

Drago Arcade 34B Manual

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1.DRAGO Arcade 34B Introduction

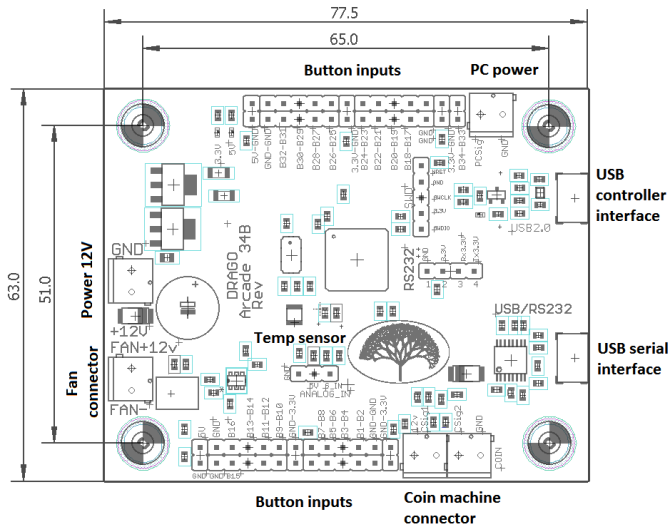
1.1 Description:

The Drago Arcade 34B board aims to enable the easy interfacing of hardware buttons or similar inputs with a PC or a machine similar to a PC over a standard USB interface. Its feature set is best matching the use case of an Arcade machine.

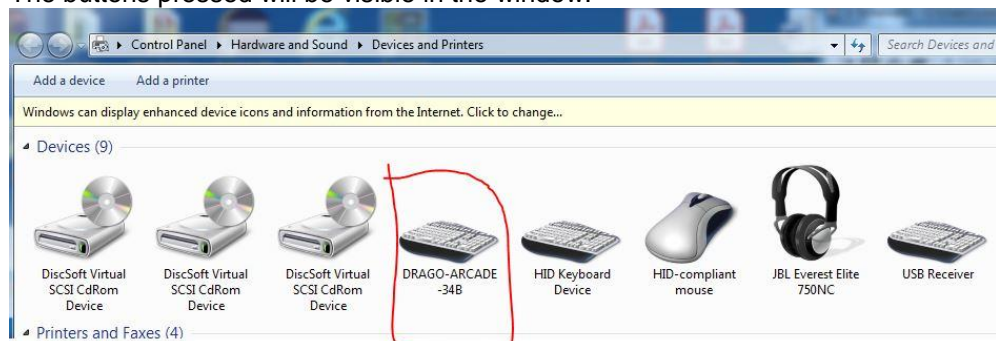
1.2 Main features:

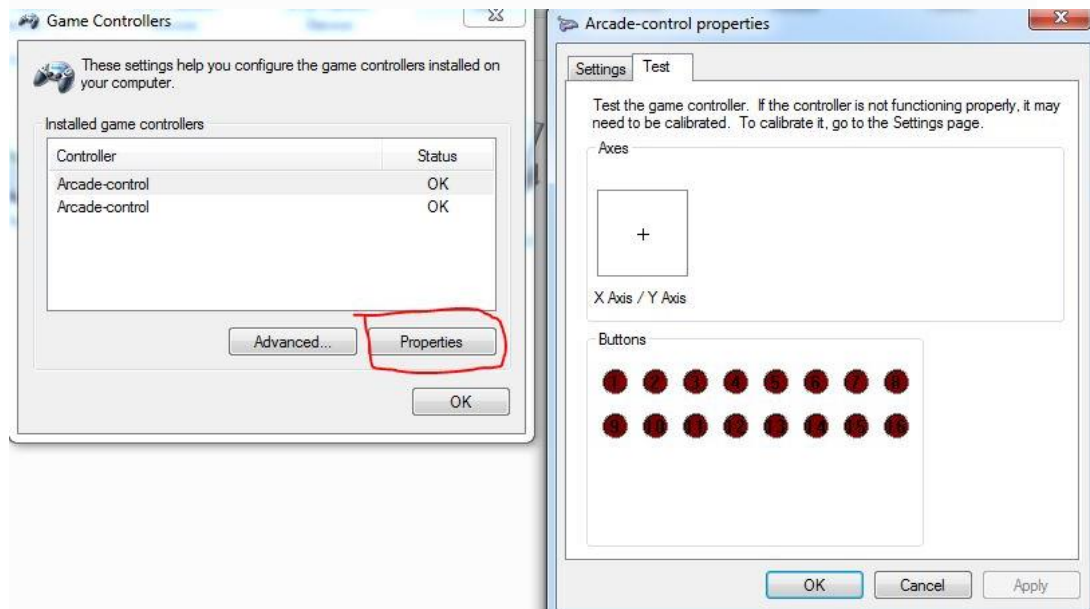
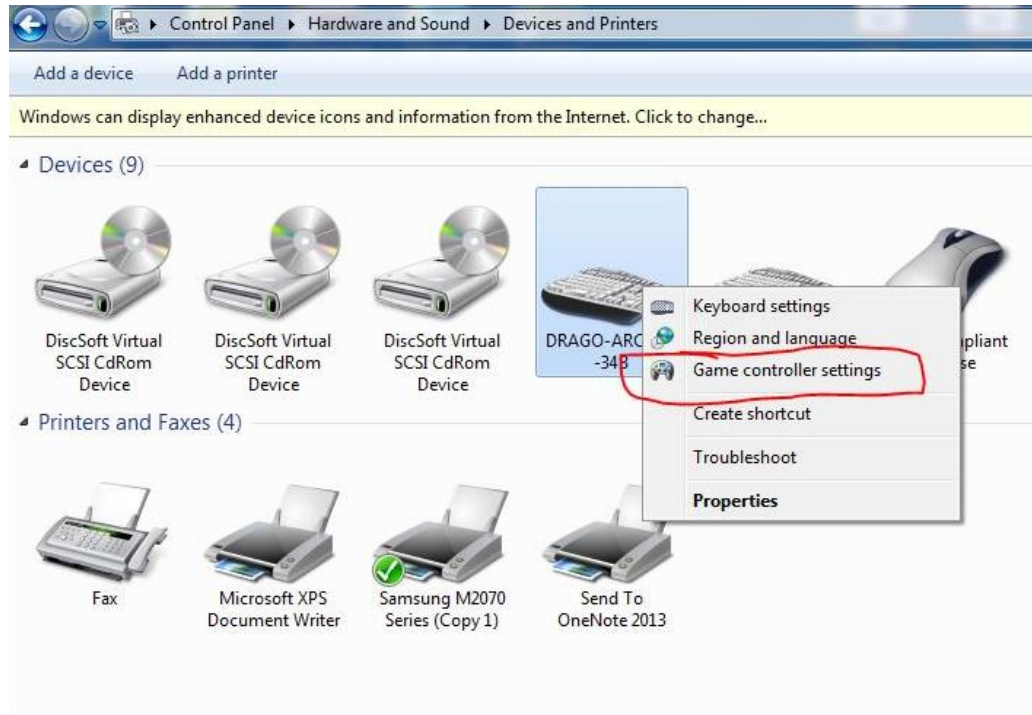
- Configuration over the serial connection using an USB Micro port
- Easy software update over the serial connection using the integrated Bootloader.
- All configurations can be stored and are automatically loaded when the software starts.
- 34 configurable inputs
 - Combinations of up to 4 inputs are supported for triggering an event.
 - Can have the coin impulse as an event (to be sent as a keyboard press or game controller button).
 - Configurable coin cost for each button press (can be disabled)
 - Supports the configuration of an Admin mode for enabling events.
 - Event output can be (combinations of outputs are supported as well):
 - USB
 - Keyboard
 - Joystick 1
 - Joystick 2
 - Special
 - PC Power
 - Admin control
- Supply from the USB Micro ports or a 12V supply (12V supply is mandatory in order to support coin machines and the fan control)
- Fan control based on an external temperature sensor. Custom analog sensors can be used as the main parameters are software configurable.

2 Communication over the serial to USB interface



- Serial communication is done over a USB/Serial converter with the following specs: baud = 115200, no parity, 8 data bits, 1 stop bit and no flow control.
- Tested under Windows (PC) and Linux (Raspberry pi). For the serial communication it may require a device driver for the FT230X usb to serial converter chip (<https://www.ftdichip.com/Drivers/VCP.htm>).
- Windows:
 - Go to Devices and Printers. You should find the device “DRAGO ARCADE-34B” if connected over the USB Controller interface or, “Drago Arcade34B Basic Usart” if connected over the USB Serial interface.
 - Right click on it and select game controller
 - Choose one of the game controllers and right click on it and go to properties.
 - The buttons pressed will be visible in the window.





2.1 Bootloader – in application loader

- Connection must be done over the USB-Serial interface.
- Used to make an update of the application software.
- Binary file is uploaded via the Ymodem protocol
 - Easy to use terminal: ExtraPutty, hyperterminal
- Options:
 - Input key “1” to load a new image.
 - In ExtraPutty go to Files Transfer -> Ymodem->Send and select the new image file

- Input key "2" to start the main application.
- Input key "3" to get the unique ID of you board. Used to request the updated image.
- Input key "4" to get the Hardware, Bootloader and Main application software versions.
- In 10 seconds, if there is no key event a jump to the main application will occur.

2.2 Main Application

- Connection must be done over the USB-Serial interface.
- Easy to use terminal for the communication is "Termite". If the power is unplugged, reset also the connection in "Termite" for it to work again.
- All commands must be written with lower case.
- All commands must start and finish with the sign '#'
- All examples should work if they are sent to the target
- After a change in the events list or in the temperature definitions a "savemem" command must be executed to store the new options so that they are available after a reset.

2.2.1 Valid commands:

2.2.1.1 help

- a. **Definition:** Will print this file as output.
- b. **Parameter:** : no parameter
- c. **Example:** #help#

2.2.1.2 exit

- a. **Definition:** Will exit the application and go to the Bootloader.
- b. **Parameter:** : no parameter
- c. **Example:** #exit#

2.2.1.3 rmevent

- a. **Definition:** will remove one event from the current even list.
- b. **Parameter:** event number that is going to be removed. If you use the printev command the numbers are marked on the left side. See the printev command for details. Maximum 3 digit numbers are allowed. If more digits are given they will be ignored. #rmevent=4567# will be equal to #rmevent=456#
- c. **Example:** #rmvevent=0#

2.2.1.4 printev

- a. **Definition:** will print all the known events from the system. If there are no events currently it will say that no events are stored.
- b. **Parameter:** no parameters
- c. **Example:** #printev#

2.2.1.5 clrevents

- a. **Definition:** will erase all the current events stored in memory
- b. **Parameter:** no parameter
- c. **Example:** #clrevents#

2.2.1.6 defevents

- a. **Definition:** will create a list of default events:
- b. **Parameter:** no parameter.
- c. **Example:** #defeverts#

```
ACK_printEvents
>>>>>> PRINTING ALL REGISTERED EVENTS <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<
No events stored in device, please add events using the addev or defevents commands. See Help for details#defeverts#
```

```
ACK_createDefault#printev#
```

```
ACK_printEvents
>>>>>> PRINTING ALL REGISTERED EVENTS <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<
```

NR:1 addevent:admev=1;coinev=0;coinnr=0;bcomb=4;b7n;b9n;b21n;b23n;kbeva=1;kbevm=lctrl,alt;kbevnr=1;kb_f12;j1eva=0;j2eva=0;boeva=0;
 NR:2 addevent:admev=1;coinev=0;coinnr=0;bcomb=3;b7n;b8n;b9n;kbeva=1;kbevm=lctrl,alt;kbevnr=1;kb_f11;j1eva=0;j2eva=0;boeva=0;
 NR:3 addevent:admev=1;coinev=0;coinnr=0;bcomb=3;b21n;b22n;b23n;kbeva=0;j1eva=0;j2eva=0;boeva=1;boevnr=1;pc_power;
 NR:4 addevent:admev=0;coinev=0;coinnr=0;bcomb=2;b21n;b23n;kbeva=1;kbevm=;kbevnr=1;kb_esc;j1eva=0;j2eva=0;boeva=0;
 NR:5 addevent:admev=0;coinev=0;coinnr=0;bcomb=2;b7n;b9n;kbeva=1;kbevm=;kbevnr=1;kb_esc;j1eva=0;j2eva=0;boeva=0;
 NR:6 addevent:admev=1;coinev=0;coinnr=0;bcomb=2;b3n;b8n;kbeva=1;kbevm=alt;kbevnr=1;kb_tab;j1eva=0;j2eva=0;boeva=0;
 NR:7 addevent:admev=1;coinev=0;coinnr=0;bcomb=2;b6n;b7n;kbeva=1;kbevm=alt;kbevnr=1;kb_f4;j1eva=0;j2eva=0;boeva=0;
 NR:8 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b1n;kbeva=0;j1eva=1;j1evnr=1;b_1;j2eva=0;boeva=0;
 NR:9 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b2n;kbeva=0;j1eva=1;j1evnr=1;b_2;j2eva=0;boeva=0;
 NR:10 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b3n;kbeva=0;j1eva=1;j1evnr=1;b_3;j2eva=0;boeva=0;
 NR:11 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b4n;kbeva=0;j1eva=1;j1evnr=1;b_4;j2eva=0;boeva=0;
 NR:12 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b5n;kbeva=0;j1eva=1;j1evnr=1;b_5;j2eva=0;boeva=0;
 NR:13 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b6n;kbeva=0;j1eva=1;j1evnr=1;b_6;j2eva=0;boeva=0;
 NR:14 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b7n;kbeva=0;j1eva=1;j1evnr=1;b_7;j2eva=0;boeva=0;
 NR:15 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b8n;kbeva=0;j1eva=1;j1evnr=1;b_8;j2eva=0;boeva=0;
 NR:16 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b9n;kbeva=0;j1eva=1;j1evnr=1;b_15;j2eva=0;boeva=0;
 NR:17 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b10n;kbeva=0;j1eva=1;j1evnr=1;b_16;j2eva=0;boeva=0;
 NR:18 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b11n;kbeva=0;j1eva=1;j1evnr=1;b_left;j2eva=0;boeva=0;
 NR:19 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b12n;kbeva=0;j1eva=1;j1evnr=1;b_right;j2eva=0;boeva=0;
 NR:20 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b13n;kbeva=0;j1eva=1;j1evnr=1;b_up;j2eva=0;boeva=0;
 NR:21 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b14n;kbeva=0;j1eva=1;j1evnr=1;b_down;j2eva=0;boeva=0;
 NR:22 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b15n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_1;boeva=0;
 NR:23 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b16n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_2;boeva=0;
 NR:24 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b17n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_3;boeva=0;
 NR:25 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b18n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_4;boeva=0;
 NR:26 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b19n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_5;boeva=0;
 NR:27 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b20n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_6;boeva=0;
 NR:28 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b21n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_7;boeva=0;
 NR:29 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b22n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_8;boeva=0;
 NR:30 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b23n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_15;boeva=0;
 NR:31 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b24n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_16;boeva=0;
 NR:32 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b25n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_left;boeva=0;
 NR:33 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b26n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_right;boeva=0;
 NR:34 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b27n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_up;boeva=0;
 NR:35 addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b28n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_down;boeva=0;

2.2.1.7 savemem

- Definition:** Stores in permanent memory the current configuration. At startup this configuration is loaded and used. It includes the events and the temperature settings.
- Parameter:** no parameter.
- Example:** #savemem#

2.2.1.8 readmem

- Definition:** Reads the current stored configuration from the permanent memory and applies it. It includes the events and the temperature settings.
- Parameter:** no parameter.
- Example:** #readmem#

2.2.1.9 getcoins

- Definition:** Prints the number of coins available in the system. Useful for testing only.
- Parameter:** no parameter
- Example:** #getcoins#

2.2.1.10 setcoins1

- Definition:** Sets the number of coins available in the first pool.
- Parameter:** The actual number of coins. Maximum 3 digit numbers are allowed.
- Example:** #setcoins1=5#

2.2.1.11 setcoins2

- Definition:** Sets the number of coins available in the second pool.
- Parameter:** The actual number of coins. Maximum 3 digit numbers are allowed.
- Example:** #setcoins2=5#

2.2.1.12 gettempparam

- Definition:** Prints the temperature values
- Parameter:** no parameter
- Example:** #gettempparam#

2.2.1.13 deftemp

- Definition:** sets the default temperature values
- Parameter:** no parameter
- Example:** #deftemp#

- i. tempZeroDegreeemV = 500
- ii. tempmVPerDegree = 10
- iii. tempMax = 700
- iv. tempStartFan = 250
- v. tempHisteresys = 20

2.2.1.14 **settempphys**

- a. **Definition:** sets the temperature hysteresis
- b. **Parameter:** temperature hysteresis that is going to be used when the fan is turned on/off. Maximum 3 digit numbers are allowed.
- c. **Example:** #settempphys=23#

2.2.1.15 **settempsta**

- a. **Definition:** sets the start/stop temperature.
- b. **Parameter:** temperature at which the fans will be turned on/off. The hysteresis value will also be added / subtracted. Maximum 3 digit numbers are allowed.
- c. **Example:** #settempsta=300#

2.2.1.16 **settempmax**

- a. **Definition:** sets the maximum temperature
- b. **Parameter:** maximum temperature; at this temperature the fans will reach max rpm. Maximum 3 digit numbers are allowed.
- c. **Example:** #settempmax=650#

2.2.1.17 **settempmvd**

- a. **Definition:** sets the mV per degree
- b. **Parameter:** mV per degree; used in the computation from and ADC value to a temperature value; depends on the temperature sensor used. Maximum 3 digit numbers are allowed.
- c. **Example:** #settempmvd=15#

2.2.1.18 **settempzmv**

- a. **Definition:** sets the mV at 0 degrees.
- b. **Parameter:** mV at 0 degrees; used in the computation from and ADC value to a temperature value; depends on the temperature sensor used. Maximum 3 digit numbers are allowed.
- c. **Example:** #settempzmv=600#

2.2.1.19 **addev**

- a. **Definition:** Adds an event to the current list of events.
- b. **Parameter:**
 - i. admev
 - 1. valid options: 0 or 1
 - 2. If 1 this event is active only in admin mode. If 0 it is active in both modes.
 - ii. Coinev
 - 1. Valid option 0,1 or 2
 - 2. If 1 this event will require coins from the first pool and if 2 it will require coins from the second pool (in order to be sent). If 0 no coins are needed
 - iii. Coinnr
 - 1. Valid values are from 0-9
 - 2. This is the number of coins that this event will require and consume
 - iv. Bcomb
 - 1. Valid values are from 1-4
 - 2. This is the number of buttons that need to be pressed in order for the event to happen
 - 3. It is followed by a list of buttons separated by ','
 - 4. A button is defined as: bXXa or bXXn, where XX is the button number. For single digit numbers there is no need for a 0 padding (bXa is accepted)
 - a. The string ending of 'a' defines that this button will be active high (and it will be pulled down by the uC) and an ending of 'n' defines that the button is active low (and it will be pulled high by the uC)

- b. If multiple events use the same button the used should assure that they are both active on the same level. The level is set based on the last entry and is not changed when an entry is deleted.
 - c. There are 2 special options: c1, c2. These are used to send a specific signal once a coin is inserted in either the first pool or the second pool of coins. They can't be combined with other options (bcomb must be equal to 1). The total number of coins in that pool won't increase anymore. Adding coins using the setcoins1/2 command won't trigger this event.
- v. kbeva
 - 1. Valid option 0/1
 - 2. If 1 this event is also a keyboard event and the keyboard action definition must follow. If 0 the parameters kbevm and kbennr must not be present.
- vi. kbevm
 - 3. List of keyboard event modifiers.
 - 1. Valid options are: lctrl,lalt,lshift,lgui, rctrl,ralt,rshift,rgui.
 - 2. Can be made as a list and must be separated by ','
 - 3. If no modifier is needed, it shall be left empty as: "kbevm=";
- vii. kbevnr
 - 1. Number of keys that are controlled by this event
 - 2. Valid options are between 1-3
 - 3. Followed by a list of keys separated by ';'
 - a. Valid keys are:
 - i. kb_0 – kb_9
 - ii. kb_a – kb_z
 - iii. kb_f1 – kb_f24
 - iv. kb_esc
 - v. kb_enter
 - vi. kb_tab
 - vii. kb_space
- viii. j1eva
 - 1. Valid option 0/1
 - 2. If 1 this event is also a joystick 1 event and the joystick 1 action definition must follow. If 0 the parameter j1evnr must not be present.
- ix. j1evnr
 - 1. Number of buttons that are controlled by this event
 - 2. Valid options are between 1-3
 - 3. Followed by a list of keys separated by ';'
 - a. Valid keys are:
 - i. b_1 – b_16
 - ii. b_left
 - iii. b_right
 - iv. b_up
 - v. b_down
- x. j2eva
 - 1. Valid option 0/1
 - 2. If 1 this event is also a joystick 2 event and the joystick 2 action definition must follow. If 0 the parameter j2evnr must not be present.
- xi. J2evnr
 - 1. Number of buttons that are controlled by this event
 - 2. Valid options are between 1-3
 - 3. Followed by a list of keys separated by ';'
 - a. Valid keys are:
 - i. b_1 – b_16
 - ii. b_left
 - iii. b_right
 - iv. b_up
 - v. b_down
- xii. boeva
 - 1. Valid option 0/1
 - 2. If 1 this event is also a board event and the board action definition must follow. If 0 the parameter boevnr must not be present.
- xiii. Boevnr
 - 1. Number of actions that are controlled by this event
 - 2. Valid options are between 1-3
 - 3. Followed by a list of keys separated by ';'
 - a. Valid actions are:
 - i. pc_power
 - ii. admin

c. Example:

1. #addevent:admev=1;coinev=0;coinnr=0;bcomb=4;b7n;b9n;b21n;b23n;kbeva=1;kbevm=lctrl,lalt;kbevnr=1;kb_f12;j1eva=0;j2eva=0;boeva=0;#
2. #addevent:admev=1;coinev=0;coinnr=0;bcomb=3;b7n;b8n;b9n;kbeva=1;kbevm=lctrl,lalt;kbevnr=1;kb_f11;j1eva=0;j2eva=0;boeva=0;#
3. #addevent:admev=1;coinev=0;coinnr=0;bcomb=3;b21n;b22n;b23n;kbeva=0;j1eva=0;j2eva=0;boeva=1;boevnr=1;pc_power;#
4. #addevent:admev=0;coinev=0;coinnr=0;bcomb=2;b21n;b23n;kbeva=1;kbevm=;kbevnr=1;kb_esc;j1eva=0;j2eva=0;boeva=0;#
5. #addevent:admev=0;coinev=0;coinnr=0;bcomb=2;b7n;b9n;kbeva=1;kbevm=;kbevnr=1;kb_esc;j1eva=0;j2eva=0;boeva=0;#
6. #addevent:admev=1;coinev=0;coinnr=0;bcomb=2;b3n;b8n;kbeva=1;kbevm=lalt;kbevnr=1;kb_tab;j1eva=0;j2eva=0;boeva=0;#
7. #addevent:admev=1;coinev=0;coinnr=0;bcomb=2;b6n;b7n;kbeva=1;kbevm=lalt;kbevnr=1;kb_f4;j1eva=0;j2eva=0;boeva=0;#
8. #addevent:admev=0;coinev=0;coinnr=0;bcomb=2;b19n;b16n;kbeva=0;j1eva=0;j2eva=0;boeva=1;boevnr=1;pc_power;#
9. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b1n;kbeva=0;j1eva=1;j1evnr=1;b_1;j2eva=0;boeva=0;#
10. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b2n;kbeva=0;j1eva=1;j1evnr=1;b_2;j2eva=0;boeva=0;#
11. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b3n;kbeva=0;j1eva=1;j1evnr=1;b_3;j2eva=0;boeva=0;#
12. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b4n;kbeva=0;j1eva=1;j1evnr=1;b_4;j2eva=0;boeva=0;#
13. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b5n;kbeva=0;j1eva=1;j1evnr=1;b_5;j2eva=0;boeva=0;#
14. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b6n;kbeva=0;j1eva=1;j1evnr=1;b_6;j2eva=0;boeva=0;#
15. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b7n;kbeva=0;j1eva=1;j1evnr=1;b_7;j2eva=0;boeva=0;#
16. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b8n;kbeva=0;j1eva=1;j1evnr=1;b_8;j2eva=0;boeva=0;#
17. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b9n;kbeva=0;j1eva=1;j1evnr=1;b_15;j2eva=0;boeva=0;#
18. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b10n;kbeva=0;j1eva=1;j1evnr=1;b_16;j2eva=0;boeva=0;#
19. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b11n;kbeva=0;j1eva=1;j1evnr=1;b_left;j2eva=0;boeva=0;#
20. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b12n;kbeva=0;j1eva=1;j1evnr=1;b_right;j2eva=0;boeva=0;#
21. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b13n;kbeva=0;j1eva=1;j1evnr=1;b_up;j2eva=0;boeva=0;#
22. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b14n;kbeva=0;j1eva=1;j1evnr=1;b_down;j2eva=0;boeva=0;#
23. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b15n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_1;boeva=0;#
24. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b16n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_2;boeva=0;#
25. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b17n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_3;boeva=0;#
26. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b18n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_4;boeva=0;#
27. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b19n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_5;boeva=0;#
28. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b20n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_6;boeva=0;#
29. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b21n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_7;boeva=0;#
30. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b22n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_8;boeva=0;#
31. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b23n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_15;boeva=0;#
32. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b24n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_16;boeva=0;#
33. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b25n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_left;boeva=0;#

34. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b26n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_right;boeva=0;#
35. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b27n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_up;boeva=0;#
36. #addevent:admev=0;coinev=0;coinnr=0;bcomb=1;b28n;kbeva=0;j1eva=0;j2eva=1;j2evnr=1;b_down;boeva=0;#