



General Information

Section 1: General Information

1.1 Overview

SilverHammer is the third generation in the family of high performance visual processors. It is implemented in a single gate array using 0.35 micron 3.3 volt CMOS process. Packaged in a ~~352-PBGA~~388 PBGA, *Plastic Ball Grid Array*, it provides increased performance and functionality over its predecessor the IMAGINE 128[™] with reduced overall system cost.

1.2 Key Device Features

The IMAGINE 128[™] includes these features:

- 66 MHz Host interface clock for AGP Interface.
- ~~66~~ MHz Host interface clock for PCI Interface.
- 100 MHz Memory controller.
- Advanced Memory Support for SGRAM and WRAM, as well as support for EDO DRAM and EDO VRAM.
- High performance block writes.
- ~~AGP~~ DMA Bus Mastering.
- Integrated Display List Processor with AGP and Text mode support.
- Integrated Color Space Converter.
- Transparent BLT and Two operand Bit Bits.
- Integrated VGA.
- Advanced Texture Mapping.
 - Perspective Correction.
 - Point Sampling, Bilinear and Trilinear filtering.
 - Full Level-of-Detail MIP Mapping.
 - Full OpenGL Decal, ~~Alpha~~ Blend and ~~Alpha~~ Modulation.
 - RGB Modulation Lighting Effects.
- Advanced Texture Cache (64x64x16).
 - Palette textures: 1, 2, ~~and 4~~ and 8 bit.
 - Non Palette textures: 8, 16, and 32 bit.
 - ~~Direct 8 bit Index mode (Partial 8 Bit Palette Support)~~
- Floating-point triangle setup with vertex level commands.
- Flat and Gouraud Shaded line drawing, with patterning.
- Table and Interpolated Fog.
- Full Alpha blending.
- Alpha Compare Clipping.
- Integer and Non-Integer Bilinearly Filtered Scaling: Zoom and Decimation.
- 2D Binary compatibility with Imagine 128 ~~and~~, Imagine 128 Series 2, and T₂R.

- Directly supports 8, 16, 32 bits per pixels.
- Shared Z and frame buffer, Z ~~up to 32 bits~~ at 16, 24 bit integer, or 32 bit IEEE floating point.
- Hardware three dimensional volume clipping.
- Sixteen bit logical addressing in both X and Y, and 32 bits (IEEE Floating point) in Z.
- Virtual, Display and Z buffers.
- Two configurable Memory Windows.
- High speed image transfer.