Booting with MicroSD/eMMC

Boot order within MicroSD and eMMC

ODROID-C1+ and **ODROID-C1** can be booted by MicroSD or eMMC attached its slot on the board if they have proper boot loader. By default, **eMMC** have more high priority than **MicroSD**, bu you can switch the boot order if you short **J1** on the board so that **MicroSD** will have high priority than **eMMC**. When the board is powered, the board will start to load boot loader from high priority card and continue to boot if proper boot loader is loaded. If the boot loader is not existed, the board will switch to another boot card to load the boot loader.

ODROID-C1+

ODROID-C1+ is improved to support various vendor's MicroSD cards and much stable than **ODROID-C1**. Unfortunately such features are not able to be supported in **ODROID-C1** since these are resolved by H/W changes.

What are improved?

- Supporting various vendor's MicroSD, we've tested with multiple vendors' cards with **ODROID-C1+** and success to boot without failure.
- Rebooting failure due to Linux MMC driver fault with particular/most vendors MicroSD except SanDisk.
- UHS-I mode can be supported even in reboot therefore you don't have to add **disableuhs** option in [b]boot.ini[/b], this will give you better performance as well.

ODROID-C1

ODROID-C1 is not able to boot immediately with some of MicroSD cards, here are the memory cards we have tested. But still you can use all kind of memory cards as a storage.

Note that Sandisk Class 10 or UHS-1 cards are working well with ODROID-C1.

Good for Boot

- SanDisk microSDHC Memory Card (Product page)
- SanDisk Ultra microSDHC & microSDXC UHS-I Memory Card (Product page)
- Toshiba Exceria Memory Card (Product page)
- Various MicroSD by unknown vendors
- Samsung SDHC EVO Memory Card (Product page)

But some people reported the EVO SDXC micro-SD SDis NOT stable. We think some batches might

cause the incompatibility issue.

Slow Start Up Memory Cards

These cards are not able boot immediately on **ODROID-C1**, instead take about 30 seconds to starting the boot up process. But once booting processing is done and O/S is running, it is just good as to use normal storage.

- Transcend microSDXC Class 10 UHS-I 300x (Premium) ([Product page](#))
- Transcend microSDHC Class 10 (Premium) ([Product page](#))
- Transcend microSDHC Class 6 (Standard) ([Product page](#))
- Samsung microSD Pro Class 10 ([Product page](#))
- Samsung microSDHC EVO Class 10 ([Product page](#))
- Kingston microSD Class 4 ([Product page](#))
- PNY Turbo Performance Class 10 ([Product page](#))

> Class 2/4/6 MicroSD are not tested with ODROID-C1, therefore ODROID-C1 would not boot properly such MicroSD cards. We strongly recommend to use Class 10/UHS-I MicroSD for best performance, and SanDisk's MicroSD for zero compatible issue at the moment.

MicroSD Issue Notes

What is "Slow Start Up Memory Cards"

The MicroSD listed in the section **Slow Start Up Memory Cards** are not able to boot on **ODROID-C1** immediately since AC plug is inserted. This is caused the failure while loading bootloader by SoC's IROM. With these cards, **ODROID-C1** try to fetch the bootloader from MicroSD till success about 20-30 seconds or never in worst case. So Hardkernel team is looking into the issue on both H/W and S/W.

Rebooting failure

- Tip: If your board doesn't boot (after say 30 seconds). Connect the MicroSD or eMMC on your computer and edit the boot.ini file. There's a option to disable UHS cards. Comment that line.

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