SOLUTION BRIEF

Functional Safety

Qualified Functional Safety Data Package

Reduce Development Time, System Complexity, and Certification Risk

Safety Data Package Contents:

- Tools and Tool Flow – How to use Intel® Quartus® Prime software and develop FPGAs according to IEC 61508
- Silicon Integration – How to qualify devices using the FMEDA Tool
- Intel Quartus Prime Standard software version 17.0.2
- Intel IP including Nios® II embedded processor core
- Intel IP *fRSmartComp_nios2 LS*
- Diagnostic IP with IEC 61508 documentation and source code:
  - *Single Event Upset (SEU) test*
  - *Clock Check*
  - *Cyclic Redundancy Check (CRC) test modules*
- Intel-qualified devices, Max®10, Cyclone® V, Cyclone® IV, Cyclone 10LP, Stratix® IV, Arria V, MAX® II and MAX®V
- Reliability report

Summary

Industrial automation, transportation, the smart grid, automotive, military, aerospace, and medical require machinery and products that are highly reliable, and certified for functional safety. Design for safety is a central requirement when you develop machinery that must comply with worldwide established safety standards such as IEC 61508 and ISO 13849.
When you develop a product with safety in mind, you need to consider safety as a core system functionality. Design challenges include:

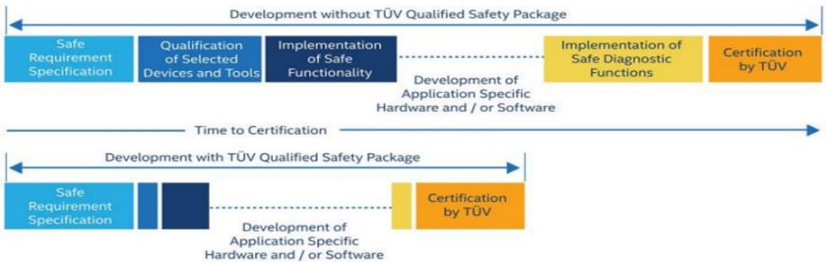
- Adopting quality management standards, and implementing a “safe” design methodology, and safety concepts
- Accounting for additional project effort (time and technology), resulting in longer time to market and higher cost of ownership

Impact of Functional Safety

Typical design steps to develop an application, before safety:

Architecture Development	Component Selection	Application Design Implementation	Integration and Test	Release

If you add some of the required steps to design an application with safety in mind and achieve functional safety certification (in yellow), you can see the significant project complexity.



Having immediate access to qualified semiconductor data, intellectual property (IP), development flows, and design tools from Intel can help significantly shorten overall project time for end users.