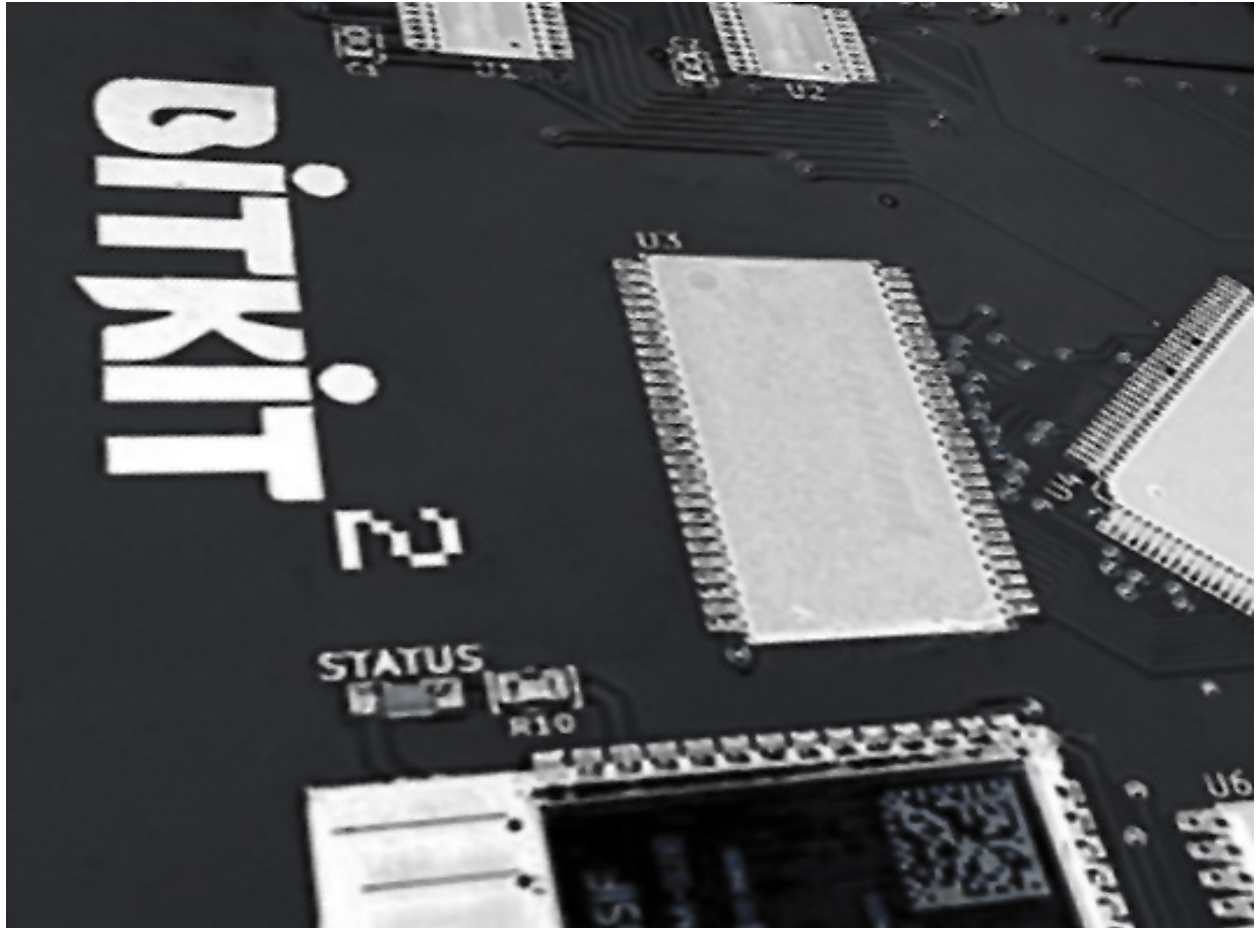




CraftyMech



USER MANUAL

Updated October 2023
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<http://craftymech.com>

About

The BitKit2 is an FPGA platform for accurately playing arcade classics in any JAMMA compatible cabinet. The BitKit2 features WiFi & Bluetooth connectivity for updating firmware, and loading games (rom files are NOT included).

FEATURES

- Game Menu w/ screenshots
- High Score saving & online leaderboards
- Direct Boot option
- Pause gameplay
- Independent settings for each game/version
- Hide/Show games, and customize game names
- Add credits with button sequence
- Screen flip & Cocktail support
- Crosshatch, and color bar test patterns
- Easy wireless updating with Windows/Mac/Android desktop app

* Game rom files are not included with the BitKit2.

The BitKit2 is intended for **Home Use** only.

Cover art: Mike Kastrantas

Quick Guide

How do I get started?

Download the **Setup Guide** @ <http://craftymech.com/downloads>

How do I select a game from the Game Menu ?

Use the **Player 1 Joystick** to move left/right and browse the Game Menu. Press **Player 1 Start** from the game menu to select a game.

How do I exit back to the menu from a game ?

Press and hold **Player 1 Start** and **Player 2 Start** at the same time. The reset delay and button sequence can also be changed in the BitKit2 Options -> Controls menu.

If I enable the Credit Cheat option, how do I “coin-up” ?

To add a credit, **tap Player 2 Start twice**. For a two-player game, add two credits by performing the sequence twice. Once the desired number of credits have been added, press *Player 1 Start*, or *Player 2 start*.

I am direct booting a game, how do I return to the Game Menu ?

The Game Menu can be reached by exiting the booted game and holding **Player 1 Start**. If only 1 game is installed on the BitKit, exiting the game will always display the Options menu.

I am direct booting a game, how do I access the Options Menu ?

If the *Player 1 Start* button is held down during power-on, the boot sequence will exit and display the Options menu.

Can I switch the Menu between Vertical and Horizontal?

The Menu will display in either vertical or horizontal, according to the *Options->System->Mode* setting. The Game Menu will only display games that match the Mode setting (e.g. vertical games will not be shown when in horizontal mode).

My control panel only has a 2-way joystick, how do I navigate the Options menu without Up/Down?

Player 1 Button 1 can be used to move the cursor down, and all the Option menus wrap from bottom to top.

Do all games support cocktail?

Most games do support cocktail, but there are a few exceptions.

Simultaneous 2 Player co-op play: *Lizard Wizard*, *Ms Pac Twin*, *Timber*

No cocktail support: *Anteater*, *Hot Shocker*, *Jr. Pac*, *Zarzon*

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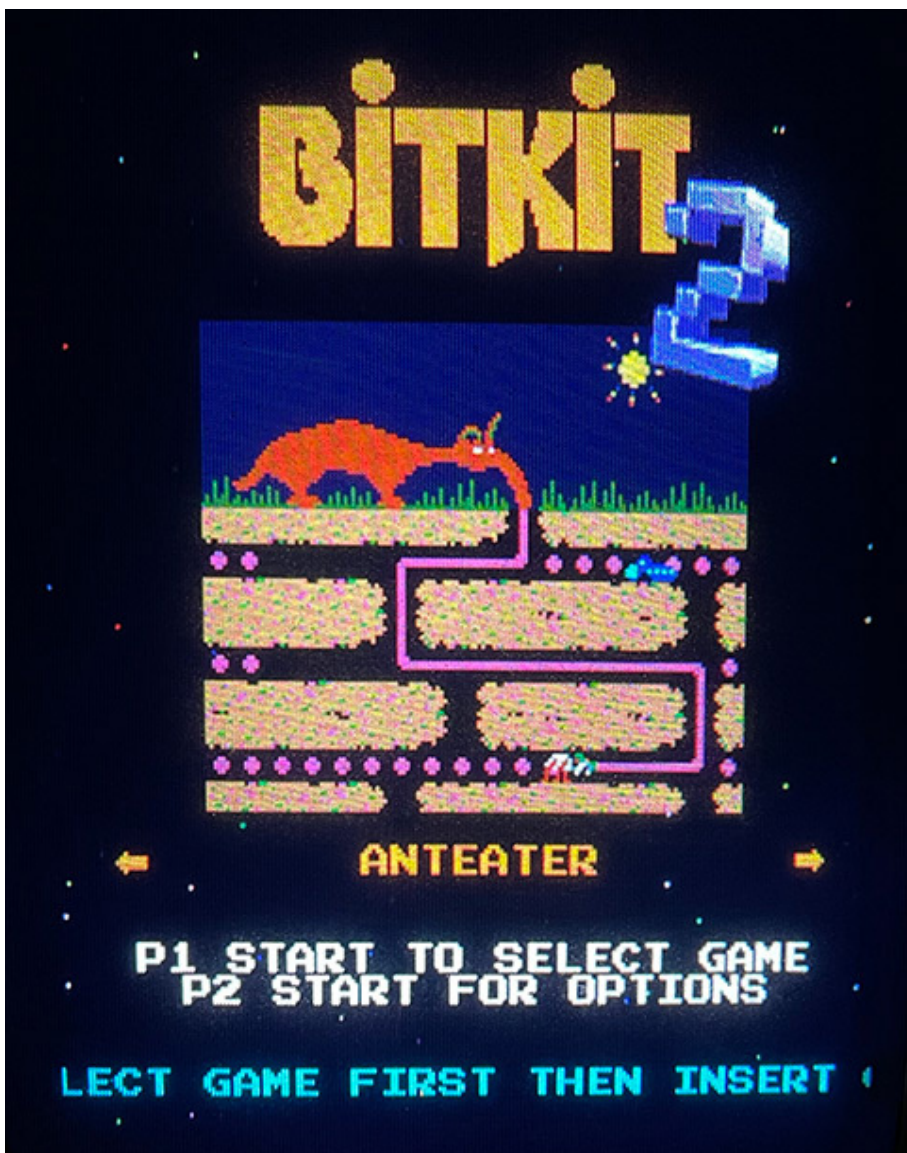
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1: Game Menu

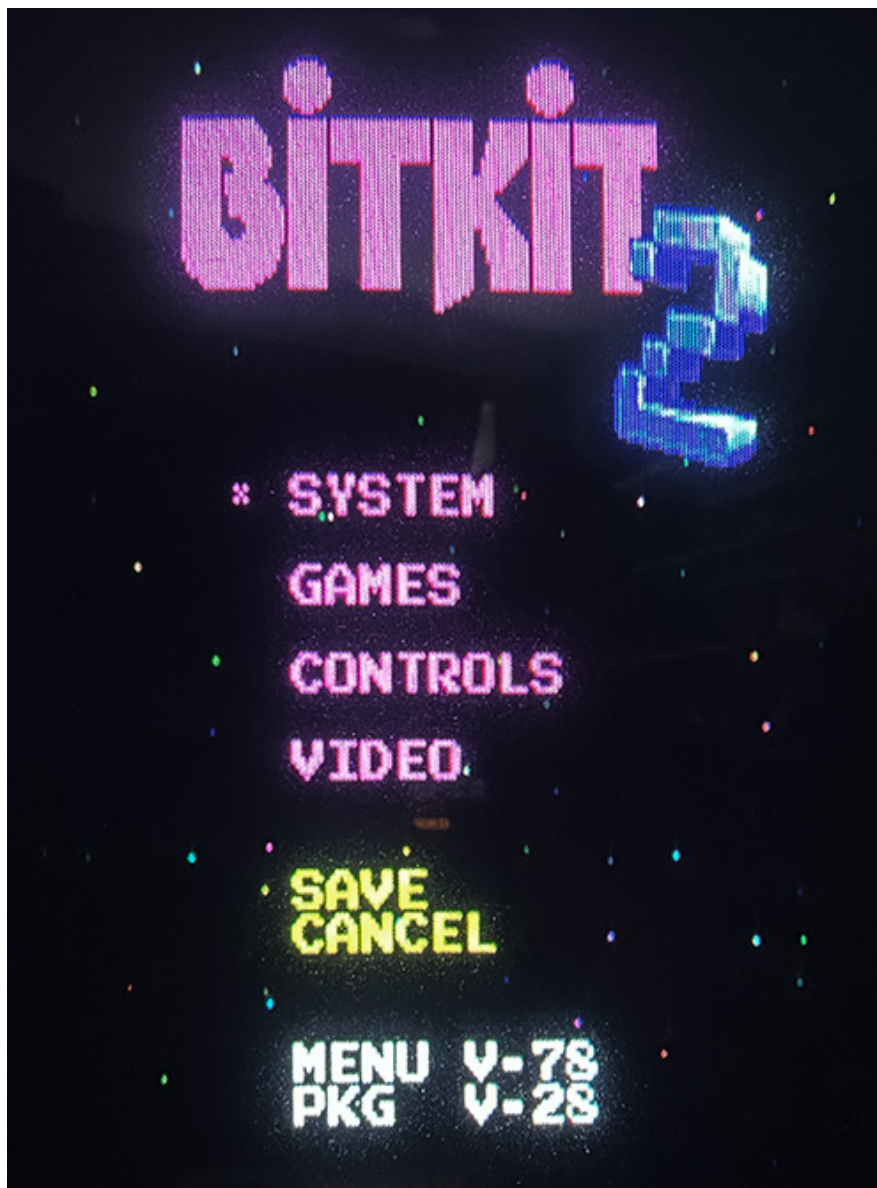
The BitKit2 boots to the game select screen by default, displaying the list of the available games. To **start a game**, use the *Player 1 Joystick* to browse the game list and find the desired game title. Then press *Player 1 Start* to launch the game.



The *Player 1 Start* button is the action button for the Menu system.

2: Options Menu

System	Misc system settings
Games	Manage game list, and individual game settings
Controls	Test controls, and configure restart & pause combinations
Video	Flip screen, Vert/Horz position, and test patterns for monitor adjustment



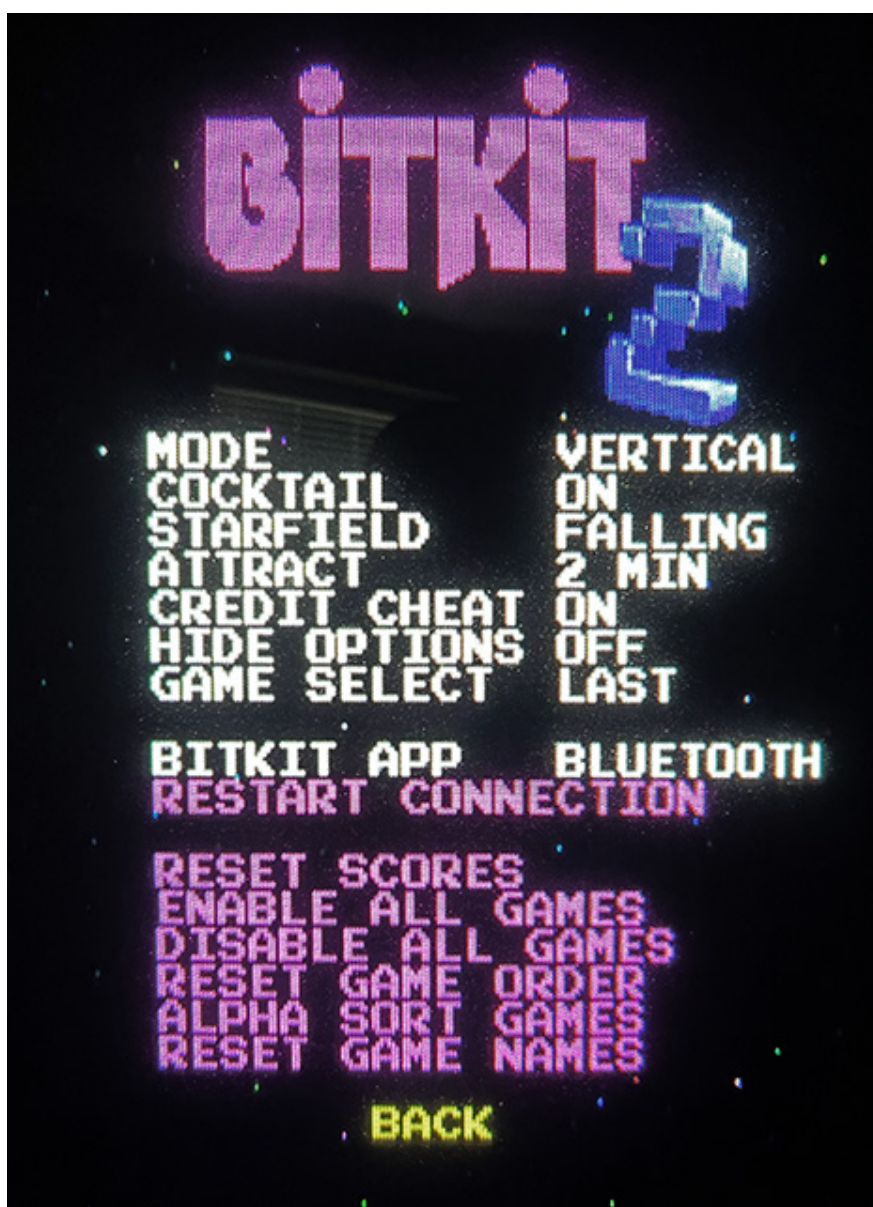
After making changes to BitKit2 settings, choose the **Save** action.

To back-out of the Options menu without saving changes, choose the **Cancel** action.

SYSTEM

Mode - Use this setting to switch the Menu between horizontal and vertical orientation. The Game Menu will only display games that match the Mode setting (e.g. vertical games will not be shown when in horizontal mode).

Cocktail - This setting will enable cocktail mode for all games that support the feature. Cocktail mode flips the screen between players, and



the *Player 2* control inputs are used for the second player. This differs from a 2 player “Upright” cabinet, where typically both players use the *Player 1* controls.

Starfield - Choice of falling stars, static blinking starfield, or none.

Attract - The Menu has a built-in screen saver, that will activate after the desired interval without any control input. The screen saver displays a slideshow of screenshots of all enabled games.

Credit Cheat - This setting enables credits to be added using the controls. To add a credit, **tap Player 2 Start twice**. For a two-player game, add two credits by performing the sequence twice. Once the desired number of credits have been added, press *Player 1 Start* or *Player 2 start*.

Game Select - This setting determines what position in the Game Menu is displayed after exiting a game. **Last** will display the last game selected, while **Slot-1** will display the first enabled game from the list of game slots. On power-on, the Game Menu always defaults to the Slot-1 behavior.

Hide Options - This setting toggles the display of the **Options** link on the Game Menu. When enabled, the only way to access the Options menu is to hold down *Player 1 Start* during the boot sequence. This setting is ideal for protecting BitKit2 settings during parties, tournaments, or other group events.

BitKit App - Toggle this setting to change how the BitKit2 application communicates with the BitKit2. Refer to the **BitKit2 Setup Guide** for a detailed explanation of the options available for Windows, Mac, and Android.

Reset Scores - This option will globally reset high scores for all games. You will be prompted by a confirmation screen, before the high scores are reset. To reset high scores for a specific game, navigate to **Game Settings**, select a specific game, and select **Reset Scores**.

Enable All Games - This option will enable all installed games. You will be asked to confirm this action.

Disable All Games - This option will disable all installed games. You will be asked to confirm this action.

Reset Game Order - Selecting this option will sort the Game Menu according to the order the games were uploaded to the BitKit2. Only the order of the Game Menu is affected, the Game List under *Options->Games* will always display in the same order. You will be asked to confirm this action.

Alpha Sort Games - This option will sort the Game Menu alphabetically, A - Z. All games are sorted accordingly, even if they are not enabled. If you later enable a game, it will appear in the correct alphabetical position in the Game Menu. Only the order of the Game Menu is affected, the Game List under *Options->Games* will always display in the same order. You will be asked to confirm this action.

Reset Game Names - This option will reset all game titles displayed in the Game Menu to their default names. All game names will be reset, even if they are not enabled. You will be asked to confirm this action.

GAMES

This sub-menu is where the game list and settings for individual games, are managed. The game list is presented as multiple pages of 8 game slots each. Navigate between pages with *Player 1 Left* & *Player 1 Right*. Right and left arrows indicate available navigation choices.

The game name for each slot is independent from the display name used in the **Game Menu**. Empty slots are labeled as such, and the cursor will skip past these entries.



Game slots that are disabled are white, while active games are purple. Empty slots are always white.

A single game may be configured for direct boot, and will be displayed using blue text.

To select a slot, press *Player 1 Start*. The screen below will be displayed, where individual settings for that game may be adjusted. To toggle a setting on/off, or rotate between choices, press *Player 1 Start*.

Settings common to all games are detailed in the following section. For details on specific game settings, see **Chapter 3: Special Features**.

Lives - This setting selects the starting number of lives. Although it varies per game, the range is typically 3, 4 or 5 lives.

Bonus Life - Many games offer configurable bonus lives at specific score thresholds, such as 10000 pts, 75000 pts, etc.



The order games appear in the game slot screen will determine the order of the game list menu.

Refer to **Swap Slots** on page 13 to learn how to change the slot order.

Difficulty - Some games have a configurable difficulty level, usually with an *Easy* or *Hard* option (this setting may also be a number range).

Enable - When enabled, the game will be selectable from the Game Menu. When disabled, the game will be hidden from the Game Menu.

Boot - If this setting is enabled, the game will be configured to boot automatically, bypassing the Game Menu. If a game is marked for booting, but is not enabled, then this setting has no effect. If multiple enabled games are set to boot, the game with the lowest slot number will boot. To abort the direct booting of a game, hold down *Player 1 Start* to display the **Options Menu**.

Menu Name - The name displayed in the **Game Menu** can be changed here (max length 16 characters). To move the cursor right or left, move the joystick right or left. To change the value of a letter, move the joystick up or down. Pressing *Player 1 Start* will end the input sequence.

Reset Scores - This action will reset the high scores for the game in the currently selected slot, and will trigger a confirmation screen. To reset all high scores, navigate to the **System** sub-menu, and select **Reset Scores**.

Erase Game - This action will erase the game from the currently selected slot. High Scores associated with the game are still saved, and will not be lost. If the game is reinstalled at a later time, then the same high score table will be used regardless of what slot is used for the game.

Swap Slot - This action will flag the game slot for swapping. When two slots have been flagged, selecting the **Swap Slots** action will swap the order of the two games on the Game Menu. Only the order of the Game Menu is affected.

CONTROLS

From this sub-menu, player 1 & 2 controls may be tested. Control combinations for Reset (exit game) and Pause, are configurable here.



Most games only read input from the Player 2 controls in *Cocktail* mode (except for *Player 2 Start*). This is a limitation of the original game code.

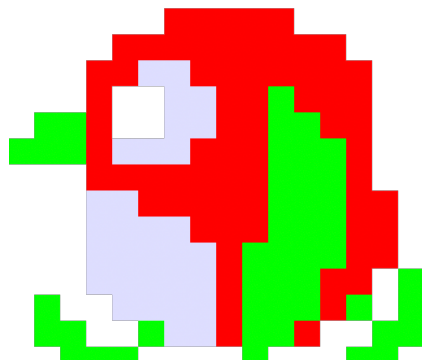
Test P1 - Enter test mode by pressing *Player 1 Start*. The 4 cardinal directions will be displayed for each corresponding movement of the Player 1 joystick (Up, Down, Left, and Right). Pressing *Player 1 Button 1*, or *Player 1 Button 2*, will display "BUTTON1" or "BUTTON2" accordingly.

Test P2 - Enter test mode by pressing *Player 1 Start*. The 4 cardinal directions will be displayed for each corresponding movement of the Player 2 joystick (Up, Down, Left, and Right). Pressing *Player 2 Button 1*, or *Player 2 Button 2*, will display “BUTTON1” or “BUTTON2” accordingly.

Reset - This setting defines the control combination for restarting the BitKit. Use this combination to return to the Game Menu after launching a game. The default setting is *Player 1 Start* + *Player 2 Start* (press and hold both buttons simultaneously). Selecting *OFF* will disable the restart feature, requiring a power cycle to return to the Menu system.

Reset Delay - This setting defines how long the reset control combination must be held, before a system restart is triggered. The options are instant, 1 second, and 2 seconds. If you have a cab without 2 actions buttons, you may have wired one or both of the start buttons to be buttons A & B. In this case, set the Reset Delay to be either 1 or 2 seconds, to avoid accidentally restarting the BitKit during gameplay.

Pause - This setting configures the pause feature, which will freeze/resume gameplay. The default setting is OFF. The *Player 1 Button 2* option should only be used if you have no games enabled that make use of a second button.



VIDEO

The Video sub-menu provides test patterns for configuring the CRT display, and to adjust the horizontal/vertical position of the BitKit's video output.

Crosshatch - Use the crosshatch pattern to adjust monitor convergence.

Color Bars - For adjusting brightness, contrast, and RGB drive.



The Red, Green, and Blue patterns are useful for checking color purity.

If either screen has an area of discoloration, degaussing the monitor will usually resolve the issue.

Red/Green/Blue Fill - Use these solid color screens to assist in degaussing, and to diagnose a problem with color purity.

Flip Screen - If the BitKit displays upside-down, use this option to change the screen orientation. This setting works in combination with each game's *Cocktail* setting, to ensure the proper screen orientation for both players.

Vertical and Horizontal Position

These two options can be used to center the display image so it is consistent between hardware platforms. First, set the BitKit on the Crosshatch test screen, and use the controls on your monitor to adjust screen size and position.

Vert Pos - Use this option to move the video image up or down, if part of the display is cut off. The default setting is 3, with a range of 1-7.

Horz Pos- Use this setting to move the image left or right. The default setting is 3, with a range of 1-7. Note this setting has no effect for Nibbler hardware games (Nibbler, Fantasy, Pioneer Balloon, Vanguard, and Zarzon).

BurgerTime 57/60hz - This setting will switch the BurgerTime core video refresh rate between the native 57hz, and a more monitor friendly 60hz. If you have trouble syncing the picture, or have curl along the right side of the image, try the 60hz setting. This setting applies to the following games: BurgerTime, Lock n Chase, Bump n Jump, Peter Pepper, Super Astro fighter, Rootin Tootin, and Zeroize.

3: Special Features

Unique settings for each game title are listed below. For an explanation of common settings (e.g. *Lives*, *Cocktail*) see the previous chapter.

NIBBLER

Practice - This setting can be used to set the game speed at a fixed level for all waves (only available for *Nibbler 9*). Normally, the game speed will increase as you complete waves, until maxing out before reaching wave 32. High score saving is disabled when this setting is enabled.

Turbo - This setting when enabled will run the game code at full speed (1.4 mhz). Normally, the CPU will skip every other clock cycle when accessing program code. Effectively, this speeds up the game by ~50%. This setting can be thought of as “*Dwayne’s Mode*” (from the documentary *Man Vs. Snake*). This setting also causes gameplay artifacts, such as abbreviated sound effects, a faster title screen sequence, and a faster death sequence for Nibbler.

VANGUARD

Fire - Configures the number of fire buttons to use. This setting defaults to *1 button*. In this mode, the player’s ship always fires forward, and then also in the direction the joystick is held. *2 button* mode maps left/right fire to *Button 1*, and up/down fire to *Button 2*. *4 button* mode is intended for dedicated Vanguard control panels, where the 4 fire buttons are arranged in a diamond pattern.

ZARZON

Shield - For cabinets without a second button, the combination of *Player 1 Up* + *Button 1* can be configured to activate the player shield.

PAC GAMES

Turbo - Equivalent to the “*fast hack*” popular on Pac-man. This setting is available for all Pac games, bootlegs, and variants (Piranha & Titan).

THE GLOB / BEASTIE FEASTIE

Difficulty - The range of values is 1-8 (default=1), with 8 being the most difficult. Difficulty in The Glob ramps up very rapidly, so the default setting is recommended. Beastie is more forgiving, but the default setting still provides a good challenge. Sadistic operators would have placed The Glob on difficulty 8, and then watched the children cry.

P1 Start & P2 Start buttons are mapped to the two action buttons by the Glob/Beastie Feastie code (the games were often sold as a conversion kit for Pac cabinets).

CRUSH ROLLER

Teleport - This setting enables a randomly placed teleport space that appears in the maze. Entering the teleport will move the player to another location, and can be usefull for escaping the enemies.

SCRAMBLE / SUPER COBRA

Bomb P1 Btn - This setting will map the *P1 Start* button to act as a second button (bombs) for a control panel with only a fire button.

TURTLES

Red PROM - Enables red color palette instead of the default blue dominated color scheme. It is not known which color palette was used for the original release of Turtles. All examples in the wild that have been documented by photo or video seem to have the Red color scheme, but in MAME, Turtles has a blue palette.

GALAGA

Fast Shot - Use this setting to enable the “fast shot” hack, which gives the player rapid fire and makes the game considerably easier.

MS PAC TWIN

Cocktail - This game is a co-op 2 player version of Ms Pac-man. If the cocktail setting is ON, then Player 2's controls are inverted so that the movements match the joystick direction when viewing the screen upside down.

KING & BALLOON

Starfield - This setting toggles the background starfield, which was not used for this game, but is normally present on Galaxian hardware.

TOWER OF DRUAGA

Norm Speed - The default speed of your character in Druaga starts out slow, unless you find the Boots of Speed on the second level. This setting can be toggled to give the player the faster walk speed from the start of the game.

MARS, LOST TOMB, MINEFIELD, RESCUE

Twin Stick - This setting toggles twin joystick controls. When OFF, these four games each have the following control scheme with a single joystick + buttons.

Mars - For directional fire, hold down Button 1 while moving. To strafe, hold down Button 2 and move in the direction you want to fire, then release Button 2. Your ship will continue to fire in the same direction, unless you hold Button 1 to engage directional fire. If Button 1 is not pressed, strafe fire resumes. Press Button 2 while not moving to cancel the strafe.

Lost Tomb, Minefield, Rescue - For directional fire, hold down Button 1 while moving. If you stop moving, you will continue to fire in the same direction. This is useful when you don't want to move any further to avoid obstacles or enemies. Button 2 will detonate your bomb in Lost Tomb, fire your missile in Minefield, and drop your bomb in Rescue.

TAPPER

Gray Level - Use this setting to adjust the brightness of the gray color used for the bar floor (stage 1), bleachers (stage 2), and walls (stage 3).

Brown Level - Use this setting to adjust the brightness of the brown colors used in various places like the bar (stage 1).

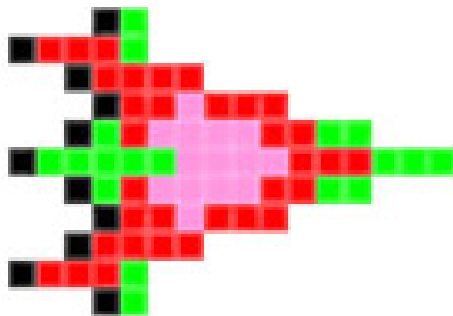
TIMBER

Brown Level - Use this setting to adjust the brightness of the brown colors used in various game screens.

TRON, KICK-MAN, WACKO, TEETER TORTURE

Control - This setting selects between joystick, trackball, and spinner. Not all games support both trackball and spinner. For example, *Wacko* only supports trackball as both the X and Y axis are needed for movement.

Response - Use this setting to adjust the sensitivity of the selected input option, from a value of 1 (slowest) to 7 (fastest).



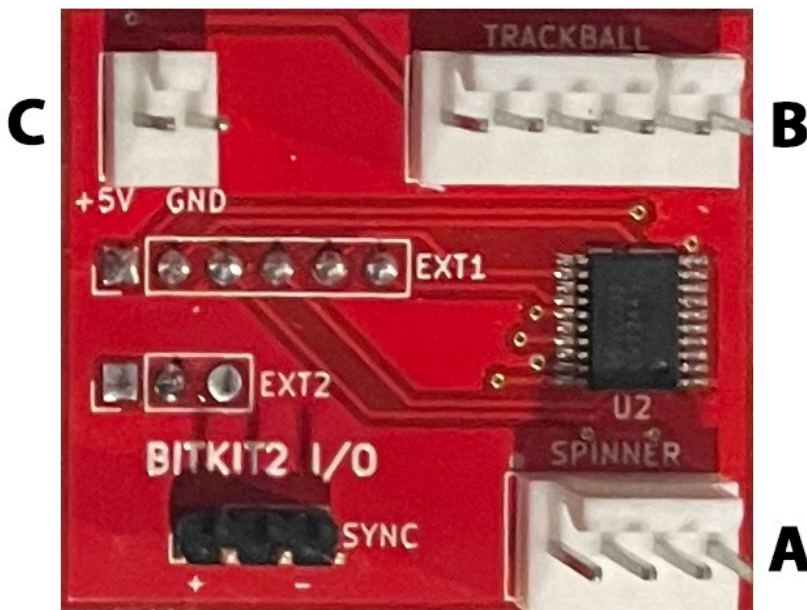
4: I/O Adapter

The I/O Adapter adds support for trackball & spinner controls to the BitKit2 FPGA game board.

The adapter features 3 connectors (.1" pitch) on the top side:

- 6pin Trackball (B)
- 4pin Spinner (A)
- 2pin Power (C)

The adapter is installed on the BitKit2 using the 6pin **EXT** and 3pin **SYNC** headers (see next page). The **SYNC** connector is reproduced on the adapter board to preserve your choice for video sync polarity.



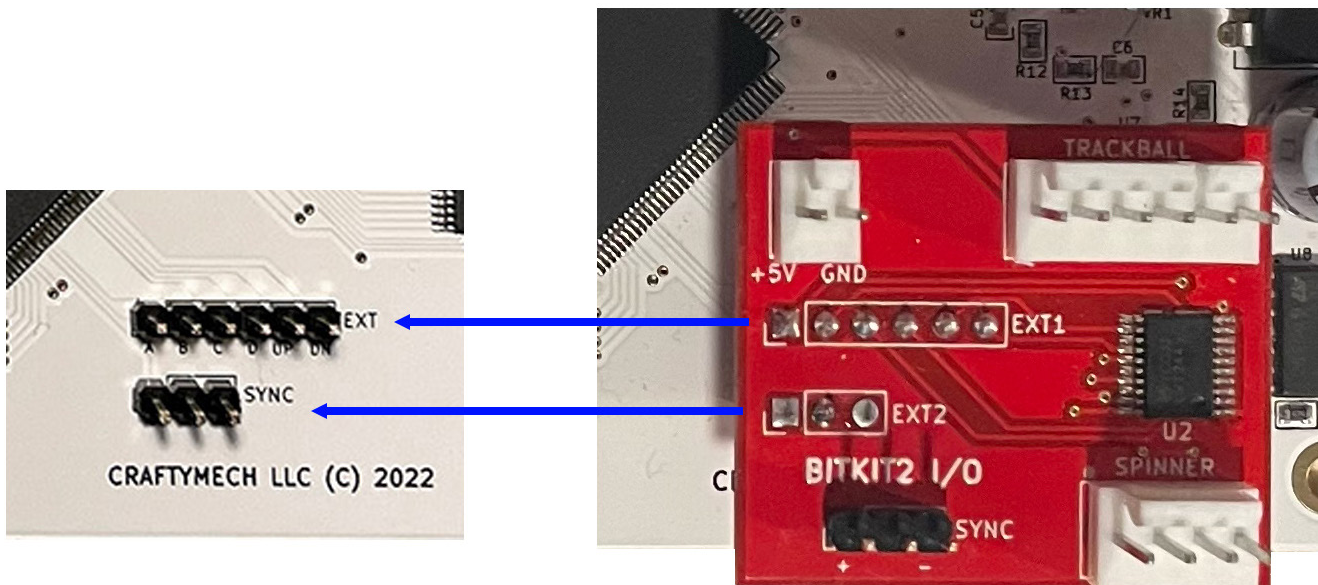
Trackball and spinner may be connected at the same time, but only one control type can be enabled for each game.

INSTALLATION

The close-up below of the BitKit2 board shows the two headers that are used to install the I/O Adapter.

The socket connectors are flexible, to make installation easier. However, be careful not to bend those connectors by pushing down on the adapter evenly on both the top & bottom edges when installing.

It may be easier to first plug-up the trackball & spinner cables, before installing the adapter on the BitKit2.



Line up the two socket connectors on the bottom of the adapter with the **EXT** and **SYNC** headers of the BitKit2, and push down until secure.

POWER

The I/O Adapter requires a 5V source via the 2pin power connector.

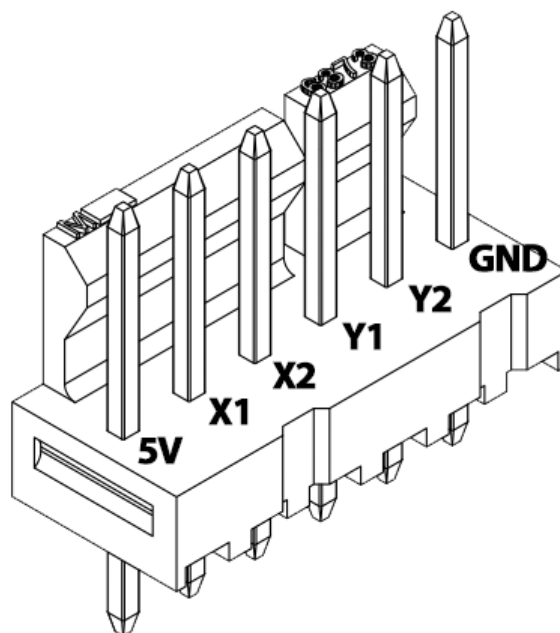
Only 5V trackball and spinner controls are supported.

If the same power supply that powers the Jamma harness is used to provide the 5V source for the I/O adapter, then it is not necessary to connect the GND pin of the 2pin power connector.

If a secondary supply is used, then both the 5V and GND pins must be connected to that supply.

TRACKBALL

Compatible trackballs will have two quadrature data signals per axis, for a total of 4 signal wires. This results in a 6pin connector when combined with 5V & GND wires, following the pin-out below:



For example, the Atari/Happ style trackball has a 6pin molex connector with compatible quadrature signals. The molex connector can be adapted to fit the I/O Adapter's trackball connector using the commonly available "60-in-1 trackball harness" (pictured below).



Atari/Happ Trackball



**60-in-1 Trackball
Harness**

IMPORTANT!

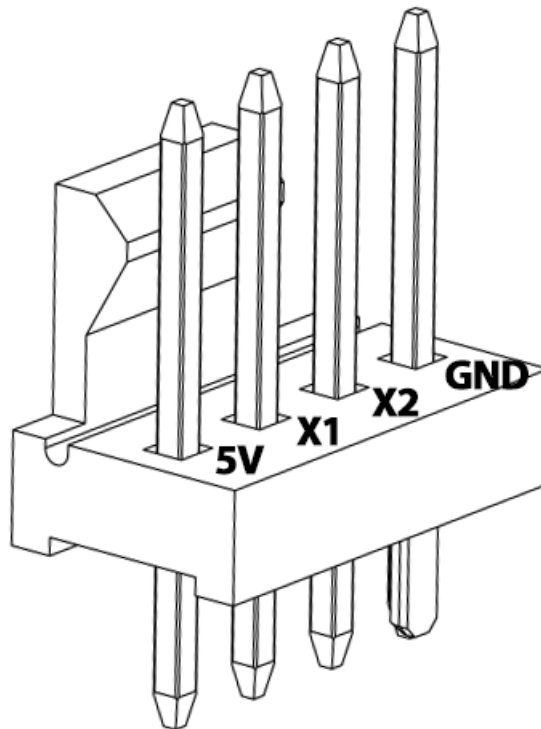
The trackball controller's earth ground (green wire) must be properly connected to an earth ground source on the control panel. Failing to properly ground the trackball exposes the I/O Adapter to ESD (static shock) that may damage the adapter. Ensure the cabinet is also properly grounded by using a 3pin AC plug, and that an earth ground wire is connected to the metal of the control panel.

SPINNER

Compatible spinners (also called *Rotary Encoders*) will have two quadrature data signals (“*two phase*”), resulting in a 4pin connector when combined with 5V & GND wires.

The spinner output type must be “open collector”, which requires resistor pull-ups on the data lines. The I/O Adapter provides 10K pull-ups on the two data lines, so pull-ups are optional for compatible spinners.

Note that USB spinners are not supported! Although there are two data lines in USB wiring, the signals are not compatible with the I/O adapter.



An example of a inexpensive spinner is pictured below. Spinners of this type are often sold without a connector, so you might need to make your own.

The correct part for the spinner connector housing is 4pin .1" pitch (Molex # 0022012041), and the matching crimp is 22-30AWG (Molex # 0008550129).

Spinners will be rated by "*pulses per revolution*" (PPR). This number may be as small as 200, or as high as 1000. PPR between 300-600 will feel precise in-game, while higher values will be more expensive without increasing appreciable accuracy.



IMPORTANT!

Make sure to connect the spinner's earth ground (usually a bare metal braid) to an earth ground source in your cabinet. Failing to properly ground the spinner exposes the I/O Adapter to ESD (static shock) that may damage the adapter. Ensure the cabinet is also properly grounded by using a 3pin AC plug.

CONFIGURATION

Each game that supports trackball or spinner, has two additional settings in the BitKit2 Options menu: **Control** and **Response**.

Control - This setting is used to select between joystick, trackball, and spinner. Not all games support both trackball and spinner. For example, *Wacko* only supports trackball as both the X and Y axis are needed for movement.

For both trackball and spinner there is a setting for “A” or “B”. These choices reflect the polarity of each axis. If you select “A” but find the movement is reversed (e.g. left moves right, up moves down) then switch the setting to “B”.

Response - Adjust this value to change the sensitivity of the selected control type on a per game basis. Since different games interrupted the control signals with varying sensitivity, this setting may vary between two games even though the same trackball or spinner is used.

The higher the value for this setting, the faster your character action will occur in-game. However, if the the game exceeds normal play speed of original hardware, you may notice a decrease in control precision.

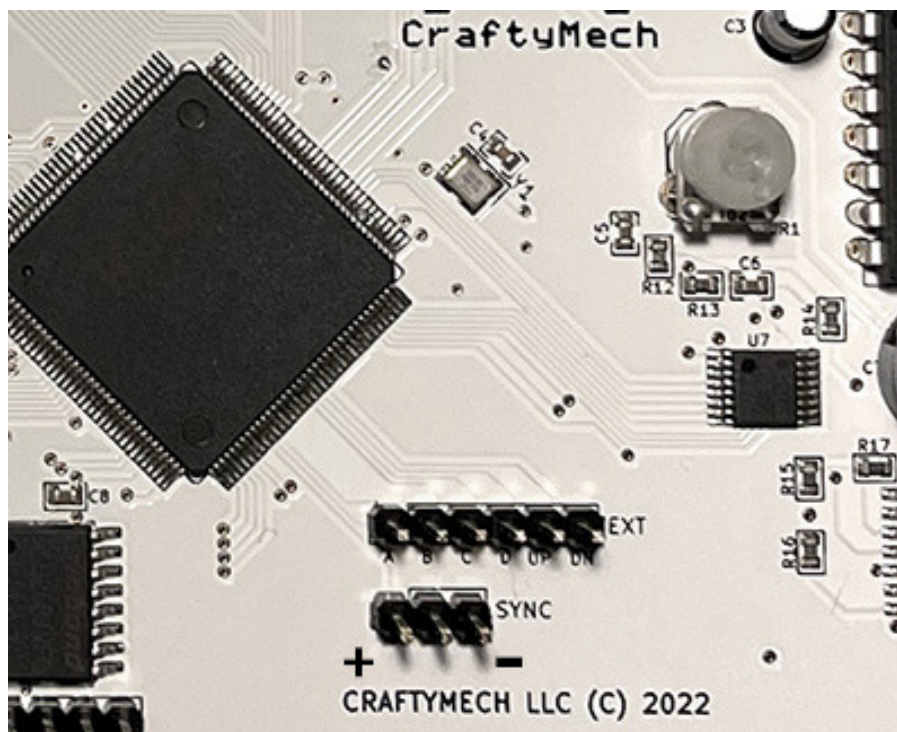
5: Troubleshooting

Use the following guide to help solve issues you encounter while using the BitKit2.

The monitor will not sync (scrambled or rolling picture).

The JAMMA standard specifies negative composite sync. First ensure that the video cable to the monitor is properly connected to the -sync input. For most monitors, only a connection to the -H pin is required. Some monitors require both -H & -V pins to be connected, in which case you can install a short jumper between those pins on the video connector of your monitor cable.

If the monitor only accepts +sync, the sync polarity of the BitKit video signal can be changed. The BitKit2 has a 3pin Sync header on the top side of the pcb. The default jumper position is for -sync (jumper on right 2 pins), but by moving the jumper to the left 2 pins, +sync is selected.



The sync change is immediate and does not require a restart of the BitKit.

The monitor loses sync when switching between games.

The BitKit accurately implements the video output of each hardware platform, including the *hsync* and *vsync* signals. Some monitors are more tolerant of sync variations than others, and switching between games this may cause the monitor to lose sync.

Usually, this issue can be resolved by finding the “sweet” spot on the monitor’s horizontal sync/hold pot.

Start with the BitKit Menu, and adjust screen position and sync to optimize the picture. Then launch one of the games that is out of sync (Nibbler and Vanguard are the usual suspects), and slowly adjust the sync/hold pot to stabilize the picture. Repeat this process until switching back and forth does not cause the monitor to lose sync.

The BitKit2 Menu is centered, but Nibbler hardware games are shifted to the left or right.

The Nibbler hardware games have slightly different sync timing than the other platforms. These games are Nibbler, Fantasy, Pioneer Balloon, Vanguard, and Zarzon. If you find that the Nibbler hardware games are shifted right/left respective to the other games, you can use this approach to fix the problem:

1. Launch Nibbler, and use your monitor’s Vertical position control to center the screen. Note because the monitor is vertical, this will

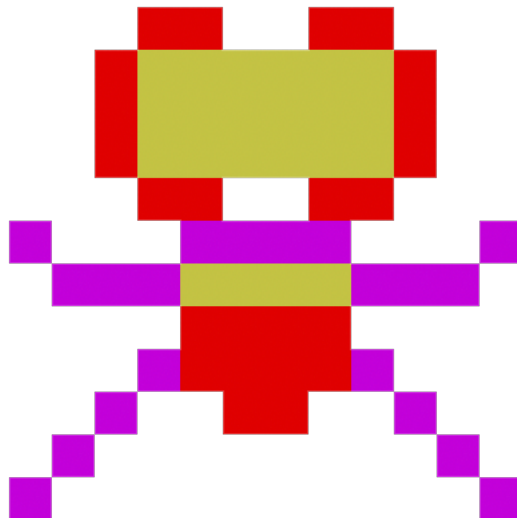
actually adjust the side-to-side position of the picture.

2. Exit Nibbler, back to the BitKit Menu. Now the problem will be reversed, and the BitKit Menu will be shifted left/right of center. Adjust the **Options->Video->Horz Pos** setting so that the BitKit Menu is properly centered again. This setting has no effect for Nibbler hardware games, so now all BitKit games will be properly centered.

The BitKit2 boots to a black/gray screen.

If the BitKit2 Menu does not appear on screen after a few seconds, reinstall the last firmware update using the BitKit2 app. The most common reason for boot failure is a failed firmware update.

If you are no longer able to connect to the BitKit2 wirelessly, restart the device you are using for the BitKit2 app, and power cycle the BitKit2 pcb. If you still can not connect to the BitKit2, contact customer support: support@craftymech.com



PART II



BITKIT2 APP

1 : Menu

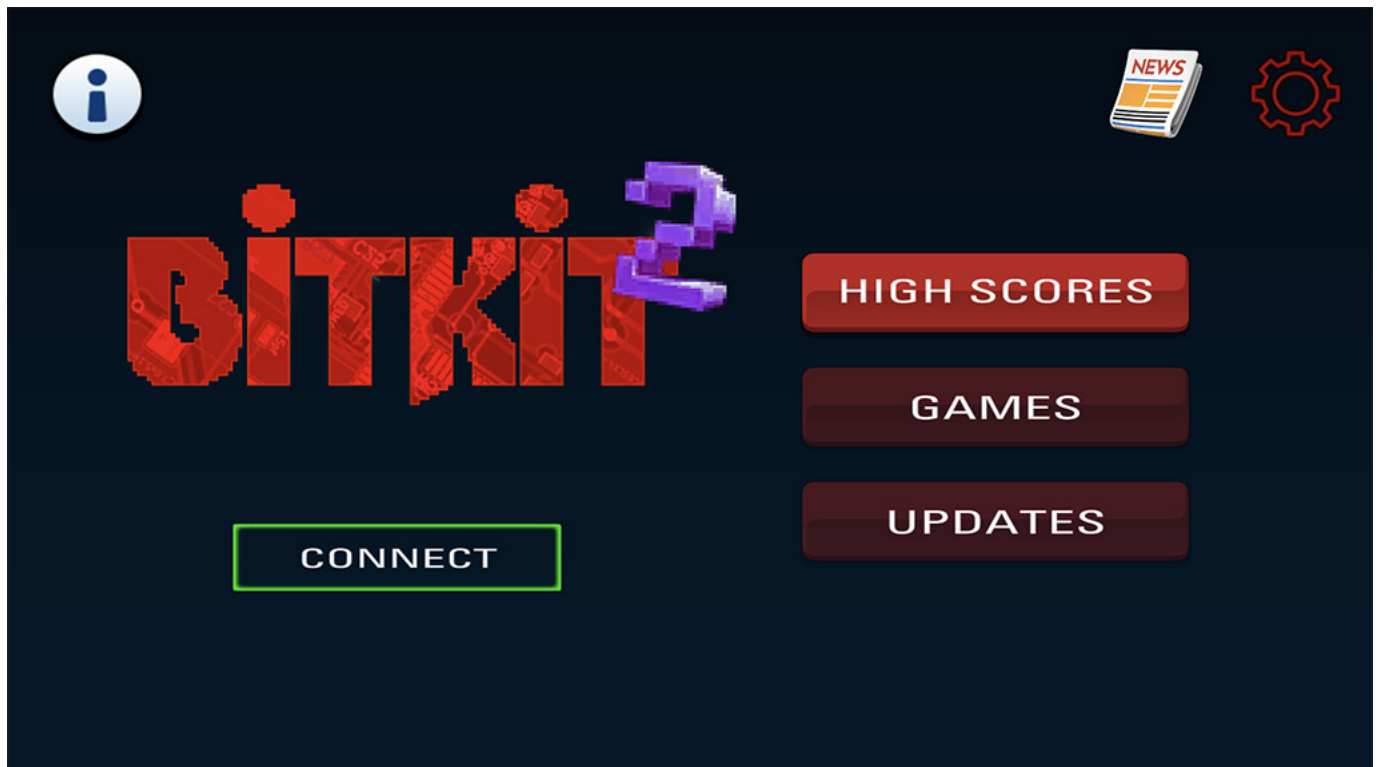
The main menu has four primary buttons:

High Scores - Upload and track your high scores, including leaderboards for each game.

Games - Manage the games installed on your BitKit2.

Updates - Install firmware & bios updates to your BitKit2.

Connect - Establish a wireless connection with your BitKit2 board. Note this step is required to access most features of the BitKit2 app. *Refer to the BitKit2 setup guide for detailed instructions.*



2: HIGH SCORES

This interface displays the BitKit leaderboards, and has two action buttons: **Profile** and **Upload**.

The top level of the leaderboard displays the highest score for each game, along with the nickname/alias of the player that recorded the score. The list may be sorted by clicking on the *Game*, *Score*, or *Player* heading.

Double clicking on a game entry in the leaderboard will open a new window that lists all the recorded scores for that game.

The *Refresh* button in the upper right corner will reload the leaderboards from the CraftyMech website.

The screenshot shows a dark-themed user interface for a high score leaderboard. At the top, there is a table with three columns: 'Game', 'Score', and 'Player'. The 'Game' column has a small upward-pointing triangle icon next to it. The table lists eight games with their respective scores and top players. To the right of the table is a 'Refresh' button with a circular arrow icon. Below the table are two large red buttons labeled 'PROFILE' and 'UPLOAD'. In the bottom right corner, there is a 'MENU' button.

▲ Game	Score	Player
ABSCAM	344,273	KeeperUSA
Amidar	601,830	Kopey
Anteater	210,550	MEB (CPA)
Armored Car	92,250	Jamesv833
Astro Fighter	55,051	brokentoken
Beastie Feastie	458,627	CPA (CPA)
Bump n Jump	165,336	DiegoSanchez
BurgerTime (Midway)	999,950	Pickles

Refresh

PROFILE UPLOAD MENU

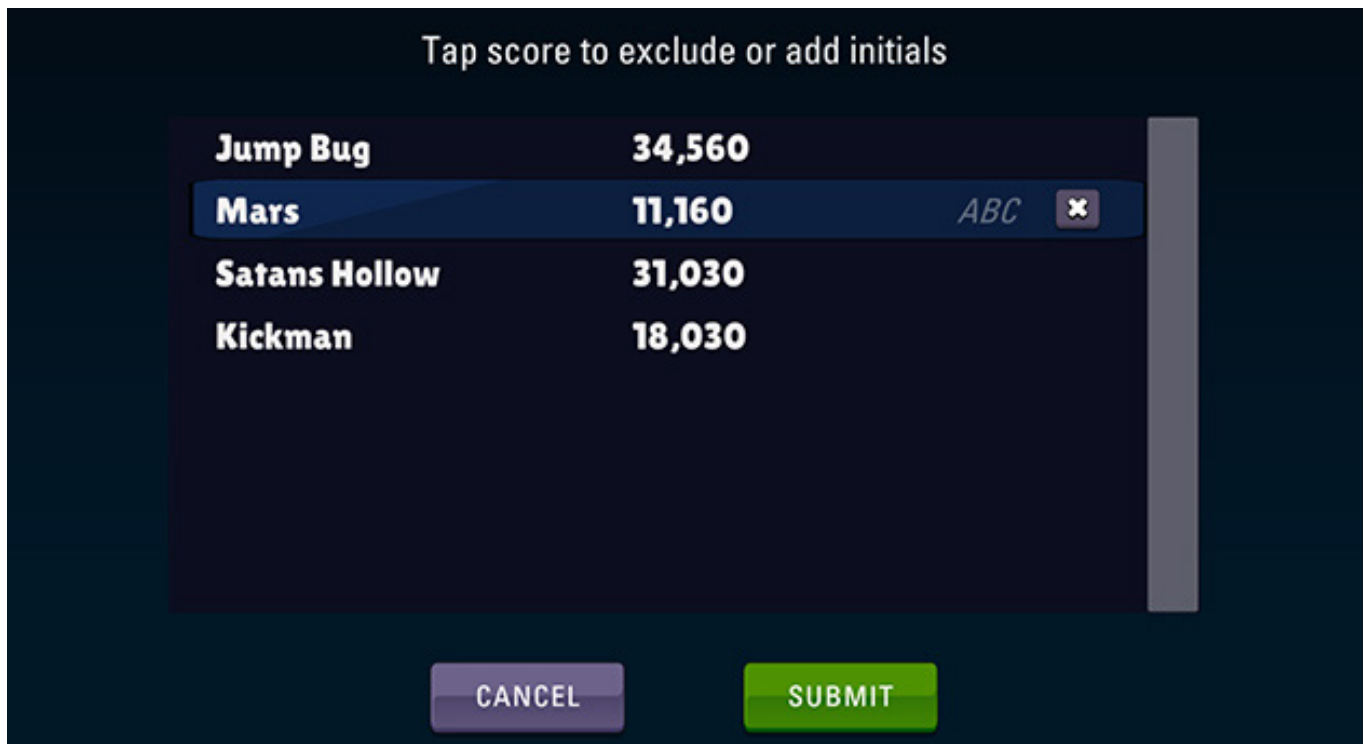
UPLOAD

Clicking this button will download highscores from the BitKit2. A dialog with progress bar will be displayed, and the download will take 15-30 seconds depending on BitKit2 connection type.

Once the download process completes, a list of high scores will be shown that have not previously been uploaded to the CraftyMech website.

Clicking a high score entry will highlight the score and make two actions available. First, the score can be ignored by clicking the *X* button. Perhaps the score was set by a friend or family member, and you'd rather track only your own scores. The second option (*ABC*) allows you to assign 3 letter initials to the score as an alternative to ignoring the score outright.

When you are satisfied with the score list, click the *Submit* button to upload your high scores to the CraftyMech website.



PROFILE

This screen tracks the high scores that you have uploaded to the CraftyMech website.

Badge - The current profile, number of stars earned, and current rank are displayed. These attributes are only visible to you and are not public. See the next page for a more detailed explanation of these attributes.

Scores - The best score for each game is displayed, along with the color of star earned (gold, silver, or bronze), and any initials if provided with that score. This list is sortable by game name, star color, and score.

Trophies - There are six possible trophies that can be earned by specific in-game accomplishments. Click each trophy to see the requirements.

The screenshot shows the 'CraftyArcade' profile interface. On the left, a blue panel displays the user's name 'CraftyArcade', a gear icon, and three stars with counts: a gold star with '19', a silver star with '34', and a bronze star with '18'. Below this is a 'Bit-Head' badge and a level indicator showing '6' next to a blue progress bar. The main area is a table of high scores for various games. The table has columns for 'Game', a star icon, 'abc' (initials), and 'Score'. The games listed are ABSCAM (gold star, 13,520), Amidar (silver star, 33,430), Anteater (silver star, 37,650), Armored Car (silver star, 10,810), Astro Fighter (gold star, 27,550), Beastie Feastie (gold star, 62,057), and Bump n Jump (gold star, 57,100). Below the table, there are two star counts: '★ 50,000' and '★ 25,000'. At the bottom, there are six trophy icons with labels: 'SUPER STAR', 'SCORE CHASER', 'HIGH ROLLER', 'PAC ATTACK', 'POTATO KING', and 'SNAKE MASTER'. A 'MENU' button is located in the bottom right corner.

Game	Star	abc	Score
ABSCAM	★		13,520
Amidar	★		33,430
Anteater	★		37,650
Armored Car	★		10,810
Astro Fighter	★		27,550
Beastie Feastie	★		62,057
Bump n Jump	★		57,100

★ 50,000 ★ 25,000

SUPER STAR SCORE CHASER HIGH ROLLER PAC ATTACK POTATO KING SNAKE MASTER MENU

What do the stars mean on the Profile badge?

The best score you have uploaded for each game counts towards one star. There are three star levels: Gold, Silver, and Bronze. You will always earn at least a Bronze star for any score regardless of points. To earn a Silver or Gold star, your score must meet the points requirements for that game. Click on a game in the scores list to see the score minimums required to earn Gold or Silver.

How does the player rank work?

Below the star count is your current player rank. The number of stars earned, and type of stars, will determine your rank. The ranking is just for fun, and not intended to be competitive. As you achieve new ranks there are different sound effects that will play to congratulate you.

Is the Profile name the same as the nickname I picked when uploading scores for the first time?

Yes, and no. In the simple case where you only upload scores from one BitKit2 board, then by default the Profile name and your BitKit2 nickname are the same.

What if I have two BitKit2 boards and upload scores from both?

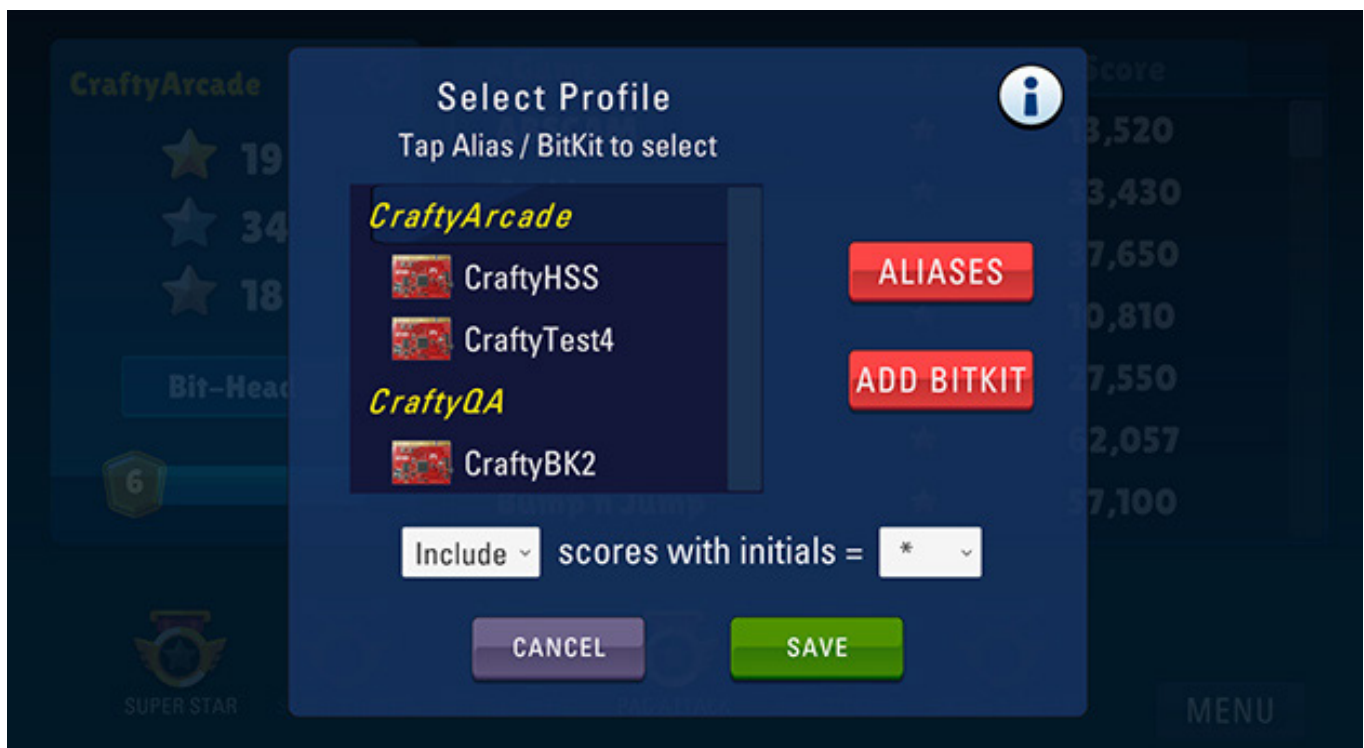
Scores for multiple BitKit boards can be grouped together by creating an “Alias”. See the next section, Profile Settings, for a detailed explanation.

Profile Settings

Clicking the white Gear icon in the upper right of the Profile Badge will open the Profile Settings dialog.

Each BitKit2 board you have uploaded scores for will be shown in the list on the left side of the dialog (identified by the BitKit icon). To switch Profiles, click one of the listed boards to select it, then click the Save button.

Notice the three boards in the example below are grouped into two sections. “*CraftyArcade*” and “*CraftyQA*” are examples of an Alias. By selecting an Alias, then clicking the *Save* button, the Profile view will display the aggregated stars, rank, scores, and trophies for all BitKits under the Alias.



Profile Aliases

Clicking the Aliases button in the Profile Settings dialog will open a new window where you can manage profile aliases.

This dialog is comprised of two lists. On the left is the list of Aliases, and on the right is the list of BitKit boards you have uploaded scores from.

To add a BitKit to an Alias, drag it onto the name of an existing Alias, or an empty space to create a new Alias (you will be asked for a name). Note each BitKit board can only be assigned to a single Alias.

To remove a BitKit from an Alias, drag it back to the BitKits list.

To delete an Alias, move all BitKit boards to either a different Alias, or to the BitKits list.

Click the Save button to commit your changes.



Can I use an Alias to change the nickname of my BitKit board?

Definitely! After creating an Alias for your BitKit, that name will appear on the public leaderboards instead of your original nickname.

If I create an Alias for more than one BitKit board, how are my scores displayed on the public leaderboard?

The scores for all BitKit boards under an Alias are combined and sorted, so that only the top score for each game is displayed on the public leaderboard. Additionally, the Alias is displayed instead of the nickname for the BitKit board the score originated from.

Can I add a BitKit1 to the app so I can track those scores too?

Yes, you can add a BitKit1 using the “Add BitKit” button on the Profile Settings dialog. You will be asked for a 5 digit PIN, which can be obtained by sending an email to support@craftymech.com that includes the serial number (white label on the backside of the BitKit1).

Once the BitKit1 has been successfully added, it can be managed in Profile settings just like a BitKit2.

3: Games

The Games interface is shown below. All games installed on the BitKit2 (regardless if they are enabled or not) are displayed in the main window.

ADD ZIP - This button is used to add new games to the list for uploading to the BitKit2.

SYNC - This button will commit changes you have made to the game list to the BitKit2. This includes games you have added, and also marked for removal.

Games List - Displays the list of MAME zip names for all supported BitKit2 games.

Remixes - Displays a list of special game versions, like Eyes '99



ADDING GAMES

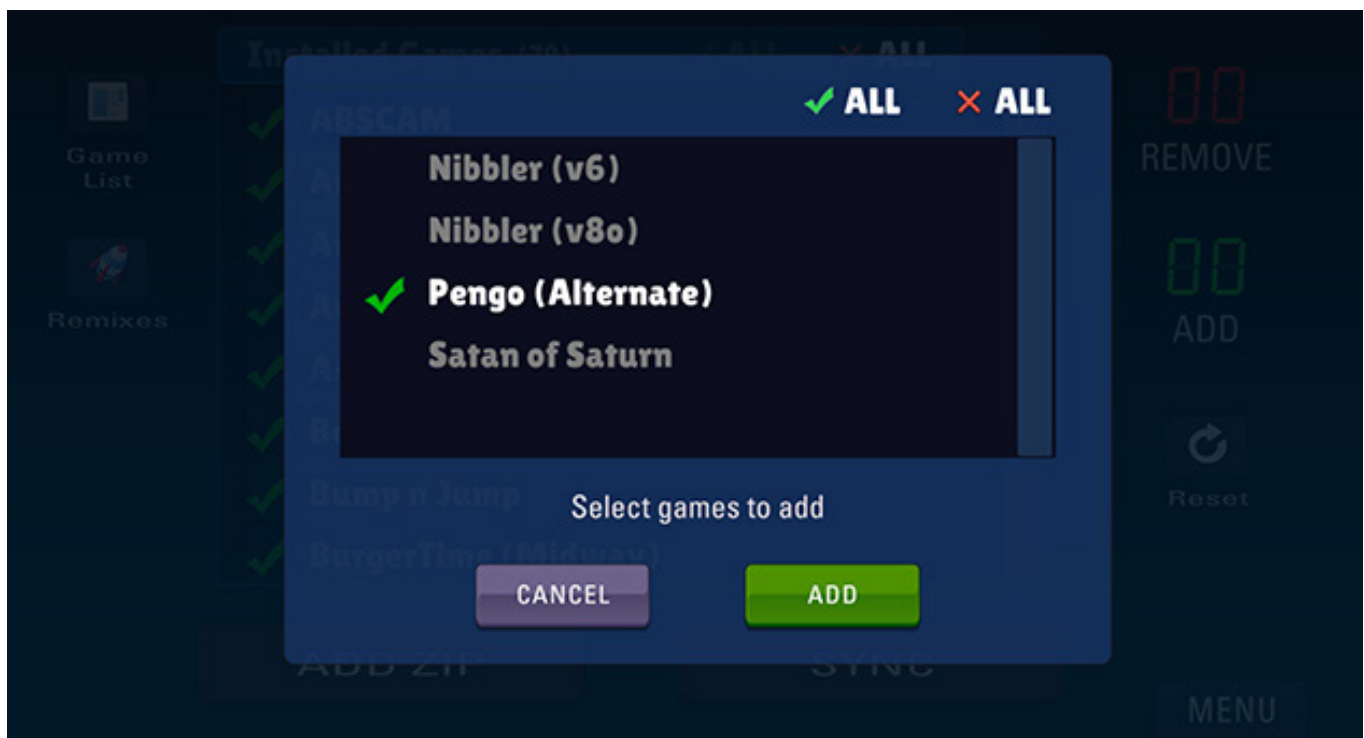
Clicking the **Add Zip** button opens a file dialog for selecting game Zip file(s).

If the have selected multiple Zip files, a dialog will open allowing you to choose which games to add (by default all games are marked by a green checkmark).

Click on an individual game to add/remove it from the list of games to add. You can also Check/Uncheck all the candidate games by using the buttons in the upper right of the dialog.

Click the **ADD** button when finished.

TIP: To quickly add a list of games, use the Finder/Explorer of your OS to create a Zip file of the game Zips. Make sure the game Zips are at the root of the new Zip you create, and not in sub-folders.



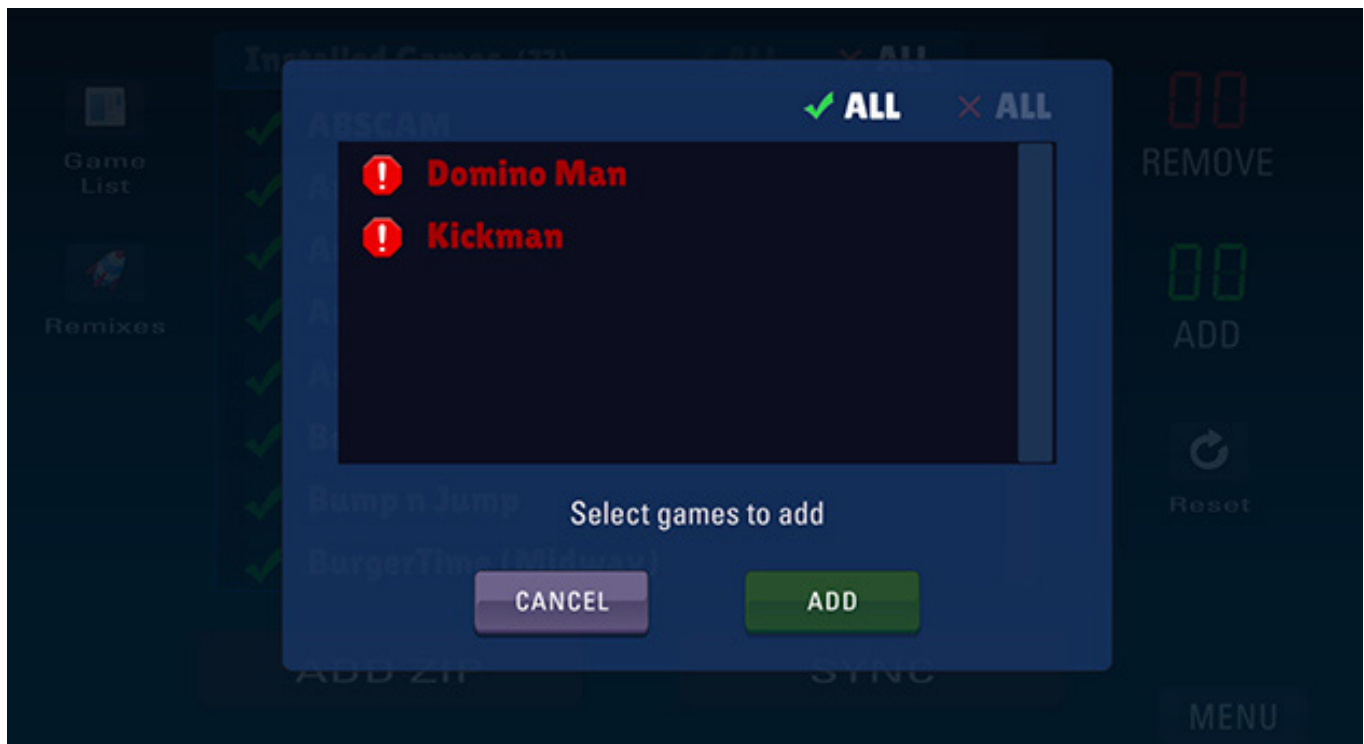
ZIP Errors

If a Zip file you selected does not match a BitKit2 supported game, or is missing files, an error dialog will be displayed.

If you selected multiple Zip files, or the Zip you selected contained multiple game Zips, then those games will be marked with an error icon as seen in the example below.

Clicking a game marked with the error icon will open a new dialog that lists the missing files.

Note that over time, MAME devs may have changed the filenames inside a game Zip. Older Zip files tend to have this problem more frequently, and it is recommended to use Zip files intended for MAME .193 or higher. Conversely, a new release of MAME may change filenames for a game Zip. As changes are discovered, the app's game database is updated to minimize frustration.



How do I change the order that games will appear in the BitKit2 Game Menu?

In the screenshot below you can see that four games have been added from ZIP files and ready to upload to the BitKit2 with the **SYNC** button.

What if you wanted *Peter Pepper* to appear before *Astro Fighter* on the BitKit2 game menu? To change the upload order for new games, click on the game title, and a **X** icon and up/down arrows will be displayed.

The arrows can be used to move the game up or down in the list of games that will be uploaded. Clicking **X** will remove the game from the list of games to be uploaded.



Where do I find game roms to upload to the BitKit2?

Google knows all, but it is helpful to know what filenames to look for. The **GAME LIST** button will open a dialog that lists the MAME Zip file needed for each game supported by the BitKit2.

TIP: Look for zip files that were intended for MAME .193 or higher.

How do I remove games from the BitKit2?

Clicking an installed game with a **checkmark** will mark that game to be removed from the BitKit2. Note that game list changes will not be committed to the BitKit2 until the **SYNC** button is clicked.

How do I remove all installed games and start over?

To erase all games, click the **X ALL** link in the upper right corner of the game list. Then click the **SYNC** button and all installed games on the BitKit2 will be erased.

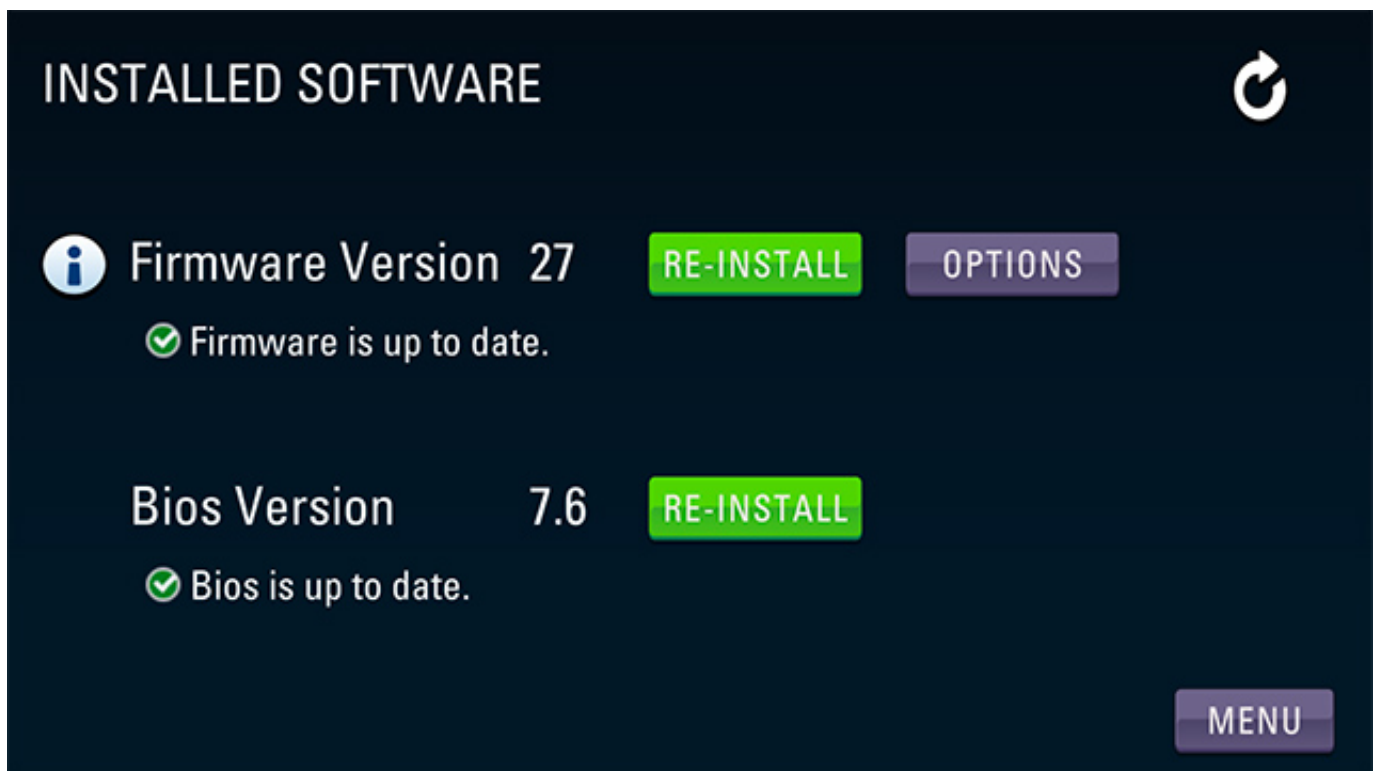
4 : Updates

The BitKit2 was designed to make updates easy and worry free. The software is divided into two separate parts: *Firmware* and *Bios*.

The *Firmware* is the BitKit2 Menu code, FPGA software, and misc. supporting data files. When new game support is added to the BitKit2, there will always be a firmware update.

The *Bios* is the software that boots the BitKit2, similar to bios software on Windows PCs. The *Bios* also handles wireless communication between the app and the BitKit2, and manages the flash storage.

Since the *Bios* and *Firmware* are separate parts of the system, a failed firmware update will not *brick* the BitKit2.



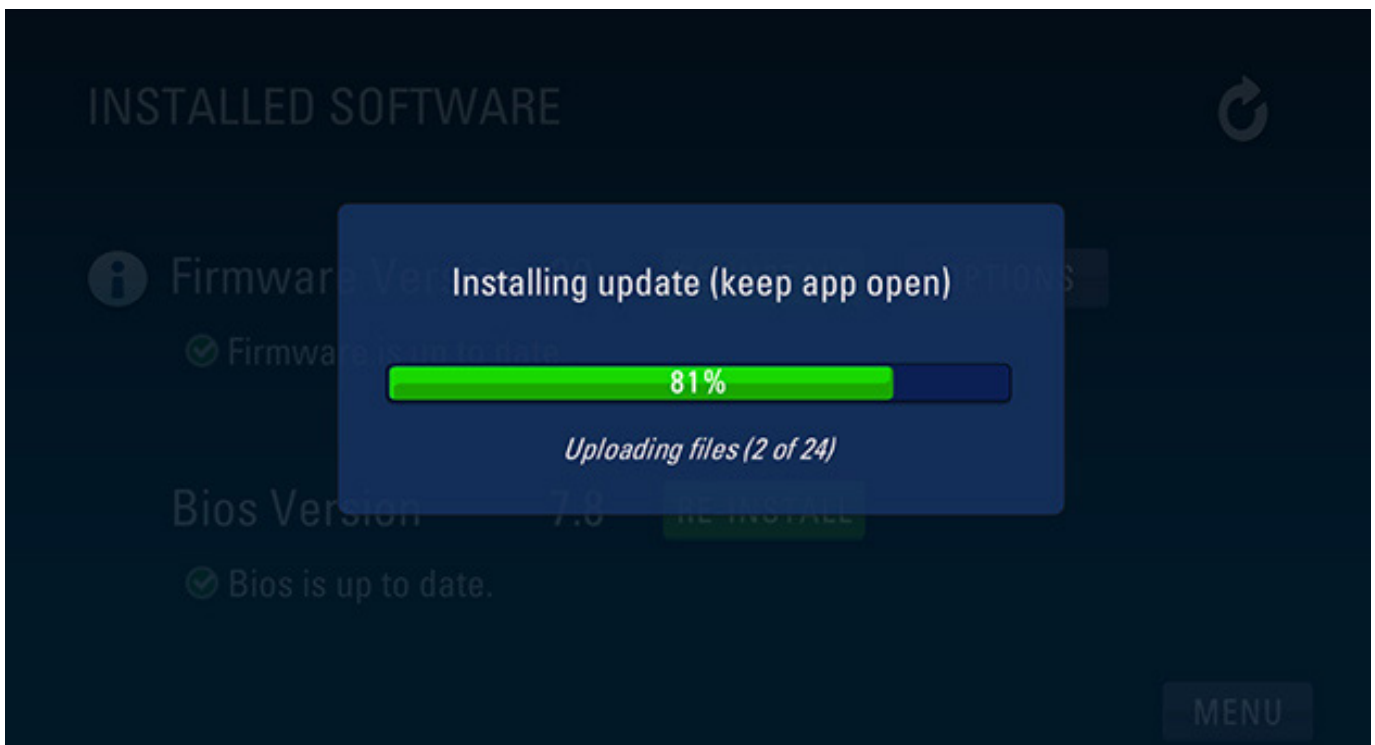
UPDATING

The installed versions of the *Firmware* and *Bios* are displayed next to an action button. The button text will change between **INSTALL** or **RE-INSTALL** depending if an update is available.

The *Info* icon to the left of the *Firmware* version will open a dialog with information about that update.

The **OPTIONS** button allows you to customize what hardware cores are installed (for example, install BurgerTime and Galaga hardware, but skip Nibbler, and Super Pac). This is helpful to reduce the upload time for an update, if you only are interested in a sub-set of the available hardware cores.

To install an update, click the corresponding action button. A progress dialog will be displayed, showing the upload percentage for each file in the update.



How long should the Firmware update take?

The install time will range from 3-8 minutes for WiFi, depending on how many optional hardware cores are selected in **Options** (by default all are selected). For Bluetooth (Mac/Android) the install time will range from 6-18 minutes.

How long should the Bios update take?

The install time will range from 1-3 minutes for WiFi, and 4-8 minutes for Bluetooth (Mac/Android).

The update stalled, what do I do?

The progress bar should move steadily from 0-100% for each file in the update (the Bios update is always a single file). If the progress bar stops moving for more than 30 seconds, the update has stalled. The solution is to do the following:

1. Exit & restart the BitKit2 app
2. Power cycle the BitKit2 board
3. Connect
4. Re-install the update.

The Firmware update completed, but now the BitKit2 boots to a blank screen.

The update did not complete successfully. Power cycle the BitKit2 board, then exit and restart the BitKit2 app. Connect to the BitKit2, and install the update again.

5: Settings

Click the gear icon in the upper right corner of the Menu to open the application settings.

Sound Effects - This option applies to the BitKit2 app only, and does not change audio settings for the BitKit2 pcb.

Display Size - *This* setting only appears on Android devices, and controls the scaling factor of the app window. This setting has no effect on the BitKit2 video display.

Connection - Depending on your operating system, different options will be available in the dropdown. Please refer to the *BitKit2 Setup Guide* for a detailed step by step connection guide.

