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PCB Pre-Fabrication Checklist

Use This Checklist Before Sending A Board To Fabrication Or Assembly.

Goal: catch fatal issues, reduce rework risk, and protect your prototype budget.

1. Fatal Checks

- Power rails match every IC requirement.
- Regulators have enough voltage and current headroom.
- Decoupling capacitors are placed correctly and close to pins.
- Footprints match the datasheet package, pin order, and polarity.
- Reset, boot, and programming/debug paths are accessible.
- No DRC/ERC errors remain unresolved.

2. Manufacturing Checks

- Trace width, spacing, via size, annular ring, and solder mask clearance fit the fab limits.
- Board edge clearances and mounting holes are correct.
- Copper balance and plane cuts do not create obvious yield risks.
- The fab can produce the chosen stackup and finish.

3. Assembly Checks

- Polarity marks and pin-1 indicators are clear.
- Reference designators are readable and not hidden by parts.
- Parts are sourceable and compatible with assembly methods.
- Any hand-solder or rework steps are realistic.

4. Testability Checks

- Test points exist for power, ground, reset, boot, and key signals.
- Critical nets can be probed without removing parts.
- Firmware can be flashed and recovered reliably.
- Bring-up measurements are possible on the first article.

5. Final Go/No-Go

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- Confirm the board can be powered, programmed, and debugged.
- Validate the BOM and alternates before ordering.
- If this is a new design, consider a small prototype run first.

Tip: *If any item in the fatal checks is uncertain, stop and fix it before sending the files to fab.*