



## SuperBOT Case Study

### Introduction

We recently sold 32 socket SuperBot3 Automated programming system to [Arcelik](#) in Istanbul Turkey. Arcelik is having operations in durable consumer goods industry with production and after-sales services, with its 30,000 employees, 18 different production facilities in 7 countries (Turkey, Romania, Russia, China, South Africa and Pakistan) serving products and services in more than 145 countries.

They found out from Karel in Ankara that they are satisfied with their SuperBot1 purchased and recommended us. We strive to make our customers happy at all times so that their friends may come to us also. Arcelik is a very large consumer Electronics company and they are running both Data I/O and BPMicro equipment. In a side by side comparison, we demonstrated that our SuperBot3 ran more than twice as fast over the BPM 4800.

### Typical Application

All Smart TVs incorporate eMMC and Nand chips which need pre- programming of data such as boot files and operating system. Arcelik needed a very high speed and reliable Automated programmer to achieve its production goals. They wanted to program following eMMC and Nand devices at their smart TV manufacturing plant:

THGBMDG5xxxxxxx(4G)@FBGA153 [GX5104-T001-S4],

THGBMFGxxxxxxx(16G)@ FBGA153 [GX5104-T001-S4],

KLMxxxxxxx@BGA153 [GX5239-T003-S4]

KL MAGxxxxx@BGA153 [GX5104-T003-S4]

H26Mxxxxxxxx(16G)(Ext)@FBGA153 [GX5104-T001-S4],

TC58NVGxxxxxx@FBGA63 [GX5046-T001-S4]

MX30LFxxxxxxx@TSOP48 [GX1004-T001-S4]



# PROBLEMS, SOLUTION & RESULT

## Problems

After SuperBOT-3 was delivered at Arcelik plant in Turkey, Xeltek dispatched engineers for onsite installation and training. Following problems were encountered during initial installation process:

1. After installing SuperBOT-3 at Arcelik, we found out the none of the NAND , eMMC devices would work. Programming operations were OK by SuperBOT but customer's smart TV had booting issue where these chips were installed:
2. Customer also had the Tape Out machine stopping in the middle of operation.

## Solution

This required examining programmed chips from both BPM4800 and SuperBOT-3. We sent the data discrepancy back to the factory via WeChat installed on the SuperBOT PC. Discussions went between the 2 engineering teams and eventually found out that Partition table needed to be used instead of Bad block mapping. Our engineer quickly reassembled the data and tried on their TV pcb assembly and it finally worked. Then we had problem with offset and cvs vs. bin file format and each problem was diagnosed and fixed over several days period.

Second problem of the Tape Out machine stopping in the middle of operation was also solved in time. With the help of Arcelik maintenance team we were able to locate intermittent wiring problem and fixed it. Of the 6 NAND EMMC chips we solved all devices. In all cases, there was no programming algorithm issue. Issues were user dependent environment and conditional parameters.

## Result

We had production operation of Tape-Tape, Tray-Tape, and Tray to Tray. All operated flawlessly. We have also witnessed that both engineering teams can work together in real time and fix problems quickly. Of course, Arcelik is very happy. At this time, we are looking forward to receiving another order of SB3 next year when they move to a larger factory. We also had a chance to observe operations of BPM4800 and DIO PS588. We put together a comparison table below as a result:





For more information about Xeltek Automated programming solution,  
please visit [www.xeltek.com](http://www.xeltek.com) or email [sales@xeltek.com](mailto:sales@xeltek.com)