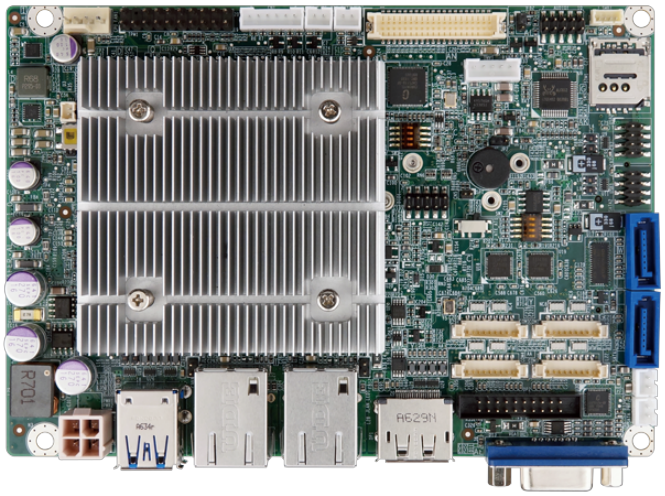
WAFER-AL

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

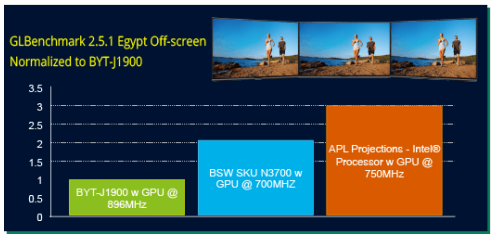
Ordering Information

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

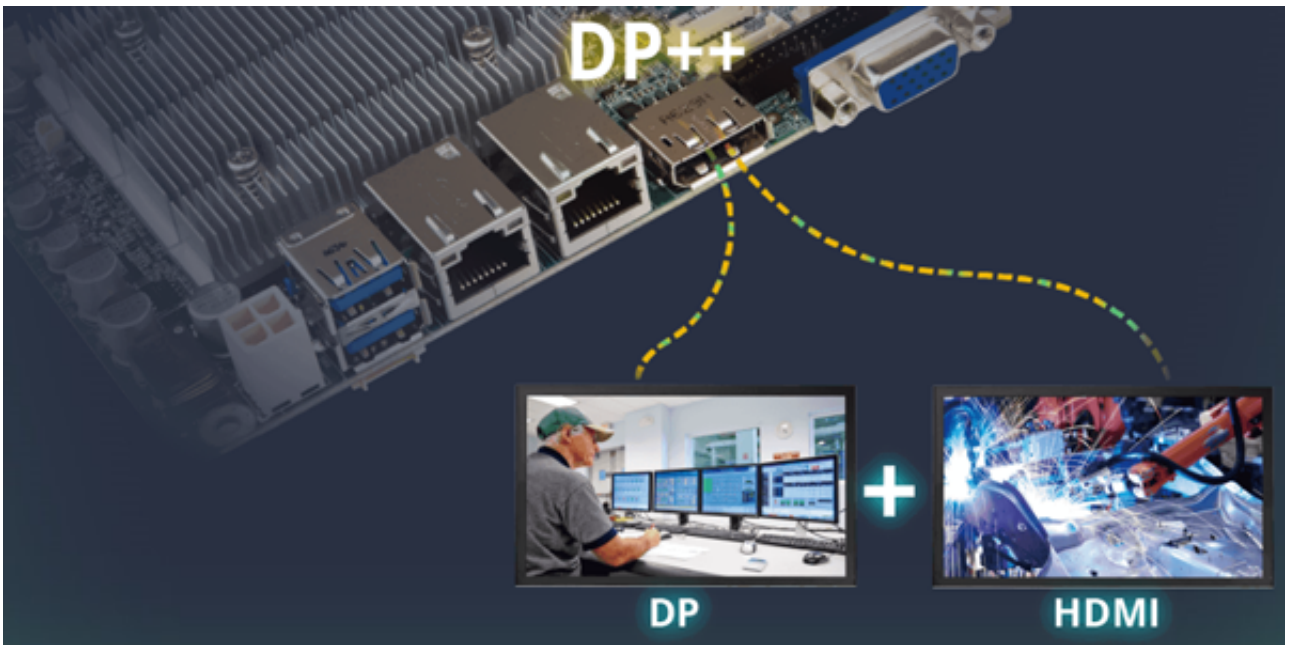
» » Highly reliability with ECC
» Wide termperatue SKU with Tj: -40°C ~ 110°C and extreme 15-years lifetime for Industrial applications

Enhanced Security Executions

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

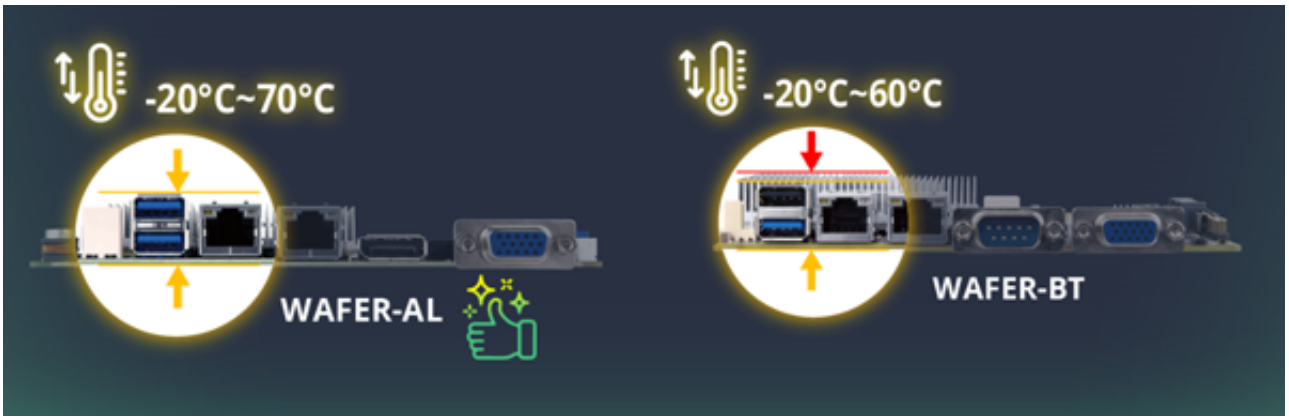
DP++ Dual-mode Output

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.

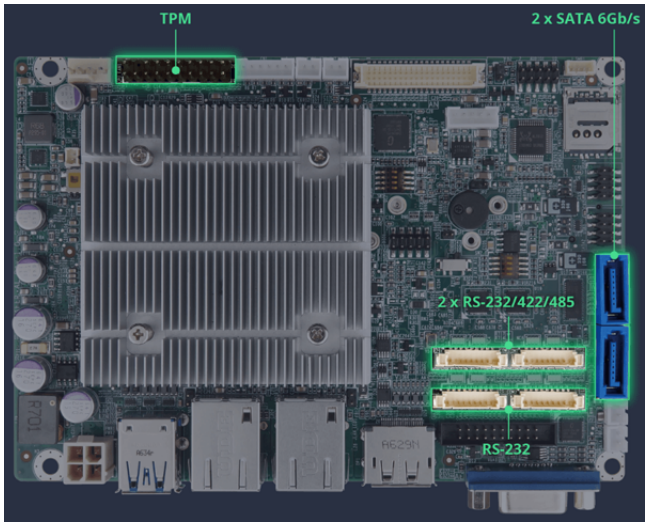


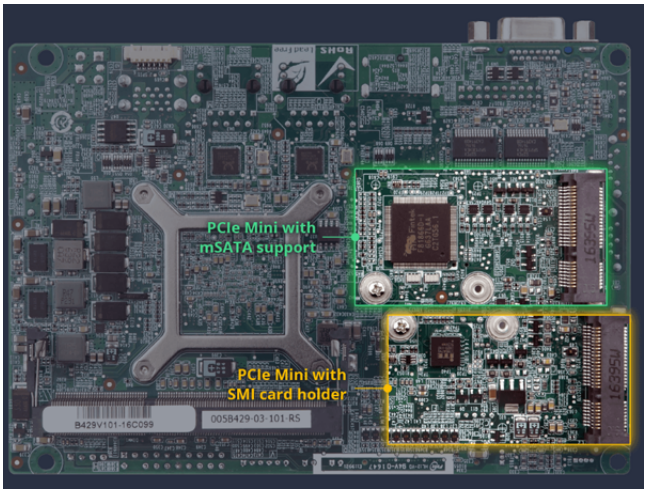
Low Profile, Flexible Deployment

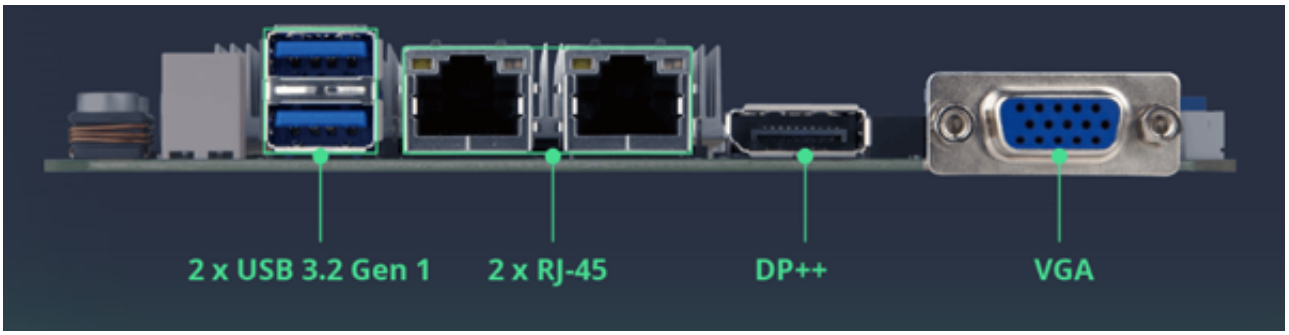
Thin type products with single layer rear I/O and low profile thermal solution design are suitable for open frame panel PC solutions and also the best choice for thin compact size embedderd box solutions.



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.