

**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 2.0

Feb 25, 2019

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 QIG (Quick Installation Guide)



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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 1600/1333 MHz single-channel DDR3L SDRAM 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
 - 2 x USB 2.0 (2x4 pin, P=2.0)

- Audio: 1 x HD Audio (2 x 5 pin, support 7.1 channel HD audio by AC-KIT-892HD-R10)
- 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)
- Digital I/O: 8-bit digital I/O (1x10 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
- Dimensions: 100mm x 72mm
- Weight(GW/ NW):300g/ 250g
- CE/FCC compliant

Ordering Information

- **HYPER-BW-N4-R20:**
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-R20:**

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-R20:**

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-R20**:**

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

***By order production, MOQ: 100*

- **HYPER-BW-E8-ECO-R20:**

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-R20:**

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

- **32001-008600-200-RS:** Dual-port USB cable, 210mm, P=2.0

- **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
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_DIO1	Digital I/O Connector
SP1	Beep Connector
BAT1	RTC Battery Connector
SMBUS1	SMBUS Connector
EC_JP1	EC FW Connector
HDMI1, HDMI2	HDMI Connectors
LAN1	LAN 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

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

USB_CON1: USB 2.0 and USB 3.0 Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VBUS	10	VBUS2
2	D-	11	D2-
3	D+	12	D2+
4	GND	13	GND
5	SSRX-		
6	SSRX+		
7	GND		

USB2: USB 2.0 Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
3	DATA2_N	4	DATA3_P
5	DATA2_P	6	DATA3_N
7	GNDE	8	VCC

LED_LAN1: LAN1 link LED Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3VLAN	2	LAN1_LED_LINK#

PWR1: +12V DC Power Input Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	12V

SATA_PWR2: SATA Power Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	2	GND

SATA1: SATA Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	SATA_TX0+
3	SATA_TX0-	4	GND
5	SATA_RX0+	6	SATA_RX0-
7	GND		

J_AUDIO1: HDA Audio Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
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

J_DIO1: Digital I/O Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	P5V
3	DOUT3	4	DOUT2
5	DOUT1	6	DOUT0
7	DIN3	8	DIN2
9	DIN1	10	DIN0

SP1: Beep Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Buzzer +	2	Buzzer -

BAT1: RTC Battery Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VBATT	2	GND

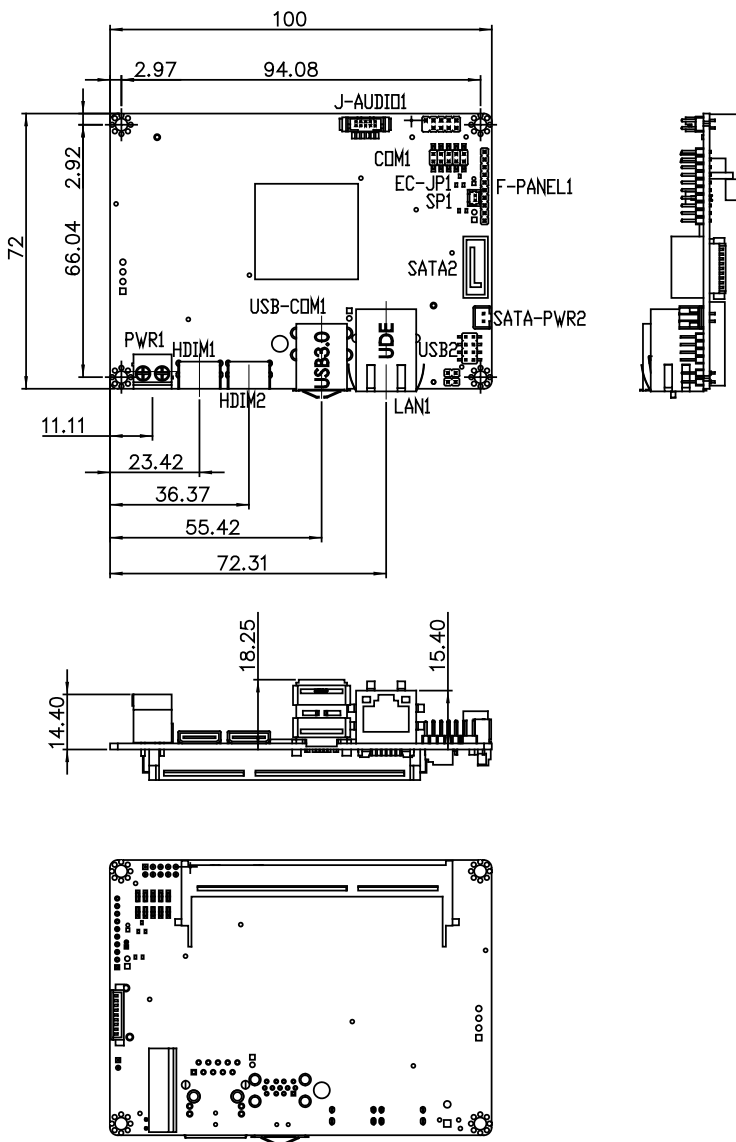
SMBUS1: SMBUS Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	DATA
3	CLK	4	5V
G1	GND	G2	GND

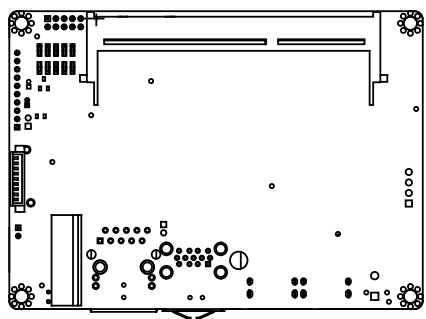
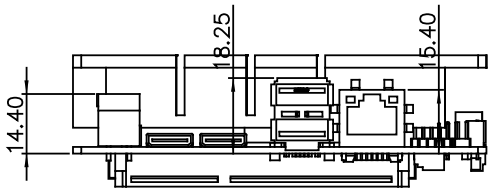
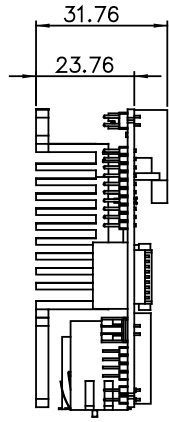
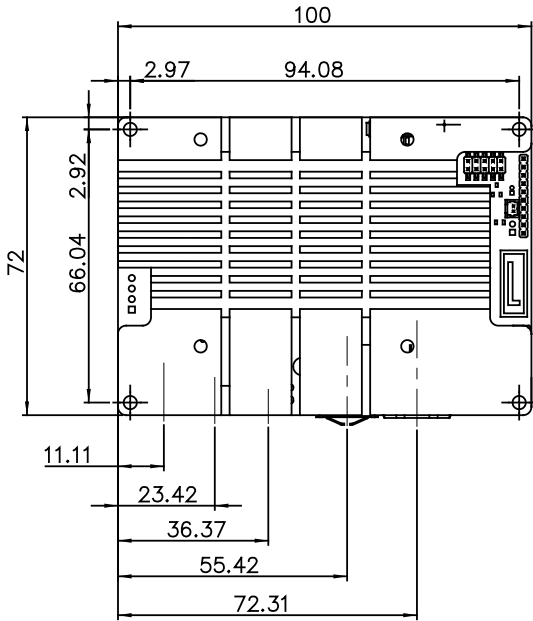
EC_JP1: EC FW Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	SMB_CLK_FW	2	SMB_DATA_FW

HDMI1, HDMI2: HDMI Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	D2 Shield	11	CK+
2	D2+	12	CK-
3	D2-	13	NC
4	D1 Shield	14	NC
5	D1+	15	DDC CLK
6	D1-	16	DDC DATA
7	D0 Shield	17	NC
8	D0+	18	5V
9	D0-	19	HP DET
10	CK Shield		
G1	GND	G2	GND
G3	GND	G4	GND

LAN1: LAN Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MDI0+	G1	GND
2	MDI0-	N1	NC
3	MDI1+	L1	LINK100
4	MDI1-	L2	LINK1000
5	GND	L3	ACT (NC)
6	GND	L4	VCC
7	MDI2+	N2	NC
8	MDI2--	G2	
9	MDI3+		
10	MDI3-		

Board Layout: Jumper and Connector Locations





(Unit: mm)