



The Epyx Fast Load cartridge works by intercepting the Commodore 64's serial bus communication with the 1541 disk drive, replacing the standard slow bit-by-bit transfer protocol with a more efficient method that synchronizes only once per byte rather than per bit. This allows data to load at approximately 2,500 bytes per second, which is about five times faster than the default speed.

Technically, the cartridge maps a 2764 ROM (or any equivalent) into the C64's memory space, loading a specialized routine that redirects data and address ports through the cartridge before returning to the normal Kernal boot. This hardware modification bypasses the CPU bottleneck inherent in the original serial design without requiring any internal changes to the computer or the disk drive itself.

Beyond speed, the cartridge provides a built-in DOS Wedge for simplified file commands (such as using C= RUN-STOP to load games) and includes utilities like a machine language monitor and a disk editor for debugging and raw data inspection.

In the Epyx Fast Load cartridge, the 470nF and 100nF capacitors connected to the 74LS07 hex buffer serves as a timing element that controls the cartridge's automatic banking (mapping/unmapping) mechanism. The 74LS07 is an open-collector buffer used to drive the cartridge's control lines (specifically /EXROM, /IO1, and /IO2). Because these outputs are open-collector, they require external pull-up resistors (which are on the C64 motherboard) to register a "high" signal. The 470nF and 100nF capacitors are connected between these control lines and ground.

How it works:
 Activation: When the C64 resets or accesses specific memory addresses (like /ROML or /IO1), the 74LS07 actively pulls the control lines low, discharging the capacitor and enabling the cartridge ROM into the memory map.
 Auto-Disable: Once the cartridge stops being accessed, the 74LS07 stops pulling the lines low. The external pull-up resistors then begin to charge the 470nF and 100nF capacitors.
 Time Delay: The capacitor takes a specific amount of time to charge up to a logic "high" threshold. During this brief delay, the cartridge remains active. Once the capacitor is fully charged, the control lines register as high, which causes the cartridge to disable itself (unmap from memory).
 This RC time constant (created by the resistor and the 470nF and 100nF capacitors) allows the cartridge to stay enabled just long enough to execute its code or intercept a load command, and then automatically disappears from the memory map without requiring complex software logic to turn itself off. This unique analog timing method is why the original design can sometimes be incompatible with modern PLA replacements or emulation hardware that have different signal rise times.

<h1>EPYX FASTLOAD CART</h1> <p>(with added reset switch and LED)</p>	
Reverse-Engineered By:	Guru https://gurudumps.otenko.com
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