

ConXM

Documentation version 0.9.2 (Preliminary)

Introduction

The ConXM is an industrial terminal based on Keith & Koep Myon module.

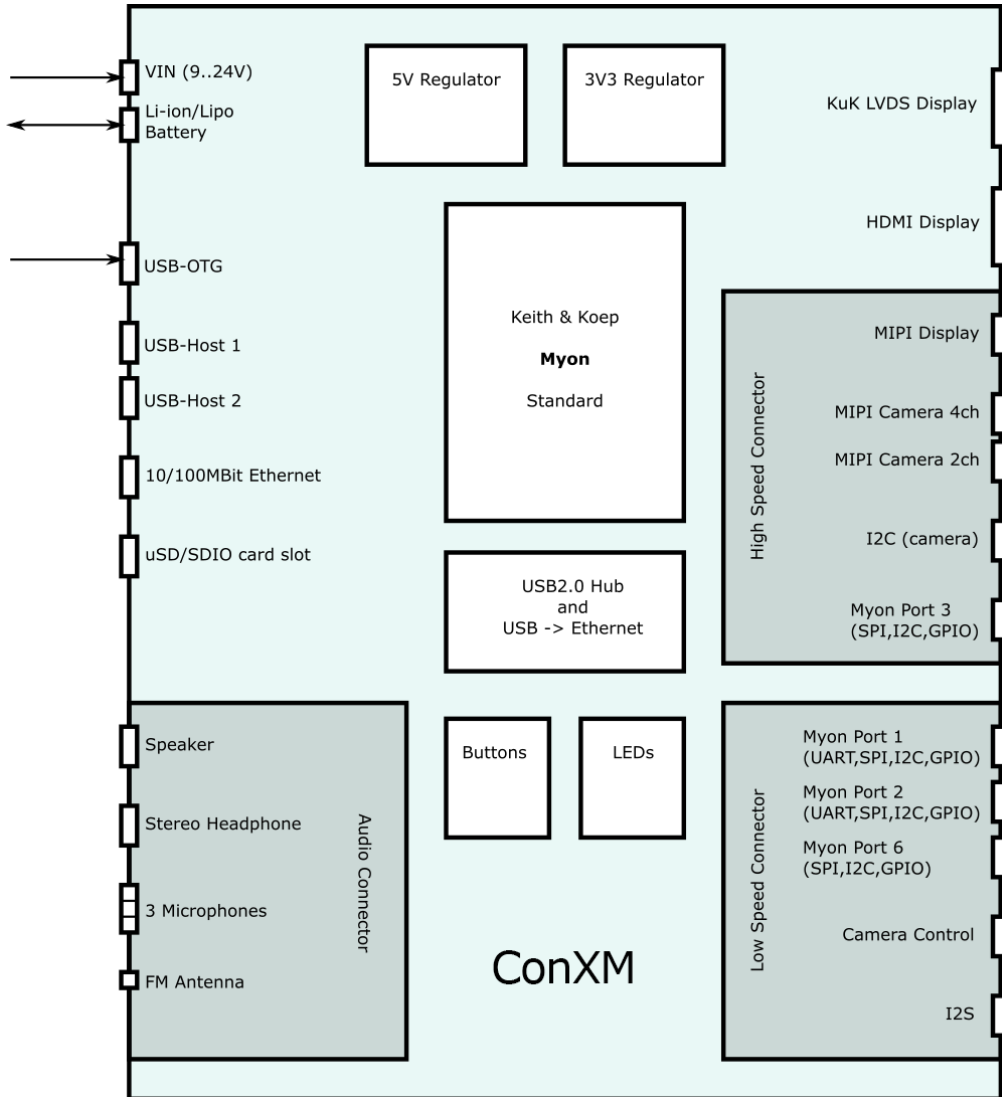


Figure 0-1: Simplified Block Diagram of ConXM

Features and interfaces

The ConXM offers the following features:

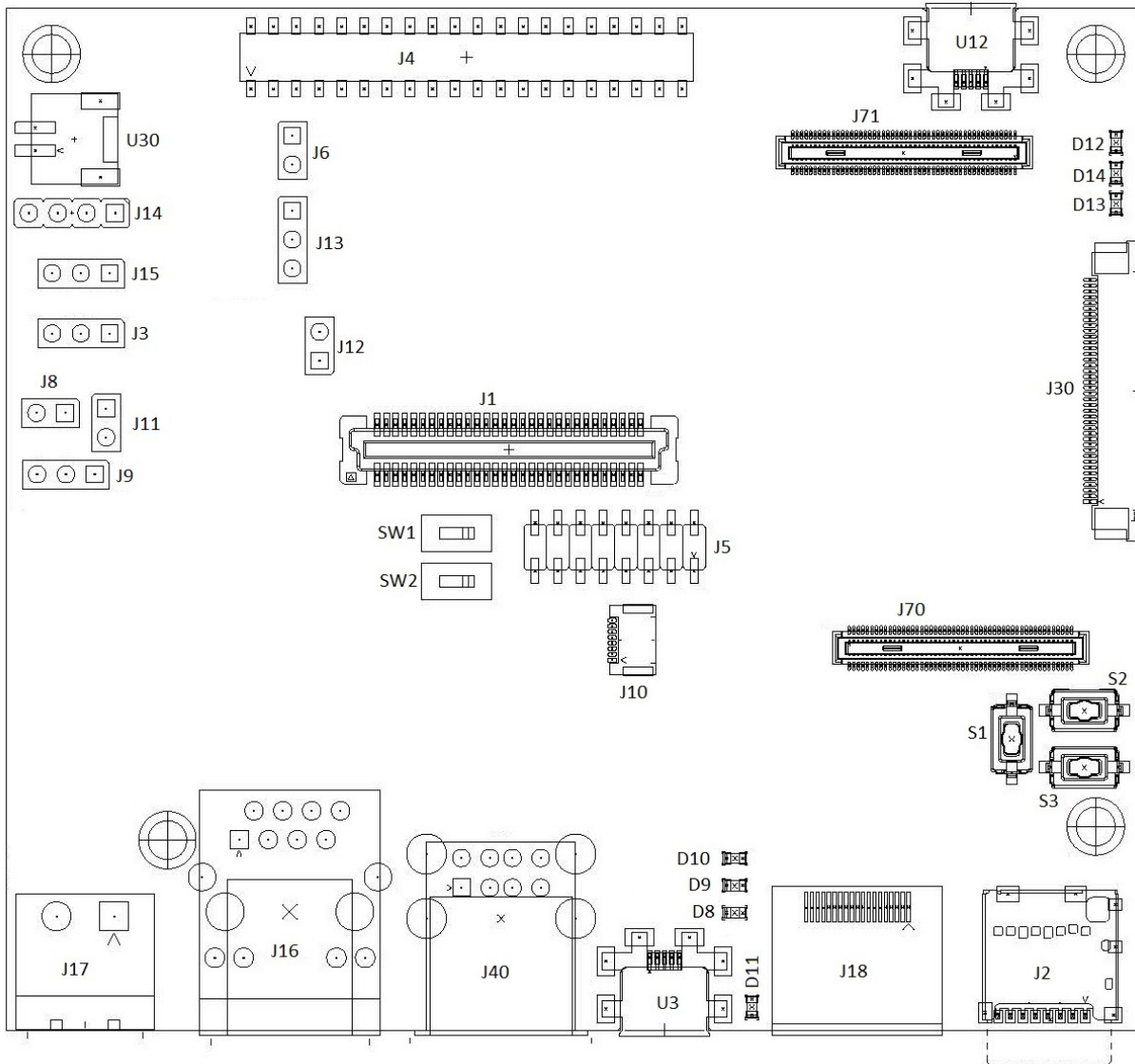
- Single power supply (12V – 24V)
- 2x USB host and 1x Micro USB OTG
- µSD-Card
- 96Boards standard connectors
- Ethernet: 10 / 100 Mbit RJ45
- HDMI Connector
- KuK LVDS Connector

Dimensions:

(Length x Width x Height): 100 x 90 x 23 mm

1.0 Pin description

The ConXM got several interfaces.



External Connectors:

- J1: HS Exp. Connector
- J2: μSD-Card Slot
- J4: LS Exp. Connector
- J5: Analog Exp. Conn.
- J10: JTAG Connector
- J14: Battery Connector
- J16: Ethernet Connector
- J17: Power Connector
- J18: HDMI Connector
- J40: USB Connector
- U3: Micro USB Connector
- U12: Debug Connector
- U30: Battery Connector

Switches and Jumpers:

- S1: KYPD_SNS0
- S2: \PHONE_ON
- S3: \RESET
- SW1: BOOT_CONFIG_1
- SW2: FORCED_USB_BOOT
- J3: +5V Output
- J6: Coin Cell
- J8: +3V3 Output
- J9: +3V3 Output
- J11: +3V3 or +3V7 Outp.
- J12: USB_VBUS Output
- J13: USB_VBUS Output
- J15: VBAT Output

Internal Connectors:

- J30: KuK LVDS Display Connector
- J70: Myon Connector
- J71: Myon Connector

LEDs:

- D8: USR_LED1 (P6_MISO)
- D9: USR_LED2
- D10: USR_LED3
- D11: Power OK
- D12: USR_LED4
- D13: WLAN_LED
- D14: BT_LED

1.1 External Connectors

J1: HS Expansion Connector

Signal	Pin	Pin	Signal
P3_MOSI	1	2	CSIO_CLK_P
nc	3	4	CSIO_CLK_N
nc	5	6	GND
P3_CS	7	8	CSIO_DAT0_P
P3_CLK	9	10	CSIO_DAT0_N
P3_MISO	11	12	GND
GND	13	14	CSIO_DAT1_P
CSIO_MCLK	15	16	CSIO_DAT1_N
CSI1_MCLK	17	18	GND
GND	19	20	CSIO_DAT2_P
DSIO_EXT_CLKP	21	22	CSIO_DAT2_N
DSIO_EXT_CLKN	23	24	GND
GND	25	26	CSIO_DAT3_P
DSIO_EXT_P0	27	28	CSIO_DAT3_N
DSIO_EXT_N0	29	30	GND
GND	31	32	CAM_I2C_SCL
DSIO_EXT_P1	33	34	CAM_I2C_SDA
DSIO_EXT_N1	35	36	P4_SCL (optional)
GND	37	38	P4_SDA (optional)
DSIO_EXT_P2	39	40	GND
DSIO_EXT_N2	41	42	CSI1_DAT0_P
GND	43	44	CSI1_DAT0_N
DSIO_EXT_P3	45	46	GND
DSIO_EXT_N3	47	48	CSI1_DAT1_P
GND	49	50	CSI1_DAT1_N
USB_EXT_DP	51	52	GND
USB_EXT_DN	53	54	CSI1_DAT2_P
GND	55	56	CSI1_DAT2_N
nc	57	58	GND
nc	59	60	nc

Connector: 61082-06140xLF (FCI)

J2: uSD-Card Slot

Connector: 104031-0811 (MOLEX)

J4: LS Expansion Connector

Signal	Pin	Pin	Signal
GND	1	2	GND
P1_CTS	3	4	PHONE_ON_n
P1_TXD	5	6	RESET_IN_n
P1_RXD	7	8	P5_CLK_SCL
P1_RTS	9	10	P5_MISO
P2_TXD	11	12	P5_CS_SDA
P2_RXD	13	14	P5_MOSI
P2_SCL	15	16	I2S2_WS
P2_SDA	17	18	I2S2_SCK
P6_SCL	19	20	I2S2_DAT0
P6_SDA	21	22	nc
CAM_FLASH	23	24	P4_GPIO12
P4_GPIO13	25	26	LS_EXP_GPIO_D
I2S1_DAT1	27	28	BACKLIGHT_PWM
CAM_TORCH	29	30	DSIO_RESET
CSIO_RESET	31	32	CSIO_PWDN
CSI1_RESET	33	34	CSI1_PWDN
+1V8 (optional)	35	36	VIN_FUSED
+5V (optional)	37	38	VIN_FUSED
GND	39	40	GND

Connector: 87381-4063 (MOLEX)

J5: Analog Expansion Connector

Signal	Pin	Pin	Signal
SPEAKER_P	1	2	SPEAKER_N
VBAT	3	4	GND
GND_CFILT	5	6	MIC2
MIC3	7	8	HEADPHONE_R
HEADPHONE_REF	9	10	HEADPHONE_L
HEADSET_DETECT	11	12	MIC_BIAS1
nc	13	14	nc
FM_ANTENNA	15	16	MIC1 (optional)

Connector: SL2-16 SMD, 2mm pitch

J10: KuK JTAG Connector

This flex-cable-connector uses the Keith-Koep JTAG connector standard. An adapter to Multi-ICE pin-header is available.

Pin	Signal
1	+3V3
2	GND
3	TMS
4	TRST_n
5	TCK
6	TDO
7	TDI
8	RESET_n

Connector: 08FHJ-SM1-TB (JST)

J14: Battery Connector

Pin	Signal
1	VBAT
2	BAT_ID
3	BAT_THERM
4	GND

Connector: SL1-4, 2.54mm pitch

J16: Ethernet Connector

Connector: HFJ11-2450E-L12 (HALO)

J17: Power Connector

Pin	Signal
1	VIN (+12V to +24V)
2	GND

Connector: Phoenix Contact MSTBA2,5/2-G-5.08

J18: HDMI Connector

Connector: SD-47151-001 (MOLEX)

J40: USB Connector

Upper Port: USB Host 1

Lower Port: USB Host 2

Connector: 787617-x (AMP)

U3: Micro USB Connector

USB OTG Port

Connector: 47491-000X (MOLEX)

U12: Micro USB Connector

Debug Port or Serial Port (assembly option)

Connector: 47491-000X (MOLEX)

U30: Battery Connector

Pin	Signal
1	GND
2	VBAT

Connector: S 2B-PH-SM4-TB (JST)

1.2 Internal Connectors

J30: KuK LVDS Display Connector

Pin	Signal
1	nc
2	+3V3
3	+3V3
4	+3V3
5	TOUCH_I2C_CLK
6	TOUCH_I2C_DATA
7	GND
8	LVDS/DSIO_TXN0
9	LVDS/DSIO_TXP0
10	GND
11	LVDS/DSIO_TXN1
12	LVDS/DSIO_TXP1
13	GND
14	LVDS/DSIO_TXN2
15	LVDS/DSIO_TXP2
16	GND
17	LVDS/DSIO_CLKN
18	LVDS/DSIO_CLKP
19	GND
20	LVDS/DSIO_TXN3
21	LVDS/DSIO_TXP3
22	GND
23	GND
24	GND
25	GND
26	BL_EN
27	BL_PWM
28	DISP_EN
29	P4_GPIO13
30	CAP_RST_n
31	VIN_FUSED
32	VIN_FUSED
33	VIN_FUSED
34	+5V
35	+5V
36	+5V
37	USBH_DISPLAY_DM
38	USBH_DISPLAY_DP
39	nc
40	GND

Connector: 68714014022 (Würth)

J70: Myon Connector

Signal	Pin	Pin	Signal
VBAT	1	2	VBAT
VBAT	3	4	VBAT
VBAT	5	6	VBAT
VBAT	7	8	VBAT
BAT_THERM	9	10	BAT_SENSE
VBAT_COIN	11	12	BAT_ID
GND	13	14	GND
GND	15	16	GND
USB_VBUS	17	18	USB_VBUS
USB_VBUS	19	20	USB_VBUS
USB_VBUS	21	22	USB_VBUS
USB_VBUS	23	24	USB_VBUS
USB_OTG_VBUS	25	26	USB_VBUS
USB_OTG_DM	27	28	PHONE_ON_n
USB_OTG_DP	29	30	RESET_IN_n
USB_OTG_ID	31	32	RESET_OUT_n
GND	33	34	GND
GND_CFILT	35	36	GND
MIC2	37	38	JTAG_MODE
MIC_BIAS2	39	40	FORCED_USB_BOOT
HEADPHONE_L	41	42	+3V3_MYON
HEADPHONE_R	43	44	+3V3_MYON
HEADPHONE_REF	45	46	+1V8_MIPI
HEADSET_DETECT	47	48	+1V8_MIPI
MIC1	49	50	+1V8_EXT
MIC_BIAS1	51	52	+1V8_IO
FM_ANTENNA	53	54	P3_MOSI
MIC3	55	56	P3_MISO
SPEAKER_P	57	58	P3_CLK
SPEAKER_N	59	60	P3_CS
P1_TXD	61	62	P4_GPIO12
P1_RXD	63	64	P4_GPIO13
P1_RTS	65	66	P4_SCL
P1_CTS	67	68	P4_SDA
P2_TXD	69	70	DSIO_RESET
P2_RXD	71	72	DSIO_ENABLE
P2_SCL	73	74	BACKLIGHT_PWM
P2_SDA	75	76	BACKLIGHT_ENABLE
GND	77	78	GND
VDD_SDCARD_PWR	79	80	LVDS/DSIO_TXN0
VDD_SDCARD_IO	81	82	LVDS/DSIO_TXP0
SD2_CMD	83	84	LVDS/DSIO_TXN1
SD2_CLK	85	86	LVDS/DSIO_TXP1
SD2_DAT0	87	88	LVDS/DSIO_TXN2
SD2_DAT1	89	90	LVDS/DSIO_TXP2
SD2_DAT2	91	92	LVDS/DSIO_TXN3
SD2_DAT3	93	94	LVDS/DSIO_TXP3
SD2_CARDDetect	95	96	LVDS/DSIO_CLKN

LS_EXP_GPIO_D	97	98	LVDS/DSIO_CLKP
GND	99	100	GND

Connector: DF40HC(3.0)-100DS-0.4V (HIROSE)

J71: Myon Connector

Signal	Pin	Pin	Signal
BOOT_CONFIG_1	1	2	WLAN_LED (open)
BBCLK2	3	4	BT_LED (open)
HDMI_INT	5	6	KYPD_SNS0
P5_MOSI	7	8	KYPD_SNS1 (open)
P5_MISO	9	10	KYPD_SNS2 (open)
P5_CLK_SCL	11	12	USR_LED2
P5_CS_SDA	13	14	USR_LED3
P6_MOSI	15	16	USR_LED4 (open)
P6_MISO	17	18	USB_HUB_RESET_n (open)
P6_SCL	19	20	USB_SW_SEL
P6_SDA	21	22	X22 (open)
I2S1_DAT0 (open)	23	24	UIM3_RST (open)
I2S1_DAT1	25	26	UIM3_PRESENT (open)
I2S1_SCK (open)	27	28	UIM3_CLK (open)
I2S1_MCLK (open)	29	30	UIM3_DATA (open)
I2S1_WS (open)	31	32	X32 (open)
I2S2_DAT0	33	34	UIM2_ST (open)
I2S2_DAT1 (open)	35	36	UIM2_PRESENT (open)
I2S2_SCK	37	38	UIM2_CLK (open)
I2S2_WS	39	40	UIM2_DATA (open)
GND	41	42	GND
CSI1_CLK_N	43	44	GPIO70 (open)
CSI1_CLK_P	45	46	GPIO71 (open)
CSI1_DAT0_N	47	48	GPIO72 (open)
CSI1_DAT0_P	49	50	GPIO73 (open)
CSI1_DAT1_N	51	52	GPIO74 (open)
CSI1_DAT1_P	53	54	GPIO75 (open)
GND	55	56	GND
CSI1_RESET	57	58	GPIO76 (open)
CSI1_PWDN	59	60	GPIO77 (open)
CSI1_MCLK	61	62	GPIO78 (open)
CAM_TORCH	63	64	GPIO79 (open)
CAM_FLASH	65	66	GPIO95 (open)
CAM_I2C_SCL	67	68	GPIO99 (open)
CAM_I2C_SDA	69	70	GPIO100 (open)
CSIO_RESET	71	72	GPIO101 (open)
CSIO_PWDN	73	74	GPIO102 (open)
CSIO_MCLK	75	76	GPIO103 (open)
GND	77	78	GND
CSIO_CLK_N	79	80	GPIO111 (open)
CSIO_CLK_P	81	82	UIM_RST (open)
CSIO_DAT0_N	83	84	UIM1_PRESENT (open)
CSIO_DAT0_P	85	86	UIM1_CLK (open)
CSIO_DAT1_N	87	88	UIM1_DATA (open)
CSIO_DAT1_P	89	90	UIM_BATT_ALARM (open)



CSIO_DAT2_N	91	92	SMB_INT (open)
CSIO_DAT2_P	93	94	SSBI_WTR1_RX (open)
CSIO_DAT3_N	95	96	SSBI_WTR1_TX (open)
CSIO_DAT3_P	97	98	EXT_GNSS_LNA_EN (open)
GND	99	100	GND

Connector: DF40HC(3.0)-100DS-0.4V (HIROSE)

1.3 Switches and Jumpers

S1: KYPD_SNS0

Status	Voltage Level
pressed	GND
Not pressed	High (Internal Pullup)

S2: \PHONE_ON

Status	Voltage Level
Pressed	GND
Not pressed	High (Internal Pullup)

S3: \RESET_IN

Status	Voltage Level
Pressed	GND
Not pressed	High (Internal Pullup)

SW1: BOOT_CONFIG_1

Status	Voltage Level
On	+1V8_IO
Off	Floating (internal pullup or pulldown ???)

SW2: FORCED_USB_BOOT

Status	Voltage Level
On	+1V8_IO
Off	Floating (internal pullup or pulldown ???)

J3: +5V Output

Position	Voltage Level
1 – 2	+5V Power Supply from Input (USB)
2 – 3	+5V Power Supply from Regulator

J6: Coin Cell

Position	Voltage Level
1	VBAT_COIN
2	GND

J8: +3V3 Output

Position	Voltage Level
set	+3V3 Power Supply from Regulator (depends on setting of J11)
open	About +3V3 Power Supply from Regulator with catch diode (depends on setting of J11)

J9: +3V3 Output

Position	Voltage Level
1 – 2	+3V3 Power Supply from Myon-Module
2 – 3	+3V3 Power Supply from Regulator

J11: +3V3 or +3V7 Output

Position	Voltage Level
set	Regulator Output +3V3
open	Regulator Output +3V7

J12: USB_VBUS Output

Position	Voltage Level
set	+5V Power Supply to USB_VBUS
open	+3V3 Power Supply to USB_VBUS to prevent charging VBAT

J13: USB_VBUS Output

Position	Voltage Level
1 – 2	USB_VBUS power supply from +5V regulator
2 – 3	USB_VBUS power supply from USB Connector

J15: VBAT Output

Position	Voltage Level
1 – 2	VBAT power supply from VBAT input
2 – 3	VBAT power supply from +3V3 regulator

1.4 LEDs

D8: USR_LED1

Voltage Level	Output
Power	Green
GND	Off

D9: USR_LED2

Voltage Level	Output
Power	Green
GND	Off

D10: USR_LED3

Voltage Level	Output
Power	Green
GND	Off

D11: Power OK

Voltage Level	Output
Power Good	Green
Power Fail	Off

D12: USR_LED4

Voltage Level	Output
Power	Green
GND	Off

D13: WLAN_LED

Voltage Level	Output
Power	Green
GND	Off

D10: BT_LED

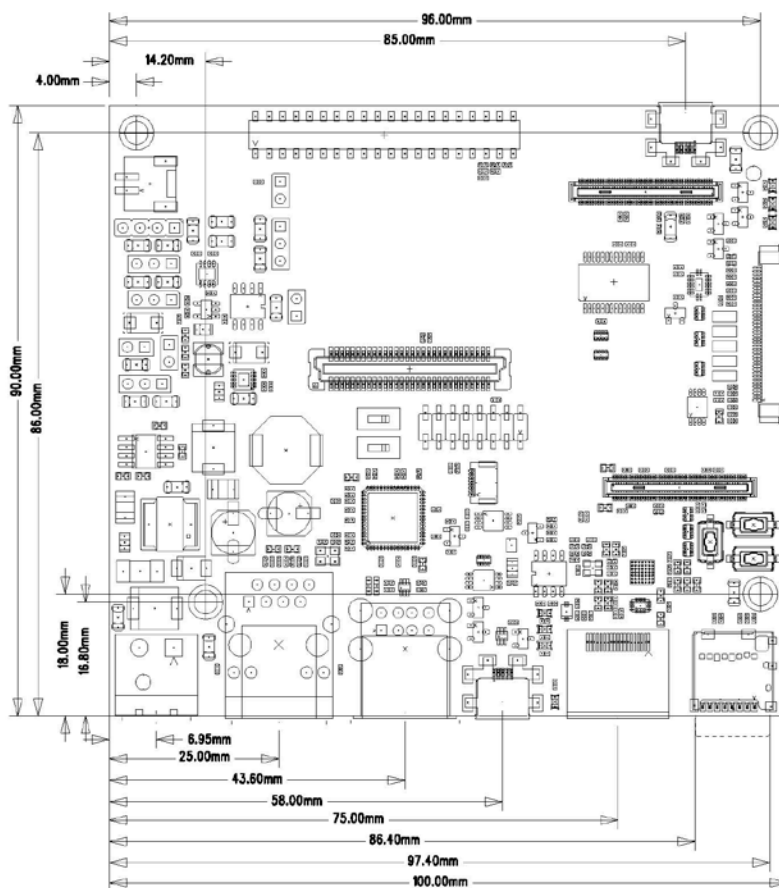
Voltage Level	Output
Power	Green
GND	Off



2. Electrical Specification

Tbd

3. Mechanical Specification



4. Ordercodes for ConXM

tbd

5. Important Notice

6. Document History

Rev.	Date	Author	Changes
0.9	18.02.2016	VB	Initial Version.
0.9.1	13.05.2016	VB	Changes in table J30 LVDS connector
0.9.2	21.06.2016	VB	Adapted to PCB version V1R2