WL35 Motherboard

User Manual

(Version 1.0)

Version:		
NO.	Description	Issue Date:
V1.0	Initial version	2021/4/9

Contents

Chapter 1 Product Introduction 3
1.1 Brief Introduction 3
1.2 Parameters 3
1.3 Connector Diagram 4
Chapter 2 Hardware 5
2.1 Jumper Setting 5
2.2 Memory Slots 5
2.3 Display Interfaces 5
2.4 Expansion(screen printing:M.2_E) 5
2.5 Storage(screen printing:M.2_S/W、SATA、PWSATA) 5
2.6 USB Interface 6
2.7 LAN 6
2.8 Audio Interface 6
2.9 COM 7
2.10 Power Supply(screen printing:PWR1、PWR2) 7
2.11 GPIO(screen printing:GPIO) 8
2.12 LPC(Optional) 8
2.13 Switch button/indicator pin(screen printing:JPOWER) 8
2.14 CPU FAN Socket(screen printing:CPU_FAN) 9
2.15 CMOS Clearance/Retention(screen printing:JCMOS) 9

Chapter 1 Product Introduction

1.1 Brief Introduction

The WL35 motherboard is a 3.5" SBC (Single Board Computer) based on the Intel Whiskey Lake-U platform, small formed with low power consumption and high performance.

1.2 Parameters

CPU:

i7-8565U — Quad Core Eight Threads, Base Frequency 1.8GHz, Turbo Frequency 4.6GHz，TDP 15W

i5-8365U — Dual Core Eight Threads, Base Frequency 1.6GHz, Turbo Frequency 3.9GHz，TDP 15W

i3-8145U — Dual Core Four Threads, Base Frequency 2.1GHz, Turbo Frequency 3.9GHz，TDP 15W

Celeron 4205U — Dual-Core Two Threads, Base Frequency 1.8GHz, TDP 15W

Memory: Dual Channel SO-DIMM DDR4, Up to 64GB

GPU: Integrated Graphics based on CPU，Display via 1x HDMI,1x DP,1x eDP.

Storage:1 x M.2 Key B for 2242 SSD (SATA Definition) /4G Module, 1x SATA3.0

USB: 4xUSB3.1 Gen2，2xUSB2.0

Ethernet:2xGigabyte Network Card(1x Intel i211, 1x Intel i219)

Audio: High-definition audio chip, supports Speaker-out, Mic-in, and power amplifier

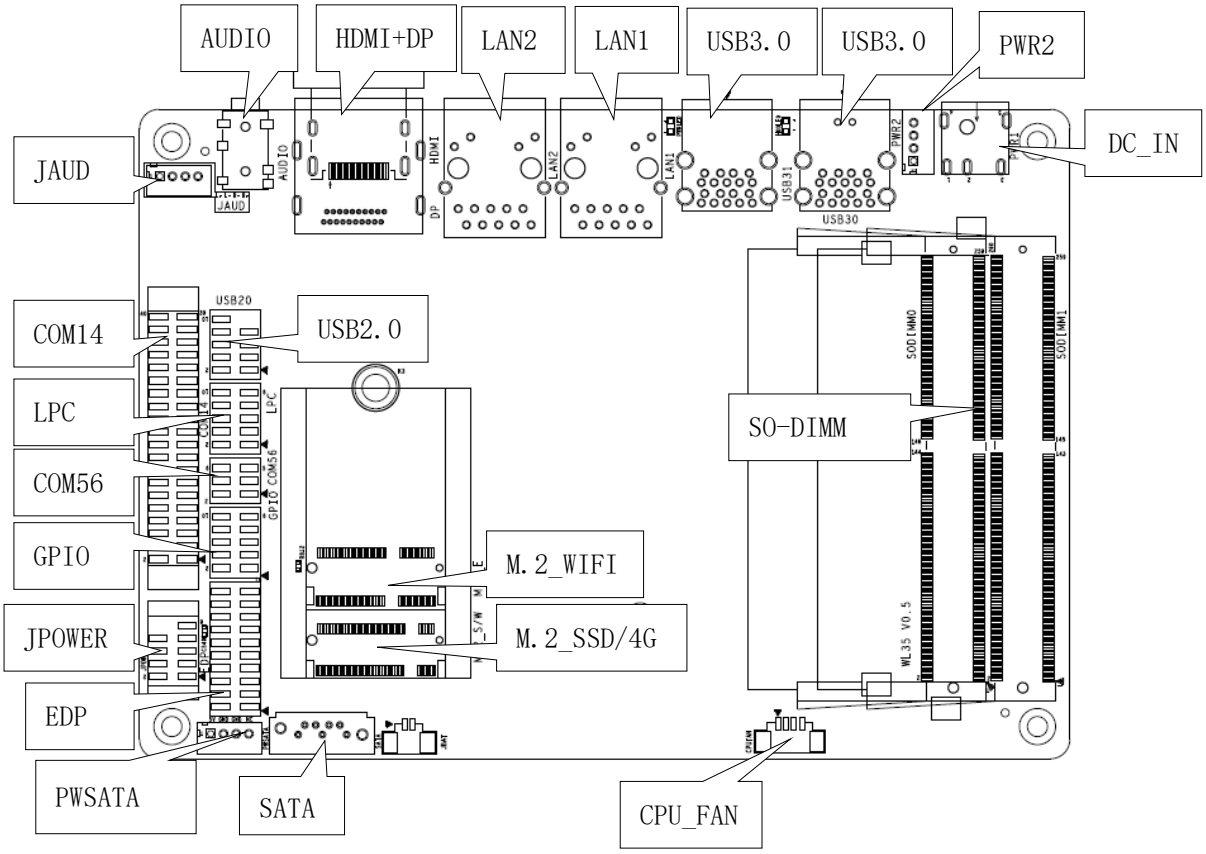
Other I/O:1xM.2 Key E(Type 2230，for Wi-Fi card and Bluetooth),1xLPC(set), 1xGPIO(set), 4xRS232, 2xRS485

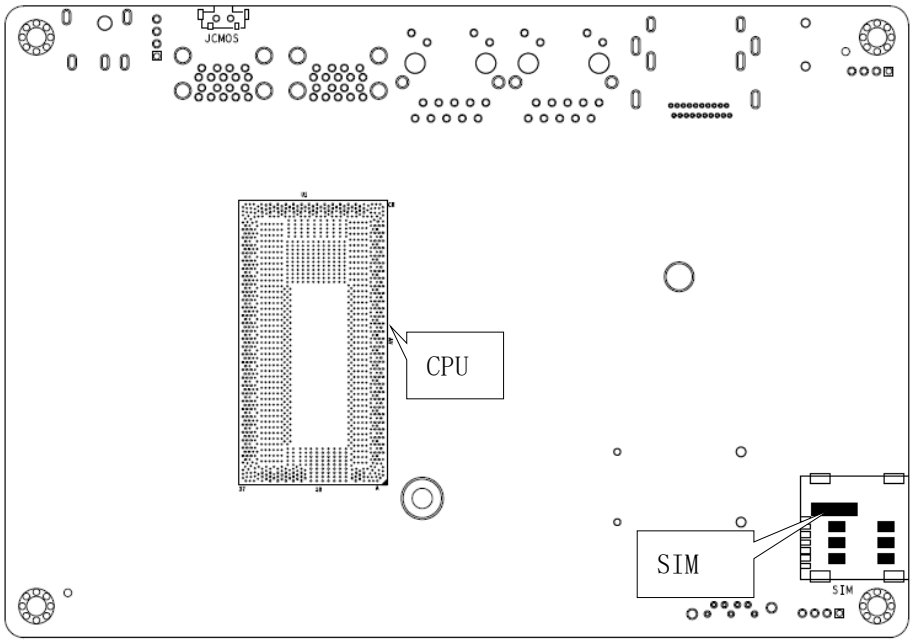
Dimension:146mm x 102mm (3.5")

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

On-board 2 x SO-DIMM DDR4 slots, supporting dual channels, maximum capacity 64 GB.

2.3 Display Interfaces

1x HDMI (1.4) standard interface.

1x DP (1.2) interface.

1x eDP (1.3) interface, the screen power supply LCD_VCC defaults to 3.3V, and BL_PWR defaults to 12V (Note: the backlight output voltage is the same as the power input voltage)。

eDP: (screen printing: EDP)

Signal	Pin		Signal
GND	1	2	GND
LINE1_N	3	4	LINE1_P
LINE0_N	5	6	LINE_P
AUX_N	7	8	AUX_P
GND	9	10	GND
SMB_CLK	11	12	SMB_DAT
HPD	13	14	LCD_VCC
BL_EN	15	16	BL_PWM
GND	17	18	GND
BL_PWR	19	20	BL_PWR

2.4 Expansion (screen printing: M.2_E)

Screen printing M.2_E: M.2 slots Key E， Supports 2230 WIFI Card with Bluetooth functions.

2.5 Storage (screen printing: M.2_S/W、SATA、PWSATA)

Screen printing M.2_S/W: M.2 slot Key B, supports 2242 SATA protocol SSD/4G module, and has a Micro SIM card slot; supports 1xSATA3.0, provides 1xPWSATA hard disk power supply socket (only supports 2.5-inch disks).

PWSATA:(screen printing:PWSATA)

Pin	Signal
1	5V

2	GND
3	GND
4	NC

2.6 USB Interface

4 standard USB3.1 Gen2, 2 built-in USB2.0 interfaces (2.0mm pitch pins).

The rear USB3.1 Gen2 port is powered by 5V Standby voltage, which can supply power to external devices when it is turned off (not power-off): 5V/1A.

Internal USB2.0 Pin(screen printing: USB2.0)**:**

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	(空)

2.7 LAN

The board provides two high-performance RJ45 interfaces, installed Intel Gigabit Ethernet control chips i219 (LAN1) and i211 (LAN2), supports Magic packet wake-up.

Interface LED Status Indicators:

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

2.8 Audio Interface

The board equips a Realtek HD audio control chip, provides a 3.5mm Line_out/MIC 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

COM header (2.0mm spacing of built-in pins), provides 4x RS232, 2xRS485. The RS232 serial port is electrified. (Voltage is the same as the input voltage of the board)

RS232(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 input voltage of the board)
DCD#	11	12	RXD
TXD	13	14	DTR#
GND	15	16	DSR#
RTS#	17	18	CTS#
RI#	19	20	VCC(same as the input voltage of the board)
DCD#	21	22	RXD
TXD	23	24	DTR#
GND	25	26	DSR#
RTS#	27	28	CTS#
RI#	29	30	VCC(same as the input voltage of the board)
DCD#	31	32	RXD
TXD	33	34	DTR#
GND	35	36	DSR#
RTS#	37	38	CTS#
RI#	39	40	VCC(same as the input voltage of the board)

RS485(screen printing: COM5_6)**:**

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

2.10 Power Supply (screen printing: PWR1、PWR2)

Support 12V DC-in for power supply.

PWR1:



PWR2:(screen printing: PWR2)

Pin	Signal

1	VIN
2	VIN
3	GND
4	GND

2.11 GPIO (screen printing: GPIO)

The board is equipped with a set of 2 x 5pin as JGPIO pin (2.0mm spacing), supporting 8 programmable I/O lanes 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

2.12 LPC (Optional)

The board provides a set of 2.0mm pitch LPC (Low Pin Count Interface) pins for connecting external LPC devices. This is an optional feature.

LPC:(screen printing: 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

2.13 Switch button/indicator pin (screen printing: JPOWER)

A set of 2.0mm pitch pins can be connected to 1 switch button, 1 system reset button, 1 hard disk read/write indicator and 1 power-on indicator.

In addition, a hard disk read/write indicator (red) and a power-on indicator (blue) are designed on the rear IO panel port on the board.

JPOWER:(screen printing: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	

2.14 CPU FAN Socket (screen printing: CPU_FAN)

The board provides a CPU cooling fan socket, which offers better heat dissipation when necessary.

CPU_FAN:

Pin	Signal
1	VCC(default 5V power supply (12V Optional)
2	GND
3	CPUFAN_TAC
4	CPUFAN_CTL

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 to the original (factory settings) system settings.

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

Step 2: Press JCMOS for about 10 seconds and disconnect.

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

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