PICO-ITX SBC supports Intel® 14nm Apollo Lake on-board SoC with DDR3L, HDMI, LVDS, dual GbE, USB 3.0, SATA, M.2 and RoHS

HYPER-AL

Quick Installation Guide

Version 1.0

Sep 12, 2018.

Package List

HYPER-AL package includes the following items:

- 1 x HYPER-AL single board computer
- 1 x SATA cable kit
- 1 x COM port cable
- 1 x Heat spreader
- 4 x Brass male-female spacer (M3*20mm, thread: 6mm)
- 1 x QIG (Quick Installation Guide)

Specifications

- SoC:

  Intel® Celeron® N3350 on-board SoC (up to 2.4GHz, dual-core, 2M Cache, TDP=6W)

- BIOS: AMI UEFI BIOS
- Memory:

  One 204-pin 1866/1600MHz single-channel DDR3L SDRAM unbuffered SO-DIMM slot (system max. 8GB)

- Graphics Engine:

  Intel® HD Graphics Gen9 Low Power, 18 Execution Units

  4K Codec Decode & Encode for HEVC 4, H.264, VP8, SVC, MVC

- Display Output:

  1 x HDMI

  1 x LVDS (2x10 pin, single channel, 24bit)

- Ethernet:

  LAN1: Realtek RTL8111H controller

  LAN2: Realtek RTL8111H controller

- External I/O Interfaces:

  2 x USB 3.0 (on rear I/O)

- Internal I/O Interfaces:

  1 x RS-232 (1x9 pin, P=1.25)

  1 x SATA 6Gb/s (w/ 5V SATA PWR)

  2 x USB 2.0 (2 by pin header) (2x4 pin, P=2.0)

- Audio:

  1 x HD audio (2 x 5 pin, support 7.1 channel HD audiou by AC-KIT-892HD-R10)

- Front Panel:

  1 x Front panel (1 x 8 pin, power LED, HDD LED, power buttom, reset buttom)

- Expansion :

  1 x M.2 A key 2230 (PCIe, USB)

1 x M.2 B key 2242 (USB, SATA)

- Digital I/O: 1 x 8-bit DIO (2x5 pin, P=2.0)
- Power supply:

  12V DC input only (DC jack)

  Support AT/ATX mode
- Watchdog Timer:

  Software programmable support 1~255 sec. system reset
- Power Consumption:

  12V@2.36A (Intel® Celeron® N3350 with 8GB 1600MHz DDR3L memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -10°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 100mm x 72mm
- Weight: GW:600g/NW:250g
- CE/FCC compliant

All the drivers and One Key Recovery utility for the HYPER-AL are available on IEI Resource Download Center. Type HYPER-AL and press Enter to find all the relevant software, utilities, and documentation. To install software from the downloaded ISO file, mount the file as a virtual drive to view its content.

IEI Resource Download Center

https://download.ieiworld.com

Ordering Information

- **HYPER-AL-N1-R10:**

  PICO-ITX SBC supports Intel® 14nm dual-core Celeron® N3350 2.4GHz on-board SoC with HDMI, LVDS, dual LAN,

M.2, USB 3.0, SATA 6GB/s, COM 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

Jumpers setting and connectors

LABEL	FUNCTION
J_ATX_AT1	AT/ATX Power Mode Setting
J_VLVDS1	LCD Power Select
BT1	CMOS Battery Connector
COM1	Internal RS-232 Serial Port Connector
DIO1	Digital Input / Output Connector
HDMI1	HDMI Connector
LAN1, LAN2	RJ45 LAN Connectors
JSPI1	BIOS SPI Connector
AUDIO1	Audio Connector
USB3-1	External USB 3.0 Connector
USB20_CON1	USB 2.0 Connector
SATA_PWR1	HDD Power Connector
SATA1	Serial ATA 3.0 Connector
CN5	DC +12V Power Jack Connector
LVDS1	LVDS Connector
INV_CN1	Inverter Connector
F_PANEL1	Front Panel Connector
M2_CN1	M.2 A Key Card Connector
M2_1	M.2 B Key Card Connector

J_ATX_AT1: AT/ATX Power Mode Setting	
PIN NO.	**DESCRIPTION**
Short 1-2 (Left)	ATX Power Mode (default)
Short 2-3 (Right)	AT Power Mode

J_VLVDS1: LCD Power Select	
PIN NO.	**DESCRIPTION**
Short 1-3	+3.3V (default)
Short 3-5	+5V
Short 2-4	ENABKL +3.3V
Short 4-6	ENABKL +5V

BT1: CMOS Battery Connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	+3V	2	GND

COM1: Internal RS-232 Serial Port Connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	NDCD	2	NDSR
3	NSIN	4	NRTS
5	NSOUT	6	NCTS
7	NDTR	8	XRI
9	GND		

DIO1: Digital Input / Output Connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	GND	2	VCC +5V
3	DGPO3	4	DGPO2
5	DGPO1	6	DGPO0
7	DGPI3	8	DGPI2
9	DGPI1	10	DGPI0

HDMI1: HDMI Connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	HDMI_DATA2+	11	GND
2	GND	12	HDMI_CLK#
3	HDMI_DATA2#-	13	N/C
4	HDMI_DATA1+	14	N/C
5	GND	15	HDMI_SCL
6	HDMI_DATA1#-	16	HDMI_SDA
7	HDMI_DATA0+	17	GND
8	GND	18	+5VCC
9	HDMI_DATA0#-	19	HDMI_HPD
10	HDMI_CLK+		

LAN1, LAN2: RJ45 LAN Connectors			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	MDI0+	10	MDI3-
2	MDI0-	11	+3.3Vsus
3	MDI1+	12	ACT-1
4	MDI1-	13	LINK1000 +3.3Vsus
5	N/A	14	LINK100 +3.3Vsus
6	N/A	15	GND
7	MDI2+	16	GND
8	MDI2-	17	N/A
9	MDI3+	18	N/A

JSPI1: BIOS SPI Connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	+1.8V	2	SPI_CS
3	SPI_SO	4	SPI_CLK
5	SPI_SI	6	GND

AUDIO1: Audio Connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	SYNC	2	BCLK
3	SDO	4	SPKR
5	SDI	6	RTS
7	+V5S	8	GND
9	+V12S	10	NA

USB3-1: External USB 3.0 Connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	+5A	2	2.0_D0-
3	2.0_D0+	4	GND
5	3.0_RX1-	6	3.0_RX1+
7	GND	8	3.0_TX1-
9	3.0_TX1+	10	+5A
11	2.0_D1-	12	2.0_D1+
13	GND	14	3.0_RX2-
15	3.0_RX2+	16	GND
17	3.0_TX2-	18	3.0_TX2+

USB2-1: USB 2.0 Connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	+5Vsus	5	+5Vsus
2	HUB_D1-	6	HUB_D2-
3	HUB_D1+	7	HUB_D2+
4	GND	8	GND

SATA_PWR1: HDD Power Connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	+5V	2	GND

SATA1: Serial ATA 3.0 Connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	GND	5	SRXN_0
2	STXP_0	6	SRXP_0
3	STXN_0	7	GND
4	GND		

CN5: DC +12V Power Jack Connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	+12V	2	GND
3	GND		

LVDS1: LVDS Connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	GND	2	GND
3	A1M_L	4	A0M_L
5	A1P_L	6	A0P_L-
7	GND	8	GND
9	CLK1M_L	10	A2M_L
11	CLK1P_L	12	A2P_L
13	GND	14	GND
15	A3M_L	16	LVDS Detect (GND)*
17	A3P_L	18	+VCC_LCD
19	GND	20	+VCC_LCD
** LVDS Detect must be connected to GND.*			

INV_CN1: Inverter Connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	+12V	4	BRIGHTNESS
2	+12V	5	GND
3	BLON	6	GND

F_PANEL1: Front Panel Connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	PW_BN+	2	GND
3	NA	4	GND
5	HDD_LED+	6	HDD_LED-
7	+V5S_LED+	8	+V5S_LED-
9	Reset+	10	Reset-

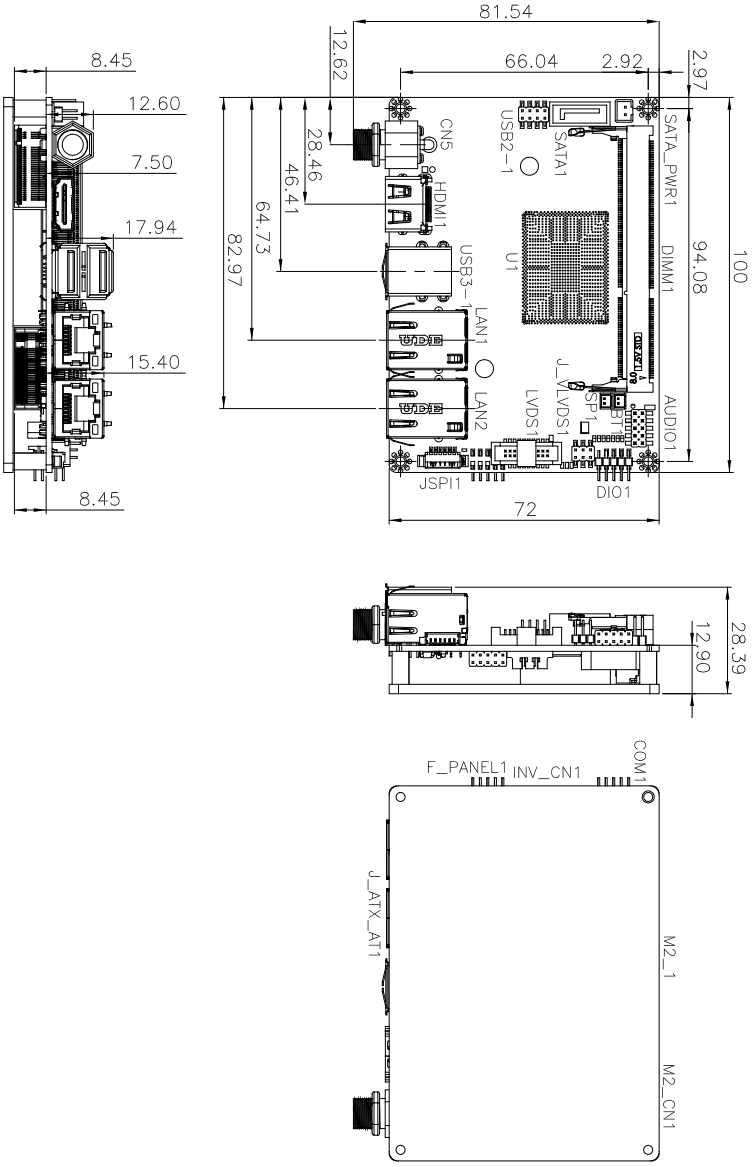
M2_CN1: M.2 A Key Card Connector			
PIN	**DESCRIPTION**	**PIN**	**DESCRIPTION**
1	GND	2	+V3.3A
3	USB_+DATA7	4	+V3.3A
5	USB_-DATA7	6	N/C
7	GND	16	N/C
17	N/C	18	GND
19	N/C	20	N/C
21	N/C	22	N/C
23	GND	24	GND
25	N/C	26	N/C
27	N/C	28	N/C
29	GND	30	GND
31	N/C	32	N/C
33	GND	34	N/C
35	PCIE_TXP3	36	GND
37	PCIE_TXN3	38	N/C
39	GND	40	N/C
41	PCIE_RXP3	42	N/C
43	PCIE_RXN3	44	N/C
45	GND	46	N/C
47	CLK_PCIE_M.2_2_P	48	N/C
49	CLK_PCIE_M.2_2_N	50	N/C
51	GND	52	PCIRST#
53	N/C	54	+V3.3A
55	N/C	56	+V3.3A
57	GND	58	N/C
59	N/C	60	N/C
61	N/C	62	N/C
63	GND	64	N/C
65	N/C	66	N/C
67	N/C	68	N/C
69	GND	70	N/C

71	N/C	72	+V3.3A
73	N/C	74	+V3.3A
75	GND		

M2_1: M.2 B Key Card Connector			
PIN	**DESCRIPTION**	**PIN**	**DESCRIPTION**
1	GND	2	VCC3
3	GND	4	VCC3
5	GND	6	N/C
7	USB_+DATA6	8	N/C
9	USB_-DATA6	10	N/C
11	N/C	20	N/C
21	N/C	22	N/C
23	GND	24	N/C
25	N/C	26	N/C
27	N/C	28	N/C
29	USB3_RX2_N	30	N/C
31	USB3_RX2_P	32	N/C
33	GND	34	N/C
35	USB3P0_TXDNM2	36	N/C
37	USB3P0_TXDPM2	38	GND
39	GND	40	N/C
41	M1_SATA_RX1+_C	42	N/C
43	M1_SATA_RX1-_C	44	N/C
45	GND	46	N/C
47	M1_SATA_TX1-_C	48	N/C
49	M1_SATA_TX1+_C	50	N/C
51	GND	52	N/C
53	N/C	54	GND
55	N/C	56	N/C
57	GND	58	N/C
59	N/C	60	N/C

61	N/C	62	N/C
63	GND	64	N/C
65	N/C	66	N/C
67	Reset	68	N/C
69	N/C	70	VCC3
71	GND	72	VCC3
73	GND	74	VCC3
75	GND		

Board Layout: Jumper and Connector Locations



(Unit: mm)