

Release notes for ZX Touch firmware v1.10

Welcome to Firmware Upgrade v1.10 for the ZX Touch gaming console. At its core, the ZX Touch embodies a living product philosophy, dedicated to continual enhancements and the integration of new features. This update prioritizes stability, performance, and user experience, addressing known bugs, improving existing features, and introducing exciting new functionalities.

The console's firmware can be upgraded through various methods, all detailed in the user manual. The upgrade process utilizes the standalone FUT application integrated into the console. The independence of the FUT application guarantees the ability to re-upgrade, even in cases where the ZXT firmware is deleted, partially programmed, defective, or encountering similar issues.

IMPORTANT NOTE:

We recently discovered that the FUT v.12 application has a bug that can be easily avoided, so please read the following instructions carefully.

As the User manual state, to enter FUT, you need to hold all eight d-pad buttons and turn on the console. Turning on the console requires a short press of the power button. As you already know, a slightly longer press of the power button turns off the console.

If, when entering FUT, instead of a short press, you hold down the power button for a little longer, FUT is displayed, but it is already starting to shut down its processes. If that's when you release the power button, FUT remains active even though it should shut down. Thus, a partially functional FUT during the upgrade process suddenly shuts down the console.

This can be avoided by briefly pressing the power button to turn on the console when entering FUT. As soon as the text printed by the BIOS is displayed on the screen, and before FUT appears, you should release the power button.

CHANGE LOG:

1. Improvement of beeper sound:

In the initial version of the firmware, there were issues concerning the clarity of the beeper sound. While this wasn't immediately noticeable in most cases, certain engines experienced unwanted background noise. Specifically, some engines utilize Pulse Width Modulation (PWM), employing a carrier frequency exceeding the human audible range, typically above 20kHz. By modulating the duty cycle of this carrier frequency, the production of sound waves beyond simple square waves becomes possible.

However, with the initial firmware of the ZXT, the beeper scanning occurred every 32 clock cycles. Consequently, the carrier frequency was not stable, resulting in the perception of background noise. To rectify this issue, firmware v1.10 now enables beeper scanning every 4 clock cycles, aligning with the execution time of a single Z80 instruction. This enhancement guarantees a uniform and quality beeper sound experience.

2. Fixed issue: Some games lacked sample reproduction.

To enable sample playback through the AY chip, which wasn't its original purpose, clever programmers harnessed the chip's unique behavior. The AY chip is designed to produce three square waves and noise, each with adjustable volume levels.

If the oscillators are stopped and not emitting any sound, by adjusting the volume according to the sample enables its reproduction.

In this particular scenario, the ZXT would accurately reproduce the sample. An illustrative example of this is found in the game „Robocop”.

However, this can also be accomplished if the oscillators are not stopped; instead, by activating specific bits in a dedicated register designed to mute the signal. In this scenario, the ZXT would mute all channels, resulting in silence during sample playback in some games.

3. Pages of 200 files and files alphabetical sort

If there are more than 200 files in a single folder, the files should be displayed in pages containing up to 200 files each. Initially, this feature only functioned for SNA files. Specifically, the total number of pages was determined by dividing the total number of SNA files by 200. TAP and TRD files were not included in this count, often resulting in folders with over 200 files displaying only one page without any page navigation buttons.

However, in the current firmware, this issue has been addressed, and there is no longer a limitation on the number of files per folder.

Moreover, in the initial firmware, pages of 200 files were organized based on the order of saving to the card, with each page then sorted individually. In the updated firmware, all files are first sorted alphabetically and then divided into pages accordingly.

4. Faster scroll speed of file list & Scrollbar button added

Since the scroll list can contain up to 200 files, navigating to the end of the list requires too many touches. In response, we've increased the scrolling speed. Additionally, a draggable button has been added next to the scrollbar, allowing for swift positioning to any desired location, facilitating rapid access to requested files.

5. Navigation using joystick or d-pad

Scrolling and navigating through pages, whether it pertains to files or the dashboard, can now be accomplished using either the joystick or the left d-pad. However, item selection still relies on the touch screen.

6. The scroll position of the previous folder is retained

While navigating through folders on the SD card, previously, ZXT would always start at the beginning of the parent folder upon return. Now, it maintains the previous scrolling position, ensuring faster and more pleasant navigation.

7. Bug fix: Displaying filenames longer than 50 characters

Previously, when displaying files with names longer than 50 characters, the file name would appear confused and incorrect. Now, if the file name exceeds the available space, the excess characters fade to invisibility.

8. Bug fix: Story button remains visible

When accessing the Info screen of the built-in game "The Haunting..", the Story button appears, allowing users to view a brief narrative related to the game. However, upon exiting the Info screen, the Story button would persistently remain visible and active on the screen. This issue has been resolved in this version.

9. Bug fix: MSx & MRx buttons active when they shouldn't be

The MSx and MRx buttons, used to save and load positions in the game, are in some cases active even when they are invisible. This is intentional when a game is running on the screen. However, these buttons were active even when they weren't supposed to be, particularly when the Games Browser was on the screen, displaying the contents of the SD card. As some of these buttons are located near the back button of the Games Browser, they were unintentionally pressed. This issue has been fixed in this firmware version.

10. Fixing ULAplus issues

With the initial version of the firmware, activating and deactivating the ULAplus option did not consistently function as intended. While playing a ULAplus-supported game, toggling the option in settings and then exiting by pressing the settings button correctly activated or deactivated the option. However, exiting settings via the Games Browser and returning to the game resulted in the option being displayed in settings but not activated in the emulator.

Additionally, the initial firmware did not reset the ULAplus registers to default settings when starting a game, leading to incorrect colors in some games initially, as they changed the palette only after the introduction part. This intentional omission aimed to facilitate palette loading via TAP files before starting games, which is very useful.

To retain the ability for users to modify the palette before starting the game, this firmware now resets the registers when starting a game only if the ULAplus option was previously enabled. Thus, users wishing to adjust the palette before launching the game must first disable the ULAplus option, load the TAP file to modify the palette, and then start the game. After launching the game, the ULAplus option can be re-enabled. This solution provides users with both reset registers at start and manipulation with palette before starting the game.

Reading available ULAplus registers was not supported previously, causing issues with some games that attempted to detect the presence of ULAplus. This functionality has now been implemented.

11. Back button in Settings

The ZXT GUI is designed so that the Settings and Game Browser buttons are toggle-type, mutually excluding each other. However, in the initial level of settings, the back button remained visible without any functionality upon pressing. The expected exit method was to press the settings button again. Now, the back button in the initial settings level has been assigned its function, allowing users to return to their previous location, whether it be the emulation screen or Game Browser.

12. Floating bus

Although floating bus emulation already existed, some changes were made to it. Some games that synchronize screen rendering did not work well. An example is the game „Castle escape” where the sprites blinked occasionally.

13. Border rendering

During 48k emulation, there was a slight shift of one line in the split border effect. This has been corrected; however, there are still some issues with the border. In the game „Aqua plane”, there is currently an unexplained shift of a few lines, which does not occur in other games or demos. This will be addressed in future firmware updates.

14. Custom ROMs

In this firmware, built-in games can now be launched with the Custom ROMs option. Previously, they always booted with the SE Basic ROM regardless of the option's status.

15. Loading the configuration by starting the game

The ZXT configuration can be saved individually for each game. By starting the game, with the "Autoload game configuration" option enabled, the entire ZXT configuration previously saved will be loaded. However, this process has occasionally proven impractical, prompting modifications in the firmware. In this updated firmware version, four ZXT configuration parameters are no longer loaded upon game startup: Master volume, Backlight, Autoload game configuration, and Title screen. Nevertheless, all other ZXT configuration parameters remain loaded when starting the game. The saving/loading under defaults and three memory slots remains unchanged. In these cases, the complete ZXT configuration is always loaded.

16. Correction of misspelled texts

Some texts were incorrectly written in the initial firmware and have been corrected in this upgraded version.

17. Side keyboards refreshing issue

When starting the game, if the 'Autoload game configuration' option is enabled, ZXT loads its previously saved configuration. However, in some cases, the configuration related to the side keyboards would function properly, but visually it would not refresh. This issue has been addressed in this upgraded firmware.

18. Z80 file format

So far, ZXT has supported games in TAP, SNA, and TRD file formats. Another popular Z80 file format is now supported in this upgraded version. To accommodate this, a new file filtering option has been added within the Games Browser. The Z80 format belongs to snapshot formats and encompasses several versions and data storage methods. While we extensively tested this format on numerous Z80 files, certain combinations were not tested due to the sheer variety of versions and storage methods, making it challenging to locate such Z80 files.

19. User Dashboards & Games Library

This new feature in ZXT represents the most demanding and extensive aspect of this firmware update. Alongside showcasing its built-in games on the dashboard, ZXT now supports user dashboards, allowing you to organize any games you own on your SD card. A comprehensive description of this feature is provided in a separate document, which will be included as an integral part of the new user manual. You can find the 'User Dashboards and Games Library' document on the zx-touch.com website within the downloads section, along with this document and the firmware v1.10.