

**PICO-ITX SBC supports Intel® 22nm Atom™/Celeron® on-board SoC,  
DDR3L, VGA/iDP, GbE, USB 3.0, SATA 3Gb/s,  
HD Audio and RoHS**

# **HYPER-BT**

## **Quick Installation Guide**

**Version 1.0**

Jul 04, 2014.

### **Package List**

HYPER-BT package includes the following items:

- 1 x HYPER-BT single board computer
- 1 x SATA with 5V output cable kit (P/N: 32801-000201-100-RS)
- 1 x Audio cable (P/N: 32000-072100-RS)
- 1 x RS-232 cable (P/N: 32200-000049-RS)
- 1 x Specific heatsink
- 1 x QIG (Quick Installation Guide)
- 1 x Utility CD
- 1 x One key recovery CD



©2006 Copyright by IEI Integration corp.  
All rights reserved.

## Specifications

- SoC:
  - Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W)
  - Intel® Atom™ E3827 on-board SoC (1.75GHz, dual-core, 1MB cache, TDP=8W)
  - Intel® Atom™ E3826 on-board SoC (1.46GHz, dual-core, 1MB cache, TDP=7W)
  - Intel® Atom™ E3825 on-board SoC (1.33GHz, dual-core, 1MB cache, TDP=6W)
  - Intel® Atom™ E3815 on-board SoC (1.46GHz, dual-core, 1MB cache, TDP=5W)
  - Intel® Celeron® J1900 on-board SoC (2GHz, quad-core, 2MB cache, TDP=10W)
  - Intel® Celeron® N2930 on-board SoC (1.83GHz, quad-core, 2MB cache, TDP=7.5W)
  - Intel® Celeron® N2807 on-board SoC (1.58GHz, dual-core, 2MB cache, TDP=4.3W)
- BIOS: AMI UEFI BIOS
- Memory:
  - One 204-pin 1066/1333 MHz single-channel DDR3L SO-DIMM supports up to 8GB (J1900, N2930, E3845, E3827, E3826) or 4GB (N2807, E3825, E3815)
- Graphics Engine:
  - Intel® HD Graphics Gen 7 Engines with 4 execution units, supporting DX11.1 OpenGL 4.2 and OpenCL 1.2
- Display Output:
  - Dual independent display
  - 1 x VGA (up to 2560x1600@60Hz)
  - 1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60Hz)
- Ethernet:
  - LAN: Intel® I211-AT PCIe controller
- EC: IT8587

- I/O Interface:
  - 1 x RS-232 (by pin header)
  - 1 x SATA 3Gb/s with 5V SATA power connector
  - 1 x USB 3.0 (on rear I/O)
  - 3 x USB 2.0 (1 on rear I/O, 2 by pin header)
- Audio:
  - Realtek ALC662 HD codec supports 5.1 channel
- Front Panel:
  - 1 x 6-pin (1x6) wafer for power LED & HDD LED
  - 1 x 2-pin (1x2) wafer for power button
  - 1 x 2-pin (1x2) wafer for power reset button
- LAN LED: 1 x 2-pin (1x2) header
- FAN: 1 x 4-pin system fan connector
- Power supply:
  - 12V DC power input only, AT/ATX supported
  - 1 x External DC power jack
- Watchdog Timer:
  - Software programmable support 1~255 sec. system reset
- Power Consumption:
  - +12V@1.35A (Intel® Celeron® J1900 CPU, 1 x 8GB 1333 MHz DDR3 memory)
- 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): 600g / 250g

## Ordering Information

- **HYPER-BT-J19001-R10:**  
PICO-ITX SBC supports Intel® Celeron® quad-core J1900 (10W) on-board SoC with DDR3L, VGA/iDP, GbE, USB 3.0, SATA 3Gb/s, Audio and RoHS
- **HYPER-BT-N29301-R10:**  
PICO-ITX SBC supports Intel® Celeron® quad-core N2930 (7.5W) on-board SoC with DDR3L, VGA/iDP, GbE, USB 3.0, SATA 3Gb/s, Audio and RoHS
- **HYPER-BT-N28071-R10:**  
PICO-ITX SBC supports Intel® Celeron® dual-core N2807 (4.3W) on-board SoC with DDR3L, VGA/iDP, GbE, USB 3.0, SATA 3Gb/s, Audio and RoHS
- **HYPER-BT-E38XX1-R10:**  
PICO-ITX SBC supports Intel® Atom™ E38XX on-board SoC with DDR3L, VGA/iDP, GbE, USB 2.0, SATA 3Gb/s, Audio and RoHS
- **32000-070301-RS:** Dual-port USB cable
- **32200-000049-RS:** RS-232 cable, 200mm, DB-9 2x5P P=2.0
- **32006-000300-100-RS:** PS/2 KB/MS Y-cable without bracket
- **DP-LVDS-R10:** DisplayPort to 24-bit dual-channel LVDS converter board (for IEI iDP connector)
- **DP-HDMI-R10:** DisplayPort to HDMI converter board (for IEI iDP connector)
- **DP-DVI-R10:** DisplayPort to DVI-D converter board (for IEI iDP connector)
- **DP-VGA-R10:** DisplayPort to VGA converter board (for IEI iDP connector)
- **DP-DP-R10:** DisplayPort to DisplayPort converter board (for IEI iDP connector)

## Jumpers setting and connectors

| LABEL     | FUNCTION                          |
|-----------|-----------------------------------|
| USB_CAM1  | USB 2.0 Connector                 |
| SATA_PWR1 | <b>SATA Power Connector</b>       |
| SATA1     | <b>SATA 3Gb/s Drive Connector</b> |
| JP3       | EC FW Connector                   |
| COM1      | Serial port, RS-232               |
| AUDIO1    | Audio Pin Header                  |
| JSPI1     | BIOS FW Connector                 |
| CPU_FAN1  | CPU Fan Connector                 |
| CN5       | Front Panel Connector             |
| SP1       | Beep Connector                    |
| PWR_BTN1  | PWR_BTN1 Connector                |
| RST_BTN1  | RST_BTN1 Connector                |
| J_CMOS1   | <b>Clear CMOS Button</b>          |
| J1        | 12V DC IN Connector               |
| DP1       | DP Connector                      |
| VGA1      | <b>VGA Connector</b>              |
| CN2       | USB 2.0 & USB 3.0 Connector       |
| LAN1      | LAN Connector                     |
| JP2       | LAN LED                           |
| J_ATX_AT1 | J_ATX_AT1 Connector               |
| BAT1      | RTC Battery Connector             |

| USB_CAM1: 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                           | GND         | 8       | VCC         |

| <b>SATA_PWR1: 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 3Gb/s Drive Connector</b> |                    |                |                    |
|--|--------------------|----------------|--------------------|
| <b>PIN NO.</b>                           | <b>DESCRIPTION</b> | <b>PIN NO.</b> | <b>DESCRIPTION</b> |
| 1  | GND                | 2              | SATA_TX+           |
| 3  | SATA_TX-           | 4              | GND                |
| 5  | SATA_RX+           | 6              | SATA_RX-           |
| 7  | GND                |                |                    |

| <b>JP3: EC FW Connector</b> |                    |                |                    |
|-----------------------------|--------------------|----------------|--------------------|
| <b>PIN NO.</b>              | <b>DESCRIPTION</b> | <b>PIN NO.</b> | <b>DESCRIPTION</b> |
| 1                           | SMB_CLK_FW         | 2              | SMB_DATA_FW        |

| <b>COM1: Serial port, RS-232</b> |                    |                |                    |
|----------------------------------|--------------------|----------------|--------------------|
| <b>PIN NO.</b>                   | <b>DESCRIPTION</b> | <b>PIN NO.</b> | <b>DESCRIPTION</b> |
| 1                                | -NDCD1             | 2              | -NDSR1             |
| 3                                | NSIN1              | 4              | -NRTS1             |
| 5                                | NSOUT1             | 6              | -NCTS1             |
| 7                                | -NDTR1             | 8              | -XRI1              |
| 9                                | GND                | 10             | GND                |

| <b>AUDIO1: Audio Pin Header</b> |                    |                |                    |
|---------------------------------|--------------------|----------------|--------------------|
| <b>PIN NO.</b>                  | <b>DESCRIPTION</b> | <b>PIN NO.</b> | <b>DESCRIPTION</b> |
| 1                               | LINE_OUTR          | 2              | LINEIN_R           |
| 3                               | Analog_GND         | 4              | Analog_GND         |
| 5                               | LINE_OUTL          | 6              | LINEIN_L           |
| 7                               | Analog_GND         | 8              | Analog_GND         |
| 9                               | LMIC1-R            | 10             | LMIC1-L            |

| <b>JSPI1: BIOS FW Connector</b> |                    |                |                    |
|---------------------------------|--------------------|----------------|--------------------|
| <b>PIN NO.</b>                  | <b>DESCRIPTION</b> | <b>PIN NO.</b> | <b>DESCRIPTION</b> |
| 1                               | +V1.8M_SPI_CON     | 2              | SPI_CS             |
| 3                               | SPI_SO_SW          | 4              | SPI_CLK_SW         |
| 5                               | SPI_SI_SW          | 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              | +V12_FAN           |
| 3                                  | FANIO1_EC          | 4              | FANOUT1_EC         |

| <b>CON5: Front Panel Connector</b> |                    |                |                    |
|------------------------------------|--------------------|----------------|--------------------|
| <b>PIN NO.</b>                     | <b>DESCRIPTION</b> | <b>PIN NO.</b> | <b>DESCRIPTION</b> |
| 1                                  | +V5S               | 2              | GND                |
| 3                                  | PWR_LED+           | 4              | PWR_LED-           |
| 5                                  | HDD_LED+           | 6              | HDD_LED-           |

| <b>SP1: Beep Connector</b> |                    |                |                    |
|----------------------------|--------------------|----------------|--------------------|
| <b>PIN NO.</b>             | <b>DESCRIPTION</b> | <b>PIN NO.</b> | <b>DESCRIPTION</b> |
| 1                          | Buzzer +           | 2              | Buzzer -           |

| <b>PWR_BTN1: PWR_BTN1 Connector</b> |                    |                |                    |
|-------------------------------------|--------------------|----------------|--------------------|
| <b>PIN NO.</b>                      | <b>DESCRIPTION</b> | <b>PIN NO.</b> | <b>DESCRIPTION</b> |
| 1                                   | PWRBTN_SW#         | 2              | GND                |

| <b>RST_BTN1: RST_BTN1 Connector</b> |                    |                |                    |
|-------------------------------------|--------------------|----------------|--------------------|
| <b>PIN NO.</b>                      | <b>DESCRIPTION</b> | <b>PIN NO.</b> | <b>DESCRIPTION</b> |
| 1                                   | PM_SYSRST_R#       | 2              | GND                |

| <b>J_CMOS1: Clear CMOS button</b> |                            |
|-----------------------------------|----------------------------|
| <b>PIN NO.</b>                    | <b>DESCRIPTION</b>         |
| Open                              | Normal Operation (Default) |
| Push                              | Clear CMOS Setup           |

| <b>J1: 12V DC IN Connector</b> |                    |                |                    |
|--------------------------------|--------------------|----------------|--------------------|
| <b>PIN NO.</b>                 | <b>DESCRIPTION</b> | <b>PIN NO.</b> | <b>DESCRIPTION</b> |
| 1                              | VCC                | 2              | GND                |
| 3                              | GND                |                |                    |

| <b>DP1: DP Connector</b> |                    |                |                    |
|--------------------------|--------------------|----------------|--------------------|
| <b>PIN NO.</b>           | <b>DESCRIPTION</b> | <b>PIN NO.</b> | <b>DESCRIPTION</b> |
| 1                        | DDI1_HPDP1#        | 2              | DPD_AUX_CTRL_P2    |
| 3                        | GND                | 4              | DPD_AUX_CTRL_N2    |
| 5                        | AUX_CTRL_DET_D     | 6              | GND                |
| 7                        | GND                | 8              | DPD_OB_LANE2_P     |
| 9                        | DPD_OB_LANE3_P     | 10             | DPD_OB_LANE2_N     |
| 11                       | DPD_OB_LANE3_N     | 12             | GND                |
| 13                       | GND                | 14             | DPD_OB_LANE0_P     |
| 15                       | DPD_OB_LANE1_P     | 16             | DPD_OB_LANE0_N     |
| 17                       | DPD_OB_LANE1_N     | 18             | GND                |
| 19                       | VCC                | 20             | NC                 |



| <b>VGA1: VGA connector</b> |                    |                |                    |
|----------------------------|--------------------|----------------|--------------------|
| <b>PIN NO.</b>             | <b>DESCRIPTION</b> | <b>PIN NO.</b> | <b>DESCRIPTION</b> |
| 1                          | RED                | 10             | DISPLAY_GND        |
| 2                          | GREEN              | 11             | NC                 |
| 3                          | BLUE               | 12             | 5VDDCDA            |
| 4                          | NC                 | 13             | 5HSYNC             |
| 5                          | GND                | 14             | 5VSYNC             |
| 6                          | GND                | 15             | 5VDDCLK            |
| 7                          | GND                | 16             | V_GND              |
| 8                          | GND                | 17             | V_GND              |

| <b>BAT1: RTC Battery Connector</b> |                    |                |                    |
|------------------------------------|--------------------|----------------|--------------------|
| <b>PIN NO.</b>                     | <b>DESCRIPTION</b> | <b>PIN NO.</b> | <b>DESCRIPTION</b> |
| 1                                  | VBATT              | 2              | GND                |

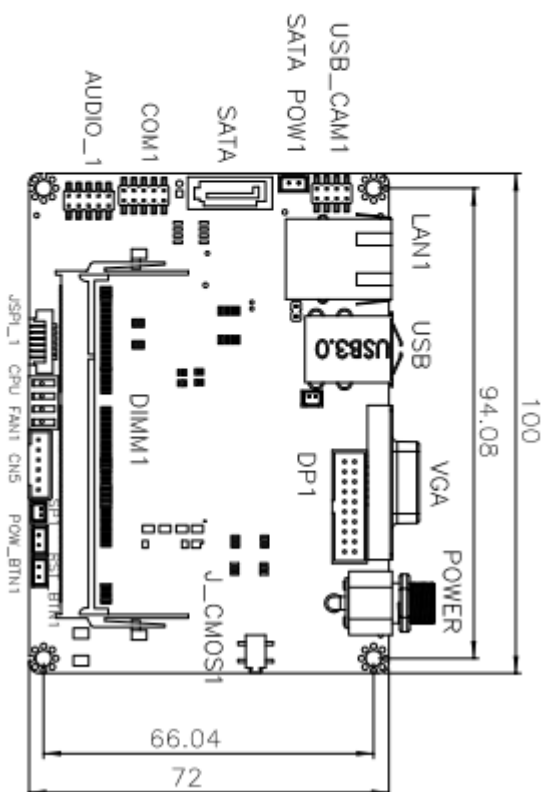
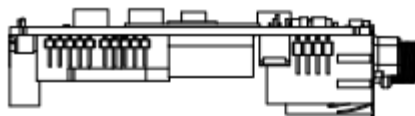
| <b>CN2: USB 2.0 &amp; USB 3.0 Connector</b> |                    |                |                    |
|---|--------------------|----------------|--------------------|
| <b>PIN NO.</b>                              | <b>DESCRIPTION</b> | <b>PIN NO.</b> | <b>DESCRIPTION</b> |
| 1   | VCC_USB3_01        | 8              | USB3P0_TXDN1       |
| 2   | USB2P0_DM1_L       | 9              | USB3P0_TXDP1       |
| 3   | USB2P0_DP1_L       | 10             | VCC_USB3_01        |
| 4   | GND                | 11             | DATA1_N            |
| 5   | USB3P0_RXDN1       | 12             | DATA1_P            |
| 6   | USB3P0_RXDP1       | 13             | GND                |
| 7   | GND                |                |                    |

| <b>JP2: LAN LED</b> |                    |                |                    |
|---------------------|--------------------|----------------|--------------------|
| <b>PIN NO.</b>      | <b>DESCRIPTION</b> | <b>PIN NO.</b> | <b>DESCRIPTION</b> |
| 1                   | VCC                | 2              | L1_LINK_ACT-       |

| <b>LAN1: LAN Connector</b> |                    |                |                    |
|----------------------------|--------------------|----------------|--------------------|
| <b>PIN NO.</b>             | <b>DESCRIPTION</b> | <b>PIN NO.</b> | <b>DESCRIPTION</b> |
| R1                         | TRD1P0             | R8             | TRD1N2             |
| R2                         | TRD1N0             | R9             | TRD1P3             |
| R3                         | TRD1P1             | R10            | TRD1N3             |
| R4                         | TRD1N1             | L1             | L1_100-            |
| R5                         | 1_5VLAN1           | L2             | L1_1000-           |
| R6                         | N95788617          | L3             | VCC                |
| R7                         | TRD1P2             | L4             | L1_LINK_ACT-       |

| <b>J_ATX_AT1: AT/ATX mode select switch</b> |                    |
|---|--------------------|
| <b>PIN NO.</b>                              | <b>DESCRIPTION</b> |
| Short A - B                                 | AT Mode            |
| Short B - C                                 | ATX Mode           |

## Board Layout: Jumper and Connector Locations



(Unit: mm)