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Component Procurement for EMS Companies

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Agenda

- Types of procurement for electronic components
- Spot Buying
- How to mitigate risk of counterfeit components
- Scheduled Buying
- Spot Buying Vs Scheduled Buying
- Q&A

Background

- Electronics manufacturing relies on a complex global supply chain, involving multiple suppliers, distributors, and logistics providers across various regions.
- Demand for shorter product lead times, high-quality standards, and cost efficiency places immense pressure on supply chain strategies.

Background

Key challenges include:

- Component shortages due to fluctuating demand and limited supply.
- Counterfeit risks with non-authorized suppliers or unverified sources.
- Logistics disruptions from global events, including political and environmental factors.

An effective supply chain strategy is crucial to ensure continuity, reduce costs, and mitigate risks while meeting customer expectations.

Procurement Strategy

Spot Buying

- Proto build
- Demand spikes
- Surprises from regular supply chain
- Availability is a priority

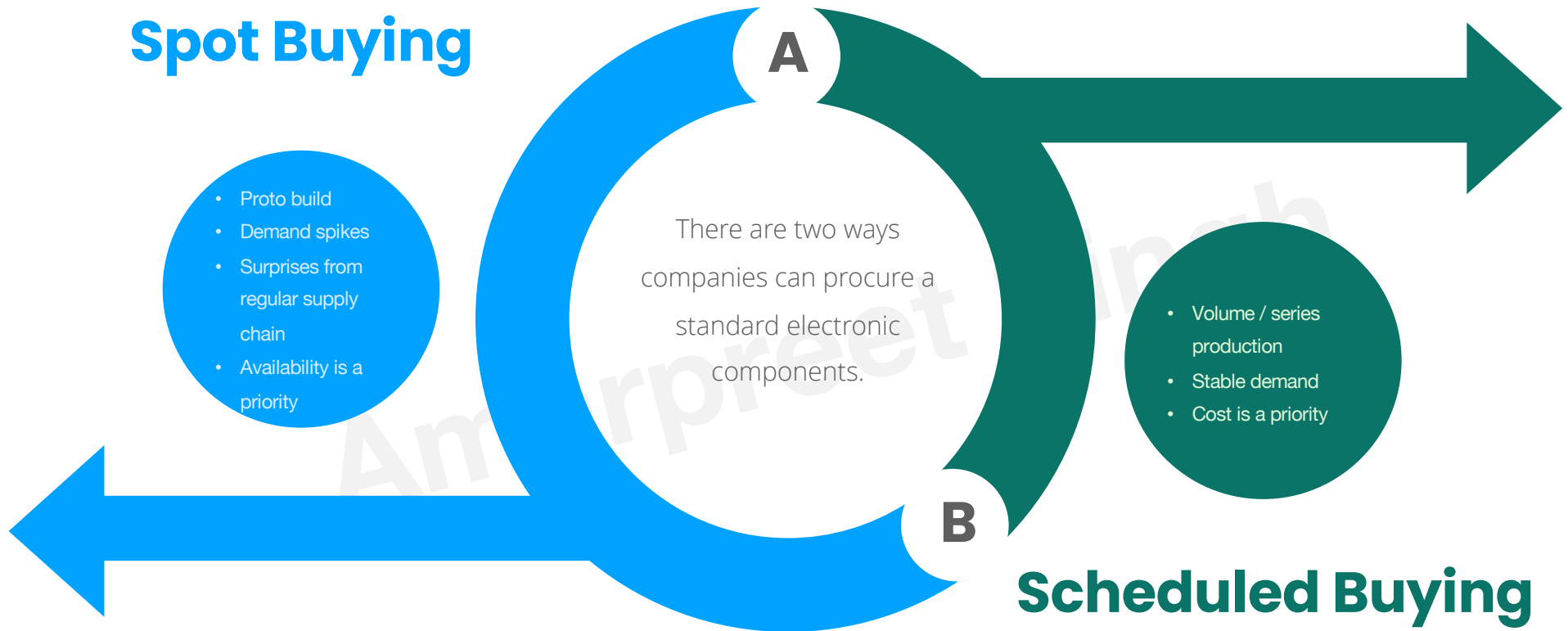
There are two ways companies can procure a standard electronic components.

A

B

Scheduled Buying

- Volume / series production
- Stable demand
- Cost is a priority



Procurement Strategy

1

SPOT BUYING

Spot buying in electronics procurement is the practice of purchasing components as needed from suppliers with immediate stock, typically used to meet urgent demands that can't wait for standard lead times.

2

SCHEDULED BUYING

Scheduled buying involves ordering electronic components from vendors with a lead time. These vendors may not have immediate stock but can source the materials from manufacturers within a specified timeframe.

Spot Buying

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Spot Buying: Characteristics



IMMEDIATE AVAILABILITY

Components are purchased from vendors that have the required items in stock and can ship them immediately.



SHORT LEAD TIME

The primary goal is to minimize delays by avoiding standard procurement processes with longer lead times.



HIGHER COSTS

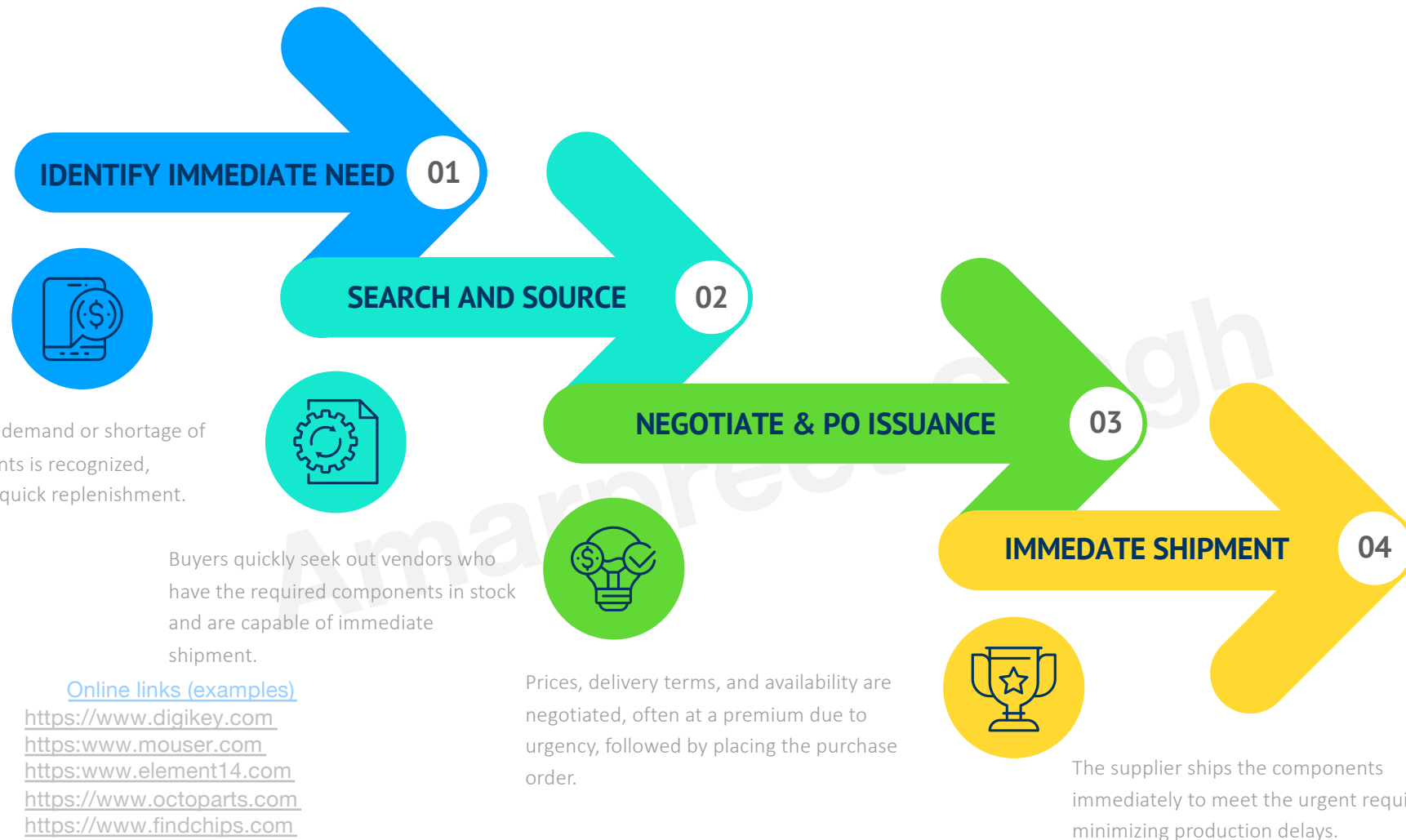
Since it's often a reactive procurement strategy, spot buying can come with higher prices due to the urgency and lower negotiation leverage.



FLEXIBILITY

Spot buying offers flexibility for companies that need to address sudden demand spikes, unexpected shortages, or emergency replacements.

Process



Example



- For example, if there is need to source resistor with MPN CSRT2512FT10R0-UP. Websites like Octopart and find chips can be used to search the component price and availability across various online platforms.
- When MPN is searched on Octopart, we can see the list of authorised distributors along with stock details, price of the components and MOQ

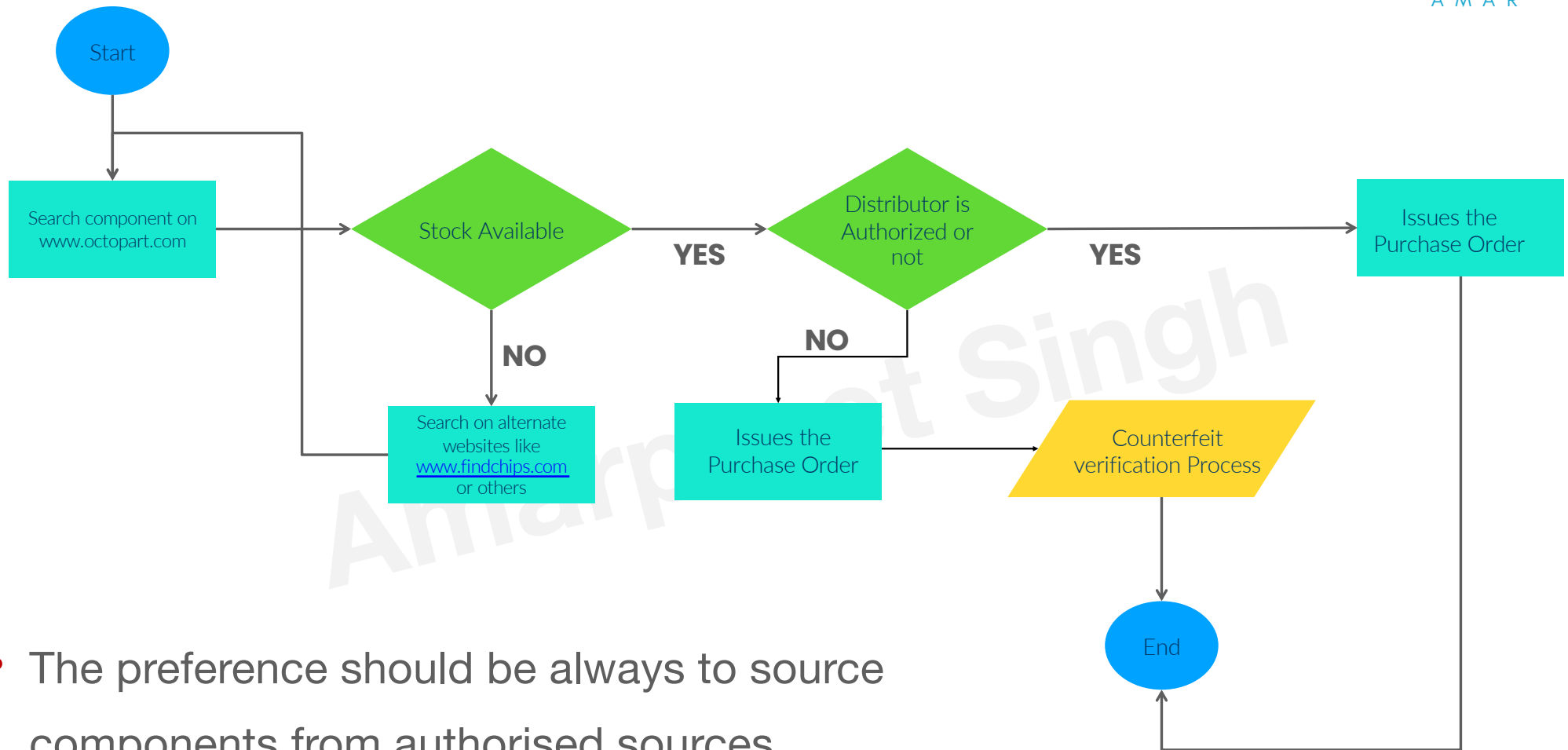
Green : Authorized Distributor

Distributor	SKU	Stock	MOQ	Pkg	Bulk Pricing	1 =	10 =	100 =	1,000 =	10,000 =	Updated
Digkey	738-CSRT2512FT10R0-UPCT-ND	9,717	1	Cut Tape	USD	1,070	0,618	0,374	0,241	0,200	14m
Mouser	708-CSRT2512FT10R0UP	4,269	1	Tape & Reel	USD	0,670	0,433	0,368	0,231	0,200	14m
Onlinecomponents.com	CSRT2512FT10R0-UP	0	1K	Bulk	USD				0,320	0,220	14m
Arrow Electronics	CSRT2512FT10R0-UP	0	4K		USD					0,341	2d
Avnet	CSRT2512FT10R0-UP	0	4K								1d
Master Electronics	CSRT2512FT10R0-UP	0	1K		USD				0,320	0,220	14m
NAC Semi	CSRT2512FT10R0-UP	0	4K								3d
Augswan	CSRT2512FT10R0-UP	24,796	1		USD	6,361	6,234	6,043	5,852	5,598	2d
tccollparts.com	CSRT2512FT10R0-UP	12,404	1		USD	0,071	0,071	0,071	0,060	0,060	>1wk

Yellow : Non-Authorized Distributor

**Authorized distributors are those who have formal agreements with manufacturers to distribute their products. They can provide genuine products with a warranty from the manufacturer. In contrast, non-authorized distributors may source these products from various market channels, increasing the risk of counterfeit components.*

Authorized Vs Unauthorized



- The preference should be always to source components from authorised sources.

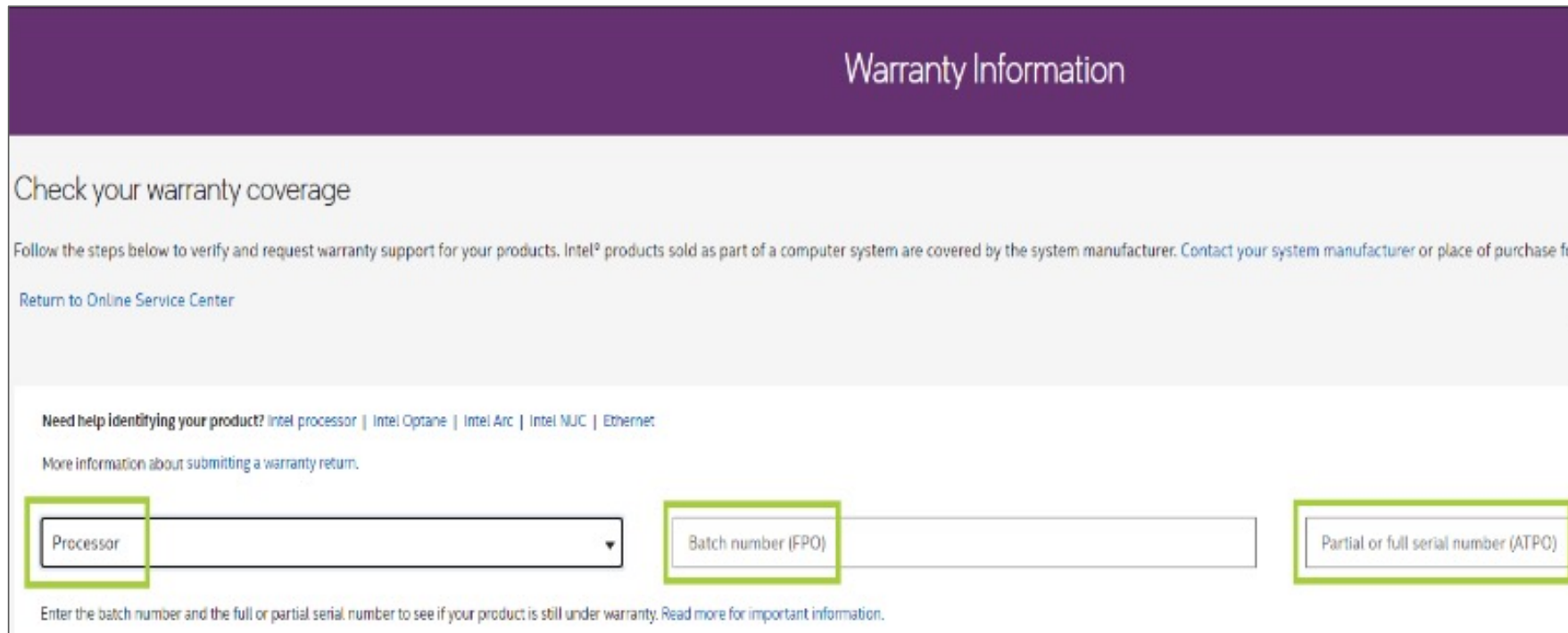
Counterfeit Verification

Some of the verification methods for filtering out Counterfeit Components –

- 1. Component Backtracking:** Non-authorized suppliers providing components can be asked for a Certificate of Compliance (COC) along with date and batch codes. The COC identifies the authorized distributor from whom the component was originally sourced.
- 2. Batch Code or Serial Number Verification:** Date and batch codes can be verified with the manufacturer to confirm component authenticity. Reputable manufacturers have technical support teams that can verify the legitimacy of ordered parts.

Counterfeit Verification

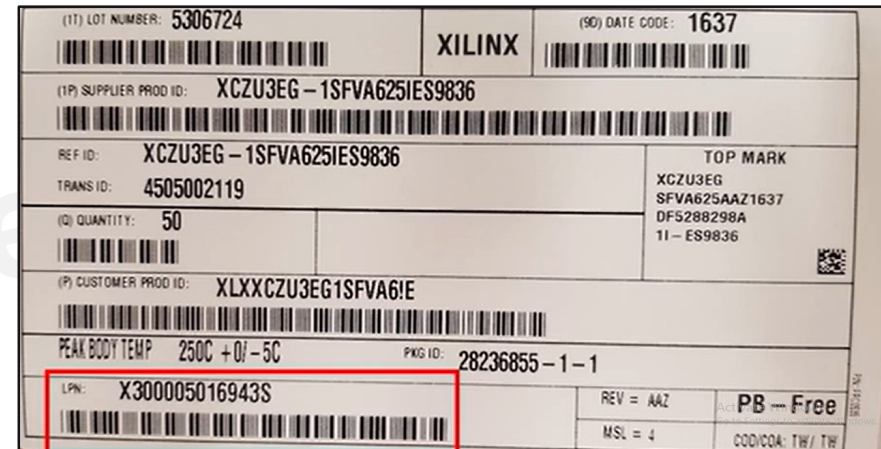
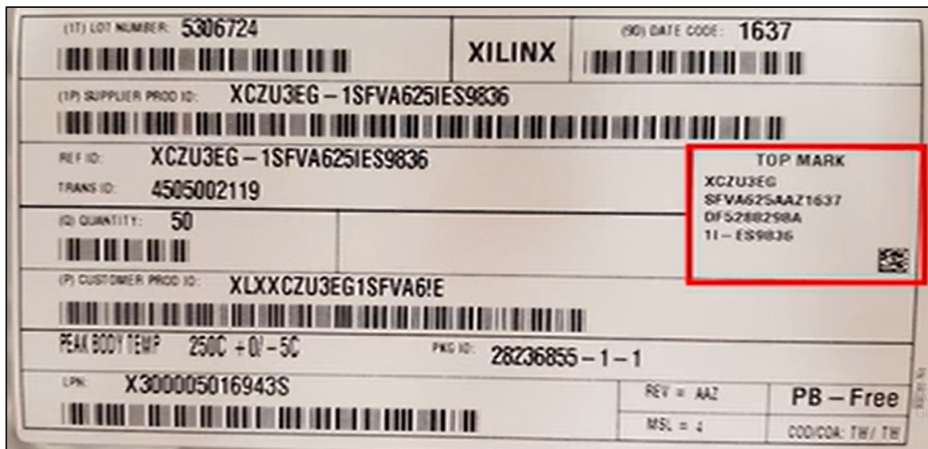
For example, Intel offers an online tool that provides product warranty information based on the batch number and serial number. –



The screenshot shows the 'Warranty Information' page. At the top, there is a purple header with the text 'Warranty Information'. Below this, the main content area has a light gray background. The heading 'Check your warranty coverage' is followed by a paragraph of instructions: 'Follow the steps below to verify and request warranty support for your products. Intel® products sold as part of a computer system are covered by the system manufacturer. Contact your system manufacturer or place of purchase for more information.' A link 'Return to Online Service Center' is provided. Below this, there is a section for product identification: 'Need help identifying your product? Intel processor | Intel Optane | Intel Arc | Intel NUC | Ethernet'. A link 'More information about submitting a warranty return.' is also present. The main form consists of three input fields, each highlighted with a green border: a dropdown menu labeled 'Processor', a text input field labeled 'Batch number (FPO)', and another text input field labeled 'Partial or full serial number (ATPO)'. At the bottom of the form, there is a note: 'Enter the batch number and the full or partial serial number to see if your product is still under warranty. Read more for important information.'

Counterfeit Verification

3. **Barcode and QR code:** Many Manufacturers have started providing barcode and QR codes on packaging which has product information. Scanning these code also helps to provide information of component



* *Xilinx 2D barcode scanning tool helps users to know information of the product purchase.*

Counterfeit Verification

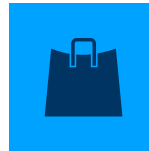
4. **Testing the samples in lab before shipping:** Component samples can undergo lab testing to verify authenticity. It's recommended to test critical components, such as microcontrollers, in the lab before using them into production.

Some of the common tests are –

- ❖ Visual inspection
- ❖ X-ray
- ❖ Solderability test
- ❖ Decapsulation

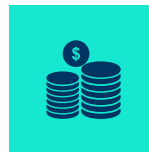
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Recommendations



AUTHORISED SOURCES

Whenever possible, components should be sourced from authorized distributors to prevent counterfeit products.



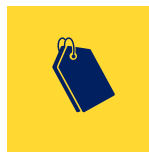
CONSOLIDATION

To save time and efforts, organizations can use aggregators to procure components from multiple online sources, reducing the need to manage multiple suppliers and cutting procurement costs.



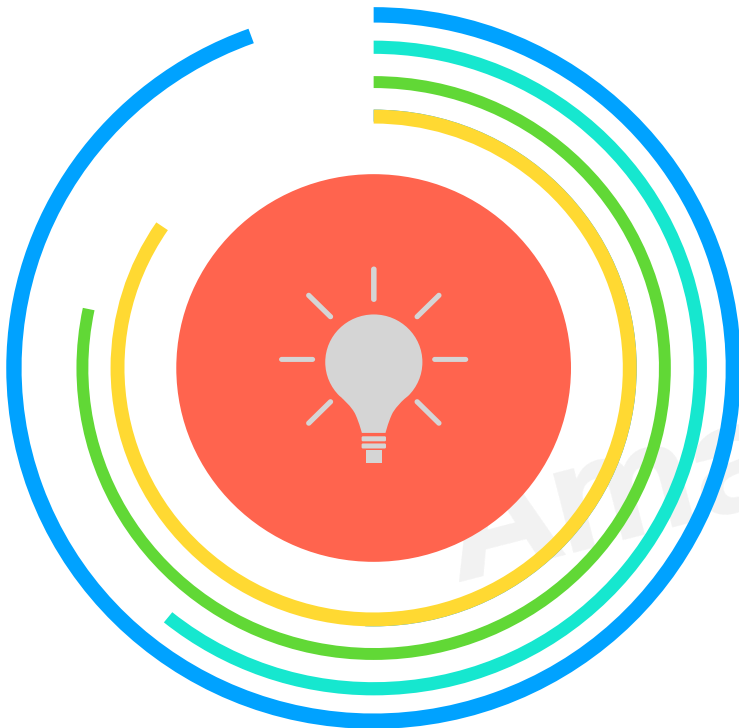
COMPLIANCE

Once organizations are using consolidators, a Certificate of Compliance (COC) should be requested to ensure components are sourced only from authorized suppliers.



RETURN POLICY

When purchasing from online sources, ensure that packaging specifications are clearly discussed and a return policy is in place if components do not meet the purchase order requirements.



Scheduled Buying

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Characteristics



PLANNING & FORECASTING

Based on long-term demand forecasts, scheduled buying involves planned, recurring purchases to ensure components arrive in sync with production needs.



COST CONTROL

Typically offers lower, negotiated prices due to volume commitments and supplier contracts, helping control costs.



SUPPLIER RELATIONSHIP

Fosters stable, long-term relationships with suppliers, leading to consistent quality and potentially preferential treatment during high-demand periods.



RISK & AVAILABILITY

Reduces the risk of stockouts by pre-arranging supplies, ensuring reliable access to components.

Process

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DEMAND FORECASTING

Analyzing production needs and historical data to estimate the quantity and timing of component requirements.

VENDOR SELECTION

Choosing reliable suppliers, establishing terms, and securing pricing through long-term contracts or blanket purchase orders.

ORDER SCHEDULING

Setting up a schedule with suppliers to deliver components at specific intervals, ensuring inventory aligns with production timelines.

INVENTORY MANAGEMENT

Continuously tracking inventory levels, lead times, and delivery performance to adjust schedules as needed and avoid stockouts or excess inventory.

Challenges

FORECAST ACCURACY

Electronics demand can be volatile due to technology shifts and market trends. Inaccurate forecasts lead to either overstocking, increasing holding costs, or understocking, risking production delays.



INVENTORY HOLDING COST

While scheduled buying ensures a steady supply, it can also lead to excess inventory, which increases storage and holding costs, especially if demand fluctuates or components become obsolete.



COMPONENT OBSOLESCENCE

Rapid advancements in technology mean that some products or components may go out of production faster than expected. Managing the lifecycle of scheduled components to avoid obsolete stock can be challenging.



SUPPLIER RELIABILITY

Scheduled buying depends heavily on suppliers meeting delivery commitments. Delays, quality issues, or unexpected disruptions in the supplier's operations can create bottlenecks and affect production timelines.




Recommendations


Improve Forecasting with Data Analytics

 Leverage historical data, market trends, and customer demand analytics to enhance forecast accuracy. Advanced analytics can help anticipate demand changes, reducing overstock or shortages.


Establish Strong Supplier Partnerships

 Work closely with trusted suppliers through long-term agreements to ensure timely delivery and quality. Regular communication, visits, audits as part of supplier development process followed by performance reviews can help address issues proactively and maintain a reliable supply chain.

Implement Inventory Buffer Strategies

 Maintain safety stock levels for critical components to mitigate risks from demand fluctuations or supplier delays. This helps maintain production continuity without overstocking, balancing cost and risk.

Regularly Review Component Lifecycle Status

 Track the lifecycle of scheduled components (e.g., NRND, LTB, Obsolete) and proactively plan for replacements or redesigns as needed. Engaging with suppliers on lifecycle updates helps avoid reliance on soon-to-be-obsolete parts.



Spot Buying Vs Scheduled Buying

Parameter	Spot Buying	Scheduled Buying
Cost Stability	Transactional, with limited focus on long-term relationships, as it typically involves multiple suppliers.	Builds strong, long-term supplier relationships, often leading to preferential service and quality consistency.
Supply Assurance	Supply is not guaranteed and is dependent on immediate market availability, increasing the risk of shortages.	Ensures consistent supply through pre-arranged schedules, reducing the risk of stockouts.
Supplier Relationship	Transactional, with limited focus on long-term relationships, as it typically involves multiple suppliers.	Builds strong, long-term supplier relationships, often leading to preferential service and quality consistency.
Procurement Planning	Primarily reactive, with purchases made to meet immediate needs or unplanned demand.	Proactive, based on forecasted demand and production planning, aligning purchases with production schedules.
Operational Efficiency	Requires quick decision-making, often increasing the workload for procurement teams and the potential for errors.	Streamlines procurement with planned orders, reducing manual workload and enhancing operational efficiency.



Q & A

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Q&A

- **Q1:** What is the main difference between scheduled buying and spot buying?
- **A1:** Scheduled buying is a pre-planned, long-term procurement approach with agreed-upon quantities and delivery schedules, while spot buying is a reactive, short-term approach used to procure items as needed, often at current market rates.
- **Q2:** How does scheduled buying benefit a company's supply chain?
- **A2:** Scheduled buying provides stability, helps manage inventory, secures consistent pricing, and reduces the risk of stockouts by planning in advance, which strengthens supply chain reliability.

Q&A

- **Q3:** Why might a company choose spot buying instead of scheduled buying?
- **A3:** Spot buying offers flexibility and is useful when demand is unpredictable, or when there are short-term supply shortages. It allows companies to quickly respond to changes without long-term commitments.
- **Q4:** Can spot buying lead to higher costs compared to scheduled buying?
- **A4:** Yes, spot buying is often more expensive because prices are based on current market conditions, which may be high due to sudden demand or supply constraints. Scheduled buying typically allows for negotiated pricing.

Q&A



- **Q5:** How do scheduled and spot buying affect inventory management differently?
- **A5:** Scheduled buying supports better inventory control and forecasting, as orders are planned in advance. Spot buying, on the other hand, can lead to overstock or shortages, as it's reactive to immediate needs rather than planned.
- **Q6:** What risks are associated with spot buying in electronics component procurement?
- **A6:** Spot buying risks include higher costs, limited availability, and potential quality issues if sourcing is done quickly from non-authorized suppliers, which can increase the risk of counterfeit components.

Q&A

- **Q7:** How can a combination of scheduled and spot buying strengthen a supply chain?
- **A7:** Combining both strategies allows companies to have a stable, predictable supply while also being able to respond flexibly to sudden changes. Scheduled buying secures long-term needs, while spot buying addresses short-term fluctuations.
- **Q8:** In what situations is scheduled buying more advantageous?
- **A8:** Scheduled buying is ideal when demand is predictable, when components are critical to production, or when price stability is essential, as it ensures a continuous, cost-effective supply..

Q&A



- **Q9:** How can scheduled buying help in managing lead times for electronics components?
- **A9:** Scheduled buying enables better coordination with suppliers to plan for lead times, allowing companies to account for longer manufacturing and shipping times without risking production delays.
- **Q10:** What are some best practices for companies using both scheduled and spot buying in their supply chain?
- **A10:** Best practices include regularly reviewing demand forecasts, working closely with trusted suppliers, maintaining flexibility in supply agreements, and setting aside budget allowances for spot purchases to quickly adapt to unforeseen needs.



Do you have more questions on topic ?

Please reach me at

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Thank You

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