

Specialized Automotive SoC Design Consulting Services

Sondrel's core business has always been RTL2GDII design services with > 250 successful tapes outs over the past 13 years on 180nm down to the latest advanced nodes. This document reviews the more specific requirements associated with automotive IC design.

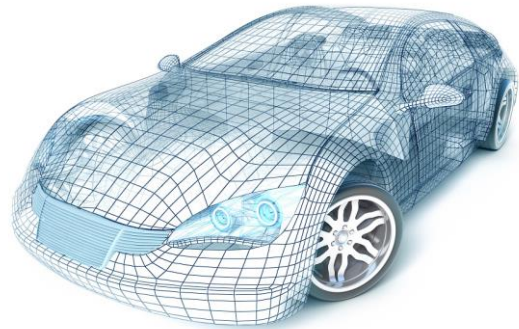
Unlike other sectors the automotive sector does not typically work to the most advanced technology nodes (<20nm) and is only now starting to focus around 28nm, seeking optimum dielectric isolation (leakage current v speed trade off) at what is now a well-established, high yield and well proven node.

Key considerations are the specific design rules associated with HOTL (High Temperature Operating Life) and an understanding of design to Automotive Safety Integrity levels (ISO26262 ASIL A-D). The design must also be tested to a reliability prediction program, SN29500/TR62380.

Sondrel typically delivers engineering services to Tier 1 or Tier 2 in the supply chain, working with ASIC suppliers to ensure conformance to relevant standards.

Benefits to customer

- Experienced design teams to supplement your existing engineering or provide a specific skill not found in-house
- Improve your design cadence, reduce your operating costs, handle peak demands
- Highly secure design centers compliant to ISO27100 standard



Engagement Models

Services can be provided at fixed price or time and materials. Single expert consultancy is also available (see other Sondrel data sheets).

Engineers will be at Sondrel ODCs but an on-site at customer presence is also possible.

- Functional Verification
- Formal Verification Techniques
- DfT for Automotive
- DFM aware Physical Design
- ESD Design Technique
- Power Management

Technical Details

The Sondrel engineering team has delivered multiple RTL2GDSII engagements in a wide range of process technologies. We are constantly building on our technical knowledge, adopting the latest design techniques to deliver our clients' target specifications, right first time.

Sondrel uses the latest verification methodologies to help our clients "shift left" in verification, starting earlier and decreasing time to debug. Sondrel can support your existing approach or enhance your capabilities by providing rapid access to the latest methodologies such as SystemVerilog, assertion based verification (ABV), UVM and metric driven verification. Each of these technologies increases productivity and underpins the successful compliance to automotive standards.

In addition, the latest DfT techniques will be applied to increase the testability of the design and reduce production test times. To meet the quality and reliability requirements of the ISO 26262 and other automotive electronics standards Sondrel has the expertise to insert Logicbist to enable infield and system testing throughout the product life cycle. It can also be used for fast manufacturing test bring up, thereby reducing expensive test time. Internal JTAG P1687 is also supported by Sondrel, IJTAG replaces ad-hoc communication methods for controlling on-chip test structures and embedded instruments enabling higher degrees of interoperability and DfT re-use.

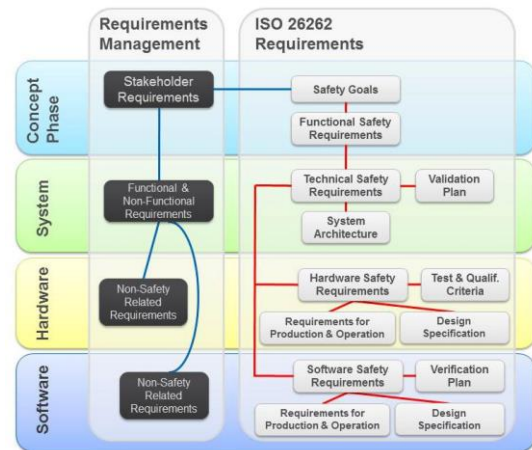
Finally, Sondrel provides cutting edge implementation solutions to help our customers' achieve challenging PPA and DFM targets. This is enabled by the use of Sondrel's Helium 8 RTL2GDSII design flow, which is optimized for multiple EDA flows, library vendors and technology nodes, down to 14nm, in terms of power management and timing closure.

Process & Methodology

Sondrel's designs have always been built on strong design flow methodology coupled with clear project tracking. To be efficient in the design process, investment in maintaining both the design flow and project management tools is imperative and Sondrel takes this responsibility seriously. The documented flow allows control of the current procedures but also enables easy return to/analysis of historical data.

These processes developed over many years match the requirements of the automotive standards and allows Sondrel to support their partners in achieving the necessary ASIL levels for their products.

All buildings require strong foundations, Sondrel provides the stable controlled hardware design environment on which to enable the complex systems which are used in automotive and which are required to meet the ISO26262 and ASIL standards. The processes and methodology used by Sondrel, underpin the proof of design quality required by our partners to meet these rigorous standard



ISO 26262

Next Steps



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