



GEO Semiconductor Inc.

GW3100

Compact Geometric Processor

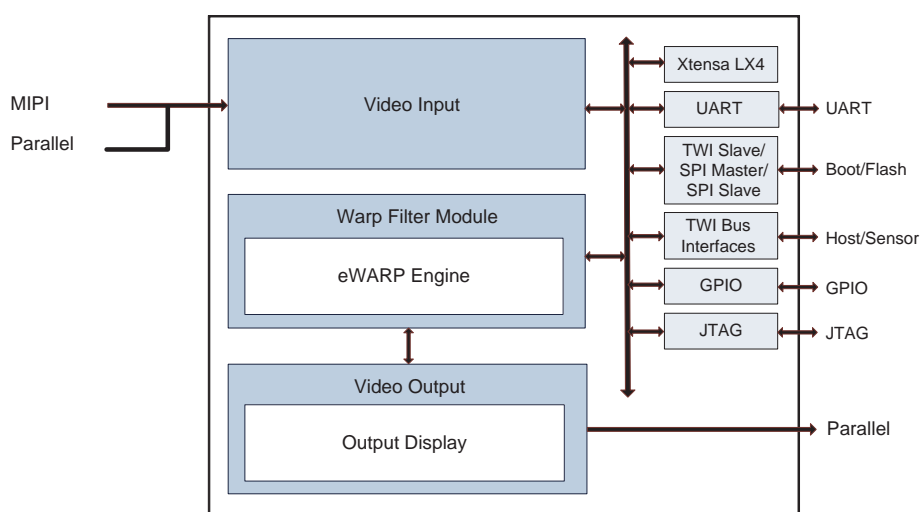
General Description

The GW3100 integrates GEO's patented eWARP® core with a Tensilica® Xtensa CPU and parallel and MIPI interfaces, providing a powerful platform for addressing complex video applications.

The GW3100's fully programmable geometric processing engine provides the flexibility and performance to correct pincushion/barrel distortion and keystone artifacts for video projection systems such as Head-up Display, Pico Projector, home theater, and business projector applications and large area projector installations such as stadium and tradeshow installations. The processor provides a solution for multi-projector systems providing 1/32nd pixel accuracy for precise convergence, alignment, and stitching to create a seamless unified video image.

Real-time programmability using the embedded eWARP® APIs enables designing simple efficient user interfaces for aligning and calibrating complex systems.

GW3100 System Block Diagram





Features

Advanced Geometric Processing

- GEO's proprietary eWARP® processing engine
- Advanced edge blending
- Brightness non-uniformity correction
- Precise convergence, alignment, and stitching applications support

eWARP® Embedded Processing

- Highly flexible programmable warp maps
- Real-time on-the-fly generation of warp maps
- Frame by frame warp map updates
- Very low latency mode (typically 1/6th of a frame)
- Multi-video stitching with edge blending, precise convergence, brightness and non-uniformity correction support
- Keystone correction
- Pincushion/barrel distortion correction
- Zoom/shrink scaling
- Selectable multiple views from a single video stream
- Full warp capability

Applications

- Head-Up Displays
- Pico Projectors
- Business Projectors
- Multi-projector stitching and alignment
- IP Surveillance cameras
- Multi-camera stitching and alignment
- Ultra wide angle cameras
- Video conferencing and telepresence
- Ultra short throw projectors

Inputs/Outputs, Video Formats

- Input Interfaces: 4-lane MIPI, Parallel
- Output Interfaces: Parallel
- Input Formats:
 - 8/10-bit YUV 4:2:2 over the 8/10-bit or 16/20-bit interface
 - 24-bit RGB
 - 24-bit YUV 4:4:4
- Output Formats:
 - 8/10-bit YUV 4:2:2 over the 8/10-bit or 16-bit interface
 - 24-bit RGB
- Resolutions at a pixel rate of 200 MHz
 - 1920 x 1080 at 60 Hz
 - 1280 x 720 at 120 Hz

System Connectivity

- TWI Slave/ SPI Master/ SPI Slave, TWI Bus Interfaces
- UART, JTAG, GPIO

Power and Voltage

- Power Supplies: 1.8 V ±5%, 1.1 V ±5%,
- Typical power consumption:
 - 175 mW for 720p60, no ISP, no DDR
 - 148 mW for 720p30, no ISP, no DDR

Ordering Information

Part Number	Package: Type, Pins	RoHS/Lead-Free
GW3100	169-pin TFBGA, 9 mm x 9 mm x 1.1 mm, 0.65 mm pitch	RoHS/Lead-Free

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