



# Cannot boot from USB Stick

aba Sep 5th 2021



aba

[Beginner]

Posts:

4

Sep 5th 2021

I assembled my apu2e4 and prepared a 8GB USB-Stick (bootable, FAT) with

## Code



```

1. root@alef:/mnt# ls -lF
2. -rwxr-xr-x 1 root root 8388608 Aug 13 17:55 apu2_v4.14.0.3.rom*
3. -rwxr-xr-x 1 root root 85 Aug 13 17:55 apu2_v4.14.0.3.SHA256*
4. -rwxr-xr-x 1 root root 566 Aug 13 17:55 apu2_v4.14.0.3.SHA256.sig*
5. -rwxr-xr-x 1 root root 156 Mai 15 2017 autostart.sh*
6. -rwxr-xr-x 1 root root 19839127 Aug 2 2017 core.gz*
7. -rwxr-xr-x 1 root root 1500 Sep 2 2016 syslinux.cfg*
8. -rwxr-xr-x 1 root root 4103744 Jul 20 2016 vmlinuz*

```

So far, everything fine.

I put the USB-Stick in one of the 2 USB slots of the APU2E4, connected the serial cable with my machine and started a screen session. Then I plug in the power and the APU2E4 starts booting:

## Code



```

1. screen /dev/ttyUSB0 115200
2. PCEngines apu2
3. coreboot build 20170228
4. 4080 MB ECC DRAM
5.
6. SeaBIOS (version rel-1.10.0.1)

```

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I press '1' to start booting from the USB-Stick, the stick's LED blinks for some seconds but it always ends up with 'Booting from Hard Disk...' 😞

I tried 2 different USB-sticks (both 8GB).

Should I try another one? Or am I missing some fundamental stuff?

Thanks for any hint!

Regards

Andi



pietrushnic

[Administrator]

Posts:

6

Sep 6th 2021

Ho @aba ,

I see that you finally managed to submit a post. Let me redirect this issue to our support team.

Founder and Chief Executive Officer,  
3mdeb

(<https://3mdeb.com>)

GPG: B2EE71E967AA9E4C

github (<https://github.com/pietrushnic>) | twitter (<https://twitter.com/pietrushnic>) | linkedin

(<https://www.linkedin.com/in/krolpiotr/>)



miczyg

[Beginner]

Likes Received:

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Sep 7th 2021

Hi aba,

The USB boot issue you are observing may have various reasons. Few questions to determine the culprit:

1. What is burned on the stick? Any BSD or Linux installer?
2. Did you configure the serial console for the bootloader on the USB stick?

Most of installers give an output to the VGA only, that is why you may be experiencing "nothing happens when I boot the USB stick".

Regards

Michał Żygowski  
Firmware Engineer  
GPG: 6B5BA214D21FCEB2  
<https://3mdeb.com> (<https://3mdeb.com>) | @3mdeb\_com



aba

[Beginner]

Posts:

Sep 8th 2021

Hi Michał

Thanks for taking care of my issue! Here my replies:

0. On Ubuntu I erased a 8GB USB-Stick, formatted it with F32 and made it bootable:

#### Code



```
1. # erase USB-stick
2. dd if=/dev/zero of=/dev/sdb bs=4k && sync
3. # format the USB-stick using fdisk
4. fdisk /dev/sdb
5. `o` # create new empty DOS partition table
6. `n` # add a new partition
```

1. contents of the stick (check also my 1st code block in the original message):

- The latest BIOS firmware release (as describe here: <https://pcengines.github.io/#mr-49>) (https://pcengines.github.io/#mr-49) 🙄 apu2\_v4.14.0.3.rom
- The extracted TinyCore image ([http://pcengines.ch/file/TinyCore6.4\\_2017.tar.bz2](http://pcengines.ch/file/TinyCore6.4_2017.tar.bz2)) ([http://pcengines.ch/file/TinyCore6.4\\_2017.tar.bz2](http://pcengines.ch/file/TinyCore6.4_2017.tar.bz2)) )

Based on this FreeBSD Instructions (<http://pcengines.ch/tmp/Make-tinyCore-memstick-on-FreeBSD.pdf>) I did:

#### Code



```
1. # Put the ROM files on the USB and verify
2. mount -t msdosfs /dev/sdb1 /mnt
3. cd /mnt
4. unzip ../downloads/apu2_v4.14.0.3.zip
5. # Extract tinyCore (ignore errors about set user) on USB /
6. tar -xvjf ../downloads/TinyCore6.4_2017.tar.bz2
```

2. Serial Console

Using TinyCore I don't expect any VGA, so I didn't configure any special besides the Baud-rate. What do I have to do for VGA? Do you have any hints/links for this kind of setup?

Thanks!  
Andi



aba

[Beginner]

Posts:

4

Sep 11th 2021

Hi

Any hints on how to debug this?

Please!



miczyg

[Beginner]

Likes Received:

Posts:

1

7

Sep 20th 2021

Hi Andi,

For starters, apu2 does not have integrated graphics so one cannot get VGA output on apu2.

I recall having similar issues with extracting the TinyCore in Linux. Please note that the TinyCore instructions also require to make it bootable with syslinux (the boot flag on the partitions is not enough, syslinux will put a bootloader and MBR to the disk):

<https://pcengines.ch/howto.htm#TinyCoreLinux> (<https://pcengines.ch/howto.htm#TinyCoreLinux>)

I suspect you have missed these steps thus the stick does not boot. Some reference from syslinux wiki:

[https://wiki.syslinux.org/wiki...a\\_Bootable\\_USB:\\_For\\_Linux](https://wiki.syslinux.org/wiki...a_Bootable_USB:_For_Linux)

([https://wiki.syslinux.org/wiki/index.php?title=HowTos#How\\_to\\_Create\\_a\\_Bootable\\_USB:\\_For\\_Linux](https://wiki.syslinux.org/wiki/index.php?title=HowTos#How_to_Create_a_Bootable_USB:_For_Linux)) (the Linux kernel image is already inside TinyCore6.4\_2017.tar.bz2 so this step may be omitted)

if you try e.g. a pfSense image (amd64 USB memstick serial) or OPNsense image (amd64 serial), and "dd" it on the stick it will boot out-of-the-box. TinyCore is a very small and lightweight system that is typically used for BIOS updates, but it can be done with any other system actually by installing flashrom on the selected operating system.

Best regards,

Michał Żygowski

Firmware Engineer

GPG: 6B5BA214D21FCEB2

<https://3mdeb.com> (<https://3mdeb.com>) | @3mdeb\_com



aba

[Beginner]

Posts:

4

Sep 21st 2021

Hi Michal

I completely underestimated the creation of a bootable USB stick 😞

All solutions I quickly found using a mix of **dd** (erase) and then **fdisk** and **mkfs.vfat** just didn't work out.

Eventually, I found this instructions [howto\\_Ubuntu\\_16.04\\_USB\\_installation.txt](https://pcengines.ch/file/howto_Ubuntu_16.04_USB_installation.txt)

([https://pcengines.ch/file/howto\\_Ubuntu\\_16.04\\_USB\\_installation.txt](https://pcengines.ch/file/howto_Ubuntu_16.04_USB_installation.txt)) and after some little adaptations (details in the attachment: [howto-prepare-apu-usb-stick.md.txt](#)) it worked.

Regards

Andi

