

ELSKY OPS-MX8900 V1.3 (MX42/MX30)

Specification

⚠ Important Tips:

Power Supply Interface:

1. The specification of the motherboard's DC interface is 5.5*2.5.
2. The host supports 12V/19V power supply. The full-load power consumption of (motherboard + CPU + graphics card) is approximately 90W. It is recommended to use a power supply of 12V 10A or above 19V 6A.

CPU:

The motherboard supports Coffee Lake 8th Gen and 9th Gen LGA1151 Core i3, i5, i7, and i9 desktop independent CPUs, which can be disassembled and installed.

Display Interface: Note: If the MXM graphics card is not installed, the motherboard cannot display independently.

1. The HDMI and DP interfaces at the motherboard end, and the DP and HDMI interfaces at the OPS daughter card end support single display, dual-display/triple-display/quadruple-display duplication, dual-display/triple-display/quadruple-display extension, and single display in DOS.
2. The motherboard supports the MXM graphics card NVIDIA GTX1030-2G. It only supports the output of HDMI at the motherboard end and HDMI at the daughter card end, and does not support the DP function.
3. The motherboard supports the MXM graphics card NVIDIA GTX1050Ti-4G. It can support the output functions of all HDMI and DP interfaces.
4. The motherboard supports the MXM graphics card AMD RX550-4G. It only supports the output



of HDMI at the motherboard end and HDMI at the daughter card end, and does not support the DP function.

5. The motherboard supports the MXM graphics card NVIDIA GTX1650-4G. It can support the output functions of all HDMI and DP interfaces.

6. The HDMI and DP interfaces at the motherboard end support a 4K resolution of 4096/3840*2160@60Hz.

7. The HDMI and DP interfaces at the daughter card end support a 4K resolution of 4096/3840*2160@60Hz.

8. The DP interface at the motherboard end and the DP interface at the daughter card end do not support DP++.

Mini-PCIE:

The motherboard's Mini-PCIE (4G/WIFI) interface by default has the coexistence of PCIE signals and USB signals (by default, it can support WIFI/4G/Bluetooth modules).

Among them, the PCIE signal can be changed to a SATA signal, and after the change, it supports MSATA drives.

M.2:

The motherboard supports the Key-M interface, and by default, it supports the M.2 2280 hard drive, and can be changed to an M.2 2242 hard drive. It supports the automatic switching between the NVME (PCIE) protocol and the SATA protocol.

USB Interface:

1. The motherboard by default supports 6*USB (3*USB3.1 Gen1, 3*USB2.0), all of which are external interfaces, and there are no built-in pin headers by default.

2. For the external DUAL_USB30_2 interface of the motherboard, the lower interface is USB3.1 Gen1,



and the upper interface is USB2.0.

3. The external USB interface of the motherboard is powered by S power by default (no power after shutdown), and the USB interface of the daughter card is powered by A power by default (with power after shutdown).

COM Port:

1. The motherboard by default supports 2*COM, among which COM1 supports the optional RS232/RS422/RS485, which can be set through the BIOS.
2. The motherboard's COM2 and the daughter card's TTL are two-in-one interfaces with the same signal, and there is no need to change the hardware.
3. The motherboard's COM1 can set the output of the ninth pin to 0V/5V/12V through the JCOM1 jumper cap, and it is 0V by default.

Network Card:

The motherboard by default supports the Realtek 8111H Gigabit Ethernet card or the Motorcomm YT6801 Gigabit Ethernet card, and the POE power supply cannot be changed.

Sound Card:

The motherboard by default supports the Realtek ALC897 sound card. There are no built-in F_AUDIO pin headers by default, and the USB sound card cannot be changed.



The following CPU information is for reference only. For specific requirements, please consult our sales staff!

CPU Specification	CPU Brand	CPU Model	Main frequency	Turbo frequency	CPU basic power consumption (W)	Maximum Turbo Power Consumption (W)
8th Gen I3	Intel Core	8100	4 cores 3.6G		65	90
		8300	4 cores 3.7G		62	90
8th Gen I5	Intel Core	8400	6 cores 2.8G	4.0G	65	90
		8500	6 cores 3.0G	4.1G	65	90
		8600	6 cores 3.2G	4.3G	65	90
8th Gen I7	Intel Core	8700	6 cores 3.2G	4.6G	65	90
9th Gen I3	Intel Core	9100	4 cores 3.6G	4.2G	65	90
		9300	4 cores 3.7G	4.2G	62	90
9th Gen I5	Intel Core	9400	6 cores 2.9G	4.1G	65	90
		9500	6 cores 3.0G	4.4G	65	90
		9600	6 cores 3.1G	4.6G	65	90
9th Gen I7	Intel Core	9700	8 cores 3.0G	4.7G	65	90
9th Gen I9	Intel Core	9900	8 cores 3.1G	5.0G	65	90

Instructions

Except for the accessories listed as being included with the product configuration, the contents contained in this instruction manual do not represent the commitments of our company. Our company reserves the right to make changes to this manual without prior notice.

We shall not be liable for any direct, indirect, intentional or unintentional damages and potential hazards caused by improper installation or use.

Before ordering the product, please consult the distributor in detail to find out whether the product performance meets your needs.

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The final interpretation right of this instruction manual belongs to Shenzhen ELSKY Technology Co., Ltd.

The above ordering information is for reference only. For specific details, please consult our business department. The consultation telephone number is 0755-82260150.

Motherboard driver download: <https://pan.baidu.com/s/1ie7qi5NutS53ipPecRSYtw>

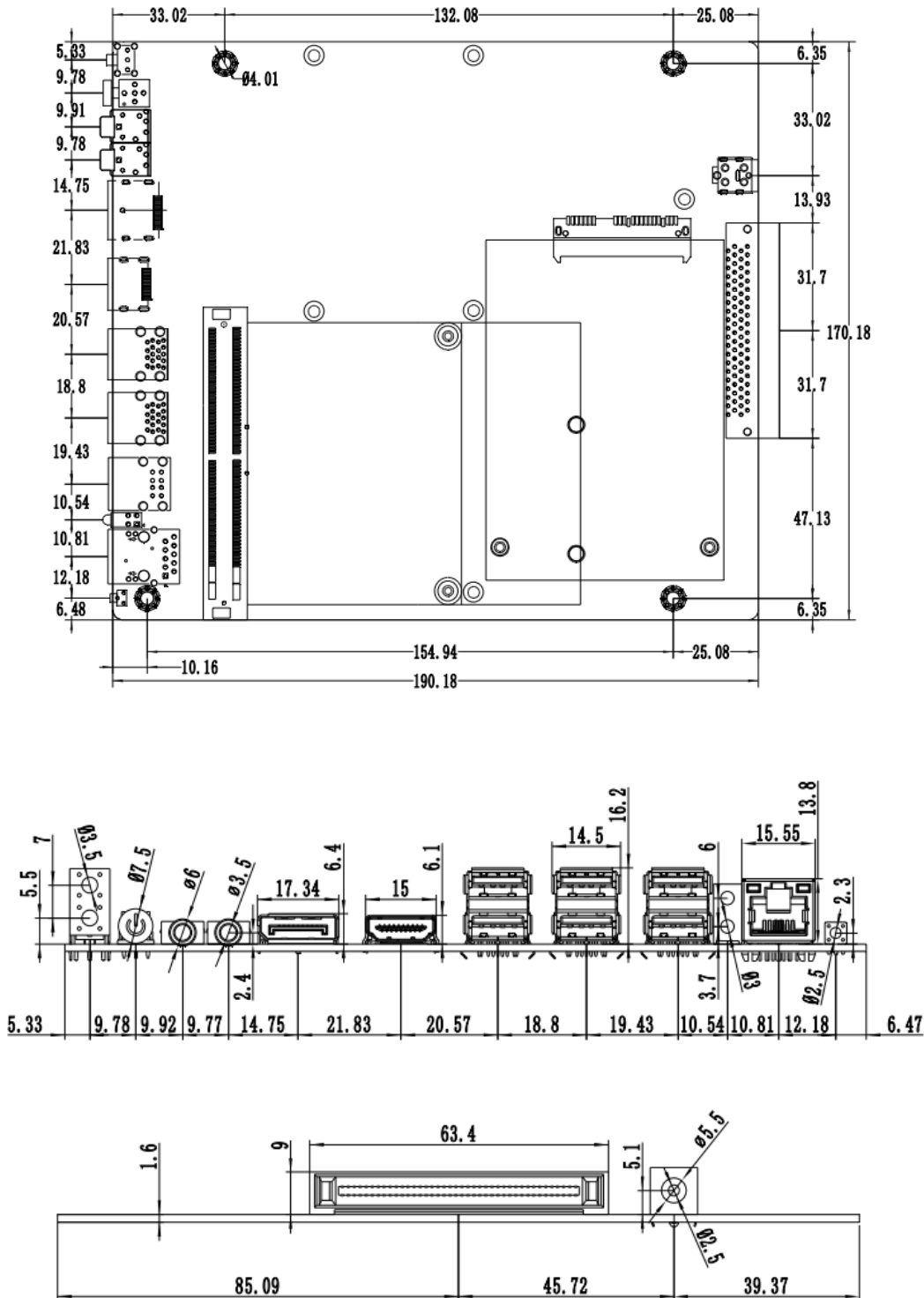
www.miniboard.cn



Access password: cbn5

Chapter 1 Product Specification

1.1 Motherboard Dimension Diagram



Chapter 2 Definition and Explanation of Motherboard Pins

2.0 Method for Identifying the First Pin of the Pin Header

Method 1: Look at the silk screen markings next to the pins on the front of the motherboard, which will use triangular symbols ▴ Or bold lines  Or 1 represents ;

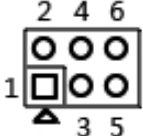
Method 2: Look at the solder pads on the back of the motherboard, square solder pads  For the first pin;

Pay attention to distinguishing the first pin when inserting devices and connecting cables, otherwise it may damage the motherboard and devices.

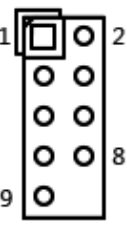
2.1 Function and Definition of COM Pin Header

The motherboard supports a 2*COM motherboard with the standard RS232. COM1 can optionally support RS232/RS485/RS422, which can be set through the BIOS.

The voltage of the 9th pin of COM1 can be adjusted by changing the jumper settings on JCOM1, allowing you to select either +5V or +12V output for the 9th pin.

Position Number : JCOM1 (2*3Pin , 2.0mm)		Tag diagram
Pin	The 9th pin of COM1 is charged.	
1-2 short circuiting	+5V	
3-4 short circuiting	+12V	
5-6 short circuiting	No power supply(Default)	

2.1.1 Definition of COM1/2 Pin

Position Number : COM1/2 (2*5Pin , 2.54mm)				Tag diagram
Pin	Definition	Pin	Definition	
1	DCD	2	RXD	
3	TXD	4	DTR	
5	GND	6	DSR	
7	RTS	8	CTS	
9	RI	10	NC	

2.1.2 RS422 / RS485 Definition of COM1

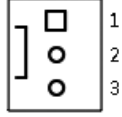
Position Number : COM1 (2*5Pin , 2.54mm)
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Signal	Pin- Definition	
RS485	1 (S485-)	2 (S485+)
RS422	1 (TXD-)	2 (TXD+)
	3 (RXD+)	4 (RXD-)

2.2 Definition of Fan Interface

FAN1 supports temperature control.

Position Number : FAN1 (1*3Pin , 2.54mm)		Position Number : FAN2 (1*3Pin , 2.54mm)		Tag diagram
Pin	Definition	Pin	Definition	
1	GND	1	GND	
2	CTL (Temperature control.)	2	+12V	
3	TAC (Fan Speed Detection)	3	TAC (Fan Speed Detection)	

2.3 Definition of Power and Switch Pin Header

The motherboard provides a standard 2.5 DC connector (DC_IN) ;

Definition of the power switch pin header :

Position Number : F_PANEL (2*5Pin , 2.54mm)					Tag diagram
Pin	Definition		Pin	Definition	
1	HDLED+	Hard disk indicator light	2	PWRLED+	Power indicator light
3	HDLED-		4	GND	
5	GND	Restart	6	P_SW IN	Power Switch
7	RST		8	GND	
9	GND		10	NC	

(1) Hard Disk Indicator Light (Pins 1 and 3 are for HDD LED, and Pin 1 is the positive pole of the LED). When the hard disk is performing read and write operations, the indicator light will flash, indicating that the hard disk is in operation.

(2) Power Indicator Light (Pins 2 and 4 are for Power LED, and Pin 2 is the positive pole of the LED). When the motherboard is powered on, the power indicator light will turn on; when the motherboard is powered off, the power indicator light will turn off.

(3) Reset Button (Pins 5 and 7 are for Reset Button). When the system fails and cannot continue to work, pressing the reset button can make the system start working again.

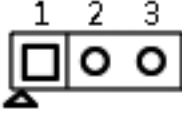
(4) Power Switch Control (Pins 6 and 8 are for Power Button). These two pins are connected to the pop-up switch on the front panel of the chassis, which can be used to turn on or turn off the computer.

2.4 Power on Boot - Hardware Control

The motherboard provides an AUTO_SW jumper cap to control the function of



powering on the device upon power supply.

Position Number : AUTO_SW (1*3Pin , 2.0mm)		Tag diagram
Setup	Function	
1-2 short circuiting	Off Power-on	
2-3 short circuiting	On Power-on	

⚠ Attention: Hardware control and software control (BIOS settings) power-on cannot be set at the same time, and there will be conflicts between simultaneous settings.

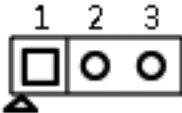
2.5 Discharging, Resetting of the Motherboard and Battery

The CMOS is powered by the button cell battery on the motherboard. Clearing the CMOS will result in the deletion of previous BIOS settings and resetting them to the original factory settings.

The steps are as follows:

- (1) Shut down the computer and disconnect the power supply.
- (2) Move the jumper cap of the "J5" pin header to pins 2-3 and short-circuit them for 5 to 6 seconds, and then move the jumper cap back to pins 1-2; You can also press the CMOS_SW button.
- (3) Press the "Delete" key on the keyboard when powering on the computer to enter the BIOS interface.
- (4) After entering the BIOS interface, press the "F9" key, then press "Enter" to reload the optimal default values.
- (5) Press "F10" to save and exit the settings.

Definition of CMOS Pin Header:

Position Number : J5 (1*3Pin , 2.0mm)		
Pin	Function	
1-2 short circuiting	Power on the device normally (default)	
2-3 short circuiting	Clear the CMOS content and restore the BIOS to the factory default values	

⚠ Note: Please do not clear the CMOS when the computer is powered on to avoid damaging the motherboard.

After powering off, removing and reinstalling the button battery can also achieve the function of resetting the motherboard.

⚠ Note: Please ensure that the battery voltage is within the range of 2.8V to 3V; when replacing the battery, be sure to use the same model or the same type of battery recommended by the manufacturer. If the battery is replaced improperly, there is a risk of explosion!



2.6 Definition of 80Pin OPS Pins

Pin	Signal	Description	Channel	Pin	Signal	Description	Channel
1	DDP_3N	DisplayPort	OUT	41	+12V~+19V	Power	-
2	DDP_3P	DisplayPort	OUT	42	+12V~+19V	Power	-
3	GND	Ground	-	43	+12V~+19V	Power	-
4	DDP_2N	DisplayPort	OUT	44	+12V~+19V	Power	-
5	DDP_2P	DisplayPort	OUT	45	RSVD	Reserved pins	-
6	GND	Ground	-	46	RSVD	GHOST	-
7	DDP_1N	DisplayPort	OUT	47	GND	Ground	-
8	DDP_1P	DisplayPort	OUT	48	GND	Ground	-
9	GND	Ground	-	49	RSVD	Reserved pins	-
10	DDP_0N	DisplayPort	OUT	50	SYS_FAN	System Fan Control	OUT
11	DDP_0P	DisplayPort	OUT	51	UART_RXD	UART 3.3V	IN
12	GND	Ground	-	52	UART_TXD	UART 3.3V	OUT
13	DDP_AUXN	DisplayPort	I/O	53	GND	Ground	-
14	DDP_AUXP	DisplayPort	I/O	54	StdA_SSRX-	USB3.0	IN
15	DDP_HPD	DisplayPort	IN	55	StdA_SSRX+	USB3.0	IN
16	GND	Ground	-	56	GND	Ground	-
17	TMDS_CLK-	DVI-D	OUT	57	StdA_SSTX-	USB3.0	OUT
18	TMDS_CLK+	DVI-D	OUT	58	StdA_SSTX+	USB3.0	OUT
19	GND	Ground	-	59	GND	Ground	-
20	TMDS0-	DVI-D	OUT	60	USB_PN2	USB	I/O
21	TMDS0+	DVI-D	OUT	61	USB_PP2	USB	I/O
22	GND	Ground	-	62	GND	Ground	-
23	TMDS1-	DVI-D	OUT	63	USB_PN1	USB	I/O
24	TMDS1+	DVI-D	OUT	64	USB_PP1	USB	I/O
25	GND	Ground	-	65	GND	Ground	-
26	TMDS2-	DVI-D	OUT	66	USB_PN0	USB	I/O
27	TMDS2+	DVI-D	OUT	67	USB_PP0	USB	I/O
28	GND	Ground	-	68	GND	Ground	-
29	DVI_DDC_DATA	DVI-D	I/O	69	AZ_LINEOUT_L	Audio-Lch	OUT
30	DVI_DDC_CLK	DVI-D	I/O	70	AZ_LINEOUT_R	Audio-Rch	OUT
31	DVI_HPD	DVI-D	IN	71	CEC	Consumer Electronic Control	I/O
32	GND	Ground	-	72	PB_DET	Pluggable Board Detect	OUT
33	+12V~+19V	Power	-	73	PS_ON#	Pluggable Signal ON	IN
34	+12V~+19V	Power	-	74	PWR_STATUS	PowerGood	OUT (OC)
35	+12V~+19V	Power	-	75	GND	Ground	-
36	+12V~+19V	Power	-	76	GND	Ground	-
37	+12V~+19V	Power	-	77	GND	Ground	-
38	+12V~+19V	Power	-	78	GND	Ground	-
39	+12V~+19V	Power	-	79	GND	Ground	-
40	+12V~+19V	Power	-	80	GND	Ground	-

1. The I/O column definition is in reference to the pluggable board.

2. OC=Open Collector.

For USB3.0 implementation, pins #60 and #61 shall be used to complement the Super Speed USB signals.

