User Manual

FP-10 Mini ITX Motherboard

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FP-10 User Manual

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Chapter 1 Product Introduction

1.1 Brief Introduction

The FP10 motherboard is based on AMD Ryzen embedded /Mobile processors.

1.2 Parameters

AMD Ryzen V1000 Series Embedded Processor:

- Ryzen V1605B—Quad-Core, Base Freq. 2GHz, Max Freq. 3.6GHz, TDP 12-15W
- Ryzen V1202B—Dual-Core, Base Freq. 2.3GHz, Max Freq. 3.2GHz, TDP12- 15W

Memory: Dual Channel SO-DIMM DDR4-2400MHz up to 32GB

GPU: Integrated graphics based on CPU, supports 4x DP standard interface, 1xLVDs/eDP. One out of three (DP1/LVDs/eDP).

Storage: 1 x M.2 Key B for 2242/2280 SATA SSD, 1x SATA3.0

USB: 2x USB3.2 rear standard ports; 2xUSB2.0 rear stand ports; 6xUSB2.0 onboard pin.

Ethernet: 2xOnboard Gigabit Network Controller (Realtek RTL8111H)

Audio: High-Definition Audio Codec, supports Line-out, Mic-in (rear ports), Line-out, Mic-in front onboard pin; and power amplifier.

COM Ports: 6xRS232, COM2 RS485 optional.

Expansion: 1 x M.2 Key B supports NGFF 3G/4G Module. 1xM.2 Key E 2230 for Wi-Fi & Bluetooth.

Other I/O: 1xPCIe4X, 1xPCIe1X, GPIO 8-bit,1*PS/2(KB+MS), 1xLPT, 1xLPC

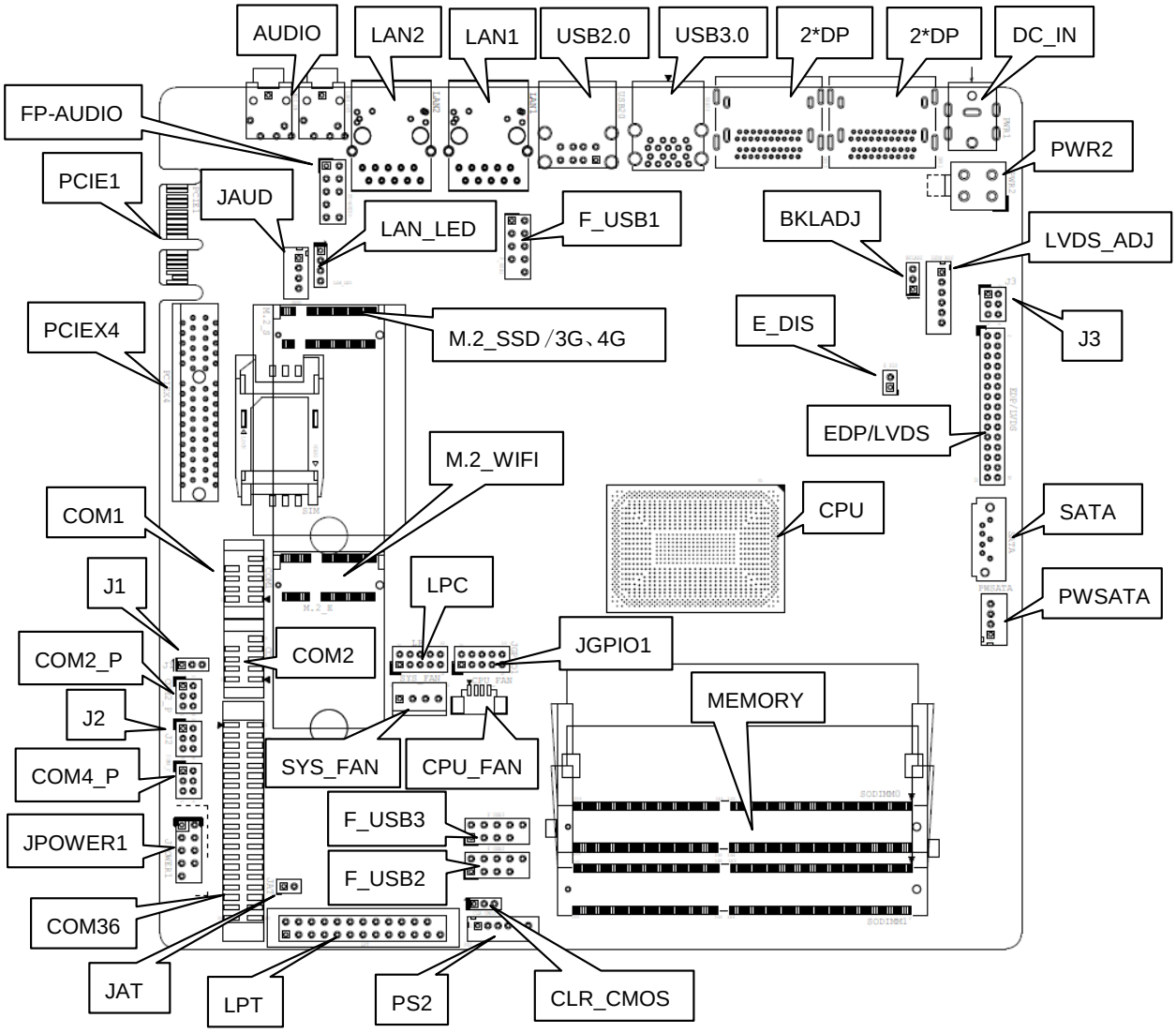
Other Function: Optional TPM Security.

Dimension: 170mm x 170mm

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

2 x SO-DIMM DDR4-2400 MHz, supporting dual channels, maximum capacity 32GB.

2.3 Display

The board is equipped with four standard DP1.3 interfaces, 1xLVDs/eDP, and supports 4 x simultaneous displays.

The DP1 rear port cannot be used with LVDs/eDP at the same time. One out of the three must be selected, while using the LVDs/EDP headers the DP1 port will be disabled.

2.3.1 LVDS (screen printing: LVDS, LVDS_ADJ, J3, E_DIS, BKLADJ)

Dual-channel 24bit LVDS interface. The LVDS display power is controlled by the J3 jumper, and the LVDS backlight power is controlled by the LVDS_ADJ. The E_DIS is a switch for the LVDS, turn off LVDS by closing it and turn on LVDS by opening it. BKLADJ is a screen brightness two-way adjustment control.

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

Display backlight brightness adjustment pin (screen printing: LVDS_ADJ)

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

LVDS display backlight two-way adjustment jumper (screen printing: BKLADJ_C)

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

Display power supply jumper (screen printing: J3)

Interface	Setting	Function
1-2	Close	+3.3V
3-4	Close	+5V
5-6	Close	+12V

Note: When the LVDS display power supply is set by the jumpers the voltage can be adjusted between 12V, 5V, and 3.3V. It is strictly prohibited to use jumper caps to short-circuit two or more ports at the same time.

2.3.2 eDP (screen printing: LVDS, LVDS_ADJ, J3, E_DIS, BKLADJ)

The board supports a 2 LANE eDP(1.3) As an optional function. When it functions as eDP the LVDs functions will be disabled. The display power is controlled by the J3 jumper, and the screen backlight power is controlled by the LVDS_ADJ jumper. The E_DIS is a switch control for the eDP, turn off eDP by closing it and turn on eDP by opening it. BKLADJ is a screen brightness two-way adjustment control.

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 Display backlight brightness adjustment pin (screen printing: LVDS_ADJ)

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

eDP display backlight two-way adjustment jumper (screen printing: BKLADJ)

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

eDP display power supply jumper (screen printing: J3)

Interface	Setting	Function

1-2	Close	+3.3V
3-4	Close	+5V
5-6	Close	+12V

Note: When the eDP display power supply is set by the jumpers the voltage can be adjusted between 12V, 5V, and 3.3V. It is strictly prohibited to use jumper caps to short-circuit two or more ports at the same time.

2.4 Expansion (Screen Printing: M.2_S, M.2_E, PCIEX4, PCIE1)

Screen Printing M.2_S: M.2 slot Key B, support NGFF 3G/4G module, with standard SIM card slot.

Screen Printing M.2_E: M.2 slot Key E, support NGFF WIFI card.

Screen Printing PCIEX4: It is a PCIE3.0/4X slot, which can be used to expand PCIe devices such as network cards and graphics cards.

Screen Printing PCIE1: It is the PCIe 1X golden finger, which can be used to expand PCIe devices such as network cards and graphics cards.

2.5 Storage (Screen Printing: SATA, M.2_S, PWSATA)

Supports 1 standard SATA3.0 interface with a transmission rate of 6GB/s, and one disk power supply socket. The M.2 Key B slot (screen printing: M.2_S) supports 2242 SATA SSD.

2.6 USB

Features 2xUSB3.2 and 2x USB2.0 rear ports, 6xUSB2.0 onboard header.

USB headers (Screen Printing: F_USB1, F_USB2, F_USB3)

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	N/A

2.7 LAN (Screen Printing: LAN1, LAN2, LAN_LED)

Build with high-performance RTL8111H Gigabit Network Controllers 2xRJ45 interfaces, supports Magic packet wake-up functions and the LAN2 supports PXE network boot.

It also provides a set of LAN_LED Network light indicator pins.

LED Status Indicators:

LINK LED(Green)	Function	ACTIVE LED(Orange)	Function
Always on	Network Connected	Blinking	Data Transfer

LAN_LED (Screen printing: LAN_LED)

Pin	Signal
1	LAN1_D+
2	LAN1_D-
3	LAN2_D-
4	LAN2_D+

2.8 Audio

The board features High-Definition Audio Codec ALC662, the audio interface colored green is the Line-out, and the audio interface colored pink is the Mic-in. The JAUD pin is for the power amplifier.

FP_AUDIO (screen printing: 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 (screen printing: JAUD)

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

2.9 COM (screen printing: COM1, COM2, COM3_6, JCOM4_P, J1, J2)

It is equipped with 6COM(2.0mm spacing of built-in pins). The COM1 and COM2 slots are defined as industrial control; COM3 to COM6 are RS232 definition; COM2_P and COM4_P provide optional 5V or 12V voltage for COM2 and COM4.

COM1 (Screen printing: COM1)

Signal	Pin		Signal
DCD#	1	2	DSR#
RXD	3	4	RTS#

TXD	5	6	CTS#
DTR#	7	8	RI#
GND	9	10	(NC)

COM2(Screen printing: COM2)

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

COM2_P, COM4_P (Screen printing: COM2_P, COM4_P)

Interface	Setting	Function
1-2	Close	5V
3-4	Close	RI
5-6	Close	12V

COM2 Setting Mode (Screen printing: J1, J2)

COM2	
RS232	RS485
J1(1-2) J2(1-3, 2-4)	J1(2-3) J2(3-5, 4-6)

COM36 (Screen printing: COM36)

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

RI#	9	10	N/A
DCD#	11	12	RXD
TXD	13	14	DTR#
GND	15	16	DSR#
RTS#	17	18	CTS#
RI#	19	20	N/A
DCD#	21	22	RXD
TXD	23	24	DTR#
GND	25	26	DSR#
RTS#	27	28	CTS#
RI#	29	30	N/A
DCD#	31	32	RXD
TXD	33	34	DTR#
GND	35	36	DSR#
RTS#	37	38	CTS#
RI#	39	40	N/A

2.10 LPT (screen printing: LPT)

The board provides 1 set of 2X13 pin LPT interface on-board. The adapter cable is needed to transfer the LPT to the standard interface for use. Users can connect it to various equipment like printers according to their needs.

LPT (screen printing: LPT)

Signal	Pin		Signal
STB	1	2	AFD
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)

2.11 System Fan (Screen Printing: SYS_FAN)

The board provides a system fan socket with a default voltage of 12V.

SYSFAN (Screen Printing: SYS_FAN)

Pin	Signal
1	GND
2	+12V
3	(NC)
4	CTL

2.12 CPU FAN (Screen Printing: CPU_FAN1)

The board provides a CPU fan socket with a default voltage of 5V.

CPU_FAN1(Screen Printing: CPU_FAN1)

Pin	Signal
1	+5V
2	GND
3	CPUFAN_TAC
4	CPUFAN_CTL

2.13 GPIO Pin (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: JGPIO)

Signal	Pin		Signal
GPIO3	1	2	3.3V
GPIO4	3	4	GPIO69
GPIO9	5	6	GPIO86
GPIO40	7	8	GPIO89
GND	9	10	GPIO90

2.14 PS/2 Socket (screen printing: PS2)

The board is equipped with one 6-pin PS/2 socket.

P2/2 (screen printing: PS2)

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

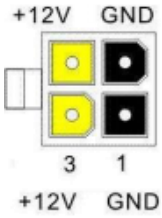
2.15 Board Power Supply (Screen Printing: PWR1, PWR2)

It supports 12V DC-in power adapter or ATX 12V supplementary power (2 x 2pin).

PWR1: 12V DC-in power supply socket



PWR2: ATX12V supplementary power supply socket (2x2PIN)



2.16 Panel Switch Pin (Screen Printing: JPOWER)

The front control panel interface is supposed to connect to the function button and the light indicator on the front panel of the chassis.

JPOWER1(Screen Printing: JPOWER1)

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-
N/A	9	10	(NC)

2.17 LPC (Screen Printing: LPC)

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_PORT80
+3.3V	9	10	SERIRQ

2.18 Hardware Auto Start (Screen Printing: JAT)

JAT (screen printing: JAT)

Settings	JAT
Close	Hardware Auto Start

Please note the jumper function is similar to the "Restore AC power loss" function in BIOS. When the latter is set to Power on, the device will also start automatically after power is connected.

2.19 CMOS Clearance/Retention (Screen Printing: CLR_CMOS)

The CMOS is powered by the button battery on the board. Clearing CMOS will permanently erase the previous system settings and set them to the original (factory settings) system settings.

Steps:

(1) Turn off the computer and disconnect the power supply.

(2) Use a jumper cap to short the first and second pins of CLR_CMOS for about 10 seconds, and then disconnect.

(3) Insert the jumper back into the 2nd and 3rd pins of CLR_CMOS (note that closing 1 and 2 pins are: CLR_CMOS, closing 2 and 3 pins is: normal power on).

(4) When starting the computer, press the <Del> key to enter the BIOS, load the optimal default values, save, and exit the settings.

COMS (Screen Printing: CLR_CMOS)

Pin	Settings	Function
1-2	Close	Clear COMS
2-3	Close	Normal Boot

⚠ Please do not clear the CMOS when the PC is powered on, in case of board damages. After clearing the CMOS, the jumper cap must be set back to the 2nd and 3rd pins for normal boot.