

**Pico-ITX SBC with Intel® 14nm Pentium®/Celeron®/Atom® on-board  
SoC with dual Mini HDMI, M.2 2242, GbE, USB 3.0, SATA 6Gb/s,  
COM, Audio and RoHS**

# **HYPER-BW**

## **Quick Installation Guide**

**Version 1.0**

**Mar 01, 2018**

### **Package List**

HYPER-BW package includes the following items:

- 1 x HYPER-BW single board computer
- 1 x RS-232 cable
- 1 x SATA with power cable kit
- 1 x One Key Recovery CD
- 1 x QIG (Quick Installation Guide)
- 1 x Utility CD



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## 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)
  - Intel® Atom® x5-E8000 on-board SoC  
(up to 2.00GHz, quad-core, 2MB cache, TDP=5W)
- BIOS: AMI UEFI BIOS
- Memory:
  - One 204-pin 1333/1600 MHz single-channel DDR3L SDRAM unbuffered SO-DIMM slot support up to 8 GB
- Graphics Engine:
  - Intel® HD Graphics Gen 8 Engine with 16 low-power execution units, supporting DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output:
  - Dual independent display
  - 2 x Mini HDMI (up to 3840x2160@30Hz)
- Ethernet:
  - LAN1: Realtek RTL8111 controller
- External I/O Interfaces:
  - 1 x USB 2.0
  - 1 x USB 3.0
- Internal I/O Interfaces:
  - 1 x RS-232 (1x9 pin, P=1.25)
  - 1 x SATA 6G/s with 5V SATA power connector (No RAID) (SATA port0)
  - 2 x USB 2.0 (2x4 pin, P=2.0)

- Audio: 1 x HD Audio (2x5 pin)
- Front Panel:
  - 1 x Front panel (1x10 pin, power LED, HDD LED, power button, reset button)
- LAN LED: 1 x LAN LED (1x2 pin)
- Expansion :
  - 1 x M.2 2242 slot (B key, SATA and PCIe signal)
- Fan Connector:
  - 1 x Smart fan connector (1x4 pin)
- Power supply:
  - 12V DC input only
  - 1 x Power terminal block (1x2 pin)
  - Support AT/ATX mode
- Power Consumption:
  - 12V@1.52A (Intel® Pentium® processor N3710 with 8 GB 1600 MHz DDR3L memory)
- Watchdog Timer:
  - Software programmable supports 1~255 sec. system reset
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operation Humidity: 5% ~ 95%, non-condensing
- Vibration: 3G
- Dimensions: 100mm x 72mm
- Weight(GW/ NW):300g/ 250g

## Ordering Information

- **HYPER-BW-N4-R10:**  
Pico-ITX SBC with Intel® Pentium® 14nm quad-core N3710 up to 2.56GHz (6W) on-board SoC with dual Mini HDMI, PCIe GbE, M.2 2242, USB 3.0, SATA 6Gb/s, COM, Audio and RoHS
- **HYPER-BW-N3-R10:**

Pico-ITX SBC with Intel® Celeron® 14nm quad-core N3160 up to 2.24GHz (6W) on-board SoC with dual Mini HDMI, PCIe GbE, M.2 2242, USB 3.0, SATA 6Gb/s, COM, Audio and RoHS

- **HYPER-BW-N2-R10:**

Pico-ITX SBC with Intel® Celeron® 14nm dual-core N3060 up to 2.48GHz (6W) on-board SoC with dual Mini HDMI, PCIe GbE, M.2 2242, USB 3.0, SATA 6Gb/s, COM, Audio and RoHS

- **HYPER-BW-N1-R10:**

Pico-ITX SBC with Intel® Celeron® 14nm dual-core N3010 up to 2.24GHz (4W) on-board SoC with dual Mini HDMI, PCIe GbE, M.2 2242, USB 3.0, SATA 6Gb/s, COM, Audio and RoHS

- **HYPER-BW-E8-ECO-R10:**

Pico-ITX SBC with Intel® Atom® 14nm quad-core x5-E8000 up to 2.00GHz (5W) on-board SoC with dual Mini HDMI, PCIe GbE, M.2, USB 3.0, SATA 6Gb/s, COM, Audio, ECO packing and RoHS

- **HYPER-BW-E8-R10:**

Pico-ITX SBC with Intel® Atom® 14nm quad-core x5-E8000 up to 2.00GHz (5W) on-board SoC with dual Mini HDMI, PCIe GbE, M.2, USB 3.0, SATA 6Gb/s, COM, Audio, and RoHS

- **32000-070301-RS:** Dual-port USB cable

- **AC-KIT-892HD-R10:**

Realtek ALC892 7.1 Channel HD Audio peripheral board, RoHS

- **32102-045100-100-RS:**

DC JACK 5.5\*2.5+NUT to open end power cable, 100MM;

- **63040-010036-111-RS:** 12V 36W AC/DC adapter

## Jumpers setting and connectors

LABEL	FUNCTION
J_ATX_AT1	Select ATX or AT mode
J_CMOS1	CMOS state setting
COM1	External RS-232 Serial Port Connector
F_PANEL1	Front Panel Connector
USB_CON1	USB 2.0 and USB 3.0 Connector
USB2	USB 2.0 Connector
JSPI1	BIOS SPI ROM Programming Connector
CPU_FAN1	CPU Fan Connector
LED_LAN1	LAN1 link LED connector
PWR1	+12V DC power input connector
SATA_PWR2	SATA power connector
SATA1	SATA connector
J_AUDIO1	HDA audio Connector

### J\_ATX\_AT1: AT/ATX Power Mode Setting

PIN NO.	DESCRIPTION
Short 1 - 2	ATX Power Mode (default)
Short 2 - 3	AT Power Mode

### J\_CMOS1: Clear CMOS Setup

PIN NO.	DESCRIPTION
Open	Normal Operation (Default)
Push	Clear CMOS Setup

### COM1: External RS-232 Serial Port Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NDCD1	6	NDSR1
2	NRXD1	7	NRTS1
3	NTXD1	8	NCTS1
4	NDTR1	9	NRI1
5	GND	10	GND

<b>F_PANEL1: Front Panel Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	NC	2	PWRBTN_SW
3	GND	4	HDDLED+
5	HDDLED-	6	PWRLED+
7	PWRLED+	8	GND
9	EXTRST-	10	GND

<b>USB_CON1: USB 2.0 and USB 3.0 Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+5V	2	USB2P0_DM0_L
3	USB2P0_DP0_L	4	GND
5	USB3P0_RXDN0_C	6	USB3P0_RXDP0_C
7	GND	8	USB3P0_TXDN0_C
9	USB3P0_TXDP0_C	10	+5V
11	USB2P0_DM1_L	12	USB2P0_DP1_L
13	GND		

<b>USB2: USB 2.0 Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+5V	2	GND
3	USB20_C_N2	4	USB20_C_P3
5	USB20_C_P2	6	USB20_C_N3
7	GND	8	+5V

<b>JSPI1: BIOS SPI ROM Programming Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+SPI_VCC	2	SPI_CS0#_CN
3	SPI_SO0_CN	4	SPI_CLK0_CN
5	SPI_SI0_CN	6	GND

<b>CPU_FAN1: CPU Fan Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	+12V
3	FANIO1	4	FANOUT1

<b>LED_LAN1: LAN1 link LED connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+3.3VLAN	2	LAN1_LED_LINK#

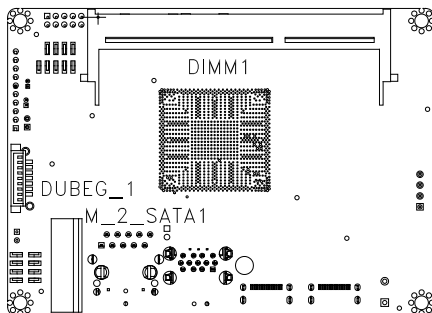
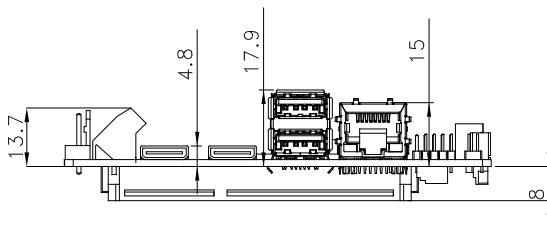
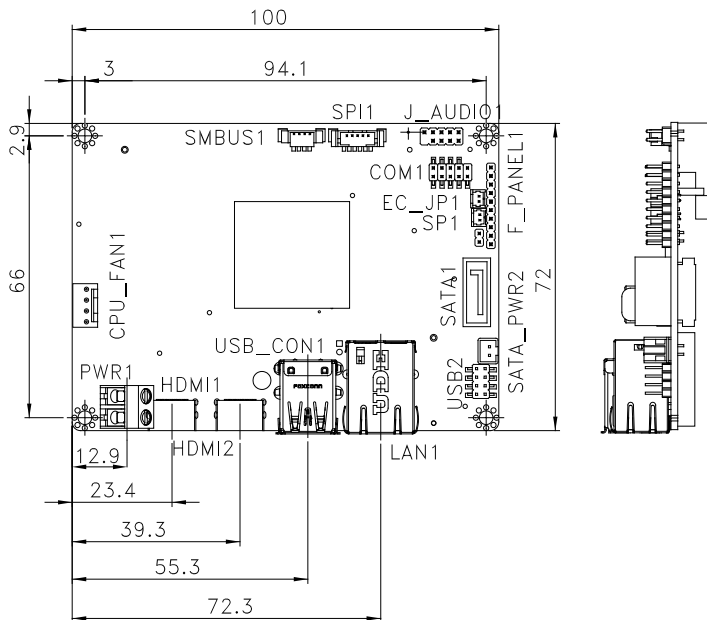
<b>PWR1: +12V DC power input connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	12V

<b>SATA_PWR2: SATA power connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+5V	2	GND

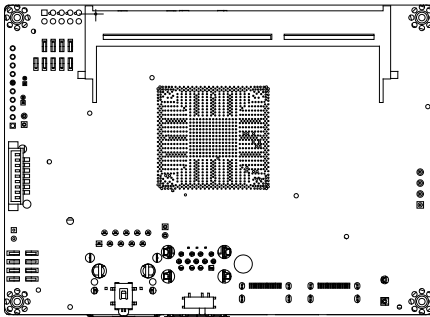
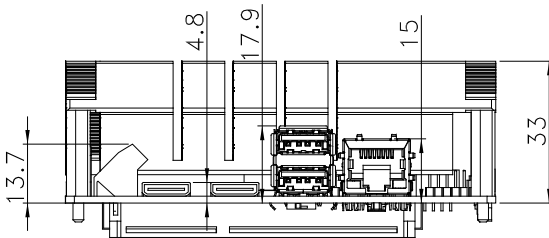
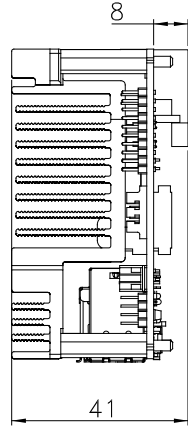
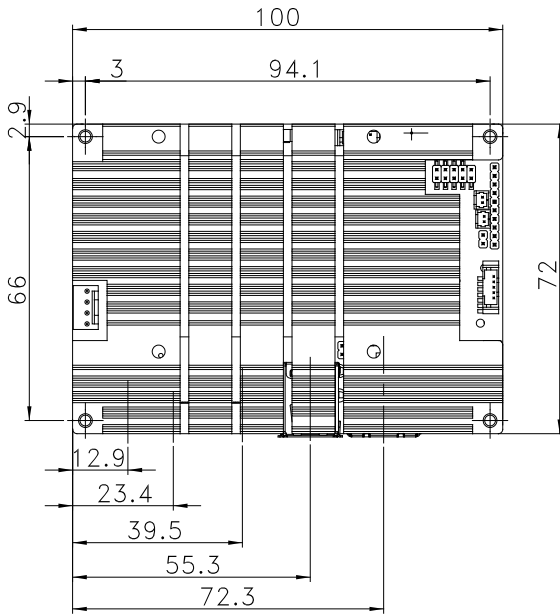
<b>SATA1: SATA connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	SATA_TX0+
3	SATA_TX0-	4	GND
5	SATA_RX0+	6	SATA_RX0-
7	GND		

<b>J_AUDIO1: HDA audio Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	HDA_SYNC	2	HDA_BCLK
3	HDA_SDO	4	HDA_SPKR
5	HDA_SDI0	6	HDA_RST#
7	+5V	8	AGND
9	+12V	10	AGND

# Board Layout: Jumper and Connector Locations







(Unit: mm)