User Manual

BYT-35 SBC Disk Size Motherboard

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BYT35 Motherboard

User Manual

(Version 2.1)

Version:		
NO.	Description	Issue Date:
V2.0	Initial Version	2021/12/30
V2.1	1. Modify the working voltage of LVDS/EDP to: 5V/3.3V 2. Added the backlight standard and reverse adjustment function through LVDS/EDP hardware jumper	2022/1/12

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Chapter 1 Product Introduction

1.1 Brief Introduction

The BYT-35 V2.1 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:

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

Memory: 1x SO-DIMM DDR3L-1333 on-board, maximum capacity 8 GB

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

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

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

USB: 1x USB3.2 Gen 1, 7x USB2.0 (4*header)

Ethernet: 2x Gigabyte Network Controllers on-board (Intel i211)

Serial I/O: 6x RS232 COM (COM5, COM6*RS485 optional)

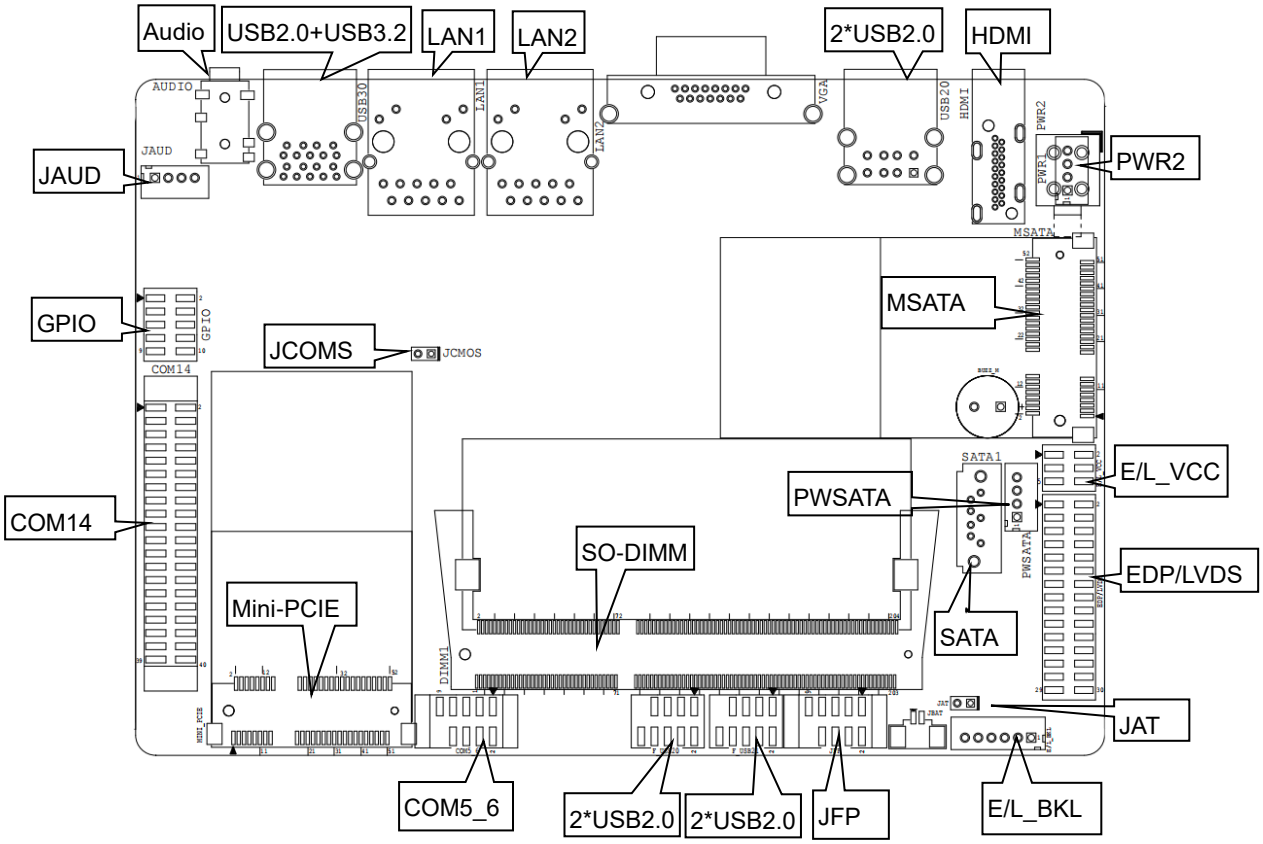
Other I/O: 1x mini-PCIe, Micro SIM, support WIFI/BT/3G/4G module; 1 set of GPIO pins, 1 set of JFP switch pins

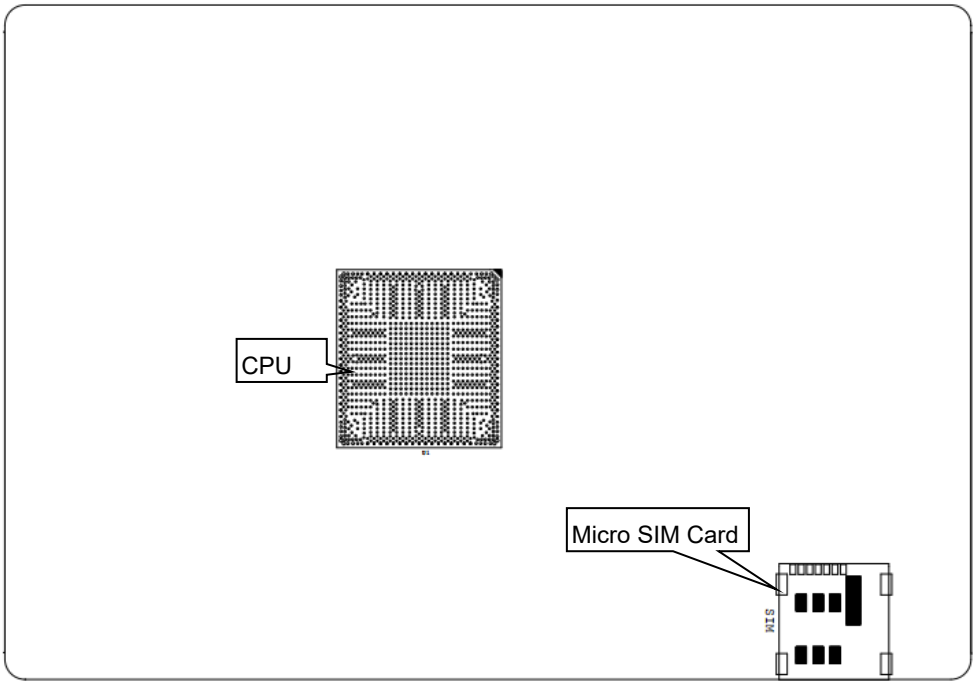
Dimension: 146mm x 102mm (3.5")

Power: 12V DC-in

Working Temperature: -20℃~60℃

1.3 Connector Diagram





Chapter 2 Hardware

2.1 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.

2.2 Memory Slots

The board provides 1 x SO-DIMM DDR3L-1333 slots, maximum capacity of 8 GB.

2.3 Display Interfaces

The board features Integrated graphics, supports 1xHDMI1.4, 1xVGA, 1x 24bit Dual Channel LVDs, and dual independent display. The LVDs can be set as 2 lanes eDP, when it is configured as eDP the LVDs function will be disabled.

2.3.1 LVDS (Screen printing: EDP/LVDS, E/L_VCC, L_VCC/BKL)

When it is configured as LVDS function, the "EDP/LVDS" pin transmits LVDS signals, the "E/L_BKL" pin is the backlight adjustment jumper, and the "L_VCC/BKL" pin is the display working voltage adjustment jumper.

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 (E/L_BKL):

Pin	Signal
1	GND
2	GND
3	LCD_BKL_ADJ

4	LCD_BKL_ON
5	12V
6	12V

LVDS Working Voltage Pin (L_VCC/BKL):

Interface	Setting	Function
1-3	Close	VCC(+3.3V)
3-5	Close	VCC(+5V)
2-4	Close	REV (Backlight control reverse)
4-6	Close	STD (Backlight control standard)

Note: Set the LVDS display power supply jumper can be flexibly adjusted between 5V/3.3V. According to the voltage parameters of the LVDS screen, the customer can use a jumper cap to short-circuit the voltage pins that meet the requirements. (Please do not short-circuit pins two or more different voltages at the same time.)

2.3.2 eDP (Optional)

When it is set as eDP functions, the “EDP/LVDS” pin transmits the eDP signal, the “E/L_BKL” is for the backlight adjustment jumper and the “L_VCC/BKL” is for the display working voltage adjustment jumper.

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: E/L_BKL)

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

6	12V

EDP Working Voltage Pin (L_VCC/BKL)

Interface	Setting	Functions
1-3	Close	VCC(+3.3V)
3-5	Close	VCC(+5V)
2-4	Close	REV (Backlight control reverse)
4-6	Close	STD (Backlight control standard)

Note: Set the eDP display power supply jumper can be flexibly adjusted between 5V/3.3V. It is strictly forbidden to short-circuit pins of different voltages at the same time.

2.4 Storage (Screen Printing: MSATA, SATA1, PWSATA)

1x mSATA interface SATA2.0 on board (mini PCIe optional) 1x Standard SATA2.0 interface. The "PWSATA" is the disk power supply interface of SATA.

Disk Power Supply (Screen Printing: PWSATA)

Pin	Signal
1	5V
2	GND
3	GND
4	12V

2.5 USB Interface

The board supports 1x USB3.2 Gen1 and 7x USB2.0(4*header on board, 2.0mm spacing)

Internal USB2.0 Pin (Screen Printing: F_USB20, F_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
NC	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 (Green)	Function	ACT_LED Status (Orange)	Function
Always on	Network	Blinking	Data transfer

2.7 Audio Interface

The board features Realtek HD audio codec ALC897 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+

2.8 COM

The board provides six RS232 onboard serial port headers (2.0mm spacing), and the COM5 and COM6 are RS485 optional. Screen printing COM14 is electrified, the voltage is 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 the board input voltage)
DCD#	11	12	RXD
TXD	13	14	DTR#
GND	15	16	DSR#
RTS#	17	18	CTS#
RI#	19	20	VCC (Same as the board input voltage)
DCD#	21	22	RXD
TXD	23	24	DTR#
GND	25	26	DSR#
RTS#	27	28	CTS#
RI#	29	30	VCC (Same as the board input voltage)
DCD#	31	32	RXD
TXD	33	34	DTR#
GND	35	36	DSR#
RTS#	37	38	CTS#
RI#	39	40	VCC (Same as the board input voltage)

COM5_6 Default RS232 (Screen: COM5_6)

Signal	Pin		Signal
NC	1	2	NC
RX5	3	4	RX6
GND	5	6	GND
TX5	7	8	TX6
NC	9	10	(NC)

COM5_6 RS485 Optional (Screen Printing: COM5_6)

Signal	Pin		Signal
COM5_DATA-	1	2	COM6_DATA-
COM5_DATA+	3	4	COM6_DATA+
GND	5	6	GND
NC	7	8	NC
NC	9	10	(NC)

2.9 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

2.10 Board Power Supply (Screen Printing: PWR2)

The board provides a 2x2 ATX power supply interface, supports a 12V DC-in power supply.

PWR2 (Screen Printing：PWR2)

Definition	Pin		Definition
GND	2	1	GND
VIN	3	4	VIN

2.11 Switch Button/ Indicator Pin (Screen Printing: JFP)

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.

JFP (Screen Printing：JFP)

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	(NC)

2.12 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

2.13 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: Press JCMOS for 10 seconds and disconnect.

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

JCMOS (Screen Printing：JCMOS)

Setting	JCMOS
Close	Clear CMOS

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