

Sapera Vision Software

Sapera™ Architect Plus

Easy-to-use, versatile software for Industrial Imaging



**adept
electronic solutions**

**The Machine Vision and
Imaging Specialists**

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Sapera Architect Plus is a rapid prototyping and evaluation platform for Sapera Vision Software



Key Features

- Intuitive graphical environment to capture user algorithms
- Includes Sapera Essential and Sapera Nitrous with over 400 image processing primitives and program acceleration via GPUs and Multi-core CPUs
- Support for line and area scan, color and monochrome cameras with: GigE Vision, Camera Link, LVDS and Analog interfaces
- Prototyping with live image acquisition, processing and analysis
- Complete set of structured programming tools and concepts
- Support iterative programming loops and conditional branching operators
- Support 32/64-bit platforms for Windows® 7, Windows XP and Windows Vista

¹ Some conditions and limitations apply, contact Teledyne DALSA sales for details.

Rich Graphical Programming Environment Integrated Development Tools

Sapera Architect Plus offers not only the conventional programming concepts and techniques; it also includes standard debugging and reporting tools to facilitate algorithm development and performance fine tuning. These techniques include breakpoints, single step program execution, stepping in or stepping over subroutines, watch. In addition, Sapera Architect Plus supports a broad set of data types and constructs to facilitate algorithm prototyping.

Program Flow Control

The graphical user interface offers functions to control and direct the program flow with iterative loops and conditional branching. Convention conditional branching operators like IF(), IF/ELSE() and loops like FOR(), WHILE() are supported.

Turbo Charged Processing and Analysis Tools – Sapera Essential/Sapera Nitrous

Sapera Architect Plus comes bundled with Sapera Essential and Sapera Nitrous. Sapera Essential offers a suite of image processing and analysis functions. These functions include over 400 image processing primitives, as well as advanced application tools such as barcode, pattern matching (both area-based and edge-based), OCR, color, blob analysis and calibration (for perspective and lens correction). Sapera Nitrous offers flexible controls to harness the full power of GPU and multi-core CPUs. The GPU implementation of Nitrous is based on Nvidia's CUDA Rev 2.3 and the MCO is based on Intel's latest instruction set technology and supports AMD and Intel CPUs

Program

```

Main
  imgA
  update display (True)
  acq time
  acq status
  Begin
    RectA
    RectA.Threshold
    RectA.Blob Analysis
    ifelseA
      If
        Inspection Passed, Set Pass True
        bool (True)
        output->Pass
        Inspection Passed, Increment Pass Count
        number (1.00)
        number<-Pass Count
        [add input]
        sum->Pass Count
      Else
        Inspection Failed, Set Pass False
        bool (False)
        output->Pass
        Inspection Failed, Increment Fail Count
        number (1.00)
        number<-Fail Count
        [add input]
        sum->Fail Count
    Increment PartsInspected Counter
    number<-Fail Count
    number<-Pass Count
    [add input]
    sum->Parts Inspected Count
  End
  
```

Instructions

- General
 - Call
 - Comment
 - If
 - If-Else
 - Image window
 - Jump
 - Label
 - Return
 - Stop
 - Subroutine
 - While
- Array: Boolean
- Array: Line
- Array: Number
- Array: Point
- Array: String
- Boolean
- Geometric
- Numeric
- Sapera Processing
- Statistics
- String
- Test
- Trigonometric

Variables

Name	Value	Comment
Threshold	80.00	
Blobs Found	40.00	
Blobs Expected	40.00	
Pass	True	
Pass Count	1580.00	
Fail Count	1200.00	
Parts Inspected Count	2780.00	

Monitor

Name	Message	Context
Acq	2.45 ms	Main :
RectA	get pixels 0.21 ms	Main :
Threshold	0.11 ms	Main :
Blob Analysis	0.68 ms	Main :
RectA	set pixels 0.08 ms	Main :
Display	3.88 ms	
Run total	8.10 ms	
Acq	3.43 ms	Main :
RectA	get pixels 0.17 ms	Main :
Threshold	0.11 ms	Main :
Blob Analysis	0.77 ms	Main :
RectA	set pixels 0.07 ms	Main :
Display	3.93 ms	

Sapera Architect Plus integrated prototyping environment use interface

■ About Spera Vision Software

Complete Image Processing Toolkit – Spera Vision Software

Spera Architect Plus is part of a Teledyne DALSA's field-proven Spera Vision Software family. Spera Vision Software offers image acquisition, control, and processing and analysis functions to design, develop and deploy high-performance machine vision applications. Spera's advanced functionality is delivered in three powerful packages including Spera™ Essential, Spera™ Nitrous, and Spera™ Architect Plus.

Image Acquisition and Display

Like all Spera Vision Software platforms Spera Architect Plus has the ability to grab images from wide range of area and line scan color and monochrome camera. In addition, it supports image acquisition from standard format cameras like GigE Vision, Camera Link, analog, and LVDS. The acquired images can be displayed with non-destructive overlaid graphical annotations.

Comprehensive Hardware Support

As a value-add platform within the Spera Vision Software family, Spera Architect Plus supports Teledyne DALSA cameras and frame grabbers as well as hundreds of 3 party camera models across all common interfaces formats like GigE Vision®, Camera Link®, as well as emerging new image acquisition standards. Spera Vision Software offers royalty free run-time licenses for select image processing functions when combined with Teledyne DALSA hardware products.

Multi-Processing/Multi-Threading Compliant

Multi-processing and multi-threading capability improves application performance and productivity, while making efficient use of available CPU time and system resources by executing multiple routines concurrently. Often developers are burdened with the delicate and time-consuming task of thread management when sharing a common set of data.

Supported Teledyne DALSA Image Acquisition and Processing Hardware

X64 Xcelera-Series - High performance PCIe frame grabbers

X64-Series - high performance PCI and PCIe frame grabbers for asynchronous image acquisition from multiple cameras

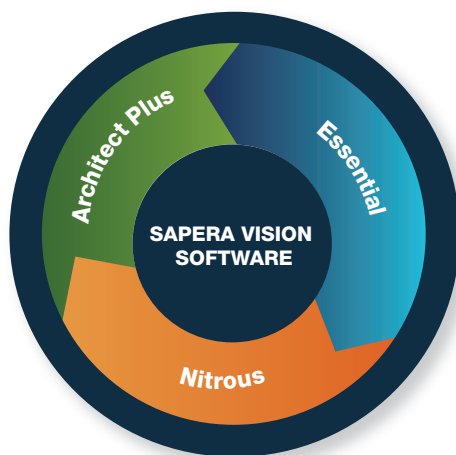
PC2-Series - machine vision frame grabbers, ideal for cost sensitive applications

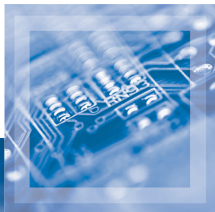
Genie - High performance GigE Vision area scan camera

Spyder3 - Dual Line scan GigE Vision camera

System Requirements

- P4 or higher class CPU
- Microsoft Windows 7, Windows XP Professional or Vista 32-bit/64 bit
- Minimum 64MB of system memory, 100MB of free hard drive space
- Microsoft Visual Studio C/C++ 6.0 or higher for C++, Microsoft .NET compilers with .NET 2.0 or higher, or Borland C++ Builder 2006 or higher





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Teledyne DALSA is an international leader in digital imaging and semiconductors and has its corporate offices in Waterloo, Ontario, Canada.

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