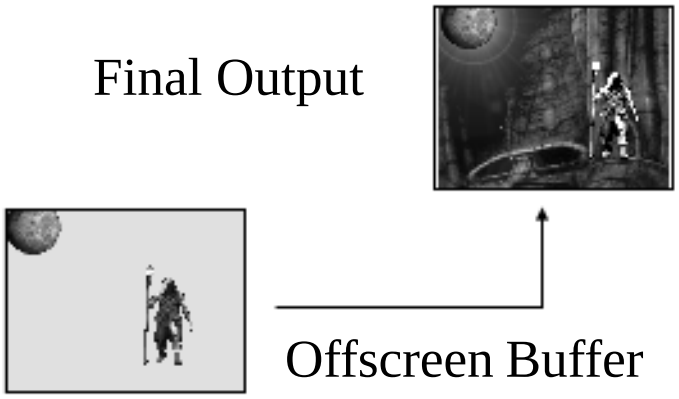
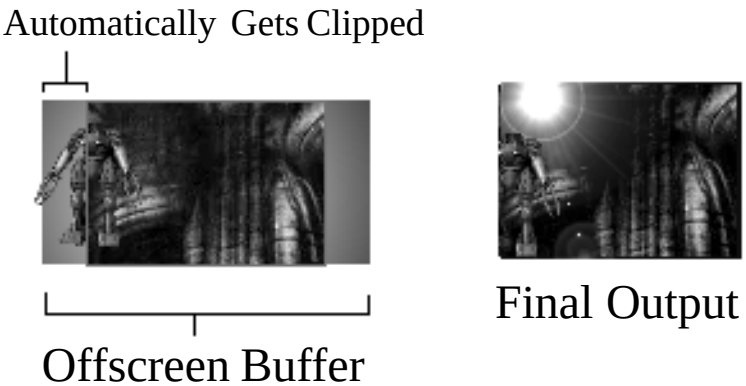
Using Offscreen Video Buffers

OffScreen Buffer Methodology

Now the whole idea behind an offscreen buffer is to create a seperate, temporary writing area, kind of like scratch paper. Things may get written on, written over and many things may happen before a final image is created. After it has been created, we move the offscreen buffer to the VRAM as quickly as possible. This creates smooth transitions on the screen to the user, and it doesn't show all the horrible steps leading up to the production of the final picture. This method sounds pretty sound, but we are forgetting one major problem. It is most likely that while we are trying to push our offscreen buffer into VRAM, the monitor will be redrawing the screen. This means if the monitor gets past where we are in filling in VRAM, then it will display the old picture. This creates a dreaded flickering effect that makes anything horrible! The answer to this is to wait for the monitor to give us the signal that its about to start refreshing the screen from the top. Once we get the signal, we can fill in VRAM normally without any worries. Here's another big plus for us. If we hadn't used the buffer then every time the screen refreshed itself, who knows what would be displayed on the screen, all the steps would show up, and that would look horrible!?



Another use, along with the previous, is to elliminate sprite clipping. This doesn't seem to be a really popular practice, but with some games, specifically 2-d paralax scrolling or tile based, it works really well. ID software used this method in Wolfenstein. All they had to do was increase the width of the offscreen buffer by however wide the largest sprite could ever get. This was a great solution because most of the characters were tall, not



wide. When it came time to blit the offscreen buffer to VRAM, they would take out the chunk that they needed, leaving the overlapping portion on the buffer.

Contact Information

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