

ITX Series of Motherboards

User Manual

The model you have chosen is

LR-J1900L1

REV:1.0

DATE : 2018/06/25

Motherboard User Manual

Copyright protection statement

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Security guidance

1. Please read through this security guidance carefully.
2. Please keep this manual for future reference.
3. Please keep the main board dry.
4. Please put the main board on a stable plane before using
5. The opening slot of the machine case is used for ventilation to avoid overheating of parts in the machine case. Please do not cover or block such openings.
6. Please confirm the power supply voltage value and adjust the voltage to 110V/220V before connecting device to the power supply.
7. Please keep the power in the place without trampled and do not stack anything on the power cord.
8. Please disconnect the power after shutdown before plugging in or out any extension card or equipment module.
9. Please note all notes and warnings mentioned in the manual.
10. No liquid is allowed to pour into the slot of the box, otherwise serious damage or circuit burn will occur.
11. Please contact a professional to handle if any of the following situations occurs:
 - A. The power cord or plug is damaged;
 - B. Liquid infiltrates into the machine;
 - C. the machine is exposed to moist environment;
 - D. The machine is not working normally or the user cannot make it work normally through the instruction of this manual;
 - E. falling or being injured;
 - F. there are obvious signs of damage to the machine;
12. Please don't put the device in or stored in a temperature higher than 85 °C, otherwise it may cause damage to equipment.

Items list

Thanks for purchasing Realan LR-J1900 series Mainboard. Please check if the packing box is intact. If it is broke or short of some accessories, please contact the suppliers.

- 1, One LR-J1900L1 Mainboard
- 2, One SATA data cable
- 3, SATA power cable
- 4, One COM cable
- 5, One Shield

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Chapter 1 Introduction to Motherboard

Thank you for purchasing our ITX series motherboard!

The motherboard adopts single chip design, which is based on FCBGA 1170 chip design. It is equipped with Bay Trail-D Pentium/Celeron processor, providing high performance and professional ITX platform solutions.

Chip + Processor: Motherboard Board Sticker Bay Trail-D Processor BGA1170 SoC.

Memory: Onboard 1*SODIMM memory slot, support DDR3L 1333/1600 memory, maximum capacity can support 8GB.

Graphics display: the motherboard adopts Intel (R) HD Graphics display core and output interface :VGA+VGA_H1+HDMI+JHDMI+LVDS.

NIC: the motherboard adopts Realtek 8111F Gigabit LAN.

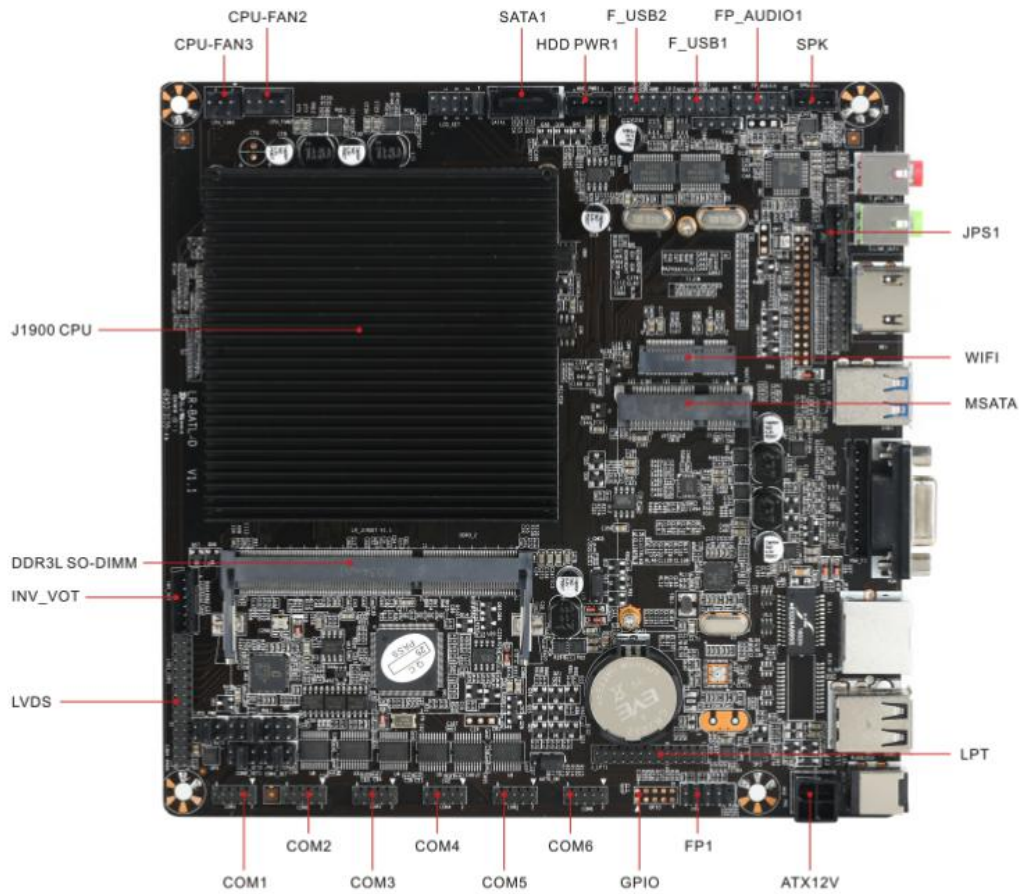
Sound card: the motherboard uses Realtek HD ALC662 audio decoder chip, supporting Line_OUT and MIC_IN.

IO interface/expansion slot: the motherboard supports 9*USB interface (8*USB2.0, 1*USB3.0), 5*USB2.0 needs to be expanded, 5 display output interfaces (1*VGA,1*VGA_H1,1*HDMI,1*JHDMI,1*dual channel 24bit LVDS interface), 1* Gigabit LAN interface, onboard high fidelity sound card chip, 1* speaker/headphone output interface,1*MIC_IN interface,1*3W power amplifier interface Pin,1*M.2 Key E slot, support 2230 WiFi+BT,1*Mini PCIE slot, support mSATA SSD, onboard 6*COM interface, 1*SATA interface,1*LPT print interface,1*SPDIF pin,1*PS/2 pin 1*CIR pin.

Power supply mode: the motherboard adopts 12V DC power supply mode.

1.1 Motherboard interface diagram

Motherboard front



1.2 Motherboard specifications

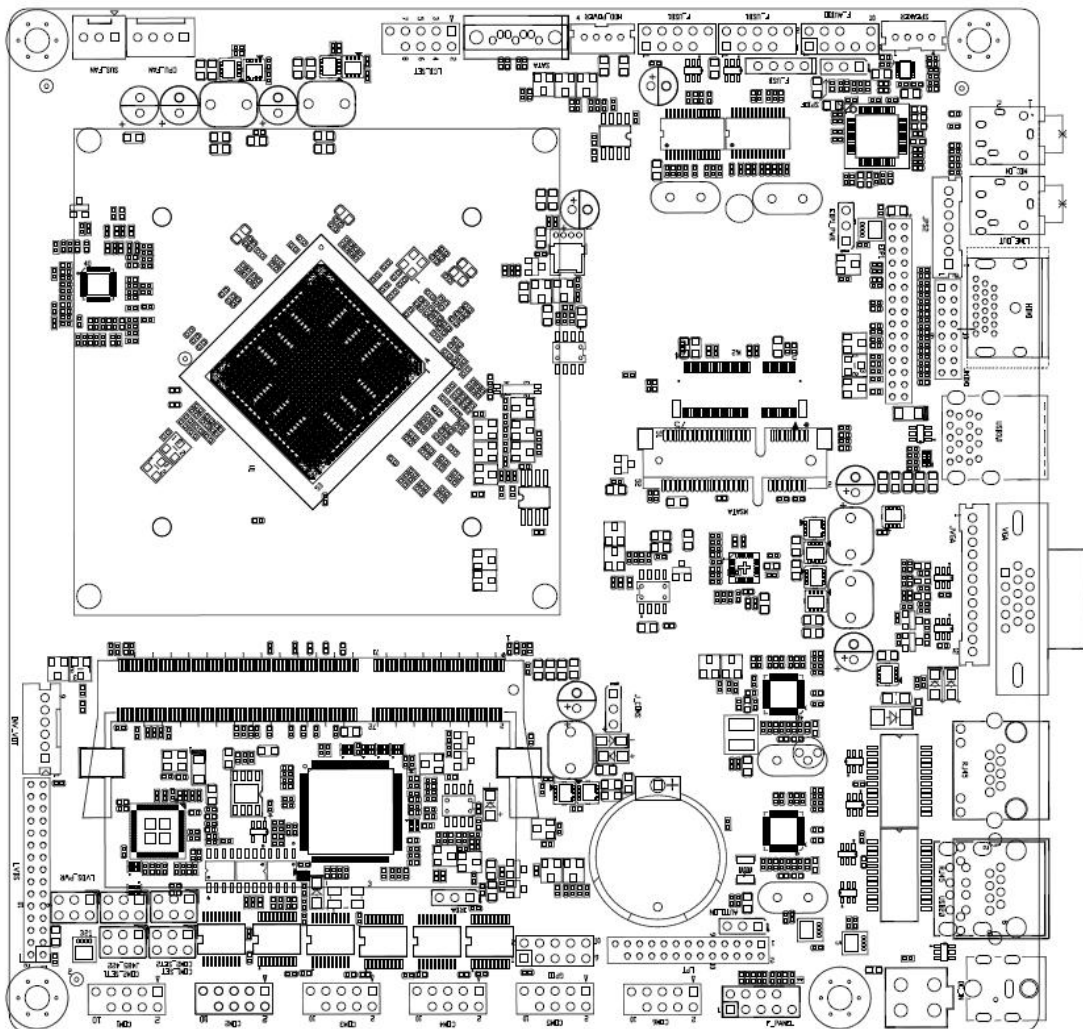
Processor	Bay Trail-D Processor BGA1170 Single Chip Intel Celeron J1900 Processor
RAM	1*SO-DIMM, support single channel DDR3 1333/1600MHZ, maximum support 8G
Display core	Intel (R) HD Graphics Display core
Network card	Onboard Realtek 8111F Gigabit LAN, support PXE diskless boot
Sound card	Onboard Realtek HD ALC 662 5.1 audio chip
Storage	1*MINI PCIE support mSATA SSD 1*SATA2.0
Expansion slot	1*M.2 Key E Slot
USB	8*USB2.0 (5 of which are expanded by pins) 1*USB3.0
Internal socket	1*Mini PCIE/1*F_PANEL/1*SYS_FAN1 1*CPU_FAN1/1*SATA/1*SATA_PWR 6*COM/2*COM_9/1*LVDS/1*LVDS_PWR 1*INVERT/1*F_AUDIO/1*SPEAKER 1*SPDIF/1*ATX12V/1*CLR_CMOS 1*VGA_H1/1*JHDMI/1*AUTO_SET 1*LPT/1*M.2/3*F_USB2.0
Rear interface	1*DC 1*LAN 1*VGA 1*USB3.0 3*USB2.0 1*HDMI 1*HP_OUT 1*MIC_IN
BIOS	AMI EFI BIOS
Power supply	12V
Operating system	Support Windows 10 Support Windows 8.1 Support Windows 7 Support Windows ES 7/8 Support LINUX
PCB specifications	170mm*170mm
Working environment	-15°C-60°C 0%-96% relative humidity, no condensation

1.3 Motherboard rear I/O panel

The rear panel of the motherboard supports 1 DC_IN, 1*LAN, 1*VGA,1 USB3.0, 3*USB2.0, 1*HDMI, 1*HP_OUT and 1*MIC_IN



1.4 Motherboard Layout Diagram



Chapter II Board jumper and interface Setup instructions

2.1 motherboard jumper function settings

Before installing the hardware devices, please set the corresponding jumper according to your needs according to the following jumper function setting instructions.

Tip: How to identify the first stitch of jumper and pin.

All the first jumpers on the motherboard are close to the line or marked with a thick white line or a white triangle symbol, or look at the back bonding pad of motherboard, generally, square pad is for the first stitch, please do not reverse, otherwise it may cause damage to your motherboard or other hardware devices.

Note: The black dots are the first pins in the schematic of jumpers and pins in this instruction.

2.1.1 Clear CMOS Jumper (CLR_CMOS1)

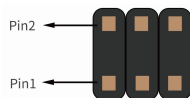
If there is a problem with the motherboard because of BIOS setup error, we can clear the BIOS settings to solve the problem, the method is that in the power off state, the CMOS jumper to 2-3 pins, jump out 5-6 seconds, please do not in the power-on state to clear the CMOS, otherwise it may damage your motherboard, its definition is as follows:



PIN	Set state
1-2	Maintain CMOS data (default)
2-3	Clear CMOS data

2.1.2 LVDS LCD Voltage Selection Jumper (JPWR_LVDS)

Before using the selected LVDS LCD screen, please check the rated voltage of the required operation, please select the jumper according to the supply voltage of the LVDS LCD screen, the jumper is set as follows:



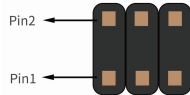
PIN	Set state
1-2	12V available

3-4	5V available
5-6	3.3V available (default)

2.1.3 COM1 / COM2 Status Select Function Jumper (COM1_SET1 / COM2_SET1)

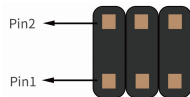
COM1/COM2 support RS232 serial mode, Pin9 with normal, 5V and 12V voltage three modes, you can set the COM1_SET1/COM2_SET1 pins jumper to choose the working status of COM1/COM2.

COM1_SET1/COM2_SET1 pin jumper is set as follows:



COM1_SET1/COM2_SET1	COM1 / COM2 status
1-2	12V
3-4	DCD
5-6	5V

2.1.4 COM2_SET2 selected jumper



COM2_SET2	COM2 state
1-2	RS232
3-4	RS422
5-6	RS485

J485_422(RS422 and RS485)definition :

RS422				RS485			
1	422RX+	2	422RX-	1	NC	2	NC
3	422TX+	4	422TX-	3	485+	4	485-
5	GND	6	GND	5	GND	6	GND

2.1.5 AUTO_ON1selected jumper

A set of Auto_on1 pin jumpers are available on the motherboard, they are control jumpers to support the Power-on function on the hardware, the Auto_set pin jumper is set as follows:

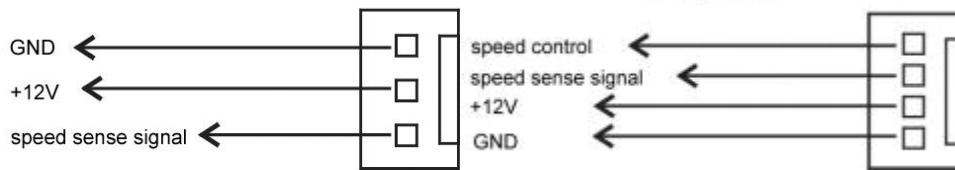


PIN	Set state
1-2	NORMAL (default)
2-3	Hardware automatic power on

2.2 Motherboard Interface Installation Instructions

2.2.1 power connector of Fan(Sys_fan/cpu_fan)

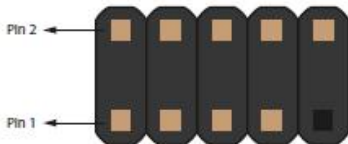
when the fan is connected to the fan power outlet, the user must connect the Red Connector to the 12V power supply pin, and the black line is connected to the grounding, if you want to observe the working state of the fan in the BIOS or in the Hardware monitor program, You must use a fan that supports speed detection. For a fan with a speed sensor, the fan will produce 2 pulses per rotation, and the system hardware monitor will statistics a report of a fan rotation speed, which can display the speed of the fan in the CMOS.



2.2.2 USB interface (F_USB)

motherboard provides 5 USB2.0 interfaces, and the front panel USB interface (F_USB1/F_USB2/F_USB3) sets up 5 standard USB2.0 interfaces, which require USB cable to connect USB signal PIN to the standard USB connector (extended), you can purchase the cable from the motherboard distributor or the electronic marketplace.

Note: the first leg is marked "Δ" on the motherboard , please do not connect wrong, otherwise there may be damage to your motherboard or equipment, the PIN definition is as follows:

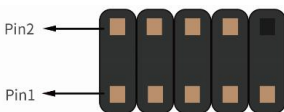


1	2	3	4	5
VCC	USB-	USB+	GND	NC
6	7	8	9	10
VCC	USB-	USB+	GND	GND

2.2.3 COM Interface

Board provides 6 COM connector pins which are 2.0-pitch DB9 pins, require a COM cable with a standard COM interface to connect to an external device ,you can purchase from the motherboard distributor or the electronic market.

The COM port is defined as follows:



PIN	Pin definition	Definition
-----	----------------	------------

1	DCD	Data carrying test
2	RXD	Accept data
3	TXD	transfer data
4	DTR	Data terminal is ready
5	GND	Ground
6	DSR	Data setup is ready
7	RTS	Request to send
8	CTS	Clear send
9	RI	Bell indication
10	NC	NC

2.2.4 Com1/com2 Interface Functional Status selection jumper (Com1_9/com2_9)

the COM1/COM2 pin on the motherboard provides normal, 5V and 12V three state selections, which you can set by setting com1_set1/com2_SET1 jumper to select the Com1/com2 working level. (For details, see the 2.1.3 Description).

the com1_9/com2_9 pins are defined as follows:

PIN	Pin definition	PIN	Pin definition
1	RI	4	NRI
2	VCC12	5	RI
3	RI	6	VCC5

2.2.5 Clear CLR_CMOS1 PIN definition

The motherboard provides a set of CLR_CMOS1 jumpers, and clearing the CMOS will cause the previous BIOS system settings to be permanently eliminated and set it to the original (factory-set) BIOS system settings. (For details, please refer to the 2.1.1 description)

CLR_CMOS1 pin pins are defined as follows:



PIN	Pin definition	Definition description
1	VBAT	Connecting battery
2	RICRST	Connect RTC circuit
3	GND	Ground

2.2.6 Multi-channel display setting description

The motherboard has VGA, VGA_H1, HDMI, JHDMI, LVDS a total of 5 display interfaces, these interfaces can only achieve dual-display, the specific combination is as follows:

VGA/VGA_H1+HDMI/JHDMI	Synchronous/asynchronous dual display
HDMI/JHDMI+LVDS	Synchronous/asynchronous dual display
VGA/VGA_H1+LVDS	Synchronous/asynchronous dual display

Note: VGA and VGA_H1 are sync signals, and HDMI and JHDMI are sync signals.

2.2.7 LVDS pin definition

Motherboard provides a set of 2 * 15pin LVDS pins, support for dual-channel 24bit LVDS LCD screen.

LVDS Pin as listed below:

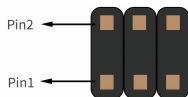


PIN	definition	PIN	definition
1	VCC	16	ACLK+
2	VCC	17	AD03-
3	VCC	18	AD03+
4	GND	19	BD00-
5	GND	20	BD00+
6	GND	21	BD01-
7	AD00-	22	BD01+
8	AD00+	23	BD02-
9	AD01-	24	AD02+
10	AD01+	25	GND
11	AD02-	26	GND
12	AD02+	27	BCLK-
13	GND	28	BCLK+
14	GND	29	BD03-
15	ACLK-	30	AD03+

2.2.8 LVDS Voltage Control Pin Definition (LVDS_PWR)

The motherboard provides a set of JPWR_LVDS voltage control pins, which are used to select the working voltage of the LCD. (For the setting method, see 2.1.2 for details)

LVDS_PWR Pin as listed below:



PIN	definition	PIN	definition
1	12V	2	LVDS VCC
3	5V	5	LVDS VCC
3	3.3V	6	LVDS VCC

2.2.9 INVERT Pin Definition (LVDS Backlight Control Interface)

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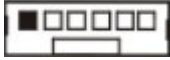
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The motherboard provides a 6pin / 8pin INVERT interface, used to adjust the LVDS1 device backlight panel brightness control.

6pin INVERT Pin as listed below:



PIN	definition	definition description
1	+12V	power supply
2	+12V	power supply
3	L_BKLT_EN	LVDS backlight is on
4	L_BKLT_CTL	LVDS backlight control
5	GND	Ground
6	GND	Ground

2.2.10 LVDS resolution setting

Motherboard provides a set of 3 * 4pin LVDS pin, connect LVDS is the resolution of the panel pin jumper to be set.

set as follows:

1-2	3-4	5-6	7-8	LCD_SET
0	1	1	1	Single6 1024*768
1	0	1	1	Single8 1024*768
0	0	1	1	Single6 1280*768
1	1	0	1	Single6 1280*800
0	0	0	1	Single6 1366*768
1	1	1	0	Single8 1366*768
0	1	1	0	Single8 1440*900
0	0	1	0	Single8 1600*900
1	0	0	0	Single8 1920*1080

Note: when the jumper cap 1-2, 3-4, 5-6, 7-8 are connected, the status is "1"

2.2.11 VGA Pin Definition (VGA_H1)

Motherboard provides a set of 1 * 12pin VGA_H1 pin, through the use of VGA cable into a standard VGA interface to connect with external devices.

VGA_H1 Pin as listed below:

PIN	definition	PIN	definition
1	GND	7	VGA_GREEN
2	VGA_VSYNC	8	GND
3	VGA_HSYNV	9	VGA_BLUE
4	GND	10	GND
5	VGA_RED	11	DDC_DATA
6	GND	12	DDC_CLK

2.2.12 HDMI Interface Pin Pin Definition (JHDMI)

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The motherboard provides a set of 2 * 8 JHDMI pins that need to be converted to a standard HDMI interface using a JHDMI cable to connect with external devices.

JHDMI Pin as listed below:



PIN	definition	PIN	definition
1	TXD2+	2	DDB_CLK
3	TXD2-	4	DDB_DATA
5	TXD1+	6	NV
7	TXD1-	8	HPD
9	TXD0+	10	DAC_5V
11	TXD0-	12	GND1
13	TXC0+	14	GND2
15	TXC0-	16	GND3

2.2.13 amplifier pin definition (SPEAKER)

Motherboard provides a set of SPEAKER pin, used to connect the speaker, play a role in increasing the size of the audio sound.

SPEAKER Pin as listed below:

PIN	definition	definition
1	R+	Right speaker positive
2	R-	Right speaker negative
3	L+	Left speaker positive
4	L-	Left speaker negative

2.2.14 ATX Power Supply Installation (ATX1 12V)

Motherboard provides a set of 4pin DC_IN (12V) power connector.

- 1) As shown below, should be used with the new P4 power supply, and connect the ATX power plug on the motherboard to the corresponding power connector on the motherboard. Otherwise, cannot power on, and some devices may be damaged.
- 2) The current of 5VSB provided by your power supply cannot be less than 2A. Otherwise, the Wake on LAN / Modem may not be realized.

4pin ATX_PWR power connector pins as listed below:



PIN	definition	definition description
-----	------------	------------------------

1	GND	Ground
2	GND	Ground
3	VCC	+12V
4	VCC	+12V

2.2.15 AUTO_ON1 pin definition (AUTO_SET)

The motherboard provides a set of AUTO_ON1 pins for automatic hardware power-on. (Setting method see 2.1.5 description)

AUTO_ON1 pin assignments as listed below:



PIN	definition	definition description
1	NC	empty link
2	PWRIN	Connect to the PWRIN of F_PANEL
3	PWRBIN_SIO	Connect hardware automatically powered chip

2.2.16 SATA Power Connector Pin Definition (HDD_PWR1)

Motherboard provides one SATA_PWR interface, SATA_PWR is to power the SATA hard disk or optical drive power connector.

SATA power connector pins as listed below:



PIN	definition	definition description
1	12V	3.5 inch hard drive power supply
2	GND	Ground
3	GND	Ground
4	5V	2.5 inch hard drive power supply

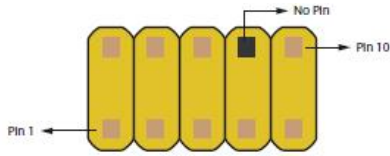
2.2.17 M.2 Key E slot introduction

The motherboard provides a M.2 Key E slot, can support 2230 WIFI+Bluetooth(the network card should support it)

2.2.18 Front audio input / output interface (F_AUDIO1)

The motherboard provides a front-end audio output interface, F_AUDIO1, which allows you to connect to the audio connectors on the front panel of the chassis so that you can easily listen to music from the host to the panel and use the microphone for sound input.

F_AUDIO1 pin pins are defined as follows:



PIN	definition	definition description
1	MIC_L	Microphone left channel input
2	GND	Ground
3	MIC_R	Microphone right channel input
4	NC	empty link
5	LINE2_R	Front audio right channel output
6	AUD_RET_R	The front audio right channel detection signal is returned
7	AZSENSE	Low signal activated
8	NC	empty link
9	LINE2_L	Front audio left channel output
10	AUD_RET_L	The front audio left channel detection signal is returned

PWR_LED power indicator:

The power indicator is a 2-pin connector that indicates the working status of the computer. When the computer is powered on, it indicates

The light is always on, otherwise it is not lit (note: there are positive and negative points).

HDD_LED hard disk indicator

This set of two-pin header pin is connected to the hard disk indicator on the computer case. The LED can be used to display the working status of the hard disk. If the hard disk has read action, the indicator light will light up (Note: there are positive and negative points).

PWR_ON power switch

PWR_ON is a two-pin connector that controls the main switch of the ATX main power supply. Connect this set of pins to the switch on the computer case that controls the power of the computer. When the two pins are shorted, the switch can be turned on and off.

RESET reset button

This set of two-pin headers is connected to the RESET switch on the computer case, allowing you to restart the system without turning off the computer, especially in the case of system stalls or crashes.

2.2.19 LPT Interface (LPT)

The motherboard provides a set of LPT print interface pins with the following pin definitions:



PIN	definition	PIN	definition
1	LTP STB	14	GND

2	LPT AFD	15	LPT PD6
3	LPT PD0	16	GND
4	LPT ERR	17	LPT PD7
5	LPT PD1	18	GND
6	LPT INIT	19	LPT ACK
7	LPT PD2	20	GND
8	LPT SLIN	21	LPT BUSY
9	LPT PD3	22	GND
10	GND	23	LPT PE
11	LPT PD4	24	GND
12	GND	25	LPT SLCT
13	LPT PD5	26	NC

2.2.20 System signal/Control panel port(F_PANEL)

Motherboard provide a group F_PANEL pin to connect case's front panel button and indicator light. Please take good care of positive and negative polar when connecting. If connecting in wrong, some function cannot be worked in normal.

F_PANEL1 Pin stitch is defined as follows:



F_PANEL stitch is defined as follows:

PIN	Stitch Definition	Definition
1	HDD_POWER_LED+	HDD Indicator light positive polar
2	FP_LED+	POWER_LED Main color
3	HDD_LED	HDD Indicator light negative polar
4	FP_LED-	POWER_LED Alternative color
5	GND	Ground
6	PWRBTN#	Power switch
7	SYS_RST#	Reset switch
8	GND	Ground
9	3.3V	3.3V Voltage 3.3V
10	NC	Empty link

F_PANEL stitch is defined as follows:

PWR_LED Power indicator:

The power indicator is a 2-pin connector that indicates the working status of the computer.

When the computer is powered on, it indicates, The light is always on, otherwise it is not lit

(note: there are positive and negative points).

HDD_LED hard disk indicator

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RESET reset button

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Chapter III Driver Installation

3.1 Intel ME driver installation

- 1) Enter the drive CD LR-J1900L\WIN10\ME directory, double-click the button "intel_me.exe";
- 2) Follow the prompts, click "Next", then click "Continue Anyway";
- 3) After the installation is complete, select "Yes" in the restart option and click "Finish" to restart the computer and then drive
- 4) The program is automatically loaded.

3.2 Chipset driver installation

- 1) Enter the drive CD LR-J1900L\WIN10\Chipset directory, double-click "setup.exe" with the left mouse button;
- 2) Follow the prompts, click "Next", then click "Continue Anyway";
- 3) After the installation is complete, select "Yes" in the restart option and click "Finish" to restart the computer and the driver will load automatically.

3.3 Sound Card Driver Installation

- 1) Enter the driver CD LR-J1900L\WIN10\AUDIO directory, double-click the "setup.exe" button with the left mouse button;
- 2) Follow the prompts, click "Next", then click "Continue Anyway";
- 3) After the installation is complete, select "Yes" in the restart option and click "Finish" to restart the computer and the driver will load automatically.

3.4 NIC driver installation

- 1) Enter the drive CD LR-J1900L\WIN10\LAN directory, double-click the "setup.exe" button with the left mouse button;
- 2) Follow the prompts, click "Next", then click "Continue Anyway";
- 3) After the installation is complete, select "Yes" in the restart option and click "Finish" to restart the computer and the driver will load automatically.

3.5 graphics card driver installation

- 1) Enter the drive CD LR-J1900L\WIN7\Graphics directory, double-click "setup.exe" with the left mouse button;
- 2) Follow the prompts, click "Next", then click "Continue Anyway";
- 3) After the installation is complete, select "Yes" in the restart option and click "Finish" to restart the computer and the driver will load automatically.

3.6 USB3.0 driver installation

- 1) Enter the drive CD LR-J1900L\WIN7\USB3.0 directory, double-click "setup.exe" with the left mouse button;
- 2) Follow the prompts, click "Next", then click "Continue Anyway";
- 3) After the installation is complete, select "Yes" in the restart option and click "Finish" to restart the computer and the driver will load automatically.

3.7 Settings for audio control output

The motherboard integrates the Realtek ALC662 audio chip, which supports 5.1 provincial output.

1. After installing the HD standard sound card driver, click the "Sound Effect" icon in the lower right corner of the system desktop to open the "HD Audio" configuration setting window as follows:



2. Click to select the "Trumpet Configuration" window and select (4/5.1 channel) in a check box in the screen that appears, as follows:

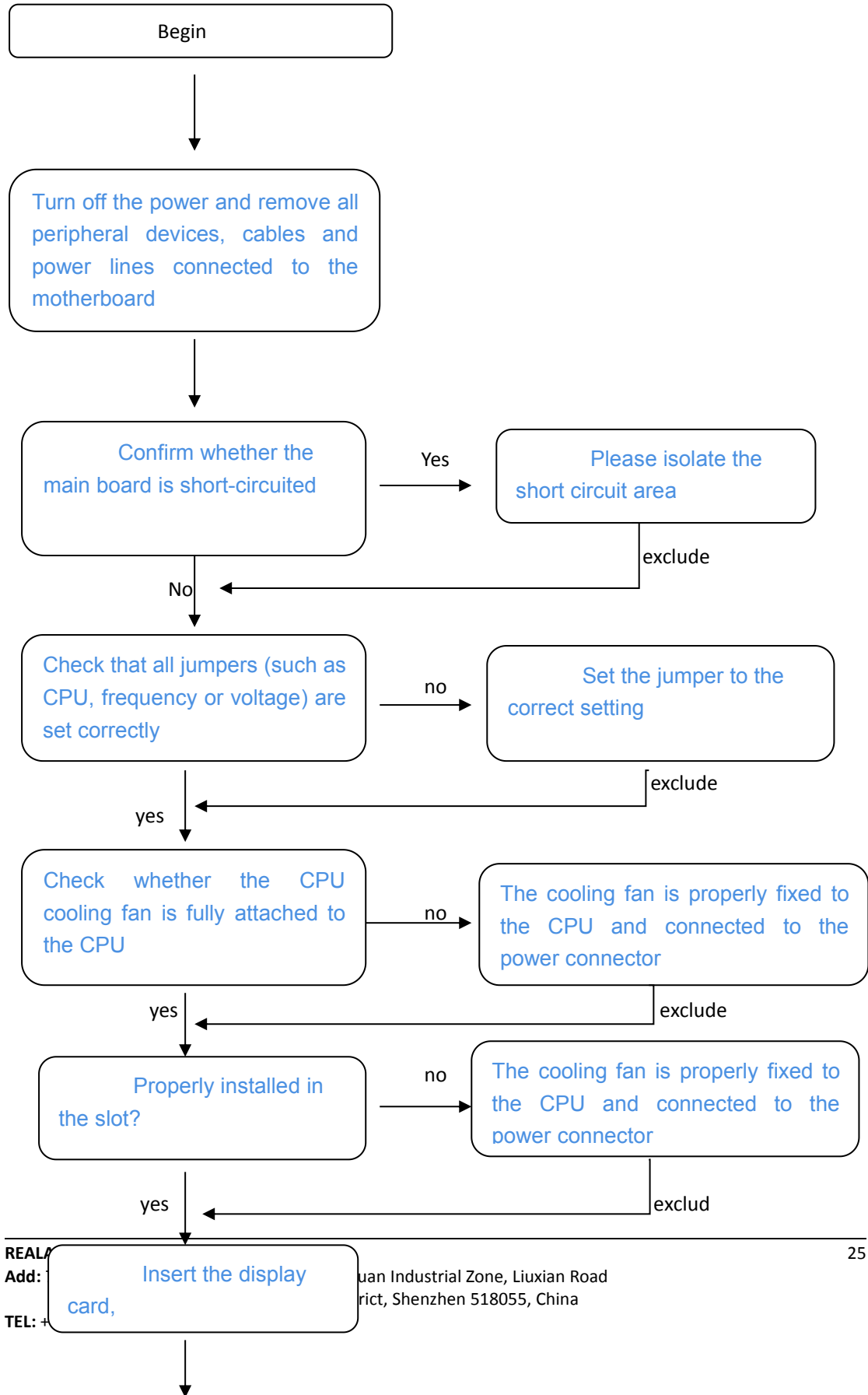


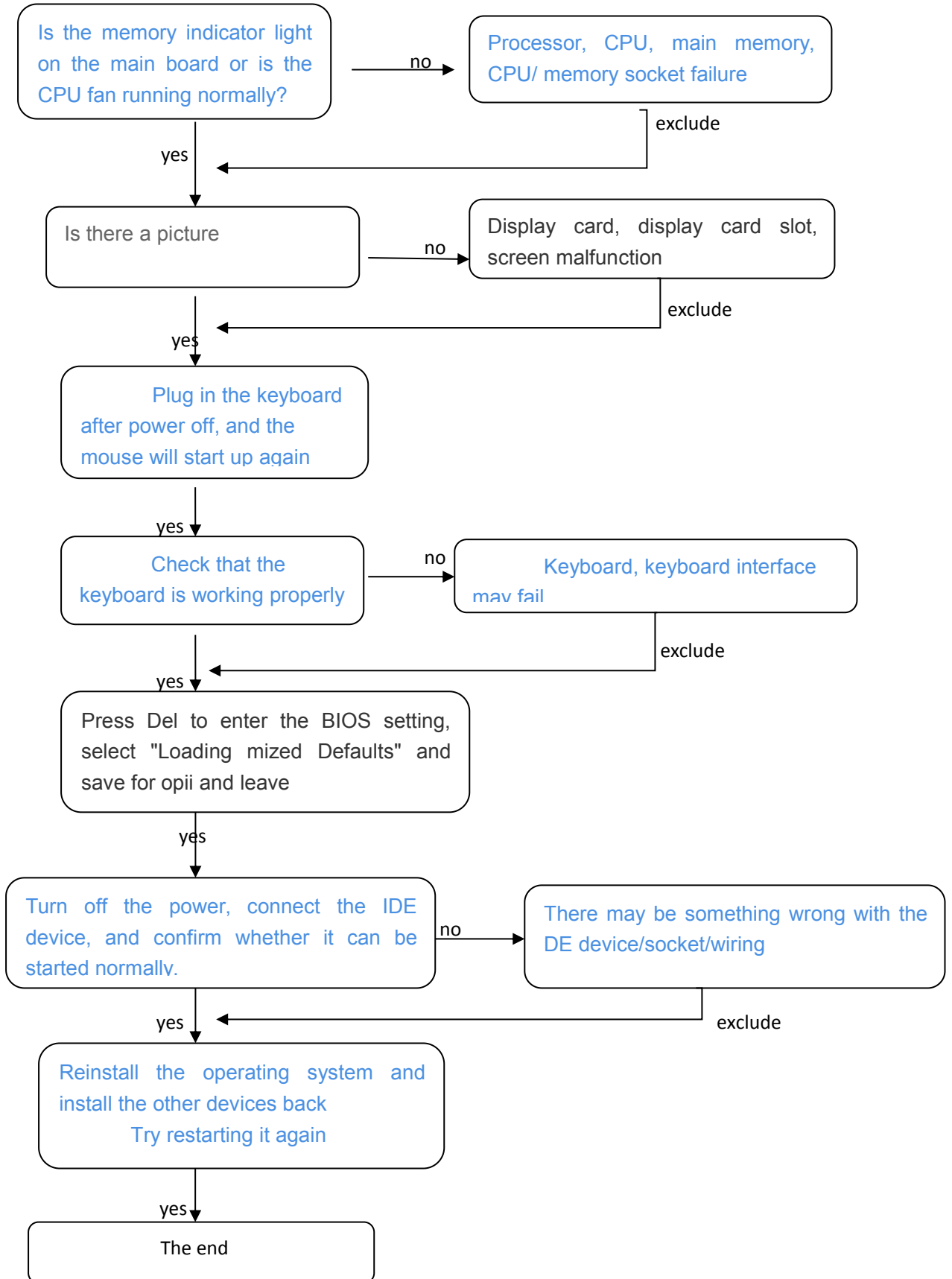
3. Please note the above picture shows the 5.1 channel 2-hole audio interface of the motherboard. The function of each interface easy color is correct, ie:

- ◆ Yellow-green interface marked with front speakers
- ◆ Pink interface marked with microphone

Attachment 1: troubleshooting

If you have a failure when starting your system, refer to the following steps to troubleshoot it.





If the above instructions cannot solve your problem, please consult the dealer or manufacturer for technical support.

Attachment 2: common problems and solutions

1. How can I clear the Settings in CMOS?

Answer: if your motherboard has the Clear CMOS jumper wire, please refer to the user manual to set the specific stitch or short circuit to Clear CMOS, if not this jumper wire on the main board, you can pull up the CMOS battery, temporarily stop the CMOS power supply, after a few minutes to Clear the Settings in the CMOS. It is recommended that you follow the following steps:

- 1) turn off the power;
- 2) pull the power plug from the main board;
- 3) take out the CMOS battery on the main board and put it aside for about 10 minutes;
- 4) reload the CMOS battery into the battery base;
- 5) connect the power plug and start up;
- 6) after pressing the "DEL" button to enter the BIOS screen, select the "Load fail-safe Defaults" project to set the most stable system;
- 7) remember to save the BIOS Settings and restart the computer before leaving the BIOS screen.

2. Why do I think after BIOS upgrade, the system seems to become unstable?

Solution: please remember to select the "Load fail-safe Defaults" project in the BIOS option every time after upgrading the BIOS to make the most stable setting of the system and save it.

If you still feel a problem, try to understand the CMOS setup.

3. Why did I turn the horn on so loudly, but only heard so little?

Answer: please confirm whether the loudspeaker you use has the function of power supply or power amplifier. If not, please try the loudspeaker with built-in power supply or power amplifier.

4. On the main board with built-in display card function, I want to add a display card. How can I turn off the built-in display card function?

Answer: the main board has the function of automatic detection, so when you connect to the display card, the function of the built-in display card will be automatically closed, so no manual adjustment is required.

5. What does the "drip" sound mean when starting the machine?

Answer: the following are the continuous drip interpretation tables of Award BIOS and AMI BIOS respectively for reference only:

AMI BIOS	AWARD BIOS
Drip 1: the system starts normally	1 short: the system starts normally
Short: memory refresh error	2 short: CMOS setup error
Short: memory ECC check error	1 long 1 short: memory or motherboard error
3 short: basic 64K memory check failed	1 long 2 short: screen or display card error
4 short: system time error	1 long 3 short: keyboard error
5 short: CPU error	1 long 9 short: BIOS memory error
6 short: Gate A20 error	continuous drip: the display card is not plugged in
7 short: cpu-end fault	continuous short burst: power supply problem
8 short: display card memory error	
9 short: ROM error	
10 short: CMOS read-write error	
11 short: cache error	

Attachment 3: how to upgrade BIOS

Upgrade motherboard BIOS needs two files, one is the new BIOS content file, file name suffix is usually. "bin" or "ROM", another is to upgrade the BIOS need to use the application, such as: AMI BIOS fparts and FPT, both are main suppliers.

1. Why upgrade the BIOS of the main board?

Usually new BIOS error in the original potential BUG fix, may be added more new functions, support the new processor, memory function, such as the latest if all your machine work is normal, but you are not the pursuit of the latest technology, etc., you can do not need to update the BIOS.

2. Where can I get the BIOS file?

BIOS files and applications can be provided from the motherboard vendor or accessed over the Internet.

3. What are the attention points of updating BIOS?

- 1) make sure there is no virus in your computer disk, and the original file is free of virus;
- 2) confirm that the BIOS file type required for the upgrade is fully in line with the requirements of the main board;
- 3) backup the original BIOS file;

How to upgrade?

- 1) enter the system into pure DOS mode and find the application for upgrading;
- 2) run the application and backup the original BIOS file;
- 3) refresh the BIOS, whose command is `fpt-f < new BIOS filename >`.