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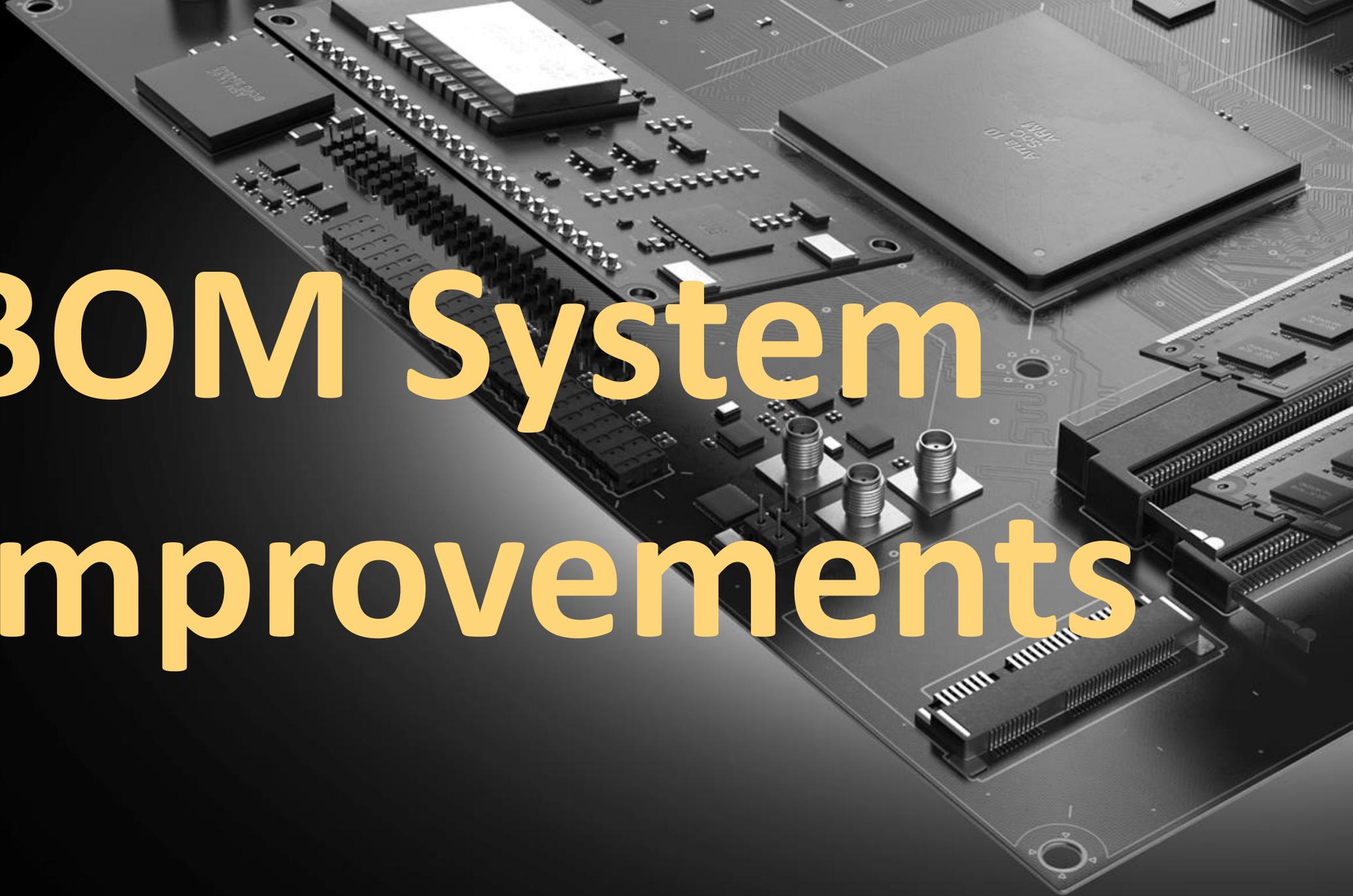
BOM System Improvements

1. CROSS-PROBING ELECTRONIC COMPONENTS IN PCB BOM SOFTWARE

2. BOM SYSTEM COMMUNICATION AND COMPONENT PRICING COSTS

3. BOARD RULE CHECKING FOR BILL OF MATERIALS MANAGEMENT

4. PCB BILL OF MATERIALS REPORT CAN BE MUCH MORE THAN A SIMPLE STATEMENT

5. BOMs FOR PCB- PART NUMBERS AND ORGANIZATION, OR PACKING TETRIS?

1 **Cross-Probing Electronic Components in PCB BOM Software**

Cross-Probing Electronic Components in PCB BOM Software

Cross-probing automatically select san object in the schematic when the corresponding object on the layout side is selected , and vice versa.

Cross-Probing Advantages in Layout

•**Component organization -** Cross-probing gives the ability to select the components wanted in the schematic, and have the corresponding parts in layout automatically select. This allows to easily organize a pile of unplaced components in the layout.

•**Placing parts according to the schematic flow -** After organizing components it can then create circuitry patterns on the layout according to the logic flow in the schematic. Being able to cross-probe allows to do this by selecting the components in the schematic to work with on the layout side.

•**Net selection -** In the same way that components can be selected in the layout by cross-probing from the schematic, one can also select nets. This allows to quickly find critical nets such as clocks or differential pairs.

Cross-Probing Electronic Components in PCB BOM Software

Cross-Probing Advantages in the Schematic
Cross-probing between the schematic and the layout works both ways, so anything selected on the layout will automatically select in the schematic. This gives an ability to trace back a circuit from the layout to see how it is represented in the schematic. Test technicians will also benefit from cross-probing by having the layout tools open as they debug the board. With the schematic and the layout presented side-by-side, participants in the review can check from either direction.

Cross-Probing into the Bill of Materials
Designers are able to find a specific part by looking at a sorted BOM first without having to search through the schematic or the layout first. This is extremely helpful in looking for where specific parts are being used in a design, especially when those parts need to be updated or changed.

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2 **BOM System Communication and Component Pricing Costs**

BOM System Communication and Component Pricing Costs

The necessary design information needs to be tracked live in a real-time updating cloud-based format. BOM software do all this and have consistent component pricing availability.

BOM System Management - The key to the process is that the engineer can instantly see the modifications that the parts supplier makes on their screen, and the parts supplier is also immediately aware of the engineer's changes.

•The design engineer will share the early-stage design to the parts supplier. This gives an idea of the parts recommendations and enables a degree of futurity to the project.
•The parts supplier suggests recommended parts changes based on their knowledge of inventory, parts interactions, or pricing changes through interacting with the BOM on their screen.
•The engineer can then accept or pass any of the supplier's suggestions, making any necessary changes to the layout of the design in the process to show updated component necessities.
•This process can then be repeated as many times as necessary to supply the right components for your production and pricing needs.

Modernizing BOM

•**Access Control -** With proper BOM management software, different stakeholders can be given access to view and make changes based on the specific privileges they've been granted.

• **Universality-** Ensure that BOM software can interact with the mechanical, electronic, and software specifics that are needed.

•**Availability -** It is important to be able to leave real-time notes, have accurate component and inventory control at all hours, and maintain an open-access platform for any team member's needs. A cloud-based solution will be available at all hours to ensure an ease.

•**Buy In -** BOM management software must be able to interface and incorporate technological and software innovations in modern systems.

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3 **Board Rule Checking for Bill of Materials Management**

Board Rule Checking for Bill of Materials Management

Traditionally one checked for errors related to how the circuit board will perform by using DRCs, and the manufacturer will check for errors related to the manufacturing of the board by using MRCs. We will see here how these checks need to be used together in order for the finished PCB to make it through manufacturing without errors and match up with its BOM.

•**Manufacturing Rules Checking -** The PCB manufacturer has always checked the board for manufacturing rules violations, and for a long time that was the only place that those checks happened. Once the design was finished and confirmed that the board had passed its DRCs, we would then turn it over to the manufacturer and they would run MRCs with their own specialized tools.

•**Design Rules Checking -** DRCs, on the other hand, are those violations on a printed circuit board that will affect its electrical functions as opposed to how the board is manufactured.

•**Bill of Materials Benefit From Rule Checking -** The best checking solution is enabling to check all aspects of the PCB design at once. This includes both the traditional DRCs and the MRCs as well. Circuit board designers are able to detect MRC errors along with DRC errors and correct them all at the same time.

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4

PCB Bill of Materials Report, more than a Simple Statement

Advanced Bill of Materials Management Tools are an Active Part of the Design

These tools do much more than just report basic design information, they are packed full of advanced functionality that let you interact with the BOM as part of the design.

- **Live connectivity to the design-** BOM management tools are connected to the design in the same way that the schematic or layout tools are and are interconnected.
- **Full feature menu-** BOM management tools are operated with a full featured menu.
- **Design changes are automatically updated in the BOM-** Since the BOM management tools are live, integrated parts of the design database, any changes to the design are immediately reflected in the BOM.
- **Cross-probing-** As part of the design database, BOM management tools allow cross-probing functionality as you would normally find with the schematic and layout.
- **Supply chain management-** With the live connection to external data sources that the BOM management tools provide, the designer has access to component manufacturers for part lifecycle information.

BOM Tools are Configurable for the PCB Bill of Materials Report

BOM management tools allows multiple ways to sort and report your bill of materials data. In addition to that, it allows to add custom items to the BOM.

BOM checks - It gives an ability to check bill of materials data against the complete design data to ensure that it is correct.

BOM data is available for output files - In addition to being able to generate a standard bill of materials report, it allows to funnel BOM data into other output files as needed.

BOM data available for manufacturing drawings - Data from the BOM management tools can also be used in the creation of fabrication and assembly drawings.

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5

BOMs for PCB- Part numbers and Organization, or Packing Tetris?

BOMs for PCB

There are a lot of options to consider when deciding what should be included in a BOM like Understanding The Types of Part Numbers:

•**Manufacturer Part Numbers-** The manufacturer part number enables engineers to determine the device's capabilities and specifications, can help contract manufacturers to find alternate suppliers and is a good starting place for ensuring compliance.

•**Generic Part Numbers-** Generic part numbers are definitely more useful than sand in your socks. One way these are used is when a designer is searching for a standard component for a new design.

•**Internal Part Numbers-** Organization of a company's physical inventory and digital part library can be greatly aided by the use of internal part numbers.

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BOMs for PCB

Software Setup for BOM Organization

Given the number of options available for part numbers alone, flexible software is important when it comes to organizing bill of materials for PCB design.

The best BOM software will give real-time component obsolescence management, avoiding pesky manufacturing errors that will cost time and money.

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