

Einstein Platform User's Manual

For Einstein Platform Beta

January 14, 2006

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1 Introduction

Einstein Platform is a way to transform a PDA in a next-generation Newton N2 (MP2x00, eMate 300).

Einstein Platform is the successor of Einstein Emulator and it has been unveiled at the Worldwide Newton Conference 2006: <http://wwnc.newtontalk.net/>

2 Requirements

To run Einstein Platform, you will need:

- an arm-linux PDA with X11, 2.3.3 libc with soft FPU and enough memory.
- a NewtonOS 2.1 ROM
- a compact flash card with at least 40 MB free.
- Einstein Platform requires an MP2x00 US, an MP2x00 D or an eMate 300 ROM image.

Instructions about how to extract the ROM are available in Einstein Emulator's documentation. Einstein Emulator can be used to extract the ROM on MacOS X.

<http://www.kallisys.com/files/newton/Einstein/UserManual-UP2.pdf>

I used a Zaurus SL-5500 (thanks Sylvain) with OpenZaurus (<http://www.openzaurus.org/>) 3.5.4-rc ROM and the following packages:

- libstdc++6_3.4.3-r10_arm.ipk
- libts-0.0-0_0.0cvs20050403-r18_arm.ipk
- libx11-6_6.2.1-r2_arm.ipk
- libxau0_0.1.1-r1_arm.ipk
- libxcalibrate0_0.0cvs20050403-r0_arm.ipk
- libxdmcp0_0.1.3-r1_arm.ipk
- libxext6_0.0cvs20050222-r1_arm.ipk
- libxfont1_1.4.2-r2_arm.ipk
- libxft2_2.1.6-r1_arm.ipk
- libxrandr2_1.0.2-r1_arm.ipk
- libxrender1_0.8.4-r1_arm.ipk
- tslib-conf_0.0cvs20050403-r18_collie.ipk
- ttf-bitstream-vera_1.10-r2_all.ipk
- xserver-kdrive-fbdev_20050207-r0_arm.ipk
- xtscal_0.6.3-r0_arm.ipk

3 Starting Einstein Platform

- Name the ROM dump either: 717006 (MP2x00 US) 737041 (MP2100 D) 747129 (eMate 300)
- Put the file on the compact flash, next to Einstein.rex file.
- Run the X server. Xfbdev on the Zaurus needs to be run at 270 degrees:
`Xfbdev -screen 320x240@270 -dpi 100 &`
- Run the X server and then Einstein Platform with:
`/mnt/cf/einstein --machine=XXXX --width=YYYY --height=ZZZZ /mnt/cf`

where XXXX should be either: 717006 (for a MP2x00 US) 737041 (for a MP2100 D) 747129 (for an eMate 300)

and YYYY and ZZZZ should be set properly.

3.1 Options

`./einstein --help` will print some help about the options. The options are summarized below:

`--audio or -a`

Select the audio driver. Choose null to disable sound, sound doesn't work yet.

`--screen or -s`

This option is useless now as the only available screen driver is x11. Framebuffer support may be added later.

`--width`

Set the width of the screen (in portrait mode). Default is 320.

`--height`

Set the height of the screen (in portrait mode). Default is 480.

`--log or -l`

Set the log file. Default is to not log. This option is incompatible with `--monitor`.

`--restore or -r`

This option is unimplemented.

`--machine or -m`

Set the machine. Choose 717006 for a MP2x00 US, 737041 for a MP2100D or 747129 for an eMate 300.

`--machine` option can be omitted with a 717006 ROM file.

`--monitor`

Run in monitor mode.

`--ram`

Set the RAM size in 64 KB increment. 1 will mean 64 KB of RAM. 64 is the default setting (4 MB). The maximum is 255 (nearly 16 MB).

3.2 Commands

Using the cli flavor, you will be provided with a prompt. Typing help will provide a small help about the available commands. This only works if you can access the console, of course.

4 Known problems

- Serial ports are not emulated.
- PCMCIA cards are not emulated. The sockets aren't entirely emulated yet.
- The sound volume is reported to be settable by software but the changes are ignored (except when the sound is off on the Newton).
- Sound input isn't emulated.
- An error occurs when trying to install system patches.
- Keys are not translated properly (the keyboard is useless).
- Rotation doesn't work well.
- It is awfully slow.

Please drop me a line (<mailto:pguyot@kallisys.net>) if you experience a problem which is not in this list.

5 Changes History

1/14/06 Einstein Platform Beta

- Initial release.

6 License

Einstein Platform is copyright 2005-2006 by Paul Guyot. It is provided as is, without any warranty of any kind.

Einstein Platform includes portaudio v19 (from CVS).

```
/*
 * PortAudio Portable Real-Time Audio Library
 * Latest Version at: http://www.portaudio.com/
 *
 * Copyright (c) 1999-2000 Phil Burk and Ross Bencina
 *
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 * WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
 */
```

Einstein Platform also includes NetBSD arm disassembler.

```
// $NetBSD: disassem.c,v 1.14 2003/03/27 16:58:36 mycroft Exp $
//
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// Copyright (c) 1996 Brini.
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```