



ALL-DS869

Digital Signage Board

Specification

Doc. Modification History

Version	Description	Date
V1.1	Creation	2016-9-9



Catalogue

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1. Production General Description

1.1 Scope of Application

ALL-DS869 belongs to commercial display smart main board ,generally applicable to: big advertising machine 、 digital signage 、 smart self-service terminal 、 smart retail terminal 、 O2O smart device 、 industrial control host、 industrial robot equipment, etc.

1.2 General Description

ALL-DS869 uses Intel cherry Trail Atom X5 Z8300 CPU, Maximum of 4 nuclear design. main frequency 1.44GHz, carries Android 5.1 system. Customers can be configured CPU, ROM, RAM according to the requirements of the product. It is the best choice for smart self-service terminal,O2O smart device equipment.

1.3 Features

Intel Cherry Trail series, Atom X5 Z8300Quad core processor , carries Android 5.1 system.

horizontal and perpendicular screen free switching, double screen different display, support HDMI or Decoding of 4K for LVDS, dual 1080p output.

Dual audio output , different screens can correspond to different audio when double screen different display.

Build in 3G/4G PCI-E base, Support a variety of PCI-E 3G/4G module,support 3G/4G



internet access and call.

6 USB ports(2 sockets,3 standard USB2.0,1 USB3.0)

3 extensible TTL serial port , 3 extensible RS232serial port , 1 extensible RS485 serial port

, 8 extensible GPIO serial port , satisfying requirement of variable peripherals in the market

, such as printer, Card reader, Cipher keyboard, fingerprint instrument, camera, ID card

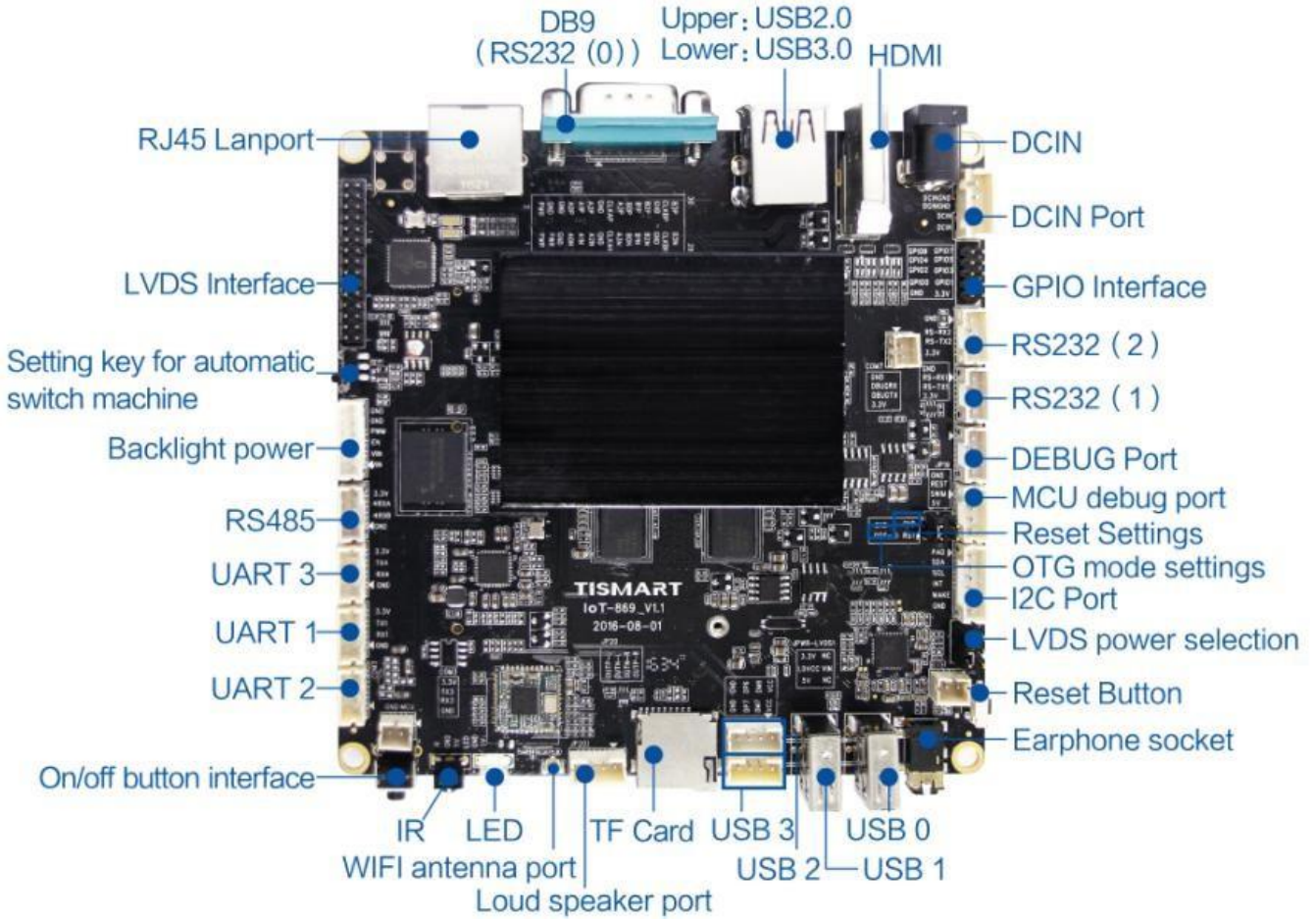
recognition, QR Code scanner etc , provide demon test procedure.

1 set I2C communication interface, can connect external touch screen and other equipment.

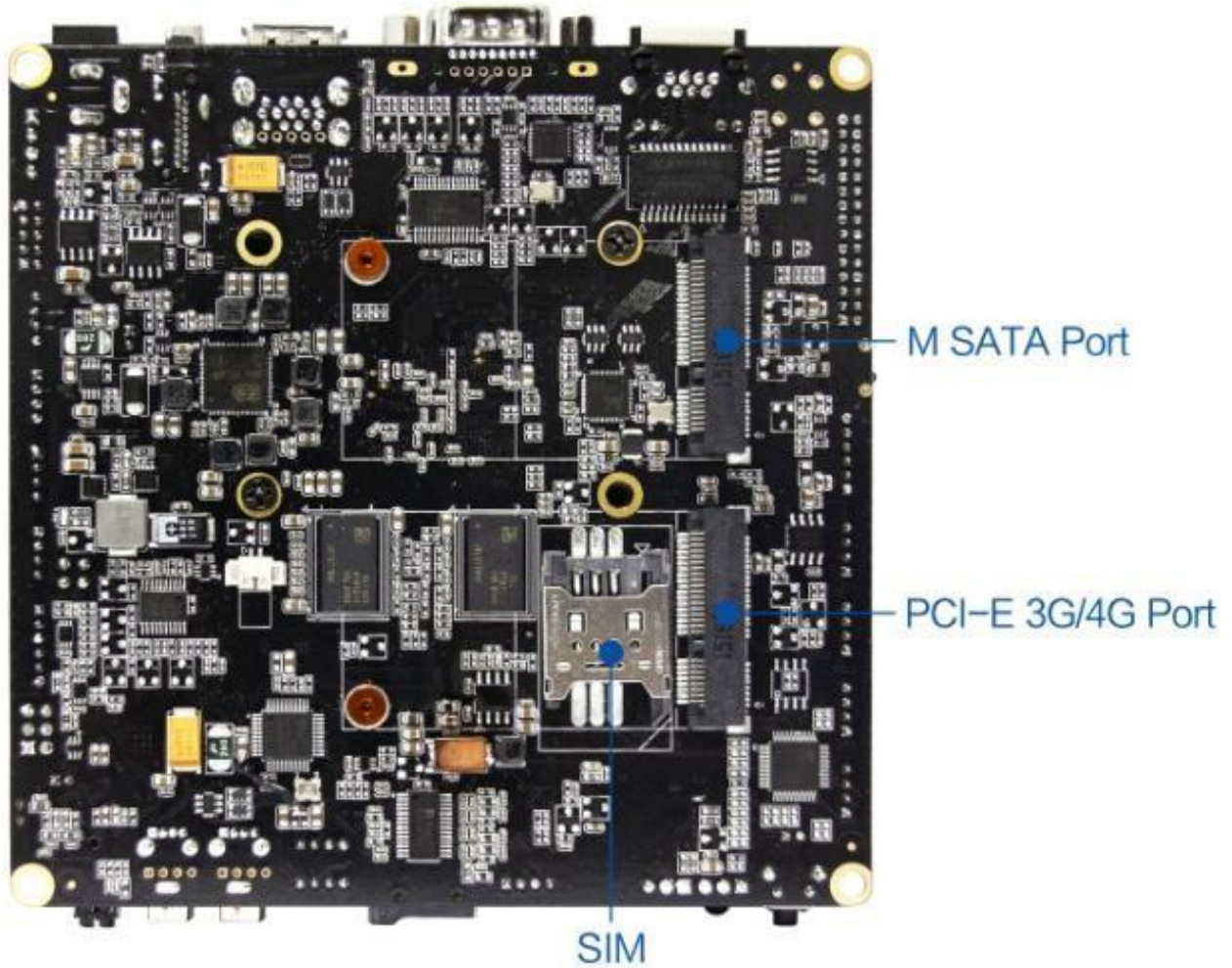
Support Android system customization, provide standard API identifying code, Perfect support customer upper application app development.

1.4 Appearance and Interface Sketch

Front side :



Back side :



2. Basic Function List

Main Hardware Index	
CPU	Intel Cherry Trail series Atom X5 Z8300 Quad core main frequency 1.44GHz
Internal memory	2G/4G
Built-in ROM	16/32/64G
Decoding Definition	Support 4K decoding, 1080 output
Operating System	Android 5.1
Play Mode	Support loop, timing, inter-cut and variable play modes
Network Support	3G,Ethernet、 support WiFi、 wireless peripheral extension
Video Playing	3D drawing hardware speedup : Support Direct X*11,OCL1.2,OGL ES Halti/2.0/1.1,OGL3.2
	Hardware decoding : Support H.264,MPEG2,MVC,VC-1,WMV9,JPEG/MJPEG and VP8
Video recording	Harding coding: Support H.264,MPEG2



USB interface	HOST: 3 USB2.0; 1 USB3.0;2 USB2.0 socket
Serial port	3 RS232 serial port ; 3 TTLserial port sockets ; 1 ↑ RS485 socket
Ethernet	1pc , 10/100M/1000M AdaptiveEthernet
TF Card	TF
LVDS output	1pc , 1080P Can directly driven50/60Hz LCD
HDMI output	1pc, support 1080P output
Audio And Video Output	Support left and right channels output, built-in dual 4R/20W,8R/10W amplifier
RTC Real Time Clock	Support
Timing Switch	Support
System Upgrade	Support USB upgrade

3. PCB Measurement And Interface Layout

3.1 PCB Measurement Chart



PCB : 6 layers

Measurement : 120mm*120mm, thickness 1.6mm Screw

hole specification : ϕ 4mm x 4

3.2 Interface Parameter Definition

◆ Power Input Port

Use 12V DC power supply , only allowed from the DC power supply and power socket to power the board system , the plug of the power adapter DC IN specifications is D6.0,d2.0. without in a peripheral empty load cases,12V dc power supply to support the minimum current 600 mA. Power socket interfaces are defined as follows , can use power panel power supply , the socket specifications is 4 pin 2.54 mm spacing.

1.DC JACK:D=6MM,d=2.0MM,12V3A,voltage range+/-10%

2. Item number J2,12V Power input connector interface definition:

No.	Definition	Property	Description
1	VCC	DCIN	12V input
2	VCC	DCIN	12V input
3	GND	ground electrode	ground electrode
4	GND	ground electrode	ground electrode

◆ Item number J3 universal interface definition:

Input / output for providing control signals to peripherals, electrical level is 3.3V.

No.	Definition	Property	Description
1	Power	output	3.3V power output
2	GND	Ground	GND
3	GPIO1	GPIO port	General purpose input / output GPIO port
4	GPIO0	GPIO port	General purpose input / output GPIO port
5	GPIO3	GPIO port	General purpose input / output GPIO port
6	GPIO2	GPIO port	General purpose input / output GPIO port
7	GPIO5	GPIO port	General purpose input / output GPIO port
8	GPIO4	GPIO port	General purpose input / output GPIO port
9	GPIO7	GPIO port	General purpose input / output GPIO port
10	GPIO6	GPIO port	General purpose input / output GPIO port

◆ **Item number U528 Remote control receiving interface (Optional)**

No.	Definition	Property	Description
1	IR	Input	Remote control signal input
2	GND	Ground	Ground
3	VCC	Power	3.3V Output

◆ **Item number D67 Work indicator (Optional)**

No.	Definition	Property	Description
1	LED_R	Red light	standby display
2	GND	ground electrode	ground electrode
3	LED_B	blue light	Work indicator

◆ **Item number INVT Backlight control interface**

Use for LVDS screen backlight control, the 12V power supply current is not more than 1.5A, When using more than 19 inch screen or screen backlight power in more than 20W, backlight power supply electricity is taken from the other power plate, so as not to cause system instability. Backlight can make voltage is 3.3V , if other voltage, please add IO level conversion circuit. **The 12V power supply only as a backlight power output, don't as a power input supply system.**

NO.	Definition	Property	Description
1	VCC	power	12V output
2	VCC	power	12V output
3	BKLT-EN	output	backlight enable control
4	BKLT-PWM	output	backlight brightness adjust control
5	GND	ground electrode	ground electrode
6	GND	ground electrode	ground electrode

◆ Item No. LVDS1,LVDSInterface

NO.	Definition	Property	Description
1	LVDS-PWR	Power output	LCD power output , +3.3v/+5V/ +12V Optional, Pass through J11/J6 choose Current output cannot be greater than 300mA
2			
3			
4	GND	ground electrod e	ground electrode
5			
6			
7	RX00-	Output	Pixel0 Negative Data (Odd)
8	RX00+	Output	Pixel0 Positive Data (Odd)
9	RX01-	Output	Pixel1 Negative Data (Odd)
10	RX01+	Output	Pixel1 Positive Data (Odd)
11	RX02-	Output	Pixel2 Negative Data (Odd)
12	RX02+	Output	Pixel2 Positive Data (Odd)
13	GND	ground electrod e	ground electrode
14	GND	ground electrod e	ground electrode
15	RXOC-	Output	Negative Sampling Clock (Odd)

16	RXOC+	Output	Positive Sampling Clock (Odd)
17	RXO3-	Output	Pixel3 Negative Data (Odd)
18	RXO3+	Output	Pixel3 Positive Data (Odd)
19	RXE0-	Output	Pixel0 Negative Data (Even)
20	RXE0+	Output	Pixel0 Positive Data (Even)
21	RXE1-	Output	Pixel1 Negative Data (Even)
22	RXE1+	Output	Pixel1 Positive Data (Even)
23	RXE2-	Output	Pixel2 Negative Data (Even)
24	RXE2+	Output	Pixel2 Positive Data (Even)
25	GND	ground electrode	ground electrode
26	GND	ground electrode	ground electrode
27	RXEC-	Output	Negative Sampling Clock (Even)
28	RXEC+	Output	Positive Sampling Clock (Even)
29	RXE3-	Output	Pixel3 Negative Data (Even)
30	RXE3+	Output	Pixel3 Positive Data (Even)

◆ **Item No. COM3 serial port TTL serial port**

NO.	Definition	Property	Description
1	GND	ground electrode	ground electrode
2	RX3	Input	RX3
3	TX3	Output	TX3
4	3.3V	Power	3.3V output

◆ **Item No. COM1 serial port TTL serial port**

NO.	Definition	Property	Description
1	GND	ground electrode	ground electrode
2	RX1	Input	RX1
3	TX1	Output	TX1
4	3.3V	power	3.3V Output

◆ **Item No. COM4 serial port TTL serial port**

NO.	Definition	Property	Description
1	GND	ground electrode	ground electrode
2	RX4	Input	RX4
3	TX4	Output	TX4
4	3.3V	power	3.3V Output



- ◆ **Item No. COM2 serial port TTL serial port (This serial port can be configured as RS485 serial port)**

NO.	Definition	Property	Description
1	GND	ground electrode	ground electrode
2	RX2	Input	RX2
3	TX2	Output	TX2
4	3.3V	power	3.3V Output

- ◆ **Item No COM5 serial port UART1**

NO.	Definition	Property	Description
1	GND	ground electrode	ground electrode
2	UART-RX	Input	RX1
3	UART-TX	Output	TX1
4	3.3V	power	3.3V Output

- ◆ **Item No COM6 serial port UART2**

NO.	Definition	Property	Description
1	GND	ground electrode	ground electrode
2	UART-RX	Input	RX2
3	UART-TX	Output	TX2
4	3.3V	power	3.3V Output

◆ **Item No COM7serial port DEBUG Port**

NO.	Definition	Property	Description
1	GND	ground electrode	ground electrode
2	DBUG-RX	Input	RX
3	DBUG -TX	Output	TX
4	3.3V	power	3.3V Output

◆ **Item No JP19 MCU Upgrade port**

NO.	Definition	Property	Description
1	GND	ground electrode	ground electrode
2	SWD-RST	reset	reset
3	SWC-SWIM	Input	signal input
4	Power	Input	5V Power input

◆ **Item No CON7 IIC_TP Interface port**

NO.	Definition	Property	Description
1	VCC	Output	3.3V Output
2	SDA	data	SDA
3	SCL	data	SCL
4	INT	Input	INT
5	WAKE	Input	RESET
6	GND	ground electrode	ground electrode

◆ **J704 USB 4P/2.0USB Socket**

NO.	Definition	Property	Description
1	Power	output	5V power supply
2	USB-DN	Signal-	USB-DN Signal
3	USB-DP	Signal+	USB-DP Signal
4	GND	ground electrode	GND

◆ **J705 USB 4P/2.0USB Socket**

NO.	Definition	Property	Description
1	Power	output	5V power supply
2	USB-DN	Signal-	USB-DN Signal
3	USB-DP	Signal+	USB-DP Signal
4	GND	ground electrode	GND

◆ **J14 USB 4P/2.0USB Socket**

NO.	Definition	Property	Description
1	Power	output	5V power supply
2	USB-DM6	Signal-	USB-DN Signal
3	USB-DP6	Signal+	USB-DP Signal
4	GND	ground electrode	GND



◆ **J11 USB 4P/2.0USB Socket**

NO.	Definition	Property	Description
1	Power	output	5V power supply
2	USB-DM7	Signal-	USB-DN Signal
3	USB-DP7	Signal+	USB-DP Signal
4	GND	ground electrode	GND

◆ **JP20 Speaker output Socket**

NO.	Definition	Property	Description
1	OUTP-R	output	audio output right+
2	OUTN-R	output	audio output right-
3	OUTN-L	output	audio output left-
4	OUTP-L	output	audio output left+

◆ **Other Standard Interfaces And Function:**

Memory Port	TF card	data storage, maximum support 32G
	USB3.0	HOST port, support data storage, data input, USB, mouse keyboard, camera, touch screen etc.
	USB2.0	
Ethernet Port	RJ45 port	Support10M/100M/1000M wire network
HDMI Port	Standard port	support HDMI data output, maximum



		support 1080P
Earphone Port	Standard port	3.5mm standard port
3G Interface	PCI-E standard port	Support multiple PCI-E 3G/4G mode
SIM slot	standard port	Standard SIM slot
DB9 Serial port	standard port	Standard DB9 communication interface

4. Electric Performance

Project		Min	Typical	Max
Power voltage	voltage	11V	12V	13.2V
	ripple wave	--	--	100mV
Power current (HDMI output, no other peripheral)	working current	--	500mA	600mA
	standby current	--	32mA	70mA
	USB power supply current	--	--	500mA
RTC Power supply (3V)	working current	Lower than 3uA		
Power current(LVDS)	working current	Depending on the screen		
	standby current			
	USB power supply current	--	--	500mA

	LCD screen	--	--	500mA(3V)
	power supply			1A(5V)
	current			1A(12V)
Total output	3.3V current			500mA
	5V current			2A
	12V current			input-1.5A
Environment	humidity	--	--	80%
	temperature	-20°C	--	70°C

5. Assembly Using Notice

In the process of assembly use , please note the following points (and not limited to) problem.

- 1.Prohibit charged operation connection , assembly work.
- 2.Contact PCBA need with electrostatic ring (set) .
- 3.Bare board and a peripheral short circuit problem.
- 4.In the process of installing and fixing, avoid naked plate deformation caused by fixedcauses.
- 5.When connect the LVD screens , pay attention to the screen voltage, electric current if is coincident. Attention to the problem of screen socket 1 pin direction.



6. When connect the LVD screens , pay attention to the screen backlight
 - i. voltage, electric current if is coincident. **The backlight power is more than 20W, whether or not to use other power panel power supply.**

7. Peripheral devices (USB, IO, etc) when installation , attention to the problem of peripheral IO level and current output.

8. A serial port when installation , pay attention to whether connect the serial port of the device level matching(TTL , 232 or 485).TX , RX connection if is correct.

9. Whether the input power supply access on the power input interface , according to the total peripheral evaluation , whether can meet the requirements of the input power supply voltage, electric current and so on.