

TASKING[®]

TASKING VX-TOOLSET FOR ARM

NOW SUPPORTING INFINEON'S TRAVEO™ T2G AND
NXP'S S32K, S32E AND S32Z SERIES OF MULTICORE
MICROCONTROLLERS AND PROCESSORS

A central, dark, square microchip is the focal point, with the word "arm" printed in a white, lowercase, sans-serif font. The chip is set against a background of a complex, glowing blue circuit board with intricate traces and numerous small, golden-brown components. The lighting is dramatic, with the chip and its logo being the brightest element, while the surrounding circuitry is dimly lit with a cool blue glow.

arm

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INTRODUCING THE TASKING® VX-TOOLSET FOR ARM® SUPPORTING CORTEX-M AND CORTEX-R MULTICORE DEVICES

TASKING®'s newest embedded software development platform is designed to take advantage of the highly popular Arm architecture. Arm's presence in many automotive systems such as airbag, body electronics and instrument clusters along with their broad silicon supplier base (NXP, Infineon, TI, ST..) are key factors behind their increased market growth. Market analysis shows that Arm will continue to maintain its position as a leading 32-bit architecture for embedded automotive applications.

The release of TASKING®'s next generation of Arm development tools introduces substantial performance gains in multi-core SW development which take advantage of advanced performance and safety features available in the new multicore Arm product offerings from Infineon (TRAVEO T2G) and NXP's S32K, S32E and S32Z microcontrollers and processors.

Developed with its proprietary Viper technology, the TASKING® VX-toolset for Arm continues to offer unparalleled code optimization performance, advanced multicore support, an integrated debugger, and integration into the popular Eclipse™ platform (IDE). The integrated compiler, assembler and linker seamlessly provide all the functionality needed to generate safety compliant software. The VX-toolset for Arm provides an Eclipse plug-in which allows the user to take advantage of the versatile and powerful winIDEA IDE. The TASKING® Arm toolset can be connected to your target hardware via the family of TASKING® BlueBox Debuggers or on hardware with on-board GDB-server support.

Product Features

- Integrated 64-bit Development Environment (IDE) based on Eclipse v4.27
- C/C++ Compiler toolset supporting automotive safety 32-bit Arm architectures from Infineon and NXP
 - C Compiler supports the ISO/IEC 9899:2018 (C18) language standard
 - The updated C++ front-end supports C++17, C++14 and C++11.
 - C++ library support is updated to LLVM release v14.0.6
 - Supports Infineon T2G and NXP S32K, S32E and S32Z microcontrollers and processors.
- Highly configurable linker with versatile script language for optimal memory control
- Eclipse plug-in allowing use with either the familiar Eclipse based TASKING® Embedded Debugger or the powerful and versatile winIDEA IDE
- Support for the Cortex Microcontroller Software Interface Standard (CMSIS) Intrinsic functions (register and instruction accesses)
- The Arm toolset conforms to industry-leading standards: ISO/IEC 9899:1999(E), ISO/IEC 14882:2011, MISRA C, CERT C, Arm EABI, ANSI/IEEE-754 and ELF/DWARF
- Toolset developed with ASPICE Level 2 processes and comes with the safety manual (ISO26262 up to ASIL D, IEC61508 up to SIL3)
- Cybersecurity conformance according to ISO/SAE 21434:2021 Road vehicles including security manual

LATEST ADVANCEMENTS FOR SAFETY AND CYBERSECURITY

The VX-toolset for Arm will continue to provide industry-leading safety features as the toolset is suitable for Automotive and Industrial application development. The TASKING® VX-toolset for Arm v7.1r1 has been developed according to ASPICE level 2 processes and is planned for TÜV certification (ISO26262 up to ASIL D and IEC61508 up to SIL3) and provides full ISO/SAE 21434:2021 cybersecurity conformance. The VX-toolset for Arm comes with a safety and security manual that describes how to configure the tool chain for safety-related projects, including recommended use cases and mitigation strategies for potential errors. The safety manual includes a description of how the tool chain was qualified, shows the validation test suite, and includes qualification information for each toolset build option.

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The security manual provides details on which TARA databases were used for security conformance testing, what security-related requirements are implemented by TASKING®, and which security-related guidelines need to be implemented by the toolset user.

WHAT'S NEW IN V7.1R1

The newest version of VX-toolset for Arm offers robust support for the Arm® Cortex®-M33 based on the Armv8-M architecture. The toolchain has ISO-C 2018 language standard support, and the updated C++ front end supports C++17, C++14 and C++11.

TASKING® VX-toolset for Arm v7.1r1 is supported by NXP's Real-Time Drivers (RTD) for use with the S32K388, ensuring top-tier compatibility and performance.

	Toolset Features	VX-toolset for Arm
	TASKING VX-toolset for Arm	Technology
	Integration into the Eclipse™ IDE (v4.27)	✓
	Advanced multi-core support	✓
	C/C++, Run-Time and Floating-Point Libraries	✓
	Highly configurable linker with versatile script language for flexible memory control	✓
	Support for explicit allocation of functions and data objects in TCM (Tightly Coupled Memory)	✓
	Integrated winIDEA debug IDE via Eclipse plug-in	✓
	Hardware debug support via TASKING BlueBox	✓
	Supports Cross-Linking with previous toolset versions	✓
	Integrated static code analysis (MISRA and CERT C)	✓
	Support for CMSIS intrinsic functions (register and instruction accesses)	✓
	Arm Instruction set simulator and simulator debugger	✓
	Windows/Linux OS support	✓
	Software examples based on Traveo-II SDL and NXP S32DS	✓
	MCAL support qualified by NXP for S32K388	✓
	Safety Features	VX-toolset for Arm
TASKING VX-toolset for Arm	Developed with Automotive SPICE ® Level 2 processes	✓
	Combined Safety & Security Manual	✓
	Qualified run-time libraries according to ISO26262 (up to ASIL D)	✓
	TÜV certification achieved for v7.0r1	✓
	TÜV certification planned for v7.1r1	✓
	Cybersecurity conformance according to ISO/SAE21434:2021 Road Vehicles including Security Manual	✓
	Additional Qualification Kit is no longer required (Safety/Security Manual will be part of license)	✓

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ARM® ARCHITECTURAL SUPPORT

The TASKING® VX-toolset for Arm provides support for a wide range of Arm processors, such as Arm v6-M, Arm v7-M, Arm v7E-M, Arm v8-M and Arm v8-R architecture profiles. TASKING® offers complete toolset support for the latest Cortex-M and Cortex-R microcontrollers including M0+, M1, M3, M4, M7, M33 and R52. TASKING® continuously adds new Arm variants to their supported list of devices including Infineon's TRAVEO-II and NXP S32K, S32E and S32Z variants. The following devices are supported.

- **Infineon/Cypress Traveo-II T2G:**
 - CYT2B6, CYT2B7, CYT2B9, CYT2BL, CYT3BB, CYT4BB and CYT4BF Series
- **NXP S32K Series:**
 - S32K144, S32K312, S32K314, S32K322, S32K324, S32K342, S32K344 and S32K388
- **NXP S32E Series:**
 - S32E270, S32E277, S32E278 and S32E279
- **NXP S32Z Series:**
 - S32Z270, S32Z277, S32Z278 and S32Z279

EVALUATION LICENSE & ADDITIONAL INFORMATION

For additional information on the TASKING® VX-toolset for Arm v7.1r1 including Evaluation Licenses, Product Pricing, Supported License Models, Product Demonstrations and/or Product Usage please contact us at www.tasking.com/contact or visit our support page at www.tasking.com/support.