User Manual

FP-20 Mini ITX Motherboard

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FP20 User Manual

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Chapter 1 Product Introduction

1.1 Brief Introduction

The FP20 ITX motherboard is based on AMD FP5 series processors.

1.2 Parameters

CPU: Ryzen V1605B--Quad Core, Base Freq. 2GHz, Max Freq. 3.6GHz, TDP 12-25W

Memory: Dual Channel SO-DIMM DDR4 up to 32GB, maximum frequency 2400MHz.

GPU: Integrated graphics based on CPU, display via 2x HDMI2.0, 1x DVI-D, 1x VGA.

Storage: 1 x M.2 Key M for 2242/2280 SSD NVMe (SATA optional), 1x Standard SATA3.0

USB: 3x USB3.2 Gen1(2*ports+1*headers); 8xUSB2.0(2*ports+6*headers)

Ethernet: 2x onboard Gigabit Network Cards (Realtek RTL8111H)

Audio: High-resolution audio chip, rear Line-out, Mic-in, Line-in, front Line-out, Mic-in (onboard pins); power amplifier (onboard pins, connects to passive speakers)

COM: 6xRS232 serial ports (RS485 is optional for COM2)

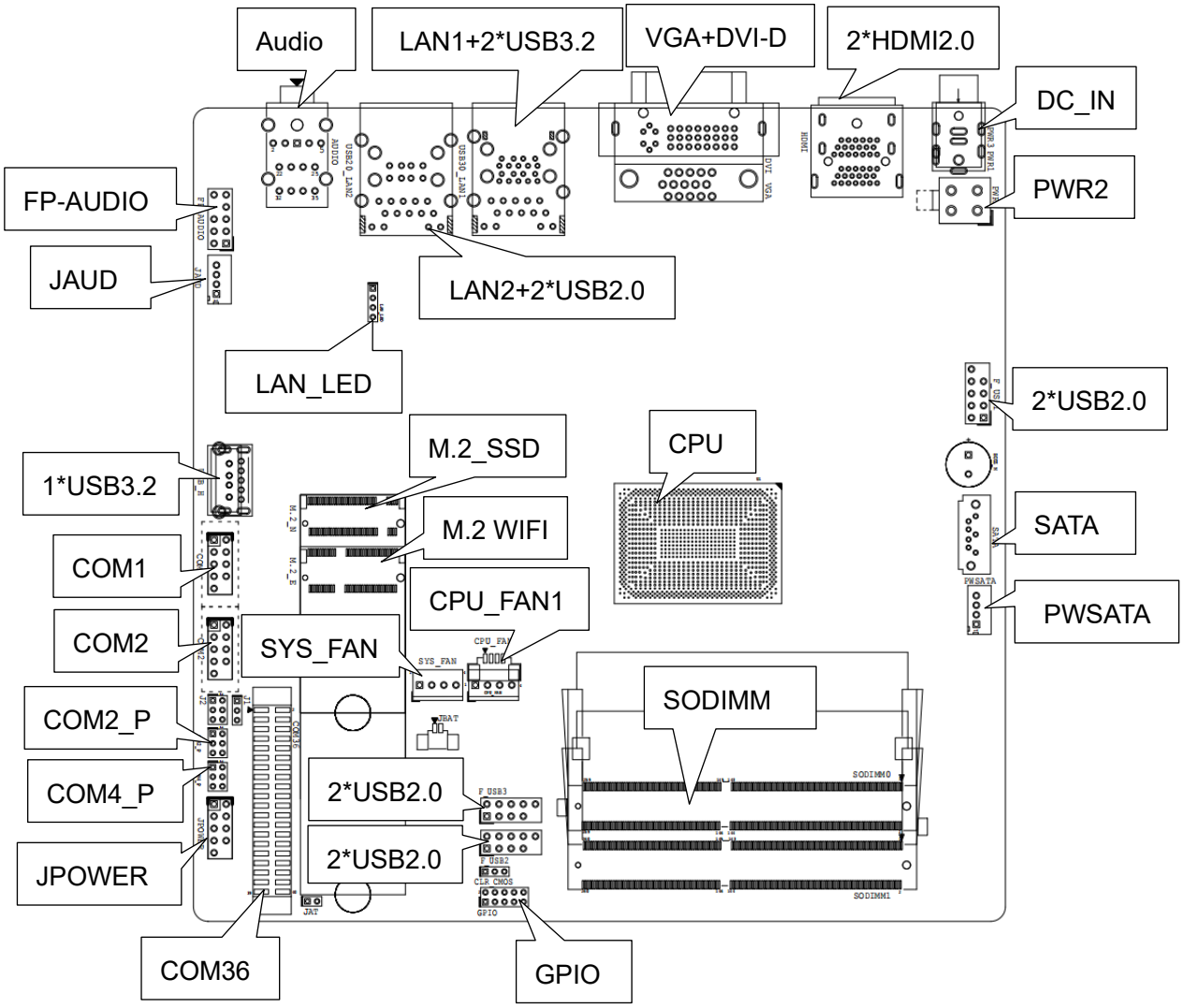
Expansion: 1 x M.2 Key E 2230 for Wi-Fi

Dimensions: 170mm x 170mm

Power: 12V/19V 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 DDR4-2400 slots, supporting dual channels, maximum capacity 32 GB.

2.3 Display

The board is equipped with 2xHDMI2.0, 1xDVI-D, and 1xVGA for display.

2.4 Storage (Screen Printing: SATA, M.2_N, PWSATA)

It supports a standard SATA3.0, the transmission rate can reach up to 6Gb/s, and is equipped with one hard disk power supply socket.

Screen Printing as M.2_N should be M.2 Key M; it supports 2242/2280 SSD NVME (SATA optional).

2.5 Expansion (Screen Printing: M.2_E)

Screen Printing M.2_E: M.2 Key E, supporting NGFF WIFI Card.

2.6 USB Interface

The board is equipped with 3xUSB3.2 Gen1(including 2 rear ports and 1 header), 2xUSB2.0 rear ports, and 6xUSB2.0 headers (spacing 2.54mm).

USB:(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	(NC)

2.7 LAN

It adopts the high-performance Gigabit Ethernet control chip Realtek RTL8111H, provides 2 RJ45 ports, (supports Magic packet wake up; LAN1 supports PXE network boot.)

In addition, a set of LAN_LED pins are provided to support the connection of the (orange) status light of the network port to the chassis panel.

LED Status Indicators：

LILED(Green)Status	Function	ACTLED(Orange)Status	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 (Screen Printing: FP_AUDIO, JAUD)

Using the ALC897 audio control chip, the green one is the audio output interface (Line-out), the pink one is the microphone input interface (MIC-in), and the blue one is the audio input interface (Line-in); the JAUD pin is the power amplifier output.

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(AGND)	7	8	(NC)
FRO-L	9	10	LINE2-JD

JAUD (Screen Printing: JAUD)

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

2.9 COM (Screen Printing: COM1, COM2, COM36)

The board is equipped with 6 RS232 serial ports. COM1 and COM2 onboard pin spacing: 2.54mm; COM2 can be set as RS485 optional. The COM2_P, COM4_P provide 5V/12V voltage optional for COM2 and COM4.

COM1 (Screen Printing: COM1)

Signal	Pin		Signal
DCD	1	2	RXD
TXD	3	4	DTR
GND	5	6	DSR

RTS	7	8	CTS
RI	9	10	(NC)

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

COM2 (Screen Printing: COM2)

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)

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 Mode Setting (Screen Printing: J1, J2)

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

2.10 GPIO Pin(Screen Printing: GPIO)

The board is equipped with a set of 2x5 Pin as JGPIO pin, (2.0mm spacing), supports 8 programable I/O lanes in total.

GPIO(Screen Printing: JGPIO)

Signal	Pin		Signal
SIO_GP70	1	2	+3.3VA
SIO_GP71	3	4	SIO_GP74
SIO_GP72	5	6	SIO_GP75
SIO_GP73	7	8	SIO_GP76
GND	9	10	SIO_GP77

2.11 System Fan(Screen Printing: SYS_FAN)

The board provides a system fan socket with a default voltage of 5V, 12V optional.

SYSFAN(Screen Printing: SYS_FAN)

Pin	Signal
1	GND
2	VCC
3	TAC
4	CTL

2.12 CPU FAN(Screen Printing: CPU_FAN1)

The board provides a CPU fan socket with a default voltage of 12V, 5V optional.

CPU_FAN1(Screen Printing: CPU_FAN1)

Pin	Signal
1	VCC
2	GND
3	TAC

4	CTL

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

Supports 12V/19V DC-in power adapter or ATX supplementary power (2x2 pin)

2.14 Panel Switch Pin(Screen Printing: JPOWER)

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

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	(NC)

2.15 Hardware Auto Start (Screen Printing: JAT)

JAT(Screen Printing: JAT)

Settings	JAT
Close	Hardware Auto Start

2.16 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 to boot normally.