EPIC SBC supports AMD® 28nm dual core low power 1.0GHz on-board SoC with DVI-I/HDMI/LVDS, Dual PCIe GbE, USB 3.0, Dual PCIe Mini, SATA 6Gb/s, mSATA , COM and Audio, iRIS-1010

NANO-SE-i1

Quick Installation Guide

Version 1.0

Dec 10, 2014.

Package List

NANO-SE-i1 package includes the following items:

- 1 x NANO-SE-i1 single board computer
- 1 x Power cable (P/N: 32100-087100-RS)
- 2 x RS-232 cable (P/N: 32205-002700-100-RS)
- 2 x SATA with power cable kit (P/N: 32801-000201-100-RS)
- 1 x Audio cable (P/N: 32007-002600-200-RS)
- 1 x QIG (Quick Installation Guide)
- 1 x Utility CD
- 1 x One key recovery CD

Specifications

- SoC:

  AMD® Embedded G-Series G-Series SoC

  GX-424CC on-board Soc (2.4GHz, quad-core, 2MB cache, TDP=25W)

  GX-412HC on-board Soc (1.2GHz, quad-core, 2MB cache, TDP=7W) (by request)

  GX-212JC on-board Soc (1.2GHz, dual-core, 1MB cache, TDP=6W) (by request)

  GX-209HA on-board Soc (1.0GHz, dual-core, 1MB cache, TDP=9W) (by request)

  GX-411GA on-board Soc (1.0GHz, dual-core, 2MB cache, TDP=15W) (by request)

- Memory:

  One 204-pin 1600/1333 MHz single-channel DDR3/DDR3L SO-DIMM supported (system max. 8GB)

- BIOS: UEFI BIOS

- Ethernet:

  LAN1: Intel I210-AT PCIe Controller with NCSI support

  LAN2: intel I211-AT PCIe controller

- Graphics Engine:

  Support DX11.1, OpenGL 4.1 and OpenCL1.2

  UVD4.2 decode for H.264, MPEG2/4, VC1, MVC

  VCE 2.0 encode for H.264, VCE

- Display Output:

  VGA (up to 2048x 1536@60HZ)

  HDMI (up to 3480x 2160@60Hz)

  18/24-bit dual-channel LVDS by CH7511B DP to LVDS converter(up to up to 1920x 1200@60Hz)

- Super IO: Fintek F81866

- Digital I/O: 8-bit digital I/O (4-bit input, 4-bit output)

- Audio:

  Realtek ALC892 HD codec

1 x SPDIF by 4-pin (1x4) header for digital audio

1 x Analog audio by 10-pin (2x5) header

- I/O Interface:

  2 x SATA 6G/s with 5V SATA power connector

  2 x USB 3.0 (on rear I/O)

  6 x USB 2.0 (2 on rear IO, 4 by pin header)

  5 x RS-232 (5 by pin header)

  1 x RS-422/485 (1 by pin header)

  1 x 6-pin wafer for PS/2 KB/MS

- Watchdog Timer:

  Software programmable support 1~255 sec. system reset

- iRIS Remote Management module: 1 x iRIS-1010 slot
- TPM: 1 x 20-pin (2x10) header
- SMBUS: 1 x 4-pin (1x4) wafer
- I2C: 1 x 4-pin (1x4) wafer
- FAN:

  1 x 4-pin system fan connector

- LAN LED: 2 x 2-pin (1x2) header
- Front Panel:

  1 x 6-pin (1x10) wafer for power LED & HDD LED

  1 x 2-pin (1x2) wafer for power button

  1 x 2-pin (1x2) wafer for power reset

- Expansion:

  1 x full-size PCIe Mini card slot (Supports mSATA co-lay SATA port2)

- Power supply:

  12V only, AT/ATX support

  1 x internal 4-pin (2x2) power connector

- Operation Temperature: -10°C ~ 60°C
- Storage Temperature: -20°C ~ 85°C
- Operation Humidity: 5% ~ 95%, non-condensing
- Dimensions: 115mm x 165mm

- Weight GW/NW: 850g / 350g

Ordering Information

- **NANO-SE-i1-4241-R10:**
  EPIC SBC supports AMD® 28nm quad core GX-424CC 2.4GHz (25W) on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, USB 3.0, Dual PCIe Mini, SATA 6Gb/s, mSATA, COM and Audio, iRIS-1010 and RoHS
- **NANO-SE-i1-4121-R10:**
  EPIC SBC supports AMD® 28nm quad core GX-412HC 1.2GHz (7W) on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, USB 3.0, Dual PCIe Mini, SATA 6Gb/s, mSATA, COM and Audio, iRIS-1010 and RoHS
- **NANO-SE-i1-2121-R10:**
  EPIC SBC supports AMD® 28nm dual core GX-212JC 1.2GHz (6W) on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, USB 3.0, Dual PCIe Mini, SATA 6Gb/s, mSATA, COM and Audio, iRIS-1010 and RoHS
- **NANO-SE-i1-4111-R10:**
  EPIC SBC supports AMD® 28nm quad core GX-411GA 1.0GHz (15W) on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, USB 3.0, Dual PCIe Mini, SATA 6Gb/s, mSATA, COM and Audio, iRIS-1010 and RoHS
- **NANO-SE-i1-2091-R10:**
  EPIC SBC supports AMD® 28nm dual core GX-209HA 1.0GHz (9W) on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, USB 3.0, Dual PCIe Mini, SATA 6Gb/s, mSATA, COM and Audio, iRIS-1010 and

RoHS

- **iRIS-1010-R10:** IPMI 2.0 adapter card with AST1010 BMC chip (W/O KVM over IP function) for PCIe Mini socket interface
- **32000-070301-RS:** Dual-port USB cable
- **32205-003800-300-RS:** RS-422/485 cable, 200mm
- **32000-023800-RS:** PS/2 KB/MS cable
- **TPM-IN01-R11:** 20-Pin Infineon TPM module, software management tool, firmware V3.17

Jumpers setting and connectors

LABEL	FUNCTION
J_ATX_AT1	AT/ATX mode select switch
J_CMOS1	Clear CMOS button
JP1	LCD voltage selection
SW1	LVDS Panel Resolution Selection
AUDIO1	Audio connector
BAT1	Battery connector
CN6	Brightness button connector
CHASSIS1	Chassis intrusion connector
DIMM1	DDR3 SO-DIMM slot
DIO1	Digital I/O connector
F_PANEL1	Front panel connector
IPMI1	IPMI iRIS-1010 module slot
ID_LED1	IPMI LED connector
KB_MS1	Keyboard and mouse connector
LED_LAN2, LED_LAN3	LAN LED connectors
LVDS1	LVDS LCD connector
CN5	LVDS LED connector
INV1	LVDS backlight inverter connector
M_PCIE2	PCIe mini card slot
PWR_BTN1	Power button connector
CN1	Power connector (12V)
RST_BTN1	Reset button connector
COM1, COM2, COM3, COM4, COM5	RS-232 serial port connectors
COM6	RS-422/485 serial port connector
SATA1, SATA2	Serial ATA 3.0 connectors
SATA_PWR1, SATA_PWR2	SATA power connectors
CN3, CN4	SMBUS connectors
SPDIF1	SPDIF connector
SPI1	SPI Flash connector
SYS_FAN	System fan connector
TPM1	TPM connector

USB3, USB4	Internal USB 2.0 connectors
HDMI1	HDMI connector
LAN1, LAN2	LAN connectors
USB1	USB 3.0 connectors
USB2	USB 2.0 connectors
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**
Open	Normal Operation (default)
Push	Clear CMOS Setup

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

JP1: LCD voltage selection	
PIN NO.	**DESCRIPTION**
Short 1 - 2	+3.3 V
Short 2 - 3	+5 V (Default)

AUDIO1: Audio connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	LINEOUT1R	2	LINE1R
3	GND	4	GND
5	LINEOUT1L	6	LINE1L
7	GND	8	GND
9	FMIC1R	10	FMIC1L

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

CN6: Brightness button connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	PWRON	2	GND
3	BLUP	4	GND
5	BLDN	6	GND

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

CN2: Front panel connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	VCC	2	GND
3	PWR_LED+	4	PWR_LED-
5	HDD_LED+	6	HDD_LED-

ID_LED1: IPMI LED connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	ID_LED+	2	ID_LED-

LVDS1: LVDS LCD 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	28	VCC
29	VCC	30	VCC

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

CN5: LVDS LED connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	VCC33	2	OLED
3	VCC33	4	GLED

INV1: LVDS backlight inverter connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	BRIGHTNESS2	2	GND
3	12V	4	GND
5	ENABKL2		

PWR_BTN1: Power button connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	PWRBTSW#	2	GND

CN1: Power connector (12V)			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	GND	2	GND
3	12V-IN	4	12V-IN

RST_BTN1: Reset button connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	PM_SYSRST#	2	GND

COM1: RS-232 serial port connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	NDCD1	2	NDSR1
3	NRX1	4	NRTS1
5	NTX1	6	NCTS1
7	NDTR1	8	NRI1
9	GND	10	GND

COM2: RS-232 serial port connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	NDCD2	2	NDSR2
3	NRX2	4	NRTS2
5	NTX2	6	NCTS2
7	NDTR2	8	NRI2
9	GND	10	GND

COM3: RS-232 serial port connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	NDCD3	2	NDSR3
3	NRX3	4	NRTS3
5	NTX3	6	NCTS3
7	NDTR3	8	NRI3
9	GND	10	GND

COM4: RS-232 serial port connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	NDCD4	2	NDSR4
3	NRX4	4	NRTS4
5	NTX4	6	NCTS4
7	NDTR4	8	NRI4
9	GND	10	GND

COM5: RS-232 serial port connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	NDCD5	2	NDSR5
3	NRX5	4	NRTS5
5	NTX5	6	NCTS5
7	NDTR5	8	NRI5
9	GND	10	GND

COM6: RS-422/485 serial port connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	RXD485#	2	RXD485+
3	TXD485+	4	TXD485#

SATA1, SATA2: Serial ATA 3.0 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	+5V	2	GND

CN3, CN4: SMBus connectors			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	GND	2	SDATA
3	SCLK	4	+5V

SPDIF1: SPDIF connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	+5V	2	NC
3	SPDIF OUT	4	GND
5	SPDIF IN		

SPI1: SPI Flash connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	SPI_POWER	2	SPI_CS#
3	SPI_DATAIN	4	SPI_CLK
5	SPI_DATAOUT	6	GND

SYS_FAN: System fan connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	GND	2	+12V
3	FANIN	4	FANOUT

TPM1: TPM connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	LPC_CLK1	2	GND
3	LFRAME#	4	NC
5	LPC_RST#	6	+5V
7	LAD3	8	LAD2
9	+3.3V	10	LAD1
11	LAD0	12	GND
13	SCLK0	14	SDATA0
15	+3.3V_DUAL	16	SERIRQ
17	GND	18	LPC_CLKRUN#
19	LPCPD#	20	LDRQ#0

USB3, USB4: Internal USB 2.0 connectors			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	VCC	2	GND
3	USB_DATA-	4	USB_DATA+
5	USB_DATA+	6	USB_DATA-
7	GND	8	VCC

HDMI1: HDMI connector			
PIN	**DESCRIPTION**	**PIN**	**DESCRIPTION**
1	HDMI_TMDS_C_DATA2	2	GND
3	HDMI_TMDS_C_DATA2#	4	HDMI_TMDS_C_DATA1
5	GND	6	HDMI_TMDS_C_DATA1#
7	HDMI_TMDS_C_DATA0	8	GND
9	HDMI_TMDS_C_DATA0#	10	HDMI_TMDS_C_CLK
11	GND	12	HDMI_TMDS_C_CLK#
13	NC	14	NC
15	HDMI_DDC_SCLK	16	HDMI_DDC_SDATA
17	GND	18	+5V_HDMI
19	HDMI_HPD		

LAN1: LAN connector			
PIN	**DESCRIPTION**	**PIN**	**DESCRIPTION**
1	LAN1_MDI0+	2	LAN1_MDI0-
3	LAN1_MDI1+	4	LAN1_MDI1-
5	GND	6	GND
7	LAN1_MDI2+	8	LAN1_MDI2-
9	LAN1_MDI3+	10	LAN1_MDI3-
11	GND	12	GND
13	NC	14	NC
L1	LAN1_LINK100	L2	LAN1_LINK1000
L3	LAN1_ACT-1	L4	POWER

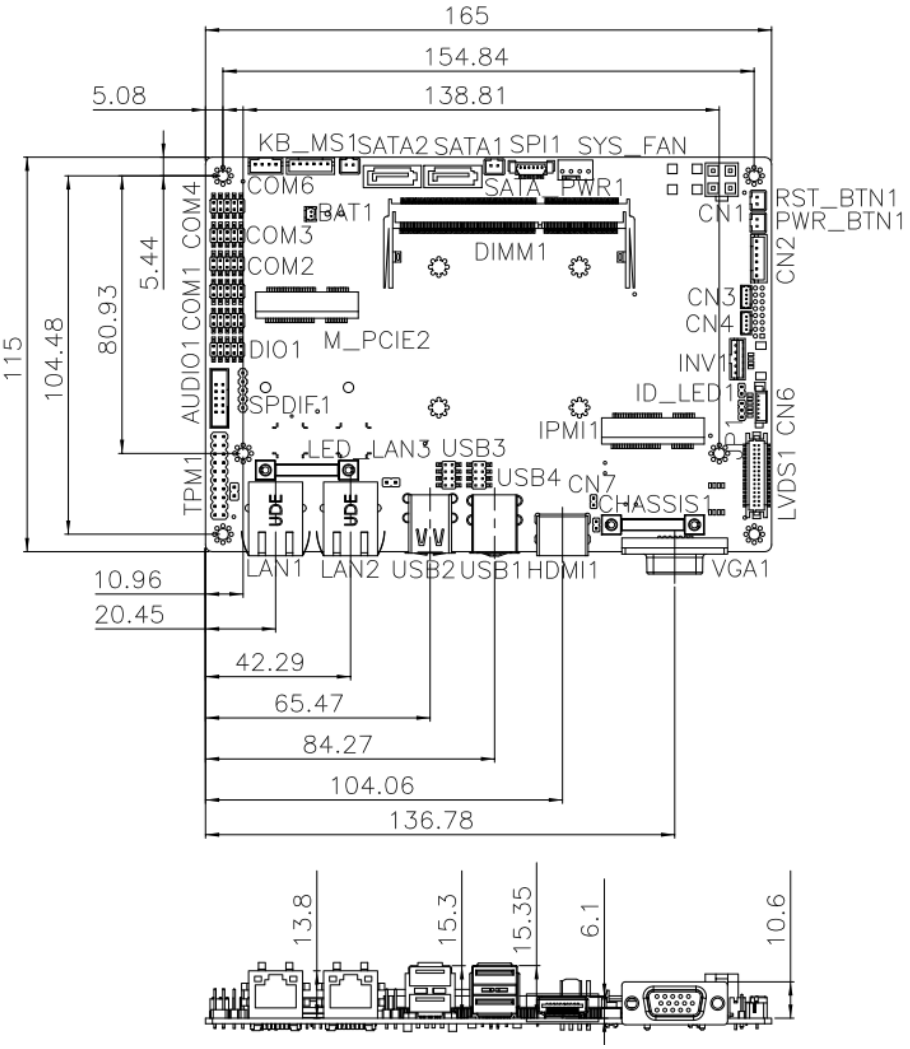
LAN2: LAN connector			
PIN	**DESCRIPTION**	**PIN**	**DESCRIPTION**
1	LAN2_MDI0+	2	LAN2_MDI0-
3	LAN2_MDI1+	4	LAN2_MDI1-
5	GND	6	GND
7	LAN12_MDI2+	8	LAN2_MDI2-
9	LAN2_MDI3+	10	LAN2_MDI3-
11	GND	12	GND
13	NC	14	NC
L1	LAN12_LINK100	L2	LAN2_LINK1000
L3	LAN2_ACT-1	L4	POWER

USB1: USB 3.0 connectors			
PIN	**DESCRIPTION**	**PIN**	**DESCRIPTION**
1	USB_3P0_VCC1	2	USB2P8_DM0_L
3	USB2P8_DP0_L	4	GND
5	USB3P0_RXDN0_C	6	USB3P0_RXDP0_C
7	GND	8	USB3P0_TXDN0_C
9	USB3P0_TXDP0_C	10	USB_3P0_VCC2
11	USB2P9_DM1_L	12	USB2P9_DP1_L
13	GND	14	USB3P0_RXDN1_C
15	USB3P0_RXDP1_C	16	GND
17	USB3P0_TXDN1_C	18	USB3P0_TXDP1_C

USB2: USB 2.0 connectors			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	POWER	2	DATA0_N
3	DATA0_P	4	GND
5	POWER	6	DATA1_N
7	DATA1_P	8	GND

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		

Board Layout: Jumper and Connector Locations



(Unit: mm)