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# *General Information*

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## Section 1: General Information

### 1.1 Overview

SilverHammer is the fourth 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~~<sup>388</sup> PBGA, *Plastic Ball Grid Array*, it provides increased performance and functionality over its predecessor the IMAGINE 128<sup>™</sup> with reduced overall system cost.

### 1.2 Key Device Features

The IMAGINE 128<sup>™</sup> includes these features:

- 66 MHz Host interface clock for AGP Interface.
- ~~66~~<sup>33</sup> MHz Host interface clock for PCI Interface.
- 100 MHz Memory controller.
- Advanced Memory Support for SGRAM and WRAM.
- High performance block writes.
- ~~AGP~~<sup>PCI</sup> DMA Bus Mastering.
- PCI Bus Master Event Notification.
- Integrated Display List Processor with AGP and Text mode support.
- Integrated Color Space Converter.
- Transparent BLT and Two operand Bit Blts.
- Integrated VGA.
- Integrated RAMDAC.
- Advanced Texture Mapping.
  - Perspective Correction.
  - Point Sampling, Bilinear and Trilinear filtering.
  - Full Level-of-Detail Per-Pixel MIP Mapping.
  - Full OpenGL Decal, ~~Alpha~~ Blend and ~~Alpha~~-Modulation.
  - RGB Modulation Lighting Effects.
  - Separate Texture Mipmapping Minification and Magnification filtering.
- Advanced Texture Cache (64x64x16).
  - Palette textures: 1, 2, ~~and 4~~ and 8 bit.
  - Non-Palette textures: 8, 16, and 32 bit.
  - Direct 8-Bit Palette Index Mode.

- ~~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~~ Vertex Fog.
- Specular Highlighting.
- Full Alpha blending.
- Alpha Compare Clipping.
- 3D Color Keying with Color Range Support.
- 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 per pixel.~~
- Hardware three dimensional volume clipping.
- Sixteen bit logical addressing in both X and Y, and 24 bits in Z.
- Two configurable Memory Windows.
- High speed image transfer.
- Backface Culling