Faster development of safety applications for factory automation
The factory automation market increasingly demands safety solutions that meet the requirements of IEC 61508 as well as the requirements of ISO 13849-1. If Performance Levels (PL) d or e are to be achieved, it should be noted that the requirements for the safety architecture for Category 3 or 4 are sometimes higher. Precertified safety System-on-Chip (SoC) solutions help avoid unnecessary risks and extra costs in the development process and significantly shorten time to market.

IEC 61508 is not the same as ISO 13849-1
Among hardware and software developers in the factory automation sector, there is a clear trend toward designing more and more controller solutions that comply with the requirements of IEC 61508 – the standard for functional safety of electronic systems – as well as ISO 13849-1 for the safety of machine controllers. Many automation specialists who do not deal with safety aspects every day are not aware that the safety requirements of ISO 13849-1 in PL d or PL e of Category 3 or 4 can be higher in terms of architecture than those of IEC 61508. For example, the former specifies two-channel architecture as mandatory for all safety-relevant structures at Category 3 or above, which is not absolutely necessary for SIL applications. This can lead to unpleasant surprises with TÜV certification if it turns out that the design cannot comply with ISO 13849-1 or can only do so at considerable extra efforts.

Up to now, manufacturers of automation technology have mainly opted for one of the following options to resolve this issue in practice:

A) They select a SoC platform that meets the requirements of ISO 13849-1 but is not correspondingly certified. In this case, the developed solution fulfills the technical requirements in principle, the manufacturer is directly responsible for carrying out the costly certification process though. This drives up development costs and significantly extends time to market.

B) They implement a solution based on standard components with two separate processors and discrete safety logic. With this frequently chosen option, development costs are even higher than with option A because the application software and the logic have to be developed twice in nearly the same way. Furthermore, there are inestimable risks extending as far as complete failure of the project if it is discovered during the course of development that the intended solution cannot
The key benefits of HICore 1 at a glance

- **Shorter time to market**: The ISO 13849 certificate guarantees platform compliance with the standard, so clients do not have to invest time on suitability testing. It also eliminates the need for the time-consuming verification process (test, documentation, calculation of performance data).
- **Cost savings**: HICore and the certified operating system form a safe platform that drastically reduces development effort by limiting development to the actual application.
- **Space savings**: Minimal footprint on the PCB – solutions up to SIL 3 or PL e can be implemented with the compact SoC solution in the smallest of spaces.
- **Future-proof**: With HICore, products meeting the strictest safety requirements according to current standards (SIL 3 / PL e) can be developed. If the safety standards are updated, there is a greater likelihood that these products can also be certified according to the updated standards and can continue to be marketed.
- **State of the art**: The client uses a state of the art platform, which can be relevant in the event of an insurance claim.