

# Beagle Bone® Black

BBB01-SC-505

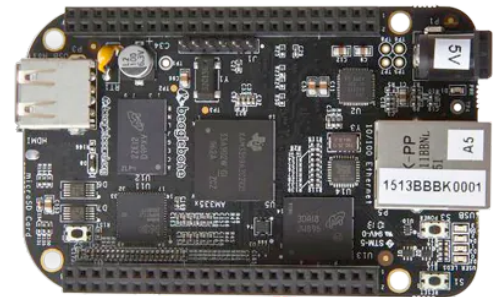
## Product Overview

08-04-2022

For the most up-to-date information, visit [www.mouser.com](http://www.mouser.com) or the supplier's website.

## Description

BeagleBoard BeagleBone® Black is a community-supported development platform for hobbyists and developers, based on the Sitara AM3358BZCZ100 Arm Cortex-A8 32-Bit RISC microprocessor from Texas Instruments. The compact BeagleBone Black features 32KB EEPROM, 256Mb x16 DDR3L 4Gb (512MB) SDRAM, and 4GB embedded MMC (eMMC) flash as the default boot. The BeagleBone Black supports four boot modes eMMC boot, serial boot, microSD boot, and USB boot. This BeagleBone Black is populated with a single microSD connector to act as a secondary boot source for the board and, if selected as such, can be the primary boot source. A switch is provided to allow switching between the modes.



The BeagleBone® Black's enhanced feature set enables developers to turn their ideas into prototypes. The original cape plug-in boards of BeagleBone are compatible with the BeagleBone Black, bringing in easy integration with previous projects. Whether operating conjunction or in standalone with another computer, this new BeagleBone will provide easy access to developers to look into industry-standard interfaces and also a well-developed ecosystem consisting of software and tools.

## Features

- Sitara AM3358BZCZ100 ARM Cortex-A8 32-Bit RISC microprocessor, up to 1GHz
- Onboard HDMI to connect directly to TVs and monitors
- More and faster memory with 512MB DDR3L 400MHz SDRAM, 4GB eMMC memory
- Supports existing cape plug-in boards
- TPS65217C PMIC regulator with one additional LDO
- On-board storage frees up the microSD card slot for greater expansion
- Debug support:
  - Optional onboard 20-pin CTI JTAG
- HS USB 2.0 client and host ports
- Serial port:
  - UART0 access via 6-pin 3.3V TTL header
- 10/100 RJ45 ethernet
- NEON floating-point accelerator
- 3D graphics accelerator

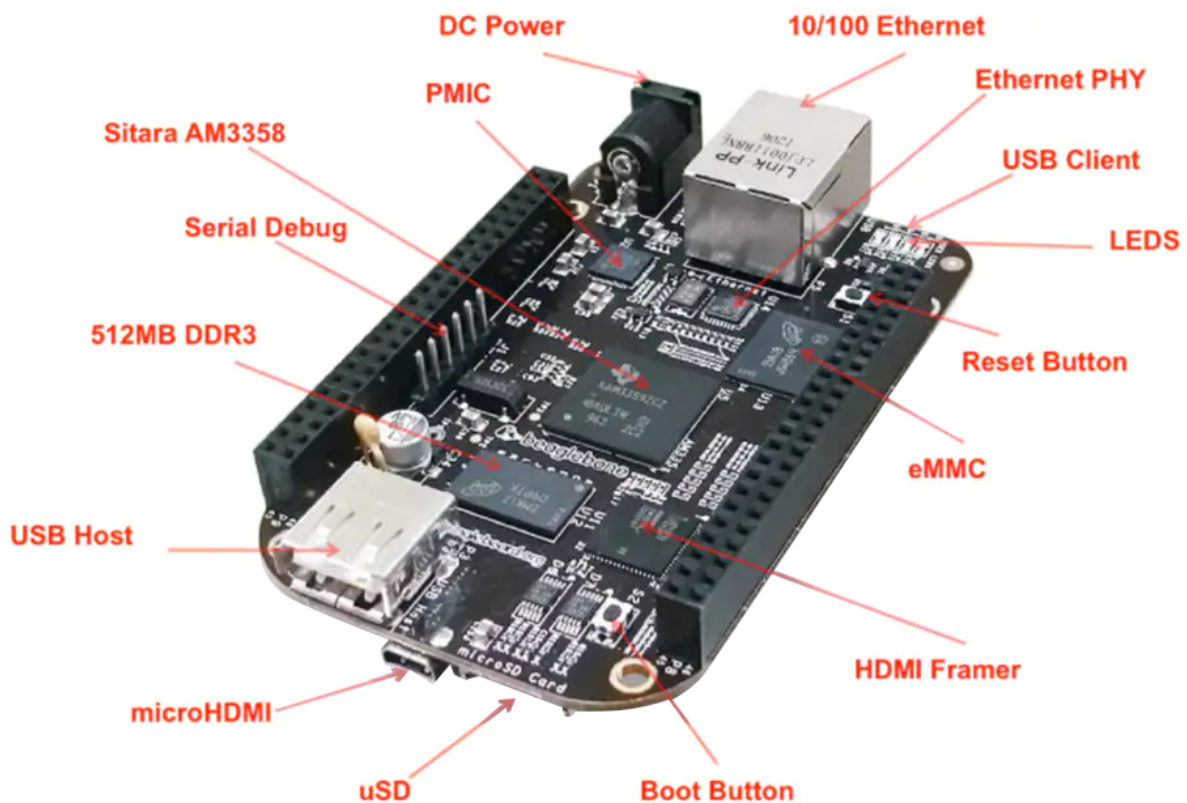
## Software Compatibility

- Debian
- Android
- Ubuntu
- Cloud9 IDE on Node.js w/ Bonescript library

## Connectivity

- USB client for power and communications
- USB host
- Ethernet
- HDMI
- 2 x 46 pin headers


## Board Layout



## Pin Designations

# Beaglebone Black Pinout Diagram

P9				P8			
Function	Physical Pins	Function	Function	Physical Pins	Function	Function	
DGND	1	2	DGND	DGND	1	2	DGND
VDD 3.3 V	3	4	VDD 3.3 V	MMC1_DAT6	3	4	MMC1_DAT7
VDD 5V	5	6	VDD 5V	MMC1_DAT2	5	6	MMC1_DAT3
SYS 5V	7	8	SYS 5V	GPIO_66	7	8	GPIO_67
PWR_BTN	9	10	SYS_RESET	GPIO_69	9	10	GPIO_68
UART4_RXD	11	12	GPIO_60	GPIO_45	11	12	GPIO_44
UART4_TXD	13	14	EHRPWM1A	EHRPWM2B	13	14	GPIO_26
GPIO_48	15	16	EHRPWM1B	GPIO_47	15	16	GPIO_46
SPIO_CS0	17	18	SPIO_D1	GPIO_27	17	18	GPIO_65
I2C2_SCL	19	20	I2C_SDA	EHRPWM2A	19	20	MMC1_CMD
SPIO_DO	21	22	SPIO_SCLK	MMC1_CLK	21	22	MMC1_DAT5
GPIO_49	23	24	UART1_TXD	MMC1_DAT4	23	24	MMC1_DAT1
GPIO_117	25	26	UART1_RXD	MMC1_DAT0	25	26	GPIO_61
GPIO_115	27	28	SP11_CS0	LCD_VSYNC	27	28	LCD_PCLK
SP11_DO	29	30	GPIO_112	LCD_HSYNC	29	30	LCD_AC_BIAS
SP11_SCLK	31	32	VDD_ADC	LCD_DATA14	31	32	LCD_DATA15
AIN4	33	34	GND_ADC	LCD_DATA13	33	34	LCD_DATA11
AIN6	35	36	AIN5	LCD_DATA12	35	36	LCD_DATA10
AIN2	37	38	AIN3	LCD_DATA8	37	38	LCD_DATA9
AIN0	39	40	AIN1	LCD_DATA6	39	40	LCD_DATA7
GPIO_20	41	42	ECAPWMO	LCD_DATA4	41	42	LCD_DATA5
DGND	43	44	DGND	LCD_DATA2	43	44	LCD_DATA3
DGND	45	46	DGND	LCD_DATA0	45	46	LCD_DATA1



LEGEND	
Power, Ground, Reset	
Digital Pins	
PWM Output	
1.8 Volt Analog Inputs	
Shared I2C Bus	
Reconfigurable Digital	

## Mouser Part Number

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To learn more, visit <https://www.mouser.com/new/beagleboardorg/beagleboneblack/>