

Nintendo Hacking Teatime



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How are you, gentlemen!!



Would you like a cup of tea?

Wii

- No homebrew yet :-)
- But Wiimote useable with computers :-)
- All kinds of applicatios already
 - Mouse control
 - Wiitar
 - Drums
 - Games



DS

- cheap, small and sexy coding platform
 - DS Lite 140€
 - Card adapter ~40€
 - CF | SD card ~10€
 - Total ~ 190€

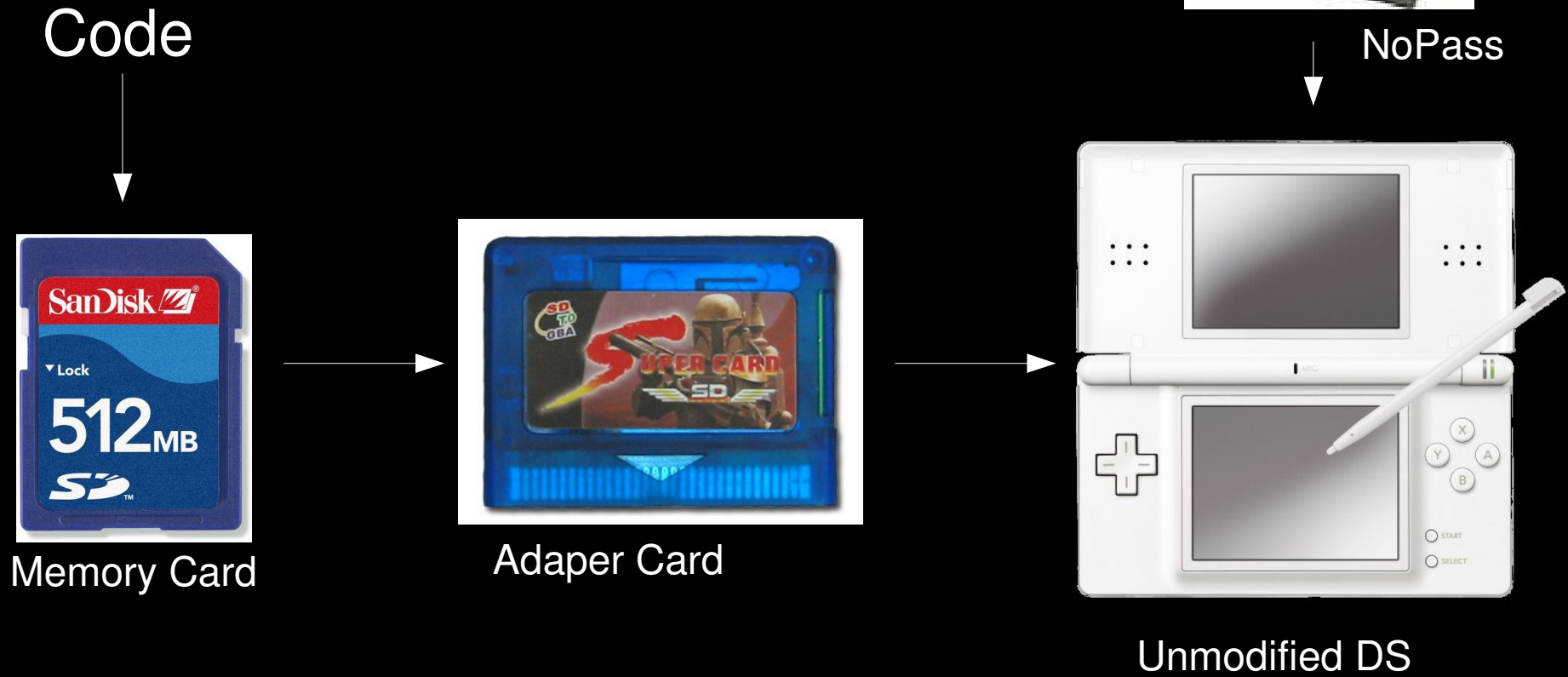


So what do you get for that?

- Two screens
- A Touchscreen
- Wifi (2MBit)
- 2 CPUs
- A Microphone
- Stereo Speakers
- 2D/3D accelerated graphics HW

How can I run code?

- Adapter cards



WMB – Wireless MultiBoot

- Purpose:
 - Downloading demos
 - multiplayer games
- Binaries protected by RSA signature
- Remove signature => Execute arbitrary code!
- But: Limited to Ralink chipset
- List of cards: <http://ralink.rapla.net/>
 - USB sticks do not work



WMB alternative: DSFTP

- Homebrew FTP server running on DS
- Downloads homebrew to card
- Special command for execution
- Access point required
- http://giesler.biz/bjoern/en/sw_dsftp.html

To flash or not to flash?



- Advantages:
 - No more health screen
 - WMB works with homebrew
 - No NoPass required
- Disadvantages:
 - Risky!
 - Warranty?


Homebrew – What's there?

- Media Players (mp3, Video, ...)
- IRC Clients
- VNC
- PDA software
- Instant Messengers
- Music Software <3
- All kinds of games
- Emulators (ScummVM, SNES, Mac+, C64, TI Calcs)

Getting your hands dirty!



Getting your hands dirty!

- Now how can we code on this thing?
- Language: C / C++
 - (also: Lua, Pascal)
-  toolchain for all platforms

devkitPro

- <http://www.devkitpro.org/>
- Toolchain for gaming console homebrew
 - GP32, GP2X, GBA, PSP, GC, DC, DS, ...
- DevkitARM: gcc toolchain for arm
- libnds: Dev library for NDS

libnds / palib

- libnds (part of devkitPro)
 - Set of defines + some useful functions
 - Close to the hardware
 - Full control over hw
 - Even more than official developers have!
- palib (<http://www.palib.info/>)
 - High level
 - Intended for beginners
 - Matter of taste

libfat

- Unix-style (fopen, fread, ...) FS access
- Abstracts from adapter card
- Theory \neq Practice :-)

libdswifi

- DS Wifi HW re'd by a single guy: sgstair
 - (Wifi bounty)
- Full-featured Berkeley-style socket interface
 - TCP
 - UDP
 - ICMP
- Scanning, sending raw packets possible
 - > Lots of potential for fun :-)

My Stuff



- FastTracker II style tracker for the DS
- XM file format
- Composing with stylus
- Record samples with microphone
- Load/Save Songs/Samples to/from card

My Stuff



- Tool for connecting the DS to MIDI software
- > Use the DS as a MIDI instrument / synth
- Server available for OSX/Linux/Windows
- Demo apps
 - DS MIDI Keyboard
 - Kaos DS
 - Pulse DS

References

- DS coding
 - <http://www.dev-scene.com/>
 - <http://TobW.net/dswiki>
 - <http://forum.gbadev.org/>
- My stuff
 - <http://NitroTracker.TobW.net/>
 - <http://DSMIDIWiFi.TobW.net/>
- Me
 - <mailto:me@TobW.net>
 - <http://blog.dev-scene.com/0xtob>

References

- Wii hacking
 - <http://wiibrew.org/>
 - <http://wiire.org/>
 - <http://wiili.org/>
 - <http://wiihacks.blogspot.com/>