

# ARK-1221L

## Intel Atom x6413E Quad Core and Celeron N6210 Dual Core SoC with HDMI and DP/Dual LAN/Dual COM DIN-Rail Fanless Box PC

NEW



### Features

- Intel Atom x6413E Quad Core and Celeron N6210 Dual Core SoC
- DIN-Rail system with essential I/O ports on front-side bezel
- 2 x Intel GbE and 2 x RS-232/422/485
- Dual independent displays with one 4K HDMI and one 4K DP
- 1 x M.2 2280 B key with nano SIM holder and 1 x M.2 2230 E key
- 2 x USB 3.2 and 2 x USB 2.0
- 1 x full-size mPCIe
- mSATA and 1 x 2.5" SATA storage device
- 12V ~ 28V wide range power input
- 40 ~ 60 °C and -20 ~ 60 °C extended operating temperature
- Advantech DeviceOn support



WISE-DeviceOn SUSI API



### Specifications

| Model Name        |                            | ARK-1221L-S5A1   | ARK-1221L-S2A1                                   |
|-------------------|----------------------------|--|--|
| Processor System  | CPU                        | Intel Atom x6413E Quad Core SoC  | Intel Celeron N6210 Dual Core SoC                |
|                   | Frequency                  | 1.50 GHz, turbo burst up to 3.00 GHz   | 1.20 GHz, turbo burst up to 2.60 GHz             |
|                   | Core Number                | 4  | 2  |
|                   | BIOS                       | AMI EFI 256 Mbit   |  |
| Memory            | Technology                 | DDR4 3200 MHz  |  |
|                   | Max capacity               | 32 GB  |  |
|                   | Socket                     | 2 x 260-pin SO-DIMM, 2 x 16 GB or 1 x 32 GB memory                                   |  |
| Graphics          | Chipset                    | Intel® UHD Graphics for 10th Gen Intel® Processors                                   |  |
|                   | HDMI                       | Up to 4096 x 2160 @ 60 Hz  |  |
|                   | DP                         | Up to 4096 x 2160 @ 60 Hz  |  |
|                   | Dual Display               | HDMI + DP  |  |
| Ethernet          | LAN1                       | Intel i225-LM, 2.5GbE, support Wake On LAN   |  |
|                   | LAN2                       | Intel i225-LM, 2.5GbE, support Wake On LAN   |  |
| Audio             | Interface                  | Realtek ALC888S, High Definition Audio, Mic-in, Line-out                             |  |
| I/O Interface     | Serial Ports               | 2 x RS-232/422/485 (default RS-232) with auto flow control                           |  |
|                   | USB Ports                  | 2 x USB3.2, 2 x USB2.0, 1 x internal USB2.0 for security dongle                      |  |
|                   | GPIO                       | 8-bit Programmable DIO   |  |
|                   | Optional CANbus            | 1 x CANBus 2.0 (DB9 connector)   |  |
| Expansion         | Mini PCIe                  | 1 x Full-size mPCIe  |  |
|                   | M.2                        | 1 x M2, 2230 E key and 1 x M.2 2280 B key with nano SIM holder #1                    |  |
| Storage           | SSD/HDD                    | 1 x 2.5" SATAIII Drive bay (compatible with 15mm height)                             |  |
|                   | mSATA                      | 1 x Full-size mSATA (*share with mPCIe slot)   |  |
| Other             | WatchDog Timer             | 255 levels timer interval, setup by software   |  |
|                   | TPM                        | TPM 2.0 (project support by AMO-I029)  |  |
| Software Support  | Microsoft Windows          | Windows 10 Enterprise  |  |
|                   | Linux                      | Ubuntu 20.04   |  |
| Power Requirement | Power Type                 | ATX/AT   |  |
|                   | Power Input Voltage        | 12 ~ 28 V <sub>DC</sub>  |  |
|                   | Power Adaptor              | AC to DC, 60W (Optional)   |  |
| Power Consumption | Typical                    | 9.6W (OS idle mode)  | 12.66W (OS idle mode)                            |
|                   | Max.                       | 18.96W (Full loading)  | 21.89W (Full loading)                            |
| Mechanical        | Construction               | Aluminum housing   |  |
|                   | Mounting                   | DIN-rail/Wall Mount  |  |
|                   | Dimensions (W x H x D)     | 60 x 158 x 114 mm (2.34" x 6.22" x 4.49")  |  |
|                   | Weight                     | 1.05 kg (2.31lb)   |  |
| Environment       | Operating Temperature      | With extended temp. peripherals:<br>-40 ~ 60 °C (-40 ~ 140 °F) with 0.7 m/s air flow | -20 to 60 °C (-4 ~ 140 °F) with 0.7 m/s air flow |
|                   | Storage Temperature        | -40 ~ 85 °C (-40 ~ 185°F)  |  |
|                   | Relative Humidity          | 95% @ 40 °C (non-condensing)   |  |
|                   | Vibration during Operation | With SSD: 3 Grms, IEC60068-2-64, random, 5~500 Hz, 1hr/axis (with Wall Mount)        |  |
|                   | Shock during Operation     | With SSD: 30 G, IEC-60068-2-27, half sine, 11 ms duration (with Wall Mount)          |  |
|                   | EMC                        | CE/FCC Class B, CCC, BSMI, UKCA  |  |
|                   | Safety                     | UL, CB, CCC and BSMI, UKCA   |  |

#1 SIM holder and M.2 slot are hardware interfaces for wireless communication integration only. System level RF certification is not available.

M.2 B key supports only PCIe x2 and USB

M.2 B key requires additional mechanical parts to fix for sizes other than 2280.

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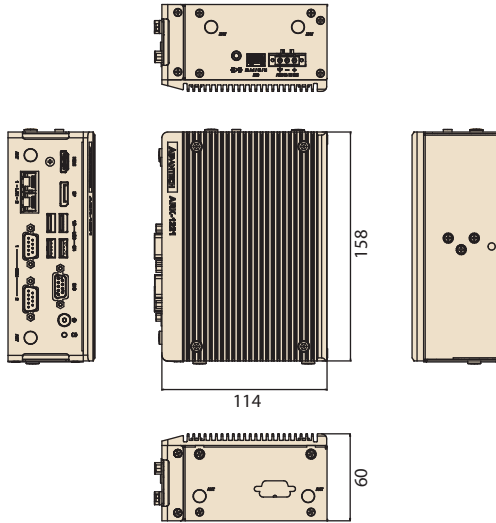
Fanless Embedded Box PCs

All product specifications are subject to change without notice.

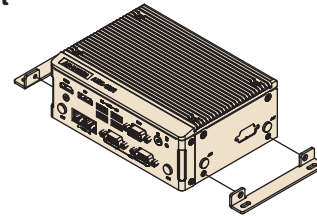
Last updated: 29-Dec-2022

## Dimensions

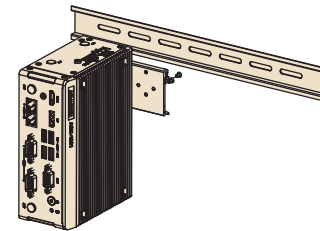
Unit: mm



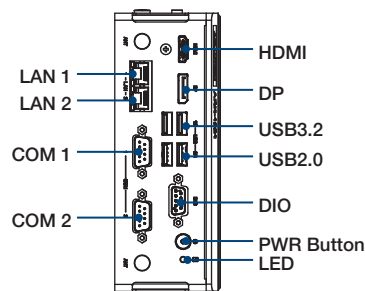
### Wall Mount



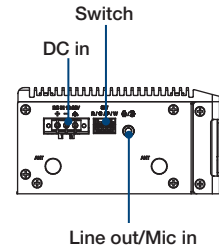
### DIN Rail



## Front Panel External I/O Mechanical Layout/Drawing



## Top Panel External I/O Mechanical Layout/Drawing



## Ordering Information

| Part No.       | CPU                               | RAM         | HDMI | DP | GbE | USB 3.2 | USB 2.0 | RS-232/422/485 | Audio              | Full-size MiniPCIe | SIM | M.2 | 2.5" SATA III HDD Bay | mSATA               | Power Input           | Operating Temp. |
|----------------|-----------------------------------|-------------|------|----|-----|---------|---------|----------------|--------------------|--------------------|-----|-----|-----------------------|---------------------|-----------------------|-----------------|
| ARK-1221L-S5A1 | Intel Atom x6413E 1.50 GHz SoC    | Up to 32 GB | 1    | 1  | 2   | 2       | 2       | 2              | Mic in or Line out | 1                  | 1   | 2   | 1                     | 1 (shared w/ mPCIe) | 12-28 V <sub>oc</sub> | -40 ~ 60 °C     |
| ARK-1221L-S2A1 | Intel Celeron N6210 Dual Core SoC | Up to 32 GB | 1    | 1  | 2   | 2       | 2       | 2              | Mic in or Line out | 1                  | 1   | 2   | 1                     | 1 (shared w/ mPCIe) | 12-28 V <sub>oc</sub> | -20 ~ 60 °C     |

Note: Memory, storage and operating system bundled by request.

## Packing List

| Part Number    | Description                          |
|----------------|--------------------------------------|
| -              | 1 x ARK-1221L Unit                   |
| -              | 1 x User Manual (Simplified Chinese) |
| -              | Wrench for top cover                 |
| 1960015198T011 | 1x DIN-rail bracket                  |
| 1652004519     | 1x 3-pin plug-in block for power in  |
| 1652007880-01  | 1 x 4-pin terminal block for switch  |

## Embedded OS

| Part Number    | Description                            |
|----------------|--|
| 20706WX9ES0168 | Win10 IoT Ent 2019 LTSC 64bit, English |
| 20706U20DS0041 | img Ubuntu20.4 ARK-1221L 64b 2004 ENU  |

## Optional Items

| Part Number      | Description                       |
|------------------|-----------------------------------|
| 96PSA-A60W24T2-3 | AC to DC Adaptor, 24V/2.5A 60W    |
| 1702002600       | Power cable 3-pin 183cm, USA type |
| 1702002605       | Power cable 3-pin 183cm, EU type  |
| 1702031801       | Power cable 3-pin 183cm, UK type  |
| 1700000237       | Power cable 3-pin 183cm, PSE type |
| 1700023855-01    | 1M lockable HDMI cable            |
| 1700023856-01    | 3M lockable HDMI cable            |
| AMK-W004         | ARK-1220F wall mount kit          |
| 1700030518-01    | CANBus Cable                      |

Note:  
Please update BIOS to Advantech part number 1420056720 when using the optional CANBus cable 1700030518-01.