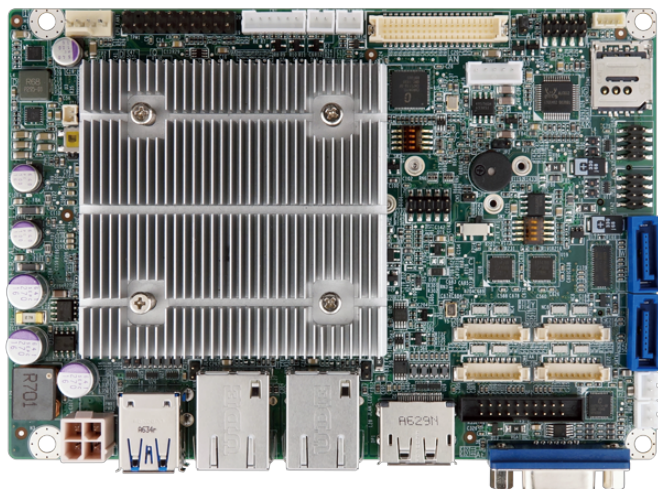


# WAFER-AL

3.5" SBC supports Intel® 14nm Generation Atom™ or Celeron® on-board SoC with DP++/VGA/LVDS/iDP support



## Features

- » 3.5" SBC with Intel® Apollo Lake platform on-board SoC
- » One SO-DIMM DDR3L 1867/1600MHz support up to system maximum 8GB
- » Triple displays with 1 x DP++, 1 x VGA / 1 x iDP, 1 x LVDS selection
- » High speed I/O interface for USB 3.0, SATA 6Gb/s
- » PCIe Mini with mSATA support

## Specifications

| System                   |                                                                                                   |
|--------------------------|---------------------------------------------------------------------------------------------------|
| CPU                      | Intel® Pentium® N4200 on-board SoC (up to 2.5GHz, quad-core, 2M Cache, TDP=6W)                    |
|                          | Intel® Celeron® N3350 on-board SoC (up to 2.4GHz, dual-core, 2M Cache, TDP=6W)                    |
| Memory                   | One 204-pin 1866/1600MHz Single-channel DDR3L DIMMs                                               |
| Memory Max.              | 8GB                                                                                               |
| Physical Characteristics |                                                                                                   |
| Dimensions (LxWxH) (mm)  | 146 X 102                                                                                         |
| Net Weight               | 250                                                                                               |
| Storage                  |                                                                                                   |
| Storage                  | 2 x SATA :6Gb/s with 5V SATA power connector (no RAID)                                            |
| I/O Interface            |                                                                                                   |
| Display Output           | 1 x VGA :up to 1920x1200@60Hz                                                                     |
|                          | 1 x LVDS :18/24-bit dual-channel (up to 1920x1200@60Hz)                                           |
|                          | 1 x iDP :colay with VGA, support by request                                                       |
| Ethernet                 | 2 x Description: PCIe GbE LAN Realtek RTL8111 Controller                                          |
| Audio                    | Description: Realtek ALC662 HD codec                                                              |
|                          | 1 x Front Audio :2x5 pin                                                                          |
| I/O Interface            | 2 x Internal RS-232 :1x9 pin, P=1.25                                                              |
|                          | 2 x Internal RS-232/422/485 :1x9 pin, P=1.25                                                      |
|                          | 4 x Internal USB 2.0 :2x4 pin, P=2.0                                                              |
| Expansion                | 2 x PCIe mini Card Slot :1 x supports mSATA, colay with SATA port 2, 1 x supports SIM card holder |
| Other Features           |                                                                                                   |
| TPM                      | 2x10 pin                                                                                          |
| Power                    |                                                                                                   |
| Power Consumption        | 12V@2.57A (Intel® Pentium® N4200 up to 2.5GHz with 8GB DDR3L memory)                              |
| Power Supply             | 12V DC input power                                                                                |
|                          | Support AT/ATX mode                                                                               |
| Environment              |                                                                                                   |
| Operating Temperature    | -20°C ~ 70°C                                                                                      |
| Storage Temperature      | -20°C ~ 70°C                                                                                      |
| Humidity                 | 5% ~ 95%, non-condensing                                                                          |
| Certifications           |                                                                                                   |
| Safety & EMC             | CE/FCC compliant                                                                                  |

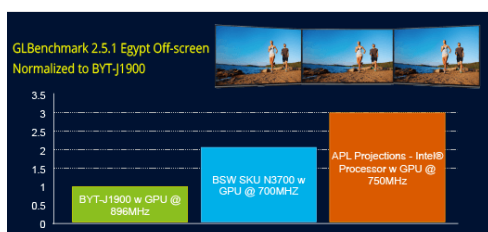
## Ordering Information

|                 |                                                                                                                                                                                        |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WAFER-AL-N2-R12 | 3.5" SBC supports Intel® 14nm quad-core Pentium® N4200 2.5GHz on-board SoC with tripple display, Dual PCIe GbE, USB 3.0, PCIe Mini with mSATA support, SATA 6Gb/s, COM, Audio and RoHS |
| WAFER-AL-N1-R12 | 3.5" SBC supports Intel® 14nm dual-core Celeron® N3350 2.4GHz on-board SoC with tripple display, Dual PCIe GbE, USB 3.0, PCIe Mini with mSATA support, SATA 6Gb/s, COM, Audio and RoHS |

## Packing List

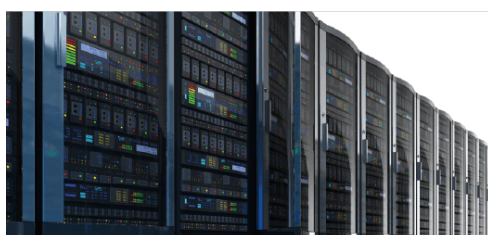
|                                    |                 |
|------------------------------------|-----------------|
| 1 x WAFER-AL single board computer | 1 x Power cable |
| 1 x RS-232/422/485 cable           | 1 x QIG         |
| 1 x SATA with power cable kit      |                 |

## Intel® 14nm GEN Atom™ Apollo Lake



### Improved 3D & Full-HD Media Performance

- » Fast HD video acceleration over previous generation
- » Up to 15 simultaneous 1080p30 decode streams
- » Fast graphics and media performance @ ISO power over previous generation



### Reliable and Efficient Computing

- » » Highly reliability with ECC
- » » Wide termperatue SKU with Tj: -40°C ~ 110°C and extreme 15-years lifetime for Industrial applications

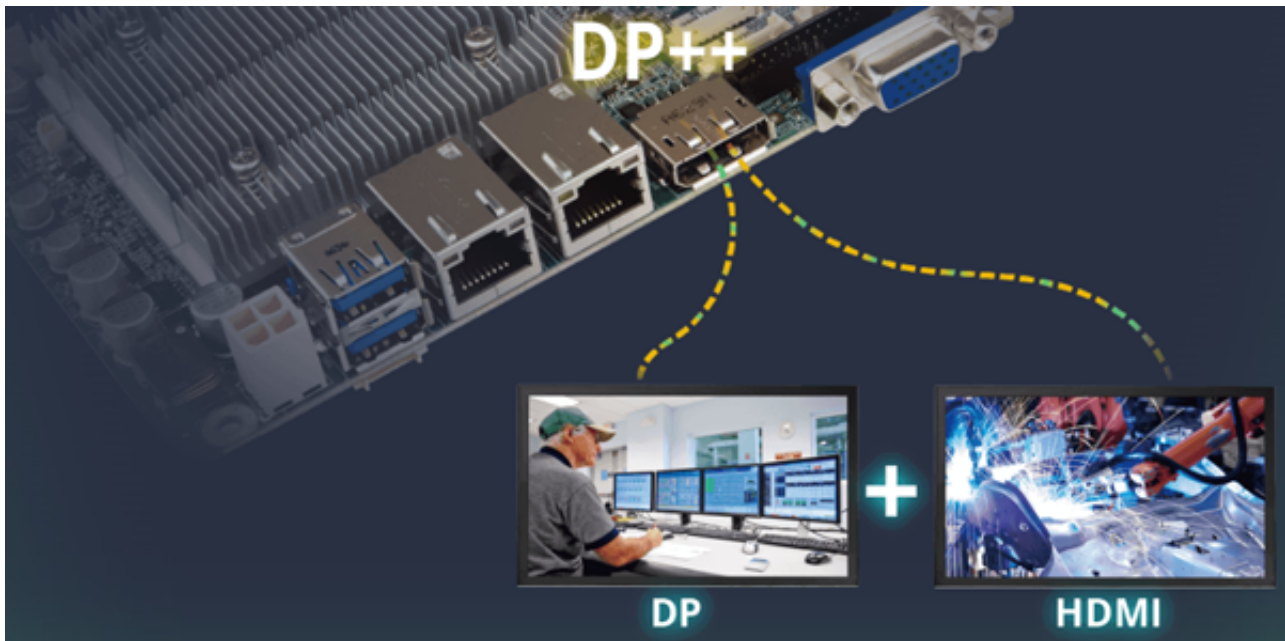


### Enhanced Security Executions

- » Integral Intel® Security Engine
- » Fast cryptographic execution with Intel® AES New Instructions (Intel® AES-NI)
- » Secure/measured booting features

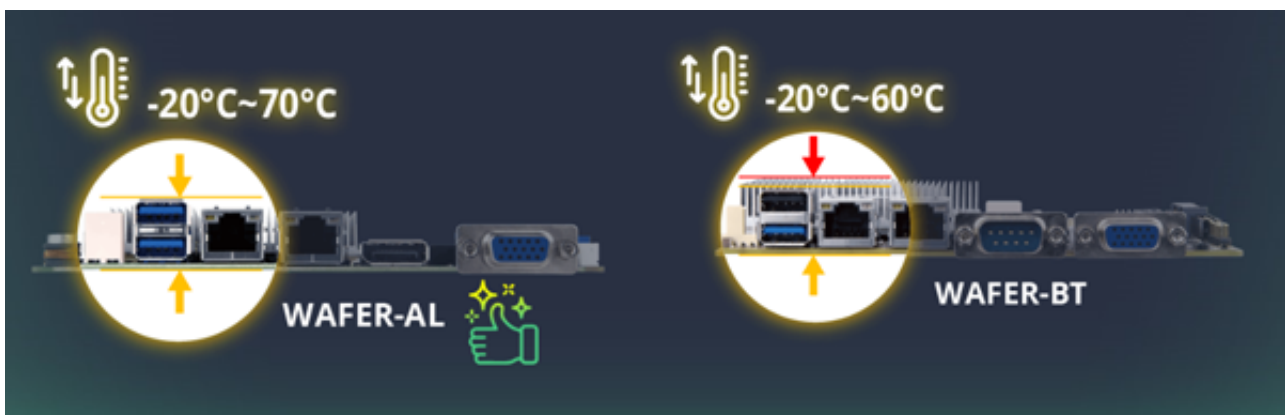
## DP++ Dual-mode Output

IEI provides products support Dual-mode DisplayPort output which can auto detect the plugged-in cable type and provide multiple option of display output in single port.

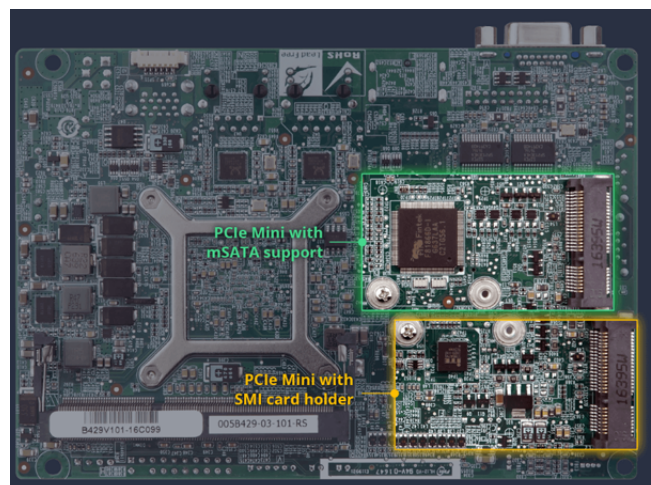
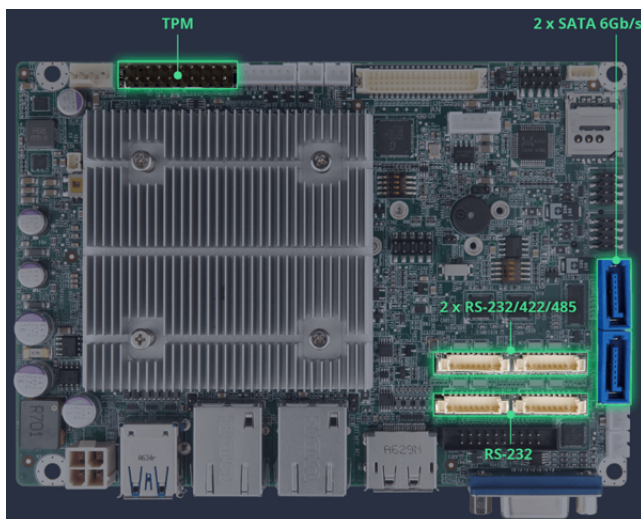


## Low Profile, Flexible Deployment

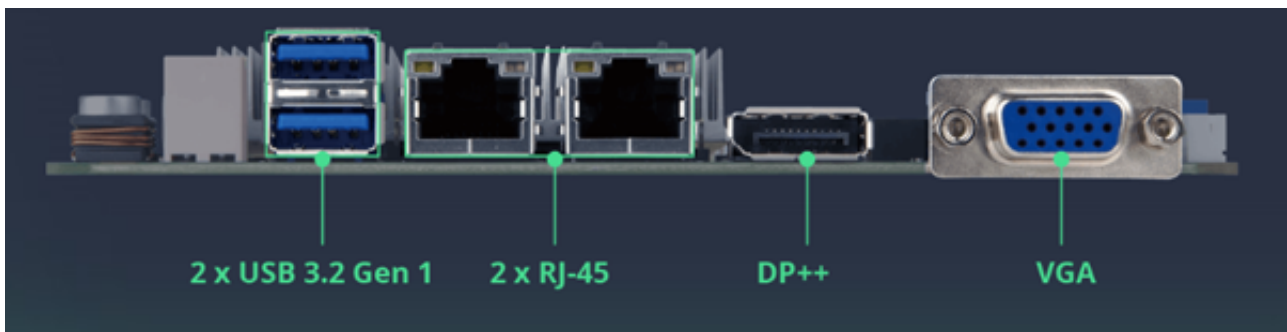
Thin type products with single layer rear I/O and low profile thermal solution design are suitable for open frame panel PC solutions and also the best choice for thin compact size embedded box solutions.



## Product Overview







## Application Field

The WAFER-AL, a 3.5" SBC, has a PCIe Mini slot and a SIM card holder to support Wi-Fi or LTE modules, allowing the system to transfer real-time data to the management center over OCPP protocol. Therefore, EV charging stations and central management systems from different vendors can communicate with each other securely. USB ports and RS-232 ports are also available for NFC payment system connection. The on-board Intel® Apollo Lake processor consumes only 6 W, which is ideal for IoT application while enabling fanless operation and eliminating CPU fans. Other application field including factory automation, smart home and medical equipment manufacturing.

