ALTIUMLIVE 2018: OVERCOMING PART SELECTION AND SOURCING CHALLENGES WITH ACTIVEBOM

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Legrand/BCS
Senior PCB Engineer

San Diego
Date: October 3-5
Component Shortages
This has had a Major Impact for Capacitors
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Multi-Layer Ceramic Capacitors MLCC

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3,000,000,000,000  3-Trillion
Demand is much greater than supply
MFG have made radical changes
• Discontinued entire part lines
  (Deprecating many of large sizes)
• Certain values have worst supply
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  Bypass Cap Value

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Has been driven material worldwide
shortages of Tantalite Ore
Component Lead times by MFG & Series
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Not just Capacitors are now being hit

- Board Mount Temperature Sensors
  (~ 5 Week Lead Times)
- Power Switch ICs
  (~ 6 - 10 Week Lead Times)
- MOSFETs
  (~ 26+ Week Lead Times)
- Suppressors / Diodes
  (~ 49 Week Lead Times)
- Operational Amplifiers & Relays
  (~ 52 Week Lead Times)
- Thick / Thin Film Resistors
  (~ 6 to 80 Week Lead Times)
There is no end is sight to the problem...

#1. Expected Growth in the Electronic Industry

According Statista reports:

- 2016- 1% growth
- 2017- 4% growth
- 2018- 4% growth
- 2019- 6% Growth
- 2020- 8% Growth

This is ALL great news for our industry
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#2- Allocation
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- Worsened by those companies issue by double- and triple-booking orders.
Million Dollar Question - WHY?
What is driving this Crisis?

Internet of Things (IOT) Sector

There's been an explosion in the demand for smart devices - from Smart TVs, Bluetooth speaker systems, Amazon Alexa and Googlehome to renewable energy products, solar panels and Cloud Computing.
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According to Gartner, there will be more than 20 billion IoT devices deployed by 2020 which will be a 100 percent growth in the number of these devices in the next two years.
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Internet of Things (IOT) Sector

THE INTERNET OF THINGS
IoT is relevant to all of us

Beecham Research
What is driving this Crisis? Internet of Things (IOT) Sector

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Will not be a single area of our lives not affected by IOT
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Mobile Phone Sector
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- Huge increase in personal phone usage
- Have doubled since the release of the S6 by Samsung in April 2015.
- Ancient History: Land Lines
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Approximately 1.5 billion smart phones manufactured per year and each flagship model contains roughly 1,000 capacitors.

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That means that nearly 50% of the MLCC are used strictly in the Mobile cell phone sector alone.
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- Double Digit Growth
  - In only four markets for Hybrid and fully Electric vehicles have seen huge increases.
  - Impacted also the Gasoline vehicles with the addition of new technologies in automation of via automated driving systems (ADS).
    All the new automated gadgets such as parking sensors and auto windscreen wipers.

![Chart showing Plug-in Volume and % Growth for different regions in 2016 Q1 and 2015 Q1.](chart.png)
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A standard combustion engine car, has somewhere between 2,000 to 3,000 capacitors.

An electric vehicle has up to **22,000 MLCCs** required in a single car.
What is driving this Crisis? Automotive Sector

- Special Situation with Required Components
  - The higher temperatures inside the control circuits of electric vehicles mean that traditional plastic film capacitors are no longer suitable so ceramic MLCCs are increasingly being used.
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- List of standards for Electronic Parts
  - **AEC-Q100**: Integrated circuits (ICs)
  - **AEC-Q101**: Discrete semiconductor components (transistors, diodes, etc.)
  - **AEC-Q200**: Passive components (capacitors, inductors, etc.)
What is driving this Crisis?
Automotive Sector

Outcome
• Manufacturers are scrambling to get compliant

• Many of the initial components failed compliance testing.

• All this has led to a five-fold increase in the demand for electronic components
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• Will only be increasing with the next “big thing” hitting the industry with interconnecting of Cars
What does all this mean for us?
Not going to be business as usual
One Option will be......
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Everything is juuuuuuust FINE
Strategy for Success through this Crisis
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By failing to prepare, you are preparing to fail.

~ Benjamin Franklin
Strategy for Success through this Crisis

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• Knowledge is Power now more than ever
  - Have “LIVE” Component Stock availability information
  - Appropriate and approved AVL.
  - Ability to Rank Vendors
  - Multiple Sources and Vendors for each Component

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ALL that is needed is

Altium ActiveBOM