Motherboard BYT35

User Manual V1.0

Edition Statement:		
Version	Version Description	Release date
V1.0	Initial version	2018/04/27

Chapter 1 Product Introduction

1.1 Main Information

The BYT35 is a 3.5”motherboard which is based on Intel Bay Trail. This board features small form factor, low power consumption and high performance.

1.2 Parameters

Bay Trial platform:

J1900, quad-core, Processor Base Frequency 1.8GHz, Burst Frequency 2.42GHz, TDP 10W, supports EIST technology,

J1800, dual-core, Processor Base Frequency 2.41GHz, Burst Frequency 2.58GHz, TDP 10W, supports EIST technology,

N2940, quad-core, Processor Base Frequency 1.83GHz, Burst Frequency 2.25GHz, TDP 7.5W, supports EIST technology,

N2807, Processor Base Frequency 1.58GHz, Burst Frequency 2.16GHz, TDP 4.3W, supports EIST technology.

Memory: CPU J1900/J1800/N2940: DDR3L up to 4GB(2GB×2), supports dual channel.

CPU N2807: DDR3L 1333 up to 2GB, supports single channel.

GPU: Integrated, 1 × HDMI, 1 × VGA, 1 × LVDS(24 bit, supports dual channel, eDP optional).

Storage: 1 × mSATA, 1 × SATA2.0, eMMC(optional).

USB: 1 × USB 3.0, 5 × USB 2.0.

Ethernet: 2 × Gigabit LAN(intel).

Audio: Onboard High resolution audio chip, supports Speaker_out, MIC_in and amplifier.

Other I/O: 1×Mini-PCIe with Micro SIM (for WIFI/BT/3G/4G module), 1 × LPC header (optional), 1 × GPIO header, 4 × RS232, 2 × RS485.

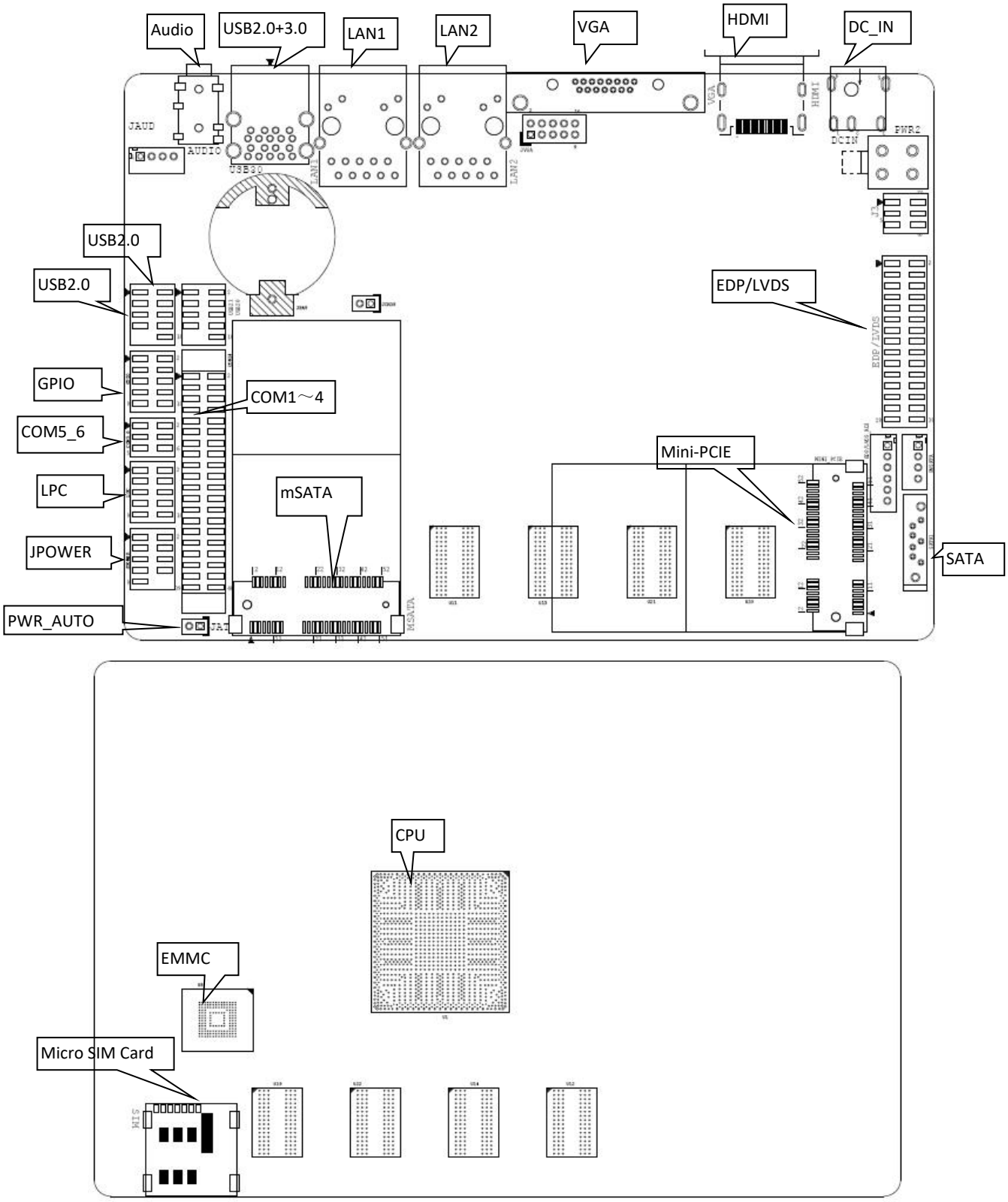
Size: 146mm × 102mm (3.5").

Power: 12V power supply.(9V～36V, optional)

Operating temperature: -40℃~60℃.

Chapter 2 Hardware

2.1 Connector Diagram



2.2 Jumper Setting

Tips about how to identify the first header of jumpers and interfaces: 1. Observe the mark beside plugs, the first header is usually marked by “1” or bold line or triangular symbol; 2. The first header is the square pad of pads on the back.

2.3 Memory Slots

This is an onboard memory design, and the memory configurations vary based on different CPU.

CPU	Memory	Capacity	Channel
J1900	DDR3L 1333	4GB	Dual channel
J1800	DDR3L 1333	4GB	Dual channel
N2940	DDR3L 1333	4GB	Dual channel
N2807	DDR3L 1333	2GB	Single channel

2.4 Display Interfaces

GPU integrated, 1 × HDMI 1.4, 1 × VGA, 1 × LVDS(24 bit, supports dual channel)
LVDS can be selected as eDP--When it is selected as eDP, the function of LVDS will be cancelled.
VGA interface pin is reserved onboard --as an alternative, this interface and the standard VGA interface at the back of the motherboard can not be connected to the monitor at the same time.

2.4.1 LVDS (Silk-print: eDP/LVDS、eDP/LVDS_ADJ、J3)

When this interface is set as LVDS, eDP/LVDS transmit LVDS signals. The operating voltage of screen is controlled by J3, and the backlilght power is controlled by eDP/LVDS_ADJ.

LVDS Pin(EDP/LVDS):

Signal	Pin		Signal
VCC	1	2	VCC
VCC	3	4	GND
GND	5	6	GND
A_DATA0_DN	7	8	A_DATA0_DP
A_DATA1_DN	9	10	A_DATA1_DP
A_DATA2_DN	11	12	A_DATA2_DP
GND	13	14	GND
A_CLK_DN	15	16	A_CLK_DP
A_DATA3_DN	17	18	A_DATA3_DP
B_DATA0_DN	19	20	B_DATA0_DP
B_DATA1_DN	21	22	B_DATA1_DP

B_DATA2_DN	23	24	B_DATA2_DP
GND	25	26	GND
B_CLK_DN	27	28	B_CLK_DP
B_DATA3_DN	29	30	B_DATA3_DP

LVDS Backlight Pin（eDP/LVDS_ADJ）:

Pin	Signal
1	GND
2	GND
3	LCD_BKL_ADJ
4	LCD_BKL_ON
5	12V
6	12V

LVDS Operating Voltage Pin（J3）:

Interface	Setting	Function
1-2	Close	VCC(+3.3V)
3-4	Close	VCC(+5V)
5-6	Close	VCC(+12V)

Attention: LVDS screen's power can be adjusted among 12V/5V/3.3V via jumper setting. Customers can connect voltage with jumper cap according to their LVDS screen's voltage(Connecting different voltages via jumper cap at the same time is strictly forbidden).

2.4.2 eDP (optional)

When is set as eDP, eDP/LVDS transmit eDP signals. The operating voltage of screen is controlled by J3, and the backliight power is controlled by eDP/LVDS_ADJ.

eDP Data Pin(Silk-print：eDP/LVDS):

Signal	Pin		Signal
VCC	1	2	VCC
VCC	3	4	EDP_HPD
GND	5	6	GND
EDP_AUXN	7	8	EDP_AUXP
N/A	9	10	N/A
EDP_DATA0_P	11	12	EDP_DATA0_N
GND	13	14	GND
N/A	15	16	N/A
EDP_DATA1_P	17	18	EDP_DATA1_N
N/A	19	20	N/A

N/A	21	22	N/A
N/A	23	24	N/A
GND	25	26	GND
N/A	27	28	N/A
N/A	29	30	N/A

eDP Backlight Pin(Silk-print：eDP/LVDS_ADJ）：

Pin	Signal
1	GND
2	GND
3	LCD_BKL_ADJ
4	LCD_BKL_ON
5	12V
6	12V

eDP Voltage Pin（Silk-print：J3）：

Interface	Setting	Function
1-2	Close	VCC(+3.3V)
3-4	Close	VCC(+5V)
5-6	Close	VCC(+12V)

Attention: eDP screen's power can be adjusted among 12V/5V/3.3V via jumper setting.
Connecting different voltages via jumper cap at the same time is strictly forbidden.

2.4.3 Alternate VGA (Silk-print: JVGA)

Signal	Pin		Signal
VGA_R	1	2	GND
VGA_G	3	4	GND
VGA_B	5	6	GND
V_SYNC	7	8	DDC_DAT
H_SYNC	9	10	DDC_CLK

2.5 Storage slots (Silk-print: MSATA、SATA1、PWSATA)

Supports 1 × mSATA interface(SATA2.0 standard）and 1 ×standard SATA2.0 interface.

emmc(onboard)： optional, and capacity is optional(8GB/32GB/64GB）.

PWSATA: SATA power interface (only for 2.5" hard disk).

Hard Disk Power Interface（PWSATA）：

Pin	Signal
1	5V
2	GND
3	GND

4	5V

2.6 USB

1 × USB3.0， 5 × USB2.0，and 4 × internal USB2.0 header (2.0mm spacing).

Internal USB2.0 Header (silk-print: USB20, USB21):

Signal	Pin		Signal
VCC 5V	1	2	VCC 5V
USB DATA-	3	4	USB DATA-
USB DATA+	5	6	USB DATA+
GND	7	8	GND
(NUL)	9	10	(NC)

2.7 LAN

Onboard 2 × high performance RJ45 LAN interfaces, adopting intel gigabit control chip i211 (LAN) respectively, supports Magic packet wake-up and PXE functions.

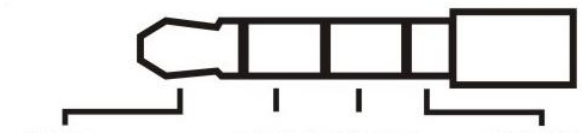
LED indicator light:

LILED (orange)	Function	ACTLED (green)	Function
On	Connected	Flicker	Data

2.8 Audio

ALC662 audio control chip. Line_out and Mic in one, 1 × 3.5-mm Line_out/MIC 2-in-1 jack (CTIA American standard), 1 × internal dual channel amplifier output socket for passive speaker.

Two in one headphone jack:



Left channel　Right channel　GND　MIC

Amplifier Output Socket (silk-print: JAUD):

Pin	Signal
1	L+
2	L-
3	R-
4	R+

2.9 Serial Ports

There are 4 × RS232 and 2 × RS485 header(2.0mm spacing) onboard. RS232 interfaces are charged, and their voltage is the same as the input voltage of the board.

RS232 (silk-print: COM14)：

Signal	Pin		Signal
DCD#	1	2	RXD
TXD	3	4	DTR#
GND	5	6	DSR#
RTS#	7	8	CTS#
RI#	9	10	VCC(same as board input)
DCD#	11	12	RXD
TXD	13	14	DTR#
GND	15	16	DSR#
RTS#	17	18	CTS#
RI#	19	20	VCC(same as board input)
DCD#	21	22	RXD
TXD	23	24	DTR#
GND	25	26	DSR#
RTS#	27	28	CTS#
RI#	29	30	VCC(same as board input)
DCD#	31	32	RXD
TXD	33	34	DTR#
GND	35	36	DSR#
RTS#	37	38	CTS#
RI#	39	40	VCC(same as board input)

RS485 (silk-print: COM5_6)：

Signal	Pin		Signal
COM5_DATA-	1	2	COM6_DATA-
COM5_DATA+	3	4	COM6_DATA+
GND	5	6	GND

2.10 GPIO (silk-print: GPIO)

Onboard 2×5Pin JGPIO header (2.0mm spacing), 8 × programmable GPIO input and output.

Signal	Pin		Signal
SIO_GP70	1	2	3.3V
SIO_GP71	3	4	SIO_GP74
SIO_GP72	5	6	SIO_GP75
SIO_GP73	7	8	SIO_GP76
GND	9	10	SIO_GP77

2.11 LPC Header (optional)

1 × LPC (Low Pin Count Interface, 2.0 mm spacing) to connect peripheral LPC equipment, optional.

LPC:

Signal	Pin		Signal
L_FRAME_N	1	2	LPC_AD3
LPC_AD2	3	4	LPC_AD1
LPC_AD0	5	6	GND
PLTRST	7	8	CLK_LPC
3.3V	9	10	SERIRQ

2.12 Power Supply (silk-print: DCIN, PWR2)

9V～36V DC_IN adapter

DCIN:

PWR2:

Signal	Pin		Signal
GND	2	1	GND
VIN	3	4	VIN

2.13 Power Button/Indicator Light Header (silk-print: JPOWER)

1 × header (2.0 mm spacing), connects 1 × power button, 1 × system reset button, 1 × disk read-write indicator and 1 × power on indicator.

JPOWER:

Signal	Pin		Signal
HDD_LED+	1	2	PWR_LED+
HDD_LED-	3	4	PWR_LED-
RSTBTN+	5	6	PWR_ON+
RSTBTN-	7	8	PWR_ON-
(NC)	9	10	(NUL)

2.14 Auto Power on by Hardware (silk-print: JAT)

JAT:

Setting	PWR_AUTO
Close	On

Attention: This jumper functions are similar to “Restore AC Power Loss” on BIOS, and if the latter is set to be “Power on”, this function will automatically work.

2.15 CMOS (silk-print: CLR _CMOS)

CMOS is powered by the button battery on the board. Clearing CMOS will permanently clear previous system setting and restore it to factory setting.

Steps: 1. Turn the computer off and disconnect power;

2. Connect the jumper cap to the 1ST and 2nd pin of JCMOS pin for 10 secs, and disconnect;
3. Turn the computer on, and press <Del> to enter BIOS setting, overload the best default value;
4. Save and exit.

CLR_CMOS:

Setting	JCMOS
Close	Clear CMOS

⚠ Don't clear COMS when the computer is connected to power to avoid damage to the board.