

PROTOTYPES TO PRODUCTION SINCE 1981

FIVE STEPS TO SLASHING ELECTRONIC/PCBA NPI TIME

Following a simple but decisive and forward thinking approach will show significant reduction in New Product Introduction (NPI) time in the PCBA phase of product development.

Even if "time is not of essence" in your NPI utilizing this approach will show positive reduction in cost and improve quality.

Five Steps to Reduce NPI Time:

1. Following a method to identify and track "Critical Path" elements in the development cycle.
- 2 & 3. Eliminating queue and wait time for quoting and issuing of PO's.
4. Preventing mfg. delays - information control.
5. Processing/mfg. in parallel rather than in-series.

Details for reducing NPI time:

1. Following a method to identify and track "Critical Path" elements in the development cycle.

This method actually has two facets implemented during the design (schematic development) phase:

- a. Identifying critical path components and materials for availability. Engineers typically know the critical and unique components to their design. This action is listed "first in importance", as long lead times on components and materials typically create the most significant impact on delays. In the case of electronic components it is as simple as checking availability on a website like: www.eciaauthorized.com, then taking the appropriate action (purchasing, changing, verifying, etc.) based on the results of your search.
- b. Utilize a check sheet detailing each phase/step in the process of producing the assembly or box build: Design, schematic, BOM (Bill of Materials) creation, PCB layout, files and documentation creation, bare board fab, procurement of parts and materials, and assembly. This process identifies early issues effecting lead-time and cost. Once issues are identified (technology, components, materials, tolerances, requirements, etc.) they can be addressed as needed. Development of this check sheet is an easily process, especially over time, or just request our standard format than tailor to your needs.

An important part of this process is getting your supplier involved early in a project, especially if unique or difficult challenges exist. Results will include: lower cost and faster delivery, particularly if non-standard processing or material is involved.

2 & 3. Eliminating queue and wait time for quoting and issuing PO's.

The process of designing, quoting, and mfg. PCBA's are typically done in a sequential manner. Simply changing the timing of attaining quote and PO's as a parallel process can "completely" remove this delay. In many cases this time takes as long as mfg. itself.

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Quoting and issuing of PO's can easily be completed in the prior stage. Example: Bare boards and assembly quotes and PO's can be completed during the Layout process. Worst case adjustments can be made when the final version files are created.

Additionally, particularly for frequent flyer companies (many prototypes); a quote matrix can be development and utilized for products and services, foregoing the need to quote each board, accept for its unique components.

4. Preventing mfg. delays - information control.

Quality and complete information is "King". Providing your supplier with the complete information needed to quote or run product will reduce or eliminate delays. Sounds basic but nearly half of all prototype orders typically have questions that delay jobs from moving forward. Most of these can be eliminated by having a standard system that is following for all documentation. A check list, easy to develop over time, should be used, or we can provide our standard form that you can modify for you particular requirements.

Key also is providing schematics, files, documentation, etc. that are compatible with your suppliers systems/software platforms. Communicate up front and prevent delays and redundant work.

5. Processing/manufacturing in-parallel rather than in-series.

Specifically: Components and materials should be ordered by your supplier prior to or at the time the pc bare boards mfg. starts. This will insure components and materials are available for assembly when the pc bare boards are complete. Utilizing a company controlling the entire process: layout thru. assembly will provide the added benefit of single source accountability, improved delivery, and performance.

Summary: Following the 5 Key Steps to Slashing NPI time saves both time and money. It creates the option to get deliveries in historic timeframes at reduced costs or more importantly significantly faster for the same cost.

Below is a comparison of thru-put times following Standard Industry Methods vs. Best Practices following the 5 Steps to reducing NPI times.

Example Typical Standard NPI time for PCBA's:

# Days	
TBD	1. Design/schematic/BOM development
2	2. Quote for Layout
2	3. Generate PO for Layout
5	4. Layout – Steps: schematic capture, footprint, and routing.
1	5. Complete Layout Deliverables (Gerber's, drawings, etc.) to build product.
3	6. Quote for pc bare boards and assembly
2	7. Generate PO for pc bare board and assembly
1	8. Documentation and files questions/issues - Estimate
3	9. Build pc bare boards and order components for assembly
1	10. Ship bare boards – either to ordering OEM or CM for assembly
2	11. Assemble boards
1	12. Ship – job complete
23	Total # of Days

Example Utilizing Five Steps to reduce NPI time for PCBA's:

# Days	
TBD	1. Design/schematic/BOM development - Quote for Layout and generation of PO simultaneous with design cycle
5	2. Layout – Steps: schematic capture, footprint, and routing.
1	3. Complete Layout Deliverables (Gerber's, drawings, etc.) to build product.
0	Time N/A - Quote for pc bare boards and assembly – Done during Layout creation
0	Time N/A - Generate PO for pc bare board and assembly – Done during Layout creation
0	Documentation and files questions - Estimate
3	4. Build pc bare boards and order components for assembly
1	5. Ship pc bare boards – either to ordering OEM or CM for assembly
2	6. Assemble boards
1	7. Ship – job complete
13 Total # of Days	

In this typical example: Savings 10 Days, 43% reduction in time.

In an example of an even quicker turn time it would not be unusual to see a 50% reduction in time.

Conclusion: It pays to plan out and control your NPI Process – end result: Getting your product to the market place first.