.5MM R/A)*

Description: Connector J18 is 3.50mm (0.141", 1/8", Mini Plug) - Headphone Phone Jack Stereo (3 Conductor, TRS) Connector.

Manufacturer: CUI Devices
Connector: **SJ1-3535NG-GR**   Wiki: AUDIO Test
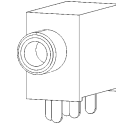
J18

PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
1	SLEEVE	O/G	HP_OUT_FB	Line Output Ground Loop Noise Rejection Feedback, connected to Ground
2	TIP	I	FIL_LINE_OUT_L	Left Line Out Channel
3	RING	I	FIL_LINE_OUT_R	Right Line Out Channel
4	TIP SWITCH	NC		Not Connected
5	RING SWITCH	NC		Not Connected

3.1.20 J19 – RJ-45 Ethernet Dual Connector *(CONN JACK 2PORT 1000 BASE-T PCB)*

Description: Connector J19 is 2 Port RJ45Through Hole 10/100/1000 Base-T, AutoMDIX.

Manufacturer: TE Connectivity AMP Connectors
Connector: **2301997-7**   Wiki: Ethernet Test

J19

ETH1 LOWER ROW				ETH2 UPPER ROW			
SIGNAL NAME	TYPE	PIN NAME	PIN	PIN	PIN NAME	TYPE	SIGNAL NAME
ETH1_TRX0_P	I/O	D0+	B1	A1	D0+	I/O	ETH2_TRX0_P
ETH1_TRX0_N	I/O	D0-	B2	A2	D0-	I/O	ETH2_TRX0_N
ETH1_TRX1_P	I/O	D1+	B3	A3	D1+	I/O	ETH2_TRX1_P
ETH1_TRX1_N	I/O	D1-	B4	A4	D1-	I/O	ETH2_TRX1_N
ETH1_TRX2_P	I/O	D2+	B5	A5	D2+	I/O	ETH2_TRX2_P
ETH1_TRX2_N	I/O	D2-	B6	A6	D2-	I/O	ETH2_TRX2_N
ETH1_TRX3_P	I/O	D3+	B7	A7	D3+	I/O	ETH2_TRX3_P
ETH1_TRX3_N	I/O	D3-	B8	A8	D3-	I/O	ETH2_TRX3_N
+ENET_VDDIO_2V5	NC	VCC	B9	A9	VCC	NC	+ENET_VDDIO_2V5

ETH1 LOWER ROW				ETH2 UPPER ROW			
SIGNAL NAME	TYPE	PIN NAME	PIN	PIN	PIN NAME	TYPE	SIGNAL NAME
	G	GND	B10	A10	GND	G	GND
	G	GND	B11	A11	GND	G	GND
ETH_LED_10_100_1G	I	YELLOW	B12	A12	YELLOW	I	ETH_LED_10_100_1G
	G	GND	B13	A13	GND	G	LED_ACT
ETH_LED_ACT	I	GREEN	B14	A14	GREEN	I	ETH_LED_ACT

3.1.21 J21 – UART1 Buffer Header *(CONN HEADER SMD 6POS 2.54MM)*

Description: Connector J21 is Double Row, Vertical, SMD Type. This header selects the path where UART1 signals are routed, thus selecting the system console connector.

NOTE: A top overlay diagram on the PCB next to the header helps with the proper link placement.

WARNING: An improper placement of the header links will result in a loss of console communication!

Manufacturer: Multicomp Pro
Connector: **2213SM-16G-TB**
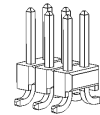
J21

SIGNAL NAME	TYPE	DESCRIPTION	PIN	PIN	DESCRIPTION	TYPE	SIGNAL NAME
UART1_RXD_CP	O	On Board UART / USB Bridge	1	2	On Board UART / USB Bridge	I	UART1_TXD_CP
UART1_RXD	I	Source UART1 RxD	3	4	Source UART1 TxD	O	UART1_TXD
UART1_RXD_CPU	O	On Board Header for FTDI Cable	5	6	On Board Header for FTDI Cable	I	UART1_TXD_CPU

| UART1 SELECTION OPTIONS		
FUNCTION	**RXD LINK**	**TXD LINK**
CPU communicates with a device plugged into J26 Micro USB Connector (Default)	1-3	2-4
CPU communicates with a FTDI cable compatible device plugged into J23 Header	3-5	4-6

WARNING: Any other link placement may cause malfunction and/or damage!

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3.1.22 J22 – UART2 Buffer Header *(CONN HEADER SMD 6POS 2.54MM)*

Description: Connector J22 is Double Row, Vertical, SMD Type. This header selects the path where UART2 signals are routed.

Note: *A top overlay diagram on the PCB next to the header helps with the proper link placement.*

Manufacturer: Multicomp Pro
Connector: **2213SM-16G-TB**

J22
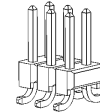
SIGNAL NAME	TYPE	DESCRIPTION	PIN	PIN	DESCRIPTION	TYPE	SIGNAL NAME
UART2_RXD_CP	O	On Board UART/USB Bridge	1	2	On Board UART/USB Bridge	I	UART2_TXD_CP
UART2_RXD	I	Source UART2 RxD	3	4	Source UART2 TxD	O	UART2_TXD
UART2_RXD_CPU	O	On Board Header for FTDI Cable	5	6	On Board Header for FTDI Cable	I	UART2_TXD_CPU

UART1 SELECTION OPTIONS		
FUNCTION	**RXD LINK**	**TXD LINK**
CPU communicates with a device plugged into J26 Micro USB Connector (Default)	1-3	2-4
CPU communicates with a FTDI cable compatible device plugged into J24 Header	3-5	4-6

WARNING: Any other link placement may cause malfunction and/or damage!

3.1.23 J23 – UART1 Console Header *(CONN HEADER VERT 6POS 2.54MM)*

Description: One Row Header J23 is Connector Header Through Hole 6 position 0.100" (2.54mm) designed to be used with FTDI TTL-232R-3V3 TTL to USB Serial Converter Cable. (FTDI TTL-232R-3V3 Cable Datasheet)

Manufacturer: Molex, LLC
Connector: **0022102061**

J23
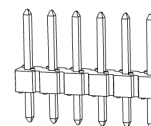
PIN	PIN NAME	TYPE	DESCRIPTION
1	GND	G	Ground
2	NC	NC	Not Connected
3	NC	NC	Not Connected
4	UART1_RXD_FTDI	I	UART1_RXD_FTDI
5	UART1_TXD_FTDI	O	UART1_TXD_FTDI
6	NC	NC	Not Connected

3.1.24 J24 – UART2 Console Header *(CONN HEADER VERT 6POS 2.54MM)*

Description: One Row Header J24 is Connector Header Through Hole 6 position 0.100"
(2.54mm) designed to be used with FTDI TTL-232R-3V3 TTL to USB Serial Converter
Cable. (FTDI TTL-232R-3V3 Cable Datasheet)

Manufacturer: Molex, LLC
Connector: **0022102061**

J24
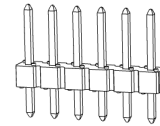
PIN	PIN NAME	TYPE	DESCRIPTION
1	GND	G	Ground
2	UART2_RTS_FTDI	O	UART2_RTS_FTDI
3	NC	NC	Not Connected
4	UART2_RXD_FTDI	I	UART2_RXD_FTDI
5	UART2_TXD_FTDI	O	UART2_TXD_FTDI
6	UART2_CTS_FTDI	I	UART2_CTS_FTDI

3.1.25 J25 – UART2/UART4 Buffer Header Connector *(CONN HEADER SMD 6POS 2.54MM)*

Description: Connector J25 is Double Row, Vertical, SMD Type. This header selects the path
where UART2 and UART4 signals are routed.

Note: *A top overlay diagram on the PCB next to the header helps with the
proper link placement.*

Manufacturer: Multicomp Pro
Connector: **2213SM-16G-TB**

J25
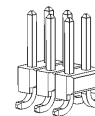
SIGNAL NAME	TYPE	DESCRIPTION	PIN	PIN	DESCRIPTION	TYPE	SIGNAL NAME
UART4_RXD	O	On Board Header J27	1	2	On Board Header J27	I	UART4_TXD
UART4_RXD/UART2_CTS	I	Source path to CPU	3	4	Source path from CPU	O	UART4_TXD/UART2_RTS
UART2_CTS_CPU	O	On Board Header for FTDI Cable	5	6	On Board Header for FTDI Cable	I	UART2_RTS_CPU

UART2/UART4 SELECTION OPTIONS		
FUNCTION	**RXD/CTS LINK**	**TXD/RTS LINK**
CPU pins are configured are routed to function as UART4 signals	1-3	2-4
CPU pins are configured are routed to function as UART2 signals	3-5	4-6

*WARNING: Any other link placement may cause malfunction and/or damage!*

3.1.26 J26 – Console Connector (Micro USB Type B) *(CONN RCPT USB2.0 MICRO B SMD R/A)*

Description: Connector J26 is USB - micro B USB 2.0 Receptacle Connector 5 Position Surface Mount, Right Angle.

NOTE: *This USB connector is not directly linked with the CPU USB circuitry, it provides an easy and reliable way to communicate with the CPU via Serial console.*
This option has to be selected using J21 – UART1 Buffer Header and
J22 – UART2 Buffer Header first.

Manufacturer: AMPHENOL COMMUNICATIONS SOLUTIONS (ACS)
Connector: **10118193-0001LF**
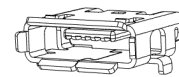
J26

PIN	PIN NAME	TYPE	DESCRIPTION
1	+5V	PWR	+VBUS_USB_DBG / +VBUS_CP210x
2	D-	IO	USB_DBG_CN_D_N
3	D+	IO	USB_DBG_CN_D_P
4	ID	NC	Not Connected
5	G	G	Ground

3.1.27 J27 – UART3 + UART4 + SPI1 Shrouded Header Connector *(CONN HEADER SMD 14POS 2.54MM)*

Description: J27 connector is Connector Header Surface Mount 14 position 0.100" (2.54mm).

Manufacturer: CnC Tech
Connector: **3020-14-0300-00**
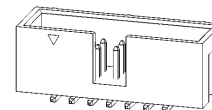
J27

SIGNAL NAME	TYPE	PIN	PIN	TYPE	SIGNAL NAME
+VDD_3V3	PWR	1	2	G	Ground
UART4_RXD	I	3	4	O	UART4_TXD
Ground	G	5	6	I	UART3_RXD_CON
UART3_TXD_CON	O	7	8	G	Ground
UART3_RTS/ECSPI1_SSO_CON	O	9	10	I	UART3_CTS/ECSPI1_MISO_CON
Ground	G	11	12	O	ECSPI1_SCLK
ECSPI1_MOSI	O	13	14	G	Ground

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3.1.28 J28 – Micro SD Card Push & Push Connector *(CONN MICRO SD CARD PUSH-PUSH R/A)*

Description: Slot J28 is 9 (8+1) Position Card Connector Secure Digital - microSD™ Surface Mount, Right Angle Gold.

Note: *This connector can be used as a bootable device. The boot from SD card has to be setup using DIP Switches.*

Manufacturer: Würth Electronik
Connector: 693071010811
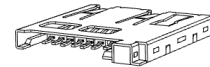
J28

PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
1	DAT2	I/O	SD2_DATA2_R	SD Serial Data 2
2	CD/DAT3	I/O	SD2_DATA3_R	SD Serial Data 3
3	CMD	I/O	SD2_CMD_R	SD Command, Response
4	VDD	PWR	+VDD_3V3_SD	Power
5	CLK	O	SD2_CLK_R	SD Serial Clock
6	VSS	G	GND	Ground
7	DAT0	I/O	SD2_DATA0_R	SD Serial Data 0
8	DAT1	I/O	SD2_DATA1_R	SD Serial Data 1
9A	9A	I	SD2_CDn (pulled up to +VDD_3V3_SD)	SD Card Detect
9B	9B	I	SD2_CDn (pulled up to +VDD_3V3_SD)	SD Card Detect
10A	CASE1	G	GND	Mechanical Pad
10B	CASE2	G	GND	Mechanical Pad

### 3.1.29 J29 – SAI1 + SAI2 + SAI3 + SAI5 Header Connector *(CONN HEADER VERT 40POS 2.54MM)*

Description: Connector J29 is Connector Header Through Hole 40 position 0.100" (2.54mm).

Manufacturer: Harwin Inc.
Connector: M20-9982045
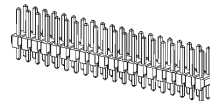
J29

SIGNAL NAME	TYPE	PIN	PIN	TYPE	SIGNAL NAME
Ground	G	1	2	G	Ground
SAI1_TXD0	O	3	4	O	SAI1_TXD1
SAI1_TXD2	O	5	6	O	SAI1_TXD3
SAI1_TXD4	O	7	8	O	SAI1_TXD5

SIGNAL NAME	TYPE	PIN	PIN	TYPE	SIGNAL NAME
SAI1_TXD6	O	9	10	O	SAI1_TXD7
SAI1_TXC	O	11	12	O	SAI1_TXFS
SAI1_RXD0	I	13	14	I	SAI1_RXD1
SAI1_RXD2	I	15	16	I	SAI1_RXD3
SAI1_RXD4	I	17	18	I	SAI1_RXD5
SAI1_RXD6	I	19	20	I	SAI1_RXD7
SAI1_RXC	I	21	22	I	SAI1_RXFS
SAI1_MCLK	O	23	24	O	SAI2_TXC_CON
SAI2_TXD_CON	O	25	26	O	SAI2_MCLK_CON
SAI2_TXFS_CON	O	27	28	I	SAI2_RXD_CON
SAI3_TXC_CON	O	29	30	O	SAI3_TXD_CON
SAI3_MCLK_CON	O	31	32	O	SAI3_TXFS_CON
SAI3_RXD_CON	I	33	34	I	SAI5_RXD0
SAI5_RXC	I	35	36	I	SAI5_RXFS
SAI5_MCLK	O	37	38	PWR	Connected to +VDD_3V3 via 500mA PTC
Ground	G	39	40	G	Ground

3.1.30 J30 – JTAG Shrouded Header Connector *(CONN HEADER VERT 20POS 2.54MM)*

Description: J30 connector is Connector Header Through Hole 20 position 0.100" (2.54mm).
NOTE: *JTAG connector allows in-depth debugging of CPU cores as well as flashing and programming.*

Manufacturer: Harting
Connector: **09185206324**
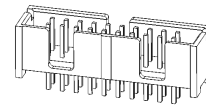
J30

SIGNAL NAME	TYPE	PIN	PIN	TYPE	SIGNAL NAME
JTAG_VREF	O	1	2	NC	+VDD_1V8 / +VDD_3V3
JTAG_nTRST	I	3	4	G	Ground
JTAG_TDI (pulled up to +VDD_1V8)	I	5	6	G	Ground
JTAG_TMS (pulled up to +VDD_1V8)	I	7	8	G	Ground
JTAG_TCK	I	9	10	G	Ground
JTAG_RTCK (pulled down to GND)		11	12	G	Ground
JTAG_TDO	O	13	14	G	Ground

SIGNAL NAME	TYPE	PIN	PIN	TYPE	SIGNAL NAME
JTAG_nSRST / POR_B	O	15	16	G	Ground
JTAG_DE (pulled up to +VDD_1V8)		17	18	G	Ground
JTAG_DACK	NC	19	20	G	Ground

3.1.31 J31 – CAN MIKROE-3060 Module Header *(CONN HDR 8POS 0.1 GOLD PCB)*

Description: Header J31 is 8 Position Header Connector 0.100" (2.54mm) Through Hole Gold.

Manufacturer: Sullins Connector Solutions
Connector: **PPPC081LFBN-RC**   Wiki: CANbus Module
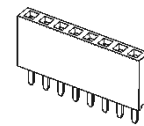
J31

PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
1		I	SAI3_RXFS_CON	Standby Control
2		O	SYS_RSTn	Resest
3		O	ECSPI2_SS0	SPI Chip Select
4		O	ECSPI2_SCLK	SPI Clock
5		I	ECSPI2_MISO	SPI Data IN
6		O	ECSPI2_MOSI	SPI Data OUT
7		PWR	+3V3_CAN	Connected to +VDD_3V3 via 125mA PTC
8		G	GND	Ground

3.1.32 J32 – I2C + GPIO Shrouded Header Connector *(CONN HEADER SMD 14POS 2.54MM)*

Description: J32 connector is Connector Header Surface Mount 14 position 0.100" (2.54mm).

Manufacturer: CnC Tech
Connector: **3020-14-0300-00**
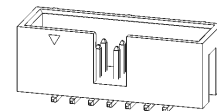
J32

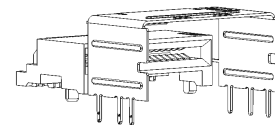| SIGNAL NAME	TYPE	PIN	PIN	TYPE	SIGNAL NAME
+5V_GPIO (Connected to +VDD_5V via 125mA PTC)	PWR	1	2	PWR	+3V3_GPIO (Connected to +VDD_3V3 via 125mA PTC)
Ground	G	3	4	G	Ground
I2C2_SCL	O	5	6	I/O	I2C2_SDA
I2C3_SCL	O	7	8	I/O	I2C3_SDA

SIGNAL NAME	TYPE	PIN	PIN	TYPE	SIGNAL NAME
Ground	G	9	10	I/O	I2C_EXP_GPIO14
I2C_EXP_GPIO13	I/O	11	12	G	Ground
Ground	G	13	14	G	Ground

3.1.33 J33 – CAN MIKROE-3060 Module Header *(CONN HDR 8POS 0.1 GOLD PCB)*

Description: Header J33 is 8 Position Header Connector 0.100" (2.54mm) Through Hole Gold.

Manufacturer: Sullins Connector Solutions
Connector: **PPPC081LFBN-RC**   Wiki: CANbus Module
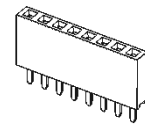
J33

PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
1		NC		Not Connected
2	SAI2_RXC_CON	I	SAI2_RXC_CON	Interrupt
3	SAI2_RXFS_CON	I/O	SAI2_RXFS_CON	TX Interrupt
4	SAI3_RXC_CON	I/O	SAI3_RXC_CON	RX Interuupt
5		NC		Not Connected
6		NC		Not Connected
7	+5V_CAN	PWR	+5V_CAN (Connected to +VDD_5V via 125mA PTC)	Power Supply
8	GND	G	GND	Ground

3.1.34 J34 – CSI Camera 1 iPass I/O Connector *(CONN MINI SAS RCP 36P SLD RA SMD)*

Description: Connector J34 is 36 Position SAS, Mini Receptacle Connector Solder Surface Mount, Right Angle.

Manufacturer: Molex, LLC
Connector: **0757830140**   Wiki: NXP Camera

J34

PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
A1	GND1	G	GND	Ground
A2	RX0_P	I	CSI_P1_CK_N	CSI / MIPI Clock Lane -
A3	RX0_N	I	CSI_P1_CK_P	CSI / MIPI Clock Lane +

PIN	PIN NAME	TYPE	SIGNAL NAME	DESCRIPTION
A4	GND2	G	GND	Ground
A5	RX1_P	PWR	+VDD_1V8	Power 1.8V
A6	RX1_N	PWR	+VDD_1V8	Power 1.8V
A7	GND3	G	GND	Ground
A8	SIDEBAND_7	TP	TP31 / TP_25MIL	Test point
A9	SIDEBAND_3	TP	TP31 / TP_25MIL	Test Point
A10	SIDEBAND_4	NC		Not Connected
A11	SIDEBAND_5	O	CSI1_PWDN (via D41) (pulled up to +VDD_1V8)	Pull Up, Enable
A12	GND4	G	GND	Ground
A13	RX2_P	PWR	+VDD_3V3	Power 3.3V
A14	RX2_N	PWR	+VDD_3V3	Power 3.3V
A15	GND5	G	GND	Ground
A16	RX3_P	PWR	+VDD_5V	Power 5V
A17	RX3_N	PWR	+VDD_5V	Power 5V
A18	GND6	G	GND	Ground
B1	GND7	G	GND	Ground
B2	TX0_P	I	CSI_P1_D0_N	CSI / MIPI Data Lane 0 -
B3	TX0_N	I	CSI_P1_D0_P	CSI / MIPI Data Lane 0 +
B4	GND8	G	GND	Ground
B5	TX1_P	I	CSI_P1_D1_N	CSI / MIPI Data Lane 1 -
B6	TX1_N	I	CSI_P1_D1_P	CSI / MIPI Data Lane 1 +
B7	GND9	G	GND	Ground
B8	SIDEBAND_0	O	CLK_12MHZ_CAM (pulled up to +VDD_1V8)	On-board Oscillator Output
B9	SIDEBAND_1	O	CSI1_RST# (via D42) (pulled up to +VDD_1V8)	Reset
B10	SIDEBAND_2	I/O	I2C_CSI1_SDA	I2C Data
B11	SIDEBAND_6	O	I2C_CSI1_SCL	I2C Clock
B12	GND10	G	GND	Ground
B13	TX2_P	I	CSI_P1_D2_N	CSI / MIPI Data Lane 2 -
B14	TX2_N	I	CSI_P1_D2_P	CSI / MIPI Data Lane 2 +
B15	GND11	G	GND	Ground
B16	TX3_P	I	CSI_P1_D3_N	CSI / MIPI Data Lane 3 -
B17	TX3_N	I	CSI_P1_D3_P	CSI / MIPI Data Lane 3 +
B18	GND12	G	GND	Ground

voipac.

3.1.35 J35 – CSI Camera 2 FFC Connector *(CONN FPC BOTTOM 15POS 1.00MM R/A)*

Description: Connector J35 is 15 Position FPC Connector Contacts, Bottom 0.039" (1.00mm)
Surface Mount. **(Raspberry Pi Compatible)**
Manufacturer: TE Connectivity
Connector: **1-84952-5**   Wiki: DIGILENT Camera

J35

PIN	TYPE	SIGNAL NAME	DESCRIPTION
1	G	GND	Ground
2	I	CSI_P2_D0_N	CSI / MIPI Data Lane 0 -
3	I	CSI_P2_D0_P	CSI / MIPI Data Lane 0 +
4	G	GND	Ground
5	I	CSI_P2_D1_N	CSI / MIPI Data Lane 1 -
6	I	CSI_P2_D1_P	CSI / MIPI Data Lane 1 +
7	G	GND	Ground
8	I	CSI_P2_CK_N	CSI / MIPI Data Lane CLK -
9	I	CSI_P2_CK_P	CSI / MIPI Data Lane CLK +
10	G	GND	Ground
11	O	CSI2_PWUP	Power Supply and Sensor Enable
12	I/O	CSI2_GPIO2	Not Connected – Test Point
13	O	I2C2_CSI2_SCL	I2C Clock
14	I/O	I2C2_CSI2_SDA	I2C Data
15	PWR	+VDD_3V3_CSI2 (connected to +VDD_3V3 via bead)	Power Supply 3.3V
16	G	GND	Ground
17	G	GND	Ground

3.1.36 J36 – DC Power Jack Connector *(CONN PWR JACK 2.1X5.5MM SOLDER)*

Description: Connector J36 is Power Barrel Connector Jack 2.10mm ID (0.083"), 5.50mm OD
(0.217") Through Hole.
Note: *This power jack is a default choice for powering the kit, it is enabled by*
SW8 – Power Rocker Switch.

Manufacturer: CUI Devices
Connector: **PJ-063AH**
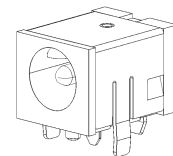
J36

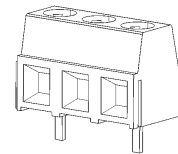| PIN	TYPE	SIGNAL NAME	DESCRIPTION
1	PI	+VDD_IN_5V_J36	Primary Power Input
2	G	GND	Ground
3	G	GND	Ground
4	G	GND	Ground

3.1.37 J37 – DC Power Fixed Terminal Blocks Connector *(TERM BLK 2P SIDE ENTRY 10MM PCB)*

Description: Connector J37 is 2 Position Wire to Board Terminal Block Horizontal with Board 0.394" (10.00mm) Through Hole.

Note: *This terminal connector is an optional powering choice. By securely fastening the input power wires by screws, it is an ideal choice for finished product Installation and/or rugged environment.*
It is enabled by SW8 – Power Rocker Switch.

Manufacturer: TE Connectivity
Connector: 282838-2

J37

PIN	TYPE	SIGNAL NAME	DESCRIPTION
1	PI	+VDD_IN_5V_J37	Secondary Power Input 5V DC. Wire to Board
2	G	GND	Ground

3.1.38 J38 – Power AUX CPU FAN Shrouded Header Connector *(CONN HEADER VERT 2POS 1.25MM)*

Description: Connector J38 is Connector Header Through Hole 2 position 0.049" (1.25mm).

Note: *This connector is available for powering an external device such as CPU fan.*

Manufacturer: Molex, LLC
Connector: 53047-0210
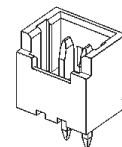
J38

PIN	TYPE	SIGNAL NAME	DESCRIPTION
1	PO	+5V_AUX	+5V for Optional CPU Fan (max. current 250mA)
2	G	GND	Ground

4. Switches, Buttons and LEDs Description

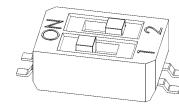## 4.1 Dual In-Line Package (DIP) Switches

4.1.1 S1 – Boot Mode DIP Switch (S1 BOOT) *(SWITCH SLIDE DIP SPST 25MA 24V)*

Description: Component S1 is Dip Switch SPST 2 Position Surface Mount Slide (Standard) Actuator 25mA 24VDC.

Manufacturer: CTS Corporation
Component: **218-2LPST**   Wiki: Boot Options

SIGNAL NAME	PIN NAME / DESCRIPTION	PIN	PIN	SIGNAL NAME
BOOT_MODE1	Boot Mode selection PIN1	1A	1B	Pulled up to +VDD_3V3_MOD
BOOT_MODE0	Boot Mode selection PIN0	2A	2B	Pulled up to +VDD_3V3_MOD

iMX 93 Boot Mode Selection

BOOT MODE	DESCRIPTION	S1 – Slide 1	S1 – Slide 2
Internal Boot	Boot from a device set into Fuses (Useful for mass production)	OFF	OFF
Serial downloader	Boot and flash from upload utility via USB Interface (Development and firmware update)	OFF	**ON**
eMMC Boot	Boot from on module eMMC Flash memory (default option)	**ON**	OFF
SD Boot	Boot from a SD Card pluged into the baseboard	**ON**	**ON**

Note: All the remaining boot modes (including Low Power Boot options) are available to select via BOOT_CFG(1) and BOOT_CFG(0) signals.

iMX 8M Boot Mode Selection

| BOOT MODE	DESCRIPTION	S1 – Slide 1	S1 – Slide 2
Boot from Fuses	Boot from a device set into Fuses (Useful for mass production)	OFF	OFF
Serial downloader	Boot and flash from upload utility via USB Interface (Development and firmware update)	OFF	**ON**
Internal Boot	Boot from a device selected via S2 and S3 DIP Switches (Easy development and device evaluation) (Default)	**ON**	OFF
Reserved		**ON**	**ON**

4.1.2 S2 – SAI1 Boot CFG DIP Switch (S2 BOOT) *(SWITCH SLIDE DIP SPST 100MA 20V)*

Description: Component S2 is Dip Switch SPST 8 Position Surface Mount Slide (Standard) Actuator 100mA 20VDC.

Manufacturer: CTS Corporation
Component: **219-8LPST**   Wiki: Boot Options
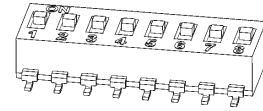
S2

SIGNAL NAME	PIN NAME / DESCRIPTION	PIN	PIN	SIGNAL NAME
SAI1_RXD0	BOOT_CFG[0]	1	16	Pulled up to +VDD_3V3_MOD
SAI1_RXD1	BOOT_CFG[1]	2	15	Pulled up to +VDD_3V3_MOD
SAI1_RXD2	BOOT_CFG[2]	3	14	Pulled up to +VDD_3V3_MOD
SAI1_RXD3	BOOT_CFG[3]	4	13	Pulled up to +VDD_3V3_MOD
SAI1_RXD4	BOOT_CFG[4]	5	12	Pulled up to +VDD_3V3_MOD
SAI1_RXD5	BOOT_CFG[5]	6	11	Pulled up to +VDD_3V3_MOD
SAI1_RXD6	BOOT_CFG[6]	7	10	Pulled up to +VDD_3V3_MOD
SAI1_RXD7	BOOT_CFG[7]	8	9	Pulled up to +VDD_3V3_MOD

iMX 8M CPU Boot Selection

BOOT DEVICE ------------------ SLIDE POSITION	eMMC FLASH (DEFAULT)	SD CARD	NOTE
S2 – Slide 1	OFF	OFF	
S2 – Slide 2	**ON**	OFF	
S2 – Slide 3	OFF	OFF	This list includes only booting device options which were tested and are supported in the current software board package. For a complete set of options please refer to the iMX Development Baseboard Schematic page 22 - BOOT CFG.
S2 – Slide 4	OFF	OFF	
S2 – Slide 5	OFF	OFF	
S2 – Slide 6	OFF	OFF	
S2 – Slide 7	OFF	OFF	
S2 – Slide 8	OFF	OFF	

4.1.3 S3 – SAI1 Boot CFG DIP Switch (S3 BOOT) *(SWITCH SLIDE DIP SPST 100MA 20V)*

Description: Component S3 is Dip Switch SPST 8 Position Surface Mount Slide (Standard) Actuator 100mA 20VDC.

Manufacturer: CTS Corporation
Component: **219-8LPST**   Wiki: Boot Options
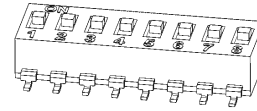
S3

SIGNAL NAME	PIN NAME / DESCRIPTION	PIN	PIN	SIGNAL NAME
SAI1_TXD0	BOOT_CFG[8]	1	16	Pulled up to +VDD_3V3_MOD
SAI1_TXD1	BOOT_CFG[9]	2	15	Pulled up to +VDD_3V3_MOD
SAI1_TXD2	BOOT_CFG[10]	3	14	Pulled up to +VDD_3V3_MOD
SAI1_TXD3	BOOT_CFG[11]	4	13	Pulled up to +VDD_3V3_MOD
SAI1_TXD4	BOOT_CFG[12]	5	12	Pulled up to +VDD_3V3_MOD
SAI1_TXD5	BOOT_CFG[13]	6	11	Pulled up to +VDD_3V3_MOD
SAI1_TXD6	BOOT_CFG[14]	7	10	Pulled up to +VDD_3V3_MOD
SAI1_TXD7	BOOT_CFG[15]	8	9	Pulled up to +VDD_3V3_MOD

iMX 8M CPU Boot Selection

| BOOT DEVICE ----------------- SLIDE POSITION	eMMC FLASH (DEFAULT)	SD CARD	NOTE
S3 – Slide 1	OFF	OFF	
S3 – Slide 2	OFF	OFF	
S3 – Slide 3	OFF	**ON**	
S3 – Slide 4	OFF	OFF	This list includes only booting device options which were tested and are supported in the current software board package. For a complete set of options please refer to the iMX Development Baseboard Schematic page 22 - BOOT CFG.
S3 – Slide 5	OFF	**ON**	
S3 – Slide 6	**ON**	OFF	
S3 – Slide 7	OFF	OFF	
S3 – Slide 8	OFF	OFF	

4.2 Buttons and Switches

4.2.1 SW1 – BUT1 – User Button (UP) *(SWITCH TACTILE SPST-NO 0.05A 12V)*

Description: The SW1 button is a Tactile Switch SPST-NO top actuated surface mount.

Manufacturer: TE Connectivity
Component: **MJTP1138ATR**   Wiki: User Button Test
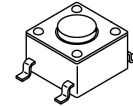
PIN	TYPE	SIGNAL NAME	DESCRIPTION
1-2	O	BUT1/ NAND_DATA4	User Button UP with External Pull Up Resistor 10k
3-4	G	GND	Ground

4.2.2 SW2 – BUT2 – User Button (DOWN) *(SWITCH TACTILE SPST-NO 0.05A 12V)*

Description: The SW2 button is a Tactile Switch SPST-NO top actuated surface mount.

Manufacturer: TE Connectivity
Component: **MJTP1138ATR**   Wiki: User Button Test
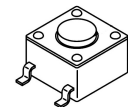
PIN	TYPE	SIGNAL NAME	DESCRIPTION
1-2	O	BUT2 / NAND_DATA5	User Button DOWN with External Pull Up Resistor 10k
3-4	G	GND	Ground

4.2.3 SW3 – BUT3 – User Button (LEFT) *(SWITCH TACTILE SPST-NO 0.05A 12V)*

Description: The SW3 button is a Tactile Switch SPST-NO top actuated surface mount.

Manufacturer: TE Connectivity
Component: **MJTP1138ATR**   Wiki: User Button Test
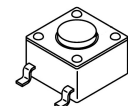
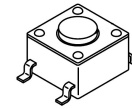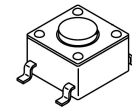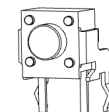| PIN	TYPE	SIGNAL NAME	DESCRIPTION
1-2	O	BUT3 / NAND_DATA6	User Button LEFT with External Pull Up Resistor 10k
3-4	G	GND	Ground

4.2.4 SW4 – BUT4 – User Button (RIGHT) *(SWITCH TACTILE SPST-NO 0.05A 12V)*

Description: The SW4 button is a Tactile Switch SPST-NO top actuated surface mount.

Manufacturer: TE Connectivity
Component: **MJTP1138ATR**   Wiki: User Button Test

PIN	TYPE	SIGNAL NAME	DESCRIPTION
1-2	O	BUT4 / NAND_DATA7	User Button RIGHT with External Pull Up Resistor 10k
3-4	G	GND	Ground

4.2.5 SW5 – BUT5 – User Button (ENTER) *(SWITCH TACTILE SPST-NO 0.05A 12V)*

Description: The SW5 button is a Tactile Switch SPST-NO top actuated surface mount.

Manufacturer: TE Connectivity
Component: **MJTP1138ATR**   Wiki: User Button Test

PIN	TYPE	SIGNAL NAME	DESCRIPTION
1-2	O	BUT5 / SPDIF_EXT_CLK	User Button ENTER with External Pull Up Resistor 10k
3-4	G	GND	Ground

4.2.6 SW6 – BUT6 – Reset Button (BLACK) *(SWITCH TACTILE SPST-NO 0.05A 12V)*

Description: The SW6 button is a Tactile Switch SPST-NO Side Actuated Through Hole.

Manufacturer: E-Switch
Component: **TL1105VF160Q**   Wiki: Reset Button Test

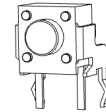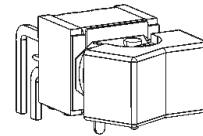| PIN	TYPE	SIGNAL NAME	DESCRIPTION
M1-M2	G	GND	Mechanical Pad
1	G	GND	Ground
2	O	BUT6 / PWRON_B / POR_B	By pressing the reset button, power on signal PWRON_B is tied low by default. Optionally can tie down POR_B as well.

4.2.7 SW7 – BUT7 – ON/OFF Button (RED) (SWITCH TACTILE SPST-NO 0.05A 12V)

Description: The SW7 button is a Tactile Switch SPST-NO Side Actuated Through Hole.

Manufacturer: E-Switch
Component: **TL1105VF160Q**   <u>Wiki: Power Button Test</u>

PIN	TYPE	SIGNAL NAME	DESCRIPTION
M1-M2	G	GND	Mechanical Pad
1	G	GND	Ground
2	O	BUT7 / ONOFF_CPU /POR_B	Directly connected to CPU ON/OFF signal (by default). Optionally can drive POR_B as well.

4.2.8 SW8 – Power Rocker Switch (SWITCH TOGGLE DPDT 5A 120V)

Description: The SW8 component is Rocker Switch DPDT 5A (AC/DC) 120 V Through Hole.

Manufacturer: TE Connectivity
Component: FSMRA2JH
            300DP3J1BLKM6QE

PIN	TYPE	SIGNAL NAME	DESCRIPTION
1	PWR	+VDD_IN_5V_J37	Jack 5V Input
2	PWR	+VDD_IN_5V_SW (via 8A F1 fuse)	5V for powering the development kit
3	PWR	+VDD_IN_5V_J36	Wire to Board 5V Input
4	PWR	+VDD_IN_5V_J37	Jack 5V Input
5	PWR	+VDD_IN_5V_SW (via 8A F1 fuse)	5V for powering the development kit
6	PWR	+VDD_IN_5V_J36	Wire to Board 5V Input
M1	G	GND	Ground
M2	G	GND	Ground

4.2.9 D2 – DSS LED (GREEN) (LED GREEN DIFFUSED 0603 SMD)

Description: D2 is a LED indicator. Green 570nm LED Indication - Discrete 1.7V 0603.

Manufacturer: OSRAM Opto Semiconductors, Inc.
Component: **LGL29K-G2J1-24-Z**

PIN	SIGNAL NAME	DESCRIPTION
C	LED_DA_DSS	LED DA / DSS from M.2 Card
A	+3V3_M2PCIE	Power 3.3V from M.2

D2

4.2.10 D4 – Mini PCI Express WWAN (GREEN) (LED GREEN DIFFUSED 0603 SMD)

Description: D4 is a LED indicator. Green 570nm LED Indication - Discrete 1.7V 0603.

Manufacturer: OSRAM Opto Semiconductors, Inc.
Component: **LGL29K-G2J1-24-Z**

PIN	SIGNAL NAME	DESCRIPTION
C	LED_MPCIE1_WWAN	LED PCIe MINI WWAN
A	+3V3_mPCIE	Power 3.3V PCIe MINI

D4

4.2.11 D5 – Mini PCI Express WLAN (GREEN) (LED GREEN DIFFUSED 0603 SMD)

Description: D5 is a LED indicator. Green 570nm LED Indication - Discrete 1.7V 0603.

Manufacturer: OSRAM Opto Semiconductors, Inc.
Component: **LGL29K-G2J1-24-Z**

PIN	SIGNAL NAME	DESCRIPTION
C	LED_MPCIE1_WLAN	LED PCIe MINI WLAN
A	+3V3_mPCIE	Power 3.3V PCIe MINI

D5

4.2.12 D6 – Mini PCI Express WPAN (GREEN) (LED GREEN DIFFUSED 0603 SMD)

Description: D6 is a LED indicator. Green 570nm LED Indication - Discrete 1.7V 0603.

Manufacturer: OSRAM Opto Semiconductors, Inc.
Component: **LGL29K-G2J1-24-Z**

PIN	SIGNAL NAME	DESCRIPTION
C	LED_MPCIE1_WPAN	LED PCIe MINI WPAN
A	+3V3_mPCIE	Power 3.3V PCIe MINI

D6

4.2.13 D37 – Power LED (GREEN) (LED GREEN DIFFUSED 0603 SMD)

Description: D37 is a LED indicator. Green 570nm LED Indication - Discrete 1.7V 0603.

Manufacturer: OSRAM Opto Semiconductors, Inc.
Component: **LGL29K-G2J1-24-Z**

PIN	SIGNAL NAME	DESCRIPTION
C	PWR_LED_GRN	LED Power OK Signal
A	+VDD_3V3	3.3V Power

D37

4.2.14 D38 – User LED (RED) (LED RED DIFFUSED 0603 SMD)

Description: D38 is a LED indicator. Red 630nm LED Indication - Discrete 1.8V 0603.

Manufacturer: OSRAM Opto Semiconductors, Inc.
Component: **LS L29K-G1J2-1-Z**

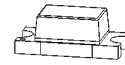| PIN	SIGNAL NAME	DESCRIPTION
C	PWR_LED_RED	User LED Controlled by U22 GPIO Expander
A	+VDD_3V3	3.3V Power

D38

4.2.15 D39 – Bluetooth LED (BLUE) *(LED BLUE CLEAR CHIP SMD)*

Description: D39 is a LED indicator. Blue 470nm LED Indication - Discrete 2.8V 0603.

Manufacturer: Lite-On, Inc.
Component: **LTST-C193TBKT-5A**

PIN	SIGNAL NAME	DESCRIPTION
C	PWR_LED_BLUE	Bluetooth LED controlled by the module with signal LED_BT
A	+VDD_3V3	3.3V Power

4.2.16 D40 – WLAN LED (ORANGE) *(LED ORANGE CLEAR CHIP SMD)*

Description: D40 is a LED indicator. Orange 605nm LED Indication - Discrete 2V 0603.

Manufacturer: Lite-On, Inc.
Component: **LTST-C193KFKT-5A**

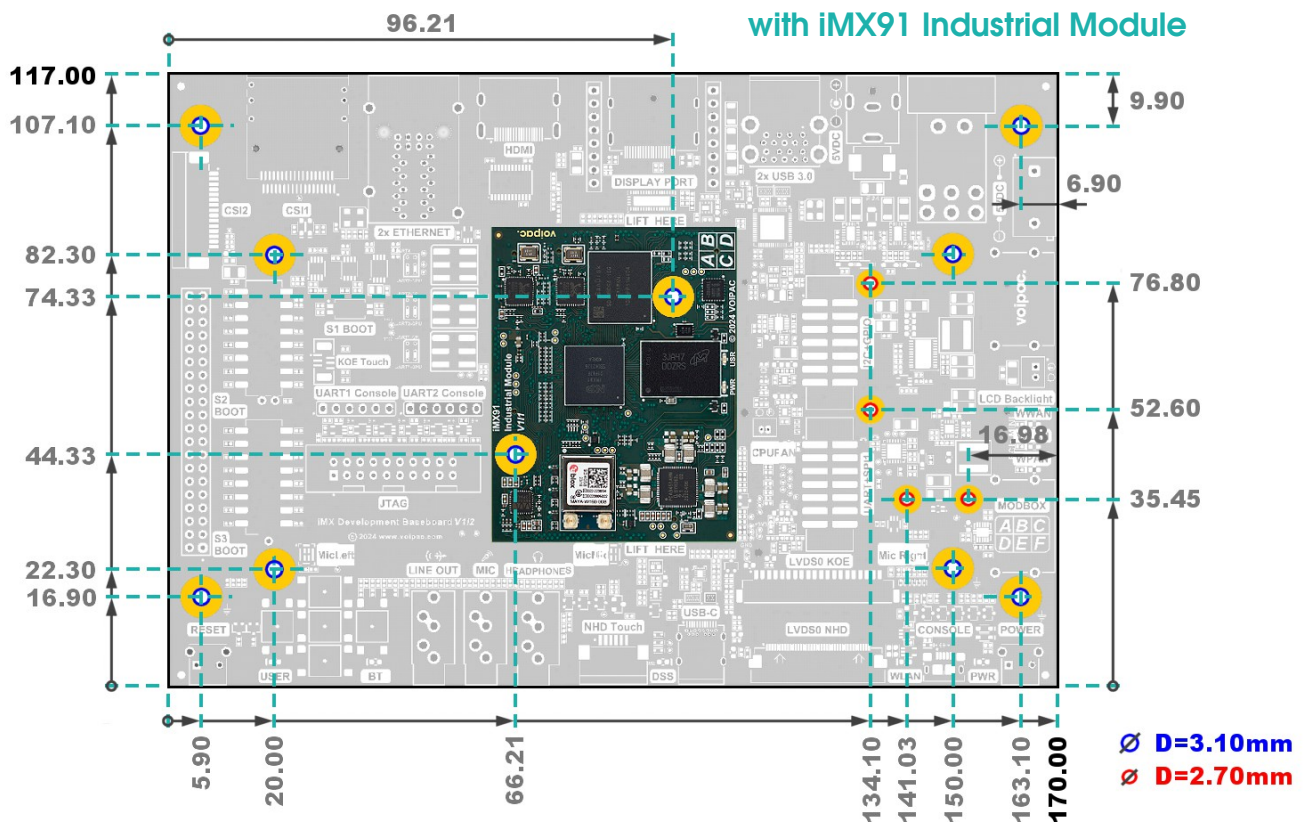| PIN	SIGNAL NAME	DESCRIPTION
C	PWR_LED_ORANGE	WLAN LED controlled by Module with signal LED_WLAN
A	+VDD_3V3	3.3V Power
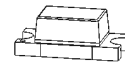
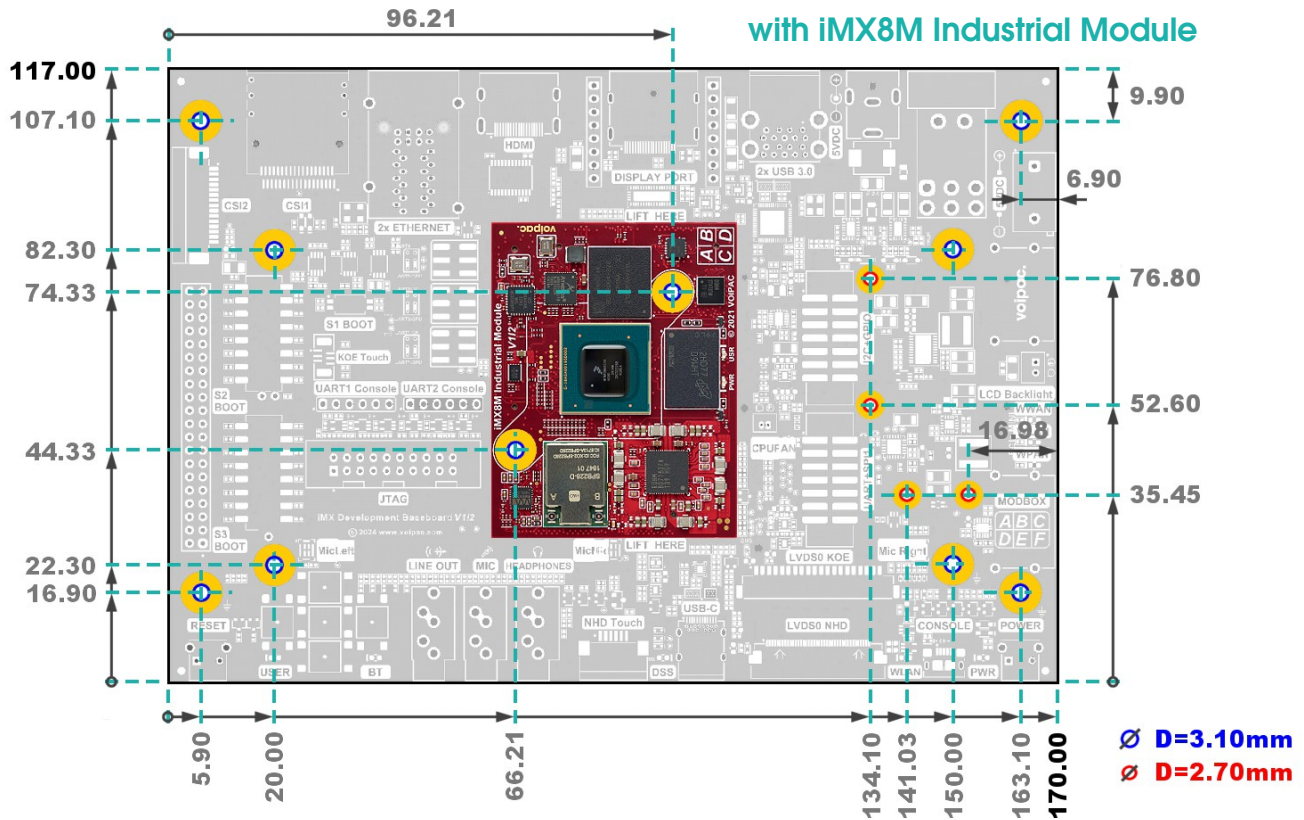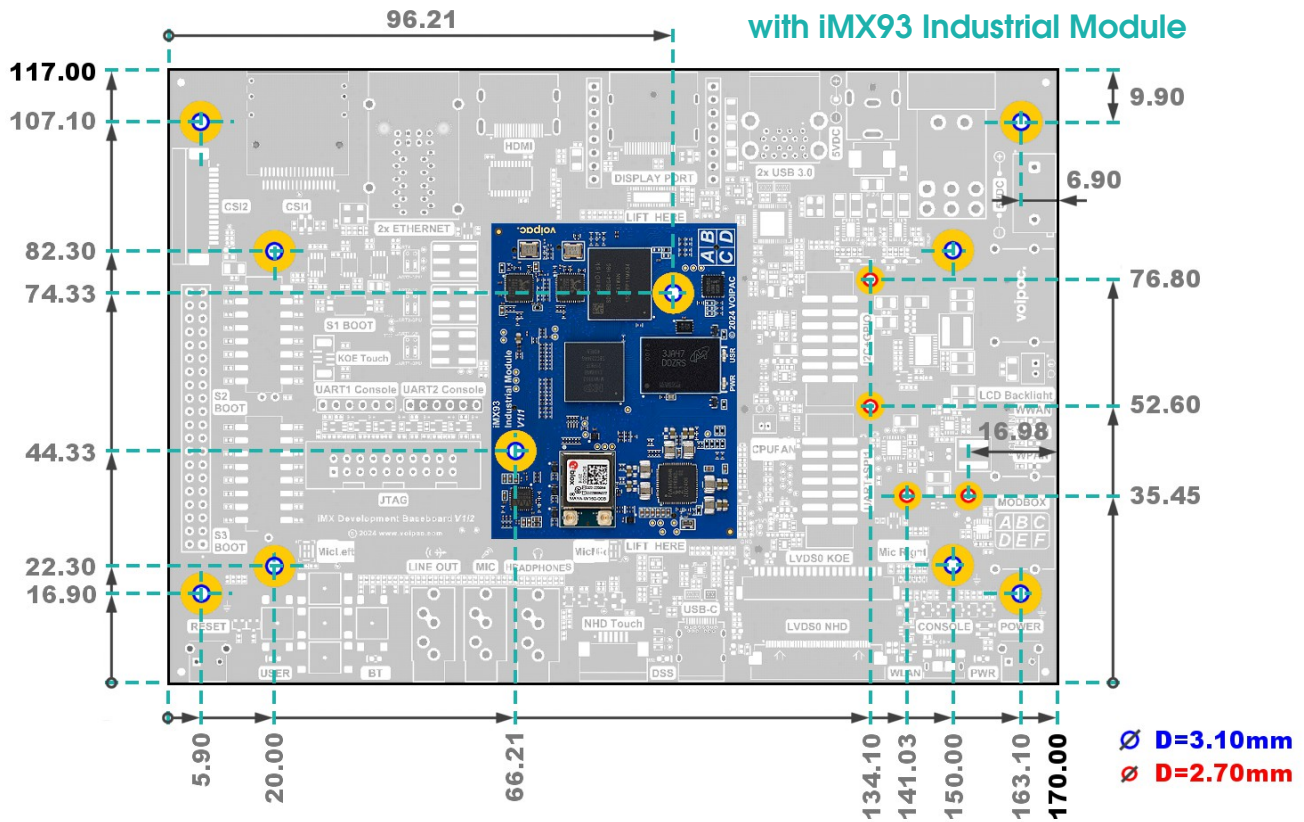# 5. Technical Specifications

5.1 Input Voltage

Voipac iMX Development Baseboard uses +5V DC input voltage. The baseboard is protected by 8A fuse.

Module powering options	MINIMUM	NOMINAL	MAXIMUM
DC Power Jack	+5.0V	+5.2V	+5.3V
Wire to Board Terminal	+5.0V	+5.2V	+5.3V

5.2 Mechanical

Dimmensions	Width	Length	Height	Unit
iMX Development Baseboard	117.0	170.0	25.30	mm
iMX8M Development Baseboard + Heatsink	117.0	170.0	31.93	mm

with iMX93 Industrial Module

Ø D=3.10mm
Ø D=2.70mm

with iMX8M Industrial Module

Ø D=3.10mm
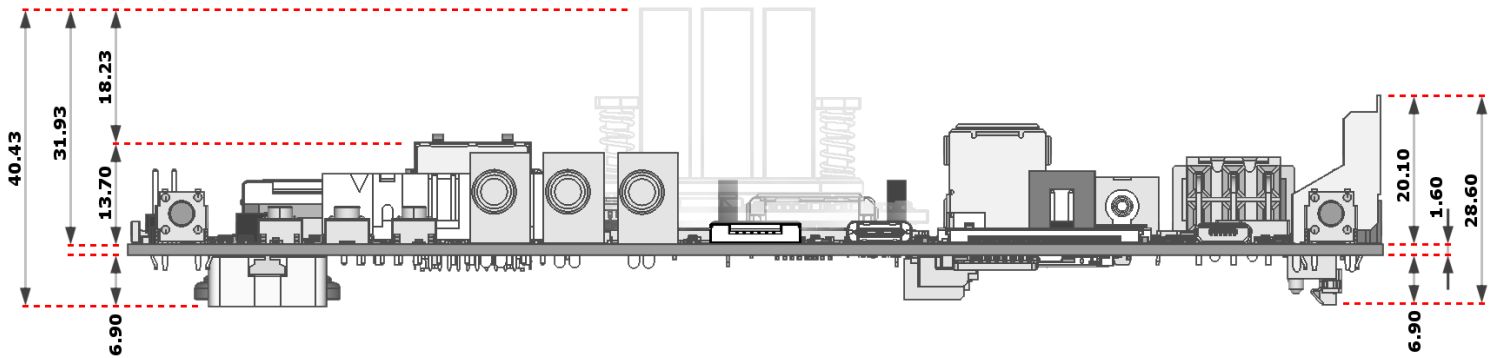Ø D=2.70mm

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iMX DEVELOPMENT BASEBOARD – FRONT VIEW
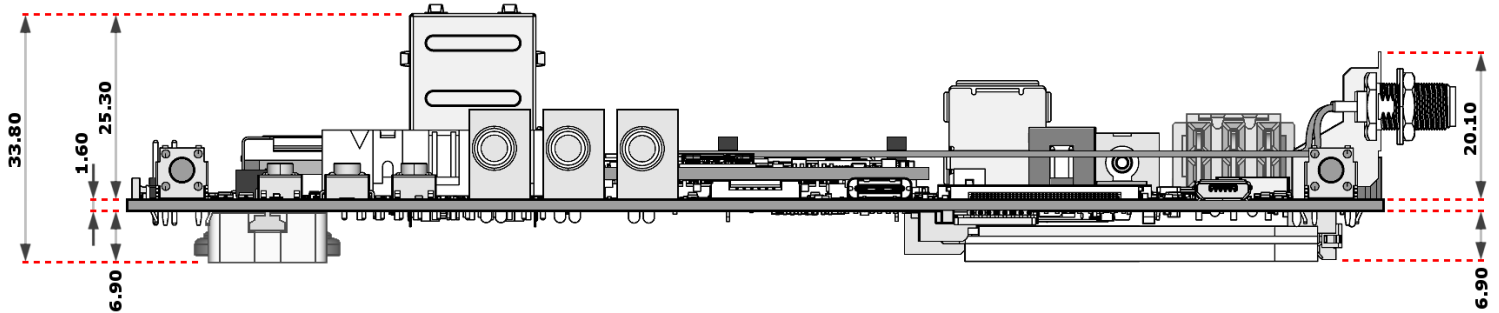
Dimensions in millimeters

iMX8M DEVELOPMENT BASEBOARD – FRONT VIEW (LEGACY VERSION)

Dimensions in millimeters

5.3 Temperature Range

Symbol	Description	Min	Max	Unit
T_AMB_E	Operating temperature range - Extended	-20	+70	°C

5.4 ISO Certification of Voipac Production

Production of Voipac hardware is performed at ISO 9001:2016 certified facilities with proprietary Quality Management System, satisfying international customer and regulatory requirements. The company's facilities are equipped with in-house stainless steel laser stencil production, advanced assembly machines, oxygen-free soldering, and 3D Automated Optical Inspection (AIO) that ensure high-quality of assembled products. Every Voipac product has to withstand an extensive post-assembly checkup and visual inspection. Each individual COM is also preloaded with a customizable firmware and follows an in-depth peripheral inspection with zero-tolerance policy to any deviation from the full functionality.

5.5 CE compliance of Voipac products

The CE label is a mandatory conformity mark for electronic devices placed on the market in the European Economic Area and every product sold within the EU needs a CE Certificate of Conformance that ensures it complies with the essential requirements of the applicable European Commission (EC) directives.

Voipac COMs are considered components for further processing by the industry, skilled development teams or system integrators, not finished Electrical Electronic Equipment (EEE) used as stand-alone devices by the general public, thus do not need to observe the CE marking requirements and consequently do not need any identification either.

To make sure that Voipac COMs can be used in CE/FFC certified final devices, they are designed and manufactured to obey both the EC and FFC directives. The modules and baseboards in standard webshop configurations, together with accessories, are stress-tested in an environmental chamber for a wide range of operating temperatures. Under a heavy load, their radiated and conducted emissions are also tested and measured to confirm compliance with the Electromagnetic Interference limits. The COMs and baseboards are furthermore subject to broad-band random vibration tests, sweep sinus mechanical vibration tests and shock tests to prove their dynamic load resilience.

See Voipac Wiki for [Environmental Chamber Testing](), [EMC Testing]() and [Shock and Vibration Testing]() results.

5.6 RoHS, REACH, UL 94, Conflict Minerals, WEEE and Waste Recycling Declarations Compliance

RoHS I / II / III

Voipac certifies to the best of its knowledge, that all of its production is made in lead-free facilities using standardized manufacturing quality systems and control parameters, thereby meeting the regulatory compliance of RoHS 1 Directive (2002/95/EC), RoHS 2 Directive (2011/65/EU) and RoHS 3 Directive (2015/863/EU). Read more.

REACH

REACH is a regulation of the European Union, adopted to improve the protection of human health and the environment from the risks that can be posed by chemicals. Voipac products are "articles" as defined in Article 3(3) of the REACH regulations, and do not release substances under normal use. Read more.

UL 94 V-0

UL 94 certification is a normalized method of determining the flammability of plastic materials as the standard evaluates ignition, process of burning and flame spread resistance. Voipac products are complying with the most flame-resistance class V-0 of this standard, by using only UL 94 certified components. Read more.

Conflict Minerals

Voipac will not knowingly procure material supplies and components which contain minerals that directly or indirectly finance or benefit non-governmental military groups in the Democratic Republic of Congo (DRC) or adjoining countries. Voipac declares and commits to refuse usage of metals also from other conflict regions. Read more.

WEEE

To minimize the amount of non-recycled electrical and electronic equipment waste and its impact on the environment, Voipac also conforms with the Waste Electrical and Electronic Equipment Directive 2018/852/EC, and designs its products and packaging with consideration to future dismantling and recycling. Read more.

Waste Recycling

Voipac has been participating in responsible selective collection, recovery and recycling of its production activities waste. Over the years, the collective effort of manufacturers has helped to minimize the waste impact on the environment by saving an equivalent of thousands of tons of carbon dioxide. Read more.

Warranty:

VOIPAC TECHNOLOGIES s.r.o. Does Not Bear Responsibility for the Following:

- Failure of a product resulting from misuse, accident, modification, unsuitable operating environment, or improper maintenance by user

- Any technical or other support provided by VOIPAC TECHNOLOGIES s.r.o. such as assistance, set-up and installation is provided WITHOUT WARRANTY OF ANY KIND, unless agreed otherwise

Disclaimer:

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RoHS Compliant