

# I-PAC Firmware version 50 Enhanced Modes

## Features

- Traditional I-PAC keyboard mode unaffected. This is still the default.
- Device mode can also be switched to Dual Directinput Game Controller or Dual Xinput Game Controller.
- These modes appear as entirely different USB devices so there is no mixed-device confusion which causes issues in RetroPie.
- Selected mode is maintained after power off/on.
- Standard Dinput and Xinput Game Controller modes are preset for ease of use without any configuration.
- For advanced users who wish to create custom Game Controller configurations there are customisable game controller modes.
- Modes can be switched by pressing Start1 (or user-set alternate I-PAC shift) and holding this, and Player 1 button 1 through 5, for 10 seconds.
- Modes can also be switched by loading an appropriate config file using WinIPAC including "invisibly" via a command line.

These modes apply to Player 1 and 2 controls.

I-PAC Connection	Mode 2 Dinput	Mode 3 Xinput	Mode Switching Hold Start1 and this Button for 10 seconds with no other key activity: Start1+P1SW1 > Mode 1 Start1+P1SW2 > Mode 2 Start1+P1SW3 > Mode 3 Start1+P1SW4 > Mode 4 Start1+P1SW5 > Mode 5
Left	Dpad Left	Dpad Left	
Right	Dpad Right	Dpad Right	
Up	Dpad Up	Dpad Up	
Down	Dpad Down	Dpad Down	
SW 1	Button 1	A	Mode 1 (Keyboard User Set)
SW 2	Button 2	B	Mode 2 (Dinput Preset)
SW 3	Button 3	X	Mode 3 (Xinput Preset)
SW 4	Button 4	Y	Mode 4 (Dinput User Set)
SW 5	Button 5	Left Rear	Mode 5 (Xinput User Set)
SW 6	Button 6	Right Rear	
SW 7	Z Left	Left Trig	
SW 8	Z Right	Right Trig	
COIN	Button 7	BACK	
START	Button 8	START	
A		HOME	
B	Button 7	BACK	
START plus P1 RIGHT		HOME	
START plus P1 LEFT		BACK	

## Customising the board

Using WinIPAC, any input can be configured to any control including keys, power/volume, gamepad (Xinput or Dinput) across both players. When this is done, keys configured as keyboard keys will respond in Mode 1, Keys configured as gamepad keys respond in modes 4 and 5. Note this feature allows the entire 2-player panel to be configured as a one-player game controller if required, implementing every possible control.

Using WinIPAC, any key can be configured as mouse left or right button, Sleep, Wake, Vol Up, Vol Down. These will function in modes 1 and 4. (not Xinput).

## On Board LED

When powered on, the LED will stay lit once the board has passed self-test and detected by the host system.  
When switching modes, the LED will flash off, the number of times according to the mode number selected, after the 10 second period.

## Automatic Mode Switching

This is intended for use when WinIPAC is used for downloading configurations on the fly. This is the recommended method of mode switching if it is required to regularly switch modes.

Mode will switch automatically under the following conditions:

- If a keyboard-only configuration is downloaded and the board is currently in gamepad custom mode 4 it will switch to keyboard mode 1.
- If a gamepad-only configuration is downloaded and the board is currently in keyboard mode 1, it will switch to gamepad custom mode 4.
- If a gamepad-only configuration which includes an Xbox Home key is downloaded and the board is currently in keyboard mode 1, it will switch to gamepad custom mode 5.

## Xinput Mode Notes

Owing to the limitations imposed by the Xinput protocol, the following are NOT supported in Xinput modes but are supported in keyboard and Directinput modes:

- Mouse buttons
- Volume up and down buttons
- Power, sleep, wake buttons
- LED control (I-PAC Ultimate I/O only)
- No trackball/spinner support
- WinIPAC configuration changes take slightly longer in Xinput mode.

## Additional Info

Note that a mode switch is essentially the same as unplugging a USB device and plugging in a different one, into the same port. It will take the host PC up to 30 seconds to notice this and initialize the new device.  
The mode switching can be confirmed by observing the on-board LED or "Devices and Printers", the USB connect sound or other indication on the host.  
If hotkey mode switching fails to work, check that Start1 (or another connection) is configured as an I-PAC shift control. If this feature has been removed in WinIPAC, mode switching will not work. Any stuck/shorted controls will also inhibit mode switching.

## "Backdoor" Reset

The board can be rest back into keyboard Mode 0 by pressing and holding the P1SW1 button on power up. This will work irrespective of the current board mode or input configuration. Note it must be a hard power-up or plug-in of the USB cable.