

# ARK-3520P

## 6th Gen. Intel® Core™ i3/ i5/ i7 with Expansion slots and wide range power Fanless Box PC



### Features

- Intel® Core™ i3/i5/i7 processor (BGA)
- Triple independent display: VGA + HDMI + Option Display
- DDR4 SO-DIMM memory up to 32 GB
- Flexible Expansion via PCI/PCIe x4
- 9-36V wide range Power input
- Versatile I/Os including 6 x high speed USB 3.0 and 8 x COM ports
- 2 Removable 2.5" HDD drive bay
- Advantech iDoor module compatible



SUSI API WISE-DeviceOn



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### Specifications

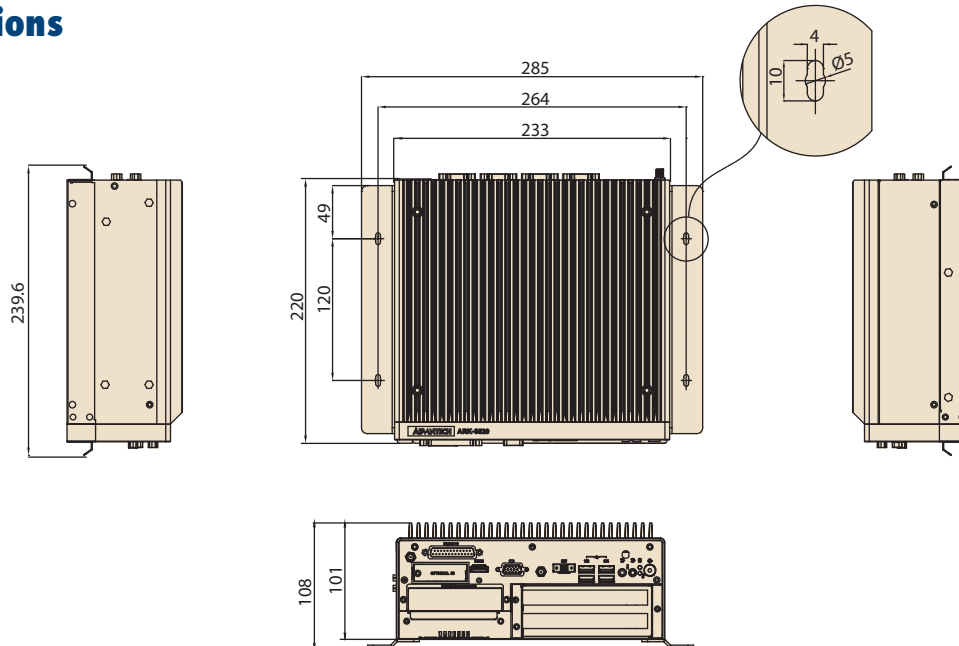
| Processor System                    | CPU                         | Intel Core i7-6820EQ                                                                                                                                                                            | Intel Core i5-6440EQ | Intel Core i3-6100E (support by T-P/N) |
|-------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------------------------|
|                                     | Frequency                   | 2.8 GHz (Quad Core)                                                                                                                                                                             | 2.7 GHz (Quad Core)  | 2.7 GHz (Dual Core)                    |
|                                     | L3 Cache                    | 8 MB                                                                                                                                                                                            | 6 MB                 | 3 MB                                   |
|                                     | Watts                       | 45W                                                                                                                                                                                             | 45W                  | 35W                                    |
|                                     | System Chipset              | Intel QM170                                                                                                                                                                                     |                      |                                        |
| Memory                              | BIOS                        | AMI EFI 128Mbit                                                                                                                                                                                 |                      |                                        |
|                                     | Technology                  | DDR4 2133 MHz                                                                                                                                                                                   |                      |                                        |
|                                     | Max. Capacity               | 32 GB                                                                                                                                                                                           |                      |                                        |
|                                     | Socket                      | 2 x 260-pin SO-DIMM                                                                                                                                                                             |                      |                                        |
| Graphics                            | Chipset                     | Intel QM170 Integrated GFX Gen 9                                                                                                                                                                |                      |                                        |
|                                     | Graphic Engine              | Direct x 12, OpenGL 4.4<br>HW Encode: H.265/HEVC, H.264/MPEG-4 AVC, MPEG-2, JPEG/MJPEG and VP8.<br>HW Decode: H.265/HEVC, H.264/MPEG-4 AVC, MPEG-2, VC-1/WMV9, JPEG/MJPEG, VP8 and VP9          |                      |                                        |
|                                     | VGA                         | 1920x1200@ 60Hz                                                                                                                                                                                 |                      |                                        |
|                                     | HDMI                        | 1 HDMI port, HDMI 1.4b for HD video playback, 3840x2160@30Hz                                                                                                                                    |                      |                                        |
|                                     | Optional 3rd Display module | DP                                                                                                                                                                                              |                      |                                        |
| Ethernet                            | Triple Display              | VGA+HDMI + 3rd display module                                                                                                                                                                   |                      |                                        |
|                                     | LAN1                        | 10/100/1000 Mbps Intel I219-LM GbE, support Wake On Lan                                                                                                                                         |                      |                                        |
| Audio                               | LAN2                        | 10/100/1000 Mbps Intel I210 GbE, support Wake On Lan                                                                                                                                            |                      |                                        |
|                                     | Interface                   | Realtek ALC888S, High Definition Audio, Line-out, Mic-in                                                                                                                                        |                      |                                        |
| Others                              | Watch dog Timer             | 255-level timer interval, setup by software                                                                                                                                                     |                      |                                        |
|                                     | TPM                         | TPM 2.0 (Optional by project support)                                                                                                                                                           |                      |                                        |
| I/O Interface                       | Serial Port                 | 4 x RS-232 ports, 4 x RS-232/422/485 port with auto flow control; COM 1,2 support 5V/12V power supply (by jumper)                                                                               |                      |                                        |
|                                     | USB                         | 6 x USB 3.0 ports; 2 x USB 2.0 ports                                                                                                                                                            |                      |                                        |
|                                     | DIO                         | 16 bit DIO                                                                                                                                                                                      |                      |                                        |
|                                     | P/S2                        | 1 Port support by cable and bracket (Optional)                                                                                                                                                  |                      |                                        |
|                                     | Parallel Port               | D-sub 25pin connector (support by project)                                                                                                                                                      |                      |                                        |
| Expansions                          | Mini PCIe                   | 2 x Full-size Mini PCIe (1 x support mSATA, 1 x support SIM holder #1)                                                                                                                          |                      |                                        |
|                                     | M.2                         | 1 x E key for WiFi module #1                                                                                                                                                                    |                      |                                        |
|                                     | i Door                      | 1 set (Optional)                                                                                                                                                                                |                      |                                        |
|                                     | Add-on Card Slot            | 2 Slots PCI (Default) Maximum card size: 110 mm (H) x 180 mm(L)<br>2 Slots PCIe x 4 (Optional) Maximum card size: 110 mm (H) x 180 mm(L)<br>Suggest maximum power consumption 10W for each slot |                      |                                        |
| Storage                             | HDD                         | Two removable 2.5" SATA HDD Bays with maximum device height 15mm, SATA III, Gen 3, Support SATA RAID 0, 1                                                                                       |                      |                                        |
|                                     | mSATA                       | 1x mSATA socket (Share 1 Mini PCIe)                                                                                                                                                             |                      |                                        |
| Software Support                    | Microsoft Windows           | Windows 10, Windows 8.1, Windows 7                                                                                                                                                              |                      |                                        |
|                                     | Linux                       | By Project Support                                                                                                                                                                              |                      |                                        |
| Power Requirements                  | Power Type                  | AT/ATX                                                                                                                                                                                          |                      |                                        |
|                                     | Power Input Voltage         | 9 ~ 36 V <sub>DC</sub>                                                                                                                                                                          |                      |                                        |
|                                     | Power Adapter               | AC to DC, 150W (Optional)                                                                                                                                                                       |                      |                                        |
| Power Consumption (CPU/Memory Only) | Typical                     | 11.4W                                                                                                                                                                                           |                      |                                        |
|                                     | Max.                        | 68.4W                                                                                                                                                                                           | 46.5W                | 42.75W                                 |
| Mechanical                          | Construction                | Aluminum housing                                                                                                                                                                                |                      |                                        |
|                                     | Mounting                    | Desk/wall-mounting                                                                                                                                                                              |                      |                                        |
|                                     | Dimensions (W x H x D)      | 220 x 101 x 233 mm (8.66" x 3.98" x 9.17")                                                                                                                                                      |                      |                                        |
|                                     | Weight                      | 4.4 kg (9.7 lb)                                                                                                                                                                                 |                      |                                        |
| Environment                         | Operating Temperature       | with extended temp peripherals: -20 ~ 60° C with 0.7m/s air flow<br>with HDD: 0 ~ 40° C with 0.7m/s air flow                                                                                    |                      |                                        |
|                                     | Storage Temperature         | -40 ~ 85° C                                                                                                                                                                                     |                      |                                        |
|                                     | Relative Humidity           | 95% @ 40° C (non-condensing)                                                                                                                                                                    |                      |                                        |
|                                     | Vibration During Operation  | With SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.                                                                                                                                |                      |                                        |
|                                     | Shock During Operation      | With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration                                                                                                                                       |                      |                                        |
|                                     | EMC                         | CE/FCC Class A, CCC, BSMI                                                                                                                                                                       |                      |                                        |
|                                     | Safety                      | LVD(62368), CCC, BSMI                                                                                                                                                                           |                      |                                        |

\* By Project Support

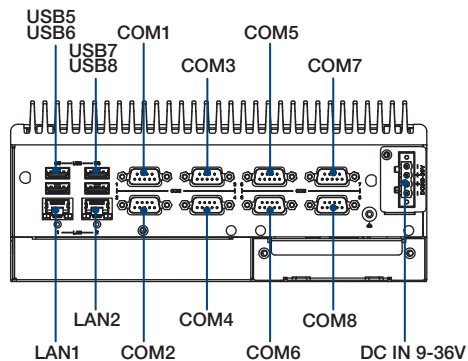
#1 SIM holder and M.2 slot are hardware interfaces for wireless communication integration only. System level RF certification is not available.

## Dimensions

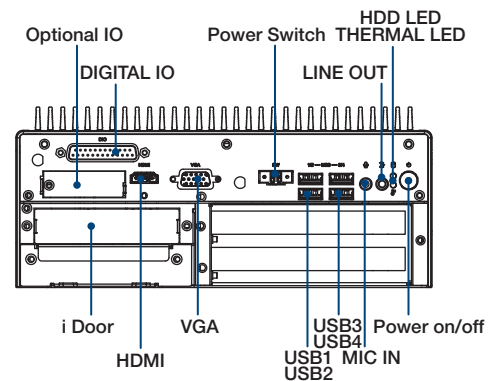
Unit: mm



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



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



## Ordering Information

| Part No.        | CPU       | DDR4      | VGA | HDMI | Option 3rd display module | RS-232/422/485 | RS-232 | USB 3.0 | USB 2.0 | MiniPCIe | SIM | DC input | Expansion |
|-----------------|-----------|-----------|-----|------|---------------------------|----------------|--------|---------|---------|----------|-----|----------|-----------|
| ARK-3520P-U8A1E | i7-6820EQ | up to 32G | 1   | 1    | 1                         | 4              | 4      | 6       | 2       | 2        | 1   | 9 ~ 36 V | 2 x PCI   |
| ARK-3520P-U7A1E | i5-6440EQ | up to 32G | 1   | 1    | 1                         | 4              | 4      | 6       | 2       | 2        | 1   | 9 ~ 36 V | 2 x PCI   |

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

\* ARK-3520P i3-6100E support by T-PN with MOQ 30pcs

## Packing List

| Part Number    | Description                       |
|----------------|-----------------------------------|
| -              | ARK-3520 Unit                     |
| -              | User Manual (Simplified Chinese)  |
| -              | China RoHS                        |
| 1652003234     | 4 pin DC in terminal block        |
| -              | 2 pin power switch terminal block |
| 1960075470N031 | 2 x mounting bracket              |

## Embedded OS

| Part Number    | Description                            |
|----------------|----------------------------------------|
| 2070014628     | WES7E 64bit EN/JP/TC/SC                |
| 2070014627     | WE8.1 64bit IndustryPro EN/JP/TC/SC    |
| 2070014899     | Win10 Ent X64 (High End) for i7-6820EQ |
| 2070014898     | Win10 Ent X64 (Value) for i5-6440EQ    |
| 20706WX9HS0112 | Win10 19HL for i7-6820EQ               |
| 20706WX9VS0116 | Win10 19VL for i5-6440EQ               |

## ARK-3520 Default SKU Option Items

### Optional Item for Default SKU

| Part Number       | Description                                                     |
|-------------------|-----------------------------------------------------------------|
| 96PSA-A150W19P4-3 | AC-to-DC Adapter, DC19V 150W, 0 ~ 40° C for Home and Office Use |
| 96PSA-A230W24P4-3 | AC to DC Adapter, DC 24V 230W, -20 ~ 60° C                      |
| 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                              |

### Optional MOS modules for iDoor Expansion

| Part Number     | Description                                   |
|-----------------|-----------------------------------------------|
| MOS-2230-Z1201E | CANBus module, 2-Ch, USB I/F                  |
| MOS-2220-X1101E | Parallel LPT module, 1-Ch, USB I/F.           |
| MOS-2220-Z1101E | High Speed Serial COM module, 1-ch, USB I/F   |
| MOS-2120-Z1101E | Giga LAN Ethernet module, 1-Ch, PCIe I/F.     |
| MOS-1120Y-0201E | Isolated RS-232, 2-Ch, DB9, PCIe I/F          |
| MOS-1121Y-0201E | Isolated RS-422/485, 2-Ch, DB9, PCIe I/F      |
| MOS-1120Y-1401E | Non-Isolated RS-232, DB37, 4-Ch, PCIe I/F     |
| MOS-1121Y-1401E | Non-Isolated RS-422/485, DB37, 4-Ch, PCIe I/F |
| MOS-1130Y-0201E | Isolated CANBus, 2-Ch, DB9, PCIe I/F          |
| MOS-1110Y-0101E | Isolated 16 DI/8 DO, 1-Ch, DB37, PCIe I/F     |
| MOS-2110Z-1201E | USB module, 2-Ch, PCIe I/F                    |
| MOS-2120-Z1201  | Dual Intel I210 GbE LAN iDoor, 2-Ch, PCIe I/F |

\*Please noted ARK-3520 can support only 1 iDoor.

### Optional Display Module

| Part Number | Description |
|-------------|-------------|
| AMO-D002E   | DP module   |

### Optional Riser Expansion

| Part Number | Description  |
|-------------|--------------|
| AMO-R022E   | 2 x PCIe x 4 |