

[Forum-64](#) » [Neue Hardware](#) » [Massenspeicher](#) » [MMC2IEC](#) »

## Help with MMC2IEC and SD2IEC

*Vikt0r*

*Tuesday, February 24th 2009, 12:03pm*

### **Help with MMC2IEC and SD2IEC**

---

Dear forum members!

Firs of all, I apologize for using English - yes, I've noticed it's a German forum (nevertheless I sincerely hope most of German people have no problems with English) but I wasn't able to find any forum rules restricting usage of English... anyway I don't speak German...

After finding the MMC2IEC project on the net (immediately ordered the atmega32), and later then the SD2IEC (had to order an atmega644) - trying to find information I completely got lost in translations 

So, I would ask for help  in the following:

I have an atmega32 TQFP44 and an Atmega644 DIP40, 2 SD-card holders and want to utilize BOTH, getting the best out of each, so please help me to:

1. Build the best device using the Atmega32 (latest HW, latest firmware, PCB layout) - anything possible with this controller - be it SD2IEC or MMC2IEC device - **please point me to the latest, most actual build of the device using this chip.** Basically what is the best floppy emulation device for C64 using the 32'atmega?
2. Build the best device using the Atmega644 in DIP - the same applies - **please guide me to the most actual build info for the device using this chip.**

Running ahead of statements "once you build the latest SD2IEC, you don't need the MMC2IEC" - yes, I want to build both, one of these will serve as a gift to a friend...

Sincere thanks in advance,  
Viktor

*AntaBaka*



*Tuesday, February 24th 2009, 12:40pm*

### **RE: Help with MMC2IEC and SD2IEC**

---

First of all you have to differentiate between the Hardware and the Software.

**Let's start with the hardware.**

#### **Quoted from "Vikt0r"**

1. Build the best device using the Atmega32 (latest HW, latest firmware, PCB layout) - anything possible with this controller - be it SD2IEC or MMC2IEC device - **please point me to the latest,**

**most actual build of the device using this chip.** Basically what is the best floppy emulation device for C64 using the 32'atmega?

That would most likely be the MMC2IEC 1.6 by Shadowolf

Schema (SCH), Plan (PDF) + Layout (BRD - old!) can be downloaded here: [Link](#).

A newer Layout (BRD) is here: [Link](#).

### *Quoted*

2. Build the best device using the Atmega644 in DIP - the same applies - **please guide me to the most actual build info for the device using this chip.**

That would be the sd2iec v1.2 by Shadowolf. However, currently there does not exist a layout for DIL - the sd2iec v1.2 hardware uses the TQFP 644. You can however build the MMC2IEC in the LarsP version and there is a current layout around: [Link](#). In the 644p Version you can use a Bootloader, so you dont have to reflash the Chip everytime with a new firmware using an ISP.

### Now the Software

The software is now called "sd2iec" and is maintained by Unseen.

The latest firmware is always here: [Link](#).

The last firmware version usable in an **ATMega32** is the v0.6.6. The version is so large, that you can not use a bootloader with it. For the MMC2IEC v1.6 as described above you need the "sd2iec-0.6.6-sw1-m32.zip" version (sw1 = Shadowolf MMC2IEC, m32 = ATMega32).

The last firmware version for the **ATMega644** is the v0.7.3 respectively the v0.8.0pre. Depending on the device you built (Shadowolf or LarsP layout) you need to use the correct firmware version (\*\_sw2-m644p or \*\_larsp-m644p).

The Bootloader software is also found in the repository by Unseen mentioned above.

### PeterSieg



*Tuesday, February 24th 2009, 12:47pm*

Hi. A lot of questions.. not sure if I can answer all.. but as a start.. I can try.

1. I know two different layouts of the pin's used for different functions:

- A: the original Lars Pontoppidan layout
- B: the shadowolf layout

This is just strictly layout of schematics, pinouts and pcb's - not firmware..

2. I also know 2 different firmwares

- A: the original mmc2iec from Lars Pontoppidan - this runs ONLY on layout of type 1-A above. Latest

version is 0.8?

- B: the newer firmware from Unseen - called sd2iec. this is available for BOTH type layouts and you can find it here:

<http://www.sd2iec.de>

This firmware as I said is available for LarsP layout (check lp in filename) OR shadowwolf layout (check sw in filename).

To make it more complicated ;- ) you can use a bootloader or flash the firmware directly..

Due to limited space in the ATmega32, this firmware is available only to version 0.66 for this avr. But that still has 90-95% of most used functions!

Newer functions will likely appear in firmware for 644 first/only. Here the highest version is 0.8pre..

---

The device itself can be build on through hole test pcb's.. a lot of information is on Antabakas web site:

<http://www.pitsch.de/stuff/>

I myself have just made in eagle layout of the Lars P. layout (type 1-A above). More information can be found here:

<http://petersieg.cwsurf.de/index.php?slu...iec-1541-ersatz>

So the decisions you have to make is:

Which layout to use (lp or sw)?

Then based on that, choose the appropriate layout.

Then manual build on testboard or have pcb made somewhere.

Then which firmware - if that option is available.. (mmc2iec is ONLY for LarsP; sd2iec is available for BOTH)

Then with or without bootloader..

Hope that helps..

My decisions was:

LarsP layout. Gives option for both firmwares

ATmega32 with sd2iec 0.66 (32 is cheaper than 644.. and most functions are still also in 32/0.66 available).

(but using 644 with 0.8pre.. and with or without boot loader is also useable with same layout..)

Peter

**Unseen**



*Tuesday, February 24th 2009, 12:59pm*

**Quoted from "AntaBaka"**

The latest firmware is always here: [Link](#).

Or just use <http://www.sd2iec.de> which points to the same directory...

***Quoted***

The last firmware version usable in an **ATMega32** is the v0.6.6. The version is so large, that you can not use a bootloader with it.

No, that version is still bootloader-compatible.

***Quoted from "PeterSieg"***

- A: the original mmc2iec from Lars Pontoppidan - this runs ONLY on layout of type 1-A above

There is a version somewhere on the forum that has been patched to run on Shadowolf's MMC2IEC boards.

***AntaBaka***



Tuesday, February 24th 2009, 1:15pm

***Quoted from "Unseen"***

***Quoted from "AntaBaka"***

The last firmware version usable in an **ATMega32** is the v0.6.6. The version is so large, that you can not use a bootloader with it.

No, that version is still bootloader-compatible.

Is it? I thought it was growing too large.

Well, even better then - means you could cram more fun stuff in 😊

EDIT: Just read the old thread again. You found some compiler option that made it possible - apparently my brain left that thread before that message...

***Quoted***

***Quoted from "PeterSieg"***

- A: the original mmc2iec from Lars Pontoppidan - this runs ONLY on layout of type 1-A above

There is a version somewhere on the forum that has been patched to run on Shadowolf's MMC2IEC boards.

Yep, that be here: [Link](#) (v0.9 including an old bootloader - an updated one is here: [link](#)).

Almost all those links can be found here: [Link](#) (Sammelpost in german).

**Vikt0r**

*Tuesday, February 24th 2009, 1:26pm*

Wow!! Thanks a lot, guys!

Already a bunch of info to study through.

Extremely grateful for quick and exhausting replies!

The layouts are the least important stuff as soon as I have enough experience to design my own in case a particular one isn't available. Still helpful though.

What I needed to get clearance in - the correct schematics and the appropriate software to use with particular schematic... the target is to get maximum functionality in each case.

**Vikt0r**

*Tuesday, February 24th 2009, 2:18pm*

Hmmm... now I'm a bit(?) confused...

SD2IEC by LarsP??? I thought it's MMC2IEC...

Simplifying the whole stuff, at FIRST I plan to build a device around mega644, but in DIL packaging... Any constraints?

The reason - takes one evening to build on a breadboard, and DIL is the version of controller I have. Hope there is no difference between the TQFP and DIL mega644 (apart from pin layout of course)?

**AntaBaka**

✳ ✳ ✳

*Tuesday, February 24th 2009, 4:39pm*

**Quoted from "Vikt0r"**

Hmmm... now I'm a bit(?) confused...

SD2IEC by LarsP??? I thought it's MMC2IEC...

Yup.

Hardware <-> Software again 😊

1. LarsP Hardware = MMC2IEC
2. Shadowwolf Hardware v1 = MMC2IEC also, but with a few ports slightly differently set
3. Shadowwolf Hardware v2 = SD2IEC

Type 1 and 2 can be built with either an ATmega32 or an ATmega644P. The only differences are in the functionality available in the firmware. Type 3 should be built with a 644P.

There are three firmwares:

- A. LarsP original Firmware - called mmc2iec (let's use lowercase for the firmware and uppercase for the hardware)
- B. Shadowwolf Firmware - also called mmc2iec (it was LarsP changed to accomodate the port changes etc)
- C. Unseen's sd2iec - this is still being developed.

Disregard A and B - they are outdated.

The last sd2iec firmware for the ATMega32 ist the sd2iec v0.6.6, latest version for the ATMega644P is currently the v0.8.0pre.

The confusing part may be that you can use the sd2iec firmware on the LarsP MMC2IEC hardware. The LarsP Layout actually has been enhanced as well - see Peter Siegs thread about this (I linked it above as well). The main difference between te LarsP and the Shadowwolf Layout are still 'just' a few ports that are set differently. So what we call the LarsP Layout today is not actually the hardware that LarsP built - it has beenenhanced (oszillator, additional switches, different power regulation between ATMega and SD-Slot).

***Quoted***

Simplifying the whole stuff, at FIRST I plan to build a device around mega644, but in DIL packaging... Any constraints? The reason - takes one evening to build on a breadboard, and DIL is the version of controller I have. Hope there is no difference between the TQFP and DIL mega644 (apart from pin layout of course)?

There isn't.

[Forum-64](#) » [Neue Hardware](#) » [Massenspeicher](#) » [MMC2IEC](#) »

Forum Software: **Burning Board® 3.1.3**, developed by **WoltLab® GmbH**

