

Sega Mega Drive/Genesis switchless mod

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Holding reset switch cycles through three available modes indicated by Status LED color:

-50Hz/en (Europe, green)

-60Hz/en (USA, orange)

-60Hz/jp (Japan, red)

Releasing switch sets mode without resetting console.

Triggering reset switch resets console.

Both active-high and active-low reset consoles are supported by sensing the reset line level on startup.

Indicator LED is optional, but strongly recommended.

Tested working on the following pcb versions:

-IC BD M5 PAL VA4 (PAL early Mega Drive Mk1, active-high reset)

-IC BD M5 PAL (PAL late Mega Drive Mk1, active-low reset)

-PC BD MD2 VA1.8 PAL (PAL Mega Drive Mk2, active-low reset)

Untested on american, japanese or Mk3 consoles, but should work in theory.

Please report your experience with any pcb versions not listed here.

pin configuration:

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+5V |1          14| GND  
    |2  A5 A0 13| RESET_IN, /RESET_IN (Reset Button)  
    |3  A4 A1 12|  
    |4  A3 A2 11|  
  
(red) LED_OUT2 |5  C5 C0 10| LANGUAGE_OUT (en/jp)  
(grn) LED_OUT1 |6  C4 C1  9| VIDEOMODE_OUT (50/60Hz)  
    |7  C3 C2  8| RESET_OUT, /RESET_OUT (VDP reset line)  
    `-----'
```

(/)/RESET_IN - Reset Button Input (needs pulldown resistor (5 KOhm) on active-high reset consoles). *

LANGUAGE_OUT - English(high)/Japanese(low), JP1/JP2 on Mega Drive Mk1, C65/C68 on Genesis 3. **

VIDEOMODE_OUT - 60Hz(high)/50Hz(low), JP3/JP4 on Mega Drive Mk1, C63/C64 on Genesis 3. **

(/)/RESET_OUT - Reset output to videochip. *

LED_OUT1, LED_OUT2 - Use 3-pin dual-color (red/green) LED here. Connect common base of LED to GND via 220 Ohm resistor.

* Cut reset line between reset button and videochip. Be sure to leave pulldown resistor connected to reset button on active-high reset units.

** Make sure to remove/cut any connection on set jumpers. Mk2 consoles don't have any jumpers, you'll have to cut lines here.

If you experience noise problems, you may add a capacitor near the PIC between the +5V and GND lines. I never had any, though.

Parts needed:

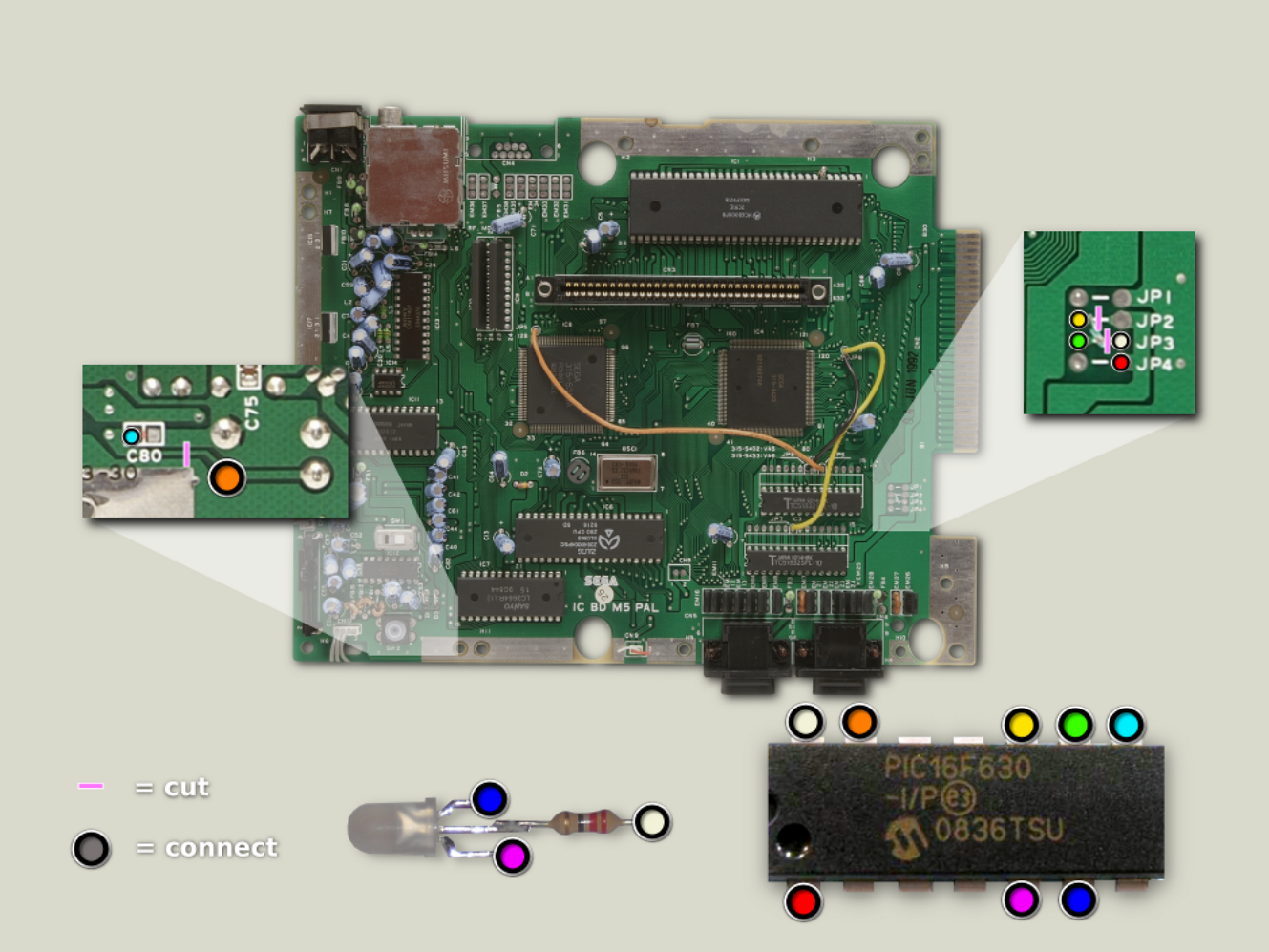
- Microchip PIC 16F630**
- Some wire**
- Dual-color LED (optional)**
- 220 Ohm resistor (optional)**
- 100nF Ceramic Capacitor (optional)**

Steps required:

- Program supplied hex file to 16F630.**
- Solder parts to console PCB according to one of the following diagrams, depending on your PCB version.**



Mk1 Mega Drive (IC BD M5 PAL)



Mk2 Mega Drive (PC BD MD2 VA1.8)

