

5.4.2 Z-BeagleboneBrick-## (for Beaglebone)

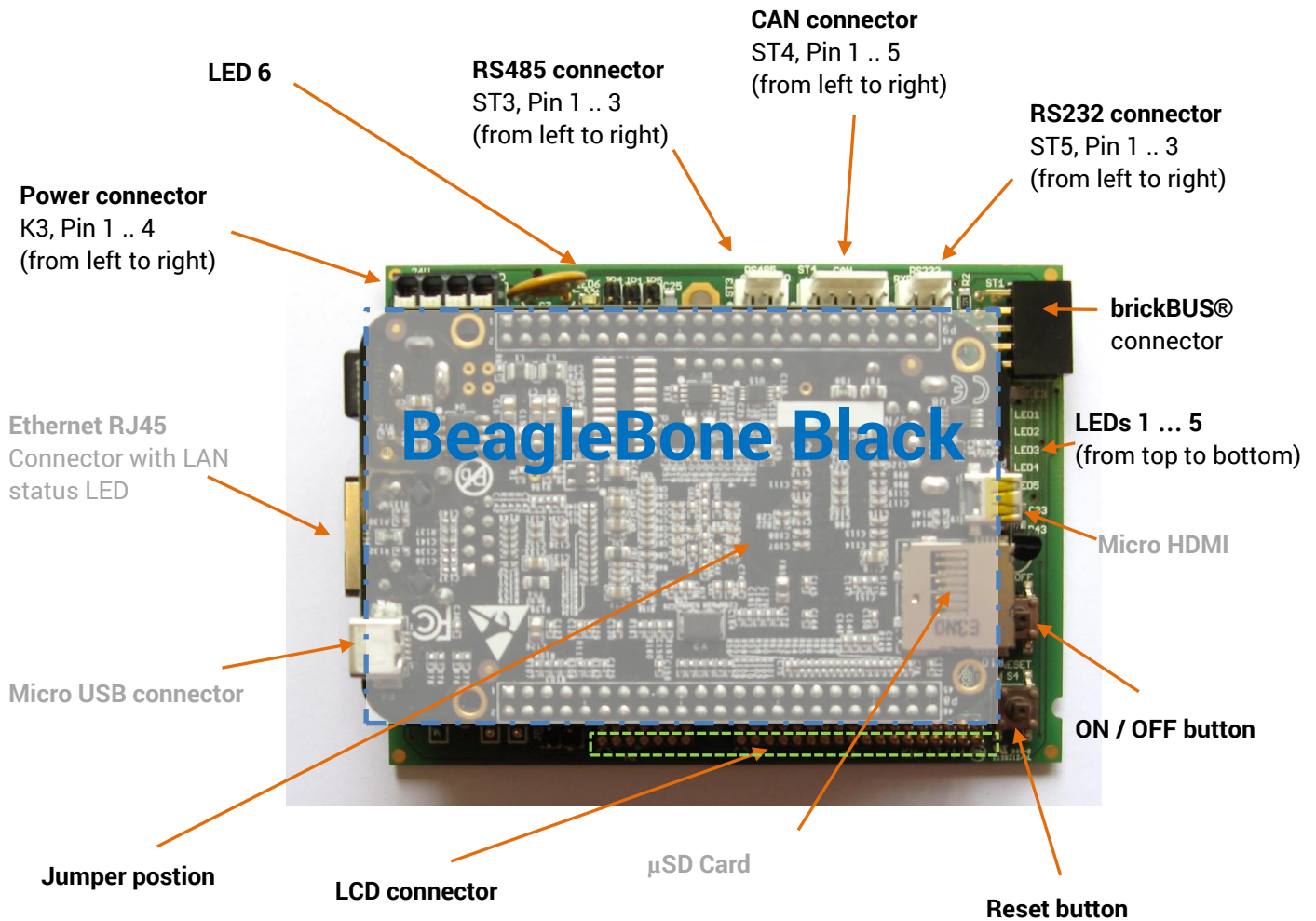
Bus Coupler, Local-Master Remote Coupling Unit for
 .. LAN (via Ethernet)
 .. CAN
 .. Serial (via RS485, RS232, TTL)
 .. USB, SD Card
 .. LCD-Display-Interf., Touch (res.)
 .. RTC (Li-Bat/Hi-Cap), EEPROM

Modul ID	1-711, 1-712		
Order No.	Z-BeagleboneBrick-0#		
Terminals			
Size, Speed	9 eU (99mm x 72mm)	BB _{FCP}	1-1-1
Variants: 0# =	01: full amount (1-711) 02: no: serial, RTC, EEPROM, LCD-Display Interf (1-712)		

5.4.2.1 Description

It is an adaptionboard for the *Beaglebone Black* from TI which becomes an important professional industrial platform for many measure and controll applications. By keeping the standard brick sizes, it is possible to use this board in all given mounting types.

The adaption unit is driven by 24Vdc and serves also as power-supply unit that delivers 3.3V and 24V for the slave modules. The LCSUL (together with the BBB) acts as an autark local-master and supply the logical control of the connected slave modules.



All grey comments are BeagleBone Black standard interfaces / functions.

5.4.2.2 Terminal Assingment

Beside the standard interfaces/connectors of the Beaglebone Black and the brickBUS® connector, this adaption board supports the following additional connectors:

Circuit Example	Ident.	Term	Function	Usage	internal simplified diagram
	1	K3/1	Power Supply	+24V in	
	2	K3/2		GND	
	3	K3/3		+24V in	
	4	KL3/4		GND	
	A	ST3/1	Serial A RS485	RS485-A	
	B	ST3/2		RS485-B	
	GND	ST3/3		GND	
	+	ST4/1	CAN	+24V out	
	CH	ST4/2		CAN-H	
	GND	ST4/3		GND	
	CL	ST4/4		CAN-L	
	GND	ST4/5		GND	
	RXD	ST2/1	Serial B RS232	RxD (RS232)	
	TXD	ST2/2		RxD (RS232)	
	GND	ST2/3		GND	

Moreover it offer a display-connector for an standard 24Bit RGB-LCD.

5.4.2.3 LED Indications

- LED1, orange..... BeagleBone Black P9 Pin41
- LED2, green..... BeagleBone Black P9 Pin42
- LED3, yellow..... GPIO6 (used as brickBUS®-Select active output)
- LED4, green..... power supply for brickBUS® 3,3V
- LED5, green..... power supply for BeagleBone Black 5V
- LED6 green..... +5V output from BeagleBone Black P9 Pin7

5.4.2.4 Internal IO-Assignment to BBB

Ports on adapter board			Port on BBB		
Interface / Port	needs ...	note	Con.	Pin	Pin usage / description
emBRICK	CLK MOSI MISO SEL		P9 P9 P9 P9	22 18 21 23	
CAN	CAN-TXD CAN-RXD	alternative to usage of I2C jumper necessary	P9 P9	24 26	
Serial A RS485	TXD RXD DIR	alternative usage with serial B jumper necessary	P9 P9 P9	13 11 12	GPIO7, High = transmitt enable
Serial B RS232	TXD RXD	alternative usage with serial A	P9 P9	13 11	
I2C for: - RTC - EEPROM	I2CAdress: 6Fh 50h	alternative to usage of CAN jumper necessary	P9 P9	24 26	
analog for: - 24V-Voltage - Temperature - Board-ID			P9 P9 P9	36 35 33	AIN5 AIN6 AIN4
LCD with: - Contrast - Reset - Touch			P9 P9	14 15 39 40 37 38	PWM AIN0 AIN1 AIN2 AIN3
Status-LED - orange - green			P9 P9	41 42	CLKOUT GPIO0

Pin 19, 20 of P9 is connected to the CAPE-EEPROM

For more information please refer to the original BeagleBone Black System Reference Manual (BBB_SRM.pdf).