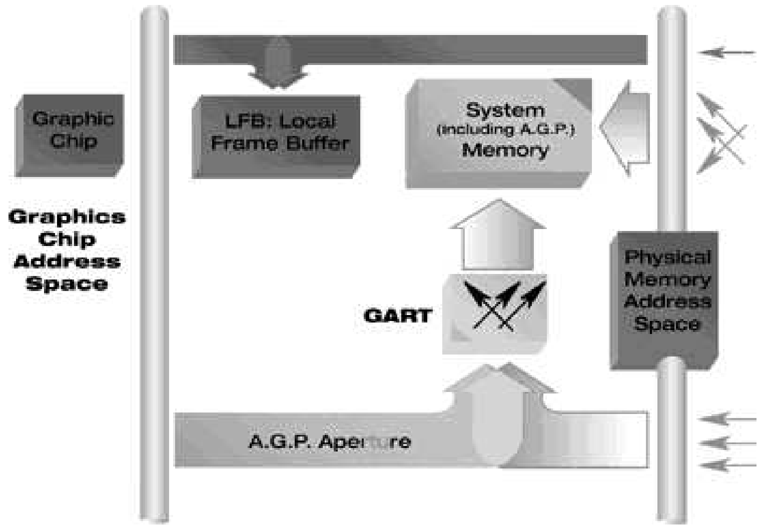
Chapter 4: AGP Memory Mapping

So called AGP memory is just dynamically-allocated areas of system mem which the graphics controller can access quickly. The access speed comes f built-in hardware in the 440LX chipset which translates addresses, allowin graphics controller and its software to see a contiguous space in main mem when in fact the pages are disjointed. Thus the graphics controller can acce large data structures like texture bitmaps (typically 1 KByte to 128 KByte) single entity. The built-in chipset hardware is called the GART (Graphics Address Remapping Table), similar in function to the paging hardware in t CPU.



The processor "linear" virtual addresses are translated by its paging hardwa into physical addresses. These physical addresses are used to access system memory, the local frame buffer, and AGP memory. The CPU accesses to th local frame buffer and AGP memory use the same addresses as the graphic controller does. The operating system therefore sets up the CPU paging hardware to a straight 1:1 non-translation of virtual to physical address.

For accesses to AGP memory, the graphics controller and CPU use a contiguous aperture of several megabytes. But the GART translates these t various, possibly disjointed, 4 KByte page addresses in system memory. P(devices that access to the AGP memory aperture (for example, for live vide capture) also go through the GART.

Chapter 5

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