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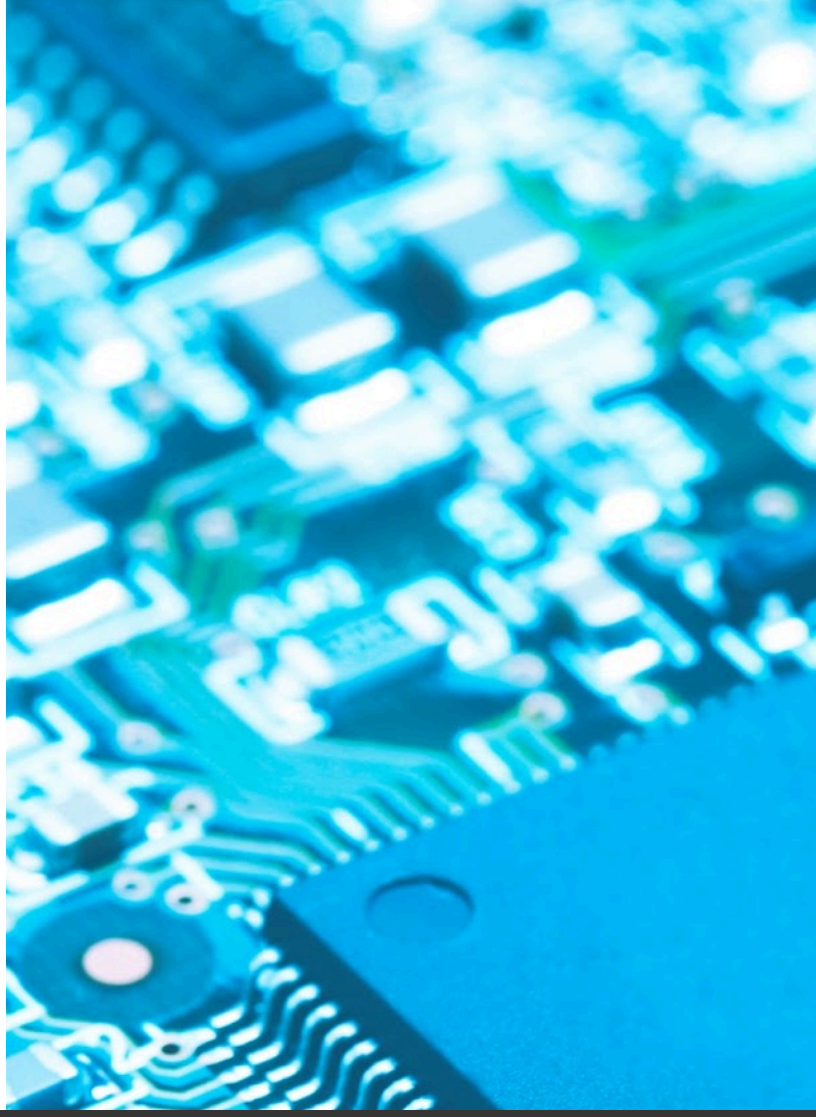
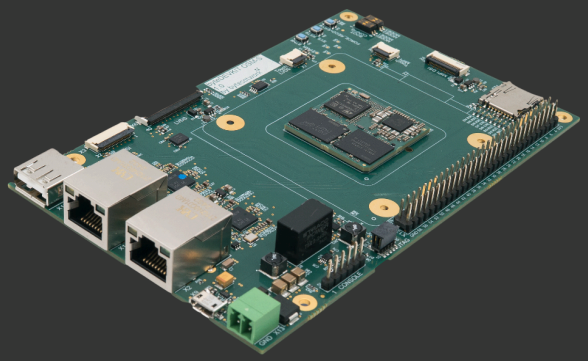
Datasheet





industrial development kit

byteDEVKIT OSM-S

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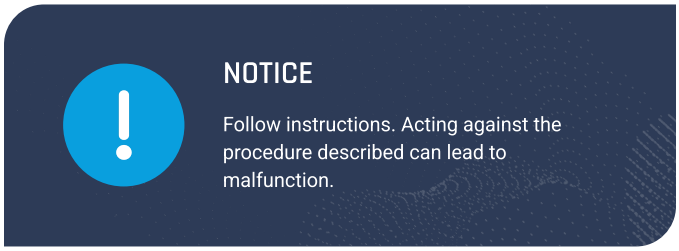
Symbols and Typographic Conventions

These symbols represent important details or aspects for working with bytesatwork-products.



www.bytesatwork.io

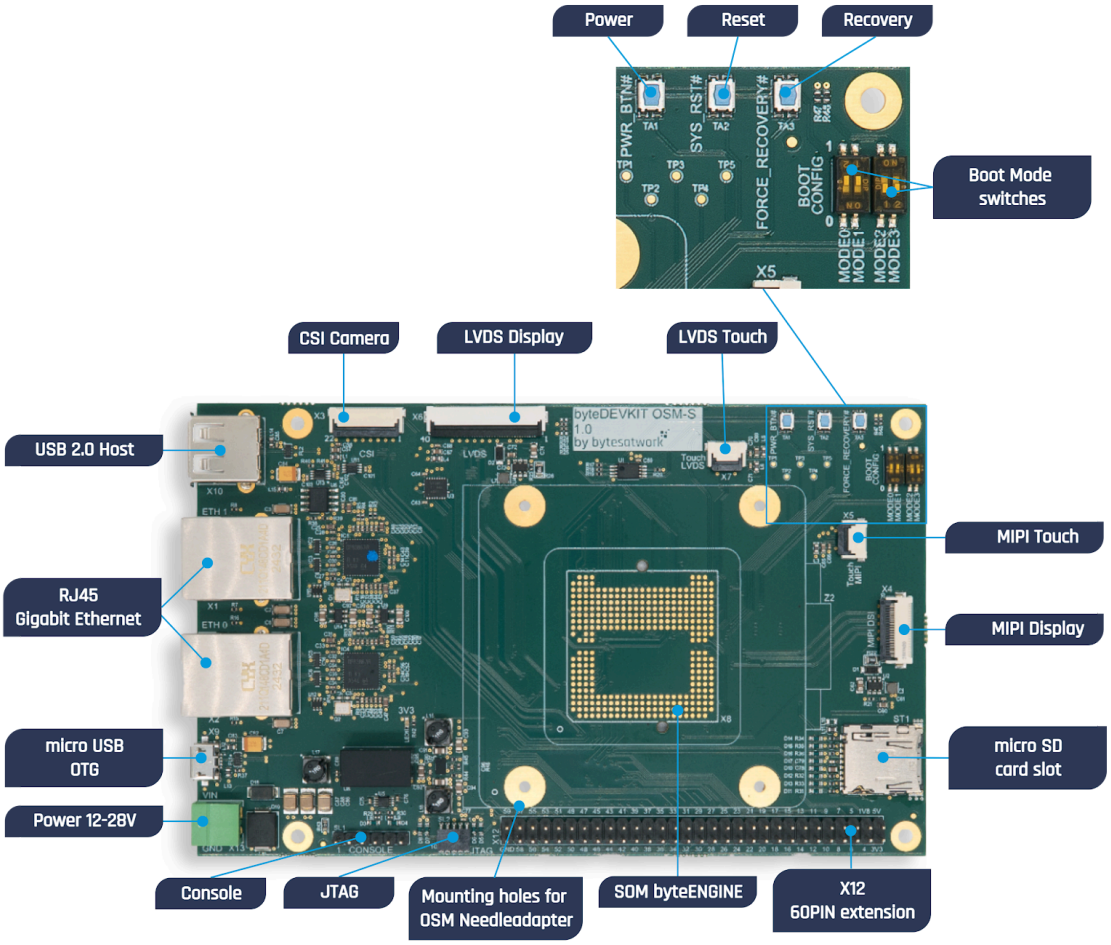
Table of Contents

1. Revision History

Hardware Revision	Marking on PCB	Release Date	Info
1.0	byteDEVKIT OSM-S 1.0	2025	First version available for sales
0.1	byteDEVKI OSM-S 0.1	2024	Prototypes

NOTICE
This document refers to byteDEVKIT OSM-S 1.0

2. Overview



2.1. General Information

Maximum flexibility and simplicity

The byteDEVKIT OSM-S enables you to work on your own projects while shortening time-to-market significantly. It is engineered for a huge variety of applications and the flexible structure allows easy implementations of even profound changes. Furthermore, it offers maximum flexibility and simplicity. The byteDEVKIT OSM-S is available with the complete i.MX9-Module family and the STM32MP2x Module family:
> IMX9131, IMX9121,
> IMX9352, IMX9351, IMX9332, IMX9331, IMX9301
> STM32MP251, STM32MP253,
> STM32MP255, STM32MP257.

Plenty of possibilities

The byteDEVKIT OSM-S includes the base board that features a strong array of interfaces for a variety of applications:

- 2x 1000Mbit Ethernet RJ45
- 1x microSD Slot
- 1x USB Host Type A
- 1x USB OTG microUSB
- 5-inch LVDS Touchscreen Display
- 5-inch MIPI DSI Touchscreen Display
- 1x 60 PIN Header: Extension-Header X12: GPIO, SAI1, SPI7, CAN1, CAN2, PWM, ADC, UART2, UART3, UART5, UART8, I2C1, I2C2, SD3
- Boot mode switches
- CSI Camera 4lanes

Ready to start and use

The byteDEVKIT OSM-S package comes ready to run, which includes a power supply, a serial console and a microSD card with pre-installed embedded Linux. As a result, you benefit from rapid prototyping, maximum flexibility and a very short time-to-market.

.

Low consumption & high performance

The NXP i.MX9 processors and the ST STM32MP2 CPUs are on the cutting edge of their industry thanks to the combination of functional integration, high performance and extremely low power consumption.

Two in one

The byteENGINE IMX9x has up to two Cortex®-A55 cores for exceptionally high system performance. The Cortex®-M33 core enables real-time applications with low performance at the same time.

Similarly, the byteENGINE STM32MP2 has up to two Cortex®-A35 cores and a Cortex®-M33 core for real-time applications with low performance.

Both byteENGINEs include a NPU and advanced security features.

Easy to adapt to your project

Thanks to the 60PIN header, rapid prototyping is easy and efficient. The byteDEVKIT OSM-S offers a variety of interfaces such as I2C, SPI - CAN, UART, USART, PWM and GPIO.

Quality which endures

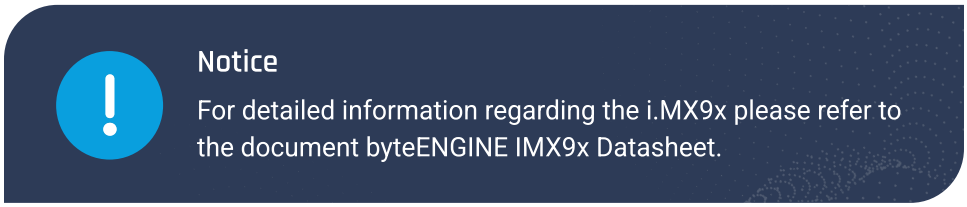
Our Swiss standard pays off. We only install components to the byteDEVKIT OSM-S that will be still available in ten years. The byteDEVKIT OSM-S is engineered with the focus on robustness and longevity.

2.2. Technical Data byteDEVKIT OSM-S

byteDEVKIT OSM-S

Connectors	2x Gigabit Ethernet RJ45
Hardware Slot	1x microSD slot
Device Slot 1	1x USB 3.0 Host Type A
Device Slot 2	1x USB OTG microUSB
Display	5-inch LVDS Display with Touch or ; 5-inch MIPI DSI Display with Touch
Connector 60 PIN	X12: GPIO, SAI1, SPI7, CAN1, CAN2, PWM, ADC

2.3. Technical Data of the SOM byteENGINE IMX9x



Datasheet byteENGINE IMX9x

byteENGINE IMX9x Specification

CPU	Up to Dual ARM® Cortex® A55 processors 1.7 GHz
Co-Processor	Cortex® M33 up to 250 MHz
Memory	512 MB to 2048 MB LPDDR4
Flash eMMC	up to 128 GB
Temperature	Industrial: -40° to +85° C, consumer: 0 to 85° C
Power Supply	5.0 V, 4 W
Dimensions	30 x 30 x 3 mm

2.4. Technical Data of the SOM byteENGINE STM32MP2

Notice

For detailed information regarding the STM32MP2 please refer to the document byteENGINE STM32MP2 Datasheet.

Datasheet byteENGINE STM32MP2

byteENGINE STM32MP2 Specification

CPU	Up to Dual ARM® Cortex® A35 processors 1.5 GHz
Co-Processor	Cortex® M33 up to 400 MHz
Memory	512 MB to 2048 MB LPDDR4
Flash eMMC	up to 128 GB
Temperature	Industrial: -40° to +85° C, consumer: 0 to 85° C
Power Supply	5.0 V, 4 W
Dimensions	30 x 30 x 3 mm

2.5. Decision guidance byteDEVKIT OSM-S

The following six steps help identifying the suitable DEVKIT with the needed SOM for the specific customer application.

> Step 1: Select the needed CPU for the SOM

> Choose Options as described in the Datasheets

STM32MP2	IMX9x
Datasheet byteENGINE STM32MP2	Datasheet byteENGINE IMX9x

> Step 2: Select the needed CPU speed

STM32MP2	IMX9x
1.2 GHz / 1.5 GHz	800 MHz / 900 MHz / 1.4 GHz / 1.7 GHz

> Step 2: Select the needed flash memory capacity

> Choose eMMC 8 / 16 / 32 / 64 GB / 128 GB

> Step 3: Select the needed RAM capacity

> Choose 512 / 1024 /1536 / 2048 MB

> Step 4: Select the needed temperature range

> Choose consumer or industrial

> Step 5: Select the needed Display

> Choose 5-inch LVDS with Touch / 5-inch MIPI DSI with Touch / without

Ordering info

2.6. Quickstart guide

The Quickstart guide simplifies the startup process with step-by-step instructions. Should you have questions you are always welcome to ask our experts for technical support. See Chapter „Connectors“ for connectors layout.

> Step 1: Connect the USB-RS232 cable to SL1 (black wire is marking PIN 1)

> Step 2: (Optional) Connect the network cable

> Step 3: Put a valid micro SD-Card into the SD-Card slot

> Step 4: Connect the console cable to your computer serial or USB port if you‘re using the adapter.

> Start the Terminal Software and configure your serial port with the following port settings:

Port Settings

Bits per second	115200
Data bits	8
Parity	N
Stop bits	1

> Step 5: Connect the power supply to X13

> Step 6: After connected to power supply, the console shows the boot log

> Step 7: Login to the system with:

Login Data

User	root
Password	rootme

2.7. Yocto Project Quick Build

These steps guide you through the process for an image build using the Yocto Project. The following example is valid for the byteDEVKIT with a byteENGINE IMX9x. For further information please visit our byteWIKI.

byteWIKI: byteDEVKIT with byteENGINE IMX93

Link for byteENGINE STM32MP25x is coming soon.

> Step 1: Create the folder „yocto“ and change into directory using the following commands:

```
mkdir yocto
cd yocto
```

> Step 2: : Download all necessary repositories using repo:

```
repo init -u https://github.com/bytesatwork/bsp-platform-nxp.git -b scarthgap repo sync
```

> Step 3: When these commands are completed successfully, the following command will setup a Yocto Project environment for byteDEVKIT:

```
MACHINE=bytedevkit-imx93 DISTRO=poky-bytesatwork EULA=1 . setup-environment build
```

> Step 4: The final command builds a development image:

(this will last several hours, depending on the build machine)

```
bitbake bytesatwork-minimal-image
```

> Step 5: Create and write the SD-Card Image:

(replace sdX with SD-Card drive)

```
cd tmp/deploy/images/bytedevkit-imx93
xzcat bytesatwork-minimal-image-bytedevkit-imx93.wic.xz | dd of =/dev/sdX bs=1M
conv=fsync
```

3. Pinout functions

3.1. X4 MIPI DSI connector

Con	Pin	Signal Name
X4	1	NC
X4	2	LEDK
X4	3	NC
X4	4	LEDA
X4	5	NC
X4	6	VCI
X4	7	IOVCC
X4	8	TE
X4	9	RESET
X4	10	GND
X4	11	MIPI_D1P
X4	12	MIPI_D1N
X4	13	GND
X4	14	MIPI_CLP
X4	15	MIPI_CLN
X4	16	GND
X4	17	MIPI_D0P
X4	18	MIPI_D0N
X4	19	GND
X4	20	GND

3.2. X5 MIPI Touch Connector

Con	Pin	Signal Name	Alternative Modes						
			1	2	3	4	5	6	7
X5	1	GND							
X5	2	VDDIO							
X5	3	VDD							
X5	4	I2C1_SCL	GPIO1_IO02	LPUART2_DCB_B	TPM2_CH2	SAI1_RX_SYNC	LPI2C2_SCL	I3C1_PUR	I3C1_PUR_B
X5	5	I2C1_SDA	GPIO1_IO03	LPUART2_RIN_B	TPM2_CH3	SAI1_RX_BCLK	LPI2C2_SDA		
X5	6	TOUCH_INT	GPIO2_IO23	FLEXIO1_IO23	USDHC3_CMD	TPM6_CH1	LPI2C5_SCL	SPDIF_OUT	MMX_D_DA-TA19
X5	7	TOUCH_RESET	GPIO2_IO11	FLEXIO1_IO11	LPUART7_RTS_B	LPSPI3_SCK	TPM5_EXTCLK	MMX_C_DA-TA05	MMX_D_DA-TA07
X5	8	GND							

3.3. X6 5-inch LVDS Display Connector

Con	Pin	Signal Name
X6	1	LEDA
X6	2	LEDA
X6	3	YU(NC)
X6	4	XL(NC)
X6	5	YD(NC)
X6	6	XR(NC)
X6	7	U/D/HDIR
X6	8	L/R/VDIR
X6	9	LED-
X6	10	LED-
X6	11	GND
X6	12	NC
X6	13	NC
X6	14	NC
X6	15	NC
X6	16	GND
X6	17	NC
X6	18	NC

Con	Pin	Signal Name
X6	19	GND
X6	20	OLDI0_A3P
X6	21	OLDI0_A3N
X6	22	GND
X6	23	OLDI0_CLK0P
X6	24	OLDI0_CLK0N
X6	25	GND
X6	26	OLDI0_A2N
X6	27	OLDI0_A2P
X6	28	GND
X6	29	OLDI0_A1N
X6	30	OLDI0_A1P
X6	31	GND
X6	32	OLDI0_A0N
X6	33	OLDI0_A0P
X6	34	GND
X6	35	DISPLAY1_ENABLE
X6	36	DISPLAY1_RESET
X6	37	NC
X6	38	3V3
X6	39	3V3
X6	40	NC

3.4. X7 LVDS Touch connector

Con	Pin	Signal Name	Alternative Modes						
			1	2	3	4	5	6	7
X7	1	GND							
X7	2	VDDIO							
X7	3	VDD							
X7	4	I2C1_SCL	GPIO1_IO00	LPUART2_DCB_B	TPM2_CH0	LPI2C1_SCL	I3C1_SCL	LPI2C1_SCL	
X7	5	I2C1_SDA	GPIO1_IO01	LPUART2_RIN_B	TPM2_CH1	LPI2C1_SDA	I3C1_SDA		
X7	6	TOUCH_INT	GPIO2_IO20	FLEXIO1_IO20	LPSPI4_SOUT	LPSPI5_SOUT	TPM3_CH1	SAI3_RX_DA- TA00	PDM_BS00
X7	7	TOUCH_RESET	GPIO2_IO21	LPSPI4_SCK	LPSPI5_SCK	TPM4_CH1	SAI3_RX_BCLK	SAI3_TX_DA- TA00	PDM_CLK
X7	8	GND							

3.5. X3 Camera

Con	Pin	Signal Name	Alternative Modes						
			1	2	3	4	5	6	7
X3	1	GND							
X3	2	CSI0_RXN0							
X3	3	CSI0_RXP0							
X3	4	GND							
X3	5	CSI0_RXN1							
X3	6	CSI0_RXP1							
X3	7	GND							
X3	8	CSI0_RXCLKN							
X3	9	CSI0_RXCLKP							
X3	10	GND							
X3	11	NC							
X3	12	NC							
X3	13	GND							
X3	14	NC							
X3	15	NC							
X3	16	GND							
X3	17	CAMERA_nRST							
X3	18	CAMERA_MCLK							
X3	19	GND							
X3	20	NC							
X3	21	NC							
X3	22	3.3V							

3.6. X12 60PIN Connector

Con	Pin	Signal Name	OSM Name	Alternative Modes							
				1	2	3	4	5	6	7	8
X12	1	5V									
X12	2	3V3									
X12	3	1V8									
X12	4	CLKO4	PWM_2	GPIO4_IO29	FLEXIO2_IO29	CCM_CLKO4					
X12	5	NVCC_GPIO									
X12	6	PWM3	PWM_3	GPIO2_IO29	FLEXIO1_IO29	LPI2C3_SCL					
X12	7	GPIO.A0	GPIO_A_0	I2C2_EXP_IO00							
X12	8	ADC.CH0	ADC_0	ADC_IN0							
X12	9	GPIO.A1	GPIO_A_1	I2C2_EXP_IO01							
X12	10	ADC.CH1	ADC_1	ADC_IN1							
X12	11	GPIO.A2	GPIO_A_2	I2C2_EXP_IO02							
X12	12	UART3.RXD	UART_A_RX	GPIO2_IO15	FLEXIO1_IO15	LPUART3_RX	LPUART8_RTS_B	LPUART4_RX	LPSPI8_SCK	MMX_C_DATA7	MMX_D_DATA11
X12	13	GPIO.A3	GPIO_A_3	I2C2_EXP_IO03							
X12	14	UART3.TXD	UART_A_TX	GPIO2_IO14	FLEXIO1_IO14	LPUART3_TX	LPUART8_CTS_B	LPUART4_TX	LPSPI8_SOUT	MMX_C_DATA6	MMX_D_DATA10
X12	15	GPIO.A4	GPIO_A_4	I2C2_EXP_IO04							
X12	16	UART3.RTS	UART_A_RTS	GPIO2_IO17	FLEXIO1_IO17	LPUART3_RTS_B	LPUART4_RTS_B	LPSPI4_PCS1	SAI3_MCLK	MMX_C_DATA8	MMX_D_DATA13
X12	17	GPIO.A5	GPIO_A_5	I2C2_EXP_IO05							
X12	18	UART3.CTS	UART_A_CTS	GPIO2_IO16	FLEXIO1_IO16	LPUART3_CTS_B	LPUART4_CTS_B	LPSPI4_PCS2	SAI3_TX_BCLK	PDM_BS02	MMX_D_DATA12
X12	19	GPIO.A6	GPIO_A_6	GPIO2_IO08	FLEXIO1_IO08	LPUART7_TX	LPSPI3_PCS0	TPM6_CH0	MMX_C_DATA02	MMX_D_DATA04	LPI2C7_SDA
X12	20	UART5.RXD	UART_B_RX	GPIO2_IO01	FLEXIO1_IO01	LPUART5_RX	LPSPI6_SIN	LPI2C3_SCL	LPI2C5_SCL	MMX_C_DATA00	MMX_D_DE
X12	21	GPIO.A7	GPIO_A_7	GPIO2_IO09	FLEXIO1_IO09	LPUART6_RTS_B	LPSPI3_SIN	TPM3_EXTCLK	MMX_C_DATA03	MMX_D_DATA05	LPI2C7_SCL
X12	22	UART5.TXD	UART_B_TX	GPIO2_IO00	FLEXIO1_IO00	LPUART5_TX	LPSPI6_PCS0	LPI2C3_SDA	LPI2C5_SDA	MMX_C_CLK	MMX_D_CLK

Con	Pin	Signal Name	OSM Name	Alternative Modes							
				1	2	3	4	5	6	7	8
X12	23	GPIO.B0	GPIO_B_0	I2C2_EXP_IO06							
X12	24	UART5.RTS	UART_B_RTS	GPIO2_IO03	FLEXIO1_IO03	LPUART5_RTS_B	LPSPI6_SCK	LPI2C4_SCL	LPI2C6_SCL	MMX_C_HSYNC	MMX_D_HSYNC
X12	25	GPIO.B1	GPIO_B_1	I2C2_EXP_IO07							
X12	26	UART5.CTS	UART_B_CTS	GPIO2_IO02	FLEXIO1_IO02	LPUART5_CTS_B	LPSPI6_SOUT	LPI2C4_SDA	LPI2C6_SDA	MMX_C_VSYNC	MMX_D_VSYNC
X12	27	SAI1.RXD0	I2S_A_DATA_IN	GPIO1_IO14	LPUART2_DSR_B	LPSPI1_SOUT	SAI1_RX_DATA00	SAI1_MCLK	MQS1_RIGHT		
X12	28	UART2.RXD	UART_C_RX	GPIO1_IO6	LPUART1_CTS_B	LPUART2_RX	LPSPI2_SOUT	TPM1_CH2	SAI1_MCLK		
X12	29	SAI1.TXD0	I2S_A_DATA_OUT	GPIO1_IO13	LPUART2_RTS_B	LPUART1_DTR_B	LPSPI1_SCK	SAI1_TX_DATA00	CAN1_TX		
X12	30	UART2.TXD	UART_C_TX	GPIO1_IO7	LPUART1_RTS_B	LPUART2_TX	LPSPI2_SCK	TPM1_CH3			
X12	31	SAI1.TXFS	I2S_LRCLK	GPIO1_IO11	LPUART2_DTR_B	LPSPI1_PCS0	SAI1_TX_SYNC	SAI1_TX_DATA01	MQS1_LEFT		
X12	32	UART8.RXD	UART_D_RX	GPIO2_IO13	FLEXIO1_IO13	LPUART8_RX	LPSPI8_SIN	TPM4_CH2	LPI2C8_SCL	PDM_BS03	MMX_D_DATA09
X12	33	SAI1.TXC	I2S_BITCLK	GPIO1_IO12	LPUART2_CTS_B	LPUART1_DSR_B	LPSPI1_SIN	SAI1_TX_BCLK	CAN1_RX		
X12	34	UART8.TXD	UART_D_TX	GPIO2_IO12	SAI3_RX_SYNC	LPUART8_TX	LPSPI8_PCS0	TPM3_CH2	LPI2C8_SDA	PDM_BS02	MMX_D_DATA08
X12	35	SAI1.MCLK	I2S_MCLK	GPIO4_IO28	FLEXIO2_IO28	CCM_CLK03					
X12	36	I2C1.SCL	I2C_A_SCL	GPIO1_IO00	LPUART1_DCB_B	TPM2_CH0	LPI2C1_SCL	I3C1_SCL			
X12	37	FLEXSPI1.SS	SPI_A_CS0#	GPIO3_IO21	FLEXIO1_IO21	USDHC3_CMD	FLEXSPI1_A_SS0_B				
X12	38	I2C1.SDA	I2C_A_SDA	GPIO1_IO01	LPUART1_RIN_B	TPM2_CH1	LPI2C1_SDA	I3C1_SDA			
X12	39	FLEXSPI1.SCLK	SPI_A_SCK	GPIO3_IO20	FLEXIO1_IO20	USDHC3_CLK	FLEXSPI1_A_SCLK				
X12	40	I2C2.SCL	I2C_B_SCL	GPIO1_IO02	LPUART2_DCB_B	TPM2_CH2	SAI1_RX_SYNC	LPI2C2_SCL	I3C1_PUR	I3C1_PUR_B	
X12	41	FLEXSPI1.D0	SPI_A_SDI_(IO0)	GPIO3_IO22	FLEXIO1_IO22	USDHC3_DATA0	FLEXSPI1_A_DATA00				
X12	42	I2C2.SDA	I2C_B_SDA	GPIO1_IO03	LPUART2_RIN_B	TPM2_CH3	SAI1_RX_BCLK	LPI2C2_SDA			
X12	43	FLEXSPI1.D1	SPI_A_SDO_(IO1)	GPIO3_IO23	FLEXIO1_IO23	USDHC3_DATA1	FLEXSPI1_A_DATA01				
X12	44	SD3.CLK	SDIO_B_CLK	GPIO2_IO22	FLEXIO1_IO22	USDHC3_CLK	TPM5_CH1	TPM6_EXTCLK	LPI2C5_SDA	SPDIF_IN	MMX_D_DATA18
X12	45	FLEXSPI1.D2	SPI_A_/WP_(IO2)	GPIO3_IO24	FLEXIO1_IO24	USDHC3_DATA2	FLEXSPI1_A_DATA02				
X12	46	SD3.CMD	SDIO_B_CMD	GPIO2_IO23	FLEXIO1_IO23	USDHC3_CMD	TPM6_CH1	LPI2C5_SCL	SPDIF_OUT	MMX_D_DATA19	
X12	47	FLEXSPI1.D3	SPI_A_/HOLD(IO3)	GPIO3_IO25	FLEXIO1_IO25	USDHC3_DATA3	FLEXSPI1_A_DATA03				
X12	48	SD3.D0	SDIO_B_D0	GPIO2_IO24	FLEXIO1_IO24	LPSPI6_PCS1	USDHC3_DATA0	TPM3_CH3	MMX_D_DATA20	JTAG_MUX_TDO	

Con	Pin	Signal Name	OSM Name	Alternative Modes							
				1	2	3	4	5	6	7	8
X12	49	SPI7.CS	SPI_B_CS0#	GPIO2_IO04	FLEXIO1_IO04	LPUART6_TX	LPSPI7_PCS0	TPM3_CH0	MMX_D_DATA00	LPI2C6_SDA	
X12	50	SD3.D1	SDIO_B_D1	GPIO2_IO25	FLEXIO1_IO25	LPSPI7_PCS1	USDHC3_DATA1	TPM4_CH3	MMX_D_DATA21	CAN2_TX	JTAG_MUX_TCK
X12	51	SPI7.SCK	SPI_B_SCK	GPIO2_IO07	FLEXIO1_IO07	LPUART6_RTS_B	LPSPI3_PCS1	LPSPI7_SCK	MMX_C_DATA01	MMX_D_DATA03	LPI2C7_SCL
X12	52	SD3.D2	SDIO_B_D2	GPIO2_IO26	LPSPI8_PCS1	USDHC3_DATA2	TPM5_CH3	MMX_D_DATA22	SAI3_TX_SYNC	PDM_BS01	JTAG_MUX_TDI
X12	53	SPI7.SIN	SPI_B_SDI	GPIO2_IO05	FLEXIO1_IO05	LPUART6_RX	LPSPI7_SIN	TPM4_CH0	MMX_D_DATA01	LPI2C6_SCL	PDM_BS00
X12	54	SD3.D3	SDIO_B_D3	GPIO2_IO27	FLEXIO1_IO27	LPSPI5_PCS1	USDHC3_DATA3	TPM6_CH3	MMX_D_DATA23	CAN2_RX	JTAG_MUX_TMS
X12	55	SPI7.SOUT	SPI_B_SDO	GPIO2_IO06	FLEXIO1_IO06	LPUART6_CTS_B	LPSPI7_SOUT	TPM5_CH0	MMX_D_DATA02	LPI2C7_SDA	PDM_BS01
X12	56	CAN2.TXD	CAN_B_TX	GPIO3_IO28	FLEXIO2_IO30	LPUART5_RX	CAN2_TX	MQS2_LEFT	JTAG_MUX_TDI		
X12	57	CAN1.TXD	CAN_A_TX	GPIO1_IO08	PDM_CLK	CAN1_TX	MQS1_LEFT	LPTMR1_ALT1			
X12	58	CAN2.RXD	CAN_B_RX	GPIO3_IO31	FLEXIO1_IO31	LPUART5_TX	CAN2_RX	MQS2_RIGHT	JTAG_MUX_TDO		
X12	59	CAN1.RXD	CAN_A_RX	GPIO1_IO09	LPSPI1_PCS1	TPM1_EXTCLK	PDM_BS00	CAN1_RX	MQS1_RIGHT	LPTMR1_ALT2	
X12	60	GND	GND								

4. Connectors

Power

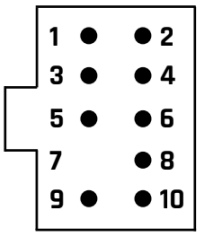
X13.1	8-30 V
X13.2	Ground (GND)

SL1: Console

SL1.1	GND
SL1.4	UART1-RXD
SL1.5	UART1-TXD
Do not connect other pins	

SL2: JTAG/SWD (ARM 10 Pin connector)

1	VTref
2	SWDIO/TMS
3	GND
4	SWCLK/TCK
5	GND
6	SWO/TDO
7	- - -
8	TDI
9	NC - TRSTN
10	nRESET



LEDs

LED1	Green: Powersupply 3.3V

Buttons

Power Button	TA1 ON / OFF to SOC
Reset Button	System Reset
Recovery Button	Force to USB Boot

5. Boot modes

The OSM Standard implements two BOOT Pins: BOOT_SEL0# and BOOT_SEL1#.

BOOT_MODE2 and BOOT_MODE3 are connected to Vendor Defined Pins.
While BOOT_MODE0 and BOOT_MODE1 are automatically disconnected on the byteENGINE after power on reset, the logic for BOOT_MODE2 and BOOT_MODE3 must be handled on the baseboard separately. The boot sequence can be redefined with OTP writing.

5.1. byteENGINE IMX9x

Bootmode Pin	IMX9x PAD	OSM PAD	Note
BOOT_MODE0	UART1_TXD	(U19) BOOT_SEL0#	automatically disconnected after Boot
BOOT_MODE1	UART2_TXD	(R18) BOOT_SEL1#	automatically disconnected after Boot
BOOT_MODE2	SAI1_TXFS	(D6) Vendor Defined	Vendor defined pins, disconnect logic needed on baseboard
BOOT_MODE3	SAI1_TXD0	(D7) Vendor Defined	Vendor defined pins, disconnect logic needed on baseboard

CPU	BOOD_MODE (3:0)	BOOT Source
Cortex-A55	0000	Boot from internal Fuses
	0001	Serial Download (USB1)
	0010	USDHC1 8-bit eMMC 5.1
	0011	USDHC2 4-bit SD 3.0
	0100	FlexSPI Serial NOR
	0101	FlexSPI Serial NAND 2K
Cortex-M33	1000	LPB: Boot From Internal Fuses
	1001	LPB: Serial Downloader (USB1)
	1010	LPB: USDHC1 8-bit 1.8V eMMC 5.1
	1011	LPB: USDHC2 4-bit SD 3.0
	1100	LPB: FlexSPI Serial NOR
	1101	LPB: FlexSPI Serial NAND 2K

5.2. byteENGINE STM32MP2

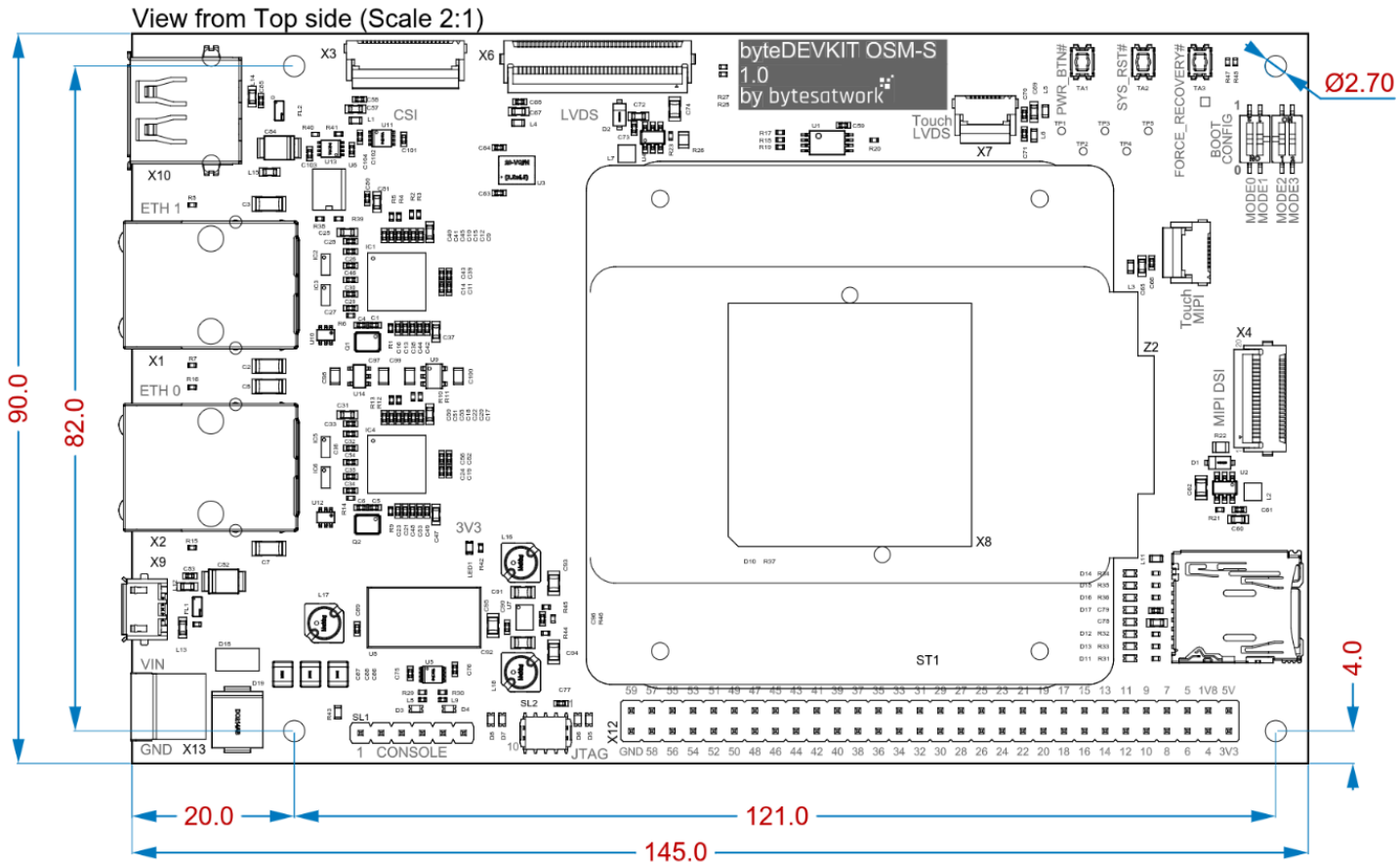
Bootmode Pin	STM32MP2 PAD	OSM PAD	Note
BOOT_MODE0	T2	U19	Automatically disconnected after Boot
BOOT_MODE1	P3	R18	Automatically disconnected after Boot
BOOT_MODE2	T3	D6	Vendor defined pins, disconnect logic needed on baseboard
BOOT_MODE3	R3	D7	Vendor defined pins, disconnect logic needed on baseboard

CPU	BOOT_MODE [3:0]	BOOT Source
Cortex A35 + M33	0000	UART and USB
Cortex A35	0001	SD-Card
	0010	eMMC
	0011	Development boot
	0100	Serial NOR
	0101	Serial NAND
	0110	SLC NAND
Cortex M33	0111	SD-Card
	1000	e-MMC
	1001	-
	1010	-
Cortex M33	1011	Serial NOR
Cortex A35 + M33	1100	Development boot
	1101	-
	1110	-
Cortex A35 + M33	1111	UART and USB

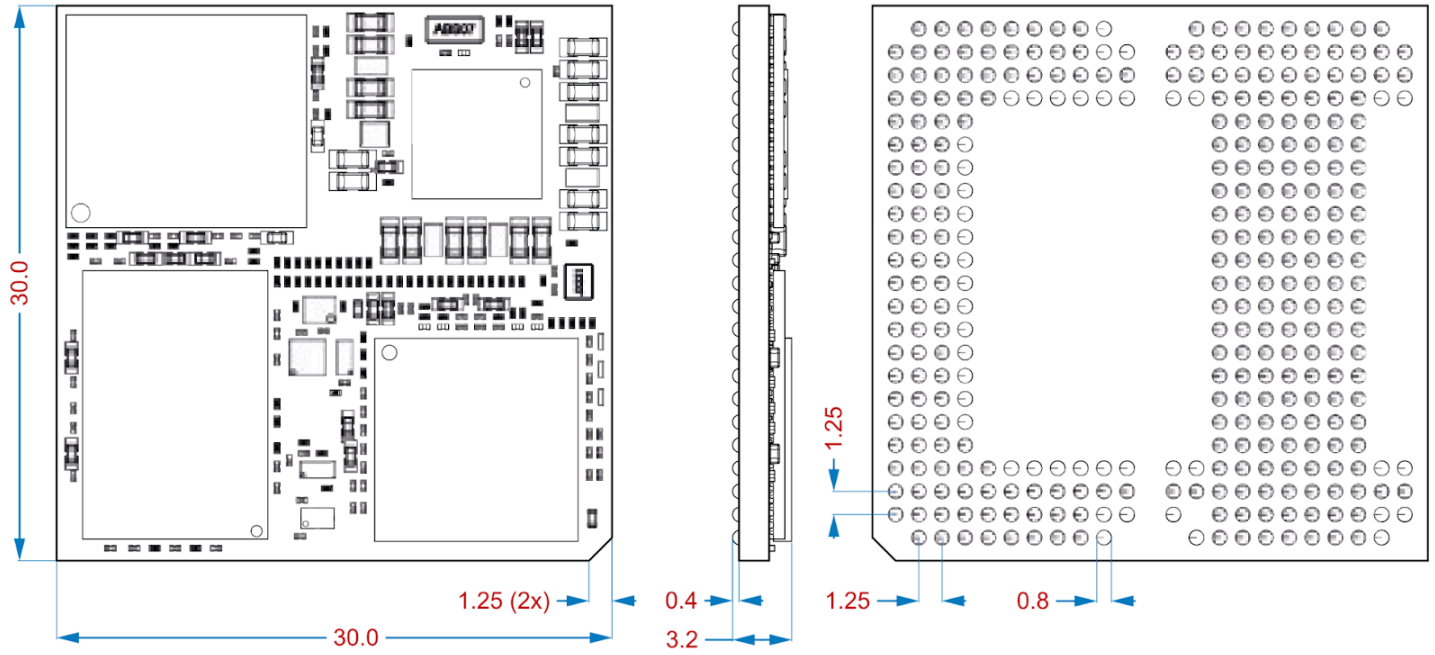
6. Mechanical dimensions byteDEVKIT OSM-S

The following illustration shows all important dimensions for mounting and installation of the byteDEVKIT OSM-S.

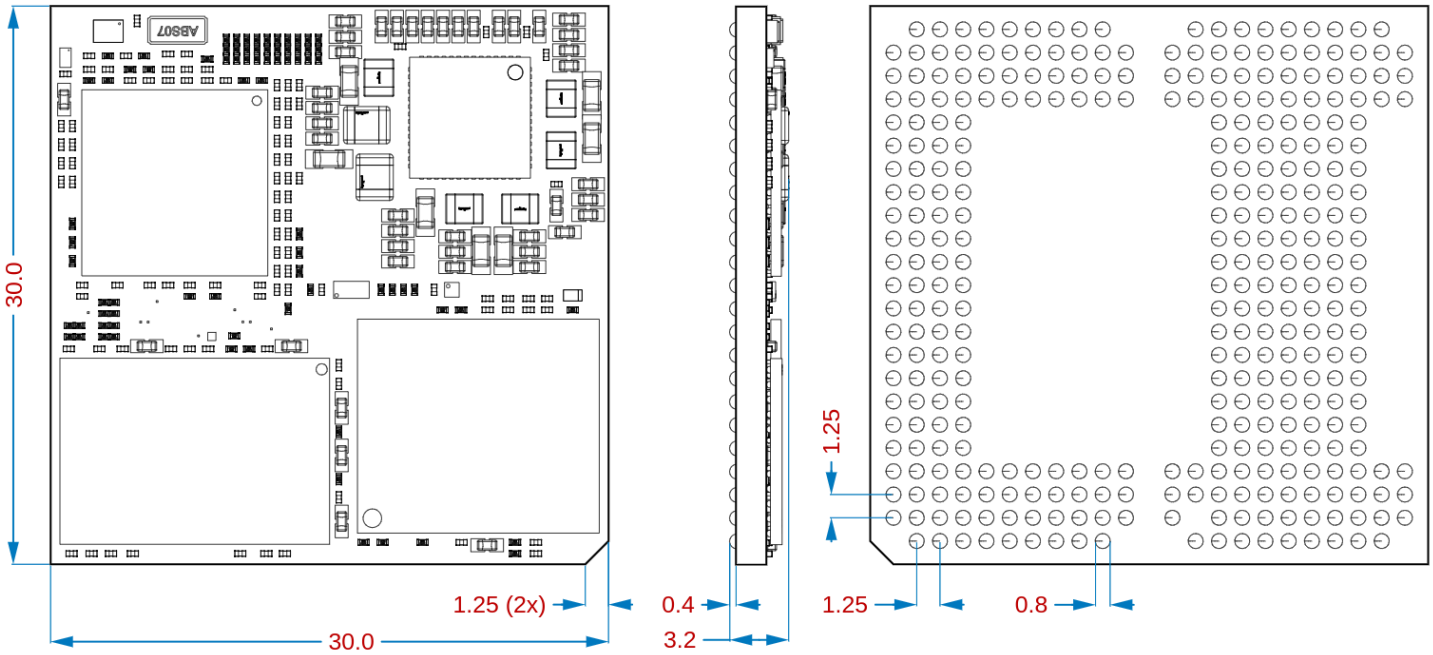
> All dimensions are indicated in millimetres (mm)



6.1. Mechanical dimensions of byteENGINE IMX9x



6.2. Mechanical dimensions of byteENGINE STM32MP2



7. Ordering info

The Order Code allows customers to easily recognize the detailed specification of the ordered SOM. Please refer to chapter Decision guidance byteDEVKIT OSM-S for further information.

byte[KIT]-[CPU]-[SPEED]-[RAM]-[FLASH]-[temp-range]-[revision]-[display]

[KIT]	**Display Option**	DEVKIT: With Display STARTKIT: Without Display
[CPU]	**CPU Type**	Comprehensive, see Decision guidance byteDEVKIT OSM-S
[SPEED]	**Clock speed**	800 MHz / 900 MHz / 1.2 GHz / 1.4 GHz / 1.5 GHz / 1.7 GHz
[RAM]	**RAM size**	512 / 768 /1024 /1536 / 2048 MB
[FLASH]	**eMMC flash size**	8 / 16 / 32 / 64 / 128 GB
[temp-range]	**Temperature range**	[C] Consumer 0° to +85° C [I] Industrial -40°C to +85 °C
[revision]	**Revision**	1.0
[display]	**Display Option**	LVDS or MIPI (optional)

8. References byteDEVKIT OSM-S

NOTICE

Files can only be downloaded with login credentials. Please request your download credentials via support@bytesatwork.ch or contact your sales representative.

Links

- bytewiki::
  byteWIKI: byteDEVKIT with byteENGINE IMX93
  Link for byteENGINE STM32MP25x is coming soon.

- bytesatwork on github:
  https://github.com/bytesatwork

- byteDEVKIT OSM-S Schematic V1.0:
  byteDEVKIT OSM-S Schematic V1.0

- Detailed Pinout List:
  Detailed Pinout List

bytesatwork

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Help

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