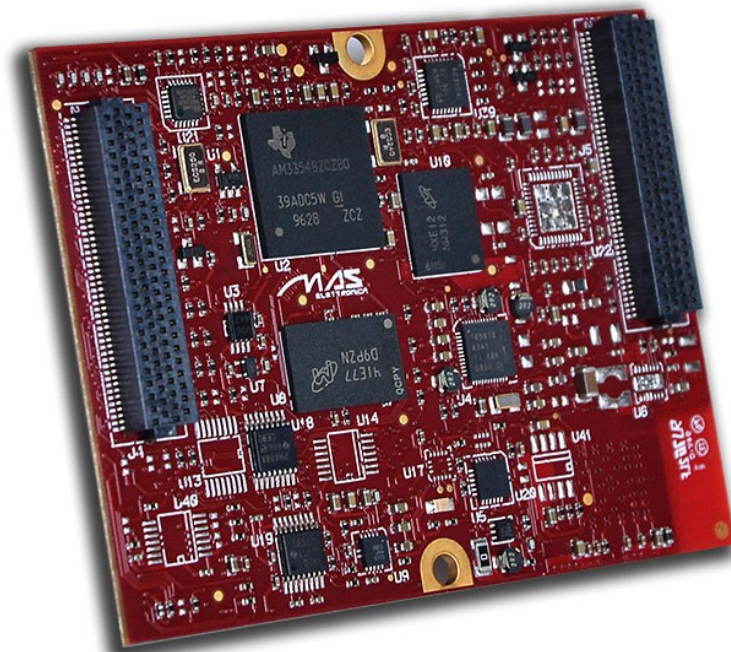


FIAMMA MCAM335x_R4 Hardware Manual



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Introduction

The MCAM335x supports family of ARM processors Sitara™ AM335x® Cortex™ A8 processor from Texas Instruments Incorporated (TI) up to 720MHz with a rich 2D/3D graphics accelerator, DDR3 memory, Wi-Fi and Bluetooth support. The MCAM335x offers a selection of powerful and flexible for the full range of applications.

Supporting products:

- Carrier Board Telica compatible with the MCAM335x
- Carrier Domo compatible with the MCAM335x
- Carrier Control Box compatible with the MCAM335x
- Carrier Pilar compatible with the MCAM335x

Operating systems support:

- linux kernel 3.1.4 and Yocto
- Qt embedded 4.8.4
- Android Kit Kat
- Linux Kernel 3.1.4 sources files

Contact support for further information

<mailto:info@maselettronica.com>

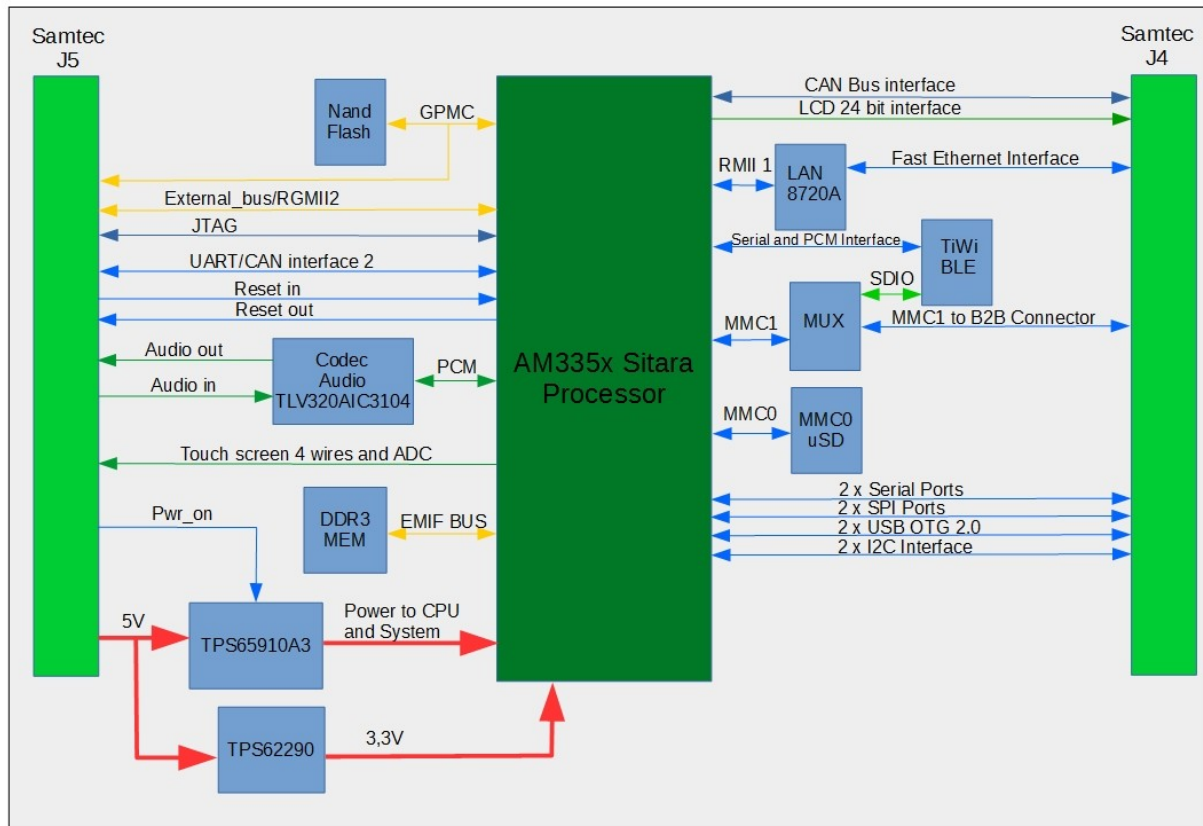
Features

The features of the MCAM335X module are:

- Supports family of ARM processors Sitara™ AN335x® Cortex™ A8 from TI AM3352, AM3354, AM3356, AM3357, AM3358, AM3359 (Factory Default is the AM3354)
- CPU frequencies up to 800Mhz
- SGX530 3D Graphic Engine (Available on AM3354, AM3358, AM3359)
- NEON™ SIMD Coprocessor
- 512/1000 Mbyte DDR3 303Mhz

- On board uSD card connector;
- 1 Fast Ethernet 10/100 Mbit/s
- 2 USB HS 2.0 interfaces
- Integrated CAN Controller
- Integrated resistive 4 wire Touch screen controller
- Integrated LCD Controller up to 1400x1050, and 24bit
- Integrated Audio Codec
- Power 5 VDC.

System Description



Feature differences summary:

Feature	REV3	REV4
Gigabit PHY on Board	Present	Through the B2B
Accelerometer	Present	NA
DD3 Support	Up to 512Mbyte	Up to 1Gbyte

Pinout Changes are only on the B2B Connectors

J4 Connector changes

Connector J4 Pin	REV3	REV4
D5	NC	USB0_DRVVBUS
C5	NC	USB1_DRVVBUS
D11	NC	USB1_VBUS
A6	Routed to Pin B18 AM335x	Routed to Pin V16 AM335x
B7	Routed to Pin V12 AM335x	Routed to Pin U16 AM335x

J5 Connector changes

Connector J5 Pin	REV3	REV4
C3	GPMC_CSN6	NC
D12	TXRXP_A	JTAG_TDI
C12	TXRXM_A	JTAG_TDO
D13	TXRXP_B	JTAG_RTCK
C13	TXRXM_B	JTAG_TCK
D14	TXRXP_C	JTAG_TMS
C14	TXRXM_C	JTAG_TRSTn
D15	TXRXP_D	AM335X_MDIO_CLK
C15	TXRXM_D	AM335X_MDIO_DATA

D16	NC	GETH_RESETh
C16	NC	EMU_RSTn
D17	MMC2_CD	GPIO_EXP_1
B20	GPMC_CSN6	GPIO_EXP_3
A20	NC	GPIO_EXP_2

CPU

The MCAM335x board supports six types of ARM Cortex™ A8 processors:

AM3352, AM3354, AM3356, AM3357, AM3358, AM3359 up to 1000 Mhz

Some **Features** of this processors are:

- 275-MHz, 500-MHz, 600-MHz, or 720-MHz ARM® Cortex™-A8 32-Bit RISC Microprocessor
- NEON™ SIMD Coprocessor
- 32KB/32KB of L1 Instruction/Data Cache with Single-Error Detection (parity)
- 256KB of L2 Cache with Error Correcting Code (ECC)
- DDR3 Support
- General-Purpose Memory Support (NAND, NOR, SRAM, etc.) Supporting Up to 16-bit ECC
- SGX530 3D Graphics Engine
- LCD and Touch screen Controller
- Programmable Real-Time Unit and Industrial Communication Subsystem (PRU-ICSS)
- Real-Time Clock (RTC)
- Up to Two USB 2.0 High-Speed OTG Ports with Integrated PHY
- 10/100/1000 Ethernet Switch Supporting Up to Two Ports
- Serial Interfaces Including:
 - Two Controller Area Network Ports (CAN)
 - Six UARTs, Two McASPs, Two McSPI and Three I2C Ports
 - 12-Bit Successive Approximation Register (SAR) ADC
 - Up to Three 32-Bit Enhanced Capture Modules (eCAP)
 - Up to Three Enhanced High-Resolution Modules (eHRPWM)
 - Crypto Hardware Accelerators (AES, SHA, PKA, RNG)

All processors are software and pin compatible. For more info see the following links below

[AM335x ARM Cortex™-A8 Processors am3354](#)

DDR3 Memory

The MCAM335x supports up to 1Gbyte, 303Mhz 16 bit DDR3 SDRAM; it is internally configured as an 8-bank DRAM.

For more info about the DDR3 SDRAM see the following link:

<http://www.micron.com/parts/dram/ddr3-sdram/mt41j128m16jt-125>

Nand Flash

The MCAM335x is available with 256Mbyte (up to 512Mbyte) of NAND FLASH memory. The NAND flash is used for flash disk purposes, O.S. run-time-image and the bootloader (boot from NAND). First block (block address 00h) of the memory device is guaranteed to be valid without ECC (up to 1,000 PROGRAM/ERASE cycles). For more information about the Nand Flash devices see the following link.

<http://www.micron.com/parts/nand-flash/mass-storage/mt29f4g08abadawp-it>

uSD Connector

The MCAM335x contains an on board uSD connector supporting micro SD cards up to 192Mbit/sec (24MByte/sec) in High-Speed SD mode 4-bit data transfer. The CPU can boot from this device (MMC0).

Extremely small size: Small external dimensions and the above-the-board height make the connectors the smallest on the market.

Card detection switch: The card detection switch is Normally Open

For more information about the SD device see chapter 18 at the following link

<http://www.ti.com/lit/ug/spruh73g/spruh73g.pdf>

The MCAM335x has two Ethernet interfaces one (interface 1) 10/100 Mbit/s Ethernet interface and a Gigabit interface (interface2). For the Fast Ethernet interface the RMII interface has been used

Fast Ethernet PHY

The physical device used is the LAN8720A/LAN8720Ai is a low-power 10BASE-T/100BASE-TX physical layer (PHY) transceiver with variable I/O voltage that is compliant with the IEEE 802.3-2005 standards.

The LAN8720A/LAN8720Ai supports communication with an Ethernet MAC via a standard RMII interface. It contains a full-duplex 10-BASE-T/100BASE-TX transceiver and supports 10Mbps(10BASE-T) and 100Mbps (100BASE-TX) operation. The LAN8720A/LAN8720Ai implements autonegotiation to automatically determine the best possible speed and duplex mode of operation. HPAuto-MDIX support allows the use of direct connect or cross-over LAN cables.

For more information about the LAN8720A/LAN8720Ai devices see the following link.

http://www.smcs.com/media/Downloads_Public/Data_Sheets/8720a.pdf

Wifi module

The TiWi-BLE module is a high performance 2.4 GHz IEEE 802.11 b/g/n and Bluetooth 2.1+EDR radio in a cost effective, pre-certified footprint.

The module realizes the necessary PHY/MAC layers to support WLAN applications in conjunction with a host processor over a SDIO interface.

The module also provides a Bluetooth platform through the HCI transport layer. Both WLAN and Bluetooth share the same antenna port.

For more information about the TiWi-BLE module see the following link

<http://www.lsr.com/downloads/products/330-0087.pdf>

Touch Screen Controller

For more information see the chapter 12 of the AM335x:

<http://www.ti.com/lit/ug/spruh73g/spruh73g.pdf>

Audio codec

Audio interfaces of MCAM335X are featured by an on-board Texas Instrument's feature-rich

TLV320AIC3104 audio codec device.

Please refer to the [TLV320AIC3104](#) data sheet for detailed electrical characteristics of relevant interfaces.

The TLV320AIC3104 is a low-power stereo audio codec with stereo headphone amplifier.

Main supported features are

Programmable Input/Output Analog Gains

Programmable PLL for Flexible Clock Generation

Audio Serial Data Bus Supports I2S, Left/Right Justified, DSP, and TDM Modes

USB 2.0 High speed interface

The board has 2 USB 2.0 high speed interfaces, the signals are routed to the board to board connectors. This interface can only be used with High speed devices. If a full speed or low speed device has to be used with this interface a USB hub must be used, or it can be connected to the USB OTG interface.

Power supply

The board must be powered through the board to board connector, the supply must be 5V +/- 5%

Power supply device is composed by

Power Management IC

The [TPS65910A3](#) is an integrated power-management IC available in 48-QFN package and dedicated to applications powered by one Li-Ion or Li-Ion polymer

Absolute Maximum Rating

Power Supply	Min	Max	Unit
Main Power Supply, DC IN	0.3V	5.5	V
Digital IOs: UARTs, LCD, MMC2, ISP, SPI, McBSP,I2C,GPMC, JTAG	-0.3	3.5	V
Analog IOs: AIN0-7	0.3	1.9 V	V

Table 1 Absolute Maximum Characteristics

Operational Characteristics

Power supplies

Power Supply	Min	Typical	Max	Unit
Main Power Supply, DC IN	-5%	5.0	+5%	V

Table 2 Power Supplies Operational Characteristics

Power Consumption

Power Supply	Min	Typical	Max	Unit
Main Power Supply, DC IN		1	1.5	W
RTC backup battery current draw		10		uA

Table 3 Power Consumption

DC Electrical Characteristics

Parameter	Min	Typical	Max	Unit
Digital IOs: UARTs, LCD, MMC2, ISP, SPI, McBSP,I2C,GPMC,JTAG				
V _{IH}	2			
V _{IL}			0.8	V
V _{OH}	DC-IN - 0.1			V
V _{OL}			0.2	V
Analog IOs: AIN0-7				
V _{dc}	0		1.8	V

Table 4 DC Electrical Characteristics

Environmental Specifications

	Min	Max
Commercial Operating Temperature Range	0°C	+70°C
Extended Operating Temperature Range	20°C	+70°C
Industrial Operating Temperature Range	-40°C	+85°C

Table 5 Environmental specifications

I2C mapping

Information on I2C address assignments are provided below.

AM335x Function	AM335x I2C Port	Address
AM355x PMIC Control	I2C0	0x2D
AM355x PMIC Smart Reflex Control	I2C0	0x12
Audio Codec	I2C0	0x18
I/O expander	I2C0	0x20

Table 6 :I2C Bus Addresses

RGB MAPPING

The blue and red color assignments to the LCD data pins are reversed when operating in RGB888

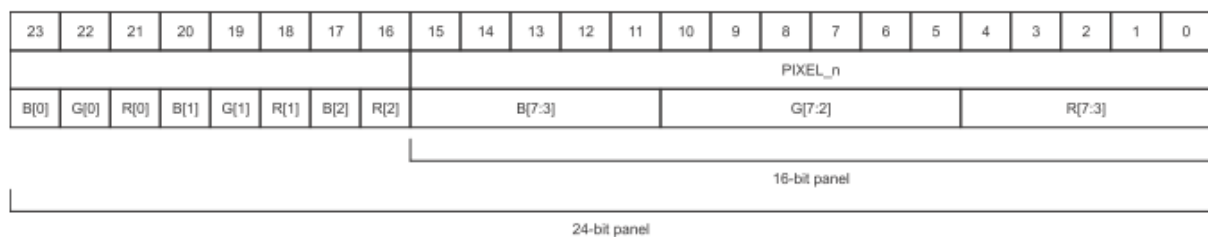
(24bpp) mode compared to RGB565 (16bpp) mode. In order to correctly display RGB888 data from the

SGX, or any source formatted as RGB in memory, it is necessary to connect the LCD panel as shown in

The Figure below. Using the LCD Controller with this connection scheme limits the use of RGB565 mode. Any data

generated for the RGB565 mode requires the red and blue color data values be swapped in order to

display the correct color.



RGB888 display configuration

Connectors Pinout

Connector J2 Service Connector

The J2 connector is used as a service connector where are present only necessary signals for the user to debug and work with the MCAM335x board.

PIN	NAME	DIR	DESCRIPTION
1	USB0_ID	IN	USB0 ID PIN FOR OTG SUPPORT
2	3,3V	PWR	3,3V POWER
3	USB0_DP	INOUT	USB0 DP SIGNAL
4	LEFT_LOM	OUT	AUDIO LEFT NEGATIVE SIGNAL
5	USB0_DM	INOUT	USB0 DP SIGNAL
6	LEFT_LOP	OUT	AUDIO LEFT POSITIVE SIGNAL
7	EMU_RSTn	OUT	EUMLATOR RESET
8	LINE1_RM	IN	LINE IN AUDIO SIGNAL
9	JTAG_TDI	IN	JTAG TDI SIGNAL
10	GND	PWR	GROUND SIGNAL
11	JTAG_TDO	OUT	JTAG TDI SIGNAL
12	TX_DEBUG_232	OUT	232 TX SIGNAL FOR CONSOLE DEBUG
13	JTAG_RTCK	OUT	RTCK JTAG SIGNAL
14	RX_DEBUG_232	IN	232 RX SIGNAL FOR CONSOLE DEBUG
15	TCK	OUT	TCK JTAG SIGNAL
16	JTAG_nTRST	OUT	TRST JTAG SIGNAL
17	JTAG_EMU0	IN	EMU0JTAG SIGNAL
18	JTAG_TMS	IN	TMS JTAG SIGNAL
19	JTAG_EMU1	IN	EMU1JTAG SIGNAL
20	GND	PWR	GROUND SIGNAL

The J3 is the uSD connector, used for boot purposed and system upgrading. The pinout is standard.

Connector J4

PIN	NAME	DIR	DESCRIPTION	LOGIC LEVEL	SIGNAL	AM335x ZCZ PIN
D1	ETH_TP0+	OUT	ETHERNET TRASMIT POS SIGNAL	ECL		
B1	ETH_TPI+	IN	ETHERNET RECEIVE POS SIGNAL	ECL		
C1	ETH_TPO-	OUT	ETHERNET TRASMIT NEG SIGNAL	ECL		
A1	ETH_TPI-	IN	ETHERNET RECEIVE NEG SIGNAL	ECL		
D2	GND	PWR	GND POWER			
B2	GND	PWR	GND POWER			
C2	GIGABIT_LINK	OUT	FULL DUPLEX LED SIGNAL	TTL 3,3V		
A2	SPI0_D0	IN	SPI0 MASTER IN SLAVE OUT	TTL 1,3V	GPIO0_3	B17
D3	SPEED_100	OUT	10/100 SPEED LED SIGNAL	TTL 3,3V		
B3	SPI0_SPCK	OUT	SPI0 CLOCK	TTL 3,3V	GPIO0_2	A17
C3	LINK_ACT	OUT	LINK AND ACTIVITY LED SIGNAL	TTL 3,3V		
A3	SPI0_D1(*)	OUT	SPI0 MASTER OUT SLAVE IN	TTL 3,3V	GPIO0_4	B16
D4	I2C1_SCL	OUT	I2C CHANNEL1 CLOCK	TTL 3,3V	GPIO0_5	A16
B4	SPI0_CS0(*)	OUT	SPI0 CHIP SELECT 0	TTL 3,3V	GPIO0_5	A16
C4	VIN_USB	IN	5V TO/FROM USB OTG CONNECTOR	TTL 3,3V		
A4	RXD3_232	IN	SERIAL 0 RX 232 SIGNAL USED FOR CONSOLE	TTL 3,3V		
D5	USB0_DRVVBUS	OUT	Signal that controls the USB power switch for USB0	TTL 3,3V	USB0_DRVVBUS	F16
B5	TXD3_232	OUT	SERIAL 0 TX 232 SIGNAL USED FOR CONSOLE	TTL 3,3V		
C5	USB1_DRVVBUS	OUT	Signal that controls the USB power switch for USB1	TTL 3,3V	USB1_DRVVBUS	F15
A5	PWM0	OUT	PWM0 SIGNAL OUTPUT	TTL 3,3V		C18
D6	RX1	IN	SERIAL RX1 SIGNAL	TTL 3,3V	GPIO0_14	D16
B6	SPI0_CS1(*)	OUT	SPI0 CHIP SELECT 1	TTL 3,3V	GPIO0_6	C15
C6	CTS1	IN	SERIAL CTS1 SIGNAL	TTL 3,3V	GPIO0_12	D18

(*SPI 0 ALTERNATIVE TO I2C 1 AVAILABLE UPON REQUEST

PIN	NAME	DIR	DESCRIPTION	LOGIC LEVEL	SIGNAL	AM335x ZCZ PIN
A6	EXTINT0	IN	INTERRUPT	TTL 3,3V	GPMC_A8	V16
D7	RTS1	OUT	SERIAL RTS1 SIGNAL	TTL 3,3V	GPIO0_13	D17
B7	EXTINT1	IN	INTERRUPT	TTL 3,3V	GPMC_A9	U16
C7	TX1	OUT	SERIAL TX1 SIGNAL	TTL 3,3V	GPIO0_15	D15
A7	I2C2_SDA	BI	I2C CHANNEL 2 DATA SIGNAL	TTL 3,3V	GPIO0_2	A17
D8	GND	PWR	GND POWER			
B8	UART0_RXD	IN	SERIAL 0 RXD SIGNAL	TTL 3,3V	UART0_RXD	E15
C8	SPI1_D8	IN	SPI0 MASTER IN SLAVE OUT	TTL 3,3V	GPIO3_15	B13
A8	UART0_CTS	IN	SERIAL 0 CTS SIGNAL	TTL 3,3V		E18
D9	SPI1_MOSI	OUT	SPI1 MASTER OUT SLAVE IN	TTL 3,3V	GPIO3_16	D12
B9	UART0_TXD	OUT	SERIAL 0 TXD SIGNAL	TTL 3,3V	UART0_TXD	E16
C9	SPI1_CLK	OUT	SPI1 CLOCK	TTL 3,3V	GPIO3_14	A13
A9	UART0_RTS	OUT	SERIAL 0 RTS SIGNAL	TTL 3,3V	UART0_RT Sn	E17
D10	SPI1_CS0	OUT	SPI1 CHIP SELECT 0	TTL 3,3V	GPIO3_17	C12
B10	GND	PWR	GND POWER			
C10	GND	PWR	GND POWER			
A10	PWM1	OUT	PWM1 SIGNAL OUTPUT	TTL 3,3V	GPIO0_6	C15
D11	NC					
C11	I2C1_SDA	BI	I2C CHANNEL 1 DATA SIGNAL	TTL 3,3V	GPIO0_4	B16
B11	LCDVSYNC	OUT	LCD VERTICAL SYNC	TTL 3,3V		U5
A11	LCDHSYNC	OUT	LCD HORIZONTAL SYNC	TTL 3,3V		R5
D12	NC		Not connected			
B12	GND	PWR	GND POWER			
C12	NC		Not connected			
A12	LCDDOTCK\	OUT	LCD DOT CLOCK	TTL 3,3V	LCD_VCLK	
D13	GND	PWR	GND POWER			
B13	GND	PWR	GND POWER			

PIN	NAME	DIR	DESCRIPTION	LOGIC LEVEL	SIGNAL	AM335x ZCZ PIN
C13	MMC1_CLK	OUT	MMC1 CLOCK SIGNAL	TTL 3,3V		
A13	LCDD20	OUT	LCD CONTROLLER DATA 20	TTL 3,3V	AM335X_LC D_DATA20	U12
D14	MMC1_CMD	IN	MMC1 COMMAND SIGNAL	TTL 3,3V		
C14	MMC1_CD	IN	MMC1 CARD DETECT	TTL 3,3V		
B14	LCDD08	OUT	LCD CONTROLLER DAT08	TTL 3,3V	AM335X_LC D_DATA8	U1
A14	LCDD10	OUT	LCD CONTROLLER DATA 10	TTL 3,3V	AM335X_LC D_DATA10	U3
D15	MMC1_DATA1	BI	MMC1 DATA 1	TTL 3,3V		
B15	LCDD09	OUT	LCD CONTROLLER DATA 09	TTL 3,3V	AM335X_LC D_DATA9	U2
C15	MMC1_DATA0	BI	MMC1 DATA 0	TTL 3,3V		
A15	LCDD19	OUT	LCD CONTROLLER DATA 19	TTL 3,3V	AM335X_LC D_DATA19	T12
D16	MMC1_DATA2	BI	MMC1 DATO 2	TTL 3,3V		
B16	LCDD23	OUT	LCD CONTROLLER DATA 23	TTL 3,3V	AM335X_LC D_DATA23	U10
C16	MMC1_DATA3	BI	MMC1 DATA 3	TTL 3,3V		
A16	LCDD14	OUT	LCD CONTROLLER DATA 14	TTL 3,3V	AM335X_LC D_DATA14	V4
D17	GND	PWR	GND POWER			
B17	LCD_DEN	OUT	LCD DATA ENABLE	TTL 3,3V	AM335X_LC D_AC_BIAS_EN	R6
C17	USB1_ID		OTG USB_ID SIGNAL	TTL 3,3V		
A17	LCDD12	OUT	LCD CONTROLLER DATA 12	TTL 3,3V	AM335X_LC D_DATA12	V2
D18	NON CONNECTED			TTL 3,3V	GPIO0_17	K15
B18	LCDD11	OUT	LCD CONTROLLER DATA 11	TTL 3,3V	AM335X_LC D_DATA11	U4
C18	CAN0TX	OUT	CAN BUS TX SIGNAL	TTL 3,3V	GPIO0_16	J18
A18	LCDD07	OUT	LCD CONTROLLER DATA 07	TTL 3,3V	AM335X_LC D_DATA7	T4
D19	CAN0RX	IN	CAN BUS RX SIGNAL	TTL 3,3V		
B19	LCDD05	OUT	LCD CONTROLLER DATA 05	TTL 3,3V	AM335X_LC D_DATA5	T2

C19	GND	PWR	GND POWER			
A19	LCDD17	OUT	LCD CONTROLLER DATA 17	TTL 3,3V	AM335X_LC D_DATA17	V13
D20	USB0_ID	IN	OTG USB_ID SIGNAL	TTL 3,3V		

PIN	NAME	DIR	DESCRIPTION	LOGIC LEVEL	CPU SIGNAL	AM335x ZCZ PIN
B20	LCDD13	OUT	LCD CONTROLLER DATA 13	TTL 3,3V	AM335X_LC D_DATA13	V3
C20	I2C2_SCL	BI	I2C CHANNEL 2 Clock SIGNAL	TTL 3,3V	GPIO0_3	B17
A20	LCDD2	OUT	LCD CONTROLLER DATA 2	TTL 3,3V	AM335X_LC D_DATA2	R3
D21	AUDA_DIN	IN	MULTICHANNEL BUFFERED SERIAL PORT RECEIVE SIGNAL	TTL 3,3V		A14
B21	LCDD15	OUT	LCD CONTROLLER DATA 15	TTL 3,3V	AM335X_LC D_DATA15	T5
C21	AUDA_DOUT	OUT	MULTICHANNEL BUFFERED SERIAL PORT TRASMIT SIGNAL	TTL 3,3V		D13
A21	LCDD18	OUT	LCD CONTROLLER DATA 18	TTL 3,3V	AM335X_LC D_DATA18	R12
D22	AUDA_FSX	OUT	MULTICHANNEL BUFFERED SERIAL PORT FRAME SINC SIGNAL	TTL 3,3V		C13
B22	LCDD0	OUT	LCD CONTROLLER DATA 0	TTL 3,3V	AM335X_LC D_DATA0	R1
C22	AUDA_BCLK	OUT	MULTICHANNEL BUFFERED SERIAL PORT CLOCK SIGNAL	TTL 3,3V		B12
A22	LCDD21	OUT	LCD CONTROLLER DATA 21	TTL 3,3V	AM335X_LC D_DATA21	T11
D23	AUD_MCLK	BI	MMC1 DATA 7	TTL 3,3V		
B23	LCDD6	OUT	LCD CONTROLLER DATA 6	TTL 3,3V	AM335X_LC D_DATA6	T3
C23	GND	PWR	GND POWER			
A23	LCDD16	OUT	LCD CONTROLLER DATA 16	TTL 3,3V	AM335X_LC D_DATA16	U13
D24	USB1_DP	BI	USB HOST 1 POSITIVE	TTL 5V		

			SIGNAL			
B24	LCDD1	OUT	LCD CONTROLLER DATA 1	TTL 3,3V	AM335X_LC D_DATA1	R2
C24	USB1_DM	BI	USB HOST 1 NEGATIVE SIGNAL	TTL 5V		
A24	LCDD22	OUT	LCD CONTROLLER DATA 22	TTL 3,3V	AM335X_LC D_DATA22	T10
D25	USB0_DP	BI	USB HOST 0 POSITIVE SIGNAL	TTL 5V		
B25	LCDD3	OUT	LCD CONTROLLER DATA 3	TTL 3,3V	AM335X_LC D_DATA3	R4
C25	USB0_DM	BI	USB HOST 0 NEGATIVE SIGNAL	TTL 5V		
A25	LCDD4	OUT	LCD CONTROLLER DATA 4	TTL 3,3V	AM335X_LC D_DATA4	T1

Connector J5

PIN	NAME	DIR	CONNECTOR FUNCTION	LOGIC LEVEL	CPU SIGNAL	AM335x ZCZ PIN
D1	AM335X_AIN 4	IN	ADC CHANNEL 0 INPUT	ANALOG	AM335X_AIN 4	C8
B1	GND	PWR	GND POWER			
C1	RIGHT_ROP	OUT	CODEC AUDIO OUTPUT POSITIVE	ANALOG		
A1	PWRON_BUT TON	IN	ON/OFF POWER BUTTON	TTL 3,3V		
D2	RIGHT_ROM	IN	CODEC AUDIO OUTPUT NEGATIVE	ANALOG		
B2	RESET_BUTT ON	IN	EXTERNAL CPU RESET ACTIVE LOW	TTL 3,3V		
C2	GND	PWR	GND POWER	TTL 3,3V		
A2	NC	BI	NOT USED			
D3	B_CLE	OUT	EXPANSION BUS COMMAND LATCH ENABLE	TTL 3,3V	GPMC_BE0 _CLE	T6
B3	NC					
C3	NC	BI	NOT USED			
A3	NC					
D4	GND	PWR	GND POWER			

B4	AM335X_GP MC_A10	OUT	EXPANSION ADDRESS 10	TTL 3,3V	AM335X_RG MII2_RXD1	T16
C4	GND	PWR	GND POWER			
A4	AM335X_GP MC_A9	OUT	EXPANSION ADDRESS 9	TTL 3,3V	AM335X_RG MII2_RXD2	U16
D5	NOT CONNECTED					
B5	AM335X_GP MC_A8	OUT	EXPANSION ADDRESS 8	TTL 3,3V	AM335X_RG MII2_RXD3	V16
C5	HEADSET_S PKR_L	OUT	AUDIO PREDRIVE LEFT SIGNAL FOR CLASS D AMPLIFIER	1,5VPP		
A5	AM335X_GP MC_A7	OUT	EXPANSION ADDRESS 7	TTL 3,3V	AM335X_RG MII2_RXCLK	T15
D6	HEADSET_S PKR_R	OUT	AUDIO PREDRIVE RIGHT SIGNAL FOR CLASS D AMPLIFIER	1,5VPP		
B6	AM335X_GP MC_A6	OUT	EXPANSION ADDRESS 6	TTL 3,3V	RG MII2_TXC LK	U15
C6	LINE1_RP	IN	SINGLE ENDED AUXILIARY ANALOG INPUT SIGNAL			
A6	AM335X_GP MC_A5	OUT	EXPANSION ADDRESS 5	TTL 3,3V	RG MII2_TXD 0	V15
D7	MIC_MAINM_I N	IN	NEGATIVE MICROPHONE INPUT			

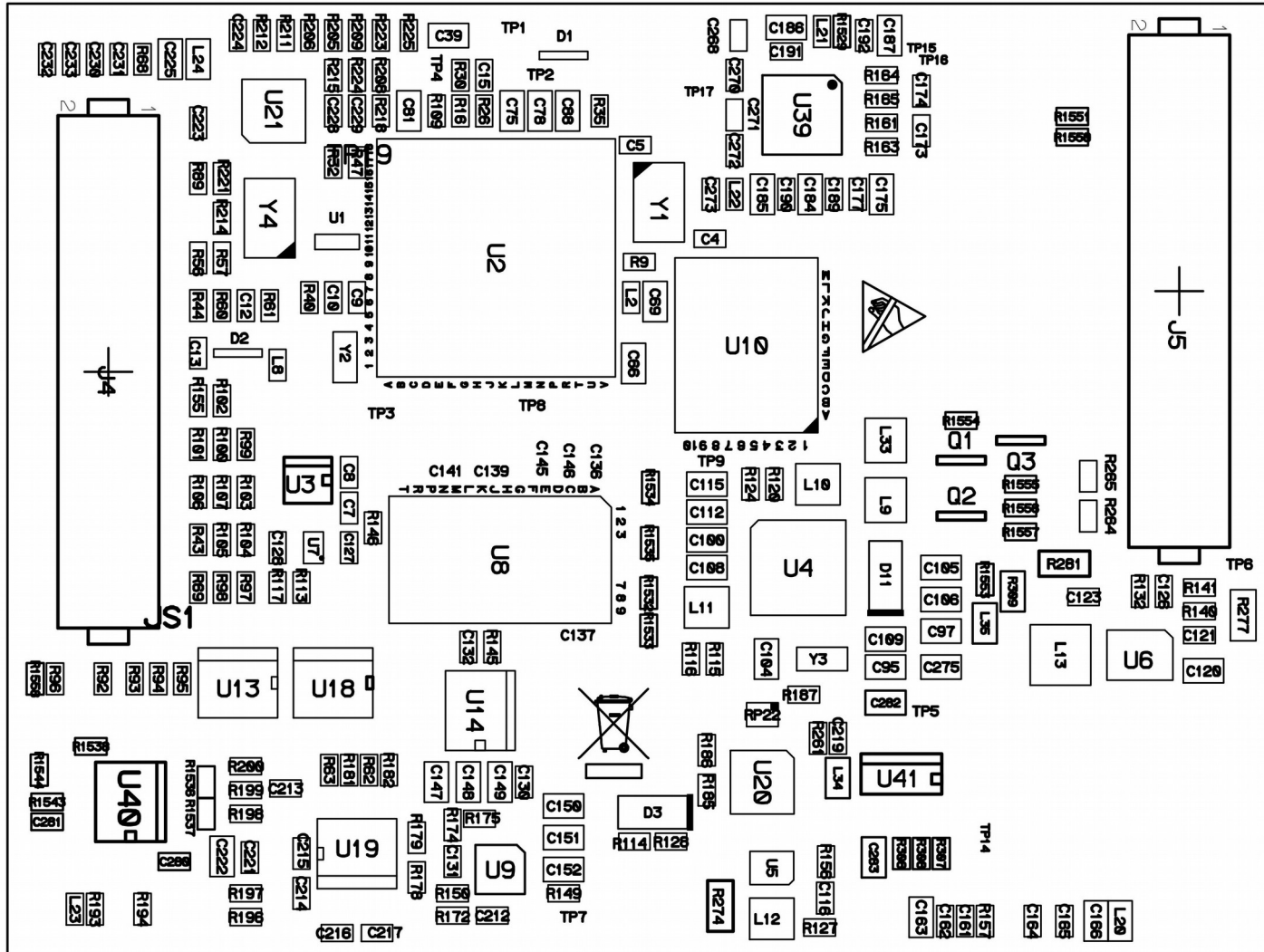
PIN	NAME	DIR	DESCRIPTION	LOGIC LEVEL	CPU SIGNAL	AM335x ZCZ PIN
B7	AM335X_GPMC_A4	OUT	EXPANSION ADDRESS 4	TTL 3,3V	RG MII2_TXD1	R14
C7	MIC_MAINP_IN	IN	POSITIVE MICROPHONE INPUT SIGNAL			
A7	AM335X_GPMC_A3	OUT	EXPANSION ADDRESS 3	TTL 3,3V	RG MII2_TXD2	T14
D8	MICBIAS1	OUT	MICROPHONE BIAS SIGNAL	2,2V		
B8	AM335X_GPMC_A2	OUT	EXPANSION ADDRESS 2	TTL 3,3V	RG MII2_TXD3	U14
C8	GND	PWR	GND POWER			
A8	AM335X_GPMC_A1	OUT	EXPANSION	TTL 3,3V	AM335X_RGM	V14

			ADDRESS 1		II2_RXDV	
D9	B_ADV_ALE	OUT	BUS ALE SIGNAL	TTL 3,3V	GPMC_ADVn_ALE	D9
B9	NOT CONNECTED					
C9	GPMC_WAIT0	IN	BUS WAIT SIGNAL	TTL 3,3V	GPMC_WAIT0	C9
A9	GPMC_AD15	BI	EXPANSION DATA BI T15	TTL 3,3V	AM335X_LCD_DATA16	U13
D10	AM335X_AIN6	IN	ANALOG INPUT 6	3,3V	AM335X_AIN6	A8
B10	GPMC_AD14	BI	EXPANSION DATA BI T14	TTL 3,3V	AM335X_LCD_DATA17	V13
C10	AM335X_AIN7	IN	ANALOG INPUT 7	3,3V	AM335X_AIN7	C9
A10	GPMC_AD13	BI	EXPANSION DATA BI T13	TTL 3,3V	AM335X_LCD_DATA18	R12
D11	B_RESETN	OUT	System Reset	TTL 3,3V		
C11	GND	PWR	GND POWER			
B11	GPMC_AD12	BI	EXPANSION DATA BI T12	TTL 3,3V	AM335X_LCD_DATA19	T12
A11	GPMC_AD11	BI	EXPANSION DATA BI T11	TTL 3,3V	AM335X_LCD_DATA20	U12
D12	JTAG_TDI	IN		TTL 3,3V		B11
B12	GPMC_AD10	BI	EXPANSION DATA BI T10	TTL 3,3V	AM335X_LCD_DATA21	T11
C12	JTAG_TDO	OUT		TTL 3,3V		A11
A12	GPMC_AD9	BI	EXPANSION DATA BI T9	TTL 3,3V	AM335X_LCD_DATA22	T10
D13	JTAG_RTCK	OUT		TTL 3,3V		NA
B13	GPMC_AD8	BI	EXPANSION DATA BI T8	TTL 3,3V	AM335X_LCD_DATA23	U10
C13	JTAG_TCK	OUT		TTL 3,3V		A12
A13	GPMC_AD7	BI	EXPANSION DATA BI T7	TTL 3,3V	GPMC_AD7	T9

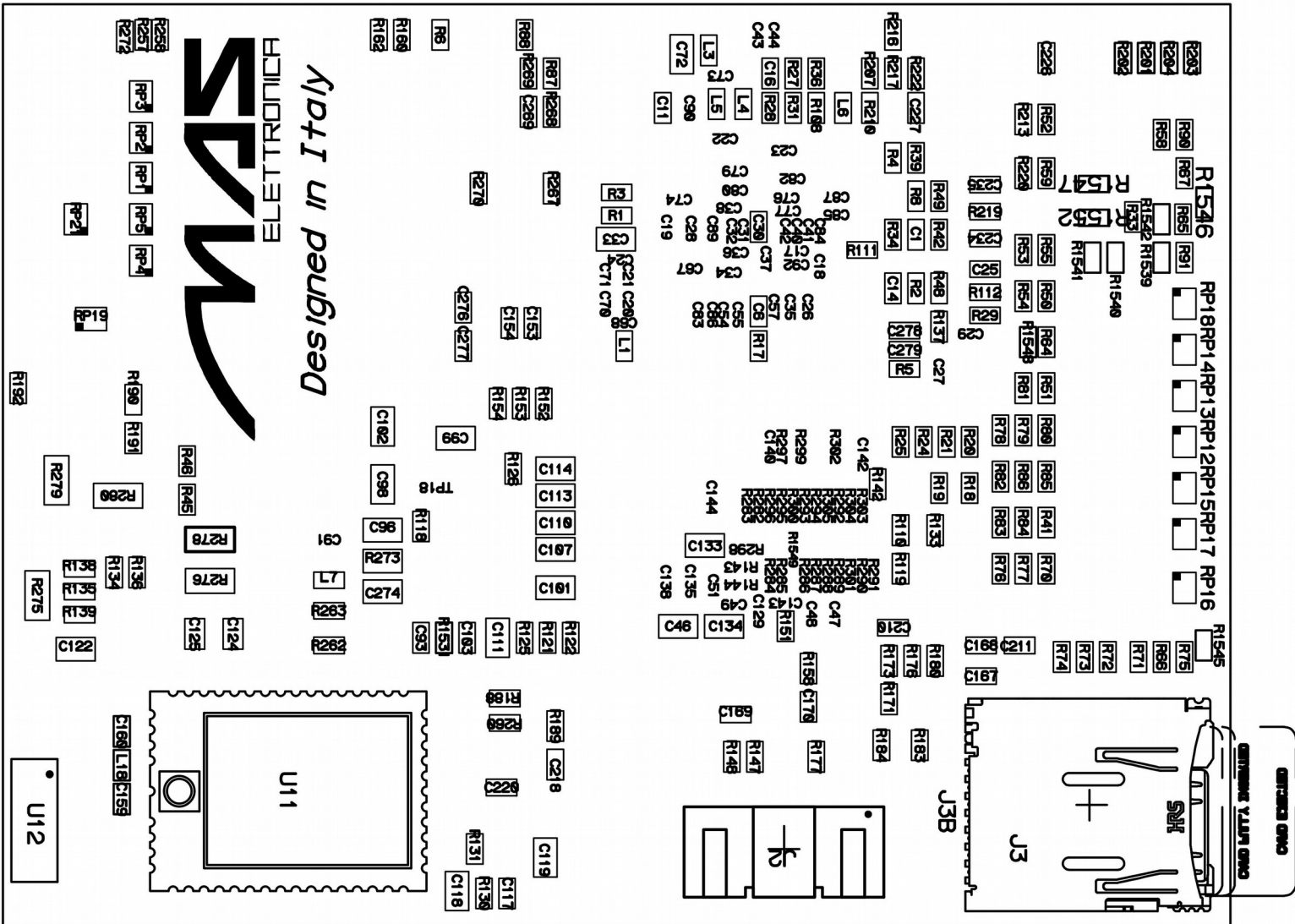
D14	JTAG_TMS	IN		TTL 3,3V		C11
C14	JTAG_TRSTn	IN		TTL 3,3V		B10
B14	GPMC_AD6	BI	EXPANSION DATA BIT6	TTL 3,3V	GPMC_AD6	R4
A14	GPMC_AD5	BI	EXPANSION DATA BIT5	TTL 3,3V	GPMC_AD5	V8
D15	AM335X_MDIO_CLK	IN		TTL 3,3V		M18
B15	GPMC_AD4	BI	EXPANSION DATA BIT4	TTL 3,3V	GPMC_AD4	U8
C15	AM335X_MDIO_DATA	BI		TTL 3,3V		M17
A15	GPMC_AD3	BI	EXPANSION DATA BIT3	TTL 3,3V	GPMC_AD3	T8
D16	GETH_RESETn		I/OEXPANDER BIT 5			
B16	GPMC_AD2	BI	EXPANSION DATA BIT2	TTL 3,3V	GPMC_AD2	R8
C16	EMU_RSTn	IN		TTL 3,3V		
A16	GPMC_AD1	BI	EXPANSION DATA BIT1	TTL 3,3V	GPMC_AD1	V7
D17	GPIO_EXP_1	IN	I/OEXPANDER BIT 2	TTL 3,3V		
B17	GPMC_AD0	BI	EXPANSION DATA BIT0	TTL 3,3V	GPMC_AD0	U7
C17	MMC2_D0	IN	DATA 0 INPUT	TTL 3,3V		
A17	BWEn	OUT	BUS WRITE SIGNAL	TTL 3,3V	GPMC_WEN	U6
D18	MMC2_D1	IN	DATA 1 INPUT	TTL 3,3V		
B18	BRDn	OUT	BUS WRITE SIGNAL	TTL 3,3V	GPMC_OEN_REN	T7
C18	MMC2_D2	IN	DATA 2 INPUT	TTL 3,3V		
A18	BCS3N	OUT	BUS CHIP SELECT 3	TTL 3,3V	GPMC_CSn3	T13
D19	MMC2_D3	IN	DATA 3 INPUT	TTL 3,3V		
B19	AM335X_GPMC_A0	OUT	GPMC ADDRESS 0	TTL 3,3V	RGMI2_TXEN	R13
C19	MMC2_CMD	IN	MMC2 COMMAND SIGNAL	TTL 3,3V		
A19	AM335X_GPMC_A11	OUT	GPMC ADDRESS 11	TTL 3,3V	AM335X_RGMI2_RXD0	V17
D20	MMC2_CLK	IN	MMC2 CLOCK SIGNAL	TTL 3,3V		
B20	GPIO_EXP_3	BI	I/OEXPANDER BIT 1	TTL 3,3V		
C20	BKUP_VBAT	IN	RTC BATT POWER	3V		

PIN	NAME	DIR	DESCRIPTION	LOGIC LEVEL	CPU SIGNAL	AM335x ZCZ PIN
A20	GPIO_EXP_2	BI	I/OEXPANDER BIT 0	TTL 3,3V		
D21	GND	PWR	GND POWER			
B21	AM335X_AIN5	IN	ADC CHANNEL 5 INPUT	ANALOG	AM335X_AIN5	B8
C21	NC	PWR				
A21	TS_BOTTOM	IN	TOUCH SCREEN BOTTOM SIGNAL	ANALOG		
D22	NC	PWR				
B22	TS_TOP	IN	TOUCH SCREEN TOP SIGNAL	ANALOG		
C22	NC	PWR				
A22	TS_LEFT	IN	TOUCH SCREEN LEFT SIGNAL	ANALOG		
D23	3V3	PWR	NOT CONNECTED			
B23	TS_RIGHT	IN	TOUCH SCREEN RIGHT SIGNAL	ANALOG		
C23	3V3	PWR	NOT CONNECTED			
A23	NOT CONNECTED					
D24	3V3	PWR	NOT CONNECTED			
B24	NOT CONNECTED					
C24	5V	PWR	5,0V IN FROM CARRIER BOARD			
A24	AM335X_DCAN1_TX	BI	USB HOST 1 NEGATIVE SIGNAL	TTL 5V	GPIO0_14	D16
D25	5V	PWR	5,0V IN FROM CARRIER BOARD			
B25	AM335X_DCAN1_TX	BI	USB HOST 1 POSITIVE SIGNAL	TTL 5V	GPIO0_15	D15
C25	5V	PWR	5,0V IN FROM CARRIER BOARD			
A25	GND	PWR	GND POWER			

Board layout top side



Board layout bottom side



Rohs compliance

The MCAM335x Standalone Embedded CPU Board comply with the European Union's Directive 2002/95/EC: "Restrictions of Hazardous Substances".

Warranty Terms

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