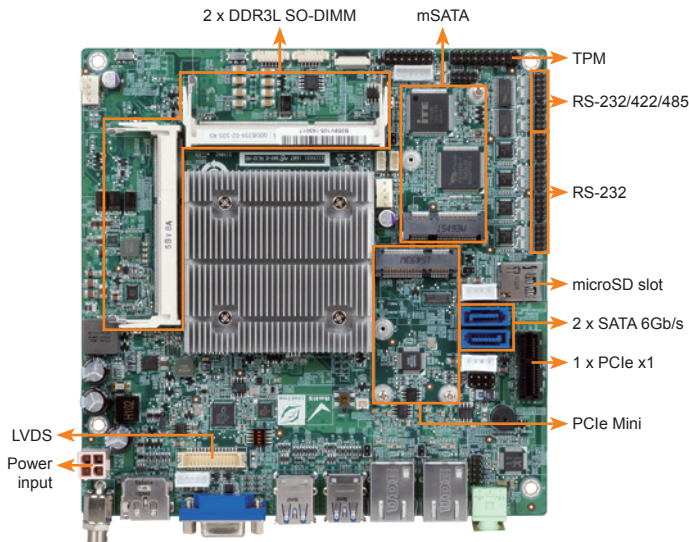
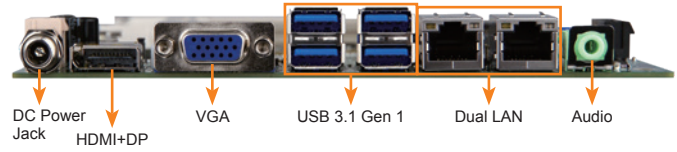


# tKINO-BW

Thin Mini-ITX SBC supports 14nm Intel® Pentium®/Celeron® on-board SoC, 9~30V DC input, VGA/LVDS/DP+HDMI, SATA 6Gb/s, dual GbE, USB 3.1 Gen 1 (5Gb/s), HD Audio and RoHS



## Three Digital Display Interfaces



## Specifications

- ◆ SoC
  - Intel® Pentium® N3710 on-board SoC (up to 2.56GHz, quad-core, 2MB cache, TDP=6W)
  - Intel® Celeron® N3160 on-board SoC (up to 2.24GHz, quad-core, 2MB cache, TDP=6W)
  - Intel® Celeron® N3060 on-board SoC (up to 2.48GHz, dual-core, 2MB cache, TDP=6W)
  - Intel® Celeron® N3010 on-board SoC (up to 2.24GHz, dual-core, 2MB cache, TDP=4W)
- ◆ BIOS
  - UEFI BIOS
- ◆ Memory
  - Two 204-pin 1333/1600 MHz single-channel DDR3L SDRAM unbuffered SO-DIMM slots support up to 8 GB
- ◆ Graphics Engine
  - Intel® HD Graphics Gen 8 Engines with 16 low-power execution units, supporting DX11.1, OpenGL 4.2 and OpenCL 1.2
- ◆ Display Output
  - Triple independent display
    - 1 x HDMI/DP (up to 3840x2160@30Hz)
    - 1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
    - 1 x VGA (up to 1920x1200@60Hz)
- ◆ Ethernet
  - Dual Realtek RTL8111E PCIe GbE controller
- ◆ External I/O Interface
  - 4 x USB 3.1 Gen 1 (5Gb/s)
- ◆ Internal I/O Interface
  - 1 x KB/MS (1x6 pin)    2 x SATA 6Gb/s with 5V output
  - 1 x MicroSD card slot    2 x USB 2.0 (2x4 pin, P=2.54)
  - 1 x mSATA (colay SATA2)    4 x RS-232 (2x5 pin, P=2.0)
  - 2 x RS-232/422/485 (2x5 pin, P=2.0)
- ◆ Front Panel
  - 1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- ◆ LAN LED
  - 2 x LAN LED (1x2 pin)
- ◆ SMBus
  - 1 x SMBus (1x4 pin)
- ◆ TPM
  - 1 x TPM (2x10 pin)
- ◆ I<sup>2</sup>C
  - 1 x I<sup>2</sup>C (1x4 pin)
- ◆ Digital I/O
  - 8-bit digital I/O (2x5 pin)
- ◆ Expansion
  - 1 x PCIe x1
  - 1 x Full-size PCIe Mini card slot
- ◆ Audio
  - Realtek ALC662 HD codec
  - 1 x Audio jacks (line-out) on rear IO
  - 1 x Front audio (2x5 pin)
- ◆ Watchdog Timer: Software programmable supports 1~255 sec. system reset
- ◆ Power Supply
  - 1 x External DC power jack (Ø5.5 mm)
  - 1 x Internal power connector (2x2 pin)
  - Input Voltage Range: 9V ~ 30V
  - Support AT/ATX mode
- ◆ Fan Connector
  - 1 x CPU smart fan (1x4 pin)
  - 1 x System smart fan (1x4 pin)
- ◆ Power Consumption
  - 12V@1.61A (Intel® Celeron® N3710 CPU with two 4 GB 1600 MHz DDR3L memory)
- ◆ Operating Temperature: -20°C ~ 60°C
- ◆ Storage Temperature: -30°C ~ 70°C
- ◆ Operating Humidity: 5% ~ 95%, non-condensing
- ◆ Weight: GW: 900g / NW: 400g
- ◆ CE/FCC compliant

## Features

- Thin Mini-ITX form factor with 14nm Intel® Pentium®/Celeron® on-board SoC processor supports DDR3L memory
- Supports USB 3.1 Gen 1 (5Gb/s), two SATA 6Gb/s
- Triple independent display, supporting 4K resolution
- Supports IEI jumperless function

## Packing List

1 x tKINO-BW single board computer with heatsink
1 x I/O shielding
1 x SATA cable
1 x QIG

## Ordering Information

Part No.	Description
tKINO-BW-N4-R20	Thin Mini-ITX SBC supports Intel® Pentium® quad-core processor N3710 up to 2.56GHz (6W), VGA/LVDS/DP+HDMI, SATA, dual GbE, USB 3.1 Gen 1 (5Gb/s), HD Audio and RoHS
tKINO-BW-N3-R20	Thin Mini-ITX SBC supports Intel® Celeron® quad-core processor N3160 up to 2.24GHz (6W), VGA/LVDS/DP+HDMI, SATA, dual GbE, USB 3.1 Gen 1 (5Gb/s), HD Audio and RoHS
tKINO-BW-N2-R20	Thin Mini-ITX SBC supports Intel® Celeron® dual-core processor N3060 up to 2.48GHz (6W), VGA/LVDS/DP+HDMI, SATA, dual GbE, USB 3.1 Gen 1 (5Gb/s), HD Audio and RoHS
tKINO-BW-N1-R20**	Thin Mini-ITX SBC supports Intel® Celeron® dual-core processor N3010 up to 2.24GHz (4W), VGA/LVDS/DP+HDMI, SATA, dual GbE, USB 3.1 Gen 1 (5Gb/s), HD Audio and RoHS
32205-002700-200-RS	RS-232/422/485 cable, 200mm, P=2.0
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

\*\*By order production, MOQ: 100