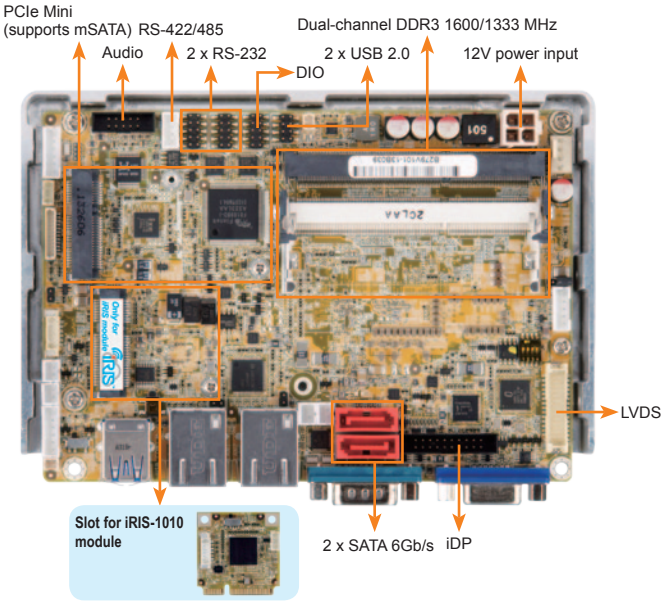
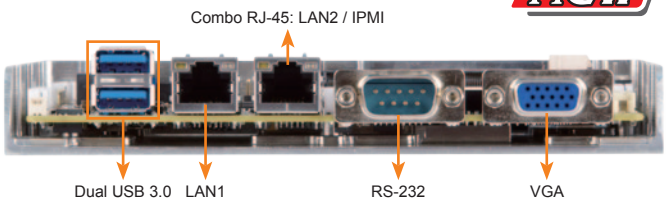
# WAFER-ULT2-i1 / ULT-i1

**3.5" SBC supports Intel® 22nm 4th/ 14nm 5th Generation Mobile Core™ i7/i5/i3 and Celeron® on-board Processor (ULT), VGA/LVDS/iDP, Dual GbE, PCIe Mini, USB 3.0, SATA 6Gb/s Audio, iRIS-1010 and RoHS**




New

IPMI 2.0 Compliant

One Key Recovery

1.35V DDR3L | Heat Spreader | USB 2.0 | SATA 6Gb/s | PCIe GbE | mSATA

## Features

- 3.5" form fator with 4th/5th generation Intel® ULT SoC supports dual-channel DDR3L DIMMs
- 12V only single voltage design with AT/ATX mode support
- 18/24-bit dual-channel LVDS support
- Support triple independent display via LVDS, VGA and iDP
- Support PCIe Mini card slot for mSATA, 3G card, wireless card and DOM

## Specifications

- CPU
  - » 5th generation Intel® mobile ULT on-board SoC
    Intel® Core™ i7-5650U (2.2GHz, dual-core, 4MB cache, TDP=15W)
    Intel® Core™ i5-5350U (1.8GHz, dual-core, 3MB cache, TDP=15W)
    Intel® Core™ i3-5010U (2.1GHz, dual-core, 3MB cache, TDP=15W)
    Intel® Celeron® processor 3765U (1.9GHz, dual-core, 2MB cache, TDP=15W)
  - » 4th generation Intel® mobile ULT on-board SoC
    Intel® Core™ i7-4650U (1.7GHz, dual-core, 4MB cache, TDP=15W)
    Intel® Core™ i5-4300U (1.9GHz, dual-core, 3MB cache, TDP=15W)
    Intel® Core™ i3-4010U (1.7GHz, dual-core, 3MB cache, TDP=15W)
    Intel® Celeron® processor 2980U (1.6GHz, dual-core, 2MB cache, TDP=15W)
- BIOS: UEFI BIOS
- Memory
  Two 204-pin 1600/1333 MHz dual-channel DDR3L SDRAM SO-DIMM slots support up to 16 GB
- Graphics Engine
  Intel® HD Graphics Gen 7.5 supports DX11.1, OpenGL 4.2 and OpenCL1.2 Full MPEG2, VC1, AVC decode (4th generation SoC)
  Intel® HD Graphics Gen 8 supports DX11.1, OpenGL 4.2 and OpenCL1.2 Full MPEG2, VC1, AVC decode (5th generation SoC)
- Display Output
  Triple independent display
  VGA (up to 2560x1600@60 Hz)
  18/24-bit dual-channel LVDS by CH7511B DP to LVDS converter (up to 1920x1200@60Hz)
  iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60 Hz)
- Ethernet
  LAN1: Intel® I218LM PHY with Intel® AMT 9.0 support
  LAN2: Intel® I210-AT PCIe controller with NCSI support
- External I/O Interfaces
  2 x USB 3.0
  1 x RS-232
- Internal I/O Interfaces
  1 x KB/MS (1x6 pin) — 2 x USB 2.0 (2x4 pin, P=2.0)
  1 x RS-422/485 (1x4 pin, P=2.0) — 2 x RS-232 (2x5 pin, P=2.0)
  2 x SATA 6Gb/s with 5V power connector (RAID 0, 1)
- iRIS Remote Management Module
  1 x iRIS-1010 slot
- Expansion: 1 x Full-size PCIe Mini card slot (mSATA support)
- Audio
  Realtek ALC662 HD Audio codec
  1 x Analog audio (2x5 pin)
- Front Panel
  1 x Power LED & HDD LED (1x6 pin)
  1 x Power button (1x2 pin)
  1 x Reset button (1x2 pin)
- LAN LED: 2 x LAN LED (1x2 pin)
- Digital I/O: 1 x 8-bit digital I/O (2x5 pin)
- Fan Connector: 1 x System smart fan (1x4 pin)
- Watchdog Timer: Software programmable, support 1~255 sec. system reset
- Power Supply
  12V only DC input
  1 x Internal power connector (2x2 pin)
  Support AT/ATX mode
- Power Consumption
  12V@2.72A (Intel® Core™ i5-4300U CPU with two 8 GB 1600 MHz DDR3 memory)
- Operating Temperature: -10°C ~ 60°C
- Storage Temperature: -20°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 146mm x 102mm
- Weight: GW:600g/ NW:250g

## Packing List

| | |
|---|---|
| 1 x WAFER-ULT/ULT2 single board computer with heatsink enclosure | |
| 1 x Audio cable | |
| 1 x Dual-port USB 2.0 cable | 1 x One Key Recovery CD |
| 1 x Power cable | 1 x QIG |
| 2 x SATA with 5V output cable kit | 1 x Utility CD |

## Ordering Information

| Part No. | Description |
|---|---|
| WAFER-ULT2-i1-i7-R11 | 3.5" SBC with Intel® 14nm 5th Generation ULT Mobile Core™ i7-5650U processor (ULT), VGA/LVDS/iDP, Dual GbE, PCIe Mini, USB 3.0, SATA 6 GB/s and iRIS |
| WAFER-ULT2-i1-i5-R11 | 3.5" SBC with Intel® 14nm 5th Generation ULT Mobile Core™ i5-5350U processor (ULT), VGA/LVDS/iDP, Dual GbE, PCIe Mini, USB 3.0, SATA 6 GB/s and iRIS |
| WAFER-ULT2-i1-i3-R11 | 3.5" SBC with Intel® 14nm 5th Generation ULT Mobile Core™ i3-5010U processor (ULT), VGA/LVDS/iDP, Dual GbE, PCIe Mini, USB 3.0, SATA 6 GB/s and iRIS |
| WAFER-ULT2-i1-C-R11 | 3.5" SBC with Intel® 14nm 5th Generation ULT Mobile Celeron® 3765U processor (ULT), VGA/LVDS/iDP, Dual GbE, PCIe Mini, USB 3.0, SATA 6 GB/s and iRIS |
| WAFER-ULT-i1-i7-R11 | 3.5" SBC supports Intel® 22nm 4th Generation Mobile Core™ i7-4650U processor (ULT), VGA/LVDS/iDP, Dual GbE, USB 3.0, PCIe Mini, SATA 6Gb/s Audio, iRIS-1010 and RoHS |
| WAFER-ULT-i1-i5-R11 | 3.5" SBC supports Intel® 22nm 4th Generation Mobile Core™ i5-4300U processor (ULT), VGA/LVDS/iDP, Dual GbE, USB 3.0, PCIe Mini, SATA 6Gb/s Audio, iRIS-1010 and RoHS |
| WAFER-ULT-i1-i3-R11 | 3.5" SBC supports Intel® 22nm 4th Generation Mobile Core™ i3-4010U processor (ULT), VGA/LVDS/iDP, Dual GbE, USB 3.0, PCIe Mini, SATA 6Gb/s Audio, iRIS-1010 and RoHS |
| WAFER-ULT-i1-C-R11 | 3.5" SBC supports Intel® 22nm 4th Generation Mobile Celeron™ 2980U processor (ULT), VGA/LVDS/iDP, Dual GbE, USB 3.0, PCIe Mini, SATA 6Gb/s Audio, iRIS-1010 and RoHS |
| iRIS-1010-R10 | IPMI 2.0 adapter card with AST1010 BMC chip (w/o KVM over IP function) for PCIe Mini socket interface |
| 19800-000300-200-RS | RS-232 cable, 300mm, P=2.0 |
| 32000-023800-RS | PS/2 KB/MS cable, 135mm, P=2.0 |
| 32205-003800-300-RS | RS-422/485 cable, 200mm, P=2.0 |
| DP-DP-R10 | DisplayPort to DisplayPort converter board (for IEI iDP connector) |
| DP-DVI-R10 | DisplayPort to DVI-D converter board (for IEI iDP connector) |
| DP-HDMI-R10 | DisplayPort to HDMI converter board (for IEI iDP connector) |
| DP-LVDS-R10 | DisplayPort to LVDS converter board (for IEI iDP connector) |
| DP-VGA-R10 | DisplayPort to VGA converter board (for IEI iDP connector) |