

# EeePC Hardware Hacking

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# Inhaltsverzeichnis

## Hardware

- Default Hardware

  - Benchmarks

- The Dimension

  - a Dimension comparison

  - WTF no one can use it?

  - is there a reason to use it?

- reasons

- internal Upgrades

  - well known

  - additional

## How and Where?

- Problems

- Usb-Hub

- TouchPanel

- BT & Flash

- Wires

- Tool Box

## conclusion

# The default Hardware (701)



- ▶ Intel Celeron M 900 MHz 353 ULV 512k processor
- ▶ Intel 910GML (GMA900 onBoard Graphic)
- ▶ 4GB SSD
- ▶ SDHC-Cardreader
- ▶ Atheros (Lan; Wlan)
- ▶ Battery 5200 mAh
- ▶ Webcam

# The speed of the default Hardware (701)

## MEMtest

```
MEMTEST86 v1.79
-----
CPU: 0000:00:02.0 Intel(R) Core(TM) i7-3540M CPU @ 2.70GHz
CPU Cache: 512K 22/20MB%
CPU Cache: 512K 34/4MB%
Memory: 28.99M 29/4MB%
Pattern: 2B3B2B2B
Chipset: Intel 1915/9/12 (ECC: Disabled) - FS# : 78 MHz - Type : DDR 11
Settings: 80M : 105 MHz (DDR10) / DRG : 3-3-3-9 / Single Channel (64 bit)

WallTime  Cache0  ReadMem  MemMap  Cache  ECC  Test  Pass  Errors  ECC  Error
-----
0:02:52  2839M  556K  a829-514  on  off  314  0  0
```

## hdparm

```
tux@eepc:~$ free -m
              total        used        free      shared    buffers   ca
Mem:           2010         459         1558           0           5
-/+ buffers/cache:         186         1822
Swap:           0           0           0

tux@eepc:~$ sudo hdparm -tT /dev/sdc
[sudo] password for tux:

/dev/sdc:
Timing cached reads:   674 MB in  2.90 seconds = 336.82 MB/sec
Timing buffered disk reads:  50 MB in  3.12 seconds = 16.04 MB/sec
tux@eepc:~$ sudo hdparm -tT /dev/sda

/dev/sda:
Timing cached reads:   688 MB in  2.00 seconds = 343.85 MB/sec
Timing buffered disk reads:  78 MB in  3.02 seconds = 25.81 MB/sec
```

# The Dimensions (701)

- ▶ Width: 225mm
- ▶ Depth: 165mm
- ▶ Height: 21mm to 35mm
- ▶ Weight: 920 gramm (without Battery)



## a Dimensions comparison(701)

IBM t43 vs.  
EeePC vs.  
iMac (20")



or against a 24" Samsung  
(DELL Keyboard in Front)

WTF, it is to tiny so no one likes to use it.

no i do :)



let's say it so:  
it's a Ultra Portable.

Ok, you could use it but WHY??

as a 7" Photoviewer

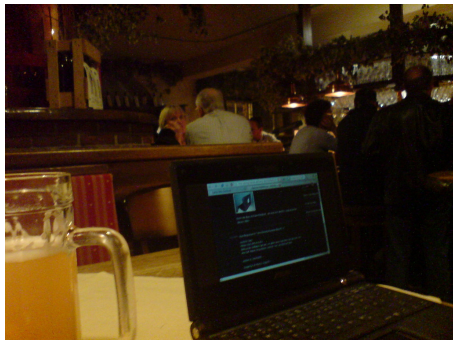


default 3 USB ports!!  
(there some more Air :)  
for USB-HD or -DVD)



And he,

- ▶ Woman likes it!!  
("Soo tiny, so sweet.",  
"It fits in my Handbag",  
...)
- ▶ Last time you ssh'ed in a Pub?
- ▶ and "He, we are Geeks!"  
it is a very nice and  
cheap Toy



## Some well known internal Upgrades



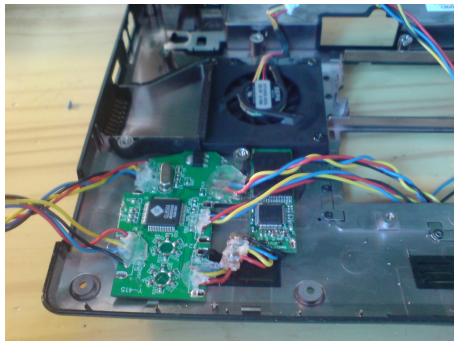
- ▶ USB-Hub (needed)
- ▶ Bluetooth
- ▶ Flash Drive
- ▶ Touch Panel

# Some cool additional internal Upgrades

- ▶ GPS Module
- ▶ 2nd SDHC Card Reader
- ▶ G3/UMTS
- ▶ 802.11n Wlan
- ▶ FM Transmitter/Receiver
- ▶ DVB-T



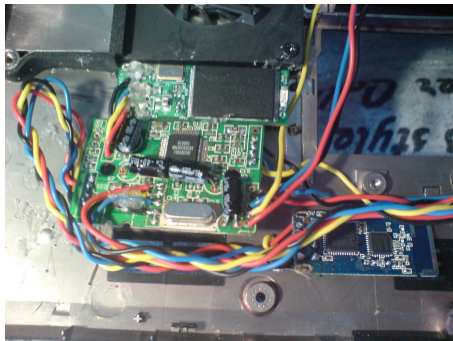
# Problems of adding some Upgrades



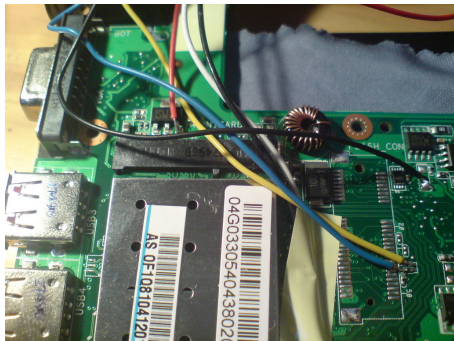
- ▶ Space
- ▶ Connections

# Where to do place a USB-Hub?

Space



# Where to connect a USB-Hub?



## Connections

Red	Vcc 5V
Yellow	D-
Blue	D+
Black	Gnd

# Ok, Now a place for the Touch Panel?

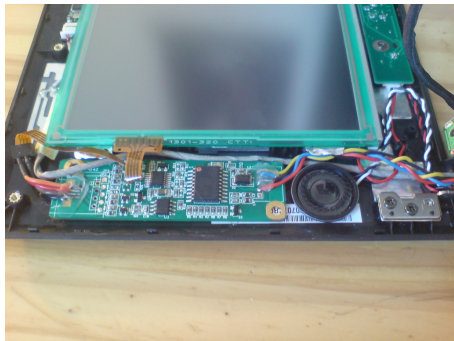
Space

or in other words

”clean up to get Space”.



# The Controller fits perfect



Connections  
with the same colors

Red Vcc 5V

Yellow D-

Blue D+

Black Gnd



# And the Bluetooth and Flash USB-stick?

commonly Bluetooth 2.0 Stick

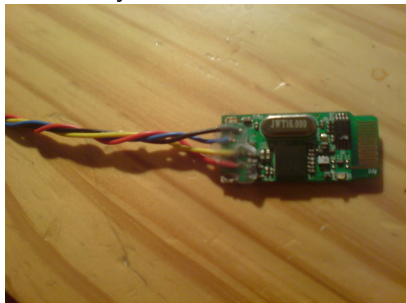


Flash Voyager USB 2.0 -  
USB-Flash

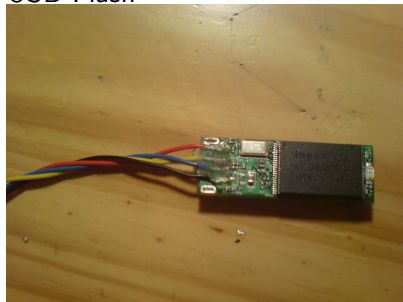


## 2nd And the Bluetooth and Flash USB-stick?

commonly Bluetooth 2.0 Stick

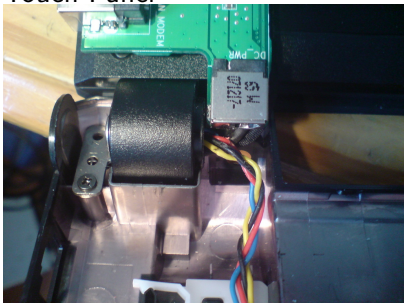


Flash Voyager USB 2.0 -  
USB-Flash

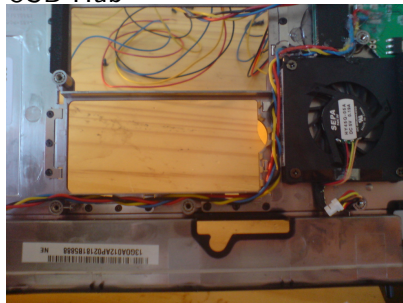


# Back to the World of Chaos

Wires from USB-Hub to the Touch Panel



Cable Trench from and to the USB-Hub



# Needed Tools

same as the tools for a  
[lochraster.org](http://lochraster.org) project



## conclusion of the hacks

- ▶ not Easy
- ▶ expensiver than buy a Notebook with build-in Hardware
- ▶ but if your hacks where successful, you generate a nice toy
- ▶ there are some competitors of the eee on the marked (more Toys?)

## End of this talk ...

- ▶ You can download this Slides  
(Pentabarf or [wiki.Bytes-Delivery.de](http://wiki.Bytes-Delivery.de))
- ▶ Creative Commons Attribution-Share Alike 2.0
- ▶ Time for some Questions
- ▶ Contact me:  
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[risktaker@darmstadt.ccc.de](mailto:risktaker@darmstadt.ccc.de)