



Explicit modeling of the timing behavior improves the quality of your embedded system.

With Chrona's Timing Definition Language (TDL) the timing behavior of your mission-critical embedded system becomes as predictable as a Swiss clock work.

1. With Chrona's TDL tools you can ignore platform details. This boosts your development and maintenance productivity significantly. If your target system is distributed and you also have to define a communication schedule you gain the most from cost savings. For example, in case of FlexRay, we have measured a reduction of the development time by a factor of 20 (!) in comparison to other FlexRay development tools. Automatic code generators do the trick.

2. You further benefit from Chrona's TDL tools as you come up with a previously unmatched quality of your real-time software. All this at a fraction of the costs you would have to spend with conventional methods and tools.

3. The reason for that is the fact that these tools require the explicit, platform-independent description of timing behavior by means of the so-called *Timing Definition Language* (TDL), which allows us to guarantee time and value determinism: The same input always results in corresponding same output values. Under any circumstance, in any case. This determinism radically improves embedded software quality.

4. You will appreciate the radically improved software quality. This is true if you develop only for a single node system with one Electronic Control Unit (ECU) or for a distributed system with bus systems such as FlexRay or (time-triggered) Ethernet.

5. Leading companies that harness Chrona's TDL tools focus on competitive advantages. For example, the invention of innovative functionality based on solid control algorithms. TDL and Chrona's TDL tools guarantee determinism and a correct time-triggered communication.

6. As TDL allows you to model the behavior of a real-time system in a platform-independent manner, the resulting software is automatically portable. This saves your investments in software development, no matter whether you are in the automotive, avionics or automation systems domain. No matter whether you target conventional platforms, or multi-core systems, they will evolve in the future. With Chrona's TDL tools you are well prepared as they generate the code with a behavior that is identical to the TDL model.

7. TDL and Chrona's TDL have a solid

foundation on cutting-edge research results from the University of California in Berkeley. TDL elegantly abstracts from platform details of potentially distributed systems. With TDL a developer simply defines the timing behavior of a task function in terms of milliseconds or microseconds, and which tasks should execute in parallel.

8. This even allows us to guarantee that the simulation of TDL components in simulation environments such as Matlab®/Simulink® is exactly equivalent with the behavior on a specific platform. The platform can be a single ECU with a common operating system, or it can be a distributed system, even one consisting of different ECUs and with different operating systems.

If you consider the rewarding migration to TDL and the corresponding Chrona TDL tools, we suggest you discuss your particular requirements with us first. For scheduling such a workshop please contact us at MoveToTDL@chrona.com You find a demo of Chrona's TDL tools on the Web at www.chrona.com You can also download a demo version of Chrona's VisualCreator TDL modeling tool.

