BeagleBone Black

What is BeagleBone Black?

Fork me on Upverter

BeagleBone Black is a low-cost, community-supported development platform for developers and hobbyists. Boot Linux in under 10 seconds and get started on development in less than 5 minutes with just a single USB cable.

Processor: AM335x 1GHz ARM® Cortex-A8

- 512MB DDR3 RAM
- 4GB 8-bit eMMC on-board flash storage
- 3D graphics accelerator
- NEON floating-point accelerator
- 2x PRU 32-bit microcontrollers

Connectivity

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

Other BeagleBone derivatives »

Software Compatibility

- Debian
- Android
- Ubuntu
- Cloud9 IDE on Node.js w/ BoneScript library
- plus much more

Purchase

Select a distributor to buy

BeagleBone Black Projects

Gaming Cape
Transform your BeagleBone into a full fledged hand-held gaming console

Ubuntu on Beagle
Run Ubuntu Linux distribution on your BeagleBone Black

Oracle Java
Oracle Java Platform, Standard Edition (Java SE) including the Java Development Kit (JDK) and JavaFX for ARM

PRU Cape
TI tool for learning to program the 2 on-board 32-bit 200-MHz microcontrollers for real-time tasks

See More Projects »

BeagleBone Black Support

Getting Started
First step: connect your Beagle to this site

Discussion Groups
Collaborate on the Beagle community forum

IRC Group Chat
Live chat with other open-source enthusiasts

Books
Read books to help you learn fundamental concepts

System Reference Manual

Design Materials

Browse the BeagleBone Black wiki to find all available hardware specifications such as:

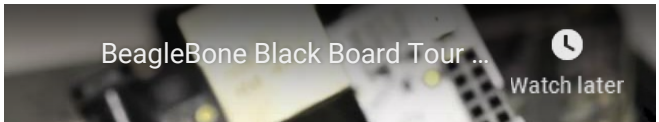
- Bill of Materials
- PCB Files
- MFG Files
- Schematic (PDF)
- Schematic (OrCAD)
- System Reference Manual

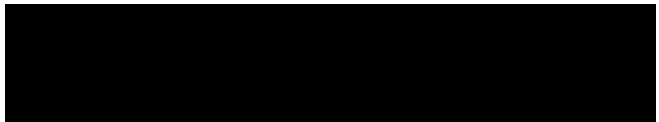
Accessories

Capes

Logo certified clones (**)

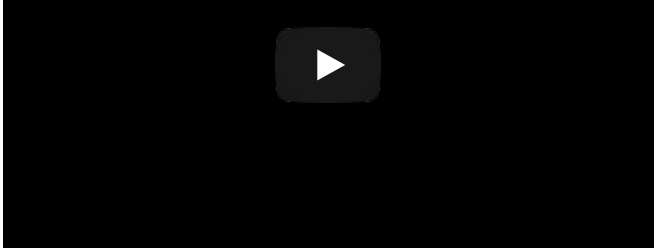
Videos





BeagleBone Black Board Tour and Out-of-Box Experience

Explore BeagleBone Black's features, see a snapshot of the unboxing.



BeagleBone Black Beer Brewer

BeagleBone Black powers a DIY beer brewing system.

Fork this design on Upverter

P01_Title Page

REV	Description	DATE	BY
A4A	Initial production Release.	11/19/2012	GC
A5	On the initial production release the processors were to be found incorrect as supplied by TI. Parts while marked AM3359 were actually AM3352. This revision uses the correct parts.	1/2/2013	GC
A5A	1. Deleted R29-R44 from the LCD lines. 2. Added 47pf capacitors C156-C173 to LCD data lines to ground. 3. Changed schematic revision to A5A. 4. Changed a few footprints after PCB update for above changes. 5. Added access point for the battery function of the TPS65217C. 6. Added Ferrite beads in series with LED power and 5V power rail of the USB host connector. Required to pass FCC/CE testing due to noise emissions on that pin. 7. Added power button to enable sleep, wakeup, power down and power up features on the system. 8. Added Modification to add 100K ohm resistor to ground to prvent crosstalk when serial cable is not plugged in.	2/8/2013	GC
A5B	1. Added 100K pulldown on J1 pin 4 to prevent crosstalk when serial cable is not connected into PCB layout. 2. Changed the LED resistors to 4.75K to lower the brightness.	5/21/2013	GC
A5C	1. Changed R46, R47,R48 to 0 ohms. 2. Changed R45 to 22 Ohms. Change was made due to production failures on some boards due to differences in impedances	6/12/2013	GC
A6	1. Moved the enable for the VDD_3V3B regulator to VDD_3V3A rail. Change was made to reduce the delay between the ramp up of the 3.3V rails. 2. Added a AND gate to the SYS_RESETn circuitry. There is a small chance that on power up the nRESETOUT signal on the processor may go high, causing the SYS_RESETn signal to go HI before it should. This change reenforces the reset with the PORZn reset signal. 3. Added optional zero ohm resistor to tie GND_OSC0 to system ground.	7/25/2013	GC
A6A	1. Added optional zero ohm resistor to tie GND_OSC1 to system ground. 2. Changed C106 to a 1uF capacitor. 3. Changed C24 to a 2.2uF capacitor. 4. Made R8 installed and R9 not installed.	12/13/2013	GC
B	1.Changed the processor to the AM3358BZCZ100.	1/20/2014	GC
C	1.Increased the eMMC from 2GB to 4GB.	3/21/2014	GC

PAGE NO.	SCHEMATIC PAGE
1	COVER PAGE
2	POWER MANAGEMENT
3	PROCESSOR 1 OF 3, JTAG HEADER
4	PROCESSOR 2 OF 3, UAB PORTS
5	PROCESSOR 3 OF 3
6	LED, CONFIGURATION AND BUTTON
7	DDR3 MEMORY
8	eMMC FLASH
9	10/100 ETHERNET
10	HDMI FRAMER
11	EXP CONN, uSD

NOTE: PCB Revision for this board is Re

This schematic is "NOT SUPPORTED" and DOES NOT CONSTITUTE a reference design. Only "community" support is allowed via resources at BeagleBoard.org/discuss.

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Size: B	Document Number: 450-5500-001	
Date: Friday, March 21, 2014		Sheet 1

Last updated by default on Thu Jun 28 2018 20:58:55 GMT-0000 (UTC).