

A Review on Cameras Available in the .enpeda.. Group

Zhengping Wang

Department of Computer Science

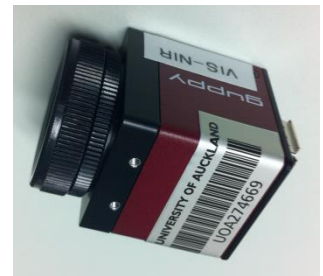
The University of Auckland

New Zealand

23rd Jan. 2014

Abstract

- IDS GigE UI-5120SE-M
- HAWK HK 246RGB-CL
- Guppy F044C NIR
- Basler A622f



IDS GigE UI-5120SE-M

--Features



Properties	Value
Interface	GigE
Sensor type	CMOS Mono
Frame rate	50 fps
Resolution	768 x 576
Shutter	Rolling shutter
Power supply	12V - 24V
Color depth(camera and sensor)	12 bit
Pixel size	10 μ m

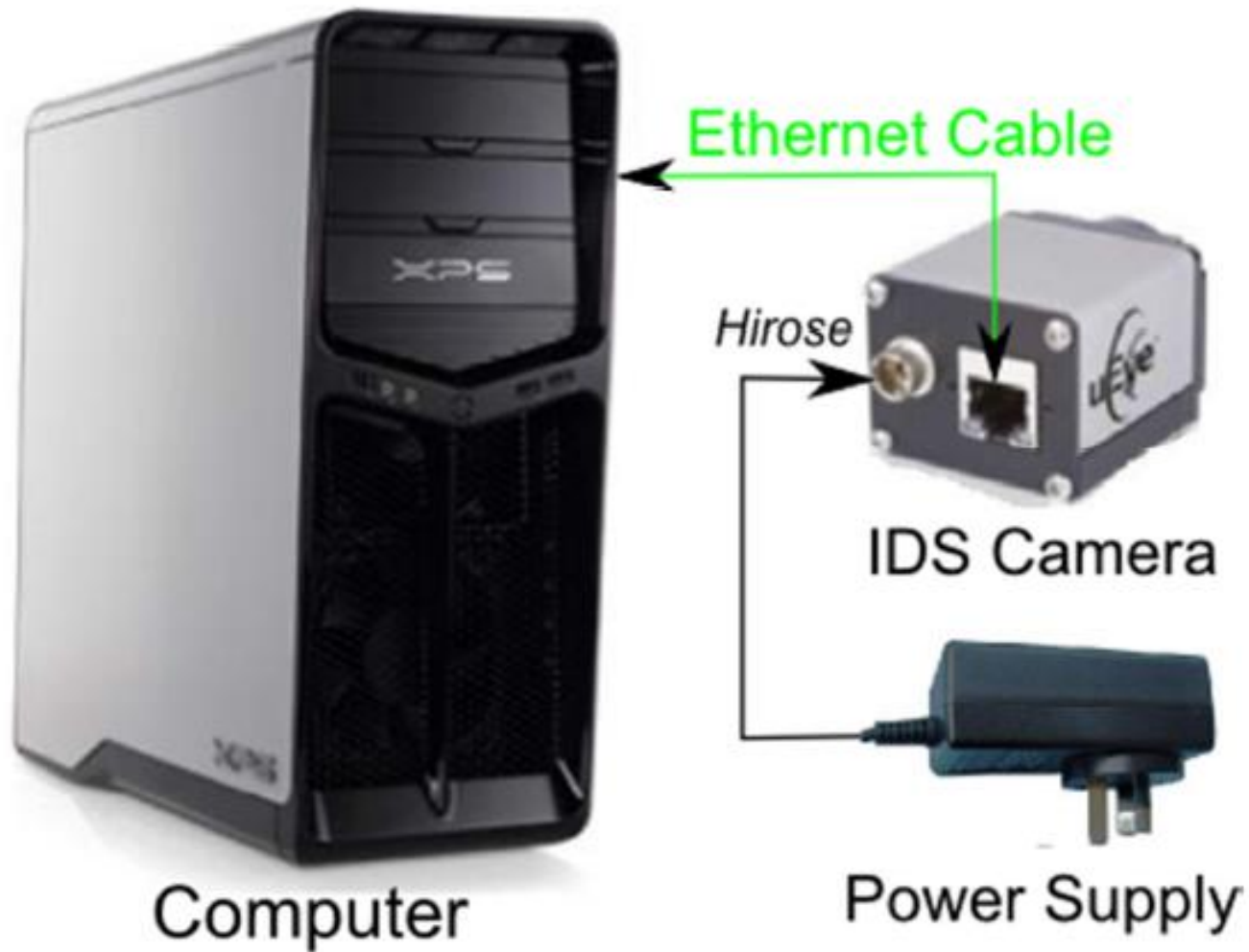
<http://en.ids-imaging.com/store/ui-5120se.html>

<http://www.teledynedalsa.com/imaging/knowledge-center/appnotes/ccd-vs-cmos/>

http://en.wikipedia.org/wiki/Rolling_shutter

IDS GigE UI-5120SE-M

--How to use



IDS GigE UI-5120SE-M

--Advantage and Disadvantage

- high dynamic range of 120 dB
- suitable for scenes where there is a large variation in illumination
- a GigE (Ethernet) connection
- rolling shutter
- grey scale, no colour filter in front of the sensor

HAWK HK 246RGB-CL

--Features



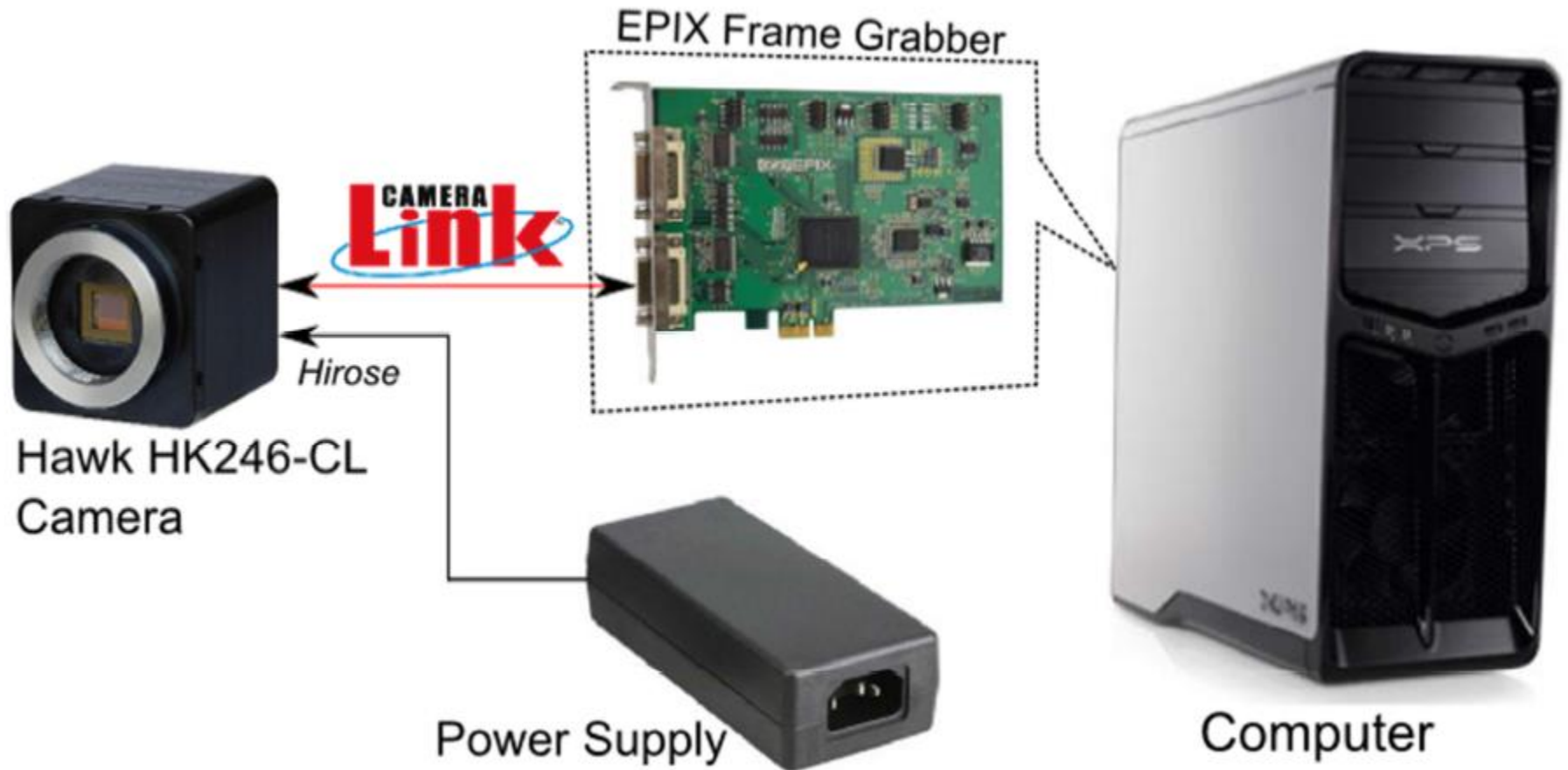
Properties	Value
Interface	Camera Link frame grabber
Sensor	EMCCD
Scan Mode	progressive scan
Resolution	658 x 496
Pixel	up to 12-bit
Colour	Green, Magenta, Cyan, Yellow Bayer filter
Frame Rate	25HZ, 29.97HZ, 30HZ
Power Supply	12V DC
Pixel Size	10 μ m

<http://www.group-ssi.com/gs-hawk-em246-analogue-color-emccd.html/155/>

http://en.wikipedia.org/wiki/Progressive_scan

HAWK HK 246RGB-CL

--Set up



HAWK HK 246RGB-CL

--Advantage and Disadvantage

- has an electron-multiplying CCD image (EMCCD) sensor
- uses an auto-gain system
- progressive scan
- Need a camera Link frame grabber
- suitable for low light applications

Guppy F044C

--Features



Properties	Value
Interface	IEEE 1394a - 400 Mb/s, 1 port
Resolution	752 x 580
Sensor type	Interlaced CCD
Cell size	8.6 x 8.3 μm
Frame rate	25 fps
Bit depth	8 bit
Colour modes	Bayer filter(Green, Magenta, Cyan and Yellow)
Power requirements	8 V - 36 V

<http://www.alliedvisiontec.com/us/products/cameras/firewire/guppy/f-044bc.html>

http://en.wikipedia.org/wiki/Interlaced_video

Guppy F044C --Set up



Computer



AVT Guppy

Firewire



Guppy F044C

--Advantage and Disadvantage

- interlaced CCD sensor
- colour camera, equipped with a Bayer filter(Green, Magenta, Cyan and Yellow)
- It is not suitable for the scenario that there are fast moving objects.

http://en.wikipedia.org/wiki/Bayer_filter

Basler A622f

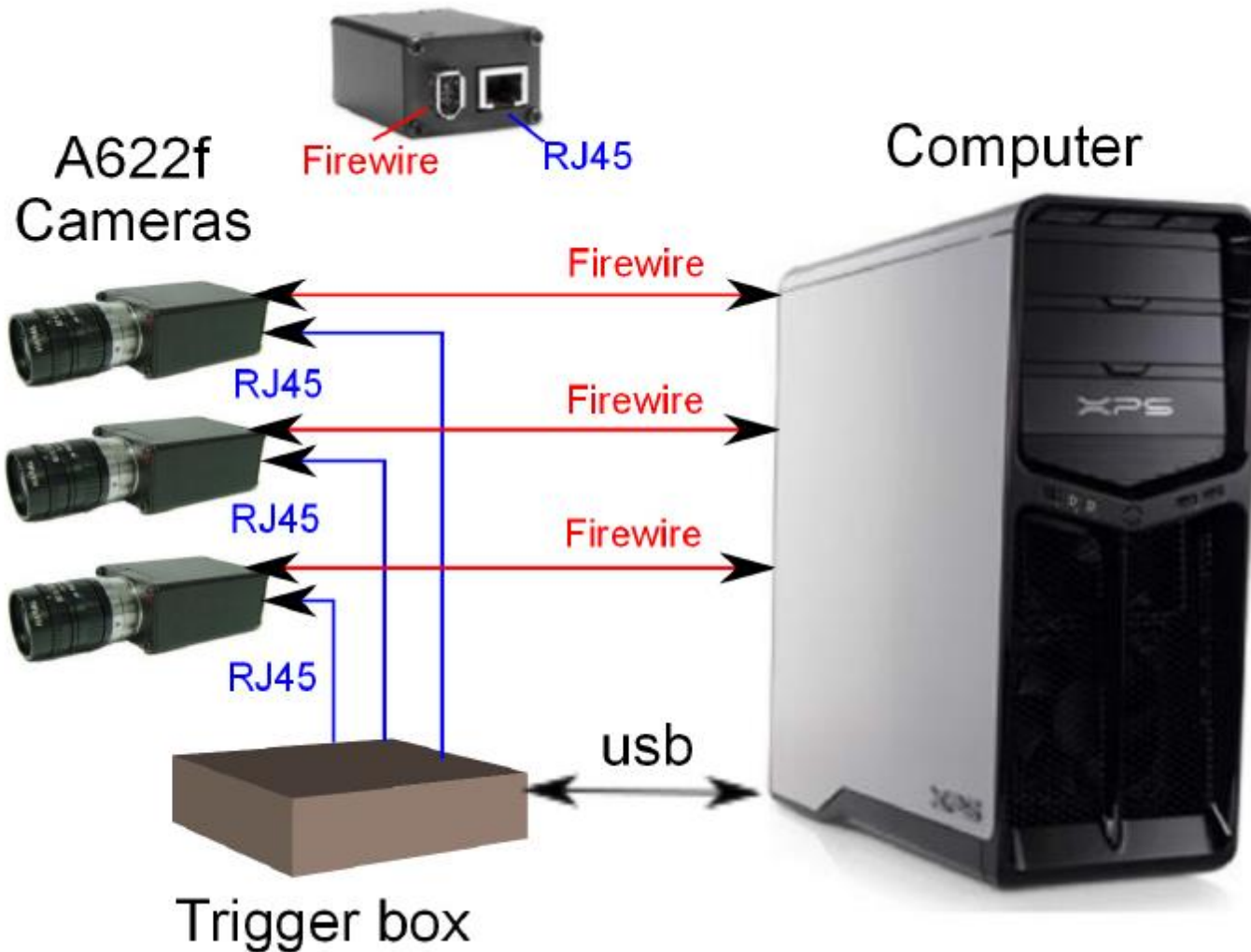
--Features



Properties	Value
Interface	IEEE1394a
Resolution	1280x1024
Sensor type	CMOS
Shutter	Global shutter
Pixel size	6.7 μm
Frame rate	25 fps
Mono 8	8 bits/pixel
Mono 16	10 bits/pixel
Pseudo YUV 4:2:2	16 bits/pixel
Power requirements	8-36 VDC, max. 2.3 W (at 12 VDC)

http://www.controlvision.co.nz/Products/product_catalogue.cfm?action=display&productId=9349

Basler A622f --Set up



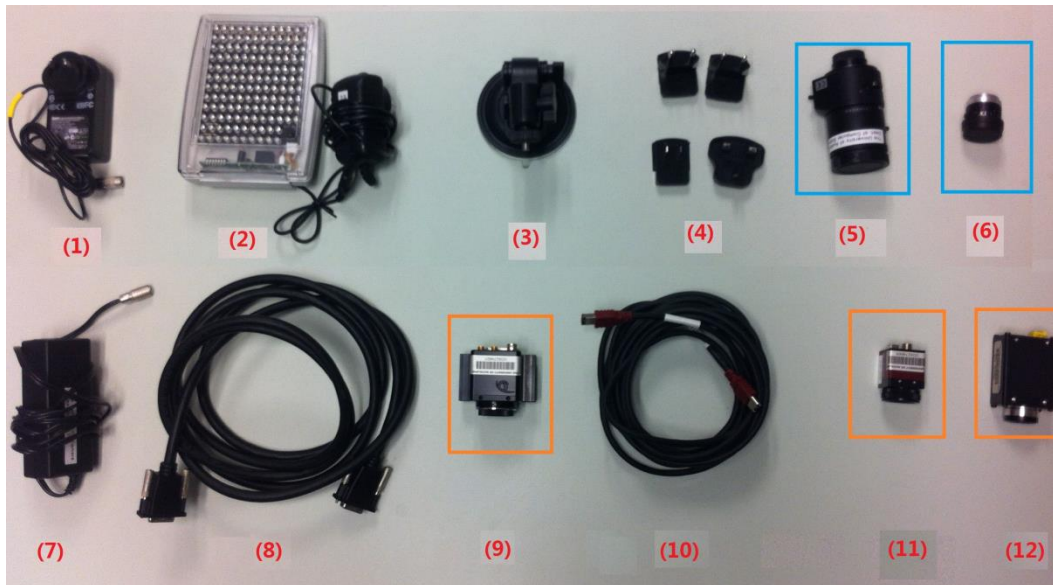
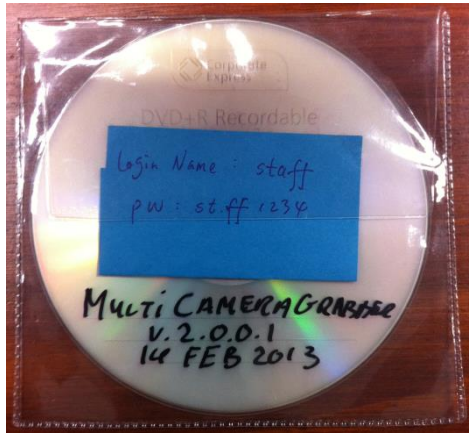
Basler A622f

--Advantage and Disadvantage

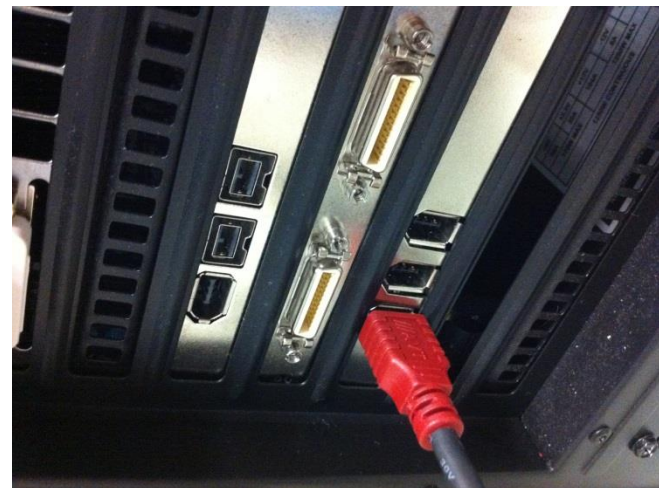
- CMOS global shutter image sensors
- High resolution 1280 x 1024, 8 bit, 25 fps
- It is available in monochrome only

How to use

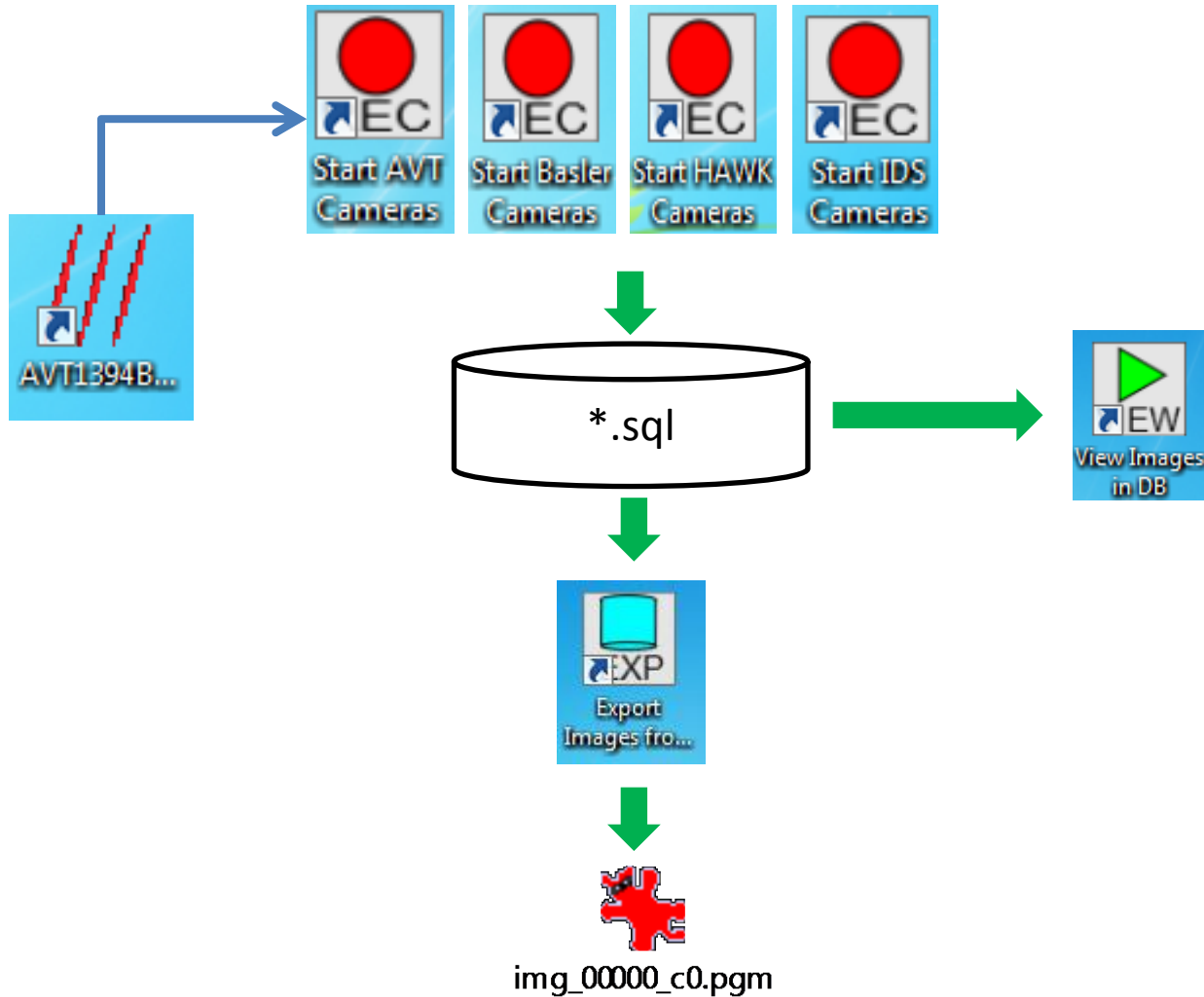
-- What we need



How to use --Guppy F044C



How to use --Guppy F044C



Summary

	IDS GigE UI-5120SE-M	HAWK EM 246RGB-CL	Guppy F044C	Basler A622f
Colour/Mono	Mono	Colour	Colour	Mono
Resolution	768 x 576	658 x 496	752 x 580	1280x1024
Frame rate	50 fps	25, 29.97, 30HZ	25 fps	25 fps
Color depth	12 bit	12 bit	8 bit	10 bit
Pixel size	10 μm	10 μm	8.6 x 8.3 μm	6.7 μm
Sensor	CMOS	EMCCD	CCD	CMOS
Shutter/Scan	Rolling shutter	Progressive scan	Interlaced scan	Global shutter
Interface	GigEthernet	EPIX	IEEE 1394a	IEEE 1394a
Application	large variation in illumination	low light applications	No fast moving objects scenario	High resolution scenario