*Preliminary***High-Performance Integrated System Controller and Graphics/Video Accelerator**

- Host-PCI bridge
- L2 Cache Controller
- System Memory Controller
- Graphics/Video Accelerator
- Data Buffering

**High Performance Pentium-Class CPU Support**

- Supports Intel® Pentium™ and Pentium/MMX™, AMD-K5™ and AMD-K6™, and Cyrix® 6x86 processors with external CPU bus speeds up to 66 MHz
- Supports CPU internal L1 cache
- Supports processor pipelined addressing

**Integrated L2 Cache Controller**

- Supports direct-mapped, write-back L2 cache
- L2 cache size from 0 MByte up to 2 MBytes
- Supports synchronous or pipelined burst synchronous SRAM
- 3-1-1-1 burst read L2 hit with pipelined burst SRAMs
- BIOS cacheable and write protected
- Two programmable non-cacheable areas

**High Performance DRAM Controller**

- Single DRAM controller supports 64-bit DRAM accesses from the CPU, PCI bus master and graphics controller
- Mixed 256K/1M/4M/16M x n DRAMs
- 5 DRAM banks up to 320 MBytes with mixed EDO DRAMs or SDRAMs
- DRAM interface frequencies up to 66 MHz
- 7-1-1-1 burst read accesses using SDRAM
- 6-2-2-2 burst read accesses using EDO DRAM
- Programmable DRAM timing

- Programmable DRAM drive capability
- Deep CPU-DRAM read/write FIFOs
- Compatible with 5V and 3.3V DRAMs

**32-bit PCI Local Bus System Controller**

- PCI 2.1 compliance
- PCI bus clock speed up to 33 MHz
- Supports PCI burst reads/writes
- Integrated PCI arbitration for up to 5 external PCI bus masters
- Sustains PCI - DRAM write throughput > 100 MBytes/second
- Deep PCI - DRAM write/read FIFOs

**Integrated Graphics/Video Acceleration**

- Utilizes S3®'s industry-leading 64-bit 2D acceleration architecture
- Integrated RAMDAC with 135 MHz maximum output pixel rate
- S3 Streams Processor™ for on-the-fly stretching and blending of a primary RGB stream with a secondary RGB or YUV video stream
- S3 Scenic Highway™ glueless interface to the industry-standard live video digitizers and MPEG decoders

**Multimedia Support Hooks**

- 8-bit bi-directional feature connector
- S3 Scenic Highway
- I<sup>2</sup>C bus

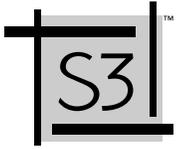
**Full Software Support**

- Drivers for Windows® 3.11, Windows NT™, Windows 95, OS/2® 2.1 and 3.0 (Warp™), SCO® UNIX®

**388-pin BGA package**

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Preliminary

**Overview**

The S3 Plato™/PX Integrated Platform Accelerator™ integrates a Host-PCI system controller and a graphics/video accelerator. The Plato/PX supports Shared Memory Architecture™ (SMA), which allows system memory to be efficiently shared between the host CPU and the graphics/video subsystem. This results in the best system cost and performance ratio for entry-level Pentium-based desktop systems.

**Advanced Cache and DRAM Control**

The Plato/PX provides an integrated direct-mapped write-back L2 cache controller. The cache line dirty-bit can be combined with TAG SRAM, eliminating the need for dedicated SRAM to store the cache line status. The DRAM controller supports EDO or SDRAM DRAMs with programmable timing and drive capability to accommodate a variety of DRAM speeds and loads.

**Shared Memory Architecture (SMA)**

The Plato/PX is S3's first integrated SMA product. From 0.5 MBytes to 4 MBytes can be allocated as needed from system memory for use as the graphics frame buffer. This eliminates the need for a separate graphic frame buffer and reduces the computer system cost. SMA also improves system graphic performance by always providing a 64-bit interface to memory even when the frame buffer is configured for less than 2 MBytes. Accesses to the graphics controller and frame buffer from the CPU are also 64 bits wide and run at the CPU clock

speed vs the 32-bit PCI interface at half the CPU clock speed. With the integrated graphics engine, the Plato/PX reduces the DRAM memory bus arbitration overhead compared to loosely-coupled UMA solutions.

**PCI Interface**

The Plato/PX PCI interface is in conformance with the PCI 2.1 specification. With enhanced data buffering, the Plato/PX can sustain greater than 85 MBytes/s bandwidth for burst reads and 100 MBytes/s for burst writes

**Integrated Graphics/Video Accelerator**

The Plato/PX integrates the industry-leading 64-bit S3 Trio64V+ graphics/video accelerator. It combines high-performance graphics and high-quality video features. The Streams Processor allows mixing of three separate display streams. It can do on-the-fly stretching and blending of a primary RGB stream with a secondary RGB or YUV video stream while the hardware cursor overlays the other two streams.

**Multimedia Support Features**

The Plato/PX supports S3's Scenic Highway local peripheral bus for direct connection to video input devices like industry-standard video digitizers and MPEG decoders. The Scenic Highway and Streams Processor technologies are tightly coupled to provide optimal live video playback. The hardware automatically switches capture and display buffers without software intervention

