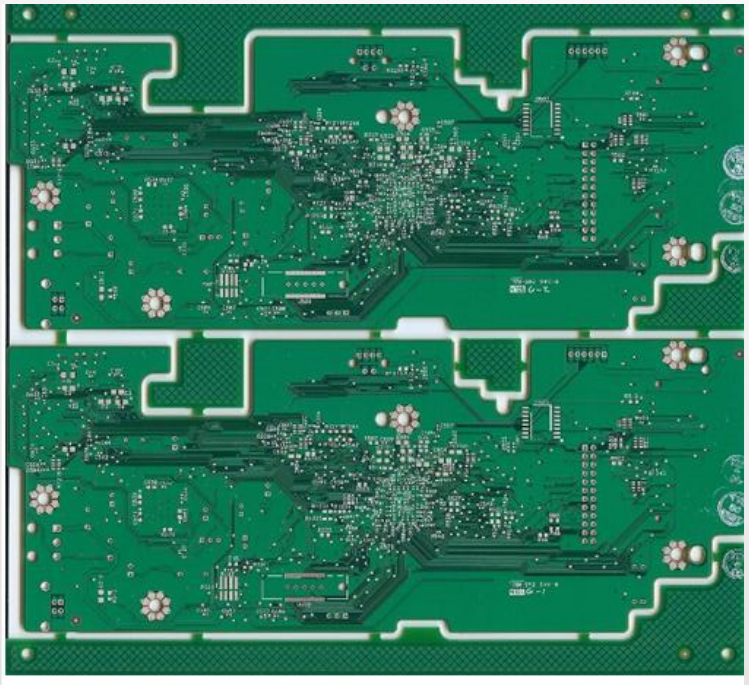
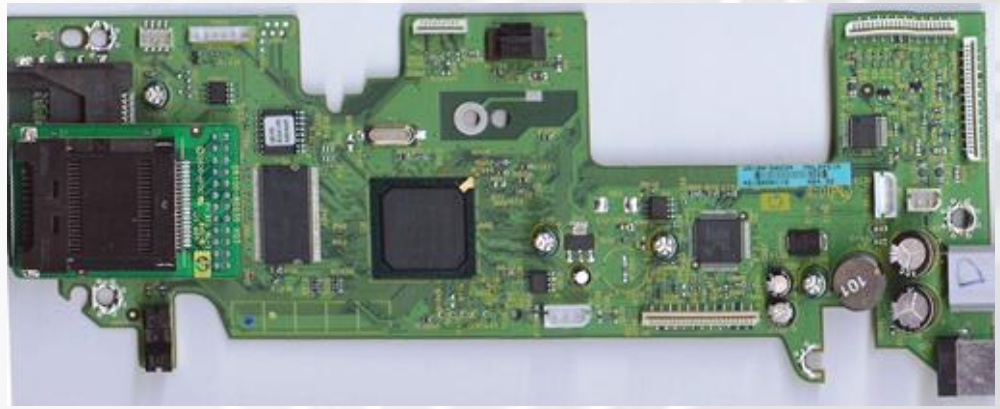
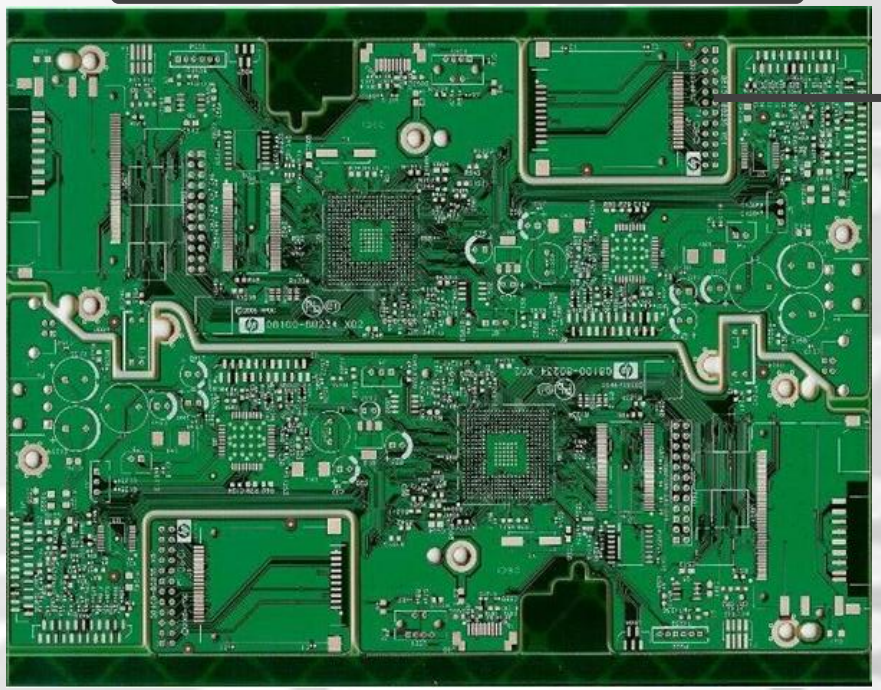
Design optimizations for lower cost

Original design and panel





Cost reduced Design and Panel



4-layer Photo card PCB nested

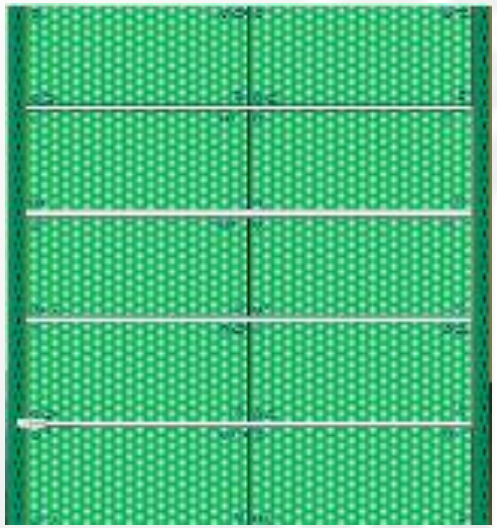
Control panel PCA Redesign | $1.32M in savings

Optimize Control panel PCB | 0.16/unit

Original CP design

Cost reduced Design

PCB Panel produces 16 PCBs coCMred to 10 before



Original Design

Cost reduced Design

Cost reduced control panel used on multiple programs generating $1.32M in savings

Component savings and optimization for cost

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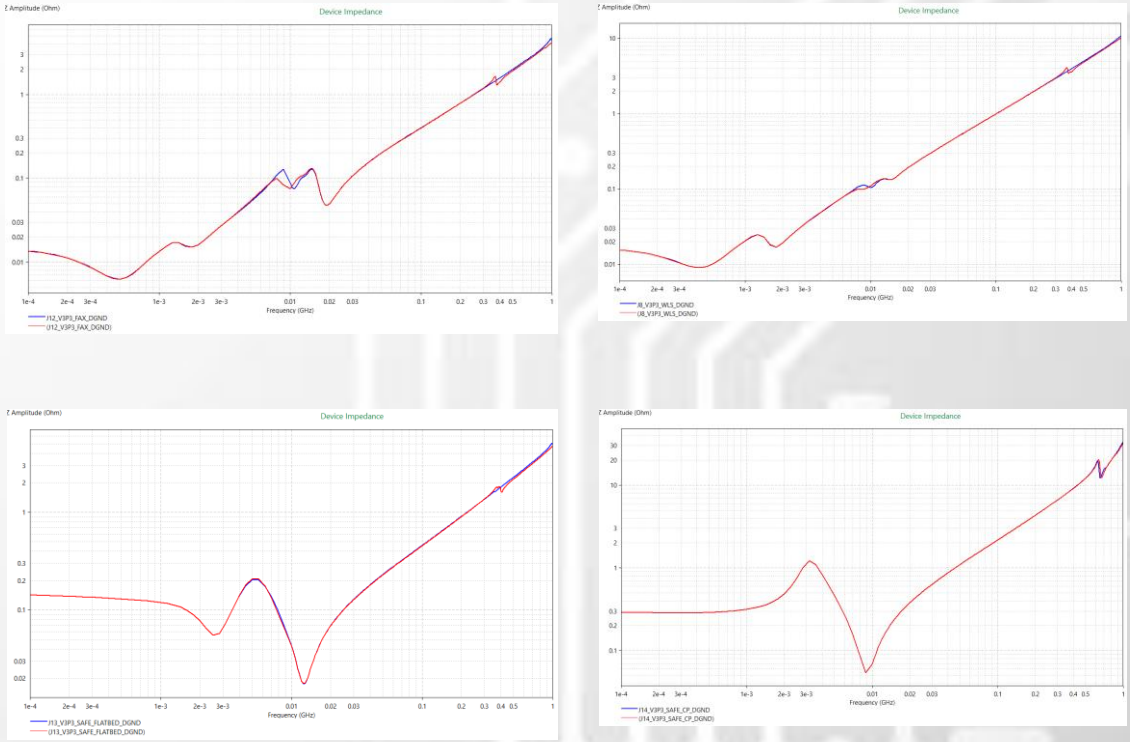
Decoupling Capacitor EMC Optimization and Removal | $5M in savings

Impedance simulation using Cadence Sigerity tool

C299	located along PCB edge
C301	located along PCB edge
C303	located along PCB edge
C304	located along PCB edge
C307	located along PCB edge
C308	located along PCB edge
C335	located along PCB edge
C339	located along PCB edge
C797	Under U101, Impedance plot is quite similar
C24	Under U1, Impedance plot is quite similar

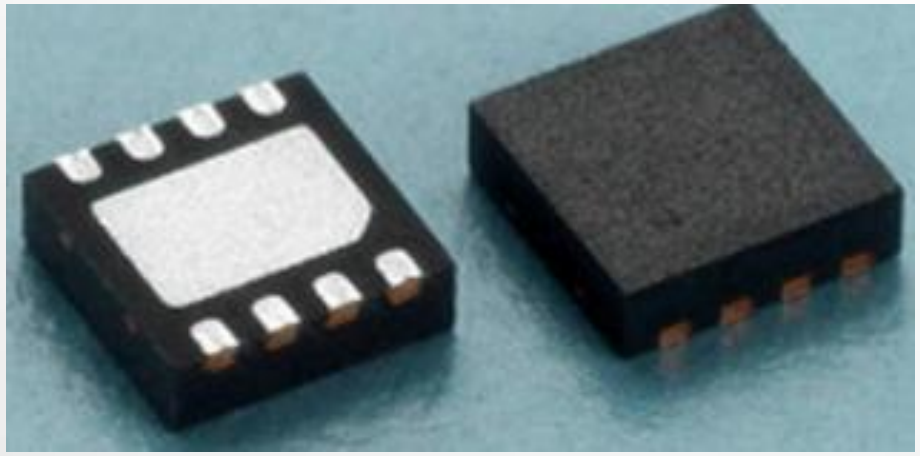


Original Simulation:

Removed caps Simulation:

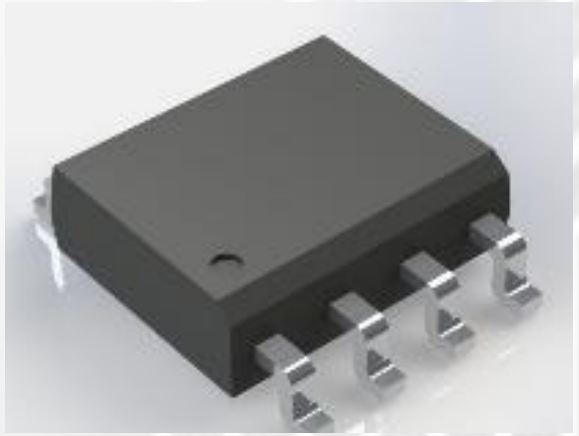
Change package on Pen security chip DFN-8 to SO-8| $2 M in savings

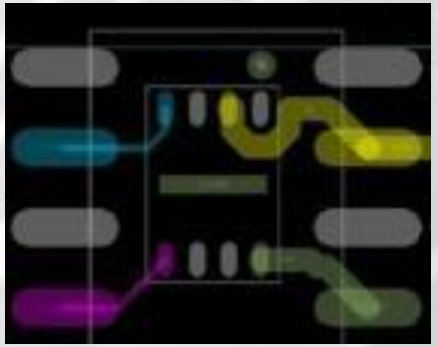
DFN Package Pen Security Acumen Chip



Change DFN to So8

10 cent cheaper : 8 Pin SO-8 package





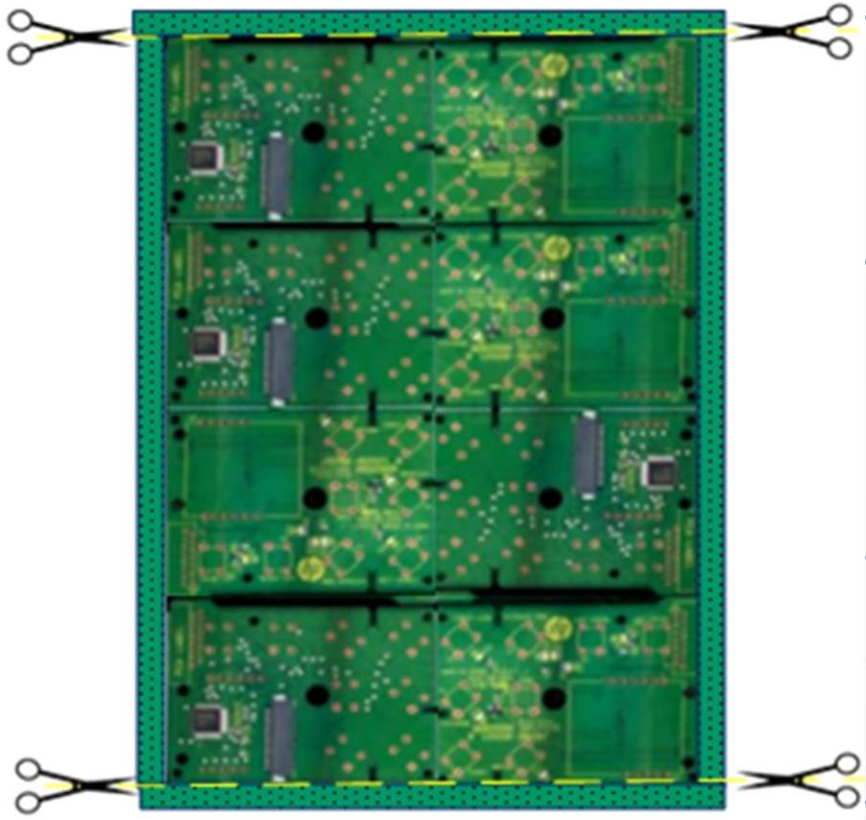
Overlap nesting DFN to SO8 geometry in Layout on multiple programs, qualified and ECO design change into production

Collaborated with ST to redesign the security chip package, transitioning from DFN8 (Dual Flat No Leads) to SO8 (Small Outline-Leads). Successfully qualified across multiple programs, achieving a cost reduction of $0.10 per unit, resulting in total savings of $2M over two years.

Process improvement for Savings

Amarjit Bhatia

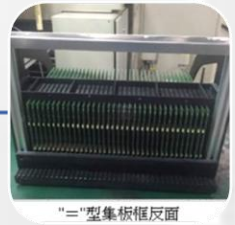
4 Tab to 2 Tab Panel Conversion Factory process change |$1M /year savings



Extra Tabs on PCB's Increase Per PCB cost to HP

"4 side tabs PCBs" used in Production due to Foxconn process and fixture limitations

Design for supply chain team engaged with Foxconn and CDPS to understand their Fixtures and process



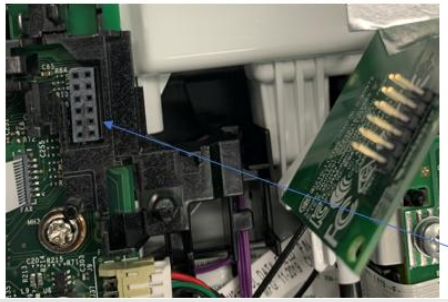
Process Improvement and fixture redesign with Foxconn to run production with "2 side tab" PCB's

Estimated minimum $500K+ savings year after year at Foxconn from 2 Tab PCB's

Direct solder wifi Card to Main PCA

Direct solder wi-fi card to the mainboard

Inkjet business 100% direct solders wi-fi card



Remove plugin connector for WI-FI card on LaserJet products by direct soldering Wi-fi card into the main PCA