

UNIWIN-M826-V1.0 Facial Recognition Turnstile Motherboard Technical Specification

Document Revision History

Version	Note	Date
1	Initial Release	2022-06

1 Product Overview

UNIWIN-M826-V1.0 is a facial recognition gate motherboard developed based on the main chip of EEASYTECH SV826. This motherboard is equipped with 512MB (default) /1GB/2GB DDR3+8GB (default) /16GB/32GB eMMC, supporting MIPI display output, dual MIPI camera inputs and one DVP camera interface.

The main control IC is built on a dual-core ARM Cortex-A7 architecture with 28nm process technology, incorporating a convolutional neural network accelerator NPU delivering 1.5 TOPS computing power. This motherboard solution integrates multiple functions including image capture, face detection, face tracking, and face recognition algorithms, achieving both high accuracy and rapid processing speed. It can be widely applied in scenarios such as community access control, barrier gate passage, intercom systems, and smart cabinet/door lock solutions.

Main features:

- Dual-core ARM Cortex-A7ARM Cortex-A7, up to 1.5GHz clock speed
- Supports MIPI display interface with resolution up to $1920 \times 1200@60\text{Hz}$
- Dual visible-light + 850nm IR cameras with 2MP wide dynamic range, built-in ISP and face recognition algorithms
- Supports DVP camera interface with scanning algorithm, including QR code recognition
- Rich expansion interfaces including: 3x TTL UART ports, relay outputs, Wiegand IN/OUT, and Ethernet

2 Specifications

Hardware specifications:

CPU	EEASYTECH SV826, Dual-core ARM Cortex A7 1.5GHz
NPU	Built-in CNN accelerator NPU, 1.5 TOPS
Memory	DDR3 512MB/1GB/2GB (default 512MB)
Storage	EMMC 8GB/16G/32G (default 8GB)
Display Interface	MIPI interface, supports up to 1920 × 1200
Network	100M Ethernet port, supports Ethernet
	WIFI module, supports Wi-Fi 802.11b/g/n protocol
	Supports 4G (optional)
RTC	Built-in RTC battery
Interfaces	Supports dual MIPI interfaces plus one DVP interface (total 3 camera inputs)
	3 USB ports (USB OTG function)
	3 TTL interfaces, 1 Wiegand IN, 1 Wiegand OUT, onboard relay, and other rich peripheral interfaces for connecting card readers, scanners, ID modules, etc.

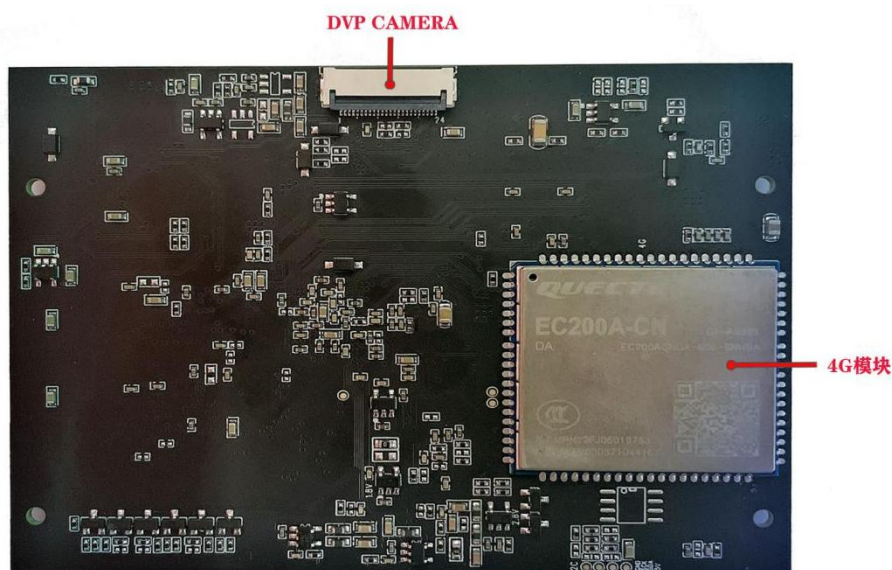
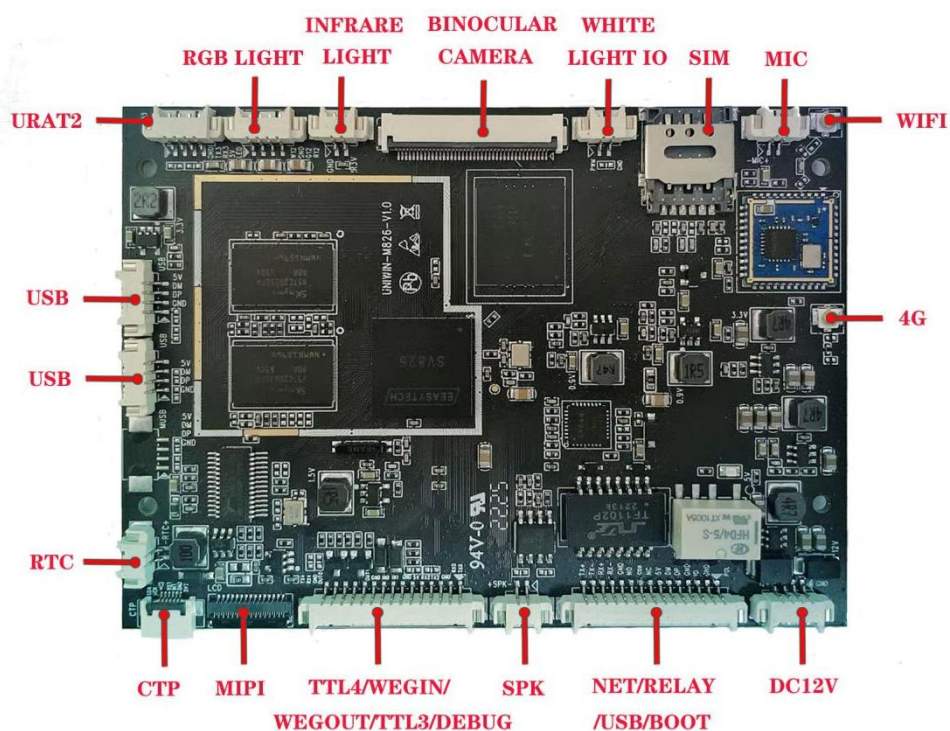
	Built-in amplifier, supports 2W 8 Ω speaker
Audio Input	Supports MIC, 1 microphone interface
Touch Screen	Supports capacitive touch screen
Fill Light	Supports RGB light and infrared fill light

Software Specifications:

OS	Linux system
Face Algorithm	Dynamic face detection and tracking based on video stream, 1:N recognition algorithm; Dynamic dual camera anti-counterfeiting, completely solving the deception of photos and videos on various carriers; Supports 50,000 face database entries and 100,000 recognition records; At 50,000 face entries, achieves 0.01% false acceptance rate and 97% pass rate
Application Software	Supports saving on-site images during face recognition or stranger detection; Management system backend deployed via public cloud; Supports local face registration, database import, network settings, liveness detection switch, and other basic functions.
API Interface	Framework provides C/C++ API; Supports online API(HTTPS);

3 main interfaces

3.1 Interface diagram



3.2 Main Interfaces Introduction

◆ DC12V (Triangle marks Pin 1, 4PIN/1.25mm) Power Input



S/N	Definition	Attribute	Description
1	GND	Ground	Ground
2	GND	Ground	Ground
3	12V	Power Input	+12V Power Input
4	12V	Power Input	+12V Power Input

◆ SPK(Triangle marks Pin 1, 2PIN/1.25mm) Speaker Interface



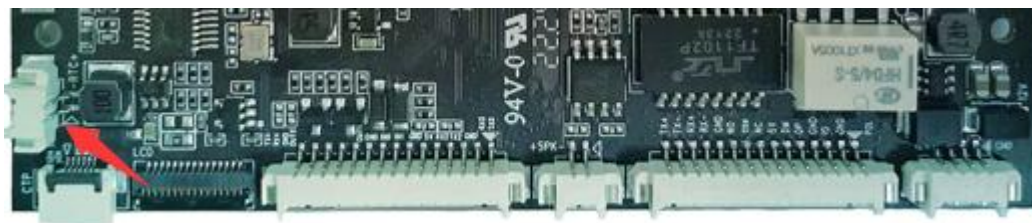
S/N	Definition	Attribute	Description
1	OUTN	Output	Audio - signal (connect to speaker -)
2	OUTP	Output	Audio + signal (connect to speaker +)

◆ MIC(Triangle marks Pin 1, 2PIN/1.25) MIC Microphone Interface



S/N	Definition	Attribute	Description
1	MIC-	Audio Input	Audio input negative
2	MIC+	Audio Input	Audio input positive

◆ RTC BAT(Triangle marks Pin 1, 2PIN/1.25mm) RTC Battery Interface



S/N	Definition	Attribute	Description
1	3V Battery -	Power	3V battery negative
2	3V Battery +	Power	3V battery positive

◆ **RGB LIGHT IO(Triangle marks Pin 1, 2PIN/1.25mm) RGB Fill Light IO Control**



S/N	Definition	Attribute	Description
1	GPIOG21	Signal Output	High level turns on white LED
2	GND	Ground	Ground

◆ **RGB LIGHT POWER(Triangle marks Pin 1, 2PIN/1.25mm) RGB Fill Light Power**



S/N	Definition	Attribute	Description
1	W12V	Power	White LED Power Supply
2	GND	Ground	Ground
3	G12V	Power	Green LED Power Supply
4	R12V	Power	Red LED Power Supply

◆ **INFRARE LIGHT(Triangle marks Pin 1, 2PIN/1.25mm) Infrared (IR) Fill Light Power**



S/N	Definition	Attribute	Description
1	GND	Ground	Ground
2	IR	Power	IR LED 3.3V Power Supply

◆ **UART2(Triangle marks Pin 1, 4PIN/1.25mm) TTL Serial Port**



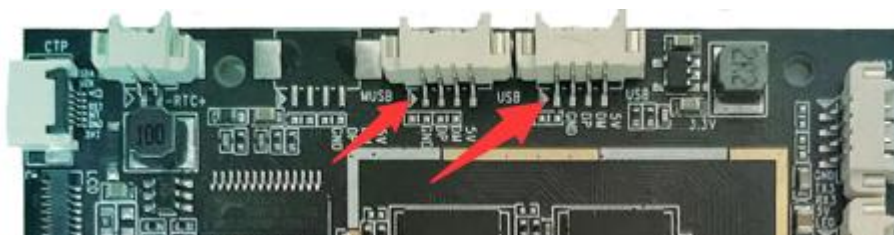
S/N	Definition	Attribute	Description
1	GND	Ground	Ground
2	TX2	Signal Output	TTL Serial Port
3	RX2	Signal Input	TTL Serial Port
4	5V	Power	5V Power Supply

◆ **CTP(Triangle marks Pin 1, 6PIN/0.5mm) CTP Capacitive Touch Screen Interface**



S/N	Definition	Attribute	Description
1	SDA	I/O	I2C data
2	SCK	Output	Clock signal
3	REST	Output	Reset
4	INT	Input	Interrupt
5	GND	Ground	Ground
6	3.3V	output	3.3V output

◆ **USB*2 (Triangle marks Pin 1, 4PIN/1.25mm) USB Interface**



S/N	Definition	Attribute	Description
1	GND	Ground	Ground
2	DP	I/O	D+ Signal Line
3	DM	I/O	D- Signal Line
4	5V	Power Output	Power Output +5V

◆ **MIPI LCD(Triangle marks Pin 1, 31PIN/0.3mm) MIPI Signal Output**



S/N	Definition	Attribute	Description
1-2	AVCC	Power	3.3V power supply
3	DVCC	Power	1.8V power supply
4	GND	Ground	Ground
5	RESET	Signal Input	Reset pin
6	DVCC	Power	1.8V power supply
7	GND	Ground	Ground
8	DSI-D3N	Output	MIPI DATA
9	DSI-D3P	Signal Input	MIPI DATA
10	GND	Ground	Ground
11	DSI-D0N	Output	MIPI DATA
12	DSI-D0P	Signal Input	MIPI DATA
13	GND	Ground	Ground
14	DSI-CLKN	Output	MIPI CLK
15	DSI-CLKP	Signal Input	MIPI CLK
16	GND	Ground	Ground
17	DSI-D1N	Output	MIPI DATA
18	DSI-D1P	Signal Input	MIPI DATA
19	GND	Ground	Ground

20	DSI-D2N	Output	MIPI DATA
21	DSI-D2P	Signal Input	MIPI DATA
22-23	GND	Ground	Ground
24	LED-	Power	Backlight power negative
25	LED-	Power	Backlight power negative
26	LED-	Power	Backlight power negative
27	LED-	Power	Backlight power negative
28	NC	NC	NC
29~31	LED+	Power	Backlight power positive

◆ **TTL4/WEGIN/WEGOUT/TTL3/DEBUG(Triangle marks Pin 1, 15PIN/1.25mm)**



S/N	Definition	Attribute	Description
1	UART0 TX	Signal Output	Debug Interface
2	UART0 RX	Signal Input	Debug Interface
3	GND	Ground	Ground
4	UART3 TX	Signal Output	TTL Serial Port
5	UART3 RX	Signal Input	TTL Serial Port
6	5V	Power	5V Power Supply
7	GND	Ground	Ground
8	WEGIN D1	DATA Line	Wiegand IN D1
9	WEGIN D0	DATA Line	Wiegand IN D0
10	GND	Ground	Ground
11	WEGOUT D1	DATA Line	Wiegand OUT D1
12	WEGOUT D0	DATA Line	Wiegand OUT D0
13	GND	Ground	Ground
14	UART4 RX	Signal I/O	TTL Serial Port
15	UART4 TX	Signal I/O	TTL Serial Port

◆ **Ethernet/Relay/USB/BOOT(Triangle marks Pin 1, 15PIN/1.25mm)**



S/N	Definition	Attribute	Description
1	BOOT	Signal Input	Update IO
2	GND	Ground	Ground
3	GPIOA1	Signal Input	Emergency Button
4	GND	Ground	Ground
5	USB20-DP	USB Signal Line	USB DP
6	USB20-DP	USB Signal Line	USB DM
7	5V	Power	5V Power Supply
8	NC	Relay Normally Closed	Relay Normally Closed
9	COM	Relay Common Terminal (COM)	Relay Common Terminal (COM)
10	NO	Relay Normally Open	Relay Normally Open
11	GND	Ground	Ground
12	RX-	Ethernet Line	Ethernet RX-
13	RX+	Ethernet Line	Ethernet RX+
14	TX-	Ethernet Line	Ethernet TX-
15	TX+	Ethernet Line	Ethernet TX+

◆ **Binocular camera(Triangle marks Pin 1, 40PIN/0.5mm) Dual MIPI Camera Interface (Dual or Single Camera)**



S/N	Definition	Attribute	Description
1	VDD2V8	Power	2.8V output
2	VDD3V3	Power	3.3V output
3	IR-PWDN	Output	IR_Camera power-down control signal
4	IR-RST	Output	IR_Camera reset signal
5	SCL	Output	SCL signal
6	SDA	I/O	SDA signal
7	GND	Ground	Ground
8	IR-XCLK	Output	IR_Camera main clock
9	GND	Ground	Ground

10	IR-MCP	I/O	IR_Camera MIPI clock channel positive
11	IR-MCN	I/O	IR_Camera MIPI clock channel negative
12	GND	Ground	Ground
13	IR-D0P	I/O	IR_Camera MIPI data channel 0 positive
14	IR-D0N	I/O	IR_Camera MIPI data channel 0 negative
15	GND	Ground	Ground
16	IR-D1P	I/O	IR_Camera MIPI data channel 1 positive
17	IR-D1N	I/O	IR_Camera MIPI data channel 1 negative
18	GND	Ground	Ground
19	DOVDD1V8	Power	1.8V output
20	FSYC-IN	/	NC
21	LED-GPIO	/	NC
22	IR-DVDD1V2	Power	1.2V output
23	RGB-DVDD1V2	Power	1.2V output
24	RGB-PWDN	Output	RGB_Camera power-down control signal
25	RGB-RST	Output	RGB_Camera reset signal
26	GND	Ground	Ground
27	RGB-XCLK	Output	RGB_Camera main clock
28	GND	Ground	Ground
29	RGB-MCP	I/O	RGB_Camera MIPI clock channel positive
30	RGB-MCN	I/O	RGB_Camera MIPI clock channel negative
31	GND	Ground	Ground
32	RGB-D0P	I/O	RGB_Camera MIPI data channel 0 positive
33	RGB-D0N	I/O	RGB_Camera MIPI data channel 0 negative
34	GND	Ground	Ground
35	RGB-D1P	I/O	RGB_Camera MIPI data channel 1 positive
36	RGB-D1N	I/O	RGB_Camera MIPI data channel 1 negative
37	GND	Ground	Ground
38	NC	NC	NC
39	NC	NC	NC
40	NC	NC	NC

◆ **DVP CAMERA(Triangle marks Pin 1, 24PIN/0.5mm) Camera Interface**



S/N	Definition	Attribute	Description
1	NC	NC	NC
2	GND	Ground	Ground
3	SDA	I/O	I2C DATA
4	DVP-AVDD	Power	3.3V Power Supply
5	SCK	Output	I2C CLK
6	DVP-RESET	Output	DVP RESET
7	DVP-VS	Output	DVP VSYNC
8	DVP-PWDN	Output	DVP PWDN
9	DVP-HS	Output	DVP HSYNC
10	DVP-DVDD	Input	1.2V Power Supply
11	DVP-IOVDD	Input	3.3V Power Supply
12	DVP-D3	Input	DVP DATA
13	DVP-MCLK	Output	DVP CLK-
14	DVP-D2	Input	DVP DATA
15	GND	Ground	Ground
16	DVP-D11	Input	DVP DATA
17	DVP-PCLK	Input	DVP PCLK
18	DVP-D10	Input	DVP DATA
19	DVP-D6	Input	DVP DATA
20	DVP-D9	Input	DVP DATA
21	DVP-D7	Input	DVP DATA
22	DVP-D8	Input	DVP DATA
23	DVP-D5	Input	DVP DATA
24	DVP-D4	Input	DVP DATA

4 Dimensions

4.1 Board Dimensions

PCB length 95.4mm,width: 70mm, hole diameter 2mm, overall board height is approximately 8mm. For detailed drawings, please contact sales for DXF files.

