



Introducing the largest product to the manufacturing shop floor

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Introduction

The problem: Introducing the largest semi-conductor product ever manufactured at KLA, it will come with risks to safety and productivity when being built. The design and manufacturing process is unverified and will need to be resolved.

A solution: Analyse the design and manufacturing process to solve the expected issues and put changes in place to ensure low risks and allow productivity to run to its full potential. Also, to enable to production to run through a PLC process.

Project Aims & Objectives

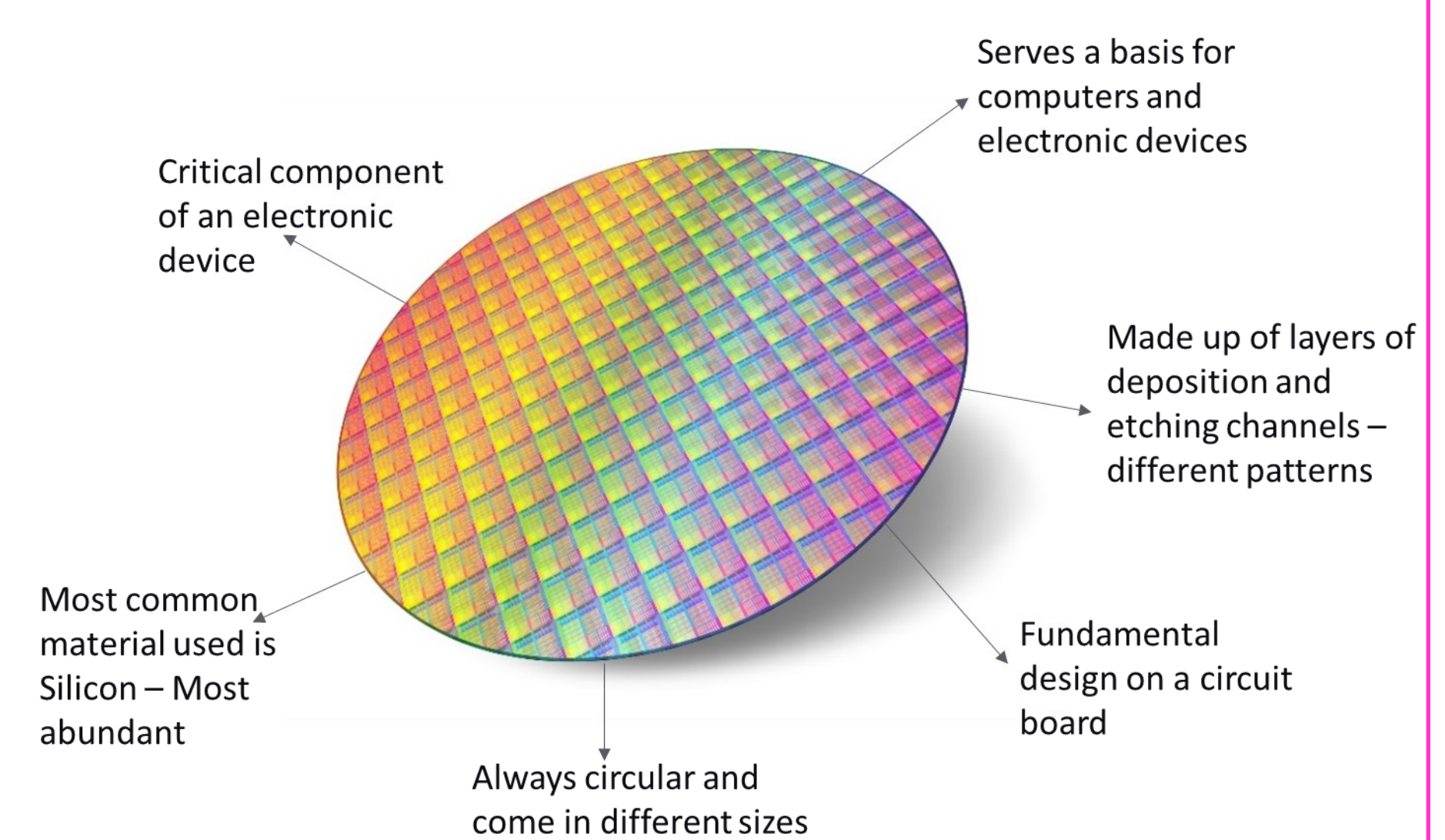
- Safe Implementation of the Alpha Build
- Lifting equipment, deliveries, training, MOC's.
- Setting productivity targets within the NPI team
- BOM's, Operational sequences, PLC processes, Quality.
- Achieving the characterisation criteria with vacuum pressures.
- Vacuum pressures, specifications.

Literature Review

This is to give the reader in depth knowledge how a semi conductor machine works. This links to the largest tool and what it will aid creating in the future.

The Jetstream tool will aid transporting the Semi-Conductor wafer from each module station to enable the deposition module to run the processes.

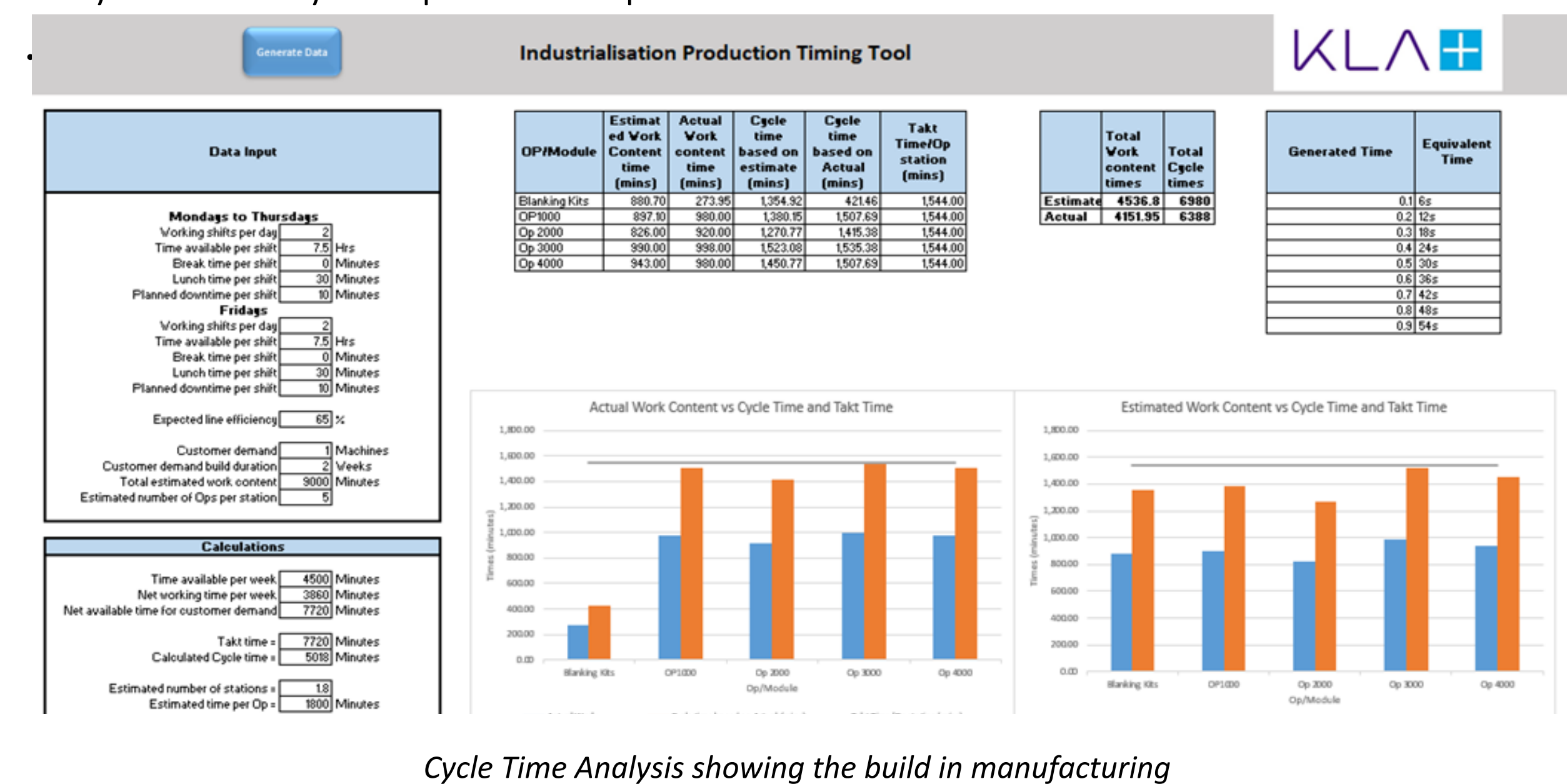
What are Semi- Conductors?



NPI Deliverables

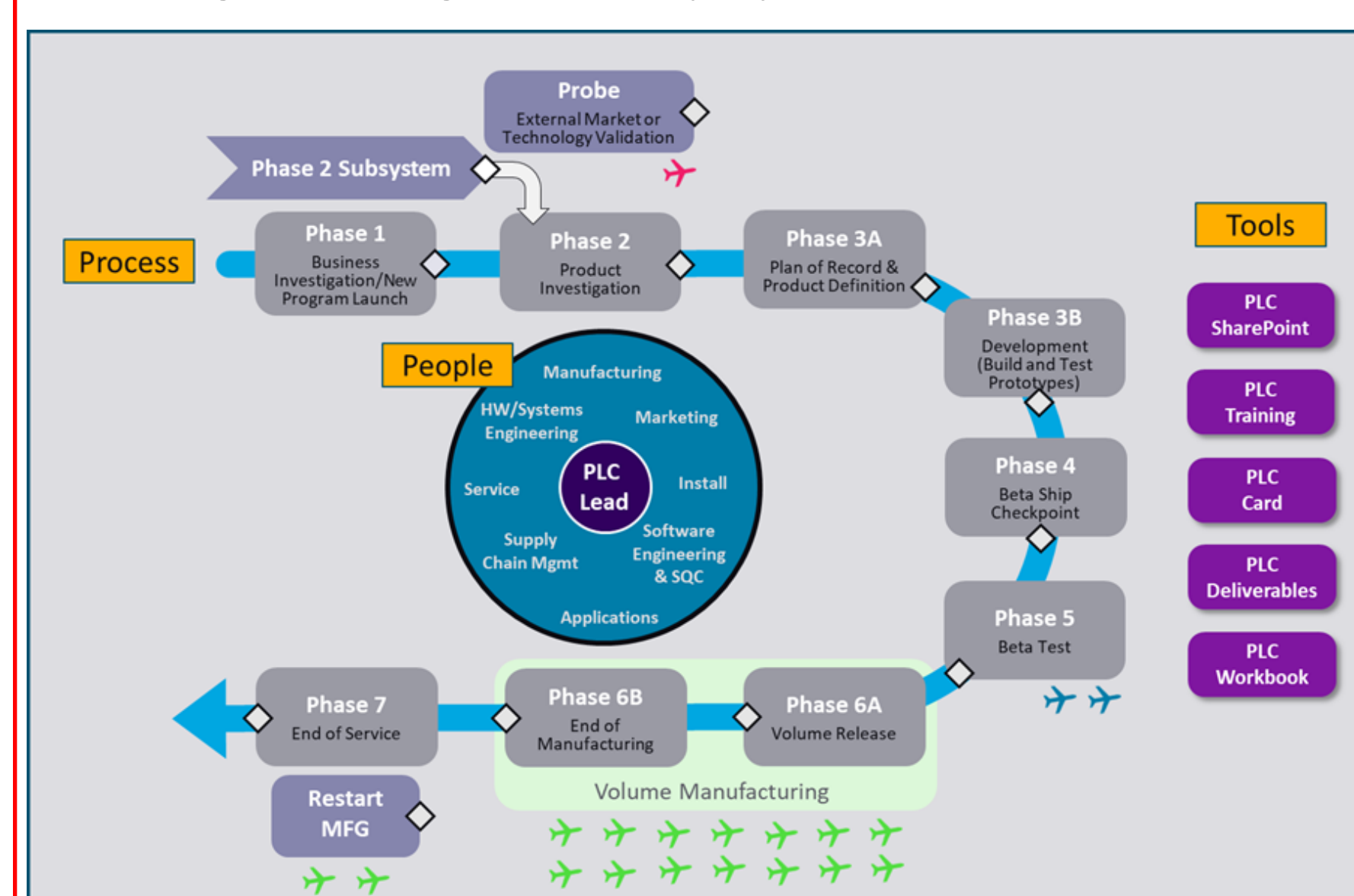
The team have had major input to help assist the design and manufacturing teams by completing the key requirements below:

- Process flows
- Failure Mode Effect Analysis (FMEA's)
- Control Plans
- Cycle Time Analysis - Operational sequences within build



Running a Product Life Cycle (PLC) process

This process was used throughout the build to ensure a stable process of introducing a new design to the company.



Running a PLC process comes with its advantages, it enables:

- Effective methods to develop products
- Creates product management strategies
- Has deliverables within all departments
- Provides a guidance on risks and improves product safety
- Allows the correct questions to be asked throughout
- Enables a common language within the company
- Allows tools to be used such as Cycle Times, Manufacturing Readiness Matrix, FMEA's.

Acknowledgements

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References

- Wafer World (2019). <https://www.waferworld.com/post/silicon-wafer-about>. [online] www.waferworld.com. Available at: <https://www.waferworld.com/post/silicon-wafer-about>.
- Ankiel, R. (2021). PLC Handbook. 11.2 ed. Marco Tortonese. Figure 7 and 9 [Accessed on 19th April 2023].