

**Mini-ITX SBC supports AMD® Ryzen™ Embedded V1000/R1000 Series Onboard SoC, DDR4, Triple/Quadruple DP, Dual GbE, M.2, SATA 6Gb/s, USB 3.2 Gen 1, COM, TPM 2.0, HD Audio and RoHS**

# **gKINO-V/R1000**

## **Quick Installation Guide**

**Version 1.0**

August 27, 2020

### **Package List**

gKINO-V/R1000 package includes the following items:

- 1 x gKINO-V/R1000 single board computer with CPU cooler
- 1 x I/O shielding
- 1 x SATA cable
- 1 x QIG



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## Specifications

- SoC:
  - AMD® Ryzen™ Embedded V1605B (quad core, 2 MB cache, 8 CU, 2.0 GHz / up to 3.6 GHz, 12 W – 25 W)
  - AMD® Ryzen™ Embedded V1202B (dual core, 1 MB cache, 3 CU, 2.3 GHz / up to 3.2 GHz, 12 W – 25W)
  - AMD® Ryzen™ Embedded R1606G (dual core, 1 MB cache, 3 CU, 2.6 GHz / up to 3.5 GHz, 12 W – 25W)
  - AMD® Ryzen™ Embedded R1505G (dual core, 1 MB Cache, 3 CU, 2.4 GHz / up to 3.3GHz, 12 W – 25W)
- BIOS: AMI BIOS
- Memory:
  - Two 260-pin 2400 MHz DDR4 SDRAM SO-DIMM slots with ECC support (system max. 64 GB)
- Graphics:
  - AMD Radeon™ VEGA series graphics
  - AMD Radeon™ GPUs (Radeon™ HD 7000 series), support DX11, UVD3 H.264, VC-1, MPEG-2, DivX Direct X® 11, Open CL™ 1.1, OpenGL 4.2
- Display Output:
  - gKINO-V1000: 4 x DP (4K UHD, 3840x2160)
  - gKINO-R1000: 3 x DP (4K UHD, 3840x2160)
- Ethernet: Dual Realtek RTL8119I PCIe GbE controller
- External I/O Interfaces:
  - 2 x RS-232
  - 2 x USB 3.2 Gen 1 (5Gb/s)
  - 2 x USB 2.0
- Internal I/O Interfaces:
  - 1 x SATA 6Gb/s with 5V/12V output
  - 1 x SATA power connector
  - 2 x RS-232 (support ccTalk, TTL) (1x4 pin, P=2.54)
  - 2 x USB 2.0 (2x4 pin, P=2.0)
  - 4 x RS-232 (2x5 pin, P=2.00)

- Audio:
  - Realtek ALC662 HD audio codec
  - 1 x Digital output connector (S/PDIF)
  - 2 x 6W audio amplifier connector (L+R)
  - 2 x Audio jack (line-out and mic-in)
  - 1 x Front audio connector by 10-pin (2x5) header
- Front Panel:
  - 1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED: 2 x LAN LED (1x2 pin)
- SMBus: 1 x SMBus (1x4 pin)
- I<sup>2</sup>C: 1 x I<sup>2</sup>C (1x4 pin)
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Expansion :
  - 1 x M.2 2242/2280 M-key slot (SATA + PCIe x2 signal)
  - 1 x PCIe x16 slot (with PCIe 3.0 x8 signal)
- Watchdog Timer:
  - Software programmable, support 1~255 sec. system reset
- Chassis Intrusion Detection:
  - 1 x Chassis intrusion connector (1x2 pin)
- Fan Connector:
  - 1 x CPU smart fan (1x4 pin)
  - 1 x System smart fan (1x4 pin)
- Power Supply:
  - 12V DC input
  - Support AT/ATX mode
  - 1 x Internal power connector (2x2 pin)
  - 1 x External DC jack (4-pin DIN)
- Power Consumption:
  - 12 V @ 5.144 A (AMD Ryzen V1605B 2.0 GHz CPU with 32 GB 2666 MHz DDR4 memory)
  - 12 V @ 5.146 A (AMD Ryzen R1606G 2.6 GHz CPU with 32 GB 2666 MHz DDR4 memory)

- Operating Temperature: 0°C ~ 60°C
- Storage Temperature: -10°C ~ 70°C
- Operation Humidity: 5% ~ 95%, non-condensing
- Dimensions: 170mm x 170 mm
- Weight: GW: 900g / NW: 400g
- Safety: CE, FCC

## Ordering Information

- **gKINO-V1605B-R10:**  
Mini-ITX SBC supports AMD® Ryzen™ Embedded V1605B onboard SoC (quad-core 2.0GHz, 15W), DDR4, quadruple independent displays, quadruple DP, dual GbE, SATA 6Gb/s, USB 3.2 Gen 1, M.2, COM, TPM 2.0, HD audio and RoHS
- **gKINO-V1202B-R10:**  
Mini-ITX SBC supports AMD® Ryzen™ Embedded V1202B onboard SoC (dual-core 2.3GHz, 15W), DDR4, quadruple independent displays, quadruple DP, dual GbE, SATA 6Gb/s, USB 3.2 Gen 1, M.2, COM, TPM 2.0, HD audio and RoHS
- **gKINO-R1606G-R10:**  
Mini-ITX SBC supports AMD® Ryzen™ Embedded R1606G onboard SoC (dual-core 2.6GHz, 15W), DDR4, triple independent displays, triple DP, dual GbE, SATA 6Gb/s, USB 3.2 Gen 1, M.2, COM, TPM 2.0, HD audio and RoHS
- **gKINO-R1505G-R10:**  
Mini-ITX SBC supports AMD® Ryzen™ Embedded R1505G onboard SoC (dual-core 2.4GHz, 15W), DDR4, triple independent displays, triple DP, dual GbE, SATA 6Gb/s, USB 3.2 Gen 1, M.2, COM, TPM 2.0, HD audio and RoHS

- **19800-000300-100-RS:**  
RS-232 cable with bracket, 300mm, P=2.0
- **CB-USB02A-RS:**  
Dual-port USB cable with bracket, 300mm, P=2.0
- **TPM-IN02-R20:**  
20-pin Infineon TPM module, software management tool,  
firmware v5.5

All the drivers and utilities for the gKINO-V/R1000 series are available on IEI Resource Download Center. Type the model name and press Enter to find all the relevant software, utilities, and documentation. To install software from the downloaded ISO file, mount the file as a virtual drive to view its content.

IEI Resource Download Center

<https://download.ieiworld.com>



## Jumpers Setting and Connectors

LABEL	FUNCTION
J_ATX_AT1	AT/ATX Power Mode Setting
J_CMOS1	Clear CMOS Setup
CPU12V1	12 V DC-IN power connector
AUDIO2	Audio connector
SPK_L1, SPK_R1	Audio amplifier connectors
BAT1	Battery connector
COM7, COM8	ccTalk connectors
CHASSIS1	Chassis intrusion connector
DIO1	Digital I/O connector
CN1	EC debug connector
CPU_FAN1	Fan connector, CPU
SYS_FAN1	Fan connector, system
F_PANEL1	Front panel connector
I2C1	I2C connector
LED_LAN1, LED_LAN2	LAN LED connectors
M2_M2	M.2 slot
CHA_DIMM0, CHB_DIMM0	Memory slots
PCIEX16	PCIe x16 slot
PWR_SW1	Power button
COM3, COM4, COM5, COM6	Internal RS-232 serial port connectors
S_ATA1	SATA 6Gb/s drive connector
SATA_PWR1	SATA power connector
SMB1	SMBus connector
SPDIF1	S/PDIF connector
JSPI_BIOS_1	SPI flash connector, BIOS
JSPI_EC1	SPI flash connector, EC
TPM1	TPM connector
USB_CON1	Internal USB 2.0 connector
POWER_IN1	12 V DC-IN power jack
AUDIO1	External audio jacks

DP0_1, DP2_3	External DisplayPort connectors
LAN1_USB1	LAN and USB 3.2 Gen 1 combo connector
LAN2_USB2	LAN and USB 2.0 combo connector
COM1_2	External RS-232 connectors

<b>J_ATX_AT1: AT/ATX Power Mode Setting</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
Short 1-2 (Right)	ATX Power Mode (default)
Short 2-3 (Left)	AT Power Mode

<b>J_CMOS1: Clear CMOS Setup</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
NC	Keep CMOS Setup (Normal Operation)
Press button	Clear CMOS Setup

<b>CPU12V1: 12 V DC-IN Power Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	GND
3	12V	4	12V

<b>AUDIO2: Audio Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	LMIC2-L	2	GND
3	LMIC2-R	4	PRE-SENSE#
5	LLINE2-R	6	MIC2-JD
7	FRONT-IO	8	N/C
9	LLINE2-L	10	LINE2-JD

<b>SPK_L1, SPK_R1: Audio Amplifier Connectors</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	SPK+	2	SPK-

<b>COM7, COM8: ccTalk Connectors</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+12V	2	N/C
3	GND	4	ccTalk DATA

<b>CHASSIS1: Chassis Intrusion Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	CHASSIS OPEN#	2	GND

<b>DIO1: Digital Input/Output Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
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

<b>CPU_FAN1, SYS_FAN1: Fan Connectors</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	+12V
3	FANIO	4	PWM

<b>F_PANEL1: Front Panel Connector</b>					
	<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>	
Power LED	1	+5V	2	Beep_PWR	Speaker
	3	N/C	4	N/C	
	5	GND	6	N/C	
Power Button	7	PWRBTN-	8	PC_Beep	Reset
	9	GND	10	N/C	
HDD LED	11	+5V	12	Reset-	
	13	SATA_LED-	14	GND	



<b>I2C1: I<sup>2</sup>C Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	I2C_DAT
3	I2C_CLK	4	+5V

<b>LED_LAN1, LED_LAN2: LAN Link LED Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+3.3V	2	LAN_LED_LNK#_ACT

<b>COM3, COM4, COM5, COM6: Internal RS-232 Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	DCD	2	DSR
3	RX	4	RTS
5	TX	6	CTS
7	DTR	8	RI
9	GND	10	GND

<b>S_ATA1: SATA 6Gb/s Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	TX+
3	TX-	4	GND
5	RX-	6	RX+
7	GND		

<b>SATA_PWR1: SATA Power Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+12V	2	GND
3	GND	4	+5V

<b>SMB1: SMBus Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	SMB_DATA
3	SMB_CLK	4	+5V

<b>SPDIF1: S/PDIF Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+5V	2	N/C
3	SPDIF OUT	4	GND
5	SPDIF IN		

<b>JSPI_BIOS_1: BIOS SPI Flash Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+3.3V	2	SPI_CS#
3	SPI_SO	4	SPI_CLK
5	SPI_SI	6	GND

<b>JSPI_EC1: EC SPI Flash Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+3.3V	2	SPI_CS#
3	SPI_SO	4	SPI_CLK
5	SPI_SI	6	GND

<b>TPM1: Trusted Platform Module Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	LCLK	2	GND
3	LFRAME#	4	KEY
5	LRERST#	6	+5V
7	LAD3	8	LAD2
9	+3.3V	10	LAD1
11	LAD0	12	GND
13	SCL	14	SDA
15	SB3V	16	SERIRQ
17	GND	18	GLKRUN#
19	LPCPD#	20	LDRQ#

<b>USB_CON1: Internal USB 2.0 Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VCC	2	GND
3	USB_DATA-	4	USB_DATA+
5	USB_DATA+	6	USB_DATA-
7	GND	8	VCC

<b>POWER_IN1: 12 V DC-IN Power Jack</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	12V	2	GND
3	12V	4	GND
5	GND		

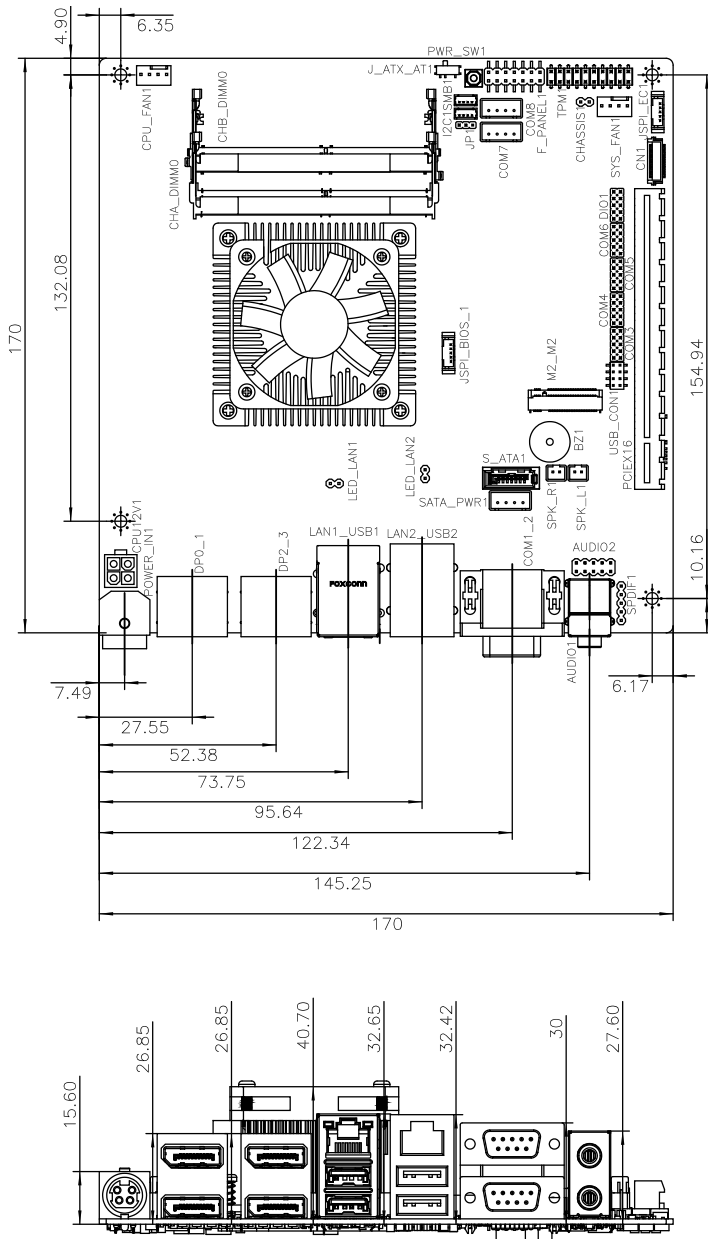
<b>AUDIO1: External Audio Jacks</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
Line_Out (Green)	Connect this port to headphone or speaker
Microphone (Pink)	Connect this port to microphone

<b>DP0_1, DP2_3: External DisplayPort Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	DATA_0P	11	GND
2	GND	12	DATA_3N
3	DATA_0N	13	CONFIG1
4	DATA_1P	14	CONFIG2
5	GND	15	AUX_P
6	DATA_1N	16	GND
7	DATA_2P	17	AUX_N
8	GND	18	DP HPD
9	DATA_2N	19	GND
10	DATA_3P	20	DP PWR

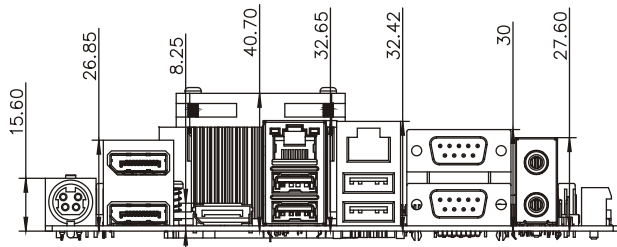
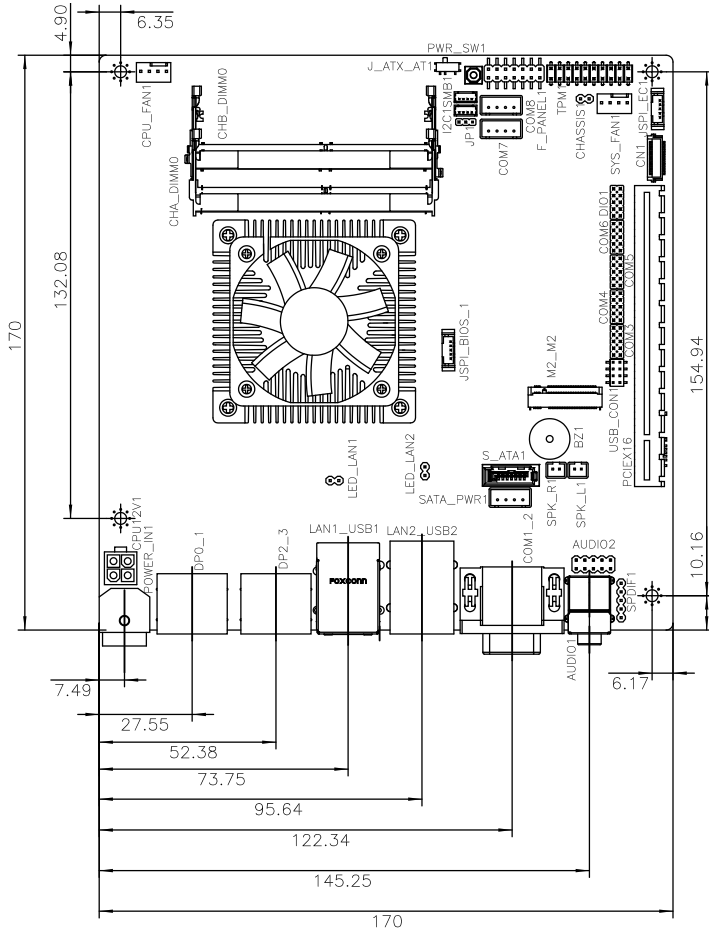
<b>LAN1_USB1, LAN2_USB2: Ethernet and USB Connectors</b>			
<b>USB1: External USB 3.2 Gen 1 (5Gb/s) Connectors</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VCC	10	VCC
2	USB_DATA-	11	USB_DATA-
3	USB_DATA+	12	USB_DATA+
4	GND	13	GND
5	USB3_RX-	14	USB3_RX-
6	USB3_RX+	15	USB3_RX+
7	GND	16	GND
8	USB3_TX-	17	USB3_TX-
9	USB3_TX+	18	USB3_TX+
<b>USB2: External USB 2.0 Connectors</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VCC	2	USB_DATA-
3	USB_DATA+	4	GND
5	VCC	6	USB_DATA-
7	USB_DATA+	8	GND
<b>LAN1, LAN2: RJ-45 LAN Connectors</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	MDIA0+	5	MDIA2-
2	MDIA0-	6	MDIA1-
3	MDIA1+	7	MDIA3+
4	MDIA2+	8	MDIA3-

<b>COM1_2: External RS-232 Serial Port Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	DCD	2	RX
3	TX	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

# Board Layout: Jumper and Connector Locations (Unit: mm)



gKINO-V1000



gKINO-R1000