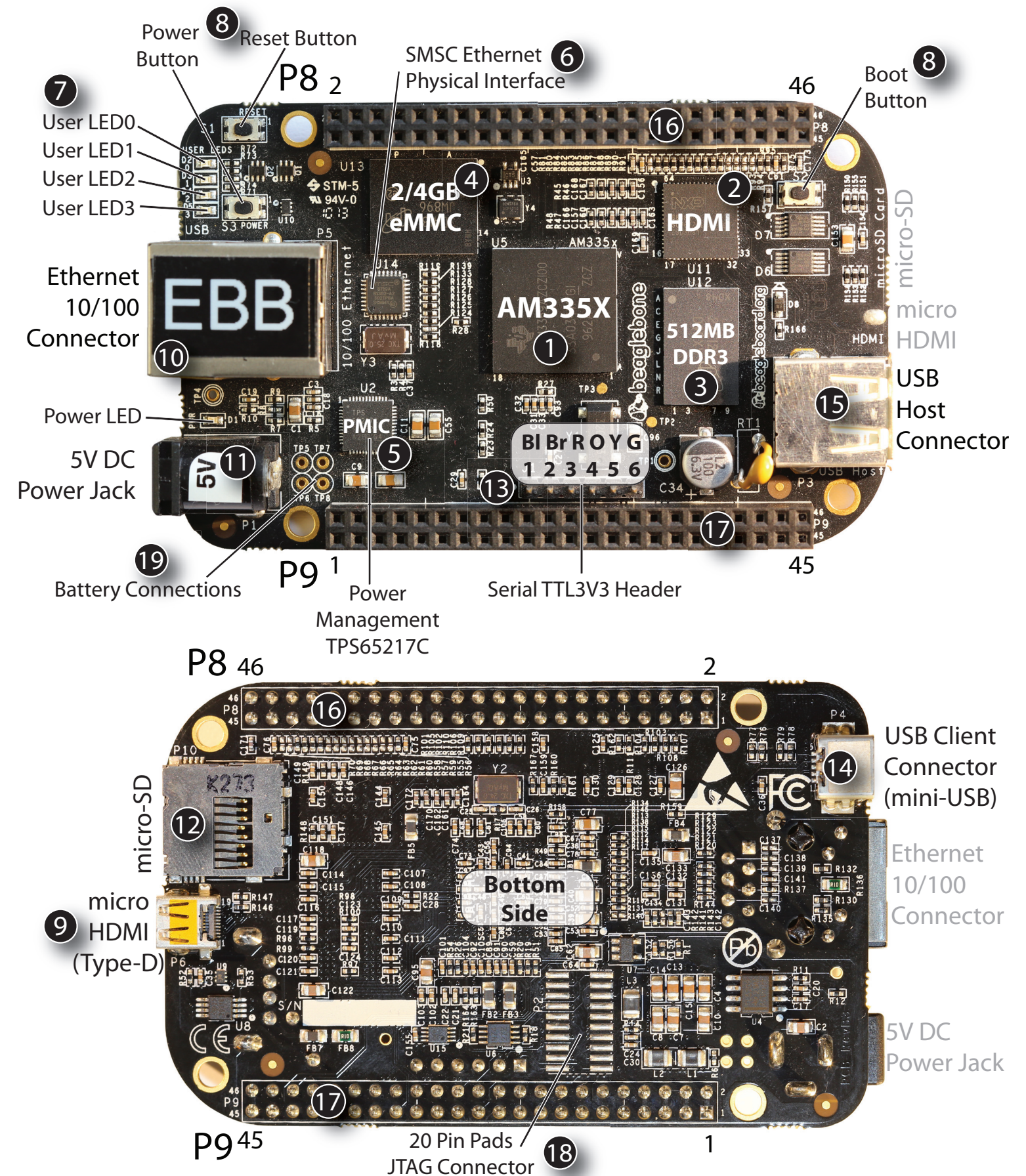


THE BEAGLEBONE BLACK

	Function	Physical	Details
1	Processor	AM335x	A powerful Texas Instruments Sitara 1 GHz ARM-A8 processor that is capable of 2 billion instructions per second.
		2 x PRUs	Programmable Real-time Units. Microcontrollers that allow for real-time interfacing. Discussed in Chapter 13.
		Graphics Engine	Processor has a 3D graphics engine (SGX530), which is capable of rendering 20million polygons per second.
2	Graphics	HDMI Framer	The framer converts the LCD interface available on the AM335x processor into a HDMI signal (no HDCP).
3	Memory	512MB DDR3	The amount of system memory affects performance and the type of applications that can be run.
4	Storage	eMMC (MMC1)	A 2/4 GB on-board embedded multi-media card (eMMC)—an SD card on a chip. The BBB can boot without an SD card.
5	Power Management	TPS65217C	Power management IC (PMIC). Sophisticated power management IC that has 4 LDO voltage regulators for the power rails. This IC is controlled via I ² C.
6	Ethernet Processor	Ethernet PHY (10/100)	Can be immediately connected to a network (supports DHCP). The physical interface LAN8710A connects the physical RJ45 connector to the ARM microprocessor.
7	LEDs	7 x LEDs	Power LED (blue), 4 user LEDs (blue), and 2 LEDs on the RJ45 Ethernet socket (yellow = 100M link up, green = traffic).
8	Buttons	3 x Buttons	Power button for powering on/off. Reset button for resetting the board and boot switch button for choosing to boot from the eMMC or the SD card.
Connectors			
9	Video Out	micro-HDMI (HDMI-D)	For connecting to monitors and televisions. Supports resolutions up to (1280x1024 at 60Hz). It can run 1920x1080 but only at 24 Hz. Has HDMI CEC support.
		Audio Out (HDMI-D)	See the Optional Accessories section for details on how to break this out with a regular 3.5 mm audio jack.
10	Network	Ethernet (RJ45)	10/100 Ethernet via a RJ45 connector. No on-board Wi-Fi. See the section on Optional Accessories in this chapter.
11	DC Power	5 V DC Supply (5.5 mm)	For connecting 5 V mains PSUs to the BBB. See the Highly Recommended Accessories section in this chapter.
12	SD Card	card slot (MMC0) (micro-SD)	3.3V micro-SD card slot. BBB can be booted from this slot, flashed from this slot, or used for additional storage when booting from the eMMC.
13	Serial Debug	6 Pin Connector (6 x 0.1")	(UART0) Used with a serial TTL3V3 cable to connect to the serial console of the BBB (this is not a JTAG connector—see the Highly Recommended Accessories section).
14	USB	1xUSB 2.0 Client (mini-USB)	(USB0) Connects to your desktop computer and can power the BBB directly and/or communicate to it.
15	USB	1xUSB 2.0 Host (USB-A)	(USB1) You can connect USB peripherals (e.g., Wi-Fi, keyboard, webcam) to the BBB with this USB connector. You can use a USB hub to add more than one USB device.
16 17	P8 and P9 Expansion Headers	Two 2x23 pin 0.1" female headers	92 pins in two headers that are multiplexed to provide access to the features in Figure 1-5. Not all functionality is available at the same time. Can be used to connect capes.
18	Other Debug	JTAG	There is space for a JTAG connector on the bottom of the board. JTAG allows you to debug your board, but requires additional hardware and software.
19	Other Power	Battery Connectors	It is possible to solder pins and use these points to connect a battery supply. Read the SRM carefully!



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