

NAI INDUSTRIAL

# Digital Upgrade Package

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## NAI FOR ALL YOUR NDT NEEDS

NAI Industrial has been providing superior industrial imaging products for over 30 years. NAI is a one-stop shop for all components in the imaging chain – from image intensifiers and cameras to flat panel detectors, X-ray tubes and post-processing software.

## Upgrade Your Existing Equipment

NDT is going digital and we can help. Instead of purchasing costly replacements, NAI will evaluate your existing analog equipment and customize a digital upgrade package to meet your needs.

Go digital today for better image resolution and contrast.

Contact Josh Hunt at 805.383.2214 or [jhunt@NAImaging.com](mailto:jhunt@NAImaging.com) for more information.

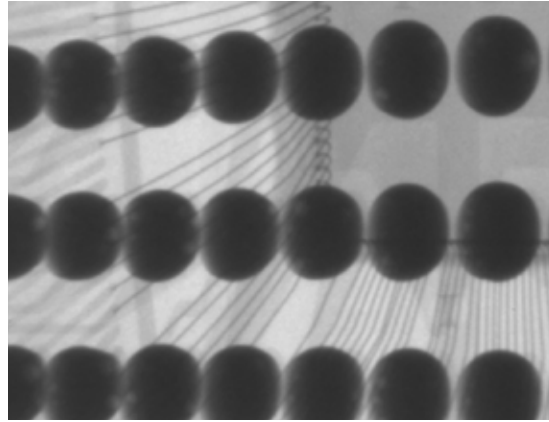
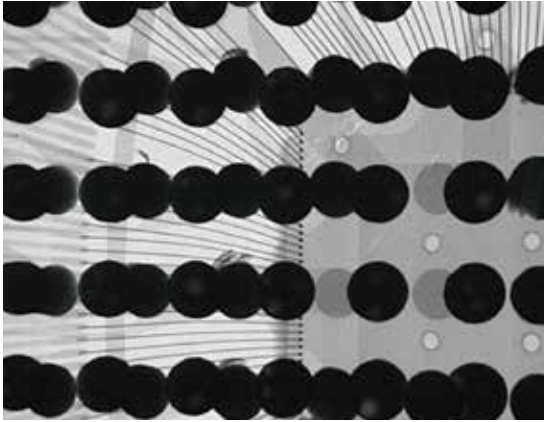


# Digital vs. Analog Image Comparison

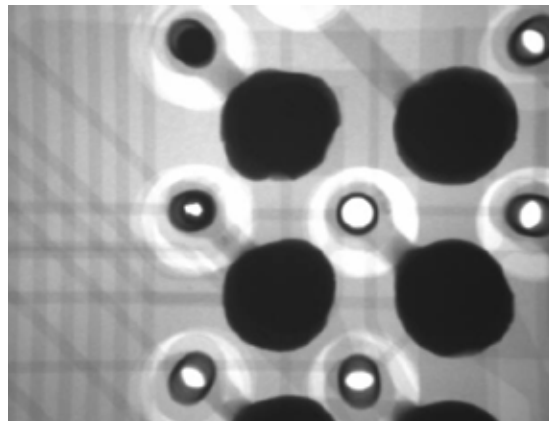
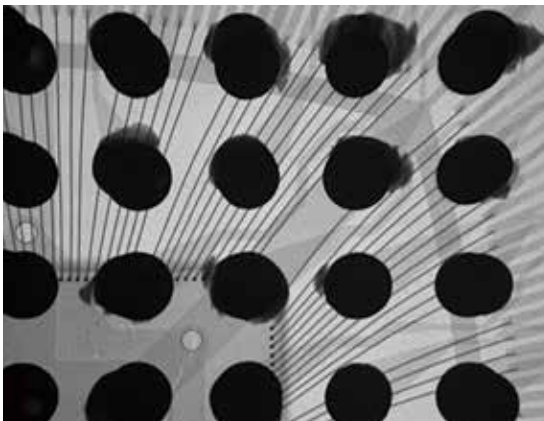
D I G I T A L

A N A L O G

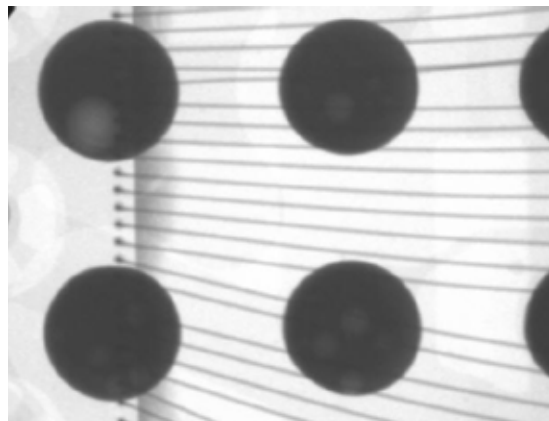
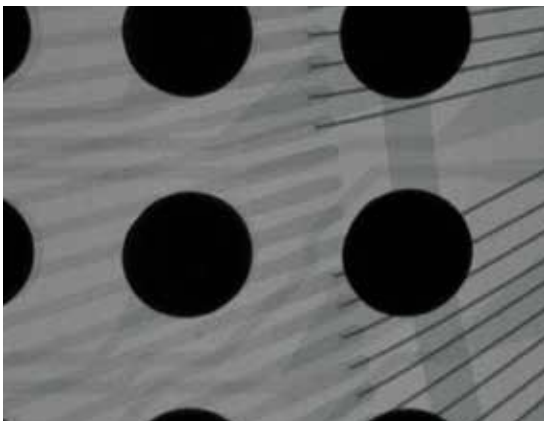
BGA solder balls and bond wires tilt view



BGA solder balls irregular shapes



BGA solder balls and bond wires high magnification



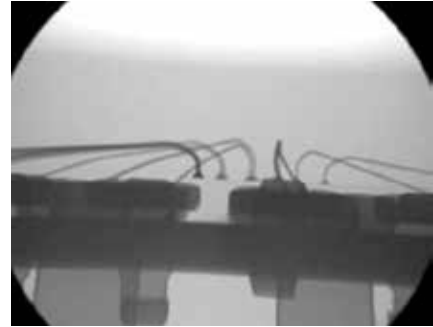
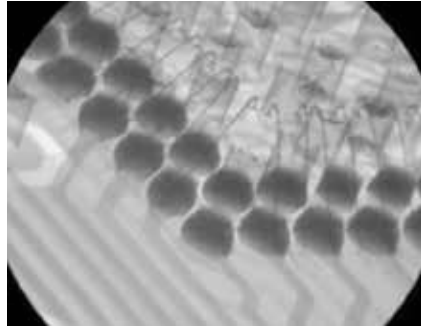
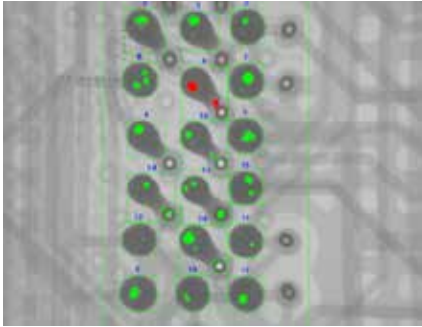
# Digital Camera Specifications

## Model IMx-720G

Image Sensor	1/1.8" Sony CCD
Sensor Name	ICX274 AL/AQ
Resolution	Megapixel: 2.0MP HxV: 1624 x 1232 (mono) 1624 x 1228 (molor)
Pixel Size	4.40µm x 4.40µm
Frame Rate	16 fps
Digital Interface	Gigabit Ethernet
Transfer Rate	1000 Mbps
Scanning System	Progressive scan
Shutter Type	Global shutter
Data Path	8 or 12 bit B/W (YUV 4:2:2 / YUV 4:1:1)
Binning	2x2 (mono only); Color/mono is available for Imx-720G
ROI	Partial scan (Unit:4x4)
Trigger	External or software trigger with various mode
I/O Port	Ext. Trigger, RS232, Strobe (6-pin)
Memory Save/Load	9 channels (0:factory, 1~4:feature, 5~8:mode/feature)
Gain Control	0~18 dB (manual or muto)
Shutter Speed	1 µsec~3600 sec
Control Functions	Brightness, sharpness, gamma, auto-gain, auto-exposure, auto-shutter, (saturation, auto white balance, hue) lens
Lens Mount	C/CS mount
Operating Temperature	-5°C ~ 45°C
Storage Temperature	-30°C ~ 60°C
Supply Voltage	PoE (power over Ethernet 802.3af compliant) or +8 VDC ~ 24 VDC supplied via the camera's 6-pin Hirose connector < 3.2 W (when using power over Ethernet) < 3.0 W (@ 12 VDC when supplied via the camera's 6-pin connector)
Dimensions	29(W) x 29(H) x 51.1(D)mm (without lens adapter)
Weight	< 58 g

Specification may be subject to change without notice.

# Post-Processing Software



Vital to quality control, NAI Industrial software allows manufacturers to find contamination, scratches, cracks, blemishes, gaps, pits and other production flaws. Post-processing software can detect defects invisible to the human eye – faster and more accurately.

We offer several user-friendly software packages to meet a variety of applications for a wide range of industries. Choose from one of our three software packages or let us put together a customized package to fit your unique needs. Contact Josh Hunt at 805.383.2214 or [jhunt@NAImaging.com](mailto:jhunt@NAImaging.com) for more information.

## Standard Software Package

- Image capturing and saving (.jpg, .bmp, .tif)
- Auto Live image averaging
- Post capture image enhancements:
  - *Brightness and contrast adjustments*
  - *Image filters (sharpen, pseudo color, negative)*
- Point-to-point distance measurement tool
- Measurement calibration (inches, mm, mils)
- Image annotation tool:
  - *On screen text tool*
  - *Arrow drawing*
  - *Line, circular or rectangular shape drawing*
- Quad view imaging tool (allows user to capture four images and combine them into one picture)

## Optimum Software Package

- Standard Software Package features
- BGA measurement algorithm tools
- Solder ball size:
  - *Ball area*
  - *Ball diameter*
  - *Ball roundness*
  - *Percent void*
  - *Pass fail criteria*
  - *Image reporting*

## Advanced Software Package

- Optimum Software Package features
- QFN measurement algorithm tools:
  - *Joint area*
  - *Percent void*
  - *Pass/fail criteria*
- Semiconductor measurement algorithm tools:
  - *Bond wire sweep*
  - *Die attach void measurement*
  - *Pass/fail criteria*
- Gull wing joint measurement algorithm tools:
  - *Joint area*
  - *Percent void*
  - *Pass/fail criteria*
- Drill offset measurement
- Center to center offset (X & Y distance)