

Up Squared

x86 Low Powered Single Board Computer

UP Squared (\$500)

CPU	Intel N4200 (Quad core 2.5Ghz x86)
-----	------------------------------------

Mem	8GB
-----	-----

GPU	Intel 505HD (2xHDMI, 1xeDP)
-----	-----------------------------

HD	eMMC up to 64GB, M2 Key E, SATA3, mSATA
----	---

Net	2xGbit
-----	--------

WIFI	Optional using M.2 Key E connector
------	------------------------------------

Ports	2xUSB2.0, 4xUSB3.0, mini-PCIe
-------	-------------------------------

Extra GPIO (PI compatible), RTC, PXE

Power 5V6A

UP Squared





Installing

OS

Ublinux 4.0

Based on

Debian Stretch

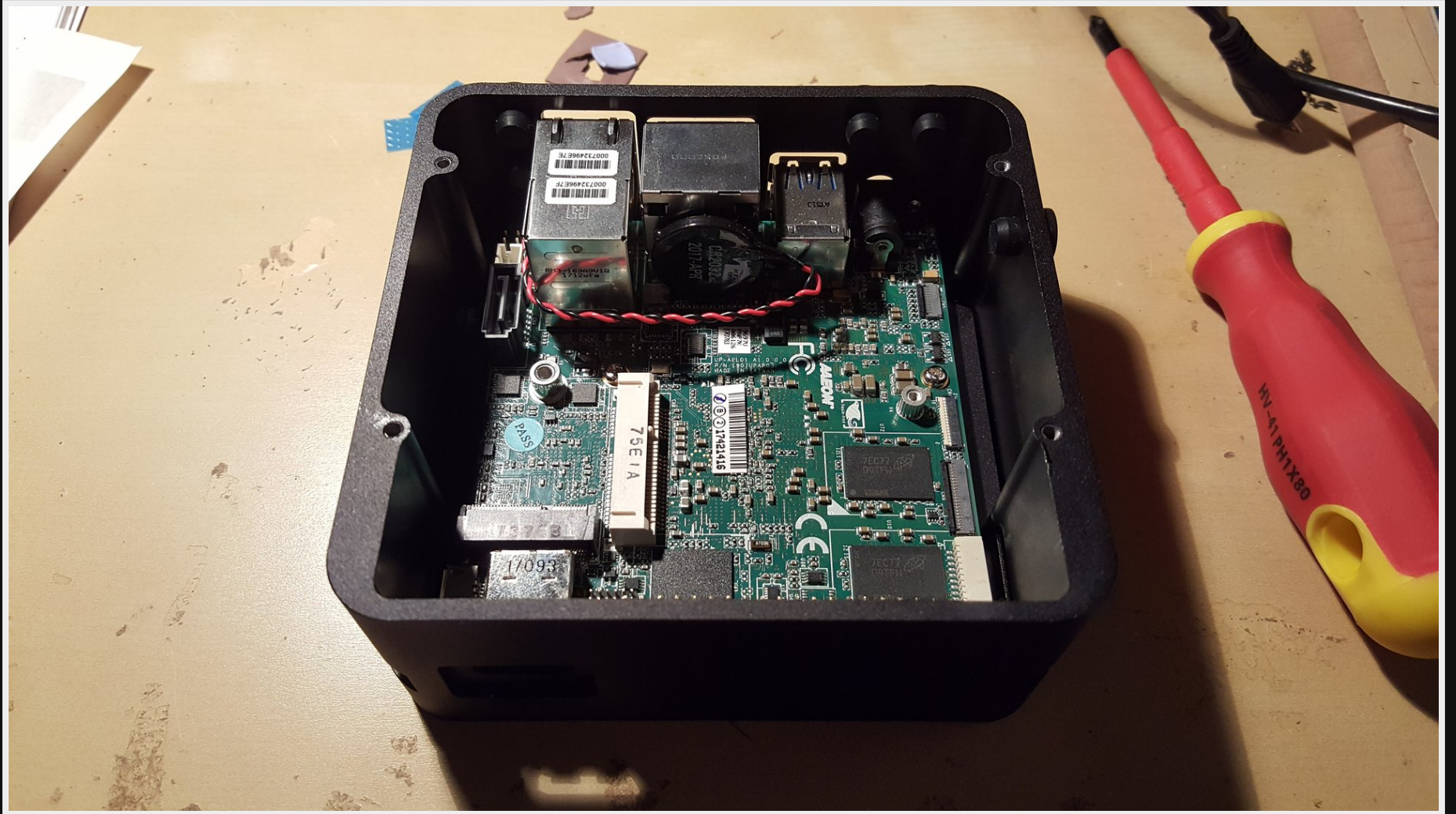
Initial size

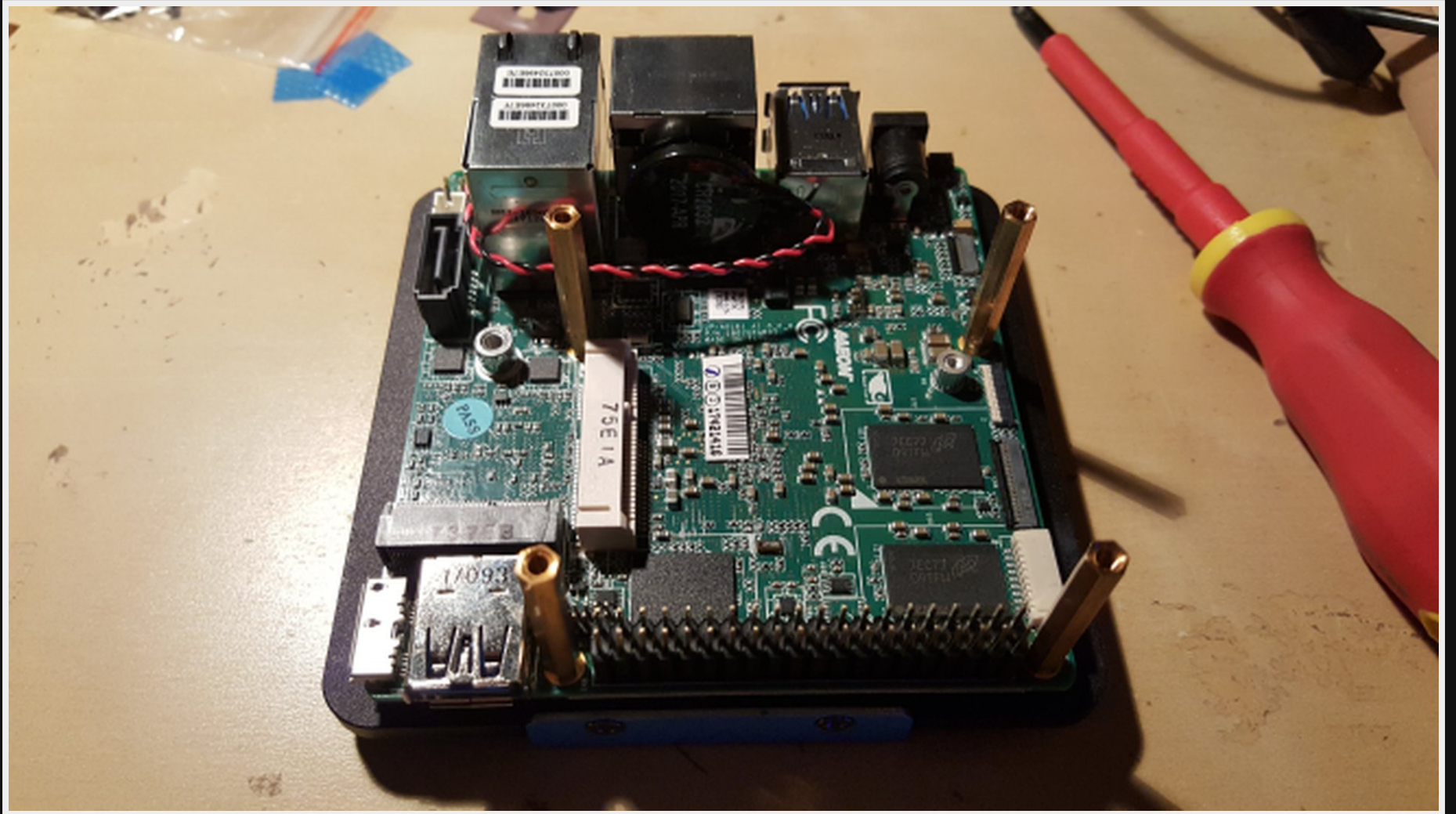
3.3GB used

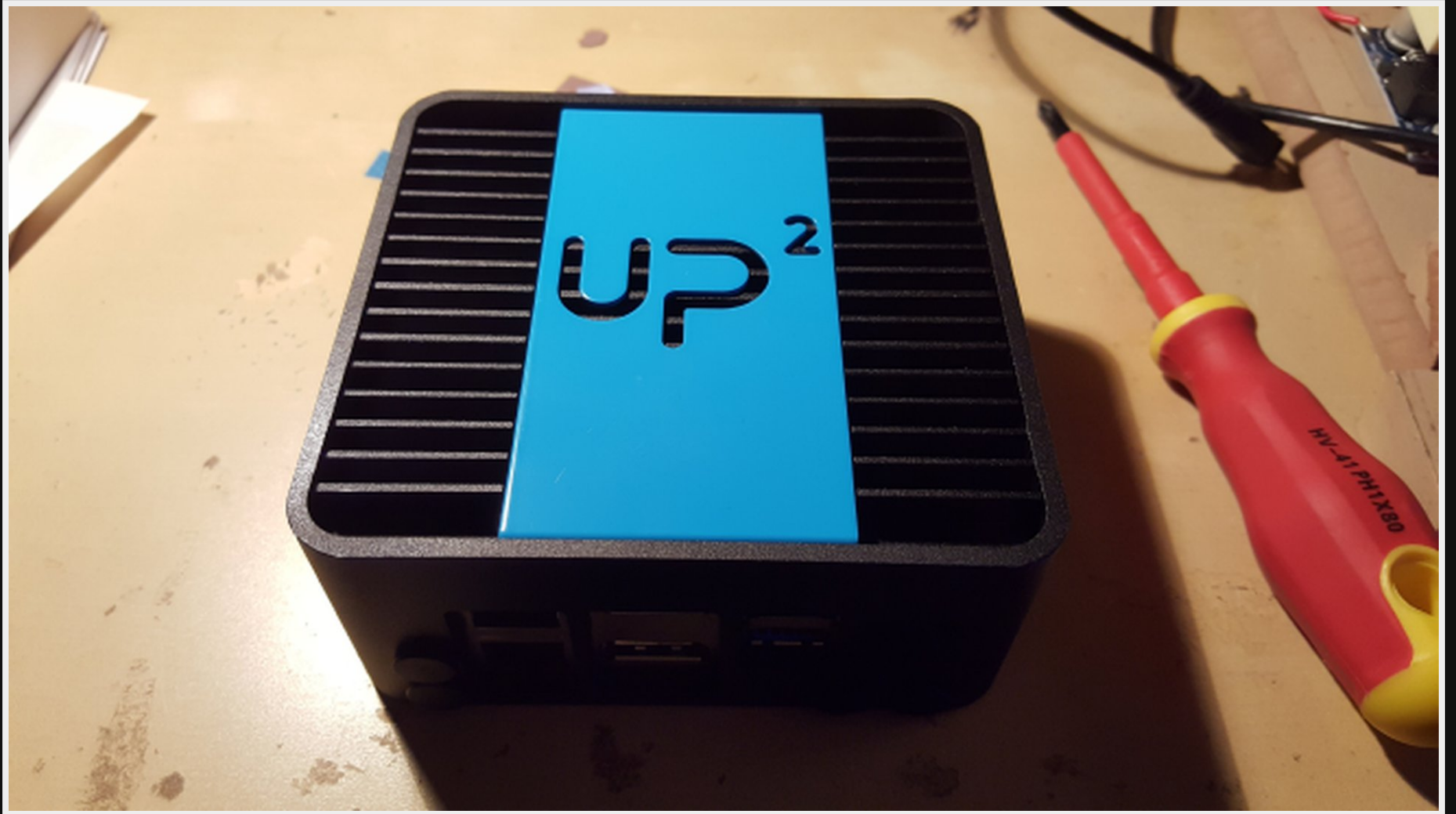
Upgrading BIOS

- Pretty easy
- Write BIOS files to a FAT32
- Hit F7 during boot and boot into EFI shell
- Run a script
- After update a password is required for advanced options

Installing Case







Installation

- Download image & dd to USB

```
sudo dd bs=4M if=/path/to/ubilinux.iso of=/dev/sdX status=progre
```

- Boot USB, this will **WIPE all data from eMMC**
- Installation was text based, quick and easy

Performance

Mem used on boot	350MB
eMMC Read (bonnie++)	238MB/s
eMMC Write (bonnie++)	156MB/s
Ethernet transfer	102MB/s

Power

Old media center

Specs: i7-2700k, 20GB RAM, 4 x HDs, 970GTX
Nvidia.

Idle power (in GUI)	162.5W
Heavy Use	257W

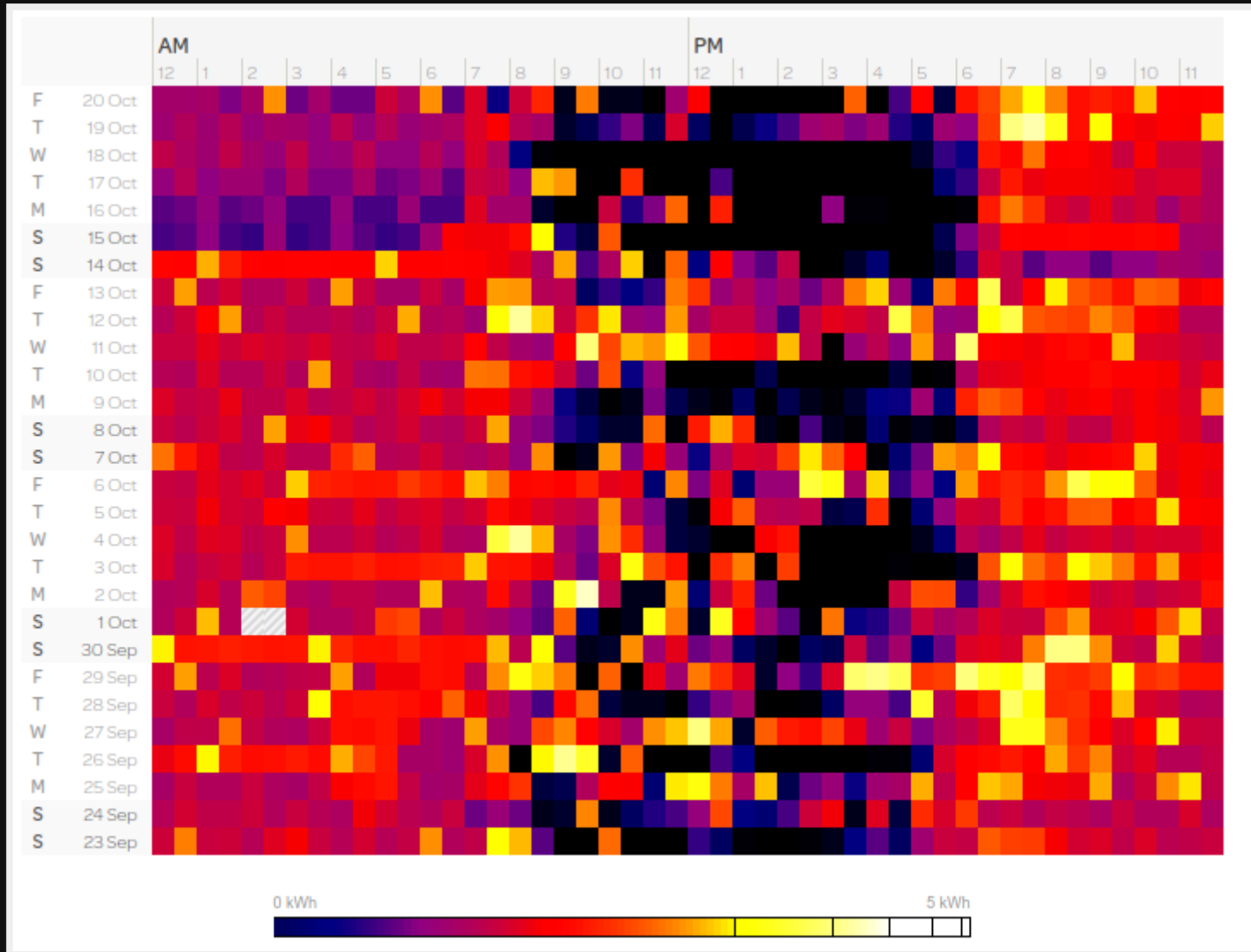
New media center

Idle power (in GUI)	3.9W
---------------------	------

Playing youtube	8W
-----------------	----

Heavy Use	12W
-----------	-----

Power usage



Issues

Video Tearing

Put the following into `/etc/X11/xorg.conf` and
reboot

```
Section "Device"  
    Identifier "Intel Graphics"  
    Driver "intel"  
    Option "TearFree" "true"  
EndSection
```

Frozen GUI (once)

Error;

```
[32344.796818] drm/i915: Resetting chip after gpu hang  
[32344.800711] BUG: unable to handle kernel NULL pointer dereference at  
[32344.809593] IP: reset_common_ring+0x8d/0x110 [i915]
```

- Didn't crash the computer, just the GUI
- I think this is an Intel Driver bug for the Intel 505HD driver.

Demo

- booting
- kodi video
- steam

References

- <https://up-community.org/wiki/Ubilinear>
- https://up-community.org/wiki/Bios_Update
- <http://au.mouser.com> - Australia supplier
(udoo & UP squared)

Questions

Email map7777@gmail.com

Twitter [@map7](https://twitter.com/map7)

Github [github: map7](https://github.com/map7)
