# ARK-1220F

## Intel Atom E3940 QC SoC with isolated GbE and COM ports DIN-Rail Fanless Box PC

WISE-DeviceOn SUSI API

## Features

- Intel Atom E3940 Quad Core SoC turbo burst up to 1.8 GHz
- DIN-Rail system with essential I/O ports on front-side bezel
- 2 x Isolated Intel GbE with protection to 2.5K $V_{DC}$
- 2 x Isolated COM with protection to 2.5K $V_{DC}$
- Isolated 8 bit GPIO (4DI/4DO) with with protection to 2.5K $V_{DC}$
- 4 x USB 3.0 and 1 x USB 2.0
- Dual independent displays with one 4K HDMI and one VGA
- 1 x full-size mPCIe with nano SIM holder and 1 x M.2 2230 for WIFI
- mSATA and 1 x 2.5" SATA storage device
- 12V ~ 28V wide range power input
- -30 ~ 60 °C extended operating temperature
- Advantech DeviceOn support

## Specifications

| Model Name | | ARK-1220F-S6A1 |
|---|---|---|
| Processor System | CPU | Intel Atom E3940 Quad Core SoC |
| | Frequency | 1.6 GHz, turbo burst up to 1.8 GHz |
| | Core Number | 4 |
| | BIOS | AMI EFI 128 Mbit |
| Memory | Technology | DDR3L 1866 Mhz |
| | Max capacity | 8GB |
| | Socket | 2 x 204-pin SO-DIMM, 2 x 4GB or 1 x 8GB memory |
| Graphics | Chipset | Intel HD Graphics 500, CPU integrated |
| | Graphic Engine | Gen9 Low Power; 18 Execution Units Media Codec Supported: H.264, MPEG2, MVC, VC-1, WMV9, H.265 / HEVC, VP8, JPEG / MJPEG<br>3D HW Acceleration: OpenGL 4.4, DirectX* 12, OpenCL* 2.0 |
| | HDMI | Up to 3840 x 2160 @ 30Hz |
| | VGA | Up to 1920 x 1200 @ 60 Hz |
| | Dual Display | HDMI + VGA |
| Ethernet | LAN1 | 10/100/1000 Mbps Intel i210-IT GbE, support Wake On LAN |
| | LAN2 | 10/100/1000 Mbps Intel i210-IT GbE, support Wake On LAN |
| Audio | Interface | Realtek ALC888S, High Defination Audio, Mic-in, Line-out |
| I/O Interface | Seriel Ports | 1 x 2.5K $V_{DC}$ Isolated RS232/RS422/RS485<br>1 x 2.5K $V_{DC}$ Isolated RS422/RS485 (default RS485 for both ports) |
| | USB Ports | 4 x USB3.0, 1 x USB2.0 ,1 internal USB2.0 |
| | GPIO | 8-bit Programmable DIO |
| Expansion | Mini PCIe | 1 x Full-size mPCIe with nano SIM holder #1 |
| | M.2 | 1 x M.2 2230 E key for WIFI module #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 | SLB9665XQ2.0 FW5.62 |
| Software Support | Microsoft Windows | Windows 10 Enterprice |
| | Linux | Support by project |
| Power Requirement | Power Type | ATX/AT |
| | Power Input Voltage | 12 ~ 28 $V_{DC}$ |
| | Power Adaptor | AC to DC, 60W (Optional) |
| Power Consumption | Typical | 7.6W |
| | Max. | 19W |
| 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 | 1.5 kg (3.3lb) |
| Environment | Operating Temperature | With extended temp. peripherals: -30 ~ 60 °C (-22 ~ 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 |
| | Shock during Operation | With SSD: 30 G, IEC-60068-2-27, half sine, 11 ms duration |
| | EMC | Heavy industrial certificates, CE/FCC Class B |
| | Safety | UL, CB, CCC and BSMI |

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

研伟科技 15323776600

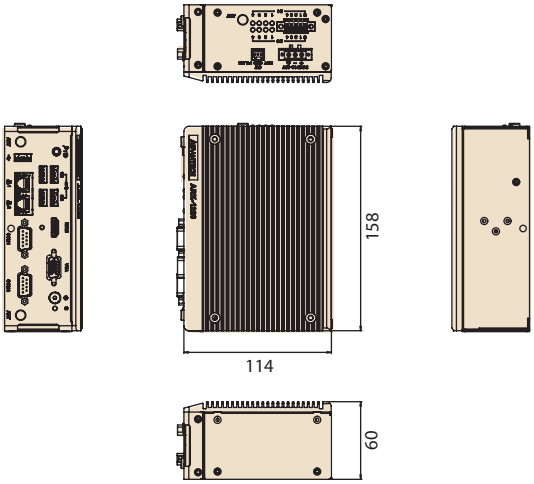


All product specifications are subject to change without notice.

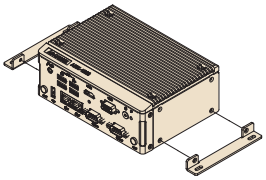
Last updated: 15-Nov-2021

## Dimensions

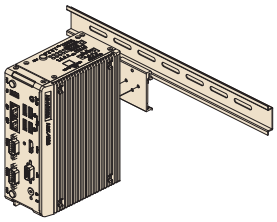
Unit: mm



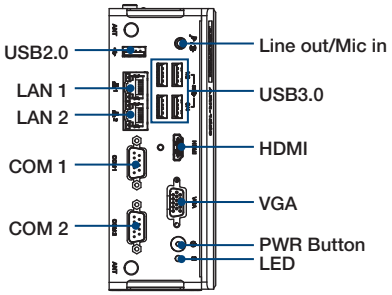

**Wall Mount**



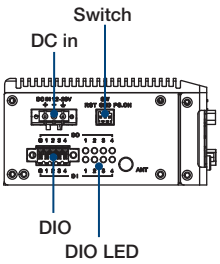
**DIN Rail**



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




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




## Ordering Information

| Part No. | CPU | RAM | HDMI | VGA | GbE | USB 3.0 | 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-1220F-S6A1 | Intel Atom E3940 1.6 GHz SoC | Up to 8GB | 1 | 1 | 2 | 4 | 1 | 2 | Mic-in, Line-out | 1 | 1 | 1 | 1 | 1 (shared w/ mPCIe) | 12~28 $V_{DC}$ | -30 ~ 60 °C |

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

## Packing List

| Part Number | Description |
|---|---|
| - | 1 x ARK-1220L 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 |
| 1652007619-01 | 1 x 10-pin plug-in block for DIO |
| 1652008227-01 | 1 x 3-pin terminal block for switch |

## Embedded OS

| Part Number | Description |
|---|---|
| 20706WX9ES0143 | Win10 IoT Ent 2019 LTSC 64bit, English |

## 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 |