

## VastLane™ HDMI Transmitter

### HD solution for cameras, camcorders & portable media players

Silicon Image™ brings another exciting high-definition interface to the mobile electronics market. Building on the industry leading SiI9020 discrete HDMI™ transmitter, the VastLane SiI9022 is an ultra low-power HDMI transmitter designed for power-sensitive handheld consumer electronics devices such as digital cameras, high-definition camcorders, portable media players and other portable electronic devices.

HDMI is the established digital interface that brought the highest quality digital audio and video experience to millions of consumer home entertainment systems. Now consumers will be able to capture and play back their own home video or still photos using high-definition camcorders and digital cameras. With the SiI9022, consumers will be able to share those precious memories in all digital, high-definition format on an HDTV.

The SiI9022 is the first HDMI transmitter that meets the low power and small form factor needs of the mobile market. In order to fit into the tight constraints of today's highly integrated mobile electronics, the SiI9022 is housed in a tiny 6mm x 6mm, 84-ball chip scale size BGA package. Even in this diminutive package, the

SiI9022 does not scrimp on performance. It supports resolutions from standard definition 480i/p and 576i/p all the way to high-definition 720p, 1080i, and 1080p, the highest resolution supported by HDTVs today.

Silicon Image HDMI products are designed according to the requirements of the market segments and are compliant with the latest version of the industry leading HDMI standard for those market segments. The SiI9022 transmitter is no exception—it is fully compliant with the HDMI 1.2a standard. In addition, all Silicon Image HDMI hardware and software solutions are developed and verified according to the latest HDMI Compliant Test Specification (CTS) and SimplayHD™ HDCP interoperability compliance requirements.

## SiI9022

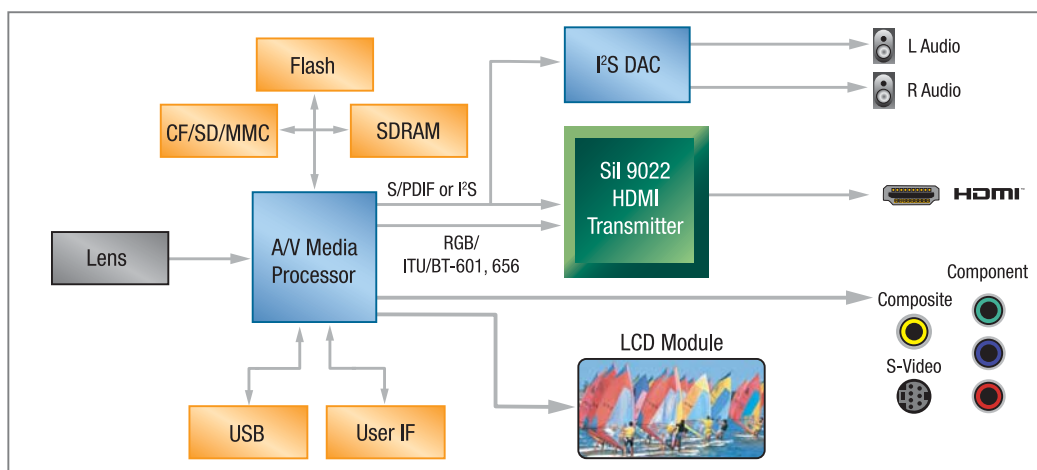
### Applications

- HDV Camcorders
- Digital Still Cameras
- Portable Media Players
- Mobile Electronics

### Key Features

- HDMI 1.2a and DVI 1.0 compliant
- Supports up to 1080p & UXGA resolutions
- Ultra low-power operation
- Integrated CE Control (CEC) functions and arbitration logic

### SiI9022 Typical Application



**HDMI™**  
HIGH-DEFINITION MULTIMEDIA INTERFACE

# Sil9022 Features

## Sil9022 Software & Documentation

### Software

- Sil9022 Firmware

### Documentation

- Programmer's Reference Application Notes

### Compliance

- HDMI 1.2a
- Simplay HD
- DVI 1.0

### Digital Video Output

- Integrated TMDS core
- DTV resolution support - 480i/576i/480p/576p/720p/1080i/1080p
- PC resolution support - VGA/XGA/SXGA/WSXGA/UXGA
- Flexible interface to HD MPEG decoders:
  - 12/24-bit RGB YCbCr 4:4:4
  - 16/20/24-bit YCbCr 4:2:2
  - 8/10/12-bit YCbCr 4:2:2 (ITU-R BT.601 & BT.656)
- Integrated YCbCr → RGB conversion
- 4:2:2 → 4:4:4 up-converter
- Programmable Data Enable (DE) generator

### Digital Audio Output

- DVD-Audio support thru 4xI<sup>2</sup>S inputs
- Supports 2-ch 192kHz or 8-ch 96kHz
- Supports IEC60958 2-ch PCM or IEC61937 compressed audio (Dolby Digital, DTS, etc.)
- Industry-standard S/PDIF input
- Integrated MCLK generator

### CE Control (CEC)

- Dedicated CEC signals
- Integrated hardware arbitration logic off loads local CPU overhead
- API programming minimizes software development

### System Operation

- Simplified API programming through Transmitter Programming Interface (TPI) and CEC Programming Interface (CPI)
- Master I<sup>2</sup>C simplifies system design
- Flexible interrupt registers with interrupt pin
- Monitor detection supported through hot plug and receiver sense

### Power Management

- 1.2V and 1.8V cores provide low-power operation
- Flexible power-down modes

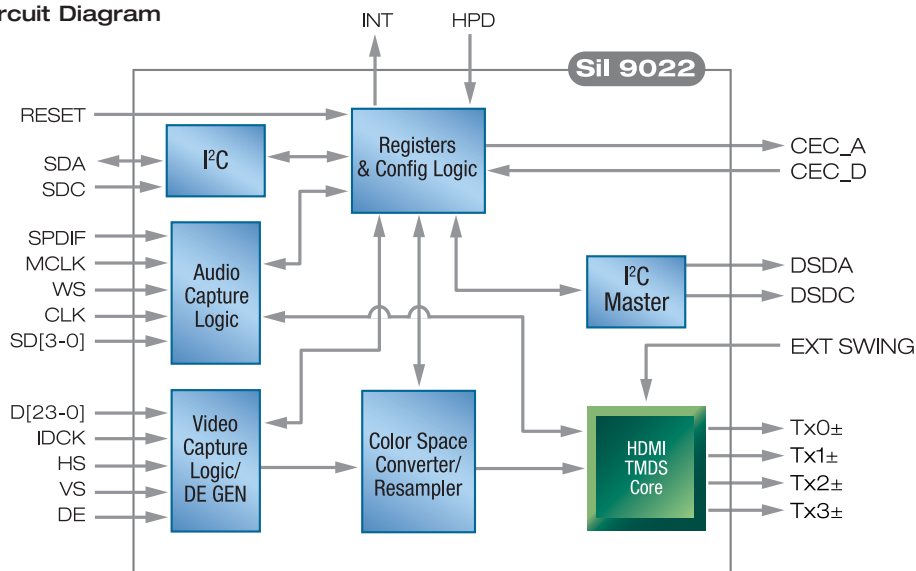
### Package

- 84-ball BGA (6mm x 6mm footprint)

### Operating Range

- -20C° to +85C° extended temperature support

Sil9022 Circuit Diagram



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