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CASE

**Total Production Management  
 in the Electronics Industry**

CLIENT

**Dilogic**



**DILOGIC**

Codel was invited to provide, through the configuration of AIDA Manufacturing Execution Software (MES) and custom development, a Track and Trace system, Quality Control and Production Management solution for its customer – a hardware/firmware design and consultancy based in South-East Europe. The Client chose this location to take advantage of competitive labour costs whilst still maintaining high quality and technical expertise. The customer had designs for a vast number of devices ranging from digital audio processors using Digital Signal Processing (DSP) techniques to high-power induction heating controllers using Insulated Gate Bipolar Transistors (IGBTs). Analogue and hardware design expertise coupled with extensive microcontroller and embedded firmware experience allowed the customer to offer a broad range of designs including:

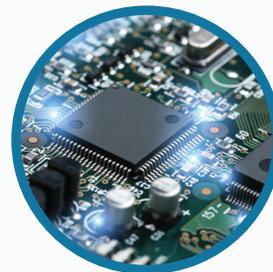
- analogue and digital controls;
- data acquisition systems;
- power electronics;
- digital signal processing; and
- gaming devices.

Over the years, the Client saw an advance in component complexity, miniaturization and design tools. To keep pace with these advances (so the designs would result in products that were competitive in both design and price) the Client opted to use extensively Programmable Logic Devices (PLDs) and Field Programmable Gate Arrays (FPGAs) to simplify otherwise complex hardware designs and to increase the reliability of sensitive ones.

## REASONS AND DRIVERS



**AIDA**  
 SOFTWARE SUITE



A standard ERP system was in use across the Client's organisation, but it could not provide timely material control as required by the very dynamic production processes.

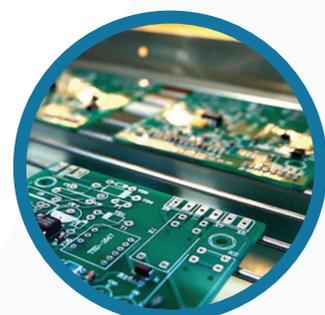
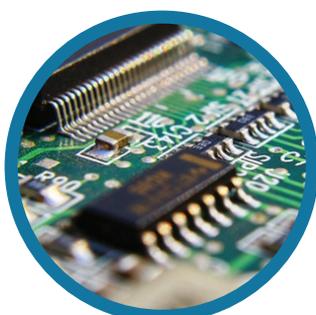
The main products of the customer were complex electronics apparatus containing various electronic, electromechanical and mechanical parts. The product designs were customized according to end user requirements, thus creating variation in purchase orders, bills of materials etc. for each version or revision. There were no adequate material handling procedures in the warehouse to cope with this complexity.

**REVEAL THE HIDDEN FACTORY**



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## PROJECT IMPLEMENTATION



Full AIDA MES for Production was installed. During inbound delivery processing, all materials were marked with unique serial identifications and with barcode labels. Warehouse shelves were marked with unique serial identifications, as well as material containers for internal transport. All materials were placed on the warehouse shelves and shelf address locations were recorded in the database, paired with material handling unit unique serial codes. Product specifications were maintained in the AIDA database for each product. The system then provided derivative specifications for active versions and revisions. According to each sales order, production orders were generated for the required finished goods and semi-finished goods. Ditto, purchase orders were generated if forecast stock levels were calculated to fall below minimum preset levels. Pick lists were generated for each production order, with the exact shelf address for each material handling unit, so materials could be collected and transported to production machines. If the material packaging quantity was greater than the production order requirements, the remaining material was returned to the main warehouse – with the new location addresses recorded for returned materials.

Both material quantities and handling units' codes were recorded and matched with production orders and final goods' serial numbers, so full traceability was ensured.

## MATERIAL PLANNING AND ORDERING



The AIDA system was also tasked with handling minimum stock level order quantities for the warehouses stocking and generating the required materials lists according to purchase orders and production orders. Purchase lists (derived from aggregated bills of materials and forecast stock level data) were created for each supplier, containing supplier material numbers and packaging types as references.

 THE PROJECT ACHIEVED ALL TARGETS SET BY THE CLIENT

# RESULTS



**JUST IN TIME PRODUCTION**



**JUST IN TIME MFC**



**INCREASED PRODUCTION SPEED**



**WAREHOUSE MANAGEMENT**