

## ASIC design flow

<https://www.system-to-asic.com/files/asic-design-flow.pdf>

### System Level Review - Time Required (2-3 days)

- Review system schematics, block diagrams and specifications.
- Understand challenges particular to operating environment, such as conducted/radiated noise, RFI, lightning and environmental exposure.
- Understand final product (not just the ASIC) certification requirements such as CE, UL compliance.
- Produce ASIC based board level block diagram clearly identifying each pin and required external component support.
- Identify board level architectural tradeoffs that would lead to most cost effective silicon integration.

### Quote - Time Required (1 day)

- NRE
- Unit price
- Completion schedule

### Preliminary Design - Time Required (3 to 8 weeks)

- Schematic capture
- Simulation
- Silicon Emulation of external analog interface sections, such as strain gauges, thermocouples, and photodiodes.
- Silicon Emulation of high-risk analog sections.
- Preliminary Test Specification
- Preliminary Design Specification

### Preliminary Design Review - Time Required (1 day)

- Review simulation results and data
- Review emulation results and data
- Review and update Preliminary Design Specification
- Review and update Preliminary Test Specification
- Identify ASIC design/board architecture change, if any

### Design Integration - Time Required (1 to 4 weeks)

- Transistor level schematic capture
- Test interface design and schematic capture
- Re-simulation of modified or effected sections
- Re-emulation of modified or effected sections
- Critical Design Review Specification

### Critical Design Review - Time Required (1 day)

- Review final ASIC schematics
- Review CDR Specification
- Sign-off

**Layout - Time Required (3 to 6 weeks)**

- Physical Layout
- DRC
- LVS
- Back annotation
- Re-simulation, if needed
- Re-emulation, if needed

**Fabrication - Time Required (2 to 3 weeks)**

- Mask Fabrication
- Untested Prototype Assembly

**Prototype evaluation - Time Required (1 week)**

- Prototype evaluation by STA
- Prototype evaluation by customer
- Prototype approval

**Production Pilot Run - Time Required (4 weeks)**

- Complete production test program
- Deliver tested pilot parts (production packaging)
- Review and sign off Test Program
- Release Design to Production

**Production**

- Standard Turn – 16 to 20 weeks
- Fast Turn – 8 to 15 weeks