

BeagleBone Black

te=0x022a6c50 [0,0]

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<https://elinux.org/Beagleboard:BeagleBoneBlack>

info

```
root@beaglebone:~# uname -a
Linux beaglebone 3.8.13 #1 SMP Wed Sep 4 09:09:32 CEST 2013 armv7l GNU/Linux
root@beaglebone:~# cat /proc/cpuinfo
processor       : 0
model name     : ARMv7 Processor rev 2 (v7l)
BogoMIPS      : 297.40
Features      : swp half thumb fastmult vfp edsp thumbee neon vfpv3 tls
CPU implementer : 0x41
CPU architecture: 7
CPU variant    : 0x3
CPU part       : 0xc08
CPU revision   : 2

Hardware      : Generic AM33XX (Flattened Device Tree)
Revision     : 0000
Serial        : 0000000000000000
root@beaglebone:~# cat /etc/issue
Angstrom v2012.12 - Kernel \r
```

serial

Board Cable

Pin 1 (GND) Black (GND)

Pin 4 (RX) Green (TX)

Pin 5 (TX) White (RX)

update board

```
dpavlin@nuc:/tmp$ xzcat bone-debian-9.3-iot-armhf-2018-01-28-4gb.img.xz | sudo dd of=/dev/sdc bs=
```

Insert SD card, press S2 USER/BOOT button to boot from SD card

https://elinux.org/Beagleboard:BeagleBoneBlack_Debian#Flashing_eMMC

```
root@beaglebone:~# uname -a
Linux beaglebone 4.9.78-ti-r94 #1 SMP PREEMPT Fri Jan 26 21:26:24 UTC 2018 armv7l GNU/Linux
root@beaglebone:~# cat /etc/issue
Debian GNU/Linux 9 \n \l
```

BeagleBoard.org Debian Image 2018-01-28

flash update to emmc

https://elinux.org/Beagleboard:BeagleBoneBlack_Debian#Flashing_eMMC

usb network

```
root@nuc:/home/dpavlin# ip link
```

```
8: enx05fb8d1023b: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT group default
   link/ether d0:5f:b8:d1:02:3b brd ff:ff:ff:ff:ff:ff
9: enx05fb8d1023e: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT group default
   link/ether d0:5f:b8:d1:02:3e brd ff:ff:ff:ff:ff:ff
```

```
root@beaglebone:~# ip addr
```

```
5: usb0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
   link/ether d0:5f:b8:d1:02:3c brd ff:ff:ff:ff:ff:ff
   inet 192.168.7.2/30 brd 192.168.7.3 scope global usb0
       valid_lft forever preferred_lft forever
   inet6 fe80::d25f:b8ff:fed1:23c/64 scope link
       valid_lft forever preferred_lft forever
6: usb1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
   link/ether d0:5f:b8:d1:02:3f brd ff:ff:ff:ff:ff:ff
   inet 192.168.6.2/30 brd 192.168.6.3 scope global usb1
       valid_lft forever preferred_lft forever
   inet6 fe80::d25f:b8ff:fed1:23f/64 scope link
       valid_lft forever preferred_lft forever
```

```
# matches IP addresses to find out which interface on bbb is which on nuc (mac on nuc is one less)
```

```
root@nuc:/home/dpavlin# ifconfig enx05fb8d1023b 192.168.7.1
```

```
root@nuc:/home/dpavlin# ping -c 1 192.168.7.2
```

```
PING 192.168.7.2 (192.168.7.2) 56(84) bytes of data.
```

```
64 bytes from 192.168.7.2: icmp_seq=1 ttl=64 time=0.817 ms
```

```
--- 192.168.7.2 ping statistics ---
```

```
1 packets transmitted, 1 received, 0% packet loss, time 0ms
```

```
rtt min/avg/max/mdev = 0.817/0.817/0.817/0.000 ms
```

```
# nat bbb
```

```
root@nuc:/home/dpavlin# iptables -t nat -A POSTROUTING -s 192.168.7.0/30 -o eth0 -j MASQUERADE
```

```
dpavlin@nuc:~$ ssh debian@192.168.7.2
```

```
debian@192.168.7.2's password:
```

```
Linux beaglebone 4.9.78-ti-r94 #1 SMP PREEMPT Fri Jan 26 21:26:24 UTC 2018 armv7l
```

```
root@beaglebone:/home/debian# ip route add default via 192.168.7.1
```

```
root@beaglebone:/home/debian# ip route add default via 192.168.7.1
```

```
root@beaglebone:/home/debian# cat /etc/resolv.conf
```

```
nameserver 8.8.8.8
```

```
root@beaglebone:/home/debian# ping -c 1 www.google.com
```

```
PING www.google.com (172.217.21.100) 56(84) bytes of data.
```

```
64 bytes from fra07s32-in-f100.1e100.net (172.217.21.100): icmp_seq=1 ttl=51 time=30.4 ms
```

```
--- www.google.com ping statistics ---  
1 packets transmitted, 1 received, 0% packet loss, time 0ms  
rtt min/avg/max/mdev = 30.460/30.460/30.460/0.000 ms
```

PRU

<http://ianrrees.github.io/2016/11/20/getting-started-with-beaglebone-pru-programming-the-new-way.html>