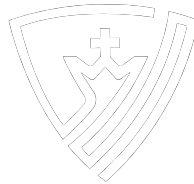


# Dasharo onboarding

**v0.1.0**



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# Prerequisites

- Hardware
  - Novacustom Laptop
  - Power supply
  - Ethernet cable
  - Flashing tool (optional; in case of bricking the device)
- Software
  - Docker installed on host machine
  - Source of the coreboot
  - edk2 sources

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# Types and sources

- There is need to properly identify model and version of the supported hardware.
  - NS5\* series - model with bigger screen, additional numeric keypad various minor properties
  - NV4\* series - 14" laptop without numeric keypad, monochromatic keyboard backlight
- Sources:
  - ADL - Alder Lake processor used(Intel 12.gen)
  - TGL - Tiger Lake processor used(Intel 11.gen)

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# Documentation

- Official webpage for documentation: <https://docs.dasharo.com/>
- Path to more specific information:
  - Supported hardware -> Novacustom Laptops -> Building manual

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# Build Process

- Described in "Build Dasharo BIOS firmware"  
<https://docs.dasharo.com/unified/novacustom/building-manual/>
- Make sure testing model and platform
- Choose proper sources, depending on processor type and Novacustom laptop model (compilation for Novacustom NV41PZ checkout `clevo/develop`)
- First time build:

```
make olddefconfig && make
```

further, there is need for only `make` command.

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# Flash Process

- Mainly, process is described in instruction.
- Flashing is performed on target device, itself.
- To enter flashing mode, device should be booted properly:
  - make sure laptop is powered off
  - turn on the device
  - wait for splash with one-time boot menu
  - press key for one-time boot menu
  - choose option iPXE Network Boot
  - choose option 9 (Shell)

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# Flash Process - cont.

- check flashrom is available on the laptop

```
flashrom -p internal
```

- connect laptop to Ethernet, get its IP
- copy previously compiled Dasharo firmware:

```
scp build/coreboot.rom root@<here IP of NVC laptop>/tmp
```

- connect with scp

```
ssh root@<here IP of NVC laptop>  
cd /tmp  
flashrom -p internal -i RW_SECTION_A --fmap -w /tmp/coreboot.rom
```

- After finishing(still, under ssh):

```
reboot
```

- Test whether flashing correctly

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# Troubleshooting

- During SSHing process the following message can occur:

```
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@      WARNING: REMOTE HOST IDENTIFICATION HAS CHANGED!      @
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
```

IT IS POSSIBLE THAT SOMEONE IS DOING SOMETHING NASTY!

Someone could be eavesdropping on you right now (man-in-the-middle attack)

It is also possible that a host key has just been changed.

The fingerprint for the ECDSA key sent by the remote host is  
SHA256:uBHMBb0lesrKFIwafx0Tfk0sVoL59tmbnWqKQm08pA4.

Please contact your system administrator.

Add correct host key in /home/coreboot/.ssh/known\_hosts to get rid of this

Offending ECDSA key in /home/coreboot/.ssh/known\_hosts:1

remove with:

```
ssh-keygen -f "/home/coreboot/.ssh/known_hosts" -R "192.168.4.236"
```

ECDSA host key for 192.168.4.236 has changed and you have requested strict

Host key verification failed.

lost connection

Solution is in the line:

```
ssh-keygen -f "/home/coreboot/.ssh/known_hosts" -R "192.168.4.236"
```



# Recovery

After bricking the device there is need to perform the same action, as with brand new device.

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# Change key

- Config option responsible for entering the SETUP is:

`CONFIG_EDK2_SETUP_MENU_KEY`

- Config option responsible for one-time boot option is:

`CONFIG_EDK_BOOT_MENU_KEY`

Proper values can be found issuing command:

`make menuconfig`

Section Payload->TianoCore boot menu key and Payload->TianoCore setup menu key, press button Help.

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# Exercise 1

- Change boot option key
- Find in configuration key: EDK2\_BOOT\_MENU\_KEY/"TianoCore boot menu key"
- Change value (button Help will show possible options)
- Check changes (build, reflash laptop)

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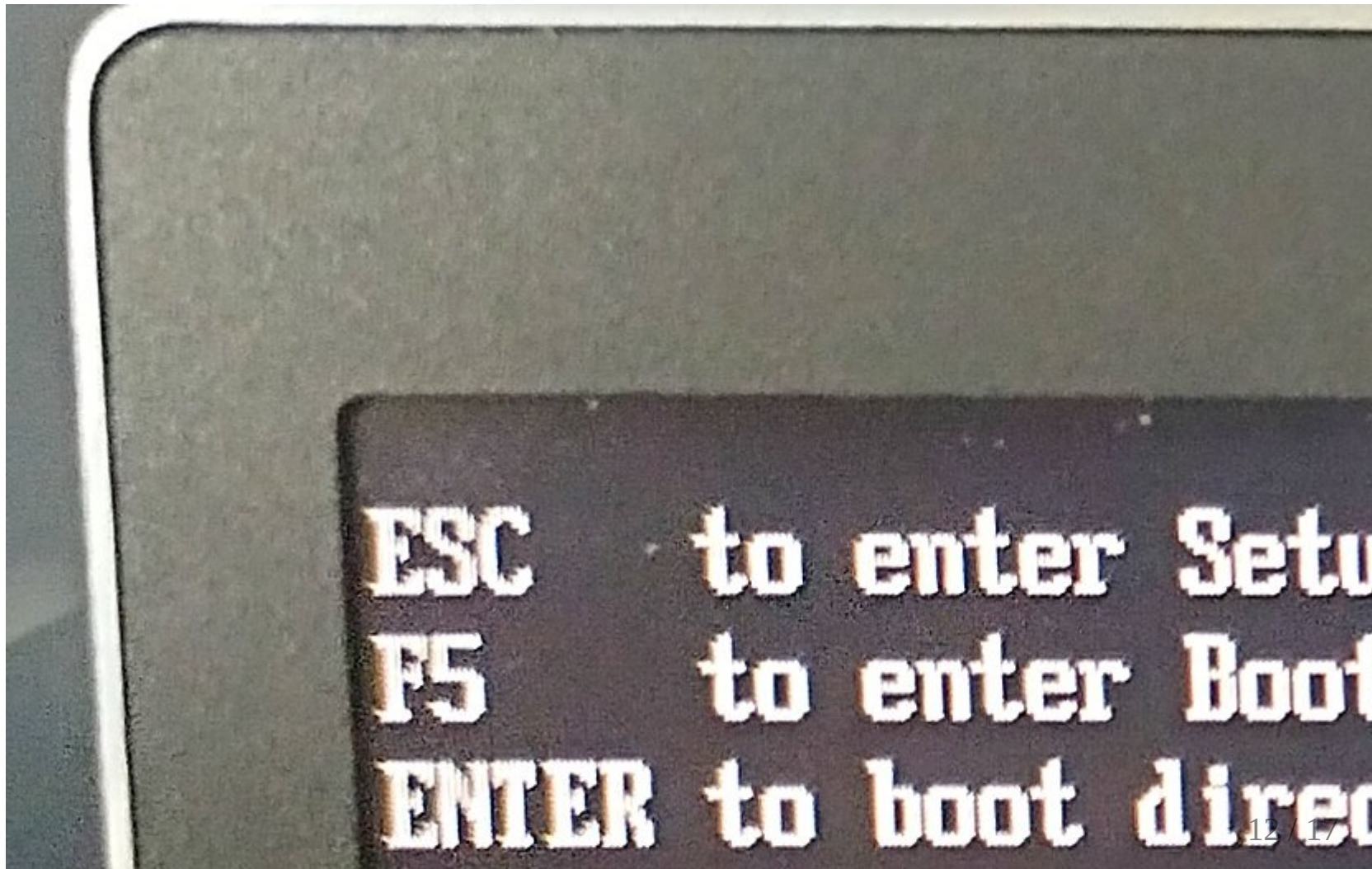
# Exercise 1

- Change boot option key
- Find in configuration key: EDK2\_BOOT\_MENU\_KEY/"TianoCore boot menu key"
- Change value (button Help will show possible options)
- Check changes (build, reflash laptop)
- Result in next slide:

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# Exercise 1-solve



ESC to enter Setup  
F5 to enter Boot  
ENTER to boot direct

# Exercise 2

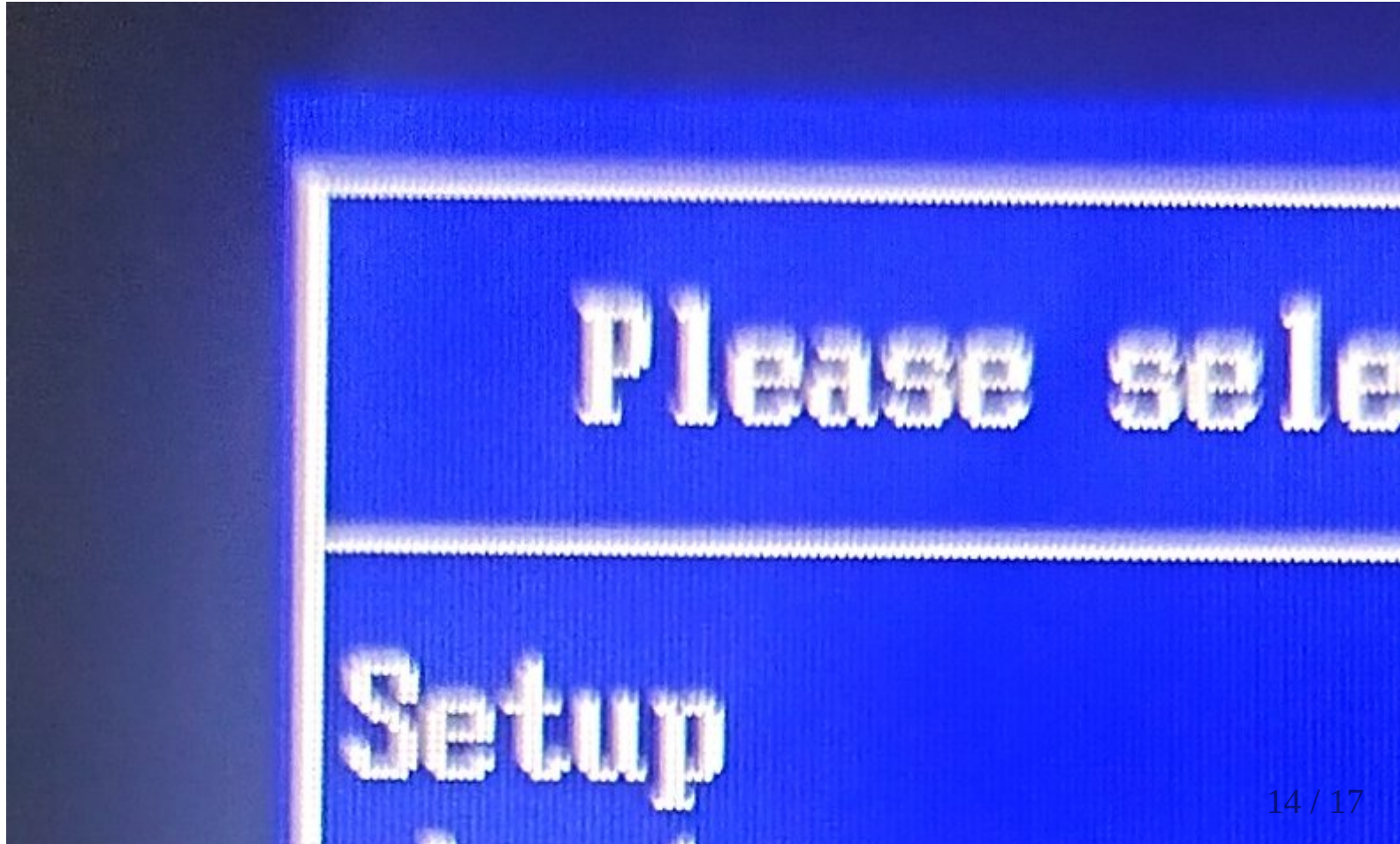
- Change option for booting option `ipXE Network Boot` to add own string
- Recompile, flash
- Test changes
- Solve results in next slide

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# Exercise 2-solve

- Find string in .config file: CONFIG\_EDK2\_IPXE\_OPTION\_NAME
- Change value (here: change to iPXE Network Boot-moj tekst)



# Exercise 3

- Change SMBIOS variable, SKU Number
- String is set up in mainboard's code
- Find in directory, in `src/mainboard` proper file, function, change phrase
- Compile, burn to the flash
- Check value using `dmidecode` (run on target device)

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# Exercise 3

- Change SMBIOS variable, SKU Number
- String is set up in mainboard's code
- Find in directory, in `src/mainboard` proper file, function, change phrase
- Compile, burn to the flash
- Check value using `dmidecode` (run on target device)

Result on next slide...

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# Exercise 3-solve

- Source:

`coreboot/src/mainboard/clevo/ad1-p/ramstage.c`

function:

```
const char *smbios_system_sku(void);
```

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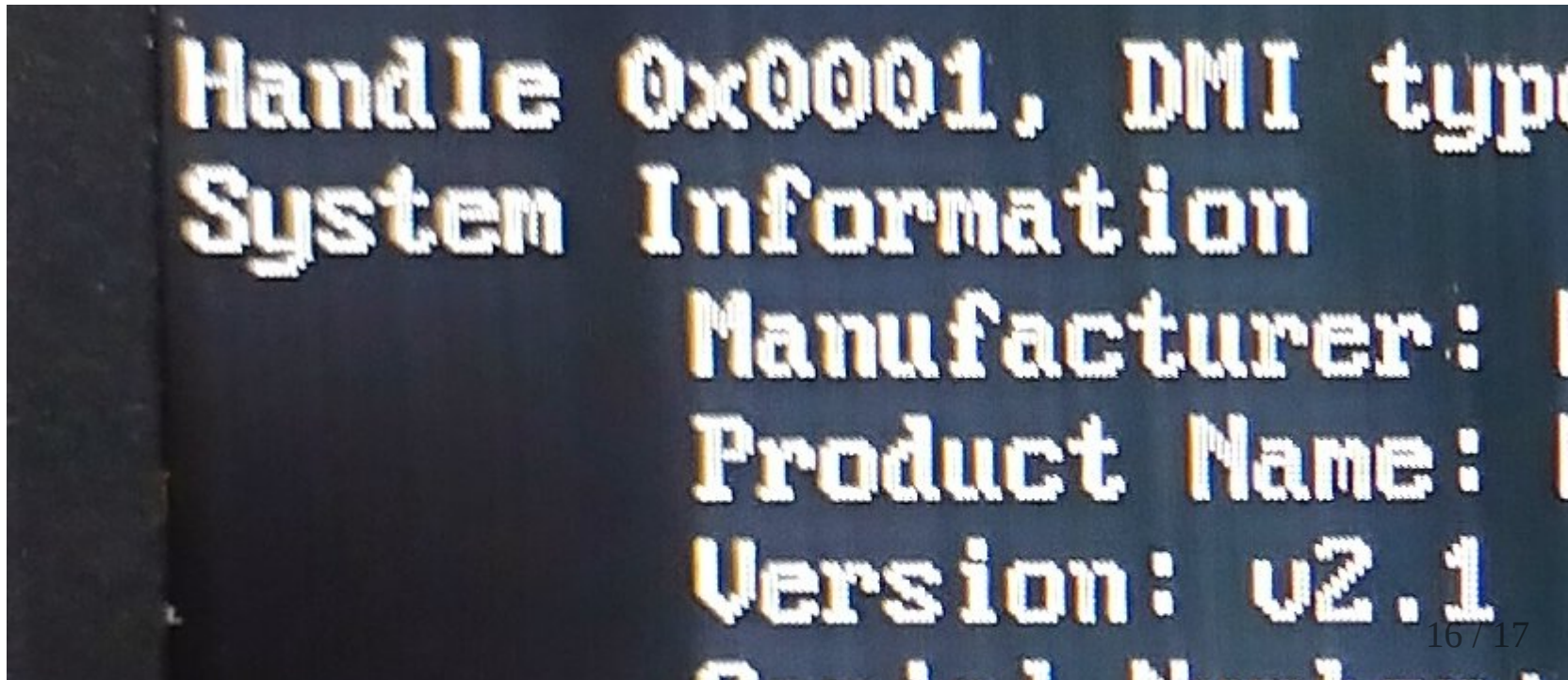
# Exercise 3-solve

- Source:

coreboot/src/mainboard/clevo/ad1-p/ramstage.c

function:

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const char *smbios_system_sku(void);
```



# Q&A

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