iCode Duo 5200 Ultimate H1

Bring your original Atari 5200 controllers to life on modern devices — from PCs and Macs to Nintendo Switch, MiSTer FPGA, and beyond. The Duo 5200 Ultimate has two native Atari 5200 controller ports built in, so your controllers plug straight in with full button remapping, keypad mapping, mouse emulation, and a built-in color display. It even plays classic arcade games, Atari 8-bit computer games and Atari 5200 games on its own screen.

iCode Duo 5200 Ultimate

No drivers needed. Just plug in and play.

Visit iCodeHub at **https://hub.icode.com** to unlock the full potential of your device — manage presets, fine-tune every setting, customize your buttons, and get the most out of your 5200 controllers!

For help and assistance: https://www.icode.com/support

Getting Started

Step 1. Plug the Duo 5200 Ultimate H1 into any USB port using the USB-C cable. The color display lights up with the start-up menu — pick **Game Adapter**, or just wait 8 seconds (see **Start-up Menu** below). No drivers needed — your device is recognized as a standard USB gamepad.

Step 2. Connect your Atari 5200 controller to either port. Port 1 is on the left, Port 2 on the right. Both ports work simultaneously, so two players can each use a full 5200 controller at once.

Step 3. Start playing! The default preset (Preset 0) is set up for the 5200 Hand Controller, with the analog stick mapped to the left analog stick. Fire A, Fire B, Start, Pause, Reset, and the full 12-key keypad all work out of the box. The six colored buttons on the device are active too.

Step 4. Visit **iCodeHub** in your browser to unlock the full potential of your adapter! Configure button and keypad mappings, fine-tune stick sensitivity, adjust the trackball response, enable mouse emulation, and much more — no software to install.

Start-up Menu

Each time the adapter powers up, the start-up menu appears:

- **Game Adapter** — use the adapter with your 5200 controllers on your computer, console, or MiSTer — everything from **Using the Menu** onward.
- **Arcade Games** — classic arcade games on the built-in display (see **Arcade Games**).
- **Atari Games** — Atari computer and 5200 games on the built-in display (see **Atari Games**).
- **Built-in Games** — Iron Dome, Brick Bash, and Jaw Cruncher (see **Games**).

Move up and down to choose, then click the stick or press **Red** or **Green** (or your controller's fire button) to start. Press **Menu** to go straight to the Game Adapter.

The item with the yellow **star** is the default. If you don't touch anything, it starts by itself after 8 seconds — the bar under the list shows the time left. To make another item the default, highlight it and press **Yellow** or **Blue**, or push left or right. The bottom of the screen shows the USB mode and firmware version.

When you leave an arcade or Atari game, the adapter comes back as a game adapter without the start-up menu. To turn the menu off — the adapter then starts the default right away — see **General Settings**.

Know Your Device

Your Duo 5200 Ultimate H1 features six colored face buttons (Red, Green, Blue, Yellow, Black, White), an analog navigation stick that moves in every direction and clicks, and a gray Menu button. The large color display shows your controller state and menus, with a speaker alongside it.

You'll also find two Atari 5200 controller ports for connecting your controllers and a USB-C port on the bottom. Firmware recovery is handled through iCodeHub or the on-device firmware-update shortcut (see Firmware Updates below).

Using the Menu

Press the gray **Menu** button to open the on-screen menu. Press it again to close and return to normal operation.

Navigate using the **analog stick**: push up and down to move through items, push right or click the stick to select, and push left to go back. You can also use the colored buttons in menus — **Red** works like pushing right (select or increase a value) and **Green** works like pushing left (go back or decrease a value).

At the top, **Games** opens the Games menu. Below it you'll see four sections:

- **Settings** for your current preset configuration.
- **USB Settings** for how the adapter talks to the host.
- **General** for system-wide preferences.
- **System** for diagnostics, reset, and firmware updates.

Supported Controllers

The Duo 5200 Ultimate H1 is built specifically for the Atari 5200, so the console is always Atari — there's nothing to select. Just pick the device type for each port.

Hand Controller (CX-52) — the standard Atari 5200 controller: analog stick, dual fire buttons (Fire A and Fire B), Start, Pause, Reset, and the full 12-key keypad. The analog stick runs through the jitter-free pipeline for smooth, drift-free movement. Both ports can run a full Hand Controller at once —

keypad included — for true two-player 5200.

Trackball (CX-53) — the Atari 5200 CX-53 trackball, read directly for smooth, precise X/Y tracking. Pair it with Auto Center to use it like an analog stick and play games the trackball was never originally meant for, like Asteroids and Space Invaders.

How to Change Your Controller Type

Press the gray **Menu** button, scroll to **Settings** and push right to enter it. Scroll to the port you want to configure (Port 1 or Port 2), push right, scroll to **Device**, and select **Hand Controller** or **Trackball**. Your choice takes effect immediately.

For a shortcut, hold **White + Menu** to jump straight to the port settings. Because both ports share one configuration, **Black + Menu** opens the same settings.

Fine-Tuning Your Controller

Once you've selected your device type, you can fine-tune how it behaves. These settings live inside the port configuration — press the gray **Menu** button, go to **Settings**, select the port, and you'll find them there. Everything is saved per-preset and per-port.

Function Mapping

This controls how the analog stick's direction is reported to the host. Scroll to **Function** inside the port settings and push right to cycle through the options: **Left Analog** (left stick), **D-Pad** (digital hat switch), **Right Analog** (right stick), **Trigger Analog** (trigger axes), or **Buttons Only** (directions as button presses). Choose whichever your game or emulator expects.

Stick & Trackball Settings

The 5200 analog stick and the CX-53 trackball share tuning options inside their port settings. Scroll through to adjust **Sensitivity**, **Acceleration** (Off to Very High), **Axis Orientation** (Normal or Flip options), **Behavior** (Linear or Circular), and **Resolution** (step size) until the response feels right. Turn on **Auto Center** for the trackball to make the cursor return to neutral when the ball stops moving, exactly like an analog stick — with six speed levels (Off, Very Slow, Slow, Medium, Fast, Very Fast).

Fire Buttons

Each 5200 controller has two fire buttons — Fire A and Fire B — read independently. Scroll to the **Fire Buttons** section inside the port settings to configure them. You can assign up to 3 actions to each fire button so a single press triggers multiple things at once. You can also turn on rapid fire for automatic repeat — set the value higher for faster firing.

Keypad

The 5200's 12-key keypad, plus Start, Pause, and Reset, are all fully mappable. Scroll to the **Keypad** section inside the port settings to assign each key to any gamepad button, directional action, or keyboard key — essential for games that use the keypad for weapon selection, options, and number entry.

Remapping Your Device Buttons

Want to change what the colored buttons do? Press the gray **Menu** button, go to **Settings**, then scroll down to **Duo 5200 Buttons** and push right to enter it. Select the button you want to change and you can set up to 3 action slots for it — this lets a single button press trigger multiple actions at the same time. You can also turn on **rapid fire** for automatic repeat on any button.

To control which USB gamepad receives your button presses, look for **Button Destination** at the top of the Duo 5200 Buttons section. Push right to cycle through Port 1, Port 2, or Both.

What You Can Map To

You have a wide range of actions to choose from: **Gamepad Buttons 0–31** (standard USB gamepad buttons), **Gamepad Directions** (Up/Down/Left/Right), **Mouse Clicks** (Left/Right/Middle/Back/Forward), and **Keyboard Keys** (A–Z, 0–9, F1–F12, arrows, Enter, Esc, Space, Tab, symbols, and modifiers like Shift/Ctrl/Alt/GUI).

The 12 keypad keys plus Start, Pause, and Reset are each individually mappable the same way.

The **Joy-Con** section of Duo 5200 Buttons sets what the navigation stick's Up, Down, Left, Right, and Click do while you play — by default the four directions act as a D-pad and the click as Button 0. The gray Menu button only opens and closes the menu.

USB Settings

These settings control how your adapter presents itself to the host device. Press the gray **Menu** button and scroll down to **USB Settings** to find them.

Port Mode

Scroll to **Ports Active** and push right to cycle through the options. **Both Ports On** keeps both ports active for two-player play. **Port 1 Only** and **Port 2 Only** disable the other port entirely — the device will reboot when you switch to these. A confirmation screen will appear where you can press **Red** or **Green** to confirm, or **Yellow** to cancel without rebooting.

USB Emulation Mode

If your platform isn't recognizing the adapter, scroll to **USB Emulation** inside USB Settings and push right to cycle through the modes. Keep cycling until you find the one that works for your platform:

Mode	Best For
Standard	Windows, Linux, emulators
Classic	Retro gaming platforms
Nintendo	Nintendo Switch
Legacy	Older basic HID systems
iOS	iPhone, iPad
Classic 2	Atari Gamestation Pro

You can also switch emulation modes without opening a menu: hold **White** while plugging in the adapter to bring up the on-screen USB emulation picker.

Playing on the Atari Gamestation Pro

Choose **Classic 2**. The Gamestation Pro then treats the adapter like its own joystick:

- Set **Function** to **D-Pad** so the 5200 stick's directions work as a joystick.
- Mouse and keyboard output are turned off automatically in this mode.

Mouse & Keyboard Emulation

Want to use your trackball or the 5200 stick as a USB mouse? Or map controller buttons to keyboard keys? Your adapter can output mouse and keyboard signals alongside the gamepad data.

To turn on mouse mode, press the gray **Menu** button, scroll to **USB Settings**, push right to enter it, then scroll to **Mouse** and push right to cycle through the options: **Off**, **On** (actively reports mouse data), or **Standby** (the host sees the mouse device but no data is sent until you need it). You can also

adjust the sensitivity from Very Low (1×) up to Very High (8×).

To turn on keyboard mode, go to **USB Settings**, scroll to **Keyboard**, and push right to cycle through **Off**, **On**, or **Standby**.

Note that changing mouse or keyboard modes may require the device to reboot since the USB descriptors need to change.

Display Modes

Your adapter has two display modes. The quickest way to change them is to hold **Green + Menu** while the menu is closed — each press cycles to the next mode. You can also press the gray **Menu** button, go to **General**, scroll to **Display**, and push right to cycle through them.

Off turns the display off completely. **Animated** (the default) shows a real-time animated visualization of your controller — you'll see it respond as you move the stick, press fire, and use the keypad.

General Settings

These settings apply across all your presets. Press the gray **Menu** button and scroll to **General** to find them.

To adjust the **Volume**, scroll to Volume and push right to increase or left to decrease. It goes from 0 (muted) to 10 (maximum), with 5 as the default.

To change the **Menu Theme**, scroll to Menu Theme and push right to cycle through Sunset Haze (warm, default), Midnight Ocean (cool blue), Ember (deep red/orange), or Neon Terminal (bright green retro look).

Start-up Menu turns the start-up menu **On** (the default) or **Off**. **Start-up Default** chooses what starts by itself — **Adapter**, **Arcade**, **Atari**, or **Built-in** games; with the menu off, it starts right away. You can also set the default from the start-up menu itself.

Presets

Your Duo 5200 Ultimate H1 stores **10 presets** (numbered 0–9). Each preset remembers your entire setup — device type and settings for both ports, all button and keypad mappings, rapid fire settings, USB emulation mode, port mode, and mouse/keyboard settings.

To switch presets, press the gray **Menu** button, scroll to **Settings**, push right to enter it, then scroll to **Preset** and push right to cycle through the numbers 0–9. The new preset takes effect right away.

Preset 0 is always available. To unlock presets 1–9, register your device with iCodeHub. You can also give each preset a custom name through iCodeHub, making it easy to remember what each setup is for. Until you register, a reminder appears after you pick from the start-up menu, and **Not Registered** appears at the bottom of the main menu.

Games

The Games menu brings all the games together: **Arcade Games**, **Atari Games**, and **Built-in Games**. Open it from the start-up menu, by holding **Yellow + Menu** while the menu is closed, or with **Games** at the top of the main menu.

Built-in Games holds three games you can play right on the color display:

Iron Dome is a Missile Command-style defense game. Use the analog stick to move your targeting cursor and click or press fire to launch interceptors. Protect your cities from incoming missiles across

multiple difficulty levels.

Brick Bash is an Arkanoid-style paddle game. Move your paddle left and right and bounce the ball to destroy all the bricks. The ball speeds up as you progress through the levels.

Jaw Cruncher is a Pac-Man-style arcade game — guide your muncher through the maze, gobble the dots, grab the power pellets, and avoid the ghosts.

You can play with the analog stick or your connected 5200 controllers — including the CX-53 trackball for smooth analog control. High scores are saved on your device and can be synced to the iCodeHub leaderboard.

Arcade Games and Atari Games are described in the next sections.

Arcade Games

Your adapter can also play 13 classic arcade games on its built-in display: **Pac-Man**, **Ms. Pac-Man**, **Galaga**, **Frogger**, **Donkey Kong**, **Donkey Kong Jr.**, **Dig Dug**, **Space Invaders**, **Pooyan**, **Time Pilot**, **Xevious**, **Super Cobra**, and **Scramble**. The games run from the original arcade ROM files, which you provide — **ROMs are not included**. Use only ROM files you are entitled to use.

To start, pick **Arcade Games** from the start-up menu or the Games menu (**Yellow + Menu**). The adapter restarts into the arcade and shows the game list. While the arcade is running, the adapter works as a stand-alone arcade machine — it is not a game controller for your computer until you exit.

Adding Your Games

If the drive has no games yet, the adapter first shows **No games yet**, with a QR code to step-by-step help at **icode.com/help/duo5200**: choose **ROM Drive** to open the drive right away (skip to Step 2), or **Start anyway** for the game list, which shows **No ROMs found**. To add games:

Step 1. In the game list, select **ROM Drive (USB)**. The adapter restarts as a USB drive.

Step 2. Connect the adapter to your computer. A drive called **ARCADE ROMS** appears.

Step 3. Copy the ROM zip files onto the drive — in the main folder or in a folder called **ROMS**. Keep the file names exactly as below.

Step 4. Eject the drive on your computer, then press **Menu** or **White** on the adapter to return to the game list.

Game	ROM file
Pac-Man	puckman.zip
Ms. Pac-Man	mspacman.zip
Galaga	galaga.zip
Frogger	frogger.zip
Donkey Kong	dkong.zip
Donkey Kong Jr.	dkongjr.zip (US) or dkongjrj.zip (Japan)
Dig Dug	digdug.zip
Space Invaders	invaders.zip
Pooyan	pooyan.zip
Time Pilot	timeplt.zip
Xevious	xevious.zip

Game	ROM file
Super Cobra	scobra.zip
Scramble	scramble.zip

The adapter uses the **MAME** ROM set for each game — the parent set, non-merged, so the zip contains every file the game needs. The 512 KB drive holds all of them, with room to spare for your Atari games, which share the drive. A game only appears in the list once its zip is on the drive. If a zip isn't the right set, the game is listed in **red**; select it to see which file is missing or wrong.

Your games stay on the drive when you update the firmware.

The Game List

Game names are shown in yellow. Move with the navigation stick or the 5200 controller on Port 1, and press **Fire** or **White** to select. Below the games you'll find:

Display — **Landscape** fits the game to the screen as the adapter sits; **Portrait** shows the game at full size — turn the adapter on its side. The adapter remembers your choice.

Show FPS — shows the frame rate beside the game.

ROM Drive (USB) — restarts as the USB drive to add or remove games.

Volume — push left or right to change it.

Exit — returns to the adapter. A quick press of **Menu** does the same.

Playing

Control	Action
5200 stick (Port 1) or navigation stick	Move
5200 Fire A (Port 1), Red, Blue, or stick click	Fire (A)
5200 Fire B (Port 1), Green, or Yellow	Second button (B) — in one-button games, also Fire
White	Start
Black	Insert coin
Hold Menu (1 second)	Back to the game list

Press **Black** to insert a coin, then **White** to start. **Xevious** (zapper / bomb), **Super Cobra** and **Scramble** (laser / bomb) use both buttons: **A** for the first, **B** for the second. You can also hold **White + Black** to return to the game list. The 5200 stick works as a joystick in the arcade — it learns its full range the first time you move it to the edges.

High Scores

Each game keeps its high-score table, just like the arcade — but unlike the arcade, the adapter remembers it when you turn it off. Your scores are saved when you **leave the game** (hold **Menu**), so return to the game list before switching off. High scores are kept when you update the firmware.

Atari Games

Your adapter can also be an **Atari 5200** — and an **Atari 400/800/XL/XE computer** — playing games on its built-in display with your own 5200 controllers, keypads included. It runs game files you provide — **games are not included**. Use only files you are entitled to use. The Atari operating systems are built in (AltirraOS and the Altirra 5200 OS), so no Atari ROM files are needed.

To start, pick **Atari Games** from the start-up menu or the Games menu (**Yellow + Menu**). The adapter restarts into the Atari and shows its game list. While it is running, the adapter is not a game controller for your computer until you exit.

Adding Your Games

The Atari games share the arcade's ROM drive.

Step 1. In the game list, select **ROM Drive (USB)** (at the end of the list). The adapter restarts as a USB drive.

Step 2. Connect the adapter to your computer. The **ARCADE ROMS** drive appears.

Step 3. Copy your game files onto the drive — anywhere you like; folders are fine.

Step 4. Eject the drive on your computer, then press **Menu** or **White** on the adapter to return to the game list.

Kind of game	Files
Atari 5200 cartridges	.a52, .bin, .rom (and 5200 .car files)
Atari 400/800/XL/XE programs	.xex, .com, .exe
Atari 400/800/XL/XE cartridges	.car, .rom, .bin
Disk images	.atr, .xfd (read only)
Zip files	one game per zip, holding any of the above

A .bin or .rom file is recognized as a 5200 or a computer cartridge by its contents; if one starts on the wrong machine, rename it **.a52** (5200) or **.car**. Arcade zips on the same drive are left out of the Atari list.

Real Atari ROMs (optional). Copy your own **5200.ROM**, **ATARIOSB.ROM** (400/800) or **ATARIXL.ROM** (XL/XE) onto the drive and they are used instead of the built-in ones. A few early computer games need them.

The Game List

Each game shows its kind at the right (5200, XEX, CART, DISK or ZIP). Move with the navigation stick or the 5200 controller on Port 1. Press **Fire**, **Red** or **White** to play; **Black** plays a computer game on a 400/800 instead of an 800XL. Below the games you'll find **Settings** and **ROM Drive (USB)**. Press **Menu** to return to the adapter.

Settings:

Setting	Choices
Keyboard	How the on-screen keyboard pauses the game
FPS display	Off / On
Volume	0 to 100%
Default machine	800XL / 400/800 (Black in the list starts the other)
TV system	NTSC / PAL
Controller test	Shows every control live: both 5200 controllers (stick, fire buttons and keypad), the navigation stick, and the buttons

Playing 5200 Games

Control	Action
5200 controllers (Ports 1 and 2)	Controllers 1 and 2: analog stick, Fire A = bottom fire, Fire B = top fire, keypad 0-9, *, #, START, PAUSE, RESET
Navigation stick	Controller 1's analog stick, while you move it
Red or stick click	Bottom fire
Green	Top fire
White	START
Black	PAUSE
Yellow	*
Blue	The controller keypad on screen
Hold Menu (1 second)	Back to the game list

The sticks learn their center and range by themselves: leave them at rest for a moment after plugging in, then move each one to its edges once. A message shows when a controller is plugged in or unplugged.

Playing Computer Games

Control	Action
5200 controllers (Ports 1 and 2)	Joysticks 1 and 2: Fire A or Fire B = fire, keypad digits = number keys, START = START
Navigation stick / click	Joystick 1 / Fire
Red	Fire
White	START
Black	SELECT
Green	OPTION
Yellow	SPACE
Blue	On-screen keyboard
Hold Menu (1 second)	Back to the game list

On-screen keyboard. Press **Blue** and a keyboard with the Atari's keys opens at the bottom of the screen (RETURN is there too), and the game pauses. Move the cursor with the stick and press fire to type a key. Press **Blue** again to close it. The **DRV** key switches disk drive 1 off and on, for the few disk games that won't start while a drive answers: let the game load, type DRV, then press START.

Button Shortcuts

You can quickly access common features without opening the menu by holding button combinations while the menu is closed:

Green + Menu — Cycle through the display modes.

White + Menu — Jump straight to the port settings.

Black + Menu — Also opens the port settings (both ports share one configuration on the 5200).

Yellow + Menu — Open the Games menu.

Red + White + Menu — Enter firmware update mode.

And at power-on: hold **White** while plugging in to open the USB emulation mode picker.

Diagnostics

If something isn't working right, the built-in diagnostics can help you see exactly what your controller is sending. Press the gray **Menu** button, scroll to **System**, push right, then scroll to **Diagnostics** and push right again. Each diagnostic can be toggled on or off:

Diagnostic	What It Shows
USB Heartbeat	USB communication indicator
FPS Indicator	Frames-per-second counter
Show Positions	Numeric axis values
Trackball Raw	Raw trackball X/Y/delta

System Menu

Press the gray **Menu** button and scroll to **System** to find these options.

To **Reset Defaults**, scroll to Reset Defaults and push right. A confirmation screen will appear — this restores all settings across all presets to factory defaults.

To view **System Info**, scroll to System Info and push right. You'll see your product name, model, and firmware version.

To enter **Firmware Update** mode, scroll to Firmware Update and push right. This puts the device into update mode (same as holding Red + White + Menu).

Unlock the Full Potential — iCodeHub Web App

Your Duo 5200 Ultimate H1 has powerful features right out of the box, but the real magic happens when you connect it to the **iCodeHub** web app. This is where you can manage all 10 presets with custom names, fine-tune stick sensitivity and trackball response, remap every button and keypad key with multi-action slots and rapid fire, enable mouse and keyboard emulation, back up your configurations to the Cloud Vault, and so much more. If you want to get the absolute best experience from your adapter, iCodeHub is the place to do it.

The best part? There's nothing to install. iCodeHub runs right in your browser. Just open it in **Chrome** or **Edge**, click Connect, select your device, and sign in.

Visit: **https://hub.icode.com**

Firmware Updates

Via iCodeHub (Recommended)

Plug your adapter into USB, open your browser, and go to **https://hub.icode.com**. The app will let you know if an update is available — just follow the on-screen instructions.

Important: Your settings and presets are not preserved during updates. Save them to your iCodeHub Vault before updating, and reload them afterward. Your arcade games and their high scores are kept.

Manual Firmware Update

You can also install an update yourself. First put the device into firmware-update mode: hold **Red + White + Menu** while the menu is closed (or use System → Firmware Update).

In update mode the device appears on your computer as a USB drive called **RP2350**. Then:

Step 1. Download the firmware update file (.uf2) for your device from **https://hub.icode.com**.

Step 2. Copy the .uf2 file onto the RP2350 drive. The device installs it and restarts by itself — the drive disappears from your computer when it's done, which is normal.

Make sure you download the correct file for your device. Installing the firmware for a different device can stop the unit from working. The Duo 5200 Ultimate's file starts with Duo5200Ultimate (for example, Duo5200UltimateV12H1.uf2).

If the device won't go into update mode, see **The device won't go into firmware update mode** under Troubleshooting.

Troubleshooting

Your controller isn't detected. Make sure it's firmly plugged into the 5200 port. Press the gray Menu button, go to Settings, select the port, and check that you've selected the correct device type (Hand Controller or Trackball). Try the other port. You can also turn on diagnostics to see raw input data — press Menu, go to System, then Diagnostics.

Your host device doesn't recognize the adapter. Try a different USB cable or port. Press Menu, go to USB Settings, scroll to USB Emulation, and push right to try a different mode. Standard works for most platforms, but some require Classic, Nintendo, Legacy, iOS, or Classic 2.

Buttons aren't responding. Make sure you're not in the menu — press Menu to exit. Press Menu again, go to Settings, then Duo 5200 Buttons, and check that your buttons are mapped to the actions you expect. Also check the Button Destination setting. If something seems wrong, go to System and select Reset Defaults to start fresh.

The display is blank. Hold Green + Menu to cycle through display modes — it may be set to Off. If it's still blank, press Menu, go to System, and select Reset Defaults.

Mouse or keyboard not working on your host. Press Menu, go to USB Settings, scroll to Mouse or Keyboard, and make sure it's set to On (not Off or Standby). Your host may need a reboot after the USB descriptors change. Try disconnecting and reconnecting the adapter.

No arcade games are listed. Select ROM Drive (USB) in the game list and check that the zip files are on the ARCADE ROMS drive with the exact names shown in Arcade Games. A game listed in red has the wrong ROM set — select it to see which file is missing or wrong.

Arcade high scores were lost. Scores are saved when you leave a game by holding Menu. Return to the game list before switching the adapter off.

An Atari game starts on the wrong machine or shows a blank screen. Rename a 5200 cartridge .a52 so it always starts on the 5200. Some early computer games need the original Atari operating system: copy ATARIOSB.ROM and ATARIXL.ROM onto the drive, or start the game with Black to run it on a 400/800.

A 5200 stick drifts or doesn't reach the edges in an Atari game. Leave it at rest for a moment, then move it to each edge once. Settings → Controller test in the Atari game list shows what the adapter reads.

You see two gamepad devices on your host. That's normal — the Duo 5200 presents two USB gamepads (one per port). If you only want one, press Menu, go to USB Settings, scroll to Ports Active, and set it to Port 1 Only or Port 2 Only.

The device won't go into firmware update mode. If the button shortcuts don't work — for example, the firmware doesn't start — use the small pin hole on top of the device, near the built-in navigation stick. Unplug the device. With a straightened paper clip, gently press and hold the update button inside the hole while you turn the device on by plugging it into your computer, and let go when the **RP2350** drive appears. Then copy the .uf2 file onto the drive (see Firmware Updates).

Platform Compatibility

Your adapter works with any device that supports USB HID gamepads:

PC — Windows, macOS, Linux **Mobile** — iOS, Android **FPGA** — MiSTer FPGA **Consoles** — Nintendo Switch, Steam Deck, Atari Gamestation Pro **SBC Retro** — RetroPie, Batocera, RetroArch, EmuElec, Recalbox

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Specifications

Spec	Detail
Processor	RP2350B dual-core, 200 MHz
Controller Ports	2× native Atari 5200
USB	USB-C, USB 2.0 Full Speed
USB HID Devices	Up to 4 (2 pads+mouse+kbd)
Display	240×320 color TFT (ST7789)
Audio	Polyphonic speaker
Storage	On-board flash (LittleFS)
Power	USB bus-powered
Console	Atari 5200
Presets	10 device / 100 cloud
Arcade	13 games, 512 KB USB ROM drive
Atari Games	8-bit and 5200, same ROM drive

Open-Source Software

Atari Games uses the open-source atari800 emulator with AltirraOS by Avery Lee, and Arcade Games uses Pico2Arcade. Both are released under the GNU GPL v3; the source code for the version in your firmware is available at github.com/alijani1/Pico2Atari8 and github.com/alijani1/Pico2Arcade.