User Manual

BYT-35 Disk Size SBC Motherboard

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BYT35 Motherboard

User Manual

(Version 1.5)

Version:		
NO.	Description	Issue Date:
V1.0	Initial Version	2018/04/27
V1.5	Updated the power to 12V/19V DC-in	2021/10/28

Contents

Chapter 1 Product Introduction

1.1 Brief Introduction

The BYT-35 V1.5 motherboard is a 3.5" SBC (Single Board Computer) based on the Intel Bay Trail platform, features small form factor, low power consumption and high performance.

1.2 Parameters

Bay Trail Platform:

- Celeron J1900, quad-core, 1.8GHz - 2.42GHz, TDP 10W, supports EIST
- Celeron J1800, dual-core, 2.41GHz - 2.58GHz, TDP 10W, supports EIST
- Celeron N2940, quad-core, 1.83GHz - 2.25GHz, TDP 7.5W, supports EIST
- Celeron N2807, dual-core, 1.58GHz – 2.16GHz, supports EIST

Memory:

- CPU J1900/1800/N2940----on-board DDR3L-1333, supports dual channel, maximum capacity 4GB(2x2GB)
- CPU N2807----on-board DDR3L-1333, single channel, maximum capacity 2GB

GPU: Integrated Graphics based on CPU, Display via 1x HDMI1.4, 1xVGA,1x LVDs (eDP optional), supports dual independent displays.

Storage: 1 x mSATA (Compliant with SATA2.0), 1 x standard SATA2.0, eMMC optional

USB: 1x USB3.0 Gen 1, 5x USB2.0

Ethernet: 2x Gigabyte Network Controllers (Intel)

Audio: High-Definition Audio Codecs, supports Speaker-out, Mic-in, and power amplifier functions

Other I/O: 1x mini-PCIe, Micro SIM, support WIFI/BT/3G/4G module; a set of LPC(optional), a set of GPIO, 4xRS232, 2xRS485

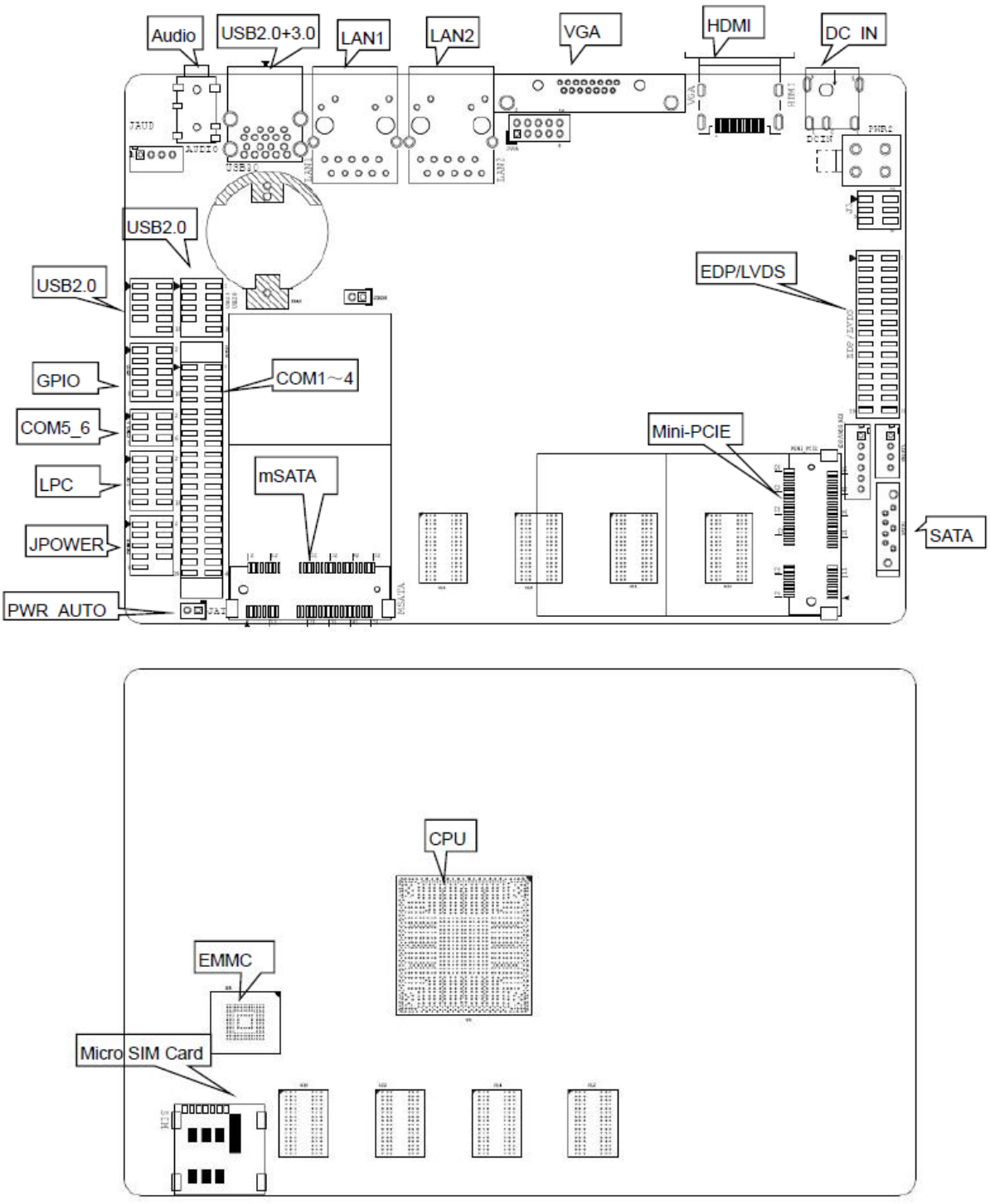
Dimension: 146mm x 102mm (3.5")

Power: 12V/19V DC-in (12V~36V optional)

Working Temperature: -20℃~60℃

Chapter 2 Hardware

2.1 Connector Diagram



2.2 Jumper Setting

Please configure the jumpers according to your requirements before installing the hardware.

How to identify the first header of jumpers and pins: Observe the mark beside the jumper or pins and find the header marked by “1” or bold line or triangular symbol. Or observe the rear panel and the header with a square solder pad is the first header.

2.3 Memory Slots

Onboard memory design and the memory configurations vary on different CPUs.

CPU	Memory Type	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

The board features Integrated graphics, supports 1xHDMI, 1xVGA, 1x 24bit Dual Channel LVDs. Supports dual independent display.

The LVDs can be set as 2 lanes eDP, when it is configured as eDP function the LVDs function will be disabled.

The onboard VGA interface is reserved as an alternative option, the onboard VGA interface cannot be used at the same time as the rear standard VGA interface.

2.4.1 LVDS (Screen printing: EDP/LVDS, EDP/LVDS_ADJ, J3)

When it is configured as LVDS function, the "EDP/LVDS" pin transmits LVDS signals, the " EDP/LVDS_ADJ," pin is the backlight adjustment jumper, and the operating voltage of the screen is controlled by the "J3" pin.

LVDS Data 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)

Note: 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 it is set as eDP functions, the "EDP/LVDS" pin transmits the eDP signal, the " EDP/LVDS_ADJ," pin is the backlight adjustment jumper, and the operating voltage of the screen is controlled by the "J3" pin.

eDP Data Pin (Screen Printing: 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 (Screen Printing: eDP/LVDS_ADJ)

Pin	Signal
1	GND
2	GND

3	LCD_BKL_ADJ
4	LCD_BKL_ON
5	12V
6	12V

EDP Operating Voltage Pin (Screen Printing: J3)

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

Note: The eDP screen's power can be flexibly adjusted between 12V/5V/3.3V via jumper setting. It is strictly forbidden to short-circuit pins of different voltages at the same time.

2.4.3 VGA Backup interface (Screen Printing: 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 (Screen Printing: MSATA, SATA1, PWSATA)

The board supports 1x mSATA interface (Standard SATA2.0) and 1x Standard SATA2.0 interface.
Onboard eMMC optional, capacity can be chosen from 8GB/32GB/64GB.
The "PWSATA" is the power supply of the SATA disk, only applies to a 2.5" hard disk.

Hard Disk Power Supply (Screen Printing: PWSATA)

Pin	Signal
1	5V
2	GND
3	GND
4	5V

2.6 USB Interface

The board supports 1x USB3. 0 and 5x USB2.0(4*header on board, 2.0mm spacing)

Internal USB2.0 Pin (Screen Printing: 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)

2.6 LAN

The board is equipped with two Intel i211 Gigabit Network Controller, RJ45 interface, supports Magic packet wake-up and PXE network boot.

LED Status Indicators:

LI_LED Status (Orange)	Function	ACT_LED Status (Green)	Function
Always on	Network Connected	Blinking	Data transfer

2.8 Audio Interface

The board features Realtek HD audio codec ALC662 supports a 3.5mm Line-out/MIC two-in-one combo jack (CTIA American standard), and a built-in dual-channel power amplifier output socket for connecting passive speakers.

Two-in-one headphone jack:

JAUD (Screen Printing: JAUD)

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

2.9 COM

The board provides 4x RS232 and 2xRS485 onboard serial port headers (2.0mm spacing). the RS232 serial port headers are electrified, the voltages are the same as the input voltage of the board.

RS232 COM (Screen Printing：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 (Screen: COM5_6)

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

2.10 GPIO (Screen Printing: GPIO)

The board provides a set of 2x5Pin GPIO (2.0mm spacing), 8 lanes of programmable I/O in total.

GPIO (Screen Printing：GPIO)

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 (optional)

The board provides 1 x 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 Board Power Supply (Screen Printing: DCIN, PWR2)

The board supports a 12V/19V DC-in power supply.

DCIN:

PWR2 (Screen Printing：PWR2)

Definition	Pin		Definition
GND	2	1	GND
VIN	3	4	VIN

2.13 Switch Button/ Indicator Pin (Screen Printing: JPOWER)

The board has a set of 2.0mm spacing pins that can be connected to a switch button, a system reset button, a hard disk read/write indicator, a 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 Hardware Auto Start (Screen Printing: JAT)

JAT (Screen Printing: JAT)

Setting	JAT
Close	Hardware Auto Start

Please note that this jumper's function is similar to the BIOS's "Restore AC Power Loss" function. When the latter is set to power on, the device will also start automatically after power is connected

2.15 CMOS Clearance/Retention (Screen Printing: JCMOS)

CMOS is powered by onboard button batteries. Clearing CMOS will permanently remove the previous system settings and restore the board system to original settings (factory settings).

Step 1: Turn off the PC and disconnect the power adapter.

Step 2: Connect the 1st and 2nd pin of JCMOS for 10 seconds through the jumper cap then disconnect.

Step 3: Restart the device, press the <DEL> button to enter the BIOS, load the optimal default value, save, and exit the settings.

CLR_CMOS:

Setting	JCMOS
Close	Clear CMOS

⚠ **Please do not clear COMS when the PC is connected to power in case board damages.**