

CPE Systems NZ Ltd

Electronic Product Supply Chain 2022 - Advantages of Automated Product Testing

Introduction



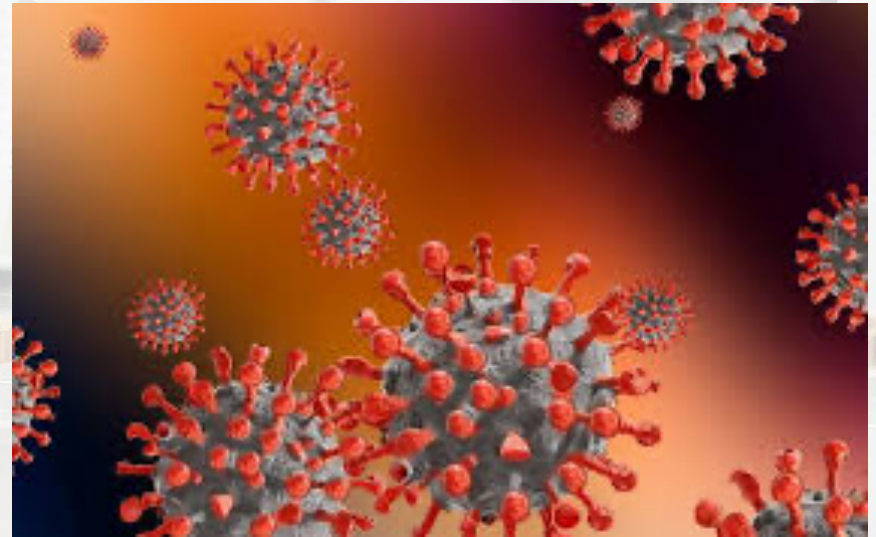
Over the past 20 years the Electronics Product Supply Chain has become highly optimized to reduce product costs and delivery times. This has led to:

- Production being moved to low-cost labour countries
- Increasing the distance from the manufacturers to the consumers
- Reliance on sea freight and large container vessels to reduce freight costs.

Introduction

The Global Covid-19 Pandemic has however exposed the fragility of the Supply Chain with delivery times of many products going out to more five times the normal.

This presentation outlines the impact that Automated Test Equipment can have to improve the current situation and hopefully improve the robustness of your Electronics Product Supply Chain in the future



Impact of Covid-19 on the Supply Chain



- Exposed weak points and single points of failure
- Reduced production capacity in components and product assembly
- Increased demand for components and products
 - People not travelling
 - On-line purchasing
 - Contingency purchases - Stock piling of components
 - Increased component gray and black-market activity (Are you really getting what you think you ordered)

Impact of Covid-19 on the Supply Chain

Increased demand for freight and shipping services.

- Shortage of containers
- Bottlenecks at ports (reduced efficiency)
- Shortage of distribution capacity (drivers etc)



Possible Solutions



Unfortunately, there is no quick fix to the current situation however making changes now may improve the robustness of your supply chain in the future. Some of the possible changes include;

- Split production over multiple sites, in different geographic locations
- Redesign products to eliminate long lead components or if possible multiple versions of components (not always easy)
- Development of more flexible production system that are efficient for shorter production runs over multiple sites.

How can an ATE solution help

Using a common test rack

- With common data acquisition modules
- That can connect to a PCB/Product specific ICT or functional test fixture through a common receiver.
- Using Automated Test Sequences that can be developed in a test Sequencing program such as NI TestStand
- Suitable for testing multiple products and configurations



How can an ATE solution help



- Quick change over between production runs meaning small production volumes can be run and less Work in Process (WIP).
- Automated Test Programs require less operator input
- The same rack design, test fixtures and test sequences can be run in multiple locations, reducing Test development costs and allowing test data from different locations can be correlated to identify location specific issues.
- Incorrect or out of specification parts can be identified early reducing the cost, wastage and amount of rework.

How can an ATE solution help

- Using a cloud-based test data management system such as CPELink/SystemLink connected to the test rack allows for performance and trends of multiple locations to be easily managed.



Conclusion



- The global Covid 19 pandemic has exposed the fragility of the current Electronic Product Supply chain which has been optimized to reduce cost and delivery times over the last 20+ years
- There is no quick fix to the current situation however there are steps that can be taken now to improve the robustness of the systems for the future.
- Automated Test System and cloud-based test data management can help improve the robustness of the supply chain by;
 - Reducing operator input
 - Helping to improve production flexibility
 - Spread the supply chain risk by working across multiple sites and geographic locations
 - Capture incorrect parts early in the process reducing wastage and rework

