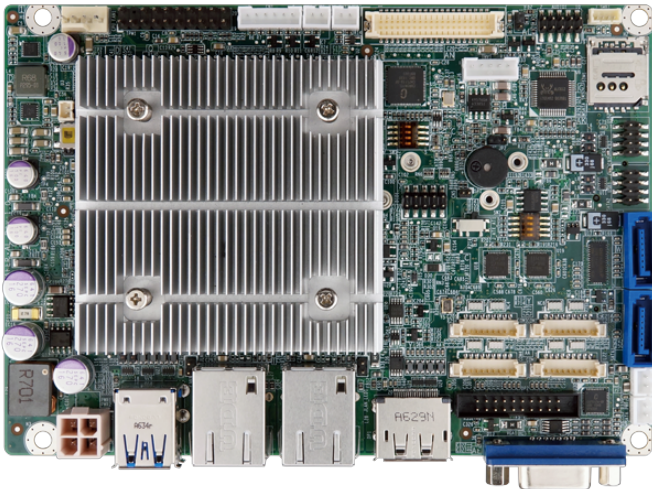


# WAFER-AL

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

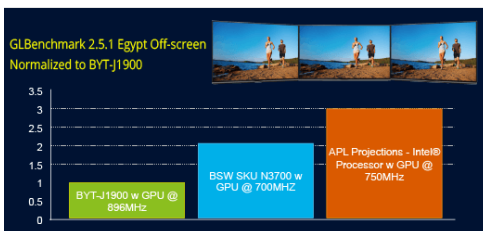
## Ordering Information

WAFER-AL-N2-R11	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-R11	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

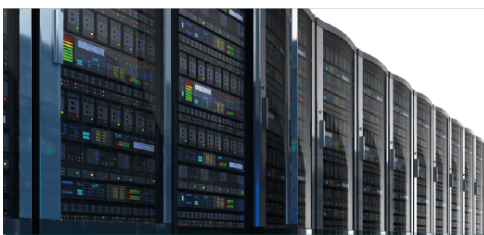
1 x WAFER-AL single board computer	1 x Power cable
1 x RS-232/422/485 cable	1 x QIG
1 x SATA with power cable kit	

## 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 temperatue SKU with Tj: -40°C ~ 110°C and extreme 15-years lifetime for Industrial applications

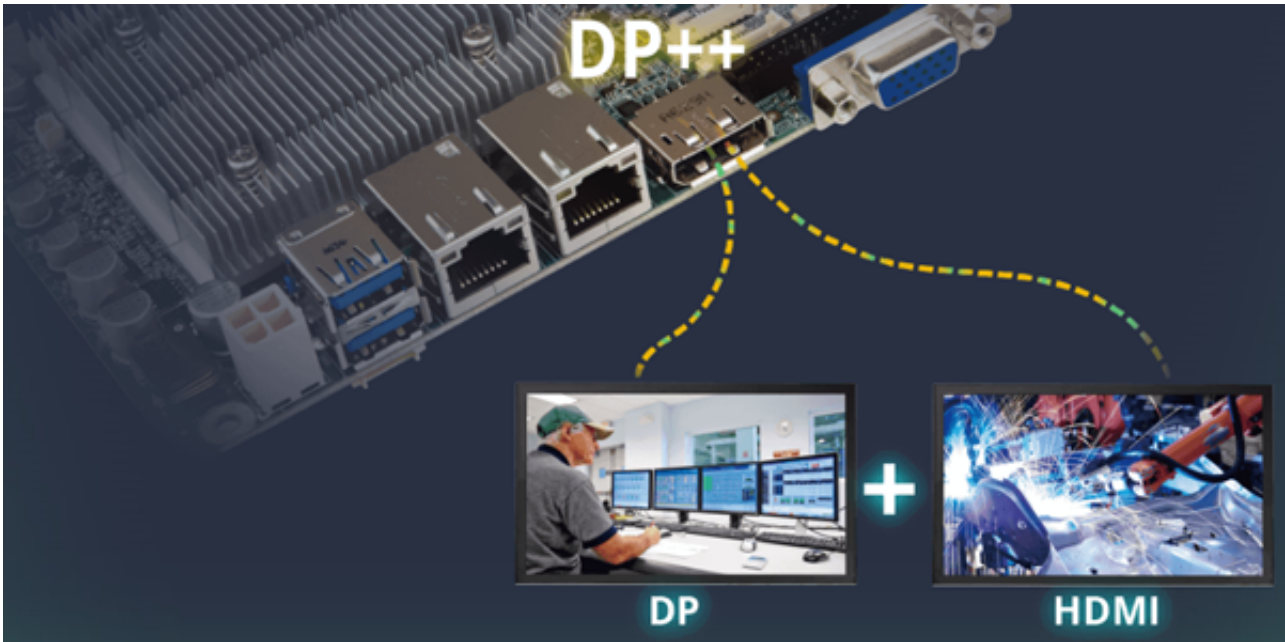


### Enhanced Security Executions

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

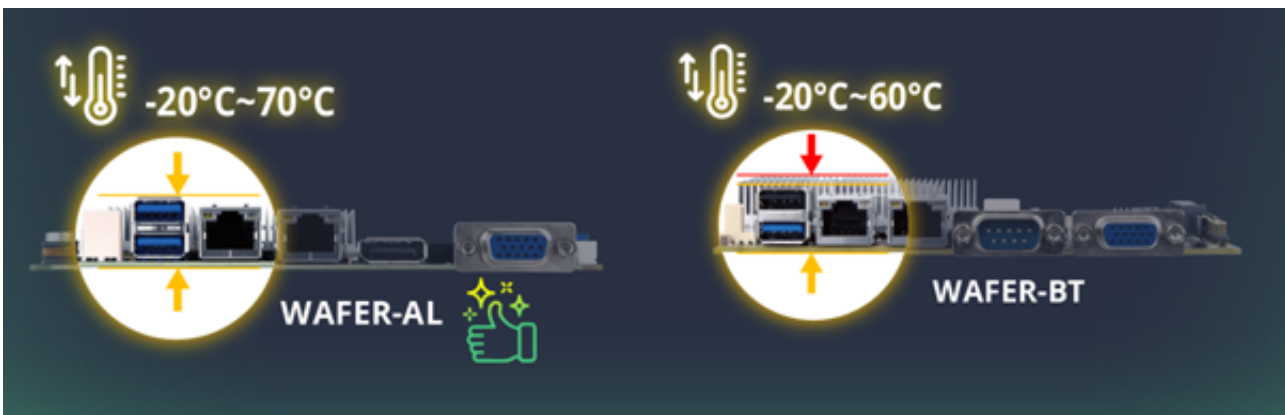
## DP++ Dual-mode Output

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.

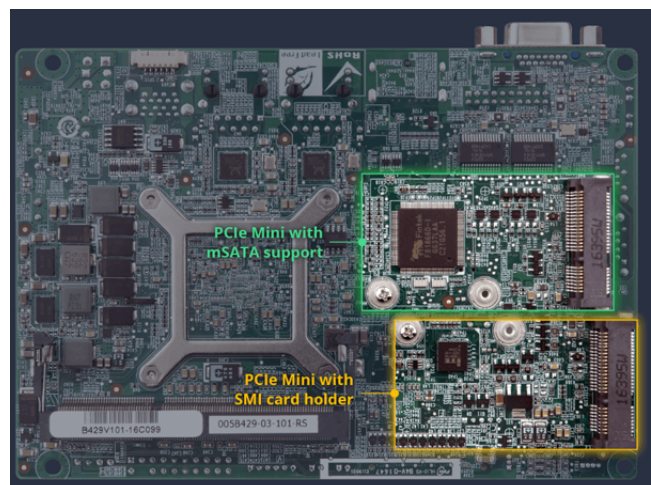
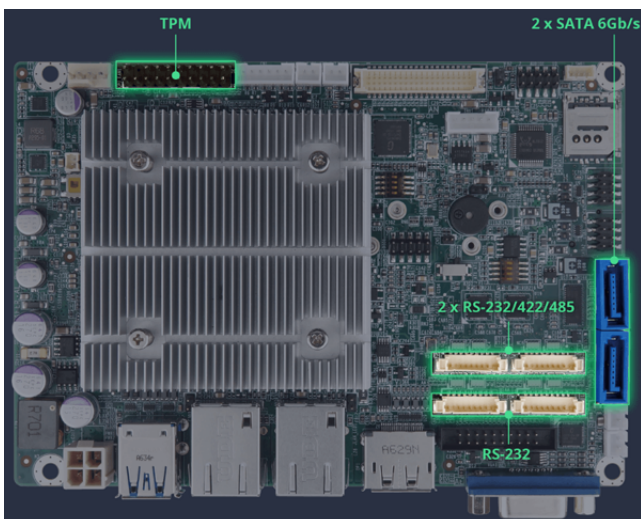


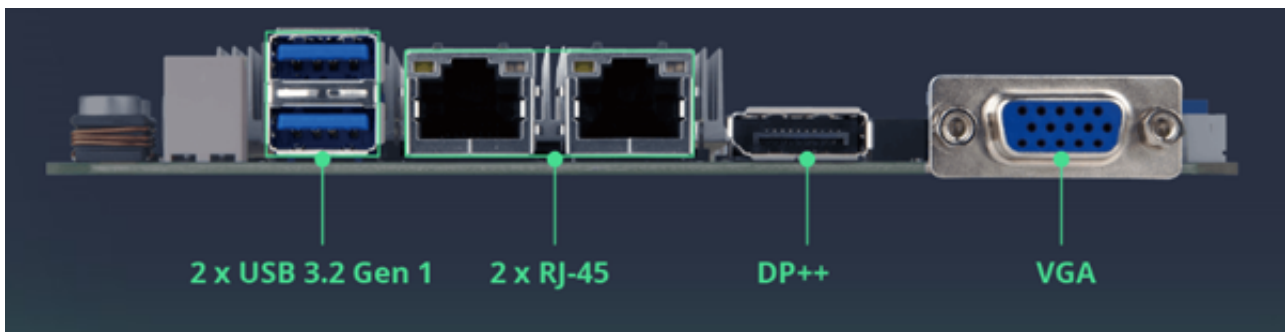
## Low Profile, Flexible Deployment

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.

