

Mini-ITX SBC supports 4th generation 22nm Intel® mobile Core™ i7/i5/i3 and Celeron® processors, HDMI / VGA / LVDS / DP, dual Intel® PCIe GbE, USB 3.0, SATA 6Gb/s, HD Audio, IPMI and RoHS

KINO-DQM871-i1

Quick Installation Guide

Version 1.0

Oct 23, 2014.

Package List

KINO-DQM871-i1 package includes the following items:

- 1 x KINO-DQM871-i1 motherboard
- 2 x SATA with power output cable (P/N: 32801-000100-100-RS)
- 1 x I/O shielding (P/N: 45014-0048C0-00-RS)
- 1 x Mini jumper pack (P/N: 33101-000657-RS)
- 1 x Utility CD
- 1 x QIG (Quick Installation Guide)



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Specifications

- Form Factor: Mini-ITX
- CPU:
 - 4th generation 22nm Intel® mobile Core™ i7/i5/i3 and Celeron® processors
- PCH: Intel® QM87
- Memory:
 - Two 204-pin 1066/1333/1600 MHz dual-channel DDR3 SO-DIMMs (Support up to 16GB)
- BIOS: UEFI BIOS
- Ethernet:
 - 1 x Intel® I210 PCIe controller
 - 1 x Intel® I217 PHY (PCIe x1 interface)
- Graphic Engine:
 - Support for DX11.1 and OpenGL3.2
 - Full MPEG2, VC1, AVC Decode
- Display Output:
 - VGA integrated in Intel® QM87
 - 18/24-bit dual-channel LVDS support
 - Dual HDMI output supported
 - DP port by pin header
- Super IO: Fintek F81866
- EC: IT 8528
- Digital I/O: 8-bit digital I/O (4-bit input / 4-bit output)
- Audio:
 - Realtek ALC662 HD codec
 - 1x Line-out / Mic-In audio jack on rear IO
- I/O Interface:
 - 1 x RS-232 on rear I/O
 - 4 x RS-232 by pin header
 - 1 x RS-422/485

- 2 x USB 3.0 on rear I/O
- 2 x USB 3.0 by pin header
- 2 x USB 2.0 on rear I/O
- 8 x USB 2.0 by pin header
- 1 x 6-pin wafer for PS/2 KB/MS
- 2 x SATA 6Gb/s with RAID support
- 2 x SATA 3Gb/s with RAID support
- 2 x SATA power connector
- Watchdog Timer:
 - Software programmable support 1~255 sec. system reset
- FAN:
 - 1 x 4-pin CPU fan connector
 - 1 x 4-pin system fan connector
- Front Panel:
 - 1 x Front Panel
 - (Power LED, HDD LED, Speaker, Power Button, Reset Button)
- LAN LED: 2 x 2 PIN for LAN1 LED, LAN2 LED
- SMBUS: 1 x 4-pin (1x4) wafer
- TPM: 1 x 20-pin (2x10) header
- Expansion:
 - 1 x Mini PCIe card slot (one colay mSATA)
 - 1 x PCIe16 slot
- IPMI: Support IPMI 2.0 via iRIS-1010
- Power supply:
 - 12V DC input
 - 1x external 4-pin DIN DC jack
 - 1x internal 4-pin (2x2) power connector
 - Support AT/ATX mode
- Operation Temperature: -20°C ~ 60°C
- Operation Humidity: 5% ~ 95%, non-condensing
- Dimensions: 170mm x 170mm
- Weight GW/NW: 900g / 450g

Ordering Information

- **KINO-DQM871-i1-i7-R10:**
Mini-ITX SBC supports Intel® 22nm 4th Generation Mobile Core™ i7-4700EQ processor (47W), HDMI / VGA / LVDS / iDP, Dual Intel® PCIe GbE, USB 3.0, SATA 6Gb/s, Audio, iRIS-1010 and RoHS
- **KINO-DQM871-i1-i5-R10:**
Mini-ITX SBC supports Intel® 22nm 4th Generation Mobile Core™ i5-4400E processor(37W), HDMI / VGA / LVDS / iDP, Dual Intel® PCIe GbE, USB 3.0, SATA 6Gb/s, Audio, iRIS-1010 and RoHS
- **KINO-DQM871-i1-i5E-R10:**
Mini-ITX SBC supports Intel® 22nm 4th Generation Mobile Core™ i5-4402E processor(25W), HDMI / VGA / LVDS / iDP, Dual Intel® PCIe GbE, USB 3.0, SATA 6Gb/s, Audio, iRIS-1010 and RoHS
- **KINO-DQM871-i1-i3-R10:**
Mini-ITX SBC supports Intel® 22nm 4th Generation Mobile Core™ i3-4100E processor(37W), HDMI / VGA / LVDS / iDP, Dual Intel® PCIe GbE, USB 3.0, SATA 6Gb/s, Audio, iRIS-1010 and RoHS
- **KINO-DQM871-i1-i3E-R10:**
Mini-ITX SBC supports Intel® 22nm 4th Generation Mobile Core™ i3-4102E processor(25W), HDMI / VGA / LVDS / iDP, Dual Intel® PCIe GbE, USB 3.0, SATA 6Gb/s, Audio, iRIS-1010 and RoHS
- **KINO-DQM871-i1-C-R10:**
Mini-ITX SBC supports Intel® 22nm 4th Generation Mobile Celeron™ 2000E processor (37W), HDMI / VGA / LVDS / iDP, Dual Intel® PCIe GbE, USB 3.0, SATA 6Gb/s, Audio, iRIS-1010 and RoHS

- **KINO-DQM871-i1-CE-R10:**
Mini-ITX SBC supports Intel® 22nm 4th Generation Mobile Celeron™ 2002E processor (25W), HDMI / VGA / LVDS / iDP, Dual Intel® PCIe GbE, USB 3.0, SATA 6Gb/s, Audio, iRIS-1010 and RoHS
- **19800-003100-200-RS:** Dual ports USB cable with bracket
- **32000-023800RS:** KB/MS Y cable
- **TPM-IN01-R11:**
20-Pin Infineon TPM module, software management tool, firmware V3.17
- **32200-074800-RS:** RS-232/422/485 cable with bracket
- **iRIS-1010-R10:**
IPMI 2.0 adapter card with mini BMC by mini PCIe card socket type

Jumpers setting and connectors

LABEL	FUNCTION
J_ATXCTL1	AT/ATX mode select switch
J_CMOS1	Clear CMOS button
JLCD_PWR1	LCD Voltage Selection
SW1	LVDS Panel Resolution Selection
PS_ON1	ATX power signal connector
BAT1	Battery connector
CPU_FAN1	CPU fan connector
PWR2	Power Supply DC12V Power IN
DIMM1, DIMM2	DDR3 SO-DIMM slots
DIO1	Digital I/O connector
DP1	Display Port connector
LPT_DB1	EC debug connector
F_PANEL1	Front panel connector
IPMI1	IPMI iRIS-1010 module
KB_MS1	Keyboard and mouse connector
LEDCN1	IPMI active LED connector
LAN_ACT_LED1	LAN active LED connector
LVDS1	LVDS connector
INV1	LVDS backlight connector
M-SATA1	PCIe Mini card slot
PCIEX16_1	PCIe x16 slot
PWR_SW1	Power button (on-board)
COM2, COM3, COM4, COM5	RS-232 serial port connectors
COM6	RS-422/485 serial port connector
S_ATA1, S_ATA2	SATA 6Gb/s drive connectors
S_ATA3, S_ATA4	SATA 3Gb/s drive connectors
SATA_PWR1, SATA_PWR2	SATA power connectors
SMB1	SMBUS connector
SPI1	SPI Flash connector
CN2	SPI Flash connector (EC)
SYS_FAN1	System fan connector

TPM1	TPM connector
USB1,USB2,USB3	Internal USB 2.0 connectors
CN1	Internal USB 3.0 and USB 2.0 connectors
AUDIO1	Audio jacks (mic-in, line-out)
LAN2_USB2	Ethernet and USB 2.0 ports
LAN1_USB1	Ethernet and USB 3.0 ports
HDMI1, HDMI2	HDMI connectors
PWR1	Power connector
VGA1, COM1	VGA and serial port connectors
CHASSIS1	CHASSIS OPEN

J_ATXCTL1: AT/ATX mode select switch	
PIN NO.	DESCRIPTION
Short 1 - 2	ATX Mode (default)
Short 2 - 3	AT Mode

J_CMOS1: Clear CMOS button	
PIN NO.	DESCRIPTION
Push	Clear CMOS

JLCD_PWR1: LCD Voltage Selection	
PIN NO.	DESCRIPTION
Short 1 - 2	+3.3 V (Default)
Short 3 - 4	+5 V
Short 5 - 6	+12 V

SW1: LVDS Panel Resolution Selection	
* ON=0, OFF=1; Single=S, Dual=D	
4-3-2-1	DESCRIPTION
0000	800x600 18bit S (default)
0001	1024x768 18bit S
0010	1024x768 24bit S
0011	1280x768 18bit S
0100	1280x800 18bit S
0101	1280x960 18bit S
0110	1280x1024 24bit D
0111	1366x768 18bit S
1000	1366x768 24bit S
1001	1440x960 24bit D
1010	1400x1050 24bit D
1011	1600x900 24bit D
1100	1680x1050 24bit D
1101	1600x1200 24bit D
1110	1920x1080 24bit D
1111	1920x1200 24bit D

PS_ON1: ATX power signal connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	5VSB	2	EC_PSON#
3	GND		

BAT1: Battery connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VBATT	2	GND

CPU_FAN1: CPU fan connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+V12S
3	Rotation Signal	4	PWM Control Signal

PWR2: Power Supply DC12V Power IN			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	+12V	4	+12V

DIO1: Digital I/O connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+5V
3	DOU3	4	DOU2
5	DOU1	6	DOU0
7	DIN3	8	DIN2
9	DIN1	10	DIN0

DP1: Display Port connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	2	DPB_OB_LANE1_N
3	DPB_OB_LANE1_P	4	GND
5	DPB_OB_LANE3_N	6	DPB_OB_LANE3_P
7	GND	8	DP2_CFG1
9	GND	10	TMDS_B_HPD#
11	AUX_P2	12	AUX_N2
13	GND	14	DPB_OB_LANE2_P
15	DPB_OB_LANE2_N	16	GND
17	DPB_OB_LANE0_P	18	DPB_OB_LANE0_N
19	+3.3V	20	NC

LPT_DB1: EC debug connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	KSI0	2	KSO0
3	KSO1	4	KSO2
5	KSO3	6	KSO4
7	KSO5	8	KSO6
9	KSO7	10	KSO8
11	KSO9	12	KSO10
13	KSO12	14	KSI1
15	KSO11	16	KSI2
17	KSI3	18	GND
19	GND	20	GND

F_PANEL1: Front panel connector					
	PIN	DESCRIPTION	PIN	DESCRIPTION	
PWR LED	1	LED+	2	BEEP_PWR	BUZZER
	3	NC	4	NC	
	5	LED-	6	NC	
PWR BTN	7	PWRBTN_SW#_C	8	PC_BEEP	RESET
	9	GND	10	NC	
HDD LED	11	IDELED	12	EXTRST-	
	13	IDELED-	14	GND	

KB_MS1: Keyboard and mouse connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC5_KBMS	2	MSDATA
3	MSCLK	4	KBDATA
5	KBCLK	6	KBGND

LEDCN1: IPMI active LED connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	IPMI_LED+	2	IPMI_LED-

LAN_ACT_LED1: LAN active LED connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LAN1_LINK_ACT-	2	V_3P3_LAN
3	LAN2_LINK_ACT-	4	+3.3A

LVDS1: LVDS connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	A_Y0	4	A_Y0#
5	A_Y1	6	A_Y1#
7	A_Y2	8	A_Y2#
9	A_CK	10	A_CK#
11	A_Y3	12	A_Y3#
13	GND	14	GND
15	B_Y0	16	B_Y0#
17	B_Y1	18	B_Y1#
19	B_Y2	20	B_Y2#
21	B_CK	22	B_CK#
23	B_Y3	24	B_Y3#
25	GND	26	GND
27	VCC	28	VCC
29	VCC	30	VCC

INV1: LVDS backlight connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	BRIGHTNESS	2	GND
3	+V12S_LCD_BKL	4	GND
5	ENABKL		

M-SATA1: PCIe Mini Card Slot			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PCIE_WAKE#	2	VCC3
3	N/C	4	GND
5	N/C	6	1.5V
7	N/C	8	N/C
9	GND	10	N/C
11	CLK-	12	N/C
13	CLK+	14	N/C
15	GND	16	N/C
17	PCIRST#	18	GND
19	N/C	20	VCC3
21	GND	22	PCIRST#
23	PERN2(SATA_RX4+)	24	3VDual
25	PERP2(SATA_RX4-)	26	GND
27	GND	28	1.5V
29	GND	30	SMBCLK
31	PETN2(SATA_TX4-)	32	SMBDATA
33	PETP2(SATA_TX4+)	34	GND
35	GND	36	USBD-
37	N/C	38	USBD+
39	N/C	40	GND
41	N/C	42	N/C
43	SATA_DET4_R_N	44	N/C
45	N/C	46	N/C
47	N/C	48	1.5V
49	N/C	50	GND
51	MSATA_SEL#	52	VCC3

COM2: RS-232 serial port connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	-NDCD2	2	-NDSR2
3	NSIN2	4	-NRTS2
5	NSOUT2	6	-NCTS2
7	-NDTR2	8	-XRI2
9	GND	10	GND

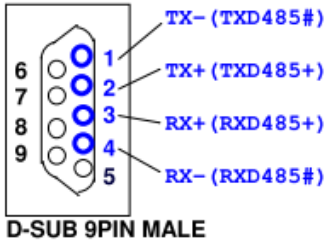
COM3: RS-232 serial port connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	-NDCD3	2	-NDSR3
3	NSIN3	4	-NRTS3
5	NSOUT3	6	-NCTS3
7	-NDTR3	8	-XRI3
9	GND	10	GND

COM4: RS-232 serial port connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	-NDCD4	2	-NDSR4
3	NSIN4	4	-NRTS4
5	NSOUT4	6	-NCTS4
7	-NDTR4	8	-XRI4
9	GND	10	GND

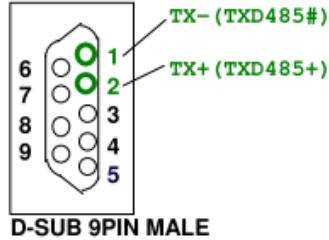
COM5: RS-232 serial port connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	-NDCD5	2	-NDSR5
3	NSIN5	4	-NRTS5
5	NSOUT5	6	-NCTS5
7	-NDTR5	8	-XRI5
9	GND	10	GND

COM6: RS-422/485 serial port connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	RXD485- (422RX-)	2	RXD485+ (422RX+)
3	TXD485+ (422TX+/485D+)	4	TXD485- (422TX-/485D-)

RS422 Pin define



RS485 Pin define



S_ATA1, S_ATA2: SATA 6Gb/s drive connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	TX+
3	TX-	4	GND
5	RX-	6	RX+
7	GND		

S_ATA3, S_ATA4: SATA 3Gb/s drive connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	TX+
3	TX-	4	GND
5	RX-	6	RX+
7	GND		

SATA_PWR1, SATA_PWR2: SATA power connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+V12S	2	GND
3	GND	4	+V5S

SMB1: SMBUS connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	SMB_DATA
3	SMB_CLK	4	+V5S

SPI1: SPI Flash connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+V3.3M_SPI_CON	2	SPI_CS#0_CN
3	SPI_SO_SW	4	SPI_CLK_SW
5	SPI_SI_SW	6	GND

CN2: SPI Flash connector (EC)			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	SMCLK1_EC	2	SMDAT1_EC

SYS_FAN1: System fan connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+V12S
3	Rotation Signal	4	PWM Control Signal

TPM1: TPM connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LCLK	2	GND
3	LFRAME#	4	NC
5	LRERST#	6	+5V
7	LAD3	8	LAD2
9	+3V	10	LAD1
11	LAD0	12	GND
13	SCL	14	SDA
15	SB3V	16	SERIRQ
17	GND	18	GLKRUN#
19	LPCPD#	20	LDRQ#

USB1: Internal USB 2.0 connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
3	-DATA4	4	+DATA5
5	+DATA4	6	-DATA5
7	GND	8	VCC

USB2: Internal USB 2.0 connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
3	-DATA6	4	+DATA7
5	+DATA6	6	-DATA7
7	GND	8	VCC

USB3: Internal USB 2.0 connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
3	-DATA8	4	+DATA9
5	+DATA8	6	-DATA9
7	GND	8	VCC

CN1: Internal USB 3.0 and USB 2.0 connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	2	USB3_RXDN5_C
3	USB3_RXDP5_C	4	GND
5	USB3_TXDN5_C	6	USB3_TXDP5_C
7	GND	8	USB2_DN3
9	USB2_DP3	10	NC
11	USB2_DP2	12	USB2_DN2
13	GND	14	USB3_TXDP4_C
15	USB3_TXDN4_C	16	GND
17	USB3_RXDP4_C	18	USB3_RXDN4_C
19	+5V	20	NC

LAN_USB2: Ethernet and USB 2.0 ports			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MDIA3-	2	MDIA3+
3	MDIA2-	4	MDIA2+
5	MDIA1-	6	MDIA1+
7	MDIA0-	8	MDIA0+
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	D-
3	D+	4	GND

LAN_USB1: Ethernet and USB 3.0 ports			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MDIA3-	2	MDIA3+
3	MDIA2-	4	MDIA2+
5	MDIA1-	6	MDIA1+
7	MDIA0-	8	MDIA0+
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VBUS	2	D-
3	D+	4	GND
5	STDA_SSRX_N	6	STDA_SSRX_P
7	GND_DRAIN	8	STDA_STX_N
9	STDA_STX_P		

HDMI1, HDMI2: HDMI connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	HDMI_DATA2+	2	GND
3	HDMI_DATA2#-	4	HDMI_DATA1+
5	GND	6	HDMI_DATA1#-
7	HDMI_DATA0+	8	GND
9	HDMI_DATA0#-	10	HDMI_CLK+
11	GND	12	HDMI_CLK#
13	N/C	14	N/C
15	HDMI_SCL	16	HDMI_SDA
17	GND	18	+5VCC
19	HDMI_HPD		

PWR1: Power connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	12V	2	GND
3	12V	4	GND
5	GND		

COM1: RS-232 serial port connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	-NDCD1	2	-NDSR1
3	NSIN1	4	-NRTS1
5	NSOUT1	6	-NCTS1
7	-NDTR1	8	-XRI1
9	GND		

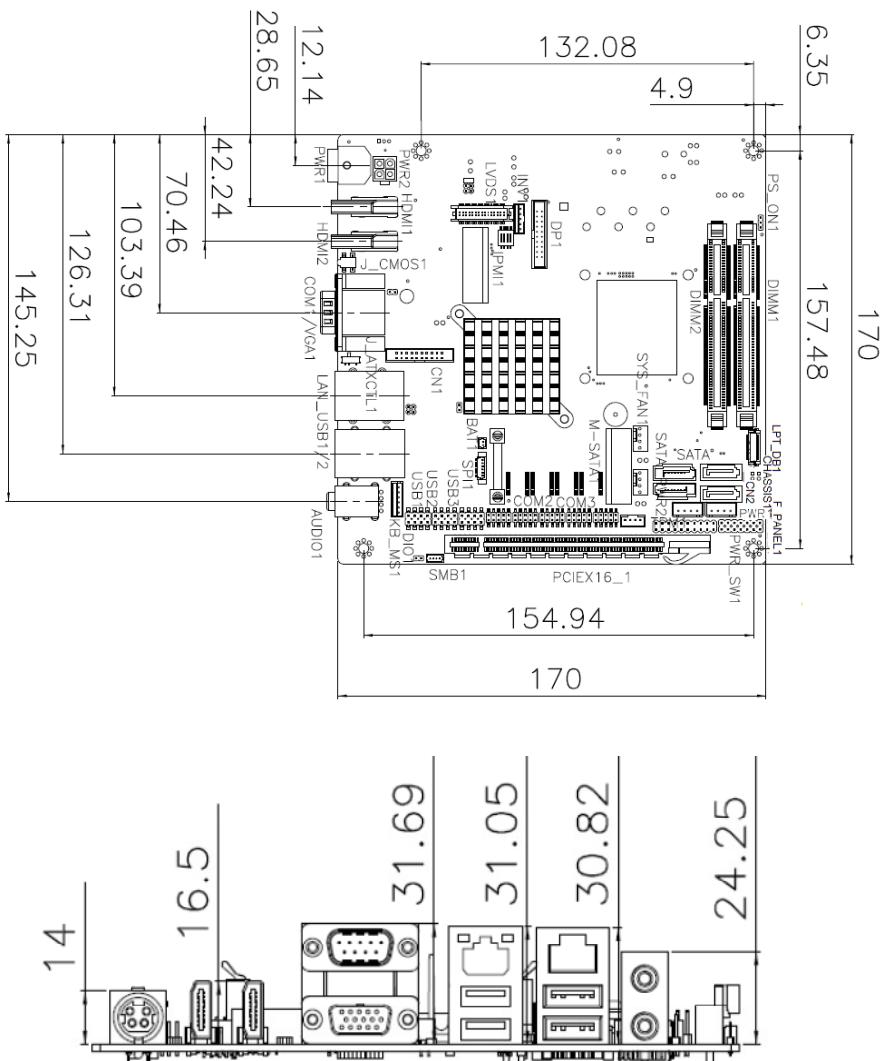
CHASSIS1: Chassis intrusion connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+V3.3A_EC	2	CHASSIE_EC

CHASSIS1: Chassis intrusion connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+V3.3A_EC	2	CHASSIE_EC

VGA1: VGA connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	GND
7	GND	8	GND
9	CRT_VCC	10	GND
11	NC	12	5VDDCDA
13	VGA_HSYNC	14	VGA_VSYNC
15	5VDDCLK		

CHASSIS1: Chassis intrusion connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+V3.3A_EC	2	CHASSIE_EC

Board Layout: Jumper and Connector Locations



(Unit: mm)