SIRIUS3

ALL-IN-ONE PLATFORM
FOR PRECISION LASER PROCESSING

HTTPS://SPIRALLAB.CO.KR
HCCHOI@SPIRALLAB.CO.KR

A Comprehensive Solution for Laser Processing

- **.NET-based Platform:** Built for modern Windows environments.

- **All-in-One:** Integrates design, control, and processing functionalities.

- **Precision & Versatility:** Designed for high-accuracy laser applications across various industries.

- **Open Architecture:** Customizable to meet specific industrial needs.

Seamless Integration with SCANLAB RTC Controllers

- **Extensive Compatibility:** Supports a wide range of SCANLAB RTC controllers:
  - RTC4, RTC4e
  - RTC5
  - RTC6, RTC6e
- **Advanced Integration:** Full support for XL-SCAN, combining RTC6 with ACS via syncAXIS for enhanced capabilities:

  - syncAXIS (XL-SCAN)

Support Various Laser Source Vendor Products

- **Extensive Compatibility:** Supports a wide range of laser products:
  - Advanced Optowave : Fotia, AO Pico, AO Pico Precision
  - Coherent : Avia LX, Diamond series
  - IPG : YLP N, YLP Type D/E/ULPN, JPT Type E
  - Photonics Industry : DX, RGHAIO
  - Spectra Physics : Talon
  - Support virtual laser for control output power by analog, pulse width, frequency and digital output and more
- **Advanced Integration:** Output power and Guide beam controls can be combined with RTC interface

Supporting Powerful Render Speed

Render engine

Accelerated render speed by GPU technology.

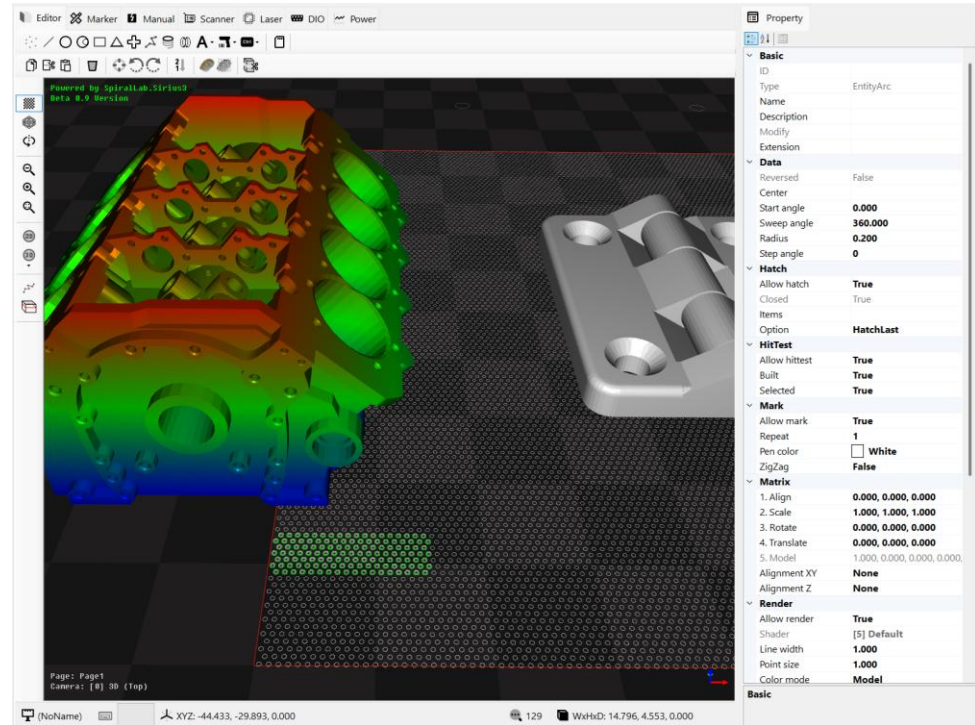Built in vertex shader and fragment shader.

Bind buffers as VAO, VBO, EBO,… by automatically,

Large amounts of entities can be rendered,

Built in AABBTree

Built in AABBTree(Axis Aligned Bounding Box Trees) for optimized ray hit test.

Various render mode like as points, lines, line strip, triangles, quads can be used.

Powerful Render Engine

Supporting Diverse Geometries and Advanced Manufacturing
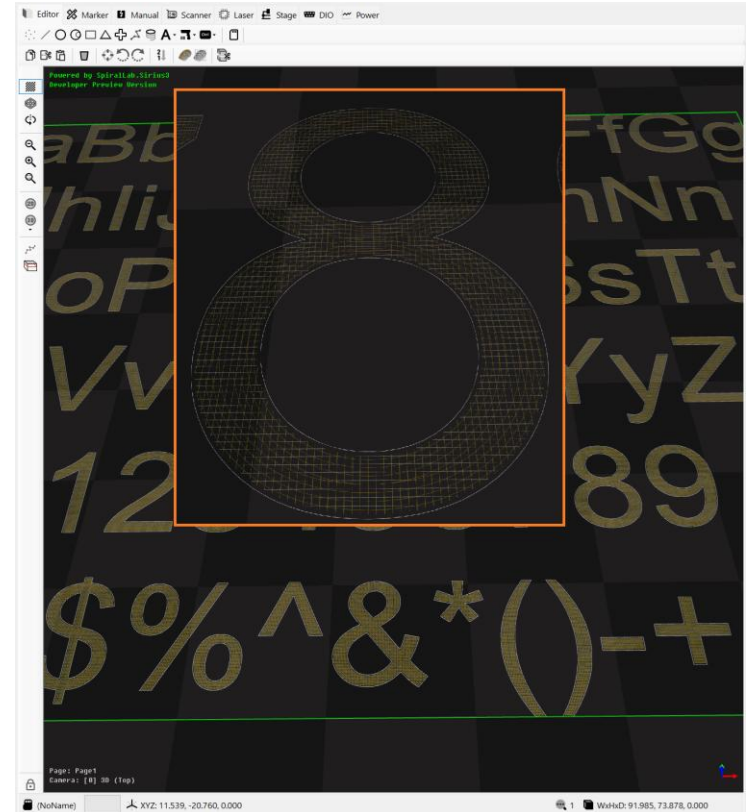
Primitive Entity Support:

Point, Line, Lines, Arc, Polyline2D/3D, Triangle, Rectangle.

Cross, Spiral, Trepan, Splines, Lissajous.

Group (for children)

and Control entities

Versatile Formats:

Image, DXF, HPGL, ZPL

Barcodes: QR, DataMatrix, PDF417

Text: True Type Font, Image Font, Cxf, Lff Font

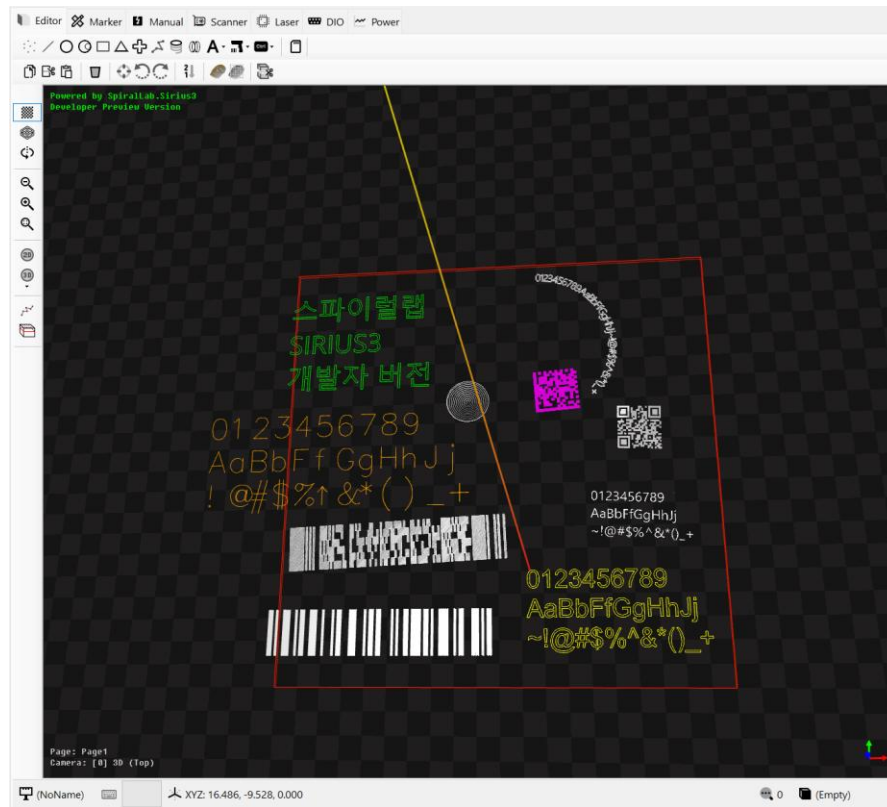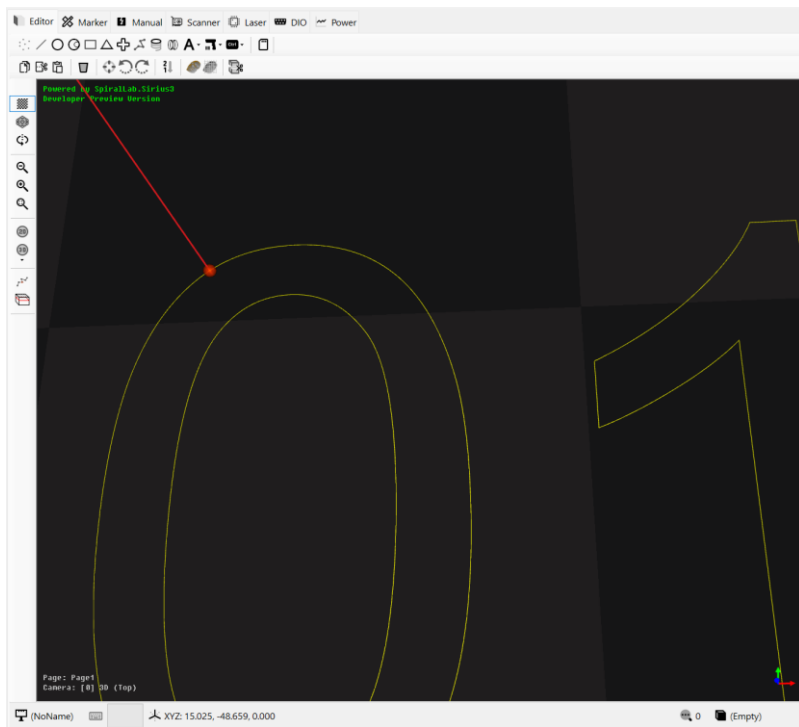3D Mesh: STL, OBJ, PLY
Gerber: RS274 Format

Additive Manufacturing Ready:

Integrated Slicer for 3D printing applications.

Contour extraction and Create multiple hatches.

Multiple Hatch Patterns can be Added

Supporting Simulate Laser Processing

Supporting Various Text Data Converter

Text Converter
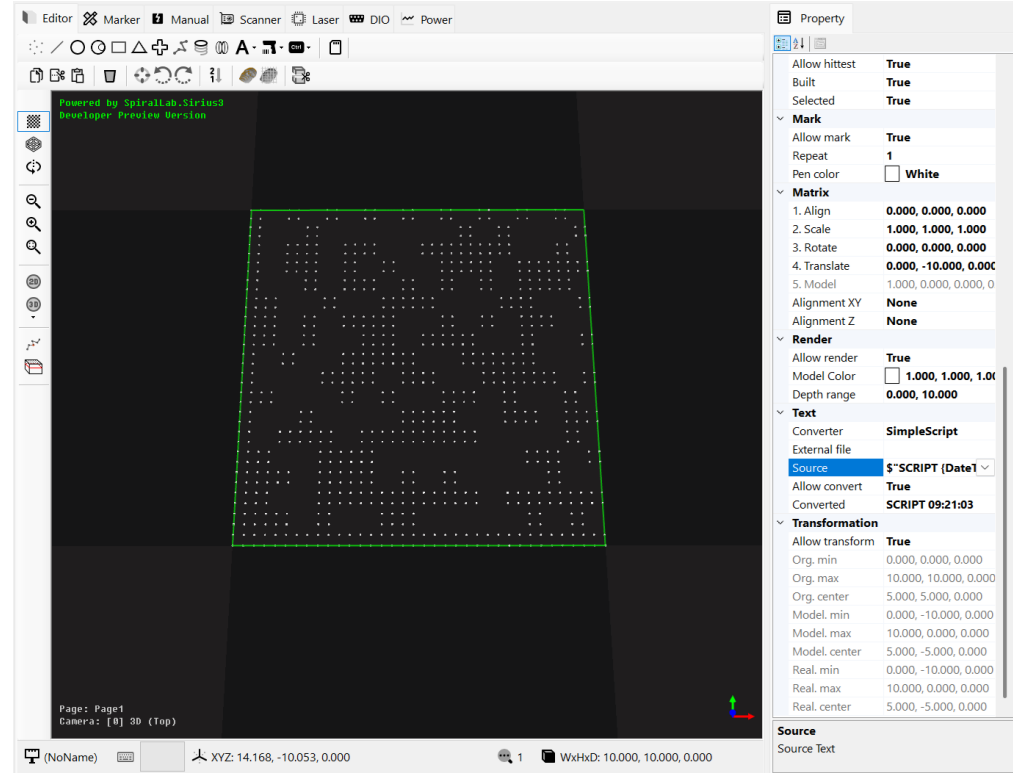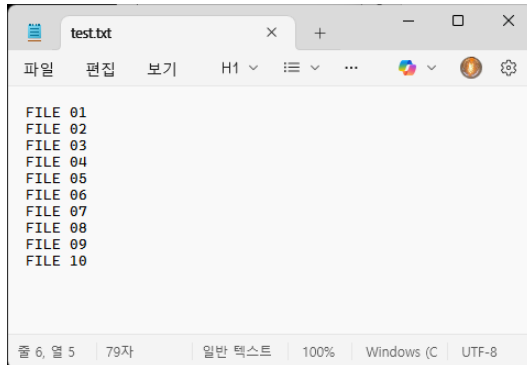
Event Handler

Simple C# Script

External File

Example

Script: $"SCRIPT {DateTime.Now.ToString("HH:mm:ss")}"

External File:

Multiple Text Data Converter

Support Skywriting and Wobbel function
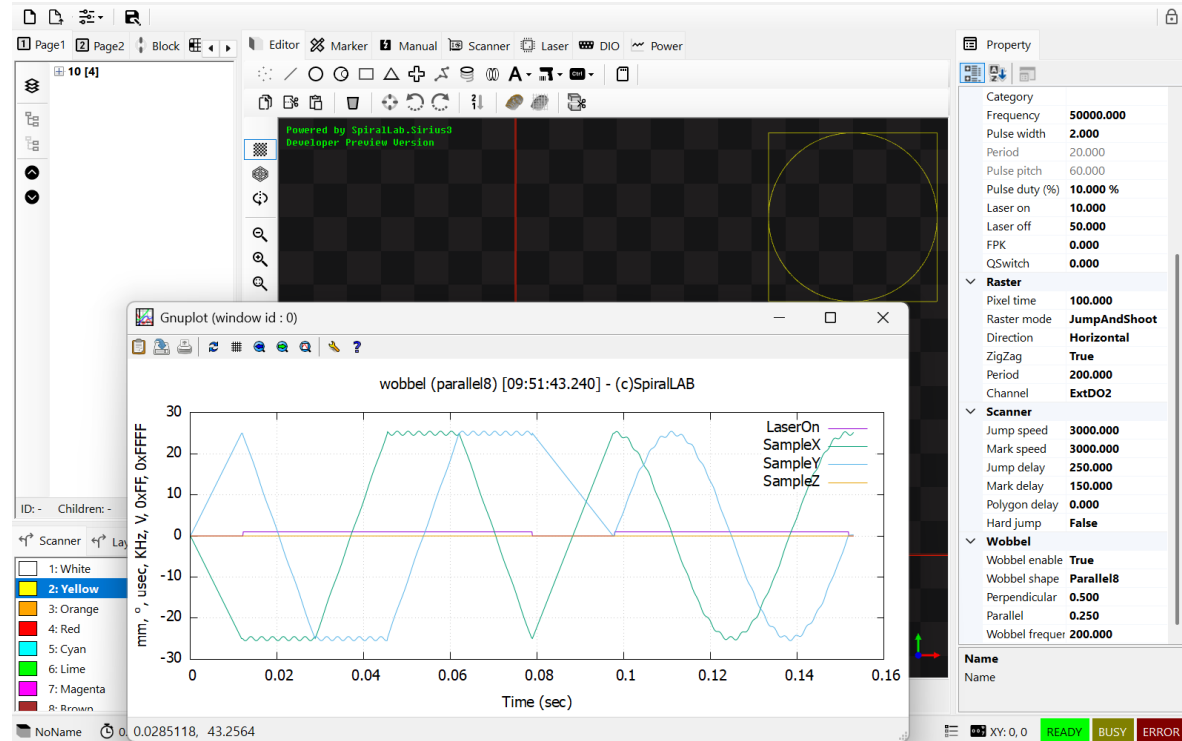
Skywriting

Mode 1,2,3,4

Wobbel

Ellipse

Parallel8

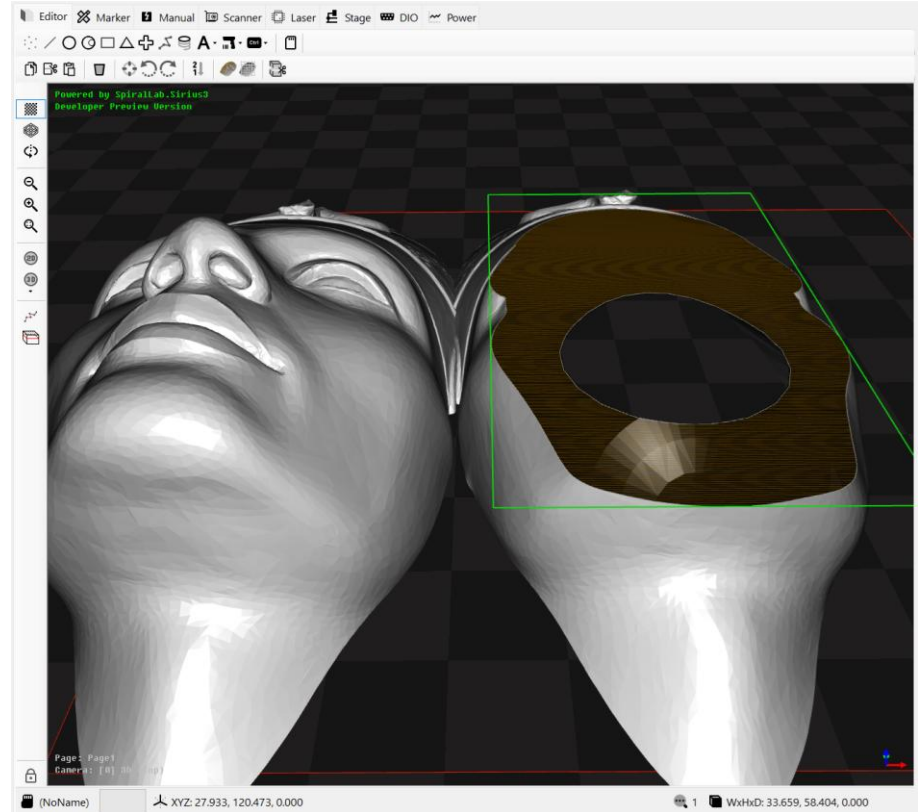Perpendicular8

Enable Wobbel and Plot Measurement Result

Precision and Flexibility in Laser Operations

Advanced Marking:

Marking on the Fly (MoF)

2nd (also. Multiple) Head Support

3D Marking Capabilities

Sky Writing Modes (1/2/3/4)

Wobbel Shapes

Automated Laser Control (Ramp):

Position-dependent control

Velocity-dependent control

User-defined vector control for optimal results

Built-in Slicer and Hatch Feature
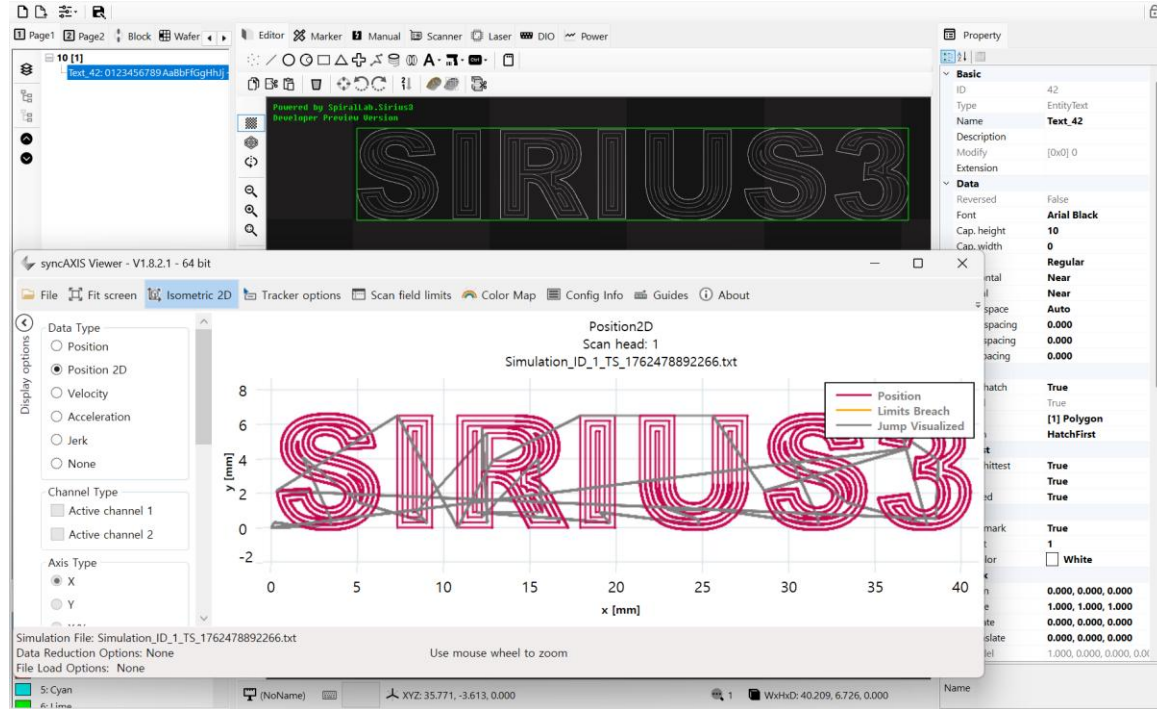
Expanding Your Laser Processing Horizons

SCANLAB XL-SCAN Integration:

Full support for SCANLAB's XL-SCAN product, powered by syncAXIS.

Combined Motion:

Synchronized stage and scanner motion enables processing over significantly larger field areas.

Ideal for large-scale manufacturing and intricate designs.

Support SCANLAB XL-SCAN product by syncAXIS

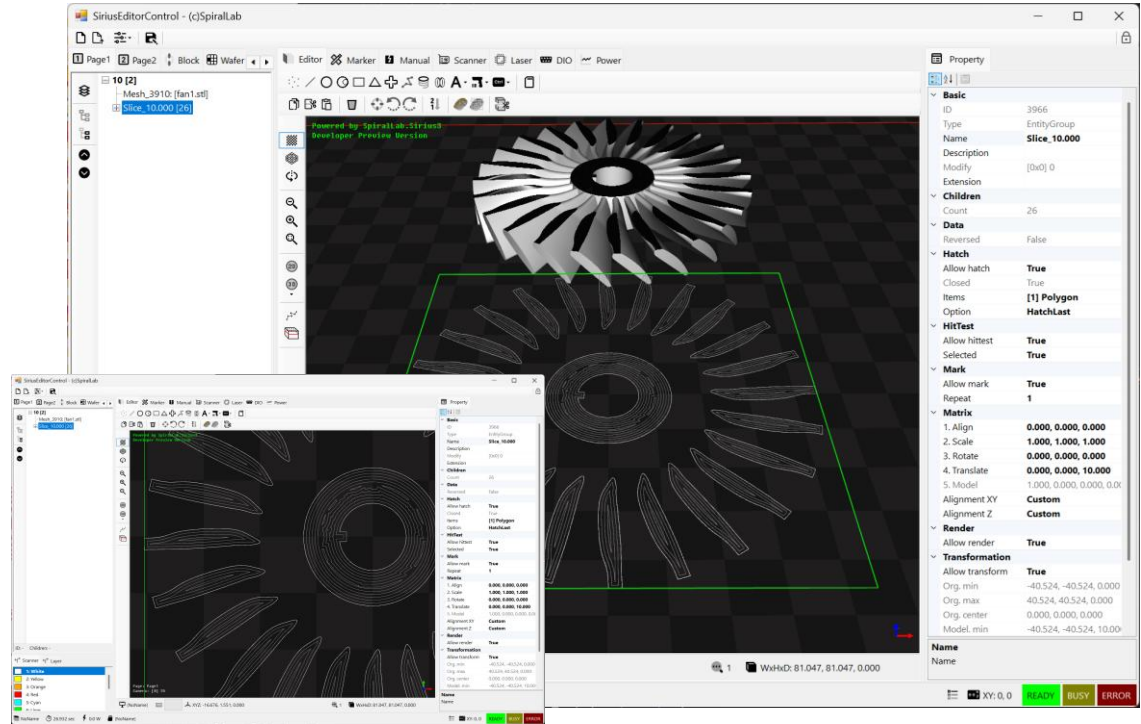## Robust and Reliable for Industrial Applications

Platform Targets:

`net481` (for legacy systems)

`net8.0-windows` (for modern applications)

System Requirements:

Operating System: Windows 10/11 (x64)

Graphics: GPU/Driver with OpenGL 3.3 support

SCANLAB drivers/runtimes must be installed.

Key Dependencies:

SCANLAB RTC drivers

.NET / OpenTK, Newtonsoft.Json.

Laser On The Fly Processing for Large Field Area with Combined Stage and Scanner Motion by syncAXIS

Experience Unparalleled Speed and Clarity

- **Blazing Fast Rendering:**
  - Updated shader engine for the faster rendering speeds.
  - Multiple rendering modes: per-vertex, per-normal, model or Z-depth.
- **Flexible Camera Views:**
  - Switchable orthographic and perspective cameras for detailed inspection.
- **Measurement & Profiling:**
  - Logs scanner trajectory and output signals with plotted graphs for analysis.

Open Architecture for Tailored Solutions

- **Open Source Philosophy:**
  - Editor, Marker and laser-source control code are open for extensive customization.
  - Adapt Sirius3 to your unique workflow and requirements.
- **Effortless Updates:**
  - Library files are easily updated via NuGet package manager, ensuring you always have the latest features.
- **Multi-Platform Support:**
  - Available for both .NET Framework and the modern .NET 8.0+.

Example program : https://github.com/labspiral/sirius3
Visit https://spirallab.co.kr/sirius3-library to learn more!