

**Mini-ITX SBC supports LGA1155 Intel® Core™ i7 /i5/ i3/ Pentium/
Celeron CPU with H61, DDR3, VGA/DVI-D, 6COM, Dual PCIe GbE,
SATA II, HD Audio and RoHS**

KINO-AH612

Quick Installation Guide

Version 1.0

Feb. 23, 2012

Package List

KINO-AH612-R10 package includes the following items:

- 1 x KINO-AH612Single Board Computer
- 2 x SATA Cable (P/N: 32801-000703-200-RS)
- 1 x Dual RS-232 Cable (P/N: 19800-000112-RS)
- 1 x I/O shielding (P/N: P/N: 45014-0008C0-00-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™ i7/ i5/ i3/Pentium®/ Celeron® processor
- 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:
5 x RS-232
1 x RS-422/485
8 x USB 2.0 (4 by rear IO, 4 by pin header)
4 x SATA 3Gb/s
1 x PS/2 KB/MS connector and 1x 6-pin header
- Super I/O: Fintek F81866
- Digital I/O: Programmable 8-bit GPIO
- Display: DVI-D/VGA integrated in Intel® H61
- Audio: Realtek ALC662 HD Audio codec
- Embedded controller: iWDD
- Watchdog Timer: Software programmable support 1~255 sec. system reset
- Expansions:
1 x PCIe x4 slot
- FAN:
1 x 4-pin CPU fan connector
1 x 3-pin system fan connector
- Power Supply:
ATX Power Supply

- Power Consumption:
5V@3.9A,12V@0.36A,Vcore_12V@8.28A,3.3V@1.24A,5VSB@0.18A (3.4GHz Intel®Core™i7-2600 with 2GB*2 DDR3 1333MHz)
- Operation Temperature: -10°C ~ 60°C
- Operation Humidity: 5% ~ 95%, non-condensing
- Dimensions: 170mm X 170mm
- Weight GW/NW: 1100g / 700g

Ordering Information

- **KINO-AH612-R10:**
- Mini-ITX SBC supports LGA1155 Intel® Core™ i7 /i5/ i3 CPU, DDR3, VGA/ DVI-D, 2COM, Intel GbE, SATA 6Gb/s, USB3.0, HD Audio and RoHS
- **19800-003100-200-RS:** Dual-port USB cable with bracket
- **32102-000100-200-RS:** SATA power cable
- **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-1156A-RS:** High performance LGA1155/LGA1156 Cooler kit, 1U Chassis compatible, 73W
- **CF-1156AB-RS:** High performance LGA1155/LGA1156 Cooler kit, 95W
- **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
J_CMOS1	Clear CMOS Setup (Pin header 1x3 ;2.0mm)
JATX_AT1	ATX Mode or AT Mode Selection
SATA1~4	Serial ATA 2.0 Connector
F_PANEL1	Front Panel connector
JSPI1	SPI Flash Program Connector
JSPI2	EC SPI Flash Program Connector
TPM1	Trusted Platform Module connector
COM3,5,6	Internal Serial RS-232 2*5 Pin-header
COM4	Internal Serial Port RS422/RS485 Connectors
DIO1	Digital I/O Connector
CPU_FAN1	4-pin CPU FAN Connector
SYS_FAN1	3-pin System FAN Connector
AUDIO_CV1	MIC IN & LINE OUT HD Audio Connector
FP_AUDIO1	Front Panel Audio Connector
ATX1	24-pin ATX Power Supply Connector
CPU12V1	+12V Power Source Connector
KB_MS1	PS/2 Mouse & Keyboard 1*6 Pin-header
I2C_1	I2C Connector
SMBUS_1	SMBUS Connector
USB1~2	Internal USB2.0 2*4 Pin-header
VIDEO1	External DVI-D + CRT Connector
LANUSB1~2	RJ45 LAN and USB2.0 Connector
CN1	EC Debug port Connector
COM1~2	External Serial Port DB-9 Connectors
SPDIF	SPDIF pin header

J_CMOS1: : Clear CMOS Setup	
J_CMOS1	DESCRIPTION
Short 1-2	Keep CMOS Setup(default)
Short 2-3	Clear CMOS Setup

JATX_AT1 : ATX or AT Mode Selection	
JATX_AT1	DESCRIPTION
Short 1-2	ATX Mode(default)
Short 2-3	AT Mode

SATA1~SATA4 : Serial ATA 2.0 Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	5	RXN
2	TXP	6	RXP
3	TXN	7	GND
4	GND	8	N/C

F_PANEL1 : PWR & RST Buttons and Indicators panel

	PI N	DESCRIPTION	PI N	DESCRIPTION	
PWR_LED	1	ACPILED	2	BEEP_PWR	BUZZER
	3	NC	4	NC	
	5	GND	6	NC	
PWR_BTN	7	PWRBTN_SW#_C	8	PC_BEEP	NC
	9	GND	10	NC	
HDD_LED	11	IDELED	12	EXTRST-	RESET
	13	IDELED-	14	GND	

JSPI1: Flash SPI ROM Connector

PIN NO.	DESCRIPTION
1	SPI_VCC
2	SPI_CS#
3	SPI_MISO
4	SPI_CLK
5	SPI_MOSI
6	GND

TPM1:Trusted Platform Module connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LCLK	2	GND2
3	LERAME#	4	KEY
5	LRESRT#	6	+5V
7	LAD3	8	LAD2
9	+3V	10	LAD1
11	LAD0	12	GND3
13	SCL	14	SDA
15	SB3V	16	SERIRQ
17	GND1	18	GLKRUN#
19	LPCPD#	20	LDRQ#

COM3,5,6 : External Serial Port Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	-NDCD1	6	-NCTS1
2	-NDSR1	7	-NDTR1
3	NSIN1	8	-XRI1
4	-NRTS1	9	GND
5	NSOUT1	10	GND

DIO1 : Digital Input / Output Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC
3	Output 3	4	Output 2
5	Output 1	6	Output 0
7	Input 3	8	Input 2
9	Input 1	10	Input 0

SYS_FAN1 · SYS_FAN2 : System Fan Connector

PIN NO.	DESCRIPTION
1	FANIO
2	+12V (PWM)
3	GND

SPDIF1 : SPDIF CONNECTOR

SPDIF	
PIN NO.	DESCRIPTION
1	5V
2	NC
3	SPDIFOUT
4	GND
5	SPDIFIN

FP_AUDIO1: Audio Source Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LMIC2_L	2	AUD GND
3	LMIC2_R	4	PRESENCE#
5	LLINE2-R	6	MIC2-JD
7	F_SENSE	8	NC
9	LLINE2-L	10	LINE2-JD

ATX1: 20Pin ATX Power Supply Connector

ATX20 (Main Board)			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3Vdc	11	+3.3Vdc
2	+3.3Vdc	12	-12Vdc
3	GND	13	GND
4	+5Vdc	14	PS-ON
5	GND	15	GND
6	+5Vdc	16	GND
7	GND	17	GND
8	PWR-OK	18	-5Vdc
9	+5VSby	19	+5Vdc
10	+12Vdc	20	+5Vdc

CPU12V1 : +12V MAIN POWER Connector

ATX 12V1			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	+12V	4	+12V

CPU_FAN : CPU Fan Connector

PIN NO.	DESCRIPTION
1	GND
2	+12V
3	FANIO1
4	PWM

KB_MS1: 6-pin Wafer Keyboard Connector

PIN NO.	DESCRIPTION
1	VCC5_KBMS
2	MSDATA
3	MSCLK
4	KBDATA
5	KBCLK
6	KBGND

I2C_1

PIN NO.	DESCRIPTION
1	+5V_DUAL
2	PCH_GP38_PU
3	PCH_GP39_PU

SMBus_1

PIN NO.	DESCRIPTION
1	+5V_DUAL
2	SMBCLK
3	SMBDATA
4	GND

USB1~2: Internal USB Connectors

USB			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
3	DATA-	4	DATA+
5	DATA+	6	DATA-
7	GND	8	VCC

KB_MS2

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Keyboard Data	7	Mouse Data
2	NC	8	NC
3	GND	9	GND
4	VCC	10	VCC
5	Keyboard Clock	11	Mouse Clock
6	NC	12	NC

COM5~6: External Serial Port Connector

PIN NO.	DESCRIPTION
1	DATA CARRIER DETECT (DCD1)
2	RECEIVE DATA (RXD1)
3	TRANSMIT DATA (TXD1)
4	DATA TERMINAL READY (DTR1)
5	GND (GND1)
6	DATA SET READY (DSR1)
7	REQUEST TO SEND (RTS1)
8	CLEAR TO SEND (CTS1)
9	RING INDICATOR (RI1)

LANUSB1~LANUSB2

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MDIA3-	5	MDIA1+
2	MDIA3+	6	MDIA2+
3	MDIA2-	7	MDIA0-
4	MDIA1-	8	MDIA0+

USB	
PIN NO.	DESCRIPTION
1	VCC
2	DATA-
3	DATA+
4	GND

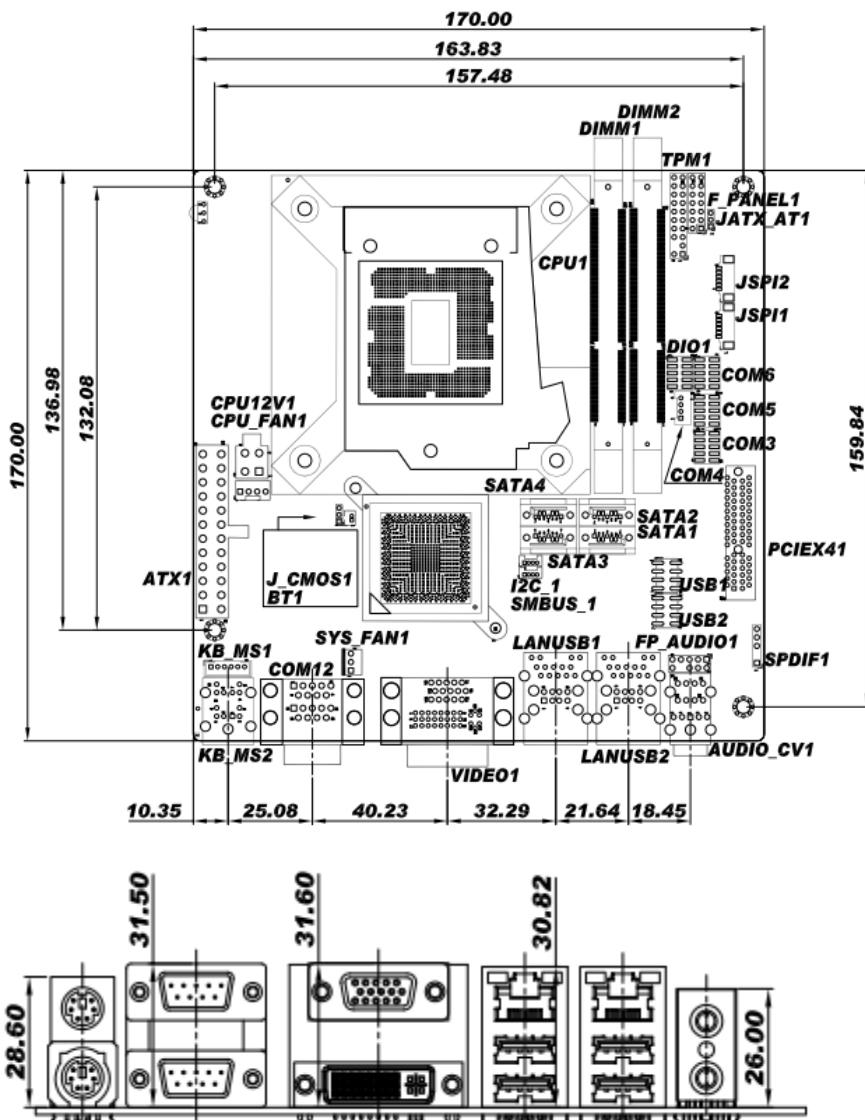
AUDIO_CV1 : Audio Line-out & MIC-in Connector	
PIN NO.	DESCRIPTION
1	Line-out (Green)
2	MIC-in (Pink)

SPDIF1 : SPDIF Connector	
PIN NO.	DESCRIPTION
1	+V5S
2	NC
3	SPDIFOUT
4	GND
5	SPDIFIN

BT1: +3V Battery Connector	
PIN NO.	DESCRIPTION
1	BAT (+3.3V)
2	GND

COM4 : Internal Serial Port Connectors (RS-422/485)			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RXD485#	2	RXD485+
3	RXD485-	4	RXD485#

Board Layout: Jumper and Connector Locations



(Unit: mm)