

**Mini-ITX SBC Supports LGA1155 for Intel® Core™ i3/ Pentium®/
Celeron® CPU, DDR3, VGA/DVI-D/HDMI, Dual PCIe GbE, Ten USB 2.0,
Four SATA 3Gb/s, HD Audio and RoHS**

KINO-DH610

Quick Installation Guide

Version 1.0

May 23, 2013.

Package List

KINO-DH610-R11 package includes the following items:

- 1 x KINO-DH610 Single Board Computer
- 2 x SATA with 5V Power Cable (P/N: 32801-000201-100-RS)
- 1 x I/O shielding (P/N: 45014-0032C0-00-RS)
- 1 x Mini Jumper Pack
- 1 x Utility CD
- 1 x QIG (Quick Installation Guide)
- 1 x One Key recovery CD



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Specifications

- CPU:
LGA1155 socket supports Intel® Core™ i3/Pentium®/ Celeron® dual core processor (TDP 65W Max.)
- System Chipset: Intel® H61
- BIOS: UEFI BIOS
- System Memory:
Two 204-pin 1066/1333 MHz dual-channel DDR3 SO-DIMM supported (system max. 16 GB)
- Ethernet: Dual Realtek RTL8111E PCIe GbE controller with ASF2.0 support
- I/O Interface:
1 x RS-232
1 x RS-232/422/485
10 x USB 2.0 (4 by rear IO, 6 by pin header)
4 x SATA 3Gb/s
2 x SATA power (5V) connector
1 x PS/2 KB/MS via 6-pin header
- Super I/O: Fintek F81866
- Digital I/O: 8-bit digital I/O (4-bit input, 4-bit output)
- Display: DVI-D/VGA/HDMI integrated in Intel® H61
- Audio: Realtek ALC662 HD Audio codec
- Watchdog Timer: Software programmable support 1~255 sec. system reset
- Expansions:
1 x PCI slot
1 x PCIe x1 slot
- FAN:
1 x 4-pin CPU fan connector
1 x 3-pin system fan connector
- Power Supply:
Maximum input voltage range: 9V~28V

Recommended operating input voltage range: 12V~24V

- Power Connector:
 - 1 x External DC jack (4-pin DIN)
 - 1 x Internal 4-pin (2x2) power connector
- Power Consumption:
 - 12V@5.07A (2.2 GHz Intel® G620T with two 1066 MHz 2 GB DDR3 running 3DMark06 burn in)
 - 12V@8.85A (2.8 GHz Intel® Core™ i7-2600S with two 1066 MHz 2 GB DDR3 running 3DMark06 burn in)
- Operation Temperature: -10°C ~ 60°C
- Operation Humidity: 5% ~ 95%, non-condensing
- Dimensions: 170mm X 170mm
- Weight GW/NW: 1100g / 700g

Ordering Information

- **KINO-DH610-R10:**
Mini-ITX SBC supports LGA1155 Intel® Core™ i3/Pentium®/Celeron® CPU, DDR3, VGA/DVI-D/HDMI, Dual PCIe GbE, USB 2.0, SATA 3Gb/s, HD Audio and RoHS
- **19800-003100-200-RS:** Dual-port USB cable with bracket
- **19800-000110-RS:** RS-232/422/485 cable with bracket
- **TPM-IN01-R11:** 20-pin Infineon TPM module, software management tool, firmware V3.17
- **SACF-KIT01-R10:** SATA to CF converter board
- **32000-023800-RS:** KB/MS Y cable
- **CPU-DT-i5-2500T:** Intel® Core™ i5-2500T processor, LGA1155, quad core 2.3GHz, 6M cache, 45W, compatible with CF-1156C-RS CPU cooler
- **CPU-DT-i5-2390T:** Intel® Core™ i5-2390T processor, LGA1155, dual core 2.7GHz, 3M cache, 35W, AMT, compatible with CF-1156C-RS CPU cooler
- **CPU-DT-i3-2100T:** Intel® Core™ i3-2100T processor, LGA1155, dual core 2.5GHz, 3M cache, 35W, compatible with CF-1156C-RS CPU cooler
- **CPU-DT-P-G620T:** Intel® Pentium® G620T processor, LGA1155, dual core 2.2GHz, 3M cache, 35W, compatible with CF-1156C-RS CPU cooler
- **CPU-DT-C-G440:** Intel® Celeron® G440 processor, LGA1155, single core 1.6GHz, 1M cache, 35W, compatible with CF-1156C-RS CPU cooler
- **CF-1156C-RS:** LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
- **CF-1156D-RS:** LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W

Jumpers setting and connectors

LABEL	FUNCTION
JATX_AT1	AT/ATX mode select
J_CMOS1	Clear CMOS setup
BAT2	Battery connector
SPI1	BIOS update connector
CN8	Debug port connector
DIO1	Digital I/O connector
JSPI2	EC update connector
CPU_FAN1	CPU fan connector
PCH_FAN1	PCH fan connector
F_PANEL1	Front panel connector
KB_MS_CN2	Keyboard and mouse connector
DC_IN2	Power connector
SATA1	Serial ATA 3Gb/s Connector
SATA2	Serial ATA 3Gb/s Connector
SATA3	Serial ATA 3Gb/s Connector
SATA4	Serial ATA 3Gb/s Connector
SATA_PWR1	SATA power connector
SATA_PWR2	SATA power connector
COM3	Internal serial port connector (RS-232/422/485)
USB2	Internal USB 2.0 connector
USB3	Internal USB 2.0 connector
USB4	Internal USB 2.0 connector
AUDIO_JACK2	Audio connector
LAN1_USB1	RJ-45 LAN and USB 2.0 connector
LAN1_USB2	RJ-45 LAN and USB 2.0 connector
HDMI1	HDMI connector
DC_IN1	Power connector
COM1	DB-9 Male RS-232 serial port
DVI_CRT1	VGA connector and DVI connector

JATX_AT1: AT/ATX Mode Select	
PIN NO.	DESCRIPTION
Open	ATX Mode
Short	AT Mode(default)

J_COMS1 : Clear CMOS Setup	
PIN NO.	DESCRIPTION
Short 1-2	Normal Operation (default)
Short 2-3	Clear CMOS

BAT2 : Battery Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VBATT	2	GND

SPI1: BIOS Update Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+SPI_VCC	2	SPI_CS0#_CN
3	SPI_SO0_CN	4	SPI_CLK0_CN
5	SPI_SI0_CN	6	GND

CN8 : Debug Port Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	EC_EPP_STB#	2	EC_EPP_AFD#
3	EC_EPP_PD0	4	EC_EPP_ERR#
5	EC_EPP_PD1	6	EC_EPP_INIT#
7	EC_EPP_PD2	8	EC_EPP_SLIN#
9	EC_EPP_PD3	10	GND
11	EC_EPP_PD4	12	EC_EPP_ACK#
13	EC_EPP_PD5	14	EC_EPP_BUSY
15	EC_EPP_PD6	16	EC_EPP_PE
17	EC_EPP_PD7	18	EC_EPP_SLCT

DIO1 : Digital I/O Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+5V
3	D_IN0	4	D_OUT0
5	D_IN1	6	D_OUT1
7	D_IN2	8	D_OUT2
9	D_IN3	10	D_OUT3

JSPI2: EC Update Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+V3.3A_EC_CONN	2	FSCE#
3	FMISO	4	FSCK
5	FMOSI	6	SGND

CPU_FAN1: CPU Fan Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+12V
3	FANIO1	4	FANOUT1

PCH_FAN1: PCH Fan Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+12V	2	+12V
3	GND		

F_PANEL1: Front Panel Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	IDELED	2	PWRLED
3	IDELED#	4	NC
5	EXTRST#	6	PWRBTN_SW#
7	GND	8	GND
9	GND	10	GND

DC_IN2: Power Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	WIDE_VIN	4	WIDE_VIN

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

COM3: Internal Serial Port Connector (RS-232+RS422/485)			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NDCD2#	2	NDSR2#
3	NRXD2#	4	NRTS2#
5	NTXD2#	6	NCTS2#
7	NDTR2#	8	NR12#
9	GND	10	GND
11	TXD485+_B_R	12	TXD485_B_R
13	RXD485+_B_R	14	RXD485_B_R

TPM1: TPM Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	TPMPCLK	2	GND
3	LPC_FRAME#	4	
5	BUF_PCIRST#	6	+5V
7	LPC_AD3	8	LPC_AD2
9	+3.3V	10	LPC_AD1
11	LPC_AD0	12	GND
13	SMBCLK_RESUME	14	SMBDATA_RESUME
15	+3V_DUAL	16	SERIRQ
17	GND	18	+3.3V
19	LPCPD_N	20	LDRQ0#

USB2: Internal USB 2.0 Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	2	GND
3	USB20_C_N10	4	USB20_C_P11
5	USB20_C_P10	6	USB20_C_N11
7	GND	8	+5V

USB3: Internal USB 2.0 Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	2	GND
3	USB20_C_N4	4	USB20_C_P5
5	USB20_C_P4	6	USB20_C_N5
7	GND	8	+5V

USB4: Internal USB 2.0 Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	2	GND
3	USB20_C_N8	4	USB20_C_P9
5	USB20_C_P8	6	USB20_C_N9
7	GND	8	+5V

LAN1_USB1: Ethernet and USB 2.0 Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
P1	+V3.3A_LAN1	P2	LAN1_MDIP0
P3	LAN1_MDIN0	P4	LAN1_MDIP1
P5	LAN1_MDIN1	P6	LAN1_MDIP2
P7	LAN1_MDN2	P8	LAN1_MDIP3
P9	LAN1_MDIN3	P10	GND
P11	LAN1_LINK100	P12	LAN1_LINK1000
P13	LAN1_ACT-1	P14	+V3.3A_LAN1
U1	+USB_PWR1	U2	USB20_C_N0
U3	USB20_C_P0	U4	GND
U5	+USB_PWR1	U6	USB20_C_N1
U7	USB20_C_P1	U8	GND

LAN1_USB2: Ethernet and USB 2.0 Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
P1	+V3.3A_LAN2	P2	LAN2_MDIP0
P3	LAN2_MDIN0	P4	LAN2_MDIP1
P5	LAN2_MDIN1	P6	LAN2_MDIP2
P7	LAN2_MDN2	P8	LAN2_MDIP3
P9	LAN2_MDIN3	P10	GND
P11	LAN2_LINK100	P12	LAN2_LINK1000
P13	LAN2_ACT-1	P14	+V3.3A_LAN2
U1	+USB_PWR3	U2	USB20_C_N2
U3	USB20_C_P2	U4	GND
U5	+USB_PWR3	U6	USB20_C_N3
U7	USB20_C_P3	U8	GND

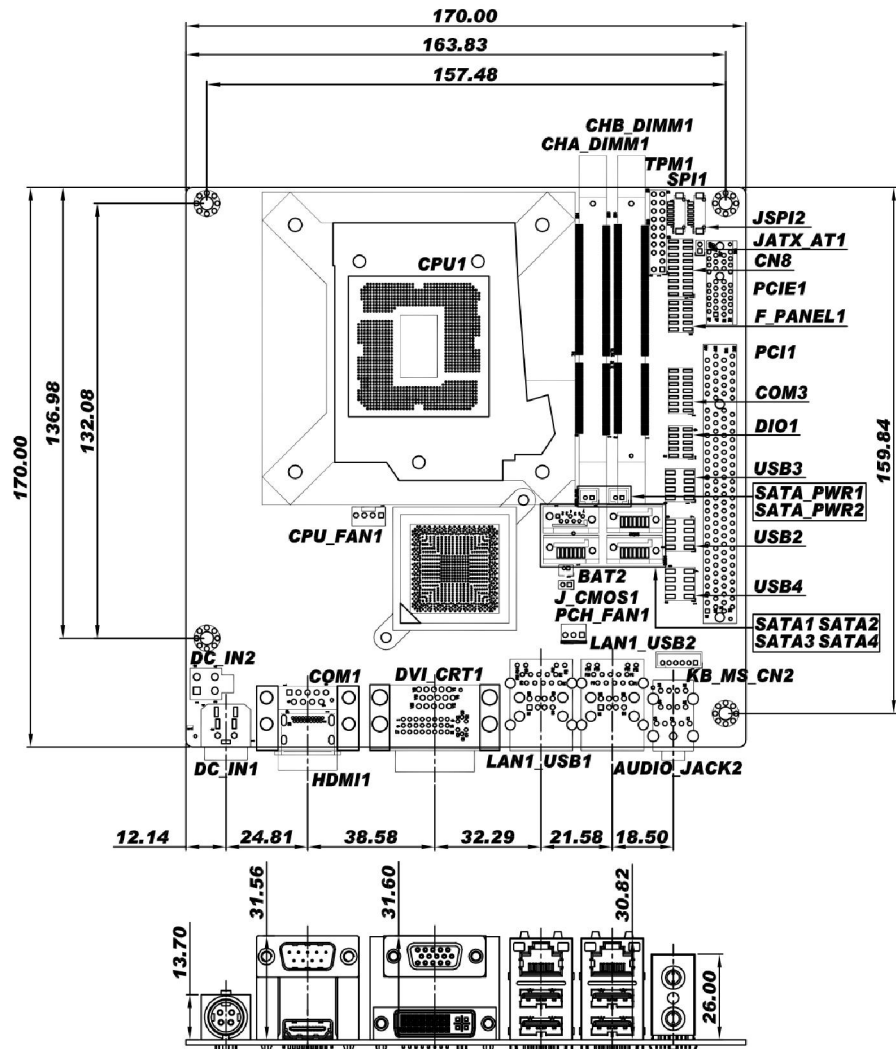
HDMI1: HDMI Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	HDMI_TMDS_C_DATA2	2	GND
3	HDMI_TMDS_C_DATA2#	4	HDMI_TMDS_C_DATA1
5	GND	6	HDMI_TMDS_C_DATA1#
7	HDMI_TMDS_C_DATA0	8	GND
9	HDMI_TMDS_C_DATA0#	10	HDMI_TMDS_C_CLK
11	GND	12	HDMI_TMDS_C_CLK#
13	NC	14	NC
15	HDMI_DDC_SCLK	16	HDMI_DDC_SDATA
17	GND	18	+5V_HDMI
19	HDMI_HPD		GND

DC_CN1: Power Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	WIDE_VIN	2	GND
3	WIDE_VIN	4	GND
5	GND		

COM1: RS-232 Serial Port			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NDCD1#	2	NRXD1
3	NTXD1	4	NDTR1#
5	GND	6	NDSR1#
7	NRTS1#	8	NCTS1#
9	NRI#		

DVI_CRT1: VGA and DVI Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DVI_TMDS_C_DATA2#	2	DVI_TMDS_C_DATA2
3	GND	4	NC
5	NC	6	DVI_DDC_SCLK
7	DVI_DDC_SDATA	8	CRT_VSYNC
9	DVI_TMDS_C_DATA1#	10	DVI_TMDS_C_DATA1
11	GND	12	NC
13	NC	14	+5V_DVI
15	GND	16	DVI_HPD
17	DVI_TMDS_C_DATA0#	18	DVI_TMDS_C_DATA0
19	GND	20	NC
21	NC	22	GND
23	DVI_TMDS_C_CLK	24	DVI_TMDS_C_CLK#
C1	CRT_RED	C2	CRT_Green
C3	CRT_Blue	C4	CRT_HSYNC

Board Layout: Jumper and Connector Locations



(Unit: mm)