YeaCreate-P4-EXTEND
Expansion Board Specification Sheet — V0.1

Mainboard Model:	YeaCreate-P4-EXTEND V0.2
Board Function:	YeaCreate-P4-EXTEND Expansion Board
Security Level:	Public

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Directory

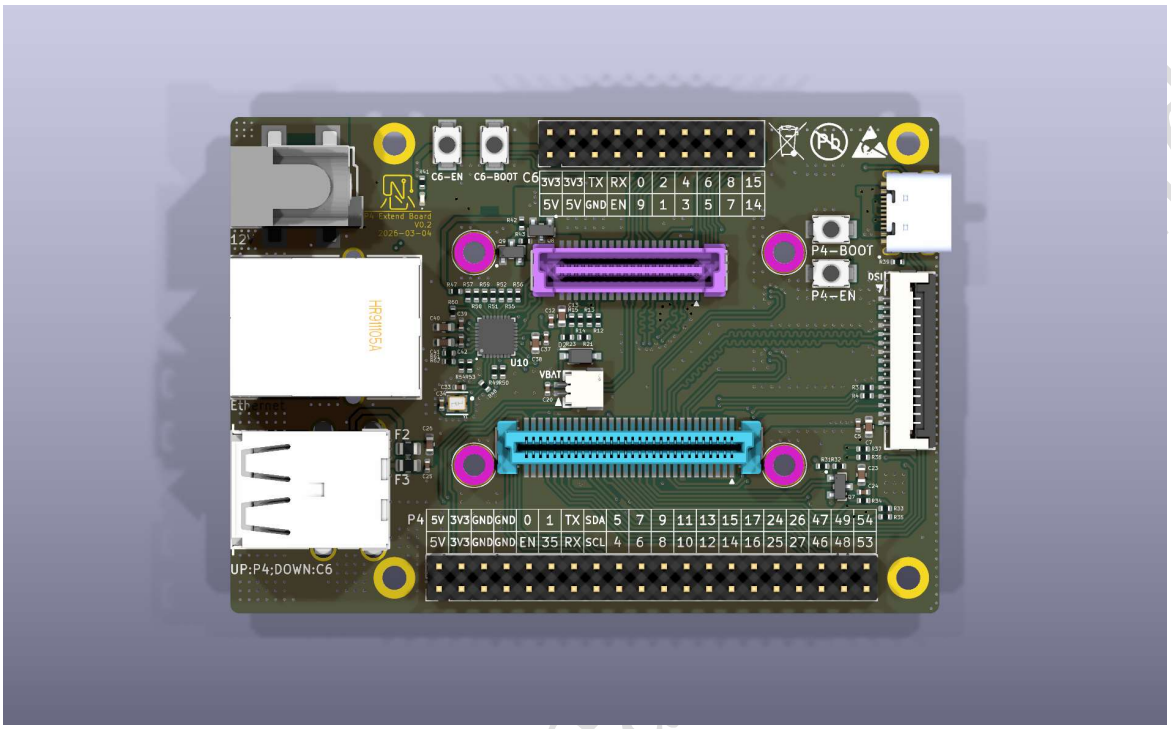
1 Introduction

YeaCreate is committed to smart home solutions, creating smarter and more convenient living experiences. As an innovator in embedded application technology, YeaCreate keeps trying to innovate home connectivity and intelligent solutions.

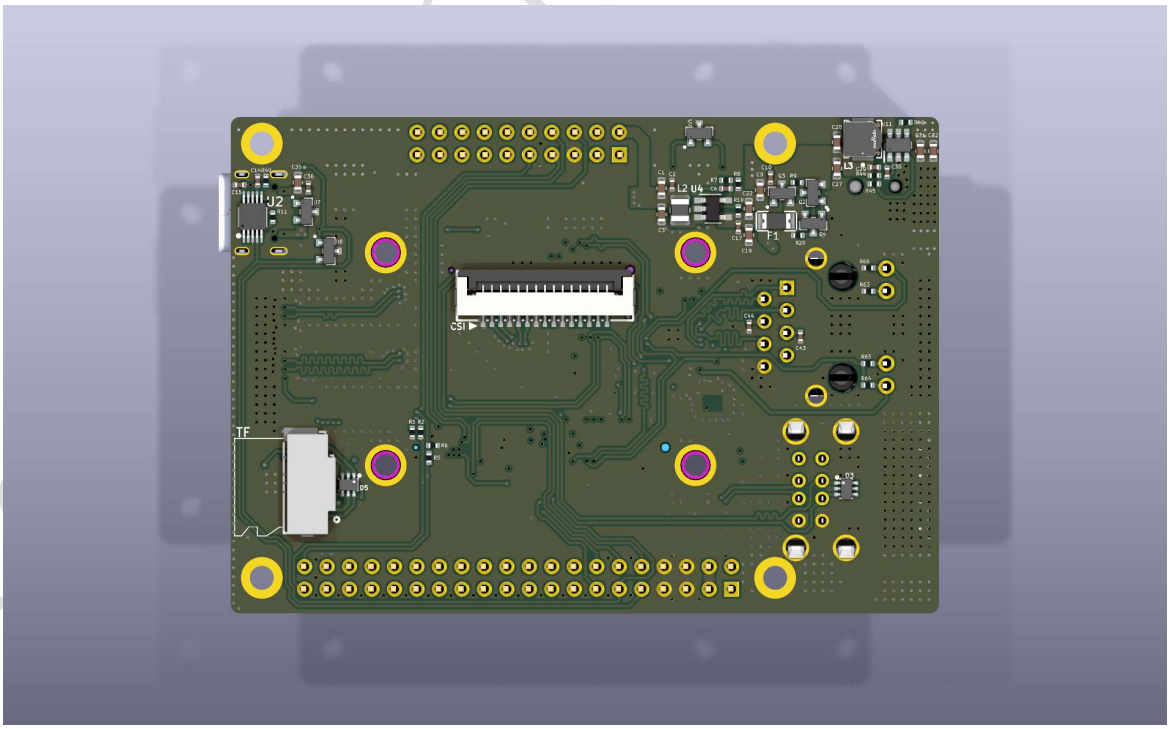
The **YeaCreate-P4-EXTEND** expansion board is a development platform featuring high-definition multimedia, high-speed networking, versatile storage, and industrial-grade power management. It connects seamlessly to the core board via high-density board-to-board (BTB) connectors, enabling developers to rapidly validate the functions of the **YeaCreate-ESP32-P4-CORE** core board, streamline secondary development and debugging, and significantly shorten the path from prototype to mass production.

2 Appearanceand Dimensions

2.1 The appearance drawing is as follows:



Front View (Figure 1)



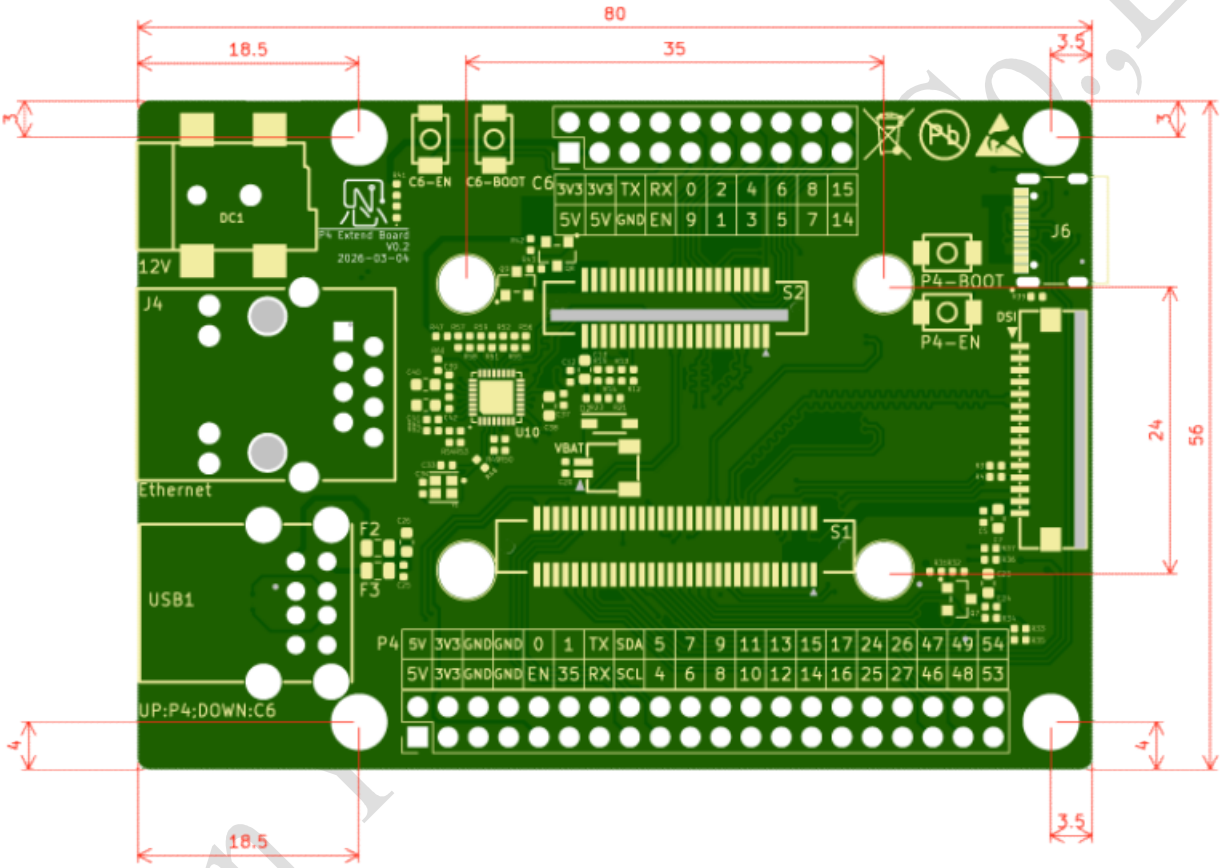
Back side (Figure 2)

2.2 Dimensions

Width: 80mm

Length: 56mm

Tolerance: ±0.5mm

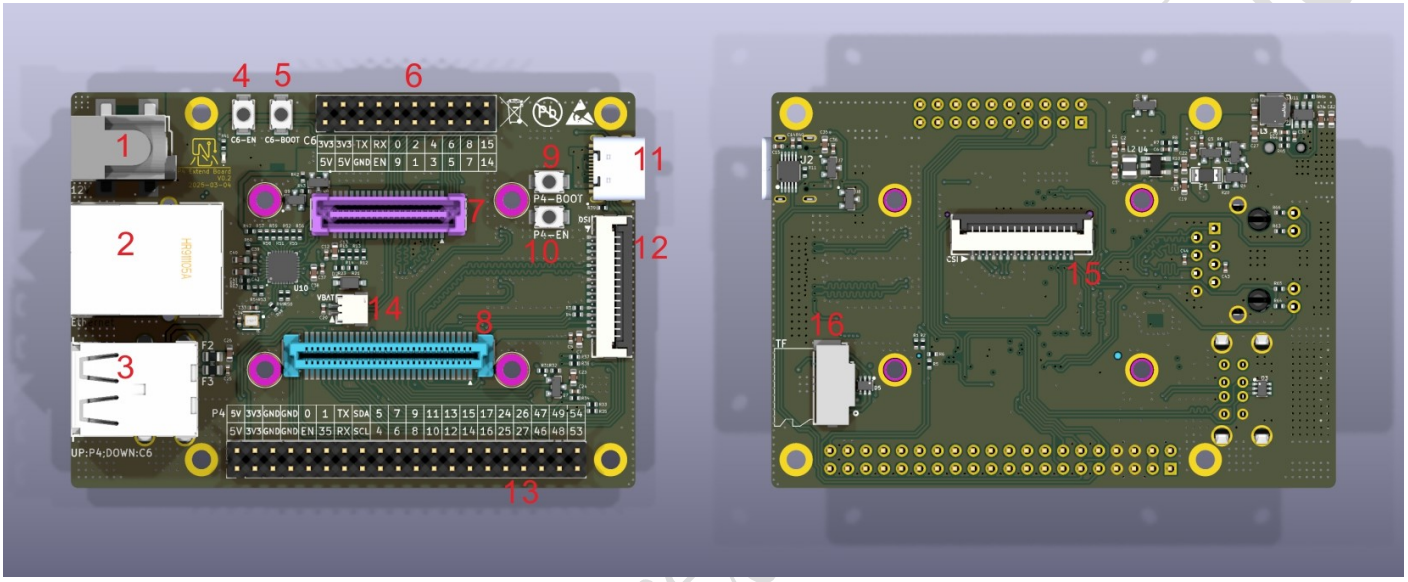


(Figure 3)

3 Application Guide

This chapter primarily introduces the functions and pin definitions of the expansion board, covering the following:

3.1 Functions



(Figure 4)

Function List

No.	Description
1	12V Power Input (5.5 × 2.1 mm)
2	RJ45 Ethernet Port, supports 10/100 Mbps auto-negotiation
3	USB Type-A 2.0 Ports × 2 ; UP: Connected to ESP32-P4 chip; DOWN: Connected to ESP32-C6 chip;
4	ESP32-C6 EN Button
5	ESP32-C6 BOOT Button
6	ESP32-P4 40-Pin GPIO Header (Pitch: 2.54 mm)
7	60-Pin BTB Connector for ESP32-P4 Core Board
8	40-Pin BTB Connector for ESP32-P4 Core Board
9	ESP32-P4 BOOT Button
10	ESP32-P4 EN Button
11	Type-C Interface
12	DSI MIPI Interface (15-Pin FPC, Pitch: 1.0 mm)
13	ESP32-C6 20-Pin GPIO Header (Pitch: 2.54 mm)
14	VBAT Power Supply (ESP32-P4 built-in RTC backup battery, Pitch: 1.0 mm)
15	CSI MIPI Interface (15-Pin FPC, Pitch: 1.0 mm)
16	MicroSD / TF Card Slot

3.2 Pin Definitions

60-PIN BTB (S1)

No.	Description	No.	Description
1	3.3V	60	C6_EN
2	3.3V	59	3.3V
3	3.3V	58	3.3V
4	3.3V	57	C6_TX
5		56	C6_RX
6	P4_GPIO0	55	C6_GPIO9
7	P4_GPIO1	54	DSI_DON
8	GND	53	DSI_DOP
9	P4_GPIO54	52	DSI_CLKP
10	P4_GPIO53	51	DSI_CLKN
11	P4_GPIO52	50	DSI_D1N
12	P4_SD1_PWR_CTL	49	DSI_D1P
13	P4_SD1_CMD	48	P4_GPIO13
14	P4_SD1_CLK	47	P4_GPIO15
15	P4_SD1_D3	46	P4_GPIO17
16	P4_SD1_D2	45	P4_GPIO14
17	P4_SD1_D1	44	P4_GPIO16
18	P4_SD1_D0	43	P4_GPIO11
19	P4_RX	42	P4_GPIO9
20	P4_GPIO35	41	P4_GPIO10
21	P4_TX	40	P4_GPIO12
22	P4_GPIO51	39	P4_GPIO8
23	P4_GPIO50	38	P4_GPIO7
24	P4_GPIO49	37	P4_GPIO6
25	P4_GPIO48	36	P4_GPIO5
26	P4_GPIO47	35	P4_GPIO4
27	P4_GPIO46	34	P4_SDA
28	GND	33	P4_SCL
29	GND	32	ESP_VBAT
30	GND	31	P4_EN

40-PIN BTB (S2)

No.	Description	No.	Description
61	C6_USB_DN	100	C6_GPIO5
62	C6_USB_DP	99	C6_GPIO6
63	CSI_DON	98	C6_GPIO7
64	CSI_DOP	97	C6_GPIO8
65	CSI_CLKP	96	C6_GPIO14
66	CSI_CLKN	95	C6_GPIO15
67	CSI_D1N	94	C6_GPIO4
68	CSI_D1P	93	C6_GPIO3
69	GND	92	C6_GPIO2
70	P4_USB_DN	91	C6_GPIO1
71	P4_USB_DP	90	C6_GPIO0
72	GND	89	P4_GPIO24
73	P4_GPIO28	88	P4_GPIO25
74	P4_GPIO29	87	P4_GPIO26
75	P4_GPIO31	86	P4_GPIO27
76	P4_GPIO32	85	P4_GPIO30
77	P4_GPIO34	84	P4_GPIO33
78	P4_GPIO36	83	3V3
79	GND	82	3V3
80	GND	81	3V3

40-PIN GPIO (J7) Connected to the ESP32-P4 chip

No.	Description	No.	Description
1	5V	2	5V
3	3.3V	4	3.3V
5	GND	6	GND
7	GND	8	GND
9	P4_EN	10	P4_GPIO0
11	P4_GPIO35	12	P4_GPIO1
13	P4_RX	14	P4_TX
15	P4_SCL	16	P4_SDA
17	P4_GPIO4	18	P4_GPIO5
19	P4_GPIO6	20	P4_GPIO7
21	P4_GPIO8	22	P4_GPIO9
23	P4_GPIO10	24	P4_GPIO11
25	P4_GPIO12	26	P4_GPIO13
27	P4_GPIO14	28	P4_GPIO15
28	P4_GPIO16	30	P4_GPIO17
31	P4_GPIO25	32	P4_GPIO24
33	P4_GPIO27	34	P4_GPIO26
35	P4_GPIO46	36	P4_GPIO47
37	P4_GPIO48	38	P4_GPIO49
39	P4_GPIO53	40	P4_GPIO54

20-PIN GPIO (J8) Connected to the ESP32-P4 chip

No.	Description	No.	Description
1	5V	2	3.3V
3	5V	4	3.3V
5	GND	6	C6_TX
7	C6_EN	8	C6_RX
9	C6_GPIO9	10	C6_GPIO0
11	C6_GPIO1	12	C6_GPIO2
13	C6_GPIO3	14	C6_GPIO4
15	C6_GPIO5	16	C6_GPIO6
17	C6_GPIO7	18	C6_GPIO8
19	C6_GPIO14	20	C6_GPIO15

15-PIN DSI(J1) Driven by the ESP32-P4

No.	Description
1	GND
2	DSI_D1N
3	DSI_D1P
4	GND
5	DSI_CLKN
6	DSI_CLKP
7	GND
8	DSI_DON
9	DSI_DOP
10	GND
11	P4_SCL
12	P4_SDA
13	GND
14	3.3V
15	3.3V

15-PIN CSI(J2) Driven by the ESP32-P4

No.	Description
1	GND
2	CSI_DON
3	CSI_DOP
4	GND
5	CSI_D1N
6	CSI_D1P
7	GND
8	CSI_CLKN
9	CSI_CLKP
10	GND
11	P4_GPIO31
12	P4_GPIO36
13	P4_SCL
14	P4_SDA
15	3.3V

The **YeaCreate-P4-EXTEND** expansion board interfaces with the **YeaCreate-ESP32-P4-CORE** via two high-density board-to-board (BTB) connectors. J7 is a 40-pin connector corresponding to the ESP32-P4 GPIO. It provides access to peripherals including the display interface, camera interface, USB-A (UP) port, TF card slot, ESP32-P4 UART interface, and RJ45 Ethernet port. This connector also facilitates control via the P4-BOOT and P4-EN buttons, and supports programming through the Type-C interface. J8 is a 20-pin connector corresponding to the ESP32-C6 GPIO. It is configured for USB-A (DOWN) communication and programming, along with control via the C6-BOOT and C6-EN buttons.