

A Powerful Duo - Zebra Scanner SDK and Zebra Aurora Vision

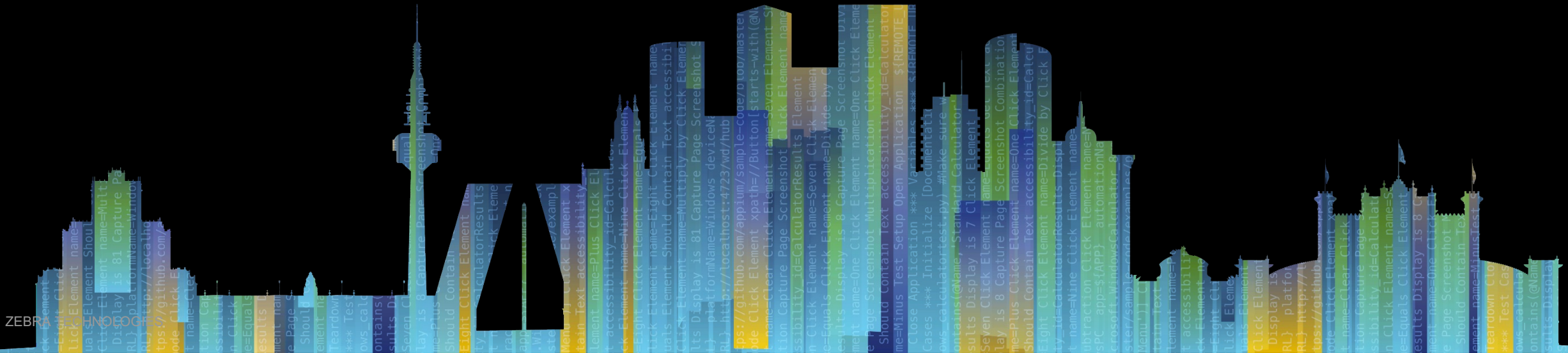
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Introduction to Aurora Vision



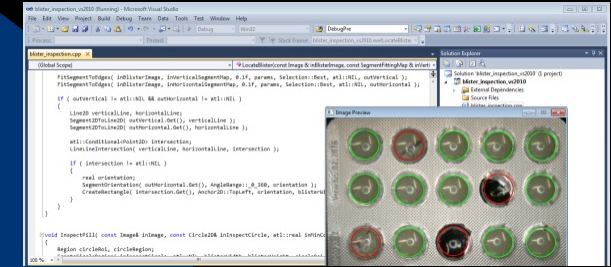
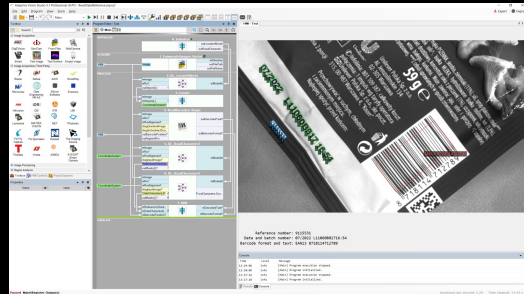
Value Proposition

Why Zebra Aurora Vision?

- Rapid development – significantly faster compared to low-level programming
- Easy-for-use, graphical programming environment
- But still so powerful - over 3000 reliable, field-tested tools optimized for demanding applications
- Mature solution – all tools have been implemented by Adaptive Vision and developed for the last 16 years
- Hardware-agnostic – support for most cameras available on the market, also 3D scanners

All-in-one development platform

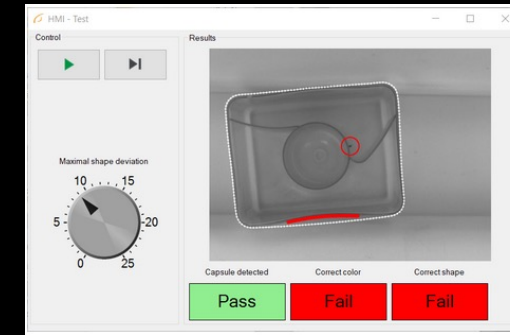
Reduce your time to market by taking advantage of user-friendly and hardware-agnostic software



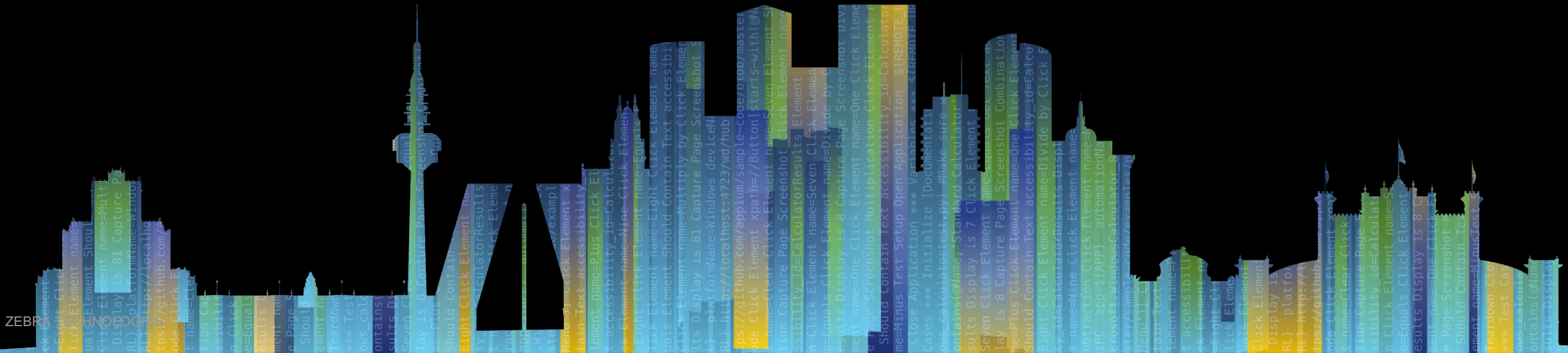
Develop an algorithm or train AI-based tools

Generate code or design user interface

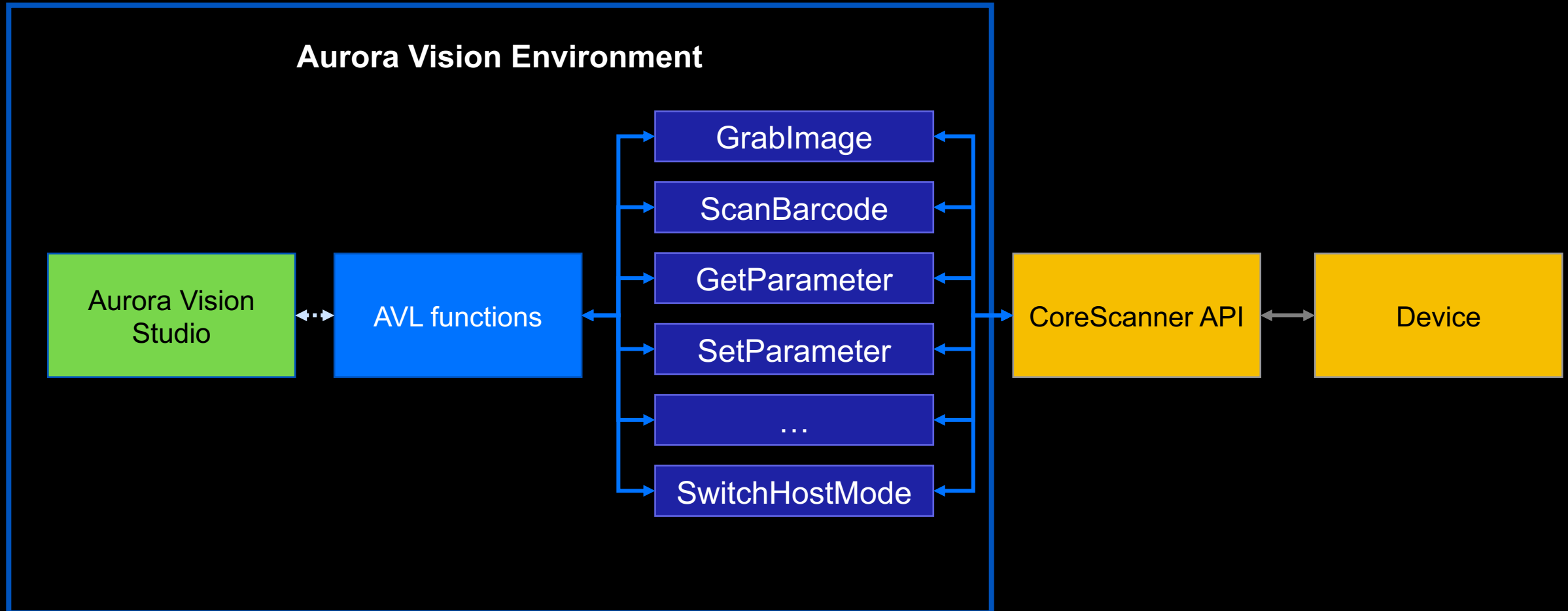
Select hardware



Interfacing with devices



Interfacing with Zebra Scanner SDK



Listing scanners

Show all connected devices and their mode

The screenshot shows the Aurora Vision Studio Professional interface. The main window displays the 'Program Editor - Design' view with a 'Main IO' component. A 'PROCESS' block is visible, containing a 'ZebraScanEngines_ListScanners' component. The 'outScannerList' table is expanded, showing a list of connected scanners. The table has the following data:

ID	Type	SerialNumber	GUID	VID	
0 1	USBHIDKB	19157010550598	19157010550598	36880	451

The 'Properties - (0)ZebraScanEngines_ListScanners' window is open, showing the 'Name' and 'Value' columns. The 'ZebraScanEngines_ListScanners' window is also open, displaying the message 'Lists available Zebra scanners.' and a 'Show help...' link.

At the bottom of the interface, the status bar shows 'Not started' and 'Iterations per second: 4.23 Time elapsed: 1.17 s'.

Switching scanners to SNAPI

Control scanner mode

The screenshot displays the Aurora Vision Studio Professional interface. The main design area shows a sequence of steps for controlling a scanner:

- 0. ZebraScanEngines_ListScanners
- 1. ZebraScanEngines_SwitchHostMode (highlighted in orange)
- 2. ZebraScanEngines_ListScanners

The properties window for the selected step shows the following configuration:

Name	Value
inDeviceID	Auto
inHostMode	USB_SNAPI_with_Imaging
inSilentSwitch	False
inIsPermane...	True

The console window at the bottom shows the following message:






Time	Level	Message
09:54:57	Info	[Main] Program execution stopped.

At the bottom right, the status bar indicates: Iterations per second: 4.23 Time elapsed: 1.17 s

Controlling scanner operation

Setting parameters

- Aurora Vision allows controlling scanner parameters
- Scanner's documentation contains description of parameters and allowed values

0. ZebraScanEngines_ControlAim ↓	
Aiming - On	
	inDeviceID* Auto
	inTurnOn True
1. ZebraScanEngines_SetParameter ↓	
Image Size - Full	
	inDeviceID* Auto
	inParameterID 302
	inParameterType "B"
	inParameterValue* "0"
	inIsPersistent False
2. ZebraScanEngines_SetParameter ↓	
Image Capture Autoexposure - enable	
	inDeviceID* Auto
	inParameterID 360
	inParameterType "B"
	inParameterValue* "1"
	inIsPersistent False
3. ZebraScanEngines_SetParameter ↓	
Snapshot Mode Timeout - no timeout	
	inDeviceID* Auto
	inParameterID 323
	inParameterType "B"
	inParameterValue* "0"
	inIsPersistent False
4. ZebraScanEngines_SetParameter ↓	
Data Matrix decoding - disable	
	inDeviceID* Auto
	inParameterID 292
	inParameterType "F"
	inParameterValue* "0"
	inIsPersistent False

Reading codes

Using scanner's functionality to read codes

The screenshot shows the Aurora Vision Studio 5.3 Professional interface. The main window is titled "Aurora Vision Studio 5.3 Professional + Parallel Add-on - Program*". The interface is divided into several panes:

- Project Explorer:** Shows a project named "Program" with a sub-item "Main*".
- Program Editor:** Displays the "Main IO" program. The "PROCESS" section is active, showing a step "0. ZebraScanEngines_ScanBarcode: Synchronous". Below this, the "outRawData" property is highlighted.
- Properties:** Shows the properties for the selected "outRawData" property, including "inDeviceID*", "outBarcodeType", and "outBarcodeDecoded".
- Console:** Displays the output of the scan. The "outRawData" pane shows a hex dump of the raw data. The "outBarcodeType (+1)" pane shows the decoded barcode type and value.

The Console output is as follows:

```
00000000 22 01 00 17 03 00 38 53 : 53 41 31 30 52 31 36 38 ".....8SSA10R168
00000010 38 38 44 31 53 47 31 36 : 39 30 37 38 37 00 00 00 88D1SG1690787...
00000020
```

The "outBarcodeType (+1)" pane shows:

outBarcodeType	Code128
outBarcodeDecoded	8SSA10R16888D1SG1690787

The status bar at the bottom indicates "Paused Main(Register Outputs)" and "Iterations per second: 0.00 Time elapsed: 3.63 s".

Simple vision algorithm

OCR, QR Code, Pattern Matching

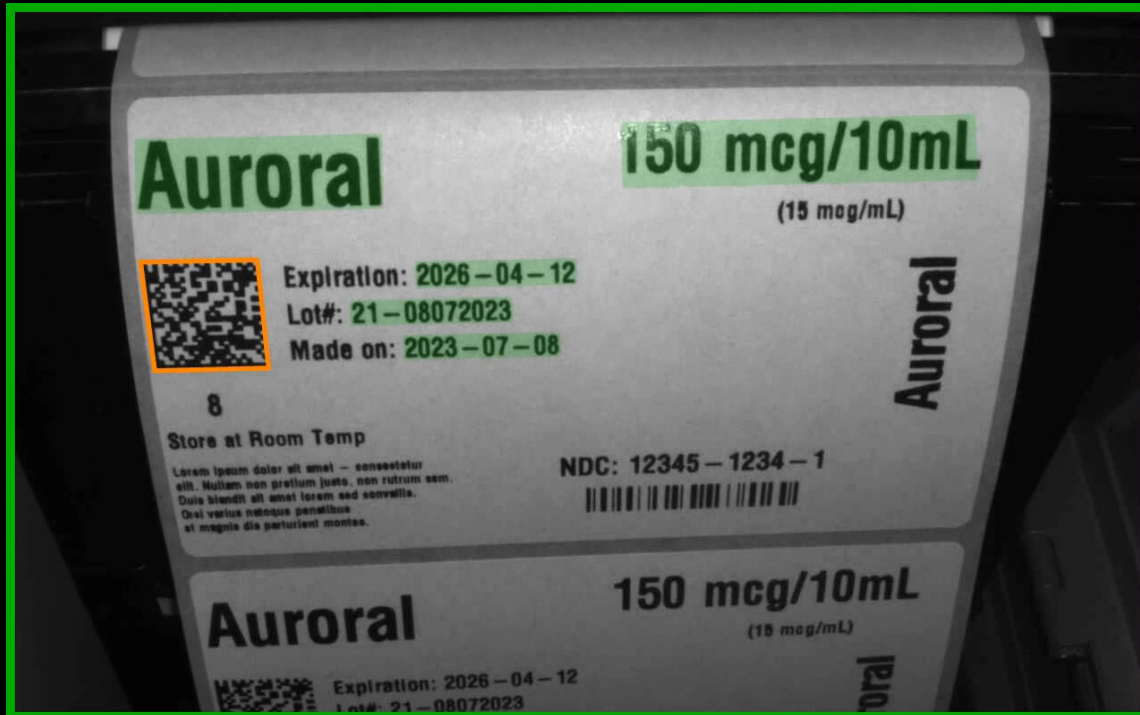
The screenshot displays a vision algorithm interface. On the left, a flowchart titled 'ACQUIRE' and 'PROCESS' shows the sequence of operations: 0. ZebraScanEngines_GrabImage: Synchronous, 1. LocateObjects_Edges2: Single, 2. DL_ReadCharacters?, 3. MergeCharactersIntoLines?, and 4. ReadCode_1K: Single. The central window shows a camera view of a Zebra box with a QR code and text: '1607972', 'ZL-M1616UR', 'S/N 62055543', 'PO 6103843084', and 'Conforms to restricted substances of (EU) 2015/863'. The right window shows the output results: 'outResult 6103843084&62055543&1607972' and 'outStrings' table.

outStrings
0 1607972
1 ZL-M1616UR

Iterations per second: 0.58 Time elapsed: 3.86 s

Printer Label Inspection

MS4710



Zebra Camera



Optical Character Recognition with Scanner

MS-4717

- Scanner continuously records preview images
- When vision algorithms detects ticket, scanner snaps one full-size photo
- OCR is performed at detected locations
- Results are displayed



Checking labels at angles

DS-4608

- Scanner snaps photo when triggered
- Vision algorithm reads Data Matrix code
- Perspective correction is performed for each label
- Temperature sensor dot is checked



Barcode Scanner vs Industrial Camera

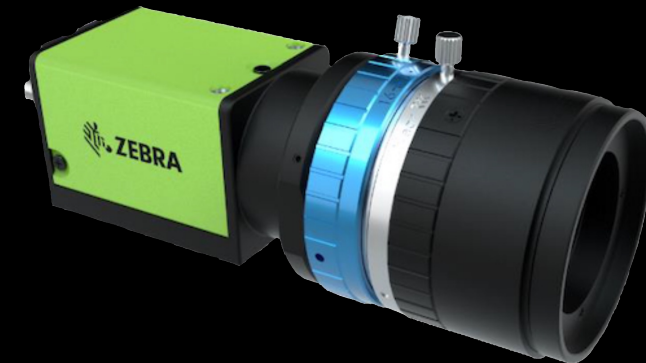
Advantages and when to use

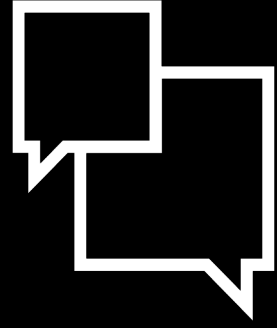
- Barcode Scanner

- Available in many form factors, including handheld and wireless
- Considerably cheaper
- Has built-in lighting
- Good for non-continuous inspection

- Industrial Camera

- Usually wired and for fixed mounting
- Higher framerate
- More control over acquisition parameters
- Higher resolution and better image quality
- Great for production lines, especially high-speed ones





Questions

Zebra DevCon 2023



Thank You

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