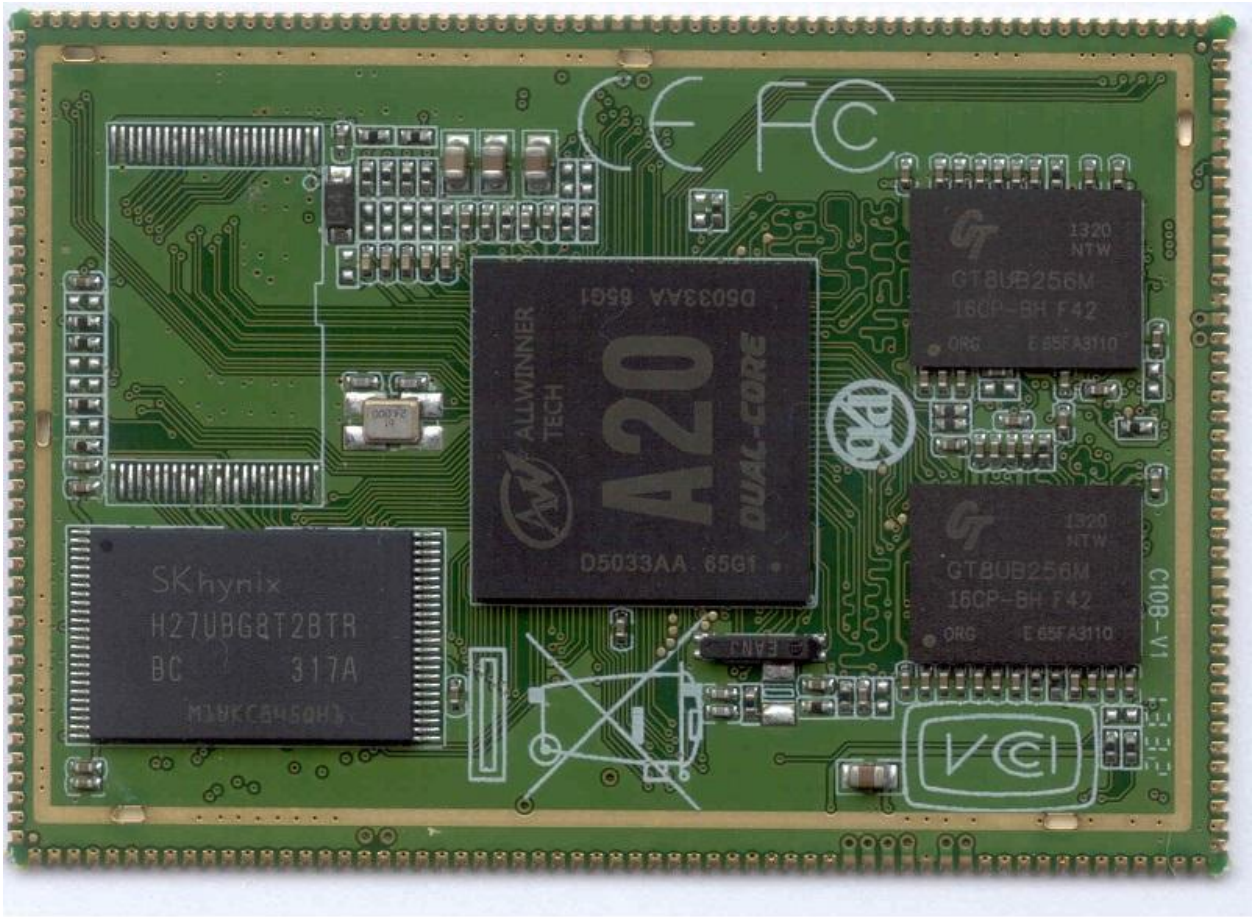
AWSOM A20 Coreboard

Based on Allwinner Technology A20
ARM Cortex Dual Core A7 SoC



Revision History

Version	Remark	Date
V1.0	Initial Version	2013-7-23

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1. Introduction

AW-SOM A20 core board based on Allwinner A20 processor which integrated ARM Cortex Dual Core A7 of up to 1GHz. The datasheet mainly introduces the hardware features, function, hardware interface and purchasing.

1.1 Basic Specification

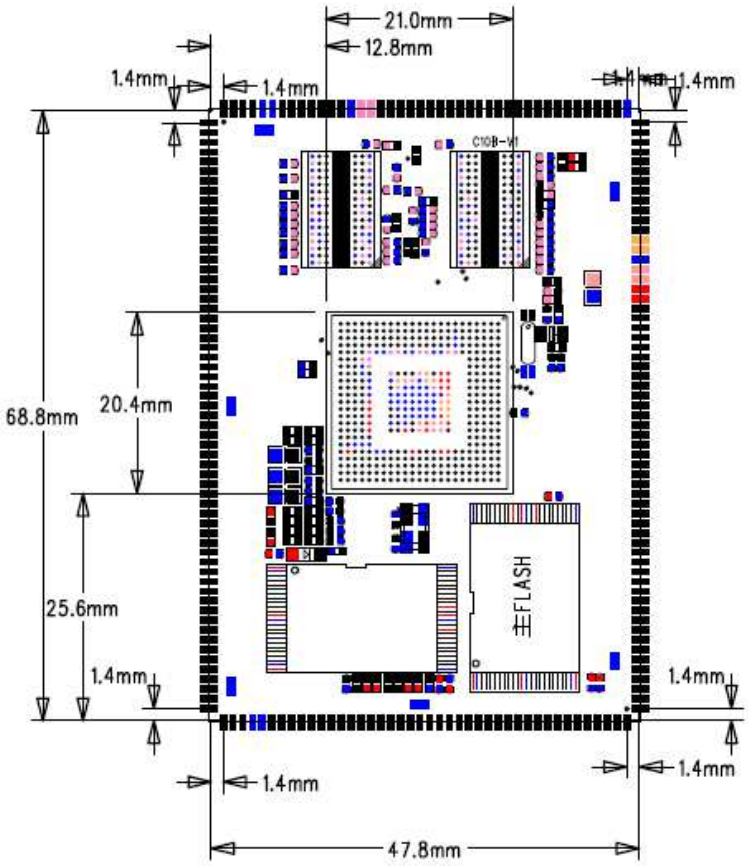
-Based on Allwinner A20(ARM Cortex-A7 ,1GHz) processor
-1G DDR3 SDRAM, 4GB Nand Flash
-Pin compatible with Allwinner A10 processor
-Dimension: 68*40*2.8mm, 206 PIN

2. Function

- Built-in GPS Base Band, external RF can support GPS
- Support Ethernet or 3G
- Support SATA
- Support FM
- Support TV-IN, TV-OUT, HDMI, VGA
- RGB or LVDS support Nand Flash, 1920*1080 display screen
- Support four stand two point resistance touch
- Support capacitive touch
- Support two camera
- Support GPS
- Left and right channels
- One mic input
- Support USB*3
- Support SD card*2
- Support CVBS output
- Support I2C*3
- Support ADC*2
-Support PWM*1
-Support UART*8
-Support SPI*1
- Support Bluetooth
- Support USB WIFI
- Support multi-way GPIO
- Support RTC
- Support 4-32GB Nand Flash
- Support 1GB DDR

3. Hardware Overview

3.1 Dimension Drawing



3.2 Hardware Features

Hardware Features

Processor

. Allwinner A20 Processor（ARM Cortex Dual Core A7）
. Basic Frequency up to 1GHz
. GPU Mali 400MP2
. 32KB **I-Cache**/32KB **D-Cache**/256K **L2 Cache**

Storage

. 16/32-bits SDRAM controller
. Storage can be extended to 16GB .
8-bit NAND Flash controller
. ECC up to 64 bit

4. Pin Definition

PIN	PIN Definition	A10 pin No.	PIN	PIN Definition	A10 pin No.
1	LCD0-VSYNC	AC9	104	SD1-CLK	E2
2	LCD0-HSYNC	AB9	105	SD1-CMD	E1
3	LCD0-DE	AA9	106	DP2	R21
4	LCD0-D23	AC10	107	DM2	R20
5	LCD0-CLK	Y9	108	DP1	P21
6	LCD0-D22	AB10	109	DM1	P20
7	LCD0-D21	AA10	110	DP0	N21
8	LCD0-D20	Y10	111	DM0	N20
9	LCD0-D19	AA11	112	SD1-DET#	C6
10	LCD0-D18	Y11	113	USB0-DRV	C12
11	LCD0-D17	AA12	114	SD0-D2	K19
12	LCD0-D16	Y12	115	SD0-D3	K20
13	LCD0-D15	AA13	116	SD0-CMD	L19
14	LCD0-D14	Y13	117	SD0-CLK	L20
15	LCD0-D13	AA14	118	SD0-D0	M19
16	LCD0-D12	Y14	119	SD0-D1	M20
17	LCD0-D11	AA15	120	UART0-RX	B7
18	LCD0-D10	Y15	121	CSI0-AF-EN	D17
19	LCD0-D9	AC11	122	GS-INT2	C17
20	LCD0-D8	AB11	123	TVOUT1/PI21	AB16/E13
21	LCD0-D7	AC12	124	TV-EN/TVOUT2	AC17/C16
22	LCD0-D6	AB12	125	TWI1-SDA	B8
23	LCD0-D5	AC13	126	TWI1-SCK	A8
24	LCD0-D4	AB13	127	PMU-SDA	B15
25	LCD0-D3	AC14	128	PMU-SCK	A15
26	LCD0-D2	AB14	129	MT-C	B14
27	LCD0-D1	AC15	130	IR-RX	A13
28	LCD0-D0	AB15	131	NMI#	F5
29	LRADC1	AB22	132	GPS-OSC-EN	C15
30	LRADC0	AB23	133	GPS-RX-EN	D15
31	UART0-TX	A7	134	GPS-VCC-EN	J20
32	CSI1-STBY-EN	D1	135	GPS-MOSI	J21
33	CSI1-1V8-EN	C1	136	GPS-SCLK	K21

34	CSI0-1V8-EN	B1	137	GPS-SCS	L21
35	PA-SHDN#	A1	138	SD3-CLK	B18
36	CSI1-RESET#	B2	139	SD3-CMD	A18
37	CSI0-RESET#	A2	140	SD3-D3	B16
38	WIFI-VCC-EN	C3	141	SD3-D2	A16
39	SD3-DET#	B3	142	SD3-D1	B17
40	WIFI-HOST-WAKEUP	A3	143	SD3-D0	A17
41	WIFI-SHDN#	D4	144	UBOOT	W8
42	LCD-PWR	C4	145	RESET#	C14
43	LCD-BL-EN	B4	146	INTVDD	INTVDD
44	USB1-DRV	A4	147	INTVDD	INTVDD
45	USB0-VBUSDET	C5	148	CSI0-VCC	F19
46	USB0-IDDET	B5	149	CSI1-VCC	E18
47	EPHY-RST#	C13	150	RTCVDD	K8
48	SD0-DET#	B6	151	AVCC	T19
49	GS-INT1	A6	152	CPUVDD	CPUVDD
50	PWM0	A14	153	CPUVDD	CPUVDD
51	X1/TP-INT	Y22/D3	154	DRAM-VCC	DRAM-VCC
52	X2/TP-WAKEUP	AA22/B11	155	DRAM-VCC	DRAM-VCC
53	Y1/TWI2-SCK	Y23/C8	156	VCC-3V3	VCC-3V3
54	Y2/TWI2-SDA	Y2/C7	157	VCC-3V3	VCC-3V3
55	GPS-RF-CLK	A20	158	MICM	MICM
56	GPS-RF-SIGN	B20	159	3G_ON/OFF/GY-INT	D16
57	GPS-RF-MAG	A19	160	BT-WAKE	E14
58	HSCL	R23	161	BT-PCM-IN	C9
59	HSDA	R22	162	BT-PCM-OUT	A11
60	HHPD	P22	163	BT-PCM-SYNC	B12
61	HCEC	P23	164	BT-PCM-CLK	A12
62	HTX0P	V23	165	BT-RST	B13
63	HTX0N	V22	166	BT-RXD	D14
64	HTX1P	U23	167	BT-TXD	E15
65	HTX1N	U22	168	BT-CTS	E16
66	HTX2P	T23	169	BT-RTS	E17
67	HTX2N	T22	170	TVOUT3	AB17
68	HTXCP	W23	171	ECOL	D13
69	HTXCN	W22	172	FMINL	Y20

70	TVOUT0	AC16	173	FMINR	Y21
71	HPL	Y19	174	MIC1OUTP	AC22
72	CSI0-STBY-EN	C2	175	MIC1OUTN	AC23
73	HPCOMFB	AA20	176	SATA_RXP	U21
74	HPCOM	AA19	177	SATA_RXM	U20
75	HPR	W19	178	SATA_TXM	T21
76	MICIN1	AC20	179	SATA_TXP	T20
77	VMIC	AA21	180	EMDC	E10
78	CSI0-VSYNC	D22	181	EMDIO	D11
79	CSI0-HSYNC	D23	182	ETXEN	E11
80	CSI0-MCLK	E22	183	ETXCK	D12
81	CSI0-PCLK	E23	184	ECRS	E12
82	PB10	C11	185	ERXD3	D5
83	PB11	C10	186	ERXD2	E5
84	GND	GND	187	ERXD1	D6
85	GND	GND	188	ERXD0	E6
86	CSI0-D7	A21	189	ETXD3	D7
87	CSI0-D6	B21	190	ETXD2	E7
88	CSI0-D5	A22	191	ETXD1	D8
89	CSI0-D4	A23	192	ETXD0	E8
90	CSI0-D3	B22	193	ERXCK	D9
91	CSI0-D2	B23	194	ERXERR	E9
92	CSI0-D1	C22	195	ERXDV	D10
93	CSI0-D0	C23	196	GND	GND
94	CSI1-D7	C18	197	LINEINR	AB21
95	CSI1-D6	D18	198	LINEINL	AB20
96	WIFI-RST	D2	199	MICIN2	AC21
97	USB2-DRV	A5	200	TVIN3	Y17
98	GND	GND	201	TVIN2	AA17
99	GND	GND	202	TVIN1	AB18
100	SD1-D3	F4	203	TVIN0	AC18
101	SD1-D2	F3	204	GND	GND
102	SD1-D1	E4	205	GND	GND
103	SD1-D0	E3	206	TVIN-VCC25	W17

5. Application：

. Industry Automation
. Intelligent Instrument
. Network Terminal
. Car Electronics
. Mobile Internet Devices
. Digital Signage
. Smart Home
. Security Surveillance
. Educational PC

6. CONTACT

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