

# ARK-1551

## Intel® 8th Generation Core™ i5/Celeron Slim Fanless Computer



### Features

- 8th Gen Intel® Core™ i5/Celeron
- Dual DDR4 2400MHz SO-DIMM memory up to 32G
- 1 x swappable 2.5" SATA HDD drive bay and 1 x mSATA slot, supports Intel software RAID 0/1
- 4 x USB 3.1 Gen 2, 2 x Intel GbE LAN, 4 x RS-232/422/485, 8 bit GPIO
- 4K2K HDMI and VGA dual independent displays
- 1 x full-size mPCIe with SIM holder and 1 x M.2 2230 E Key
- Support Advantech SQF PCIe2 NVMe storage
- 12V - 24V @ -10%/+20% wide range power input
- Advantech DeviceOn built-in for easy manageability

ubuntu® Windows Embedded WISE-DeviceOn SUSI API

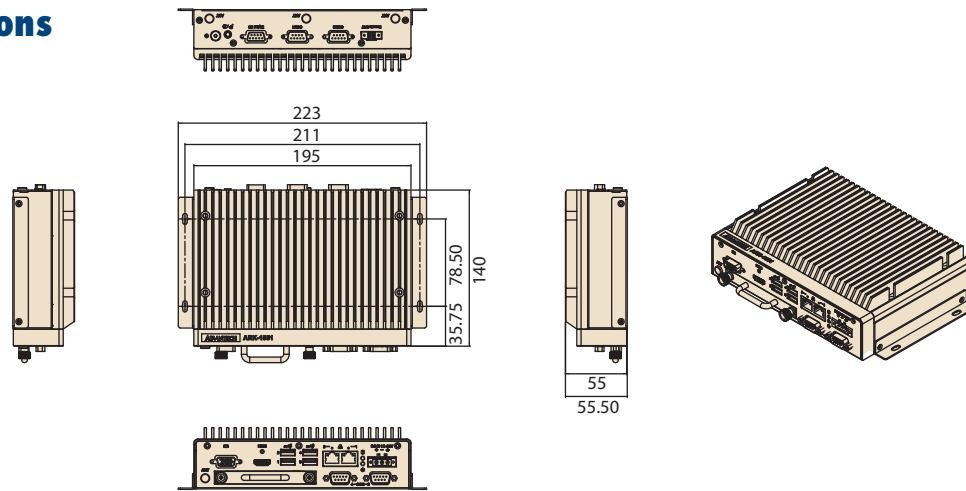
### Specifications

| Model Name        | ARK-1551-S6A1              | ARK-1551-U2A1                                                                                                                                                                                    | ARK-1551-U0A1                      |
|-------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| Processor System  | CPU                        | Intel® Core i5-8365UE                                                                                                                                                                            | Intel® Core™ i3-8145UE             |
|                   | Frequency                  | 1.6 GHz, turbo burst up to 4.1 GHz                                                                                                                                                               | 2.1 GHz, turbo burst up to 3.9 GHz |
|                   | Core Number                | 4                                                                                                                                                                                                | 2                                  |
|                   | L3 Cache                   | 6MB                                                                                                                                                                                              | 4MB                                |
|                   | BIOS                       | AMI UEFI 256Mbit                                                                                                                                                                                 | AMI UEFI 256Mbit                   |
| Memory            | Technology                 | DDR4 2400MHz                                                                                                                                                                                     |                                    |
|                   | Max capacity               | 32GB, each memory slot support up to 16GB                                                                                                                                                        |                                    |
|                   | Socket                     | 2 x 260-pin SO-DIMM                                                                                                                                                                              |                                    |
| Graphics          | Chipset                    | Intel UHD Graphics 620                                                                                                                                                                           | Intel HD Graphics 610              |
|                   | Graphic Engine             | Gen9 Low Power; 24 (UHD 620) /12(UHD 610) Execution Units<br>Media Codec Supported: H.264, MPEG2, MVC, VC-1, WMV9, H.265 / HEVC<br>3D HW Acceleration: OpenGL 4.5, DirectX* 11.3/12, OpenCL* 2.1 |                                    |
|                   | Display Interface          | HDMI: 1 x HDMI 1.4b, 4096 x 2160@30Hz<br>VGA: 1 x VGA, 1920 x 1080@ 60Hz<br>DP: 1 x DP 1.2, 4096 x 2304 @ 60Hz (*co-lay with VGA, by project support with MOQ = 30)                              |                                    |
|                   | Dual Display               | HDMI + VGA (Default) ; HDMI + DP (By project support, MOQ 30)                                                                                                                                    |                                    |
| Ethernet          | LAN1                       | 10/100/1000 Mbps Intel i210GbE, support Wake On LAN                                                                                                                                              |                                    |
|                   | LAN2                       | 10/100/1000 Mbps Intel i219GbE, support Wake On LAN                                                                                                                                              |                                    |
| Audio             | Interface                  | Realtek ALC888S, High Definition Audio, Mic-in or Line-out (ARK-1551-S6A2 without Audio)                                                                                                         |                                    |
| I/O Interface     | Serial Ports               | 4 x RS-232/422/485 support from 50 bps to 921.6 kbps, with auto flow control. COM3 with 5V/12V power, by jumper setting                                                                          |                                    |
|                   | USB Ports                  | 4 x USB 3.1 Gen2, Type A connector                                                                                                                                                               |                                    |
|                   | GPIO                       | 8-bit programmable DIO                                                                                                                                                                           |                                    |
| Expansion         | Mini PCIe                  | 1 x full-size mPCIe with 1x nano SIM holder (PCIe x2, USB 2.0x1, UIM, SATA x1) #1                                                                                                                |                                    |
|                   | M.2                        | 1 x M.2 2230 E key for WiFi module (PCIe x2, USB 2.0x1) #1                                                                                                                                       |                                    |
| Storage           | SSD/HDD                    | 1 x Swappable 2.5" SATAIII drive bay (compatible with 7mm height)                                                                                                                                |                                    |
|                   | mSATA                      | 1 x full-size mSATA (share with mPCIe slot)                                                                                                                                                      |                                    |
|                   | PCIe                       | Support 2x Advantech SQF PCIe2 NVMe storage (1 x M.2 2230 E Key + 1 x mPCIe)                                                                                                                     |                                    |
| Other             | WatchDog Timer             | 255 levels timer interval, setup by software                                                                                                                                                     |                                    |
|                   | TPM                        | SLB9665XQ2.0                                                                                                                                                                                     | (Support by project)               |
|                   | Case Open                  | Support                                                                                                                                                                                          | (Support by project)               |
| Software Support  | Microsoft Windows          | Windows 10 Enterprise                                                                                                                                                                            |                                    |
|                   | Linux                      | Ubuntu Desktop 20.04 LTS 64bit                                                                                                                                                                   |                                    |
| Power Requirement | Power Type                 | ATX/AT                                                                                                                                                                                           |                                    |
|                   | Power Input Voltage        | 12 ~ 24 V <sub>DC</sub> @ -10%/+20%                                                                                                                                                              |                                    |
|                   | Power Adaptor              | i3-8145UE, Celeron 4305UE: AC to DC, 90W (Optional)<br>i5-8365UE: AC to DC, 90W for 0 ~ 40 °C (Optional)<br>AC to DC, 120W for -20 ~ 55 °C (Optional)                                            |                                    |
| Power Consumption | Typical                    | 12.81 Watt                                                                                                                                                                                       | 13.31 Watt                         |
|                   | Max.                       | 42.14Watt                                                                                                                                                                                        | 46.1 Watt                          |
| Mechanical        | Construction               | Aluminum housing                                                                                                                                                                                 |                                    |
|                   | Mounting                   | Wall Mounting (Default); VESA & DIN-Rail Mounting (Optional)                                                                                                                                     |                                    |
|                   | Dimensions (W x H x D)     | 195 x 55 x 140 mm (7.68" x 2.16" x 5.52")                                                                                                                                                        |                                    |
|                   | Weight                     | Net Weight: 1.9KG; Gross Weight: 2.6KG                                                                                                                                                           |                                    |
| Environment       | Operating Temperature      | With extended temp. peripherals: -20 ~ 55 °C (-4 ~ 131 °F) with 0.7 m/s air flow<br>With 2.5 inch hard disk: 0 ~ 40 °C (32 ~ 104 °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                        | CE/FCC Class B, CCC, BSMI                                                                                                                                                                        |                                    |
|                   | Safety                     | UL, CB, CCC and BSMI                                                                                                                                                                             |                                    |

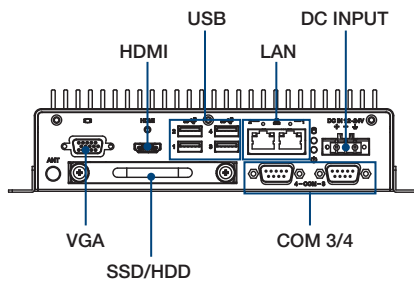
#1 SIM holder and M.2 slot are hardware interfaces for wireless communication integration only. System level RF certification is not available.

## Dimensions

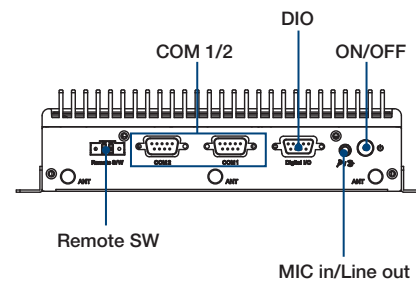
Unit: mm



## Front Panel External I/O View



## Rear Panel External I/O View



## Ordering Information

| Part No.      | CPU                           | RAM          | Display             | GbE | USB 3.1 Gen 2 | RS-232/422/485 | Audio              | Full-size MiniPCIe | SIM | M.2 | 2.5" SATA III HDD Bay   | mSATA                 | Power Input           | Operating Temp. |
|---------------|-------------------------------|--------------|---------------------|-----|---------------|----------------|--------------------|--------------------|-----|-----|-------------------------|-----------------------|-----------------------|-----------------|
| ARK-1551-S6A1 | Intel® Core i5-8365UE Q/C SoC | Up to 32GB** | HDMI x 1<br>VGA x 1 | 2   | 4             | 4              | Mic-in or Line-out | 1                  | 1   | 1   | 1 x swappable HDD Bay** | 1 (shared w/ mPCIe)** | 12-24 V <sub>DC</sub> | -20 ~ 55 °C*    |
| ARK-1551-U0A1 | Celeron 4305UE D/C SoC        | Up to 32GB** | HDMI x 1<br>VGA x 1 | 2   | 4             | 4              | Min-in or Line-out | 1                  | 1   | 1   | 1 x swappable HDD Bay** | 1 (shared w/ mPCIe)** | 12-24 V <sub>DC</sub> | -20 ~ 55 °C*    |
| ARK-1551-U2A1 | CPU Intel® Core™ i3-8145UE    | Up to 32GB** | HDMI x 1<br>VGA x 1 | 2   | 4             | 4              | Mic-in or Line-out | 1                  | 1   | 1   | 1 x swappable HDD Bay** | 1 (shared w/ mPCIe)** | 12-24 V <sub>DC</sub> | -20 ~ 55 °C*    |
| ARK-1551-S6A2 | Intel® Core i5-8365UE Q/C SoC | Up to 32GB** | HDMI x 1<br>VGA x 1 | 2   | 4             | 4              | N/A                | 1                  | 1   | 1   | 1 x swappable HDD Bay** | 1 (shared w/ mPCIe)** | 12-24 V <sub>DC</sub> | -20 ~ 55 °C*    |

\*CPU condition: Turbo boost on with 0.7 air flow

\*\* Memory, storage and operating system bundled by request.

## Packing List

| Part Number | Description                                      |
|-------------|--------------------------------------------------|
| -           | 1 x ARK-1551 unit                                |
| -           | 1 x user manual (Simplified Chinese)             |
| -           | 1 x wrench for top cover                         |
| -           | 1 x 3-pin terminal block                         |
| -           | 1 x 2-pin terminal block for remote power switch |
| -           | WISE-PaaS/DeviceOn Package                       |
| -           | 2 x LAN Clip                                     |
| -           | 1 x wall mount kit                               |

## Embedded OS

| Part Number    | Description                                                                                |
|----------------|--------------------------------------------------------------------------------------------|
| 20706WX9VS0127 | Win10 IoT Ent 2019 Value LTSC 64bit, English for ARK-1551-S6A1/ARK-1551-S6A2/ARK-1551-U2A1 |
| 20706WX9EC0037 | Win10 IoT Ent 2019 Entry LTSC 64bit, English for ARK-1551-U0A1                             |
| 20706U20DS0008 | Ubuntu Desktop 20.04 LTS 64bit Image with license for ARK-1551, 7GB                        |

## Optional Items

| Part Number       | Description                                               |
|-------------------|-----------------------------------------------------------|
| XARK-ADP-90MDH    | AC to DC adaptor, 19V/90W                                 |
| 96PSA-A120W24T2-3 | AC to DC adaptor, 24V/120W                                |
| 1700001524        | Power Cable 3-pin 180cm, USA type (for XARK-ADP-90MDH)    |
| 170203183C        | Power Cable 3-pin 180cm, Europe type (for XARK-ADP-90MDH) |
| 170203180A        | Power Cable 3-pin 180cm, UK type (for XARK-ADP-90MDH)     |
| 1700008921        | Power Cable 3-pin PSE Mark 183cm (for XARK-ADP-90MDH)     |
| 1702002600        | Power cable 3-pin 183cm, USA type (for 96PSA-A120W24T2-3) |
| 1702002605        | Power cable 3-pin 183cm, EU type (for 96PSA-A120W24T2-3)  |
| 1702031801        | Power cable 3-pin 183cm, UK type (for 96PSA-A120W24T2-3)  |
| 1700000237        | Power cable 3-pin 183cm, PSE type (for 96PSA-A120W24T2-3) |
| 1700023855-01     | 1M lockable HDMI cable                                    |
| 1700023856-01     | 3M lockable HDMI cable                                    |
| AMK-V019E         | VESA mounting kit                                         |
| AMK-R005E         | DIN-rail mounting kit                                     |
| EWM-W192K2        | WiFi/BT kit package with Intel AC9260 802.11 ac/a/b/g/n   |