

ASCET-DEVELOPER

Develop safe and efficient software faster



At a glance

- Efficient model-based development with integrated graphical and textual notations
- On-the-fly model error detection and analysis for major classes of programming problems
- Full MISRA-C: 2004 compliance
- Automatic generation of highly efficient and safe code suitable for IEC 61508 and ISO 26262 development processes
- Eclipse-based Integrated Development Environment (IDE) for easy integration into the development process
- Up to 4x increase in developer productivity compared to classical C software development

The safe way to C

ETAS ASCET-DEVELOPER is a tool for model-based development of application software for embedded systems. ASCET-DEVELOPER has been specifically designed to produce products in high volumes, at low cost, to industry standards and with zero defects. ASCET-DEVELOPER enables software engineers to build high-performance, low-overhead, easily maintainable, safe, and secure embedded software. ASCET-DEVELOPER models can be developed in Embedded Software Development Language (ESDL) using either text or graphics.

Proven in use

ASCET-DEVELOPER's technology for code generation has been used for over 20 years in series production projects and powers 450 million ECUs. The generated code fulfills highest standards with respect to safety, security and portability. ASCET-DEVELOPER generates C code that can be compiled with a standard C compiler on the road.



Major tool features

ESDL – A safe language by design

The Development Language ESDL (Embedded Software Development Language) has key design choices that address the aspects of C that make it difficult to use in environments in which safety and security are critical:

- Safer syntax: to close the “loopholes” in C that cause many programming errors.
- Safer typing: range-bound numerical types, native support for arbitrary precision fixed-point types, units of measurement and automatic conversion.
- Safer abstractions: associative arrays, state machines, curves and maps for continuous control.
- Safer structure: namespace mechanisms, safe static object creation, product-line variant handling.

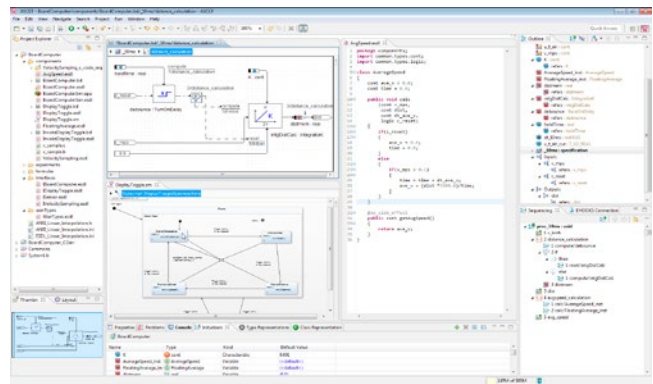
“On-the-fly” static analysis

ASCET-DEVELOPER models are checked statically for certain error classes at editing time. ASCET-DEVELOPER provides automatic checks for correct method argument usage, reachability of states in state machines and freedom from side-effects in expression evaluation.

Automatic defensive code generation

ASCET-DEVELOPER’s code generator is certified according to IEC 61508 and ISO 26262. ASCET-DEVELOPER has been used for the development of software for safety-related systems. ASCET-DEVELOPER generated C code satisfies the MISRA-C:2004 guidelines.

ASCET-DEVELOPER automatically adds defensive coding checks to prevent potential errors that cannot be detected by static analysis, for example division by zero, underflow, overflow and indexing outside of array bounds. ASCET-DEVELOPER systematically adds checks everywhere they are required, but only when necessary so that runtime and memory is not wasted.



ASCET-DEVELOPER showing graphical and textual models, model browser and tabular editors

Eclipse integration and usage

ASCET-DEVELOPER is built on Eclipse and can be used stand-alone or integrated into an existing Eclipse-based tool environment. ASCET-DEVELOPER works easily with other Eclipse tools to provide a complete development eco-system, for example, version control systems, task tracking, the Eclipse CDT C development tooling etc. Furthermore, ASCET-DEVELOPER can be extended and customized using standard Eclipse mechanisms to fit specific customer workflows.

Easily re-use models through development

ASCET-DEVELOPER models can be integrated easily with different phases of development, for example for open-loop simulation using the ETAS Experiment Environment, closed-loop simulation using FMI (Functional Mock-Up Interface) and function prototyping using ETAS INTECRIO or ETAS EHOOKS.



For complete ordering information, please refer to www.etas.com/ASCET.
If you require further information, don't hesitate to contact your local ETAS representative.