



### High-Performance Graphics Accelerator Core

- Integrated 64-bit graphics accelerator /RAMDAC/clock-synthesizer core enables desktop-level performance
- Supports VGA, SVGA, and XGA flat panel displays
- Provides 1280x1024x8-bit, 75 Hz refresh, non-interlaced CRT mode
- 3.3V/5V operation

### Direct Interface to Broad Range of LCDs

- Support for VGA, SVGA and XGA dual-scan/single-scan color panels with 8-bit, 16-bit, and 24-bit interfaces
- Support for VGA, SVGA and XGA TFT color panels with 9-bit, 12-bit and 18-bit (1 pixel/clock and 2 pixels/clock) interfaces
- Advanced frame rate control and dithering algorithms provide up to 16.7 million colors
- Panel data polarity switching for EMI reduction
- Auto-expansion and centering for VGA text and graphics modes on SVGA and XGA panels

### Industry-Leading Simultaneous Display Capability

- CRT and flat panel refresh rates are independently programmable to allow optimum image quality via DuoView architecture
- Simultaneous TV/flat panel display

### Multimedia Acceleration

- Integrated S3 Streams Processor enables 30 frames-per-second, full-screen, 24-bit playback of full motion video
- Mixed-format (simultaneous YUV and RGB) data in video memory
- Blending of graphics and video streams of different color depths
- High-quality hardware scaling using filtered interpolation
- Color key/chroma key control of graphic/video overlay placement

### Comprehensive Power Management

- Self-refresh and slow-refresh DRAM support
- Standby and low power suspend modes
- Hardware and software suspend support
- DPMS
- S3 Dynamic Power Management

### 64x64x2 Pixel Hardware Pop-up Icon

- Available in all modes
- 8 separate bitmaps can be stored

### Integrated Programmable Frequency Synthesizers

- Dual, independent frequency synthesizers for DAC and memory control
- DCLK up to 110 MHz @ 3.3V, 135 MHz @ 5V
- MCLK up to 60 MHz @ 3.3V

### S3 Scenic Highway™ Video Bus For Low-Cost Multimedia Solutions

- ZV Port compliant
- Glueless 8- or 16-bit interface to video digitizers
- Glueless, bi-directional interface to S3 Scenic/MX2™ MPEG decoder

### Integrated TV Encoder

- Direct output to NTSC/PAL monitors
- Composite or SVideo format

### Flexible Memory Support

- Fast page or EDO DRAMs
- 1-MByte with 2 256Kx16 DRAMs
- 2-MBytes with 4 256Kx16 DRAMs
- 2-MBytes with 1 512Kx32 DRAM
- 4-MBytes with 2 512Kx32 DRAMs

### 24-bit True-Color RAMDAC

### Glueless PCI Local Bus Interface

### PowerPC Support: Bi-endian Byte Ordering

### Monitor Plug and Play Support: VESA® DDC

### 256-pin PBGA Package

- 27.0 mm x 27.0 mm footprint
- 1.27 mm ball pitch

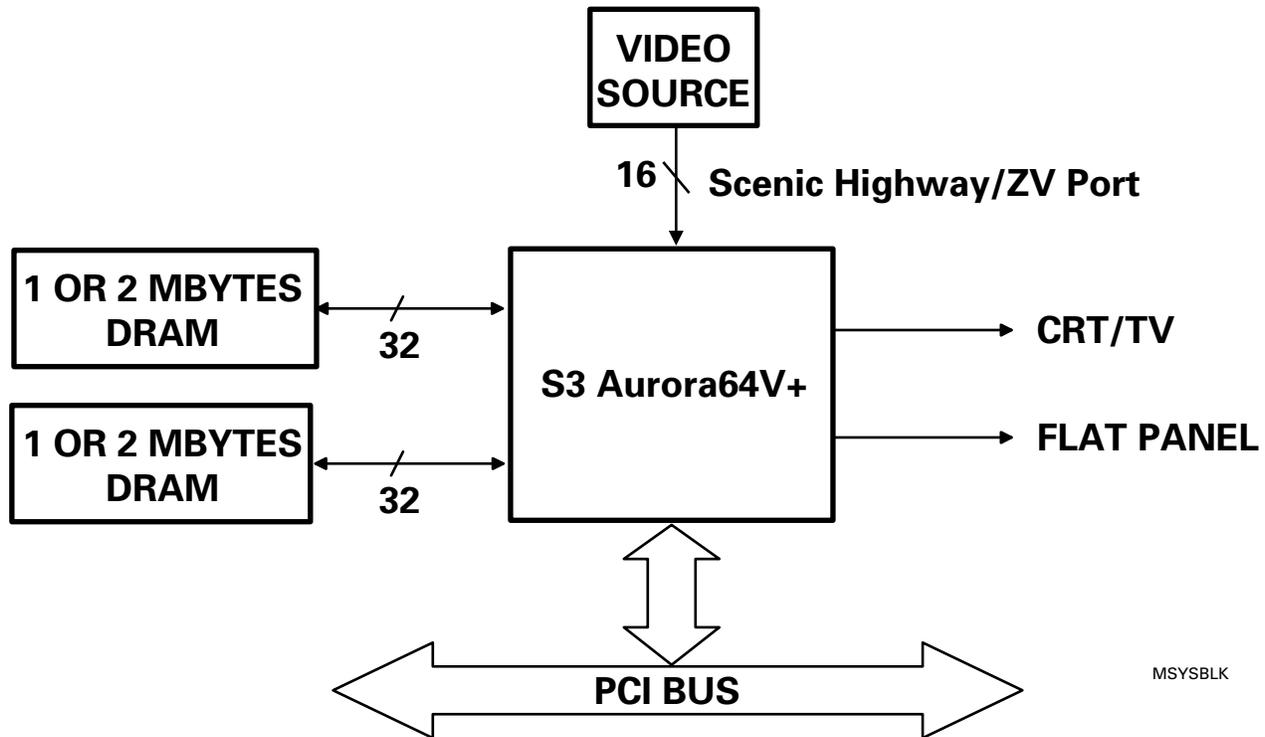


Figure 1. System Architecture

The S3<sup>®</sup> 86CM65 Aurora64V+™ dual display accelerator is the first in a series of highly-integrated flat-panel controller products to be offered by S3 with the goal of providing better-than-desktop features and performance to the notebook computer market. It combines a 64-bit memory interface and graphics engine with a 24-bit high-performance 135 MHz RAMDAC, a flat panel interface capable of controlling the latest STN and TFT panels, S3's Scenic Highway™ multimedia interface and Streams Processor™ video acceleration technology, and direct NTSC/PAL output. These elements, designed around S3's DuoView™ architecture, provide the performance, flexibility, and display quality necessary for premium multimedia notebook computer systems. Comprehensive, flexible hooks are provided to simplify graphics subsystem power management.

© Copyright 1995, 1996 S3 Incorporated. All rights reserved. If you have received this document from S3 Incorporated in electronic form, you are permitted to make the following copies for business use related to products of S3 Incorporated: one copy onto your computer for the purpose of on-line viewing, and one printed copy. With respect to all documents, whether received in hard copy or electronic form, other use, copying or storage, in whole or in part, by any means electronic, mechanical, photocopying or otherwise, is not permitted without the prior written consent of S3 Incorporated, P.O. Box 58058, Santa Clara CA 95052-8058. S3 and True Acceleration are registered trademarks of S3 Incorporated. The S3 Corporate Logo, S3 on Board, S3 on Board design, S3d design, Vision968, Trio, Trio64, Trio64V+, Trio64UV+, VIRGE, VIRGE/VX, S3d, Scenic, Scenic/MX1, Scenic/MX2, Scenic Highway, Sonic, Sonic/AD, Aurora64V+, DuoView, Cooperative Accelerator Architecture, Streams Processor, MIC, Galileo, Native-MPEG, No Compromise Integration, No Compromise Acceleration and Innovations in Acceleration are trademarks of S3 Incorporated. Other trademarks referenced in this document are owned by their respective companies. The material in this document is for information only and is subject to change without notice. S3 Incorporated reserves the right to make changes in the product design without reservation and without notice to its users.