C128 Fault Guide

Here are the common C128 chip failures to get you started cheat sheet style. For a more in depth guide look at this [manual](#) we have in the library.

C128 Chips & Common Symptoms

U1 906108-02 (6526) VIA (interchanges with 8521) unknown (8521) VIA later version C128 C64 startup screen normal, but no cursor. Will not start up in 128 mode. No keyboard, joyport, or cassette access. Partial failure: some keys or joystick positions don't work. Cartridge works. Swap U1 with U4 to check. See KEYBOARD.

U4 901108-02 (6526) VIA Startup screens normal (64 & 128), but no serial or user port access. Drive resets on power up but "File not found" error when drive accessed. Cartridge works. Swap U4 with U1 to check. Check also buffer IC U30.

U5 906112-02 (6581) early 128 SID: 12 volt VDD 318013-01 (8580) late 128 SID: 9 volt VDD No sound (check also transistor Q2), weak or bad sound of one or more voices. Proportional mouse or graphics tablet doesn't work, or mouse pointer frozen or jitters. If chip is shorted, will produce blank screen. Remove chip to check.

U6 315020-01 (8502) MPU (Microprocessor) No bootup in any mode. Blank screen with no border. Cartridge don't work. If intermittant, screen freezes after warmup or running programs lock up.

U7 310389-01 (8722) MMU (Memory Management Unit) No bootup in any mode. Blank screen with no border. Partial failure: CP/M inoperative.

U10 906150-02 (Z80B) CPU (Microprocessor) No bootup in any mode. Blank screen with no border. Partial failure: CP/M

inoperative.

U11 315012-01 (8721) PLA (Programable Logic Array) No bootup in any mode. In 40 columns: blank screen, white screen, light blue screen (no border), random checkerboard pattern or flashing "garbage" characters.

U18 390059-01 CHARACTER ROM No characters. Startup has border, but "garbage" where characters
belong. Entire area inside border just lines or blocks.

U19 generic SRAM (6116 – LC3517A) COLOR RAM 2K X 8 128 startup screen and colors normal. C64 screen characters & colors flash rapidly.

U21 315009-03 (8564) VIC (40 column screen) Dead chip: Blank white screen in 40 columns and black screen in 80 columns. Partial failure: 80 column OK but weak or garbled 40 column video, no video or no color. Check also U28 and crystal Y2.

U22 315014-09 (8563) VDC for C128 80 column screen. 315092-01 (8568) VDC for C128D 80 column screen. Blank screen in 80 column only. May not switch from 128 to 64 mode with reset switch. Check also crystal oscillator Y1. If one or more 80 column colors missing, check also U24.

U23 & U25 generic 4416 Video RAM (16K) generic 4464 Video RAM (64K VRAM upgrade) In 80 column mode only: blank screen or some characters garbled. Shorted chips will get hot.

U24 generic 74LS244 Buffer One color (such as red) missing from 80 column screen.

U28 251527-09 (8701) Clock gen. (Master oscillator) Dead chip: no bootup in any mode. Partial failure: diagonal lines on monitor or TV (horizontal sync bad), no color in 40 column mode, or "barber pole" colors. Check also crystal Y2.

U32 251913-01 C64 Kernal/Basic ROM. Blank screen at startup in C64 mode only. Cartridge works.

U33 318018-02 C128 BASIC LO ROM No BASIC startup screen in 128 mode only. Computer goes into
"monitor" mode.

U34 318019-02 C128 BASIC HI ROM Blank screen with border at 128 mode startup. Lines or "garbage"
inside border.

U35 318020-03 C128 Kernal ROM Comes up in C64 mode, but cartridge doesn't work. Partial failure:
blank screen in 128 mode only.

U36 socket empty from factory… for "upgrades".

U38 THRU U53 16 RAM chips (4164) 4 RAM chips (4464) in later versions. Blank screen, no border. Shorted chips will get hot. Will sometimes produce "garbage" screen, abnormal number of bytes free or "out of memory in 0" error on startup screen, and program crashes when loading (depending on what part of memory is bad)… repeatable, ie crashes in same place.

Y1 16 MHz Crystal Oscillator Blank screen in 80 column only.

Y2 14.31818 MHz crystal (Master osc. reference) See U21 VIC.

M1 251917-02 RF Modulator (tin can "module"). TV output only: no picture, no sound, snowy picture, no color, weak video or sound, interference, etc. Note: direct A/V outputs still work normally.

KEYBOARD:
Stuck (shorted) keys will show up when another key is pressed… it neither will not work, or both appear on screen. Character may repeat, depending on which key is bad. If keyboard is suspected, unplug it…
the computer will start up normally w ithout it. Check also U1 chip.

POWER SUPPLY:
Most common problem is "dead" computer, but can produce many

symptoms like blank screen (power LED on or off), screen freeze-up, "garbage screen", hum bars moving up screen, intermittant operation, etc.

For intermittant operation or "glitches" on screen, random characters, etc. check solder of power supply connector and power switch on motherboard. Also, reseat socketed chips: lift up slightly at each end (but do not remove) and press back down. Reseat suspected chips first for any problem, especially intermittants.

For in-depth troubleshooting, Sams Photofact (schematic and parts list) has flow charts and step by step diagnostics. It requires an oscilloscope and the necessary skills to interpret the readings. The Sams book for the C128 is CC18 and CSCS25 for the 128D. They are available at electronic parts distributors. Copies may be viewed at the main branch of the Public Library.