

PCB Design Contest, IPC INDIA 2021

TOTAL DURATION: 3 Weeks

General Information

Design contest will be held at institution level, Regional and National level in stages with progressive increase in design intensity.

- Design is executed offline, at participants' facilities
- Contestants are given 3 weeks timeline to complete the design & submit the deliverables
- EDA tools : Cadence Orcad/Allegro, Mentor Pads/Expedition, Altium, Zuken Cadstar.
- IPC inputs are supplied Schematic, netlist and BOM.
- The scope of design is from netlist import – Layout Design including library creation , output generation.
- Executed Layout is a non- functional representative of design with state of the art parameters.
- The contest will recognize the best designers from the region, judged on the following criteria:
 - ✓ CAD tool expertise
 - ✓ Perception of design technology and application will be bench marked against IPC 6012.
 - ✓ Thoughtfulness to consequences of design constraints on down-stream yield in Fabrication , Assembly and Test
- The contestants are required to participate for second level evaluation on design principles adopted, at a later date, judged for amongst the following but not restricted to:
 - ✓ Design Constraints,
 - ✓ Design Partition
 - ✓ DfX principles (DFM, DFA, DFR, and Design For Cost)
 - ✓ Reliability Aspects
 - ✓ Outputs compatible to IPC Connected Factory Exchange Program.



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Design Instruction

- Design is IPC Class-2 (Dedicated Service Electronic Products)
- Library footprint shall be created using IPC 7351B standard - Level B (Moderate design complexity – Standard)
- Assembly on both sides, design envelop restrictions need to be considered
- Data Sheet shall be referred for the layout guidelines.
- Board design guidelines shall adhere to IPC 2221 standards.
- Grid placement & routing will be given weightage
- Mechanical drawing will be provided in pdf format
- EMI/EMC considerations, meeting crosstalk, signal integrity requirement are important constraints
- No pin swapping allowed
- All DRCs with respect to components, shapes, traces, area rules should be cleared and validated
- Vias to be tented
- Board is Rohs compliant
- Standard Fabrication notes need to be added in the given template
- IPC 2581 format is preferred, in addition to RS274X Gerber Data.



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Inputs and folder contents

1) Board Mechanical	PDF drawing/detailed dimensions are Available in Mechanical folder (01)
2) Library	Library footprint shall be created using IPC 7351B standard - Level B (Moderate design complexity – Standard)
3) Bill Of Material	Bill Of Material (link for the datasheets and footprint name will be provided). Refer folder (02)
4) Schematic	Schematic in pdf format and Netlist folder (03)
5) Documentation	Stack-up, Impedance details, Fab/ Assy template in DXF format are available in documentation folder (04)
6) Deliverables	Refer Deliverables list below. Upload to Folder (05),

Note:

1. All Related Documents and Gerber files have to be saved in to OUTPUT Folder (05).
2. Participants shall not disclose their name, company name and logo in any form, violation leads to disqualification
3. Design will be identified by respective Unique ID number which will be provided by IPC.



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Deliverables Include:

- Netlist from the design
- Final board file.
- BOM from final board file
- IPC 2581 / ODB++ data format
- Generate Gerber as per RS 274X format
 - ✓ All electrical layers
 - ✓ Non electrical layers.
 - ✓ Master drawing (Fabrication Drawing) – Drill chart, stackup, impedance detail & General fabrication notes
 - ✓ Drill data
 - ✓ NC data, Artwork parameters, NC parameters, NC toolset

- Assembly Data
 - ✓ Component X-Y report
 - ✓ Assembly drawing in PDF format
- Documentation
 - ✓ Summary drawing report
 - ✓ Unconnected Pin report
 - ✓ Dangling trace report
 - ✓ Dangling Via report
 - ✓ DRC report and also waived or Validated DRC report, if any
 - ✓ Read me file

