

Embedded Computer > Single Board Computer > Embedded Board

# **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**

	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  $\sim$  110°C and extreme 15-years lifetime for Industrial applications



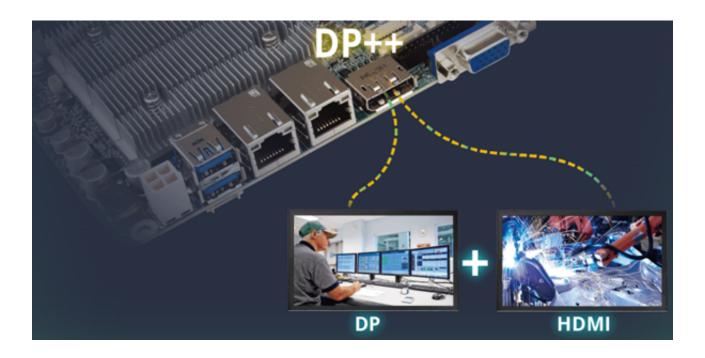
**Enhanced Security Executions** 

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

## DP++ Dual-mode Output

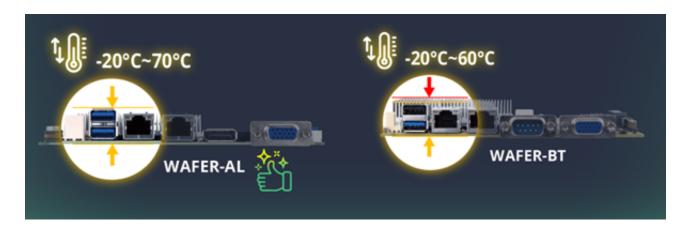
IEI provides products support Dual-mode DisplayPort output which can auto detect the plugged-in cable type and provide multiple option of display output in single port.



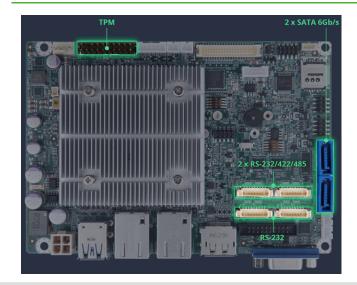


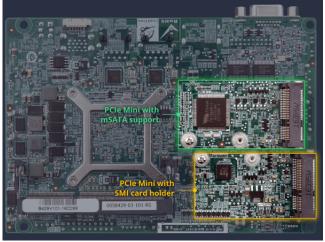
# Low Profile, Flexible Deployment

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 embedderd 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.

