UNIWIN-A133 Core Board Technical specification

Document modification history

	Note	Date
1	Created	2022-03-03

1 Overview

The UW-M133 core board is a multimedia LCD driver core board developed based on the Allwinner A133 main chip. This motherboard is equipped with 1GB DDR3 (optional 2GB) + 8GB (optional 16GB/32GB) eMMC, and supports MIPI and LVDS displays.

Its main control IC uses a 28nm manufacturing process, based on the ARM Cortex A53 architecture, with four cores, and the stable production frequency can reach 1.6GHz.

Using Allwinner's new generation SmartColor technology, it helps to display excellent image quality at high resolutions, providing your entire device with a visually pleasing effect.

This model is a cost-effective Android system core board that can be used in various industry fields such as smart communities, commercial advertising machines, electronic class signs, digital signage, and self-service vending.

Main features:

- Processor Quad-core 64-bit Cortex-A53 architecture 1.6GHz
- Single/dual-channel LVDS interface 1× MIPI display interface
- 3 serial ports, 2 USB ports, 2X SDIO, RGMII, 2X MIPI CSI, AUDIO, I2C, and other expansion interfaces
- 6-layer immersion gold PCB, Industrial-grade components, Designed for harsh industrial environments (complex/volatile conditions)

2 Specifications

Hardware specifications：

CPU	Allwinner A133, Quad-core ARM Cortex-A53 @1.6GHz
GPU	GE8300，OpenGL ES 1.1/2.0/3.2，Vulkan1.1，OpenCL1.2
Memory	1GB DDR3 (2GB optional, max 4GB)
Built-in storage	eMMC 8GB/16GB/32GB options (default 8GB)
Display Interfaces	1× LVDS interface (single-channel, 6-bit or 8-bit dual-channel). Max resolution 1920×1080 1× MIPI interface, max resolution 1920×1080
Network	RGMII Ethernet interface
	SDIO/UART/PCM interface for external WiFi/BT modules
Display Rotation	0°, 90°, 180°, 270° rotation
Interfaces	USBX2
	UARTX3
	SDIO supports TF card expansion (max 128GB)
	external power switch buttons, reset buttons, or external button boards or light boards,

	with multiple available interrupt IO ports.
	Supports headphone output
Audio Input	Support MICX2
Touch screen	Supports IIC interface or USB interface capacitive, resistive, or infrared touch screens.

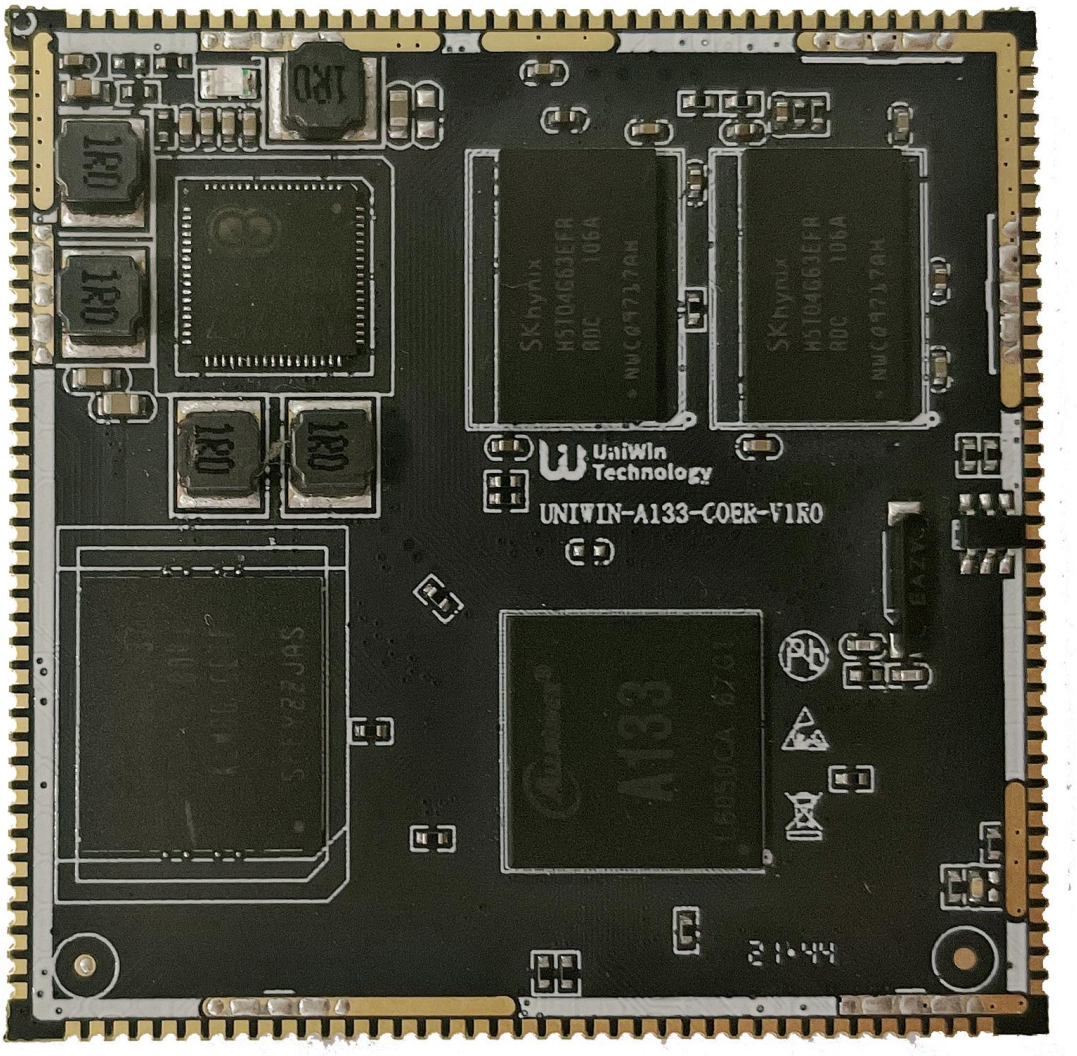
Software specifications :

Operating System	Android 10.0
Language	Multi-language support
Video Formats	• H.265 MP@L5.0 decoder up to 4K@30fps • H.264 BL/MP/HP@L5.1 decoder up to 4K@30fps • VP9 decoder 720p@30fps • AVS/AVS+ JiZhun@L6.0 1080p@60fps • Multi-format 1080p@60fps video playback, including VP8, MPEG1/2 MP/HL, MPEG4 SP/ASP, H.263 BP, MJPEG, VC1 SP/MP/AP
Audio Formats	MP3, WMA, MP2, OGG, AAC, M4A, FLAC, APE, 3GP, WAV
Image Viewing	Supports JPG, BMP, PNG, GIF formats with rotation/slideshow. Max resolution: 4096×4096
Document	EPUB, WORD, EXCEL, POWERPOINT, PDF, TXT
Input Method	Standard Android keyboard Supports third-party IMEs (Chinese, Korean, Japanese,

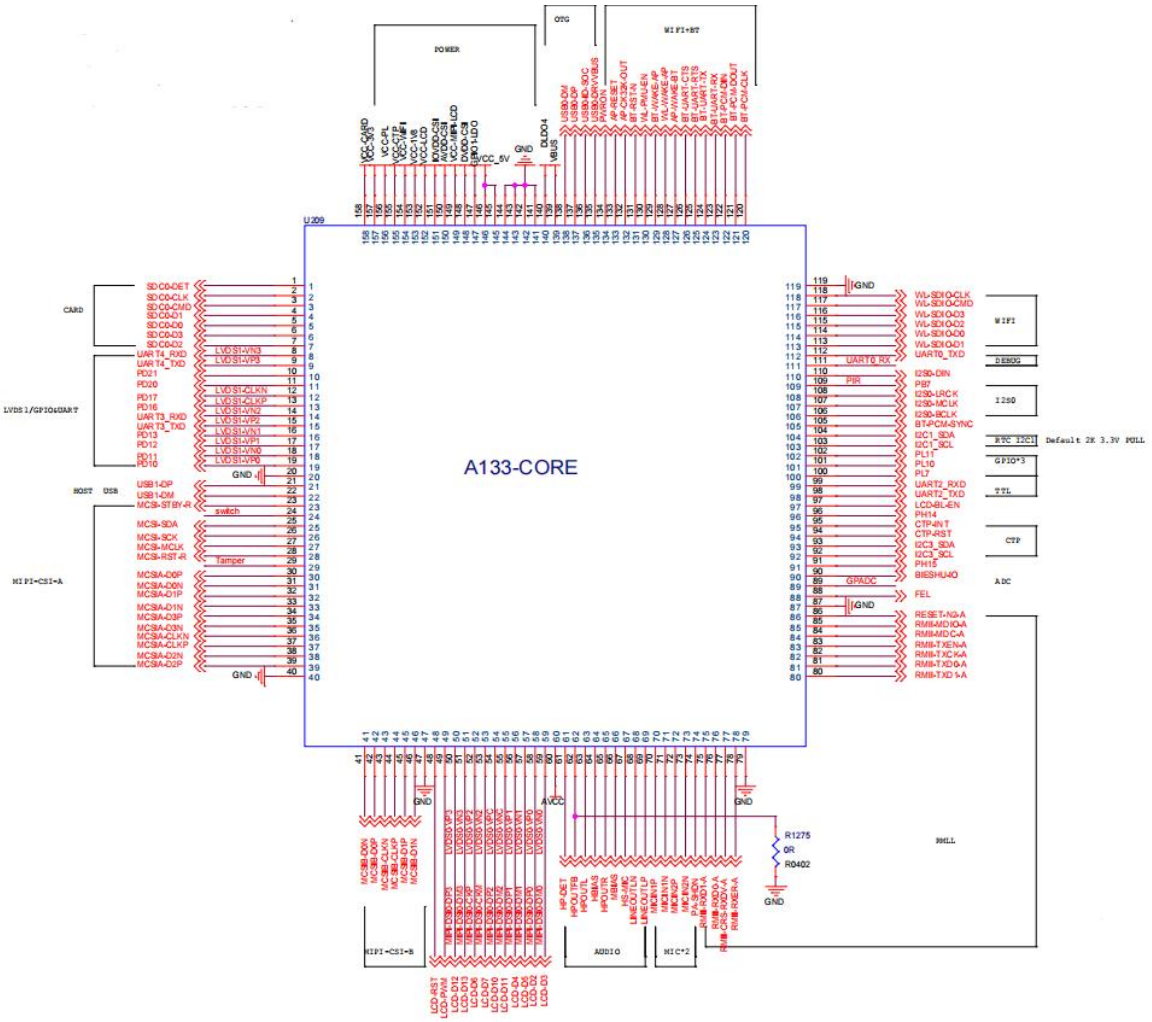
	and other languages)
Software Features	Camera, Web Browser, Instant Messaging, Email, E-book Reader, File Explorer (optional)
Management	File Manager
	Original Android system,Root access available,Supports product customization
	Scheduled power on/off
	Supports remote OTA firmware upgrades

3 main interfaces

3.1 Interface diagram



3.2 Pin Definition



3.3 Pin description

SDIO	SDC0-DET	1	80	RMII-TXD1-A	RGMII
	SDC0-CLK	2	81	RMII-TXD0-A	
	SDC0-CMD	3	82	RMII-TXCK-A	
	SDC0-D1	4	83	RMII-TXEN-A	
	SDC0-D0	5	84	RMII-MDC-A	
	SDC0-D3	6	85	RMII-MDIO-A	
	SDC0-D2	7	86	RESET-N2-A	
LVDS1/GPIO/UART	UART4_RXD	8	87	GND	GND
	UART4_RXD	9	88	FEL	UBOOT
	PD21	10	89	GPADC	ADC
	PD20	11	90	BIESHU-IO	GPIO
	PD17	12	91	PH15	GPIO
	PD16	13	92	I2C3_SCL	CTP
	UART3_RXD	14	93	I2C3_SDA	
	UART3_TXD	15	94	CTP-PST	
	PD13	16	95	CTP-INT	
	PD12	17	96	PH14	GPIO
	PD11	18	97	LCD-BL-EN	LCD BACKLIGHT EN
	PD10	19	98	UART2_TXD	TTL
GND	GND	20	99	UART2_RXD	
HOST USB	USB1-DP	21	100	PL7	GPIO*3
	USB1-DM	22	101	PL10	
MIPI-CSI-A/GPIO	MCSI-STBY-R	23	102	PL11	
	switch	24	103	I2C1_SCL	RTC I2C1
	MCSI-SDA	25	104	I2C1_SDA	
	MCSI-SCK	26	105	BT-PCM-SYNC	BT BT-PCM-SYNC
	MCSI-MCLK	27	106	I2S0-BCLK	I2S0
	MCSI-RST-R	28	107	I2S0-MCLK	
	Tamper	29	108	I2S0-LRCK	
	MCSIA-D0P	30	109	PB7	GPIO
	MCSIA-D0N	31	110	I2S0-DIN	
	MCSIA-D1P	32	111	UART0_RX	DEBUG
	MCSIA-D1N	33	112	UART0_TXD	
	MCSIA-D3P	34	113	WL-SDIO-D1	WIFI SDIO
	MCSIA-D3N	35	114	WL-SDIO-D0	
	MCSIA-CLKN	36	115	WL-SDIO-D2	
	MCSIA-CLKP	37	116	WL-SDIO-D3	
	MCSIA-D2N	38	117	WL-SDIO-CMD	
	MCSIA-D2P	39	118	WL-SDIO-CLK	
GND	GND	40	119	GND	GND

MIPI-CSI-B	MCSIB-D0N	41	120	BT-PCM-CLK	WI-FI&BT
	MCSIB-D0P	42	121	BT-PCM-DOUT	
	MCSIB-CLKN	43	122	BT-PCM-DIN	
	MCSIB-CLKP	44	123	BT-UART-RX	
	MCSIB-D1P	45	124	BT-UART-TX	
	MCSIB-D1N	46	125	BT-UART-RTS	
LVDS0/MIPI/GPIO	GND	47	126	BT-UART-CTS	
	LCD-RST	48	127	AP-WAKE-BT	
	LCD-PWM	49	128	WL-WAKE-AP	
	LCD-D12	50	129	BT-WAKE-AP	
	LCD-D13	51	130	WL-PMU-EN	
	LCD-D6	52	131	BT-RST-N	
	LCD-D7	53	132	AP-CK32K-OUT	
	LCD-D10	54	133	AP-RESET	
	LCD-D11	55	134	PWRON	
	LCD-D4	56	135	USB0-DRVVBUS	OTG
	LCD-D5	57	136	USB0-ID-SOC	
	LCD-D2	58	137	USB0-DP	
	LCD-D3	59	138	USB0-DM	
	AVCC	60	139	VBUS	
AUDIO	HP-DET	61	140	DLDO4	ADJ LDO OUTPUT 500mA
	HPOUTFB	62	141	GND	GND
	HPOUTL	63	142	GND	
	HBIAS	64	143	GND	
	HPOUTR	65	144	GND	
	MBIAS	66	145	VCC_5V	5V INPUT，2V
	HS-MIC	67	146	VCC_5V	
	LINEOUTLN	68	147	GPIO1-LDO	3.3V OUTPUT 150mA
	LINEOUTLP	69	148	DVDD-CSI	MIPI CSI DVDD
MIC*2	MICIN1P	70	149	VCC-MIPI-LCD	MIPI DSI IOVDD
	MICIN1N	71	150	AVDD-CSI	MIPI CSI AVDD
	MICIN2P	72	151	IOVDD-CSI	MIPI CSI IOVDD
	MICIN2N	73	152	VCC-LCD	MIPI DSI VDD
	PA-SHDN	74	153	VCC-1V8	1.8V OUTPUT 100mA
RGMII	PMII-PXD1-A	75	154	VCC-WIFI	WI-FI SDIO POWER OUTPUT400mA
	PMII-PXD0-A	76	155	VCC-CTP	3.3V OUTPUT 100mA
	PMII-CRS-PXDV-A	77	156	VCC-PL	3.3V OUTPUT 150mA
	PMII-RXER-A	78	157	VCC-3V3	3.3V OUTPUT 150mA
GND	GND	79	158	VCC-CARD	3.3V OUTPUT 150mA

4 Sizes

4.1 Board Size

PCB Length 50.0mm, Width49.6mm, Height 5.45mm， For more details structural diagrams Please consult our sales representatives.