FIRMWARE 2.00 RELEASE NOTES

OVERVIEW

This new firmware is the biggest news to come out since 2011 when the 64drive was released. It's a complete ground-up rebuild of what the firmware should do, completely replacing all old code.

Not only have some outstanding issues been fixed, but a couple major features have been added.

MAJOR NEW FEATURES

- **Automatic save writeback**
  The revamped design writes save data back immediately onto your memory card.
  You don't have to press RESET to keep from losing your progress anymore.
  Since the changes are saved in realtime, not upon the next powerup, you don't have to worry about mixing up memory cards or losing progress.

- **Loading speeds over 2.5 times faster with SD**
  Updated SD controller loads images at up to 21 megabytes per second, on SDHC or larger cards. CompactFlash speeds are the same as before – 8 megabytes per second.

- **Brand new PC-side USB tools**
  There is a new loader tool for 2.xx firmwares, with a new protocol. It's possible to control more aspects of operation from the tool, and you can load/dump data while the N64 is running. Also, upgrading to future firmwares will be much more reliable and convenient.

FULL CHANGES

1. New Save Writeback (SWB) module flushes changes in savedata to memory card in real time. All save types are supported.

2. Revamped SD controller supports 50MHz and slower modes, more than doubling access speeds. Writing long runs of multiple blocks is now supported and utilized by the SWB, no longer causing potential data loss on some SD cards.

3. CompactFlash controller works at full speed on more cards. Microdrives may no longer work.

4. USB module has full access to all save data slots and cartridge ROM. It can now load/dump at the same time a game is executing with no data loss. Firmware and bootloader upgrades come in a new format that should eliminate any chance of bricking. Transfer speeds are the same as before.

5. Removed CI command "Single sector to RAM", use the Multiple command with a length of 1.

6. Fixed support for Pokémon Stadium 2 FlashRAM saving. Pokedex previews are now properly animated.

7. Increased timing margins on Flash/SRAM emulation.

8. Updated EEPROM emulation so that Donkey Kong 64 no longer experiences savedata loss.

9. Upgrading to other 2.xx firmware with just a N64 is now possible. USB is also still supported.

HOW TO UPGRADE

You can either use the **Easy Upgrader** program (Windows only), or upgrade yourself via the open-source command- line **USB loader tool**.

Since you will be upgrading from the 1.xx versions, you must use the associated 1.xx-specific USB tools for this operation.

1. Plug the 64drive into your computer if you haven't ever done so before. The drivers should load, if not, download them from the support page.
2. If using the Easy Upgrader, just run the program.

    However, the commandline tool requires some finesse:
3. Disconnect the USB cable.
4. Prepare the files and type (but don't press Enter): "64drive_usb –f 64drive_firm_200.bin"
5. Plug in the USB cable. An internal 10 second countdown has begun, which is the time window you have for starting the upgrade.
6. Press Enter to run the command and answer Y when it prompts. The entire process should take under a minute.

Once the new firmware has been loaded, you must use the newer USB tools designed for the 2.00 features. It'll now be possible to upgrade to versions 2.01 and beyond without using USB, just by using the N64 and memory card.

POTENTIAL PROBLEMS

While there has been testing through a beta program, there are still some issues that could crop up.

Let me know at the support address if you experience anything.

1. **CompactFlash incompatibilities**
    As CF is a very old standard, implementations differ and there may be new problems on some cards with the new firmware.
2. **SD problems**
    Since the controller tries to use the new speed on all 4GB and larger cards, it's possible that some cards won't support the new mode. It hasn't happened yet but could.
3. **Can't use the old USB tools**
    Since the protocol changed, you should only use the old tools for upgrading to 2.00. After that, the old loader will be completely incompatible.
4. **Possibility of data loss with save writeback**
    While it's been extensively tested, it's still possible, though it should be much less likely than it was before. If it does occur, let me know the exact details so I can figure out a resolution.

END OF DOCUMENT

REVISION INFORMATION

November 22, 2014   First internal draft

December 16, 2014   Current internal revision

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