User Manual

BYT-60 Mini ITX Motherboard



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BYT-60 Mini ITX Motherboard

User Manual

(Version 5.5)

Version:		
NO.	Description	Issue Date:
V5.3	Initial Version	
V5.5	1. COM1 and COM2 definitions are changed to standard definitions. 2. Audio Codec ALC662 is changed to ALC897.	2023/09/15

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Chapter 1 Product Introduction

1.1 Parameters

Processor:

Intel Bay Trail-D Celeron J1900(2.0GHz, quad-core, TDP10W)

Intel Bay Trail-D Celeron J1800(2.41GHz, dual-core, TDP10W)

Memory: 1x Single Channel DDR3L 1333MHz slot, up to 8GB

GPU: Integrated Intel HD graphics, supports dual display via HDMI, VGA, LVDs/eDP (dual channel 24bit LVDs, 2 lanes eDP optional)

Storage: 2 x SATA2.0, 1 x mSATA slot (SATA2 and mSATA are alternatives), 1 x eMMC (optional choice, applies to board version 5.0 and above).

USB: Configurable for up to 8 USB ports, one of which supports USB 3.0 functionalities and two of which are alternatives with a LAN port (share physical location with one of the LANs), either one or the other.

Ethernet: Maximum of 2xLAN (LAN2 and 2 x USB2.0 are alternatives)

Audio: high-definition audio codec ALC897, supports speaker-out, Mic-in (rear port), SPDIF and power amplifier

I/O: If IT8786E IO chip onboard, the board supports 6 x COM (COM6 can be set as RS232 or RS485) and 1 x LPT (can be set as 16 x GPIO). If IT8772E IO chip onboard, the board only supports COM1, 1x RS232.

Other I/O: 1 x mini-PCIe with standard SIM card slot, supports Wi-Fi/3G/4G module. The mSATA slot also can be configured as mini-PCIe slots, so maximum of two min-PCIe Slots can be supported. 8 x GPIO, PS/2 for KB /MS.

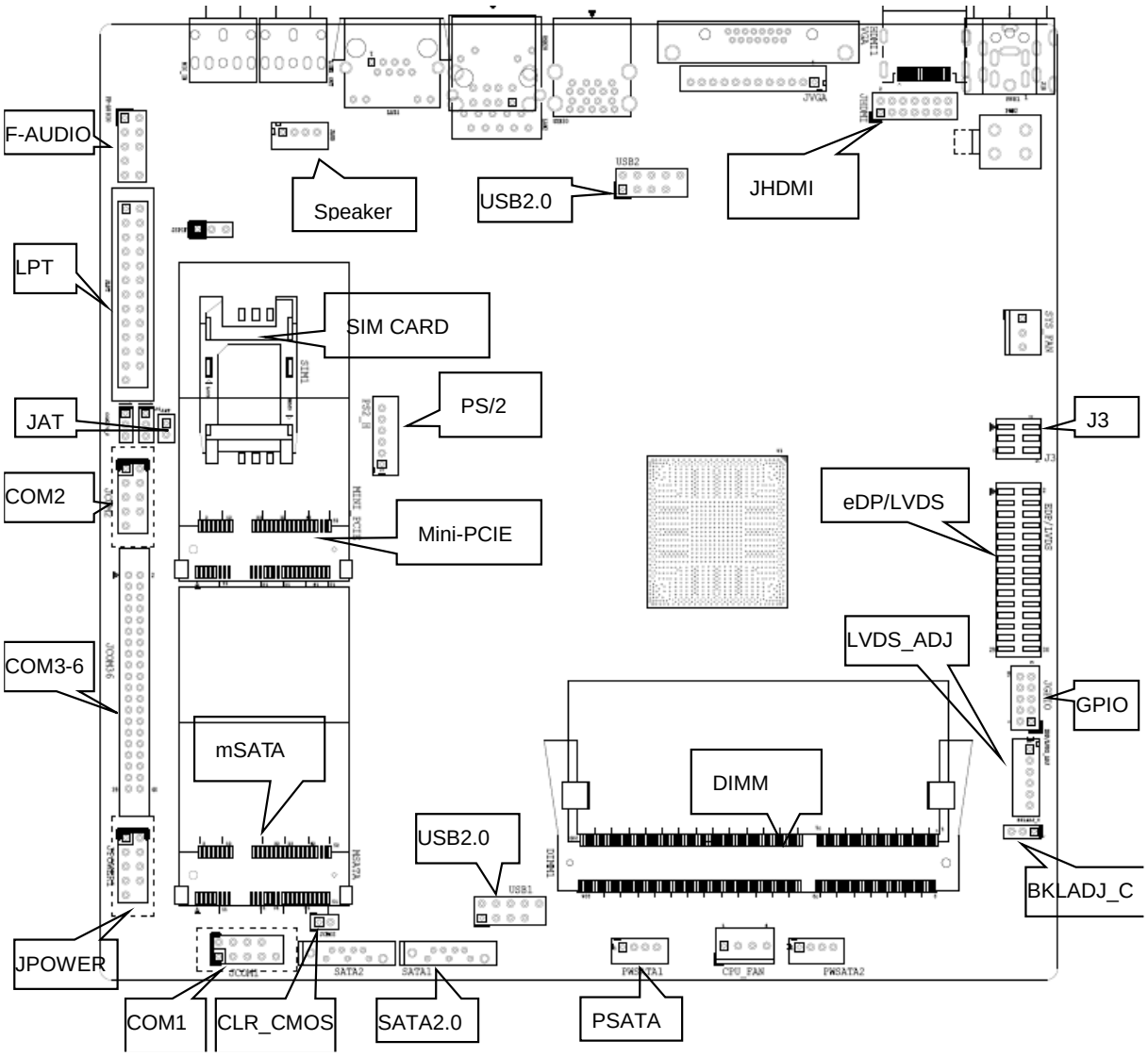
Dimension: 170mm x 170mm

Power: 12V DC-in (Do not power the board with other voltage adapters or other power supply)

Working Temperature: -20℃~60℃

Chapter 2 Hardware

2.1 Connector Diagram



⚠ Please read the user manual carefully, before you connect to an external connector, in case of board damage.

2.2 Jumper Setting

Please configure the jumpers according to your needs 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

On-board 1x SO-DIMM DDR3L-1333MHz up to 8GB.

2.4 Internal Display Interface (JHDMI, JVGA)

The VGA and HDMI headers (optional) have been reserved on the board as a backup option. These headers differentiate from the standard ports on the back and connect to be used at the same time.

JHDMI：

Signal	Pin		Signal
HDMI_DATA2_P	1	2	HDMI_DATA2_N
HDMI_DATA1_P	3	4	HDMI_DATA1_N
HDMI_DATA0_P	5	6	HDMI_DATA0_N
HDMI_CLK_P	7	8	HDMI_CLK_N
HDMI_SCL	9	10	HDMI_SDA
VGA_DATA_5V	11	12	GND
HDMI_DETECT	13	14	GND

JVGA：

Pin	Signal
1	CRT_DDC_ DATA
2	CRT_DDC_ CLK
3	GND
4	VGA_B_R
5	GND
6	VGA_G_R
7	GND
8	VGA_R_R
9	GND
10	CRT_HSYNC1
11	CRT_VSYNC1
12	(NC)

2.5 LVDS

Supports dual channel 24bit LVDS interface.

The power supply of the LVDS screen is controlled by the J3 jumper. The EDP/LVDS_ADJ is the screen backlight brightness control socket, and BKLADJ_C is the screen backlight two-way adjustment control jumper.

LVDS Data pin (screen printing: 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 (screen printing: EDP/LVDS_ADJ)

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

LVDS Screen Backlight Two-way Adjustment Jumper (screen printing: BKLADJ_C)

Pin	Setting	Function
1-2	Close	Backlight controls reverse
2-3	Close	Backlight controls standard

LVDS screen voltage jumper (screen printing: J3)

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

Note: The LVDS display power supply can be adjusted among 12V/5V/3.3V via jumper setting. Users can connect the VCC with a jumper cap by 2pin according to their LVDS screen's voltage (Short-circuiting two or more interfaces via jumper cap at the same time is strictly forbidden).

2.6 eDP (optional)

The board supports an optional eDP interface (2 lanes). When it is set as eDP the LVDs function will be disabled. The J3 jumper controls the screen power supply and the EDP/LVDS_ADJ controls the screen backlight brightness.

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
(NC)	9	10	(NC)
EDP_DATA0_P	11	12	EDP_DATA0_N
GND	13	14	GND
(NC)	15	16	(NC)
EDP_DATA1_P	17	18	EDP_DATA1_N
(NC)	19	20	(NC)
(NC)	21	22	(NC)
(NC)	23	24	(NC)
GND	25	26	GND
(NC)	27	28	(NC)
(NC)	29	30	(NC)

eDP backlight adjustment pin (Screen printing: EDP/LVDS_ADJ)

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

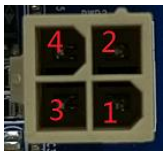
eDP voltage pin (Screen printing: J3)

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

Note: The eDP display power is controlled by jumpers. The voltage can be adjusted between 12V/5V/3.3V. Don't short-circuit two or more interfaces with a jumper cap.

2.7 Internal PWR2

This power socket can be used as the power input of the motherboard, or as a power output socket to supply power to the peripheral devices (the voltage is the same as the input voltage of the motherboard PWR1).



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

2.8 Internal USB interface (USB1, USB2)

The internal USB headers are USB2.0 interface.

USB1, USB2:

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

2.9 LAN

The board features 2xRJ45 interfaces RTL8111H Gigabit Ethernet controllers.

One of the LAN ports (RJ45 interface, screen printing “LAN2”) can be changed to two USB2.0.

Both ports support Wake on LAN (The situation where the board reconnects with DC power after it cuts off DC power is not included). One of the LANs (Screen printing “LAN1”) supports PXE network boot.

RJ45 LAN LED Description:

LILED (Orange)Status	Function	ACTLED (Green) Status	Function
Always on	Connected	Blink	Data transmission

2.10 Audio (FP_AUDIO, JAUD, JSPIF)

Features the ALC897 audio codec, the green interface is Speaker-out and the pink interface is Mic-in; the JAUD is amplifier output; the JSPIF is SPDIF-out.

FP_AUDIO:

Signal	Pin		Signal
MIC2-L	1	2	AGND
MIC2-R	3	4	AVCC
FRO-R	5	6	MIC2-JD
F-IO-SEN(AGNG)	7	8	(NC)
FRO-L	9	10	LIN2-JD

JAUD:

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

JSPIF:

Pin	Signal
1	+5V
2	SPDIF Out
3	GND

2.11 COM (JCOM1, JCOM2, JCOM36, JCOM2/4_P)

Supports 6 x RS232, and COM6 can be set as RS485.

COM1 and COM2 are standard definitions.

COM2 and COM4 come with power and can set up a different voltage through jumper COM2/4_P.

JCOM1:

Signal	Pin		Signal
DCD#	1	2	RXD
TXD	3	4	DTR
GND	5	6	DSR
RTS	7	8	CTS
RI	9	10	

JCOM2:

Signal	Pin		Signal
DCD#	1	2	RXD
TXD	3	4	DTR
GND	5	6	DSR
RTS	7	8	CTS
RI	9	10	

JCOM2/4 voltage setting(screen printing：COM2/4_P)

Signal	Pin	Signal
1-2	Close	VCC_12V
2-3	Close	VCC-5V

⚠Do not connect three sets of COM at the same time in case of board damages.

JCOM36:

Signal	Pin		Signal
DCD#_3	1	2	RXD_3
TXD_3	3	4	DTR#_3
GND	5	6	DSR#_3
RTS#_3	7	8	CTS#_3
RI#_3	9	10	(NC)
DCD#_4	11	12	RXD_4
TXD_4	13	14	DTR#_4

GND	15	16	DSR#_4
RTS#_4	17	18	CTS#_4
(NC) / VCC(5V/12V)	19	20	(NC)
DCD#_5	21	22	RXD_5
TXD_5	23	24	DTR#_5
GND	25	26	DSR#_5
RTS#_5	27	28	CTS#_5
RI#_5	29	30	(NC)
DCD#_6	31	32	RXD_6
TXD_6	33	34	DTR#_6
GND	35	36	DSR#_6
RTS#_6	37	38	CTS#_6
RI#_6	39	40	(NC)

When COM6 is set as RS232 and RS485, the PIN definition is listed as follows:

Pin	RS232	RS485
1	DCD#	DATA-
2	RXD	DATA+
3	TXD	(NC)
4	DTR#	(NC)
5	GND	GND
6	DSR#	(NC)
7	RTS#	(NC)
8	CTS#	(NC)
9	RI#	(NC)

2.12 LPT (JLPT, J4)

The board features two 2x13-pin LPT headers (2.0mm spacing) for connecting peripherals like printers.
To use the headers as 16 lanes of GPIO, please disable the LPT function in the BIOS.
When changing the JLPT pin's function, set the J4 pin voltage to 3.3V for proper operation.

JLPT (set as printing port):

Signal	Pin		Signal
STB	1	2	AFD

Signal	Pin		Signal
LPT_ PPD0	3	4	ERROR
LPT_ PPD1	5	6	INIT
LPT_ PPD2	7	8	SLIN
LPT_ PPD3	9	10	GND
LPT_ PPD4	11	12	GND
LPT_ PPD5	13	14	GND
LPT_ PPD6	15	16	GND
LPT_ PPD7	17	18	GND
ACK	19	20	GND
BUSY	21	22	GND
PE	23	24	GND
SLCT	25	26	(NC)

JLPT(Set as GPIO):

Signal	Pin		Signal
GPIO_87	1	2	GPIO_86
GPIO_70	3	4	(NC)
GPIO_71	5	6	GPIO_85
GPIO_72	7	8	GPIO_84
GPIO_73	9	10	GND
GPIO_74	11	12	GND
GPIO_75	13	14	GND
GPIO_76	15	16	GND
GPIO_77	17	18	GND
GPIO_83	19	20	GND
GPIO_82	21	22	GND
GPIO_81	23	24	GND
GPIO_80	25	26	(NC)

J4 (Voltage setting):

Function	Setting
GPIO	short-circuit 1-2
Printing	short-circuit 2-3

⚠ Do not short-circuit three sets of pins same time in case of board damages.

2.13 GPIO(JGPIO）

A set of 2×5Pin (connected from CPU) JGPI0 header, 8 programmable I/O interfaces in total.

Signal	Pin		Signal
GPI_S5_0	1	2	1.8V
GPI_S5_1	3	4	GPO_S5_6
GPI_S5_2	5	6	GPO_S5_7
GPI_S5_3	7	8	GPO_S5_8
GND	9	10	GPO_S5_9

2.14 SATA and mSATA (SATA1, SATA2, mSATA, PWSATA1, PWSATA2)

Maximum of two standard SATA2.0 interfaces (SATA2 and mSATA are alternatives), one mSATA slot, and two 4pin SATA power supply sockets.

PWSATA1/2:

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

2.15 Mini-PCIe (Mini-PCIe, SIM1)

Supports Wi-Fi card with standard SIM card slot for 3G/4G module expansions.

2.16 PS/2 (PS2)

The board offers a 6Pin PS/2 socket.

Pin	Signal
1	+5V
2	KB_DATA
3	KB_CLK
4	MS_ DATA
5	MS_CLK
6	GND

2.17 CPU FAN (CPU_FAN1)

The board offers a 4Pin CPU smart fan socket. The default power voltage setting is 5V (12V optional).

CPU_FAN：

Pin	Signal
1	GND
2	VCC
3	CPUFAN_TAC
4	CPUFAN_CTL

2.18 System FAN (SYS_FAN)

The board offers a 3Pin system fan socket, the default power voltage setting is 5V (12V optional).

SYS_FAN：

Pin	Signal
1	GND
2	VCC
3	CPUFAN_TAC

2.19 Front Panel Interface (JPOWER1)

The front panel control interface is intended to connect the function buttons and the light indicator on the front panel.

JPOWER1:

Signal	Pin		Signal
HDD_LED+	1	2	PWR_LED+

HDD_LED-	3	4	PWR_LED-
RST_BTN-	5	6	PWR_ON+
RST_BTN+	7	8	PWR_ON-
(NC)	9	10	

2.20 Auto Power On (JAT)

JAT:

Setting	JAT
Close	Hardware Auto Start

Note: This jumper function is similar to the “Restore AC Power Loss” function in the BIOS. When the latter is set to be “power on” the device will start automatically after being connected to power.

2.21 CMOS Clearance/Retention (screen printing: JCMOS)

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

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

Step 2: Use the jumper cap to connect the 1st and 2nd header of JCMOS for about 10 seconds, then disconnect.

Step 3: Press the <Del> button to enter the BIOS after restarting the computer, load the optimal default value, save, and exit the settings.

JCMOS:

Setting	JCMOS
Close	Clear the CMOS

⚠ Please don’t clear COMS when the PC is connected to power in case of board damages.