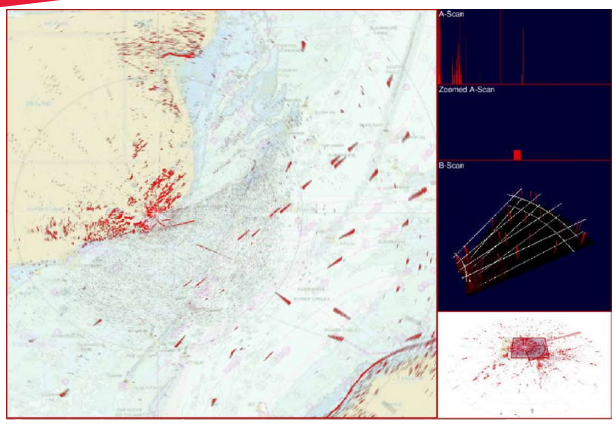
Fact Sheet

SoftScan

High-Performance Software Radar Scan-Conversion



Features

- GPU accelerated software scan conversion
- Ultra-high radar display performance
- PPI, A-Scan, B-Scan Display
- Multiple radar display windows
- Multiple radar sources per window
- Real-time resizable and movable windows
- Very low CPU utilization
- Comprehensive software API
- US and Foreign patents applied for

Introduction

SoftScan is the latest introduction to the Curtiss-Wright Controls Embedded Computing radar product portfolio providing ultra-high radar scan-conversion performance using unique GPU accelerated algorithms. Utilizing the power and performance of today's modern COTS graphics offerings, SoftScan can provide unrivalled scan-conversion performance with minimal CPU utilization.

Scan Conversion

Supporting polar format radar video input either directly from radar acquisition hardware or distributed via network, SoftScan outputs radar display data in a number of formats including Plan Position Indicator (PPI), A-Scan and B-Scan. SoftScan utilizes the signal processing power available in modern GPUs to provide powerful algorithms that ensure there are no holes or spokes in the displayed image, even when zooming-in at long range, and that all single point targets are displayed. As well as displaying traditional plan views of radar, SoftScan allows radar images to be shown in real-time as projections from different origins and angles.

Using GPU accelerated algorithms allows SoftScan to provide significantly higher performance compared to CPU hosted implementations. When supported by the GPU, SoftScan handles high-resolution displays such as 2k x 2k or 2k5 x 2k with no impact on overall performance.

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Control and API Features

SoftScan provides a set of libraries for creating applications that feature one or more windows into which rendered radar video is displayed. Additional video data, such as charts and track symbology, can be added to these windows as an effectively unlimited number of overlay and underlay layers. The API provides real-time control of all radar display characteristics from window sizing and zooming to programmable fade and color parameters.

The libraries have an extensible architecture that permit additional or customer-specific capabilities to be added.

SoftScan is also compatible with Curtiss-Wright's RVL+ which provides a common API interface across a range of radar and video products to simplify the application generation and system integration process.

Host Platforms

SoftScan requires an Intel® system with a graphics processor unit (GPU) that has an OpenGL2 driver and full support for pixel shaders. Operating system is Linux® 2.16 or Windows XP®. For support of other system configurations please contact the design center.

Specifications

Functional

- Processing capability includes
  - False color support
  - Programmable thresholds
  - Cross azimuth filtering (improved target outline determination)
  - Scan-to-scan integration
  - Supports random-scan, sector-scan, reverse-scan inputs
  - Moving platform support

Radar Input

- Direct from radar acquisition hardware
- Network distributed radar video
- Internal test pattern generator

Performance

- Typical performance figures with 1.8GHz Core™ 2 Duo CPU and NVidia 7300GT (512MB Memory) GPU:
  - 2k x 4k at 120rpm (~5% CPU loading)
  - 4k x 4k at 120rpm (~10% CPU loading)
  - 4k x 8k at 60rpm (~10% CPU loading)
- CPU loading is primarily due to decompression of radar video from network

Display

- PPI, A-Scan and B-Scan
- Traditional plan view or projection view
- Support for multiple layers above and below each rendered radar video
- Multiple radar display windows
- Multiple radar sources
- Multiple radar sources in a single display window
- Real-time resizable windows (rendered video in the window is preserved during resize)
- Smooth real-time zooming and panning
- Programmable radar colors
- Variable persistence smooth fading with up to 256 levels

Software

- Software API for OpenGL 2.0 compliant platforms
- Extensible architecture to add new or custom capabilities
- O/S environment support: Windows and Linux
- Host support: x86
- For other O/S and processor support please consult the design center