

Mini-ITX SBC Supports Intel® Alder Lake-P Processor, DDR4, HDMI, DP, iDPM, Triple 2.5GbE, M.2 E Key + B Key + M Key, USB 3.2 Gen 2, SATA 6Gb/s, COM, PCIe x4 Slot, 12~28V DC-in and RoHS

KINO-ADL-P

Quick Installation Guide

Version 1.0

March 29, 2023

Package List

KINO-ADL-P package includes the following items:

- 1 x KINO-ADL-P single board computer
- 1 x SATA cable
- 1 x I/O shielding
- 1 x QIG



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Specifications

- CPU:
12th Gen. Intel® mobile Alder Lake-P on board SoC
- Memory:
2 x 260-pin 3200 MHz DDR4 SO-DIMM (system max. 64GB)
- BIOS:
AMI UEFI BIOS
- Graphics Engine:
Intel® UHD Graphics for Celeron® 7305 and Core™ i3-1220P
Intel® Xe Graphics architecture for Core™ i5-1240P and Core™ i7-1260P
- Display Output:
Triple independent display
1 x HDMI 1.4 (up to 4096 x 2160 @30Hz)
1 x DP 1.4 (up to 4096 x 2160 @60Hz)
1 x IEI iDPM 3040 slot (only for IEI eDP/ LVDS/ VGA module)
- Ethernet:
LAN1: Intel® I225LM 2.5GbE controller
LAN2: Intel® I225V 2.5GbE controller
LAN3: Intel® I225V 2.5GbE controller
- External I/O Interface:
4 x USB 3.2 Gen 2 (Type-A) (10Gb/s)
2 x RS-232/422/485
- Internal I/O Interface:
2 x SATA 6Gb/s
4 x USB 2.0 (2x4 pin, p=2.0)
4 x RS-232 (2x5 pin, p=2.0)
- Audio:
1 x Analog audio (2x5 pin, p=2.0) supports 7.1 channel HD audio by IEI AC-KIT-888S audio kit
- Front Panel:
1 x Front panel (2x7 pin, p=2.54; power LED, HDD LED, speaker, power button, reset button)

- Expansions:
 - 1 x PCIe Gen3 x4 slot (open-ended)
 - 1 x M.2 2230 E key for Wi-Fi & BT (PCIe Gen3 x1 & USB 2.0)
 - 1 x M.2 3042 B key (PCIe Gen3 x2 & USB 2.0)
 - 1 x M.2 2280 M key (PCIe Gen3 x4)
- Digital I/O:
 - 1 x 12-bit digital I/O (2x7 pin, p=2.0)
- I²C/SMBus:
 - 1 x I²C (1x4 pin, p=1.25)
 - 1 x SMBus (1x4 pin, p=1.25)
- Fan Connector:
 - 1 x CPU fan connector (1x4 pin)
 - 1 x System fan connector (1x4 pin)
- TPM
 - Intel® PTT (TPM 2.0)
- Power Supply:
 - Input voltage range: 12V – 28V DC
 - 1 x Internal power connector (2x2 pin)
 - 1 x External DC power jack (Ø2.6mm)
 - ErP/EuP compliant
- Power Consumption:
 - 12V@5.09A, 19V@3.25A, 24V@2.58A, 28V@2.23A,
(12th Gen Intel® Core™ i7-1270PE CPU with 32 GB 3200 MHz
DDR4 memory, max. loading, EuP mode disabled)
- Watchdog Timer:
 - Software programmable support 1–255 sec. system reset
- Operation Temperature: 0°C – 60°C
- Storage Temperature: -30°C – 70°C
- Operation Humidity: 5% – 95%, non-condensing
- Dimensions: 170 mm x 170 mm
- Weight: GW: 900 g / NW: 450 g

Ordering Information

- **KINO-ADL-P-i7-R10:**
Mini-ITX SBC with Intel® Core™ i7-1260P SoC, DDR4 SO-DIMM slot, 12~28V DC input, triple display, SATA 6Gb/s, triple Intel 2.5GbE, USB 3.2, M.2, PCIe x4, RoHS
- **KINO-ADL-P-i5-R10:**
Mini-ITX SBC with Intel® Core™ i5-1240P SoC, DDR4 SO-DIMM slot, 12~28V DC input, triple display, SATA 6Gb/s, triple Intel 2.5GbE, USB 3.2, M.2, PCIe x4, RoHS
- **KINO-ADL-P-i3-R10:**
Mini-ITX SBC with Intel® Core™ i3-1220P SoC, DDR4 SO-DIMM slot, 12~28V DC input, triple display, SATA 6Gb/s, triple Intel 2.5GbE, USB 3.2, M.2, PCIe x4, RoHS
- **KINO-ADL-P-C-R10:**
Mini-ITX SBC with Intel® Celeron® 7305 SoC, DDR4 SO-DIMM slot, 12~28V DC input, triple display, SATA 6Gb/s, triple Intel 2.5GbE, USB 3.2, M.2, PCIe x4, RoHS
- **AC-KIT-888S-R10:**
Realtek ALC888S 7.1 Channel HD Audio board
- **CB-USB02A-RS:**
Dual-port USB cable with bracket, 300mm, p=2.0
- **32205-000702-100-RS:**
RS-232 cable, 200mm, p=2.0
- **iDPM-eDP-R10:**
eDP to eDP converter board (for IEI iDPM connector)
- **iDPM-LVDS-R10:**
eDP to LVDS converter board (for IEI iDPM connector)

Jumpers Setting and Connectors

LABEL	FUNCTION
J_ATX_AT1	AT/ATX power mode switch
J_CMOS1	Clear CMOS button
ME_FLASH1	Flash descriptor security override jumper
J_AUDIO1	Audio connector for IEI AC-KIT-888S kit
PWR2	12V power input connector
BAT1	RTC battery connector
J_CHASSIS1	Chassis intrusion connector
DIMM1, DIMM2	DDR4 SO-DIM slots
DBG_PORT1	Debug port connector
J_DIO1	Digital I/O connector
EC_DBG1	EC debug connector
CPU/FAN1, SYS/FAN1	Fan connectors
F_PANEL1	Front panel connector
J_I2C1	I ² C connector
IDPM1	IEI iDPM module slot
COM1, COM2, COM3, COM4	RS-232 serial port connectors
SATA1, SATA2	SATA 6Gb/s connectors
SATA_PWR1, SATA_PWR2	SATA power connectors
J_SMB1	SMBus connector
J_SPI1	Flash SPI ROM connector
EC_SPI1	Flash EC ROM connector
J_USB1, J_USB2	Internal USB 2.0 connectors
PCIEX1	PCIe x4 slot
M2_E1	M.2 2230 E key slot
M2_B1	M.2 3042 B key slot
M2_M1	M.2 2280 M key slot
HDMI1	External HDMI connector
DP1	External DP connector
LAN1	External dual 2.5GbE RJ-45 connector
LAN2	External 2.5GbE RJ-45 connector and USB 3.2 Gen 2 connector

PWR1	External power input jack
COM5/6	External RS-232/422/485 serial ports
USB3_1	External dual USB 3.2 Gen 2 connectors

J_ATX_AT1: AT/ATX Power Mode Switch	
PIN NO.	DESCRIPTION
Short A - B	ATX Power Mode (default)
Short B - C	AT Power Mode

J_CMOS1: Clear CMOS Button	
Status	DESCRIPTION
NC	Keep CMOS Setup (Normal Operation)
Press	Clear CMOS Setup

ME_FLASH1: Flash Descriptor Security Override Jumper	
PIN NO.	DESCRIPTION
Open	Disabled (default)
Short	Enabled

J_AUDIO1: Audio Connector for IEI AC-KIT-888S kit			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	HDA_SYNC_R	2	HDA_BCLK_R
3	HDA_SDO_R	4	HDA_PCBEPC
5	HDA_SDI_0_R	6	HDA_RST_R
7	+5V	8	GND
9	+12V	10	GND

PWR2: 12V Power Input Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	3	VIN
2	GND	4	VIN

BAT1: RTC Battery Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VBATT	2	GND

J_CHASSIS1: Chassis Intrusion Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	CASEOPEN_N	2	GND

DBG_PORT1: Debug Port Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	2	SMCLK1_EC
3	N/C	4	SMDAT1_EC
5	GND	6	BUF_PLT_RST#

J_DIO1: Digital Input/Output Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC
3	Output 5	4	Output 4
5	Output 3	6	Output 2
7	Output 1	8	Output 0
9	Input 5	10	Input 4
11	Input 3	12	Input 2
13	Input 1	14	Input 0

EC_DBG1: EC Debug Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NC	4	EDICLK
2	EDICS	5	EDIDI
3	EDIDO	6	GND

CPU/FAN1, SYS/FAN1: CPU/System Fan Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	3	FANIO
2	+12V	4	PWM (+5V)

F_PANEL1: Front Panel Connector					
	PIN	DESCRIPTION	PIN	DESCRIPTION	
PWR LED	1	PWR_LED+	2	SPKR+	SPKR
	3	NC	4	NC	
	5	PWR_LED-	6	NC	
PWR BTN	7	PWR_BTN+	8	SPKR-	
	9	PWR_BTN-	10	NC	
HDD LED	11	HDD_LED+	12	Reset+	RESET
	13	HDD_LED-	14	Reset-	

J_I2C1: I²C Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	3	SMB_CLK_EC
2	SMB_DATA_EC	4	+5V

COM1, COM2, COM3, COM4: RS-232 Serial Port Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	GND

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

SATA_PWR1, SATA_PWR2: SATA Power Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC5V	2	GND

J_SMB1: SMBus Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	3	SMB_CLK
2	SMB_DATA	4	+5V

J_SPI1: Flash SPI ROM Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3V	4	SPI_CLK
2	SPI_CS#	5	SPI_SI
3	SPI_SO	6	GND

EC_SPI1: Flash EC ROM Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	CS#_EC	2	VCC3.3V
3	SO_EC	4	HOLD#_EC
5	EC_DET_FLASH	6	SCLK_EC
7	GND	8	SIO_EC

J_USB1, J_USB2: 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

M2_E1: M.2 2230 E Key Slot			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+3.3V
3	USB2_DP	4	+3.3V
5	USB2_DN	6	NC
7	GND	8	NC
9	CNV_WR_D1_R_DN	10	CNV_RF_RESET_N
11	CNV_WR_D1_R_DP	12	NC
13	GND	14	MODEM_CLKREQ_R
15	CNV_WR_D0_R_DN	16	NC
17	CNV_WR_D0_R_DP	18	GND
19	GND	20	UART_WAKE_N
21	CNV_WR_CLK_R_DN	22	UART_RX/BRI_RSP
23	CNV_WR_CLK_R_DP	24	Module Key
25	Module Key	26	Module Key
27	Module Key	28	Module Key
29	Module Key	30	Module Key
31	Module Key	32	RGI_DT/UART2_TXD
33	GND	34	RGI_RSP/UART2_CTS_N
35	PCIE_TX_DP	36	BRI_DT/UART2_RTS_N
37	PCIE_TX_DN	38	WLAN_CL_RST_N
39	GND	40	WLAN_CL_DATA
41	PCIE_RX_DP	42	WLAN_CL_CLK
43	PCIE_RX_DN	44	NC
45	GND	46	NC
47	PCIE_CLK+	48	NC
49	PCIE_CLK-	50	BTWIFI_SUS_CLK

51	GND	52	SLOT_RST
53	NC	54	BT_RF_KILL_N
55	M.2_A_WAKE	56	WFI_RF_KILL_N
57	GND	58	NC
59	CNV_WT_D1_R_DN	60	NC
61	CNV_WT_D1_R_DP	62	NC
63	GND	64	NC
65	CNV_WT_D0_R_DN	66	NC
67	CNV_WT_D0_R_DP	68	NC
69	GND	70	NC
71	CNV_WT_CLK_R_DN	72	+3.3V
73	CNV_WT_CLK_R_DP	74	+3.3V
75	GND		

M2_B1: M.2 3042 B Key Slot			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+V3.3
3	GND	4	+V3.3
5	GND	6	NC
7	USB2_DP	8	W_DISABLE_N
9	USB2_DN	10	NC
11	GND	12	Module Key
13	Module Key	14	Module Key
15	Module Key	16	Module Key
17	Module Key	18	Module Key
19	Module Key	20	NC
21	GND	22	NC
23	M.2_B_WAKE	24	NC
25	NC	26	NC
27	GND	28	NC
29	PCIE_1_RX_DN	30	NC
31	PCIE_1_RX_DP	32	NC
33	GND	34	NC

35	PCIE_1_TX_DN	36	NC
37	PCIE_1_TX_DP	38	NC
39	GND	40	SMB_CLK
41	PCIE_0_RX_DN	42	SMB_DATA
43	PCIE_0_RX_DP	44	NC
45	GND	46	NC
47	PCIE_0_TX_DN	48	NC
49	PCIE_0_TX_DP	50	SLOT_RST
51	GND	52	NC
53	PCIE_CLK_DN	54	M.2_B_WAKE
55	PCIE_CLK_DP	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	NC	68	NC
69	NC	70	+V3.3
71	GND	72	+V3.3
73	GND	74	+V3.3
75	GND		

M2_M1: M.2 2280 M Key Slot			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+V3.3
3	GND	4	+V3.3
5	PCIE_3_RX_DN	6	NC
7	PCIE_3_RX_DP	8	NC
9	GND	10	NC
11	PCIE_3_TX_DN	12	+V3.3
13	PCIE_3_TX_DP	14	+V3.3
15	GND	16	+V3.3
17	PCIE_2_RX_DN	18	+V3.3
19	PCIE_2_RX_DP	20	NC

21	GND	22	NC
23	PCIE_2_TX_DN	24	NC
25	PCIE_2_TX_DP	26	NC
27	GND	28	NC
29	PCIE_1_RX_DN	30	NC
31	PCIE_1_RX_DP	32	NC
33	GND	34	NC
35	PCIE_1_TX_DN	36	NC
37	PCIE_1_TX_DP	38	GND
39	GND	40	SMB_CLK
41	PCIE_0_RX_DN	42	SMB_DATA
43	PCIE_0_RX_DP	44	NC
45	GND	46	NC
47	PCIE_0_TX_DN	48	NC
49	PCIE_0_TX_DP	50	SLOT_RST
51	GND	52	NC
53	PCIE_CLK_DN	54	M2_WAKE_N
55	PCIE_CLK_DP	56	NC
57	GND	58	NC
59	Module Key	60	Module Key
61	Module Key	62	Module Key
63	Module Key	64	Module Key
65	Module Key	66	Module Key
67	NC	68	NC
69	NC	70	+V3.3
71	GND	72	+V3.3
73	GND	74	+V3.3
75	GND		

COM5/6: External RS-232/422/485 Connectors			
	RS-232	RS-422	RS-485
1	DCD	TXD422-	TXD485-
2	RXD	TXD422+	TXD485+
3	TXD	RXD422+	--
4	DTR	RXD422-	--
5	GND	--	--
6	DSR	--	--
7	RTS	--	--
8	CTS	--	--
9	RI	--	--

LAN1: Dual 2.5GbE RJ-45 Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LAN1_MD0+	5	LAN1_MD2+
2	LAN1_MD0-	6	LAN1_MD2-
3	LAN1_MD1+	7	LAN1_MD3+
4	LAN1_MD1-	8	LAN1_MD3-

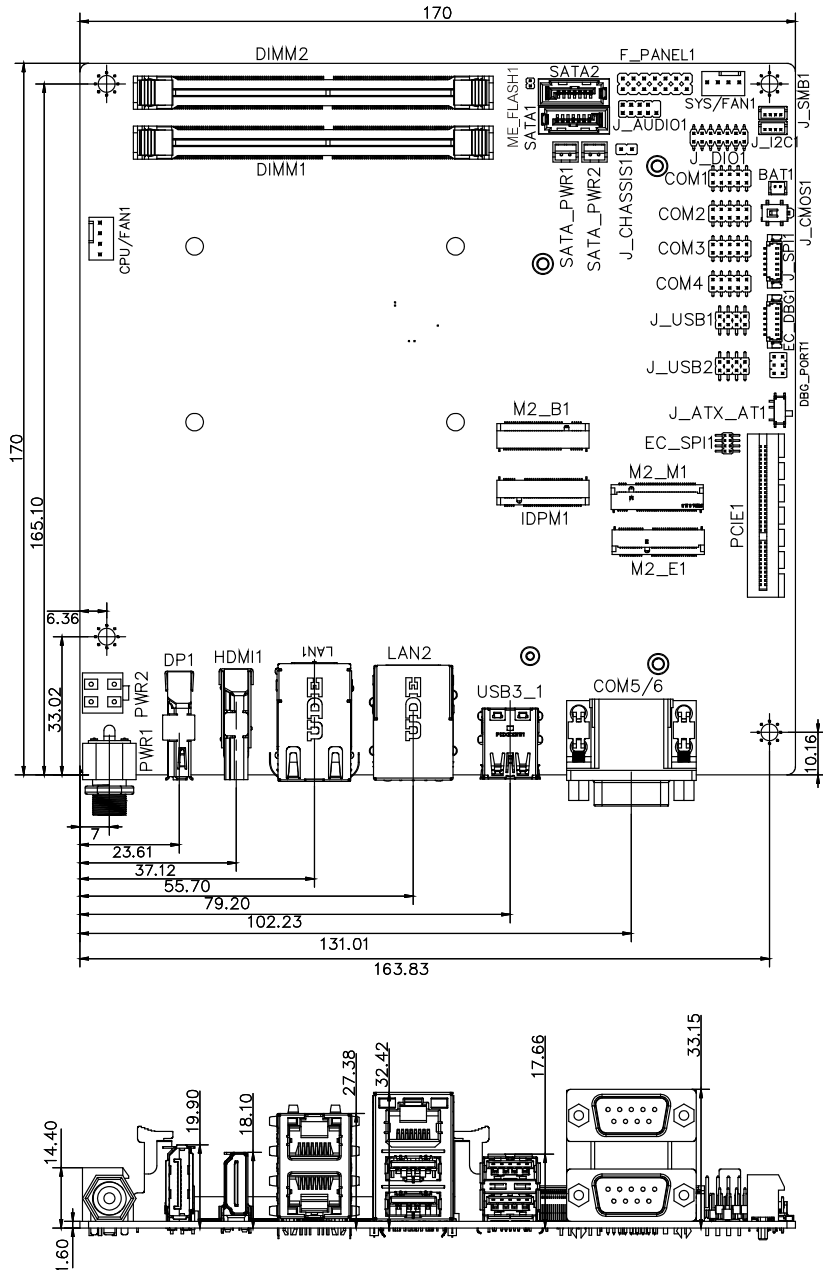
All the drivers and utility for the KINO-ADL-P are available on IEI Resource Download Center. Type KINO-ADL-P and press Enter to find all the relevant software, utilities, and documentation. To install software from the downloaded ISO file, mount the file as a virtual drive to view its content.

IEI Resource Download Center

<https://download.ieiworld.com>



Board Layout: Jumper and Connector Locations



(Unit: mm)

