

Nanda Technologies IM1000 Wafer Inspection System

Defect free machine control software in 8 weeks



The simple way to build
complex software
systems

NandaTech is a Munich based company that provides a cost effective solution for increasing the overall yield of semiconductor wafer manufacturing processes. Based on innovative technology NandaTech's equipment is able to inspect wafers in line at high speed for a variety of defects, resulting in minimized feedback time and potentially significantly reduced wafer scrap.

In this Analytical Software Design (ASD) case, Verum & Nanda Technologies used ASD to complete the design and development of the supervisory machine controller (SMC) software for Nanda Tech's IM1000 single wafer measurement system.

The goals of the project were to:

- Complete the design and production of the SMC software in 8 weeks duration using on average 1 FTE for a budget of €32,000,-.
- Agree and model interfaces to 3rd party production integration software, to the hardware and to the local machine's GUI and producing the control software between these interfaces.

*"I have taken part
in a lot of software
integration
projects;
none of them were
as smooth as this
one."*

Andreas Sittinger,
Principal System Engineer
Nanda-Tech

ASD was used to:

- Verify the requirements for the SMC software.
- Model and mathematically verify all software interfaces, both external and internal.
- Provide complete and correct interface specifications to (software) component suppliers.
- Model and mathematically verify the SMC software.
- Generate C++ source code directly from verified SMC software models.
- Provide the SMC software with a software infrastructure and operating framework.

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Results and Conclusion

The project results can be summarized as follows:

- Verum completed and mathematically verified the SMC software design and produced around 25,000 lines (elocs) of C++.
- Productivity was approximately 80 elocs per man hour over the whole project.
- During integration no errors were found in any ASD developed component.
- ASD interface specifications (& simulations) were delivered to and used by the 3rd party software supplier and the hardware (PLC) supplier.
- The project was completed exactly on time with exactly the estimated effort.
- At delivery €29,000 of the agreed budget had been used. The remaining €3000,- of the budget is reserved to help NandaTech with system integration when the HW is delivered.

Conclusion:

The application of ASD resulted in the defect free development and delivery of the SMC software within the extremely tight budget and time constraints that NandaTech faced.

NandaTech concluded:

“The only problems we found during the integration originated from the code written by hand the last three days; no problems were found in the ASD generated code”, Raghuvveera Ravinutala, system architect at Nanda-Tech: As a result of this project NandaTech purchased an ASD license.

For more information see: www.verum.com

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