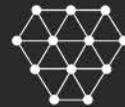
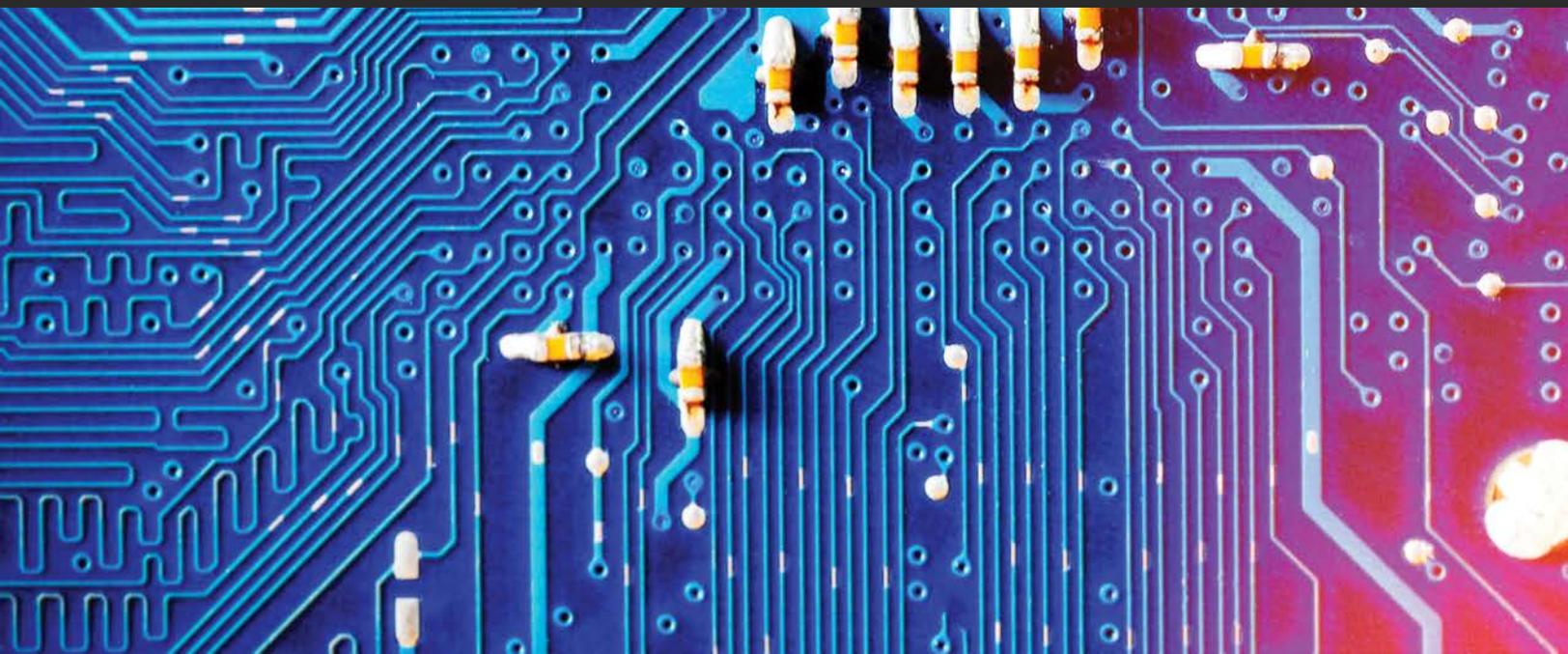


**Success Story**

**Refining Documentation  
Development with Altera**



**Product  
Realization  
Group®**





**Company**

Altera

**Location**

San Jose, California

**Industry**

Semiconductor

**Business Challenges**

- Assembly defects
- Limited resources
- Tight schedule

**Solutions**

- Product DFX assessment
- Proces review & definition
- Development of assembly instructions
- Operator training

**Business Results**

- Lower cost design
- Manufacturable design
- Met tight schedule
- Reduced travel
- Normalized training across divisions

## Refining Documentation Development with Altera

As Altera’s Principle Test Systems Architect, Adam Wright was responsible for developing the next generation integrated circuit (IC) test system, as well as producing easily conveyed manufacturing assembly documentation; the final document needed to contain graphic assembly instructions to support deployment at multiple global facilities.

*Creating graphic assembly instructions for product assembly was critical for guiding assembly operations at multiple facilities.*



### BUSINESS CHALLENGES

Adam’s main challenge was something we can all relate with; his core responsibility was tester development yet with resources being tight he was also responsible for creating the product assembly instructions. Adam was faced with a potential lose-lose situation, as both scenarios had the likely result of delaying his engineering development schedules.

- **Scenario 1** - If proper product assembly documentation was not developed, Adam would most likely have to travel to other sites in order to help resolve tester assembly issues.
- **Scenario 2** - Taking the necessary time to create the high quality graphic documentation would impede his already overloaded engineering development schedules.

In an ideal world Adam would receive the additional resources to support the creation of assembly documentation, which would allow him to focus on meeting tight engineering development schedules.

### SOLUTIONS

To properly scope the project, Adam and PRG conducted a detailed analysis of the product assembly. Upon completion, the decision was made to engage the PRG to deliver Assembly Process Documentation, Design for Manufacturing (DFM) training, and a product manufacturability analysis.

### PRG’s Manufacturing Process Instructions Approach



“PRG’s support allowed us to focus on our core competencies of engineering and product development, and leverage the PRG for manufacturing engineering and process development.”

**Adam Wright**  
Principal Test System  
Architect  
Altera Corporation

## RESULTS

Altera’s product Design for Manufacturability (DFM) analysis resulted in the identification of nine design changes that would improve product manufacturability and reduce costs.

**Creating this documentation without diverting resources away from engineering was important to maintaining time-sensitive schedules.**

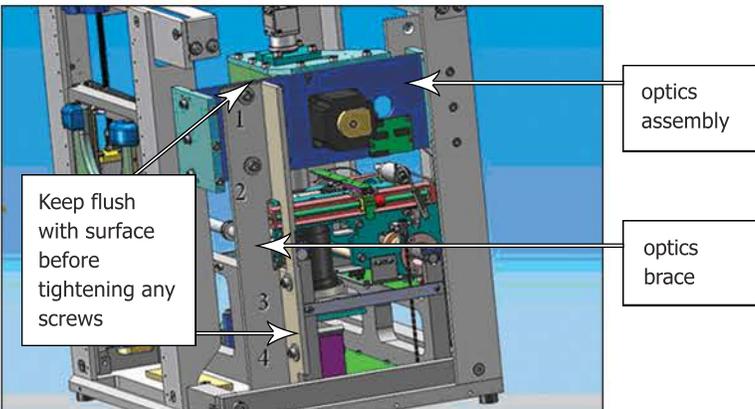
PRG’s senior manufacturing process engineers were able to work independently with Altera’s technicians and assembly personnel to develop clear graphical manufacturing process instructions. These documents would now support the assembly of the next generation test systems located throughout the various plant sites.

By creating this essential documentation along with the DFM analysis, PRG was able to identify cost reduction opportunities and areas for improving product assembly.

### Sample Manufacturing Process Instruction Document:

ASSY LOCATION: MECH ASSY  
DOC #: PS-010002-AI  
REF ASSY#: DR-010002

**Assembly Method Sheet**



Tighten screws 3 and 4. the tightening of these screws should not produce any added strain on screws 1 and 2.

6.49. Screw the PS-300033 objective into the Olympus adapter. **HANDTIGHTEN SNUG. DO NOT OVERTIGHTEN OR USE A WRENCH.**

6.50. Using a “pre focused” PS-000394 camera (ensure focused label is attached to camera), secure camera by tightening the clamp screw. Set the height of the camera at 1.19 inch using the spacer tool. Note the orientation of the camera label must be away from the power supply and the edge of the camera must be parallel with the edge of the optics mount plate before tightening the clamp screw. **Hand tighten screw.**

The end result, **Adam and Altera received a win-win.** Adam was able to keep his critical engineering projects on schedule while his assembly team received the documentation they needed to build their next generation test system.

## ABOUT PRODUCT REALIZATION GROUP

Product Realization Group guides high technology product companies to make the leap from idea-to-scale. PRG’s team of “on-demand” experts help a company to speed up time-to-market, reduce risk, and lower costs. Our clients include medical device, industrial, consumer electronics, and high-technology start-ups, SMBs, and large companies such as GoPro, EMC/Dell Computer, and Intuitive Surgical. For more information, visit [prgnpi.com](http://prgnpi.com).