

200mm Batch Edge Scan System



Overview

- The ES (Edge Scan) system has a small footprint and is able to automatically detect mid-size and large defects (diameter larger than 100um) such as Cracks, Chips, Scratches and Particles at the wafer edge.
- All wafers in the cassette are inspected simultaneously which leads to high throughput.

Applications

- The ES system with its small footprint, is useful before and after many different process steps.

Application Examples:

1. After **edge polishing** to confirm the process and to remove defective wafers.

2. Prevent **wafer breakage** in production or other inspection tools. This saves time for cleaning and improves the capacity utilization.

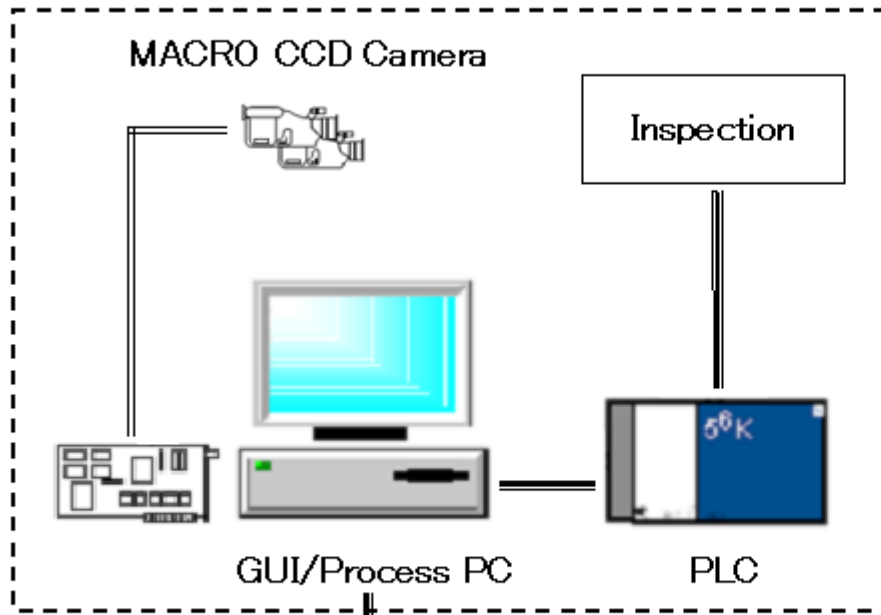
Applications (Continued)

3. Check for **particles and contamination** on the edge after wafer cleaning.

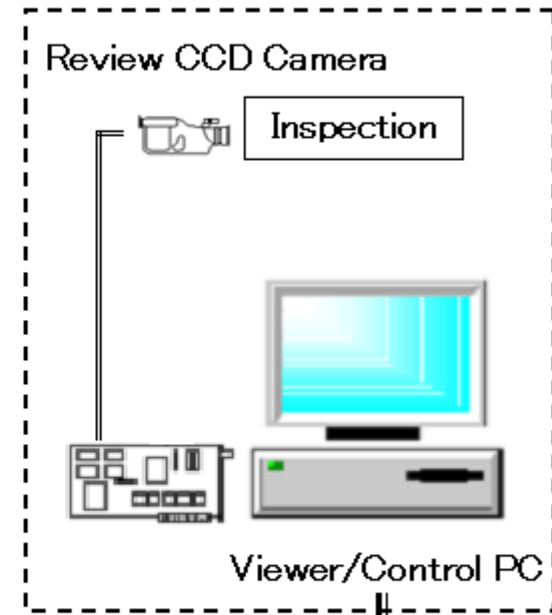
4. **Final Inspection** before shipping

System Configuration

Batch Type 8" Wafer Inspection System



Visual Monitoring System (Option)

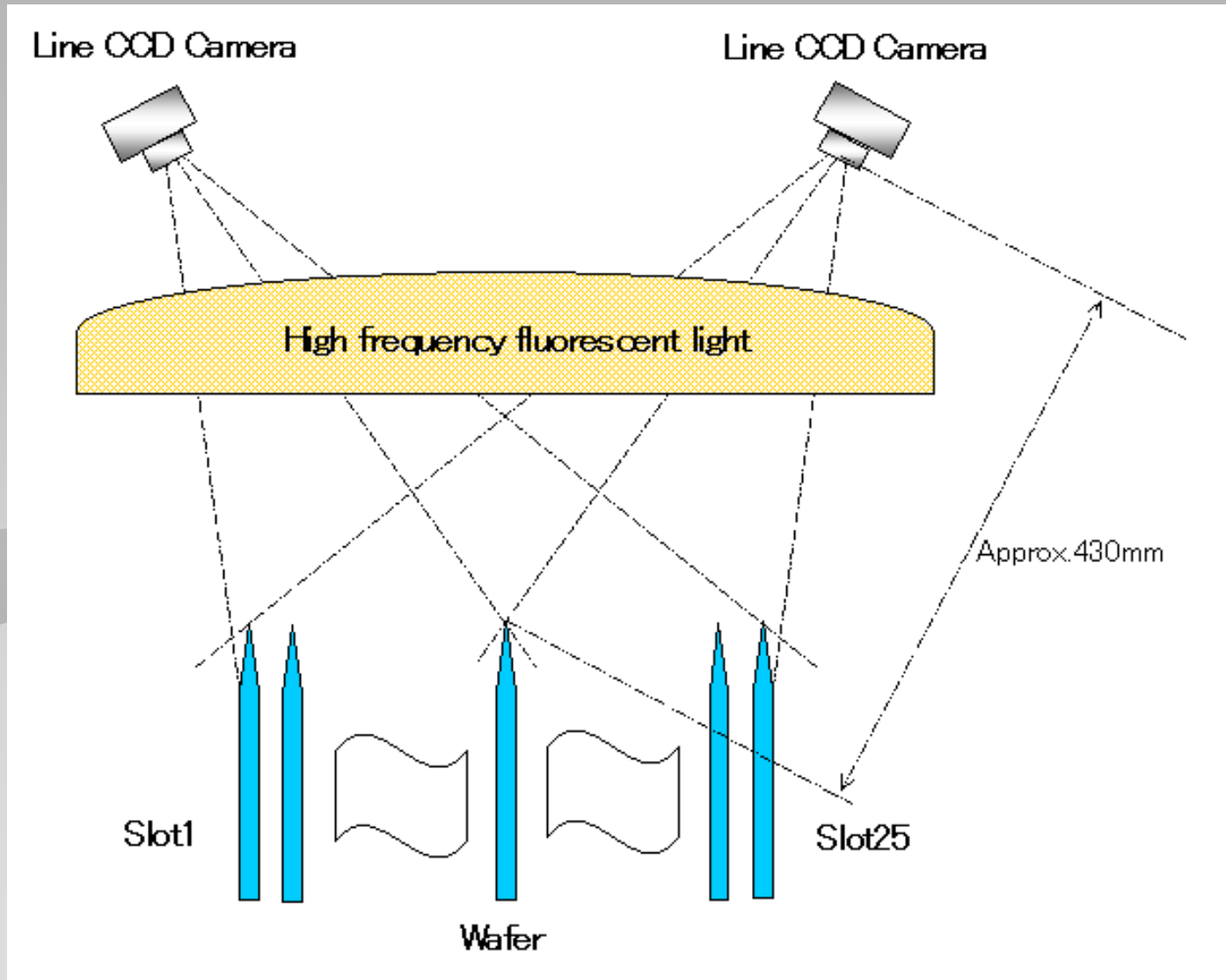


HOST

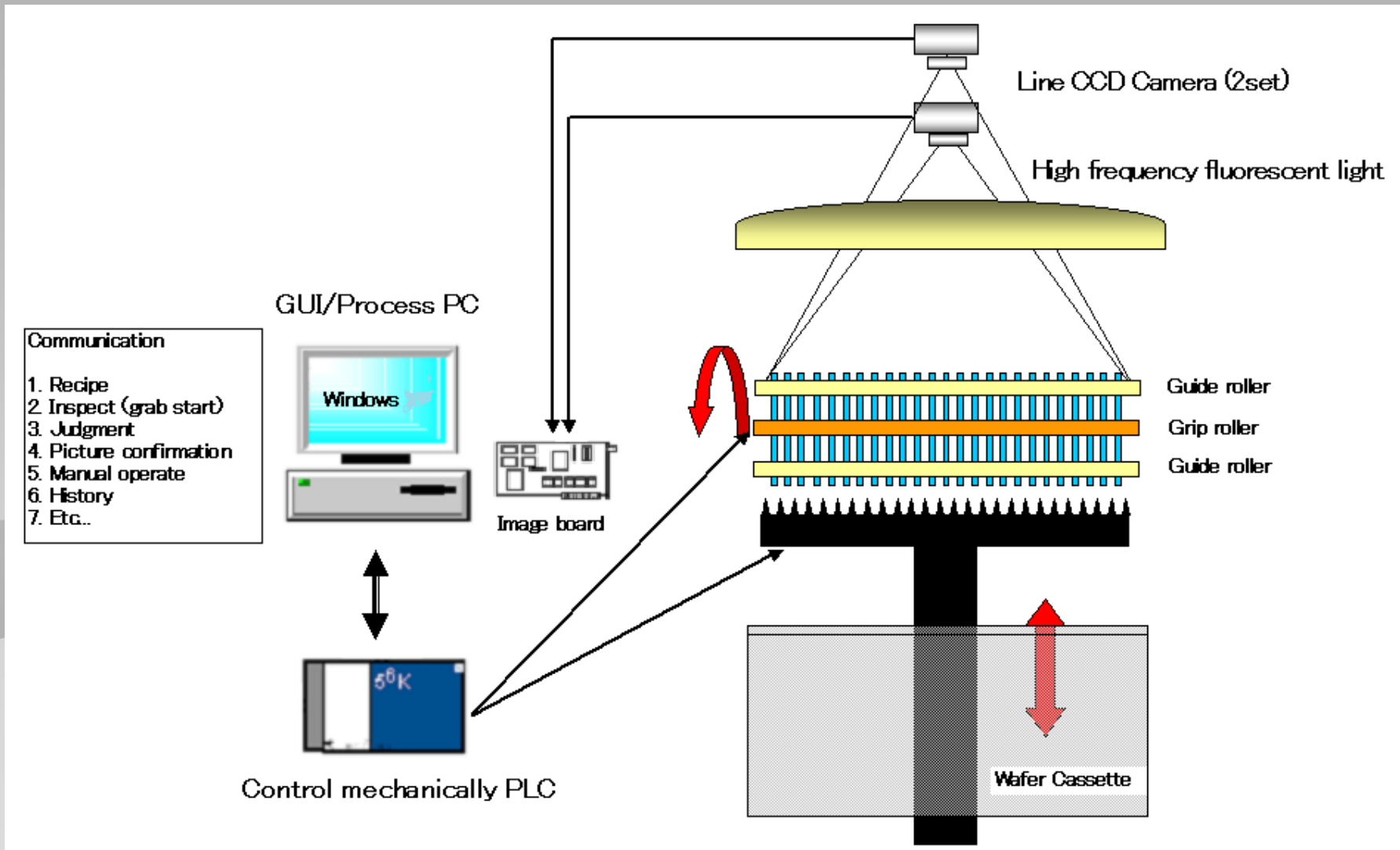
TCP/IP

TCP/IP

Camera and Lighting Basic Configuration



Equipment Basic Configuration



Specification

| Item | Specification | |
|-------------------------|---|--|
| 1. Wafer Size | 200mm | |
| 2. Wafer Type | Edge Polish with Notch (Orientation Flat is Optional) | |
| 3. Throughput | Approx. 60 seconds for the cassette Notch will be aligned to the cassette opening The inspection time is calculated from pressing the start button until the wafers are back in the cassette (Orientation flat alignment adds a little time) | |
| 4. Inspection Areas | Wafer Edge: Front Bevel, Back Bevel and Apex | |
| 5. Inspection Defects | Cracks Chips Scratches Contamination | |
| 6. Min. Defect Size | Greater than 100 micron diameter | |
| 7. Wafer Cassette Types | Many standard cassettes are compatible. Additional cassettes can be used with a redesigned cassette plate. | |

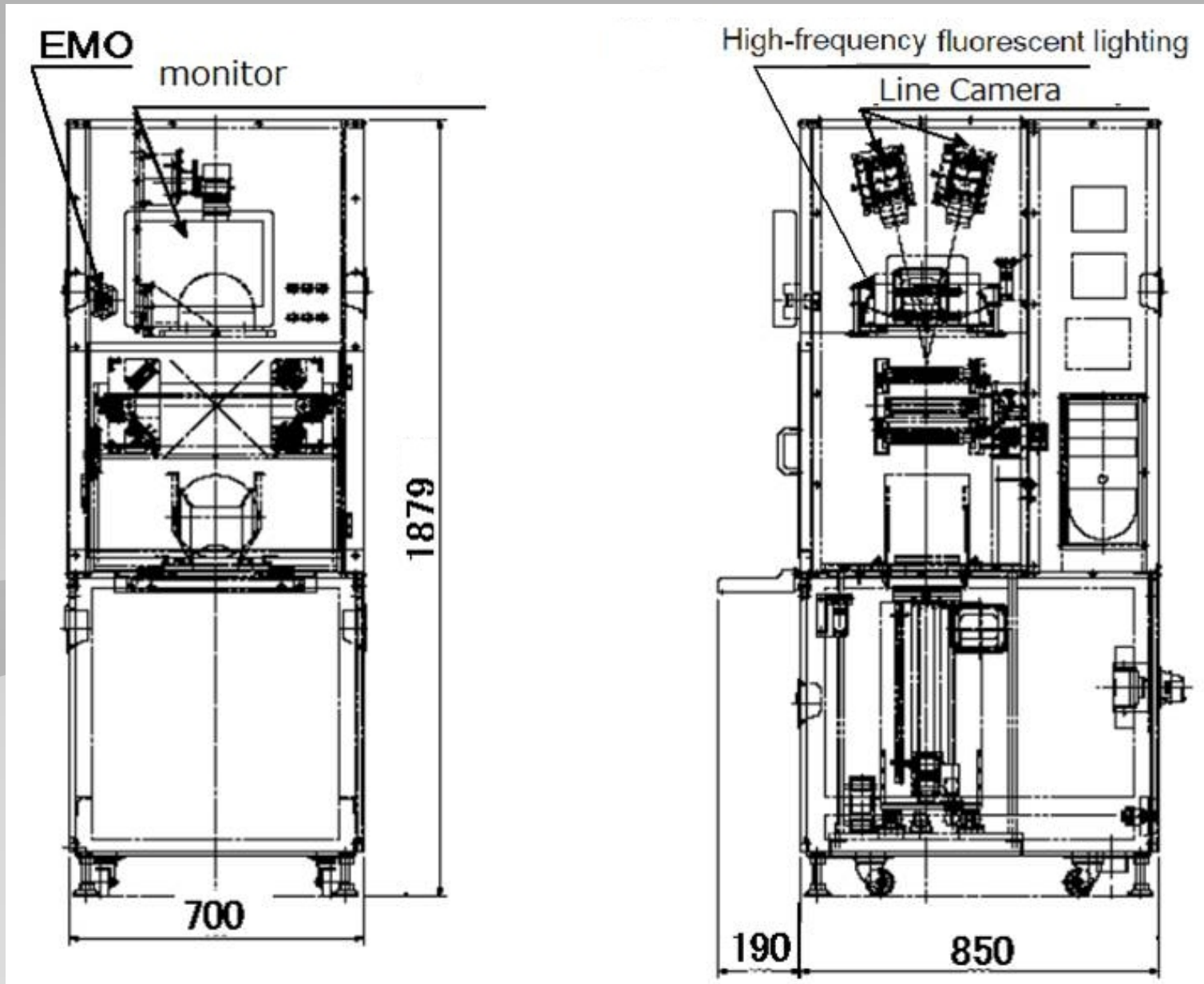
Specification (Continued)

| Item | Specification | |
|----------------------------|---|--|
| 8. Utilities | <p>1. Power: 100V – 120 VAC (ELB terminal block) Optional 200VAC•240VAC. Note: Voltage range must be specified upon order.</p> <p>2. CDA -Air : 0.75MPa; 5L/min (Φ6mm One-touch fitting connector) Orientation Flat alignment requires CDA - Air.</p> | |
| 9. Main Unit | <p>Frame: Equal-angle Steel (SS400) with a white baked finish Outside Panel: SUS400 (#400 Grinding)/Black smoke PVC</p> | |
| 10. Cassette Stage | <p>Configuration: According to customer supplied cassettes</p> | |
| 11. Wafer Lifter | <p>Configuration: One axis Robot plus collective dedicated chuck Method: Lifting only the wafers to the rotational mechanism from cassette</p> | |
| 12. Rotational Mechanism | <p>Configuration: Roller (urethane lining): Guide roller (MC501-CDR) Method: Roller chucking mechanism holds the 25 wafers collectively</p> | |
| 13. OF Aligner (Option) | <p>Configuration: Rotary roller (urethane lining)</p> | |

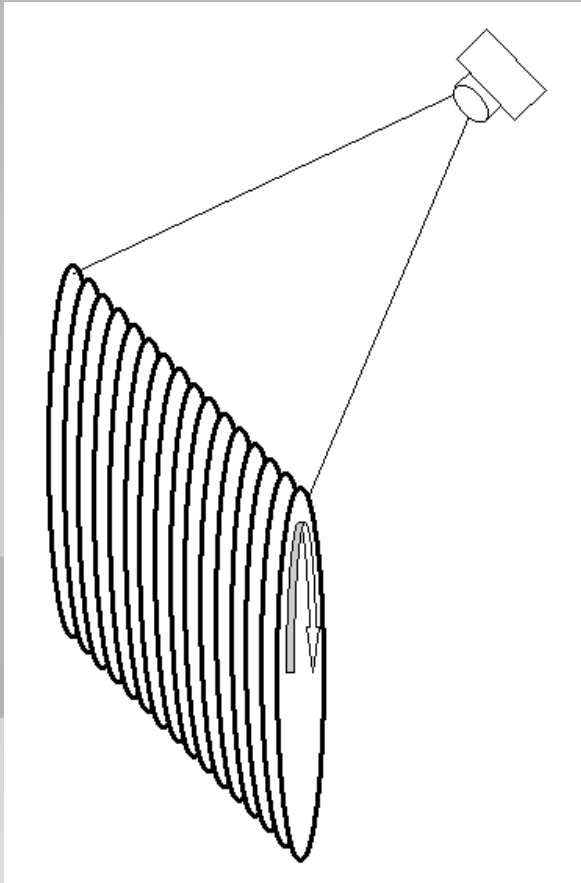
Specification (Continued)

| Item | Specification | |
|---------------------------------|---|--|
| 14. Inspection Subsystem | Camera: 7450 Pixel CCD LineScan cameras – Qty. 2 Lens: 50mm lens for each CCD LineScan camera Lighting: High-frequency fluorescent lighting (Reflection dome type) | |
| 15. Operator Panel | Monitor with keyboard and mouse Illuminated Switch: Power On/off/restart/start/stop/reset Emergency Switch: EMO switch with guard | |
| 16. Control | Machine controller: Motion control mechanism (PLC) | |
| 17. Image Processing | Windows Based PC | |

System Drawing

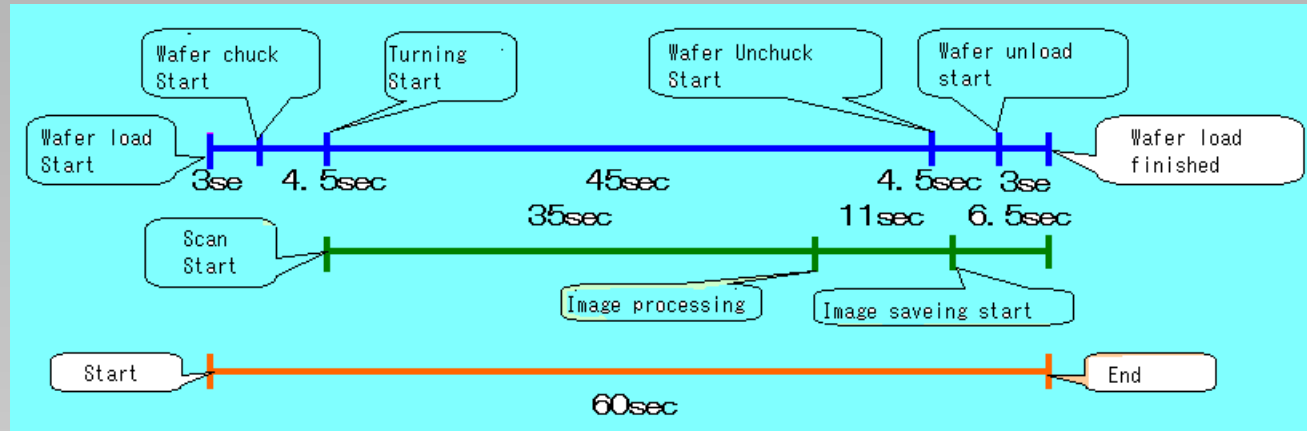


Throughput



- Scan Time: 35 sec
- Resolution: 20 μ m/Pixel
- Image Size: 500MB
- Image Processing Speed: 45MB/sec
- Inspection Time: 11 sec
- Image Processing Method:
Two CCD LineScan Camera Images
are Processed Simultaneously

Throughput (Continued)



- Overall Inspection time: 60 sec.
- After reading the image data, 11 sec. is needed for image processing.
- 6.5 sec. is needed for saving the inspection results

Image Processing

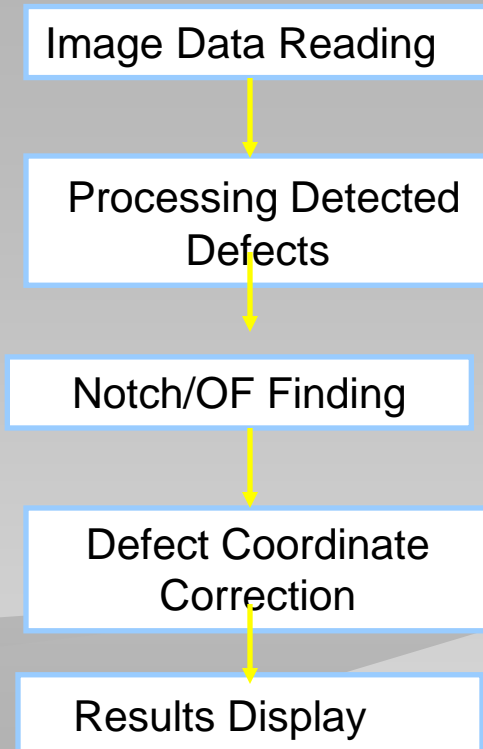


Image Data Reading: Transferring the wafer edge image data to the computer from the CCD Line Scan cameras

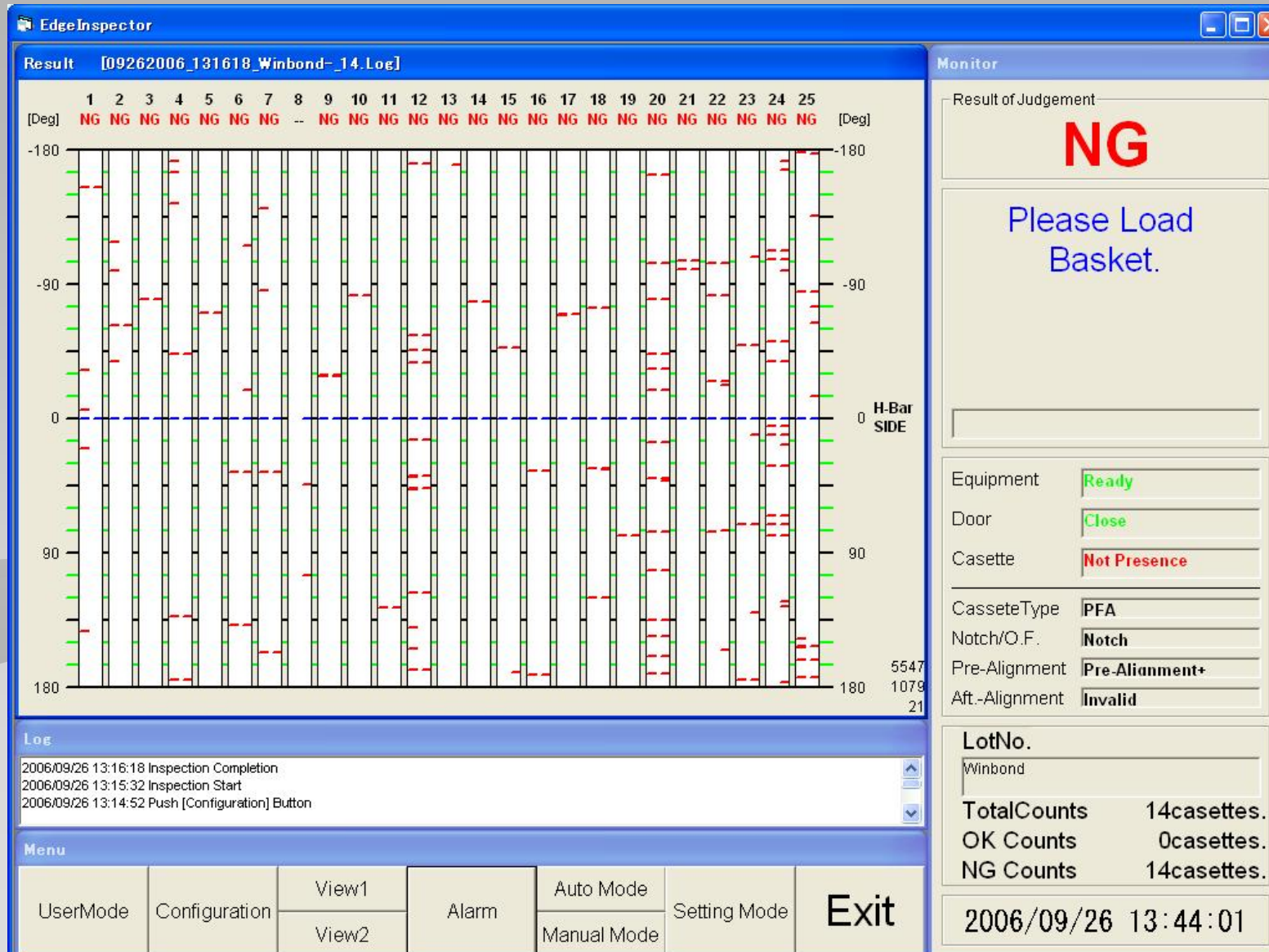
Processing Detected Defects: If the feature is bigger than the threshold value which was set in the recipe, it will be classified as a defect

Notch/OF Finding: Detect the notch/OF from the scanned image.

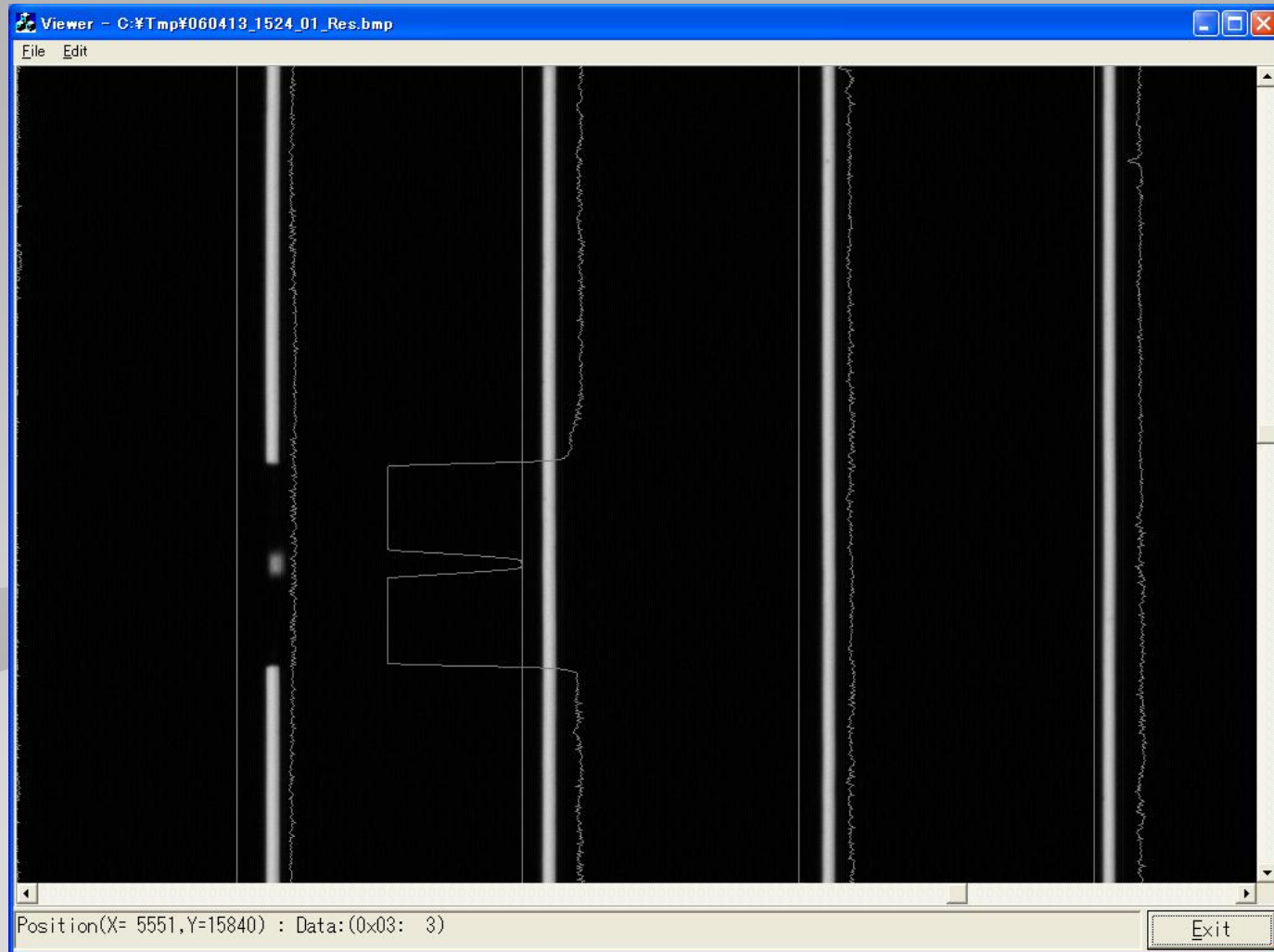
Defect Coordinate Correction: Normalizes the defect coordinates relative to 0 deg. which was defined as the Notch or the center of the OF.

Results Display: Inspection results and defect coordinates will be displayed on the LCD monitor

Main Screen After Inspection



Example Image



Options

- FFU: HEPA-ULPA
- Handling Device: Cassette automatic loader and un-loader
- Barcode Reader: Manual or automatic
- Host Communication: RS-232C or TCP/IP

The hardware and software can be modified to meet customer requirements.

Contact Info

Hologenix

15154 Transistor Lane

Huntington Beach CA 92649, USA

(714) 903-5999

Sales@hologenix.com

www.hologenix.com