

EPIC SBC supports Intel® 22nm Atom™/Celeron® on-board SoC with
VGA, HDMI, LVDS, Dual PCIe GbE, USB 3.0, Dual PCIe Mini, SATA
3Gb/s, mSATA, COM, Audio,-40°C~85°C and RoHS

NANO-BT-i1/NANO-BTW2

Quick Installation Guide

Version 1.1

Aug 10, 2016.

Package List

NANO-BT-i1 package includes the following items:

- 1 x NANO-BT single board computer with heat sink
- 2 x SATA with power cable kit
- 2 x RS-232 cable
- 1 x Power cable
- 1 x QIG (Quick Installation Guide)
- 1 x Utility CD



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Specifications

- SoC:
 - Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W)
 - Intel® Atom™ E3827 on-board SoC (1.75GHz, dual-core, 1MB cache, TDP=8W)
 - Intel® Atom™ E3826 on-board SoC (1.46GHz, dual-core, 1MB cache, TDP=7W)
 - Intel® Atom™ E3825 on-board SoC (1.33GHz, dual-core, 1MB cache, TDP=6W)
 - Intel® Atom™ E3815 on-board SoC (1.46GHz, single-core, 512KB cache, TDP=5W)
 - Intel® Celeron® J1900 on-board SoC (2GHz, quad-core, 2MB cache, TDP=10W)
 - Intel® Celeron® N2930 on-board SoC (1.83GHz, quad-core, 2MB cache, TDP=7.5W)
 - Intel® Celeron® N2807 on-board SoC (1.58GHz, dual-core, 2MB cache, TDP=4.5W)
- BIOS: AMI UEFI BIOS
- Memory:
 - One 204-pin 1600/1333MHz dual-channel DDR3L SDRAM unbuffered DIMMs support up to 8GB (J1900,N2930, E3827, E3826) or 4GB(N2807,E3825,E3815)
- Graphics Engine:
 - Intel® HD Graphics Gen 7 Engines with 4 execution unit, supports DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output:
 - VGA (up to 2560x1600@60Hz)
 - HDMI (up to 1920x1080@60Hz)
 - 18/24-bit dual-channel LVDS by CH7511B
 - DP to LVDS converter (up to 1920x1200@60Hz)
- Ethernet:
 - GbE1: Intel® I210-AT PCIe controller with NCSI support
 - GbE2: Intel® I211-AT PCIe controller

- Super IO:
Fintek F81866
- External I/O Interface:
1 x PS/2 KB/MS
1 x USB 3.0
1x USB 2.0
- Internal I/O Interface:
2 x SATA 3G/s with 5V SATA power connector (No RAID)
2 x USB 2.0 (2x4pin, P=2.0)
1 x RS-422/485 (1x4pin, P=2.0)
3 x RS-232 (2x5pin, P=2.0)
- iRIS Remote Management Module:
1 x iRIS-1010 slot(NANO-BT-i1 SKU only)
- SMBus: 1 x SMBus connector(4pin wafer)
- Audio:
Realtek ALC662 HD Audio codec
1 x Analog audio (2x5 pin)
- Front Panel:
1 x power LED & HDD LED (1x6 pin)
1 x power button (1x2 pin)
1 x power reset (1x2 pin)
- LAN LED: 2 x LAN LED(1 x 2 pin)
- Expansion:
1 x Full-size PCIe Mini card slot (support mSATA co-lay SATA port 2)
1 x PCI/104 slot (PCI signal)
1 x microSD slot(1 x 2 pin)(E38XX SKU only)
- Digital I/O:
1 x 8-bit digital I/O (4-bit input / 4-bit output)
- FAN:
1 x 4-pin CPU fan connector
1 x 4-pin system fan connector

- Power supply:
 - 12V only DC input
 - 1 x internal 4-pin (2x2) power connector
 - Support AT/ATX mode
- Watchdog Timer:
 - Software programmable support 1~255 sec. system reset
- Operating Temperature:
 - 20°C ~ 60°C
 - 40°C ~ 85°C (NANO-BT-E38XXW2)
- Storage Temperature: -30°C ~ 85°C
- Operation Humidity: 5% ~ 95%, non-condensing
- Dimensions: 115 mm x 165 mm
- Weight(GW/ NW): 850g / 350g

Ordering Information

- **NANO-BT-i1-J19001-R11:**
 EPIC SBC supports Intel® 22nm quad-core J1900 2.0GHz (10W)
 on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, USB 3.0, PCIe
 Mini, SATA 3Gb/s, mSATA, COM, iRIS-1010, Audio and RoHS
- **NANO-BT-i1-N29301-R11:**
 EPIC SBC supports Intel® 22nm quad-core N2930 1.83GHz (7.5W)
 on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, USB 3.0, PCIe
 Mini, SATA 3Gb/s, mSATA, COM, iRIS-1010, Audio and RoHS
- **NANO-BT-i1-N28071-R11:**
 EPIC SBC supports Intel® 22nm quad-core N2807 1.58GHz (4.5W)
 on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, USB 3.0, PCIe
 Mini, SATA 3Gb/s, mSATA, COM, iRIS-1010, Audio and RoHS

- **NANO-BT-E38451W2-R11:**
EPIC SBC supports Intel 22nm Quad-Core Atom E3845 1.91GHz (10W) on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, USB 3.0, Dual PCIe Mini, SATA 3Gb/s, mSATA , COM, audio and RoHS, Extend operating temperature: -40°C ~ +85°C
- **NANO-BT-i1-E38451/ E38271/ E38261/ E38251/ E38151-R11:**
EPIC SBC supports Intel® 22nm quad-core E3845 1.91GHz (10W) / dual-core E3827 1.75GHz (8W) / dual-core E3826 1.46GHz (7W) / dual-core E3825 1.33GHz (6W) / single-core E3815 1.46GHz (5W) on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, USB 3.0, PCIe Mini, SATA 3Gb/s, mSATA, COM, iRIS-1010, Audio and RoHS (by project support, MOQ 100pcs/lot)
- **NANO-BT- E38271W2/ E38261W2/ E38251W2/ E38151W2-R11:**
EPIC SBC supports Intel® 22nm dual-core E3827 1.75GHz (8W) / dual-core E3826 1.46GHz (7W) / dual-core E3825 1.33GHz (6W) / single-core E3815 1.46GHz (5W) on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, USB 3.0, PCIe Mini, SATA 3Gb/s, mSATA, COM, Audio and RoHS, Extend operating temperature: -40°C ~ +85°C. (by project support, MOQ 100pcs/lot)
- **iRIS-1010-R10:**
IPMI 2.0 adapter card with AST1010 BMC chip (W/O KVM over IP function) for PCIe Mini socket interface
- **32006-000300-100-RS:** PS/2 KB/MS Y-cable with bracket, 140mm
- **32000-070301-RS:** Dual-port USB 2.0 cable
- **32205-003800-300-RS:** RS-422/485 cable, 200mm

Jumpers setting and connectors

LABEL	FUNCTION
J_ATX_AT1	AT/ATX mode select switch
J_CMOS1	Clear CMOS button
J_LCD_PWR1	LCD voltage selection
SW1	LVDS panel resolution selection
J_SATA1	mSATA/SATA Selection
J_PCI104	PCI-104 Voltage Selection
CN10	12 V DC input connector
AUDIO1	Audio connector
BAT1	Battery connector
INV1	Backlight inverter connector
SP1	Buzzer connector
CHASSIS1	Chassis intrusion connector
DIO1	Digital I/O connector
CPU_FAN1	Fan connector (CPU)
SYS_FAN1	Fan connectors (system)
CN11	Front panel connector
IPMI1	iRIS module connector
ID_LED2	IPMI LED connector
JP8	LAN1 LED connector
JP9	LAN2 LED connector
CN2	LVDS connector
DIMM1	Memory card slot
PC104_PLUS1	PCI-104 slot
CN8	PCIe Mini slot
PWR_BTN1	Power button connector
PWR_SW1	Power button
RST_BTN1	Reset button connector
SATA1, SATA2	SATA 3Gb/s drive connectors
SATA_PWR1, SATA_PWR2	SATA power connector (5 V)
COM1, COM2, COM3	Serial port, RS-232
COM4	Serial port, RS-422/485

CN5	SMBus connector
JSPI1	SPI flash connector
JSPI2	SPI flash connector (EC)
USB1	USB 2.0 connector
LAN1, LAN2	Ethernet ports
CN12	HDMI connector
PT1	Keyboard/Mouse connector
CN6	USB 2.0 connector
CN7	USB 3.0 connector
VGA1	VGA connector

J_ATX_AT1: AT/ATX mode select switch	
PIN NO.	DESCRIPTION
Short A - B	ATX Mode (default)
Short B - C	AT Mode

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

J_LCD_PWR1: LCD voltage selection	
PIN NO.	DESCRIPTION
Short A- B	+3.3 V (Default)
Short B- C	+5 V

J_SATA1: mSATA/SATA Selection	
PIN NO.	DESCRIPTION
Short A- B	Automatically detect mSATA device (Default)
Short B- C	Enable mSATA device

J_PCI104: PCI-104 Voltage Selection	
PIN NO.	DESCRIPTION
Short A- B	+3.3 V (Default)
Short B- C	+5 V

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

CN10: 12 V DC input connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	+12V	4	+12V

AUDIO1: Audio Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LINE_OUTR	2	LINEIN_R
3	ANALOG_GND	4	ANALOG_GND
5	LINE_OUTL	6	LINEIN_L
7	ANALOG_GND	8	ANALOG_GND
9	MICIN1	10	MICIN2

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

INV1: Backlight inverter connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	BRIGHTNESS2	2	GND
3	VCC	4	GND
5	ENABKL2		

CHASSIS1: Chassis intrusion connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Pull high to +3.3V_ALW	2	CHASSIE_EC

DIO1: Digital I/O connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+5V
3	DOUT3	4	DOUT2
5	DOUT1	6	DOUT0
7	DIN3	8	DIN2
9	DIN1	10	DIN0

CPU_FAN1: Fan connector (CPU)			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	FAN_IN	2	VCC(12V)
3	GND		

SYS_FAN1: Fan connector (System)			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	FAN_IN	2	VCC(12V)
3	GND		

CN11: Front panel connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	4	PWR_LED-
2	GND	5	HDD_LED+
3	PWR_LED+	6	HDD_LED-

ID_LED2: IPMI LED Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	ID_LED+	2	ID_LED-

JP8: LAN LED Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	L1_LINK_ACT-

JP9: LAN LED Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	L2_LINK_ACT-

CN2: LVDS connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	A0P_L	4	A0M_L
5	A1P_L	6	A1M_L
7	A2P_L	8	A2M_L
9	CLK1P_L	10	CLK1M_L
11	A3P_L	12	A3M_L
13	GND	14	GND
15	A4P_L	16	A4M_L
17	A5P_L	18	A5M_L
19	A6P_L	20	A6M_L
21	CLK2P_L	22	CLK2M_L
23	A7P_L	24	A7M_L
25	GND	26	GND
27	+VCC_LCD_BEAD2	28	+VCC_LCD_BEAD2
29	+VCC_LCD_BEAD2	30	+VCC_LCD_BEAD2

PC104_PLUS1: PCI-104 Connector				
Pin	Row A	Row B	Row C	Row D
1	GND/5 V	TBD1	5 V	AD00
2	VI/O1	AD02	AD01	+5 V
3	AD05	GND	AD04	AD03
4	C/BE0#	AD07	GND	AD06
5	GND	AD09	AD08	GND
6	AD11	VI/O2	AD10	M66EN
7	AD14	AD13	GND	AD12
8	+3.3 V	C/BE1#	AD15	+3.3 V
9	SERR#	GND	SB0#	PAR
10	GND	PERR#	+3.3 V	SDONE
11	STOP#	+3.3 V	LOCK#	GND
12	+3.3 V	TRDY#	GND	DEVSEL#
13	FRAME#	GND	IRDY#	+3.3 V
14	GND	AD16	+3.3 V	C/BE2#
15	AD18	+3.3 V	AD17	GND
16	AD21	AD20	GND	AD19
17	+3.3 V	AD23	AD22	+3.3 V
18	IDSEL0	GND	IDSEL1	IDSEL2
19	AD24	C/BE3#	VI/O1	IDSEL3
20	GND	AD26	AD25	GND
21	AD29	+5 V	AD28	AD27
22	+5 V	AD30	GND	AD31
23	REQ0#	GND	REQ1#	VI/O2
24	GND	REQ2#	+5 V	GNT0#
25	GNT1#	VI/O3	GNT2#	GND
26	+5 V	CLK0	GND	CLK1
27	CLK2	+5 V	CLK3	GND
28	GND	INTD#	+5 V	RST#
29	+12 V	INTA#	INTB#	INTC#
30	-12 V	TBD2	TBD	GND/3.3 V

CN8: PCIe Mini Card Slot			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PCIE_WAKE#	2	VCC3
3	N/C	4	GND
5	N/C	6	1.5 V
7	VCC3	8	N/C
9	GND	10	N/C
11	CLK-	12	N/C
13	CLK+	14	N/C
15	GND	16	N/C
17	BUF_PLT_RST#	18	GND
19	N/C	20	VCC3
21	GND	22	BUF_PLT_RST#
23	PCIE_RX4DN_M	24	VCC3
25	PCIE_RX4DP_M	26	GND
27	GND	28	1.5 V
29	GND	30	SMBCLK
31	PCIE_TX4DN_CM	32	SMBDATA
33	PCIE_TX4DP_CM	34	GND
35	GND	36	USB3-
37	GND	38	USB3+
39	VCC3	40	GND
41	VCC3	42	N/C
43	GND	44	RF_LINK#
45	N/C	46	BLUELED#
47	N/C	48	1.5 V
49	N/C	50	GND
51	M-SATADET	52	VCC3

PWR_BTN1: Power Button Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PWRBTN_SW#	2	GND

RST_BTN1: Reset Button Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PM_SYSRST_R#	2	GND

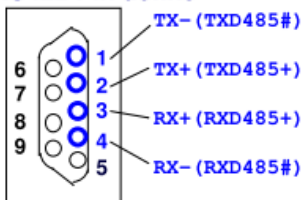
SATA1, SATA2: SATA 3Gb/s Drive Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	SATA_TX+
3	SATA_TX-	4	GND
5	SATA_RX-	6	SATA_RX+
7	GND		

SATA_PWR1, SATA_PWR2: SATA Power Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5VS	2	GND

COM1, COM2, COM3: RS-232 serial port connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	2	DSR
3	SIN	4	RTS
5	SOUT	6	CTS
7	DTR	8	RI
9	GND	10	GND

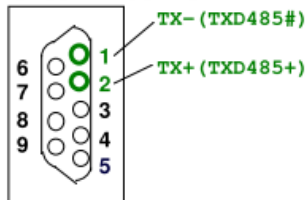
COM4: RS-422/485 serial port connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	RXD422-	2	RXD422+
3	TXD422+/TXD485+	4	TXD422-/TXD485-

RS422 Pin define



D-SUB 9PIN MALE

RS485 Pin define



D-SUB 9PIN MALE

CN5: SMBUS connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	SMB_DATA
3	SMB_CLK	4	+V5S

JSPI1: SPI Flash Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+1.8VA	4	SPI_CLK_SW
2	SPI_CS	5	SPI_SI_SW
3	SPI_SO_SW	6	GND

JSPI2: SPI Flash connector (EC)			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3A	4	SPI_CLK_SW_EC
2	SPI_CS#0_CN_EC	5	SPI_SI_SW_EC
3	SPI_SO_SW_EC	6	GND

USB1: Internal USB 2.0 connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+VCC_USB45	2	GND
3	DATA4-	4	DATA5+
5	DATA4+	6	DATA5-
7	GND	8	+VCC_USB45

LAN1: Ethernet connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
G1	IO_GND	R2	TRD1N0
G2	IO_GND	R3	TRD1P1
L1	L1_100-	R4	TRD1N1
L2	L1_1000-	R5	N95788738
L3	L1_LINK_ACT-	R6	N95788617
L4	N100494685	R7	TRD1P2
N1	NC	R8	TRD1N2
N2	NC	R9	TRD1P3
R1	TRD1P0	R10	TRD1N3

LAN2: Ethernet connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
G1	IO_GND_1	R2	TRD2N0
G2	IO_GND_1	R3	TRD2P1
L1	L2_100-	R4	TRD2N1
L2	L2_1000-	R5	N95934519
L3	L2_LINK_ACT-	R6	N95934513
L4	N100495197	R7	TRD2P2
N1	NC	R8	TRD2N2
N2	NC	R9	TRD2P3
R1	TRD2P0	R10	TRD2N3

CN12: HDMI connector			
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	+5V
19	HDMI_HPD	20	HDMI_GND
21	HDMI_GND	22	HDMI_GND
23	HDMI_GND		

PT1: Keyboard/Mouse Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	KB DATA	2	MS DATA
3	GND	4	VCC
5	KB CLOCK	6	MS CLOCK

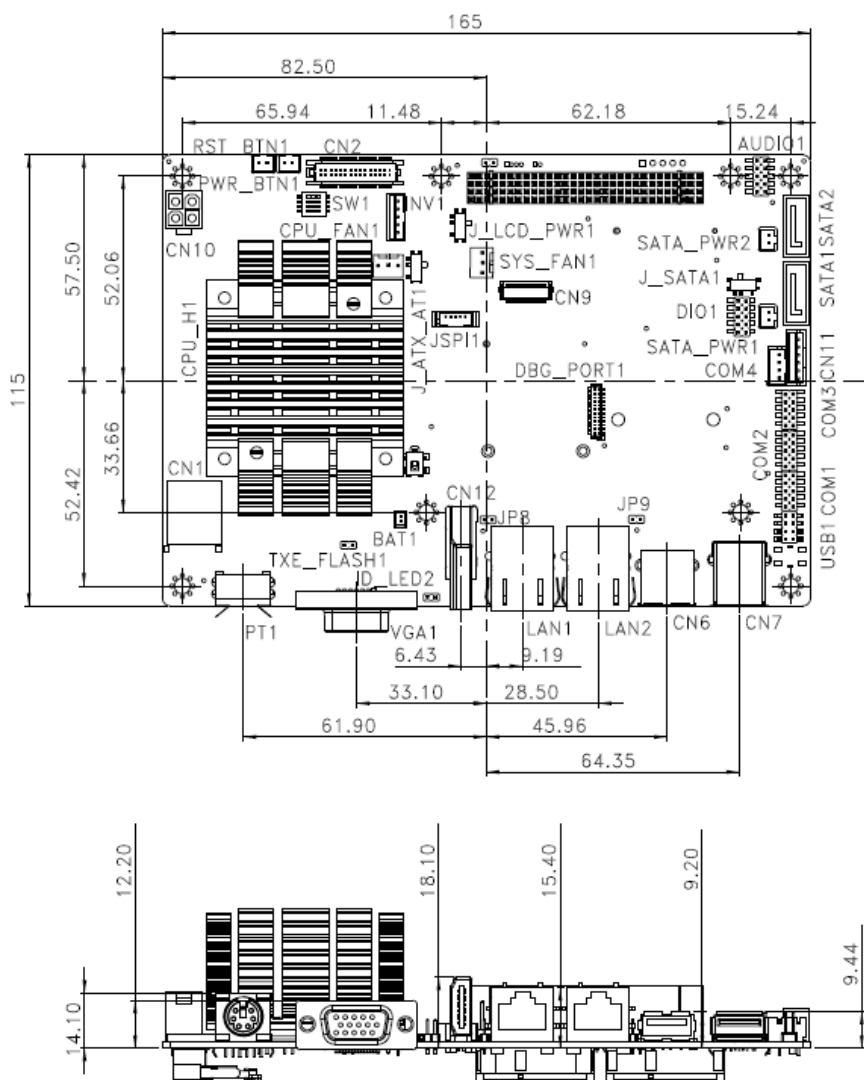
CN6: USB 2.0 Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	USB3_PWR1	4	GND
2	DATA1_N	5	USB_GND
3	DATA1_P	6	USB_GND

CN7: USB 3.0 connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	USB3_PWR1	6	USB3P0_RXDP1
2	USB2P0_DM1_L	7	USB_GND
3	USB2P0_DP1_L	8	USB3P0_TXDN1_C
4	GND	9	USB3P0_TXDP1_C
5	USB3P0_RXDN1		

VGA1: VGA connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
V1	RED	V2	GREEN
V3	BLUE	V4	NC
V5	GND	V6	GND
V7	GND	V8	GND
V9	VCC	V10	GND
V11	NC	V12	DDCDA
V13	HSYNC	V14	VSYNC
V15	DDCCLK		

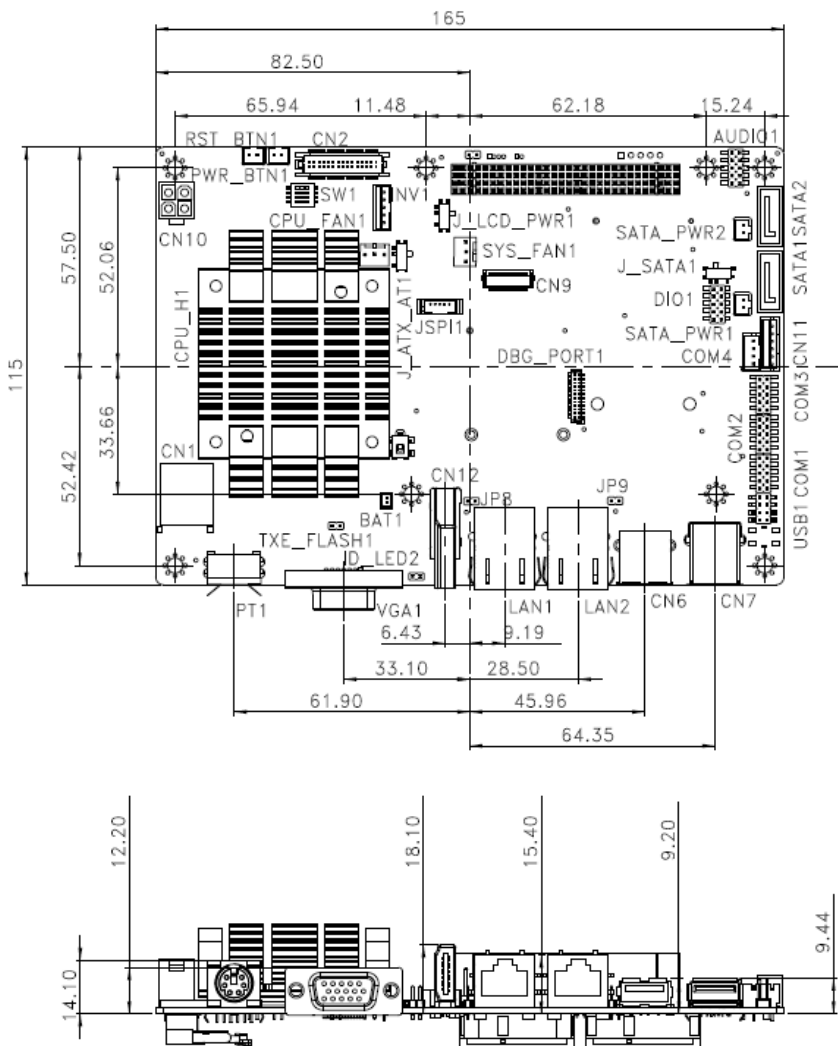
Board Layout: Jumper and Connector Locations

- NANO-BT-i1-E38451/J19001/N2930、NANO-BT-E38XXW2



(Unit: mm)

● **NANO-BT-i1-E38271/E38261/E38251/E38151/N28071**



(Unit: mm)