Exploring the Latest Features of MCUXpresso IDE v11.1

Webinar Q&A Document
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1. **We have an existing project that uses the LPC4367 and LPCXpresso. We would like to add FreeRTOS. Is MCUXpresso a better tool for this with its FreeRTOS integration?**
   Yes, because MCUXpresso IDE has many improvements over LPCXpresso IDE. Support for LPC4300 series devices is built into MCUXpresso IDE.

2. **Currently we use Keil IDE tools for existing development for NXP MCU. Can we move completely from Keil to this MCUXpress IDE and tool?**
   Moving from Keil to MCUXpresso IDE would require any existing projects to be ported by hand, but if starting from the SDK, then the equivalent drivers, middleware, etc. are available for both. Note that we are not recommending MCUXpresso IDE over Keil uVision, we are just showing how to use the MCUXpresso IDE as an option.

3. **Is there a plan to support currently unsupported parts such as the S32k series? If so, what is the schedule?**
   Our automotive products are supported by a different tool set from NXP (but these products are also supported by IAR and Keil tools.) We don't have a current plan to merge tool sets due to the impact on both user bases by doing that, but are working more closely with our colleagues in automotive for future innovations.

4. **Which debug-probes support power measurement features? At what resolution?**
   Some LPCXpresso V2 and LPCXpresso V3 boards have power measurement capability. However, we are working on a new debug probe architecture to bring this capability to more platforms. Right now you can also get good power measurement solutions from Keil, IAR, PE Micro and SEGGER.

5. **Can you comment on the feasibility of migrating a LPC17xx Keil project to LPC54xx MCUXpresso GCC w/ CMake toolchain?**
   We'd recommend talking with your distributor and/or NXP FAE contacts on this. Keil projects use different linker files and compiler settings so these would need to be migrated by hand.

6. **Regarding licensing and pricing compared to Keil, do we need to buy a license if we use NXP MCU in our product development?**
   No, MCUXpresso tools are complimentary. Keil tools do also offer MDK and other features, and are also complimentary for small memory devices.

7. **Could you please elaborate on what you meant by not all third-party components will be included when you download the SDK from the in application SDK browser? Does that mean it will pull down a nonfunctioning SDK set of files?**
In the webinar I actually misspoke, so we've edited out my replay in the recording. To confirm, all third-party software is also included, so you get everything by default. However, WolfSSL software has a special license agreement, so you are required to accept the licensing agreement.

8. **What do we do to get an SDK if we work in an environment that will never have internet connectivity?**
You need internet access to get the SDK, so the best approach would be to ask your NXP representative to download the SDK you need and provide it to you on a USB stick. For that you would need to sign the license agreement by hand.

9. **Is MCUXpresso supported on earlier Kinetis parts, like K70 and K10 MCUs?**
Some of the earlier Kinetis parts are not supported by MCUXpresso, including K70 and K10 MCUs. For these parts we recommend IAR or Keil tools, but Kinetis Design Studio is also available complimentary. We are unfortunately not able to backfill support for all earlier devices as our teams are focused on providing the best software we can for products introduced in the last 5 years.

10. **I have MCUXpresso 11.0.1. It is not updated to v11.1.1. Will I need to completely uninstall/install to use 11.1.1?**
MCUXpresso installations do not interfere with each other; each MCUXpresso IDE installation is separate, so you can have two versions on your machine simultaneously. The only thing to stay away from is trying to open a project that was created with a newer version of the tools when using the older version.

11. **Please recap how to access the SDK builder from MCUXpresso if possible.**
From the SDK panel, click on the globe icon. You can also access the SDK builder at https://mcuxpresso.nxp.com. To get back to the built-in SDK selector, click on the house icon to get back to the welcome page.

12. **Is the SDK only used when extracting examples? For example, can your project be standalone and build without the SDK installed?**
The SDK provides all the drivers, middleware and examples, but it also includes information on the core type, memory map, debug connections and more. If you want a bare bones project without SDK drivers and just the startup code, just use the 'new' project wizard. You can use a generic Arm® Cortex®-M type in the 'new' project wizard.

13. **Is the 'Image Info' view compatible with C++ projects?**
Yes

14. **What tool set were you using in this webinar? Compiler? Linker?**
MCUXpresso IDE uses Arm GNU C/C++ compiler and linker.

15. **Are there some examples for multiple chips integrated? For, example for the MPC5604?**
All supported MCUs with multiple cores have multi-core examples, but unfortunately this does not include the MPC5604. MCUXpresso IDE does not currently support i.MX Arm Cortex-A based products.

16. What is the difference between the i.MX RT1050 EVK and the i.MX RT1050-AGM01?
The i.MX RT1050-AGM01 adds NXP's sensor shield board.

17. I am planning to use i.MX RT1011 device. Will you be a covering how to compile the code for XIP from Flash or copy into RAM and execute?
We didn't cover this specific use case in this webinar. However, covering the XIP vs RAM load options in a tutorial is a good idea, so we'll look into that.

18. Regarding the SWO pin; what would be comparable for the i.MX RT1052 device?
The openSDA debug probe doesn't support SWO, but you can use an external LPC-Link2 debug probe (order # OM13054). It's also quite a bit faster for flashing.

19. What is the status of the SWO with the J-Link Debuggers?
SWO is used for the ITM functionality (viewing variables and can also be used for standard I/O), but MCUXpresso IDE cannot use it for SWO profiling, interrupts, etc. Segger does provide other tools that enable SWO analysis. You can find them here: https://www.segger.com/products/debug-probes/j-link/tools/j-link-swo-viewer/.

20. Is it possible to set the order of the SWO interrupt traces depending on the ISR priority?
No, because the SWO trace doesn't interfere with the code. However, if the demo showed two ISRs running, the higher priority one would be shown higher in the interrupt trace view.

21. For viewing value changes of variables, is there an SWO plotter like a scope view or similar?
The global variable view is using SWO to obtain the data. An alternative is to use FreeMASTER, which can use the debug channel to plot data. We have a webinar on that coming up at the end of this month, but you may also visit the FreeMASTER page (https://www.nxp.com/freemaster) and community site at community.nxp.com (FreeMASTER has a forum) for more information.

22. Is CMSIS-RTOS available?
Although MCUXpresso SDK is RTOS agnostic, we **do not** include CMSIS-RTOS examples.

23. Does MCUXpresso support importing projects created by CodeWarrior?
Unfortunately not.

24. Does the K32L2B31 device (32-pin version) need the smallest possible debug interface?
Information on the debug probe on this board is on our OpenSDA page: https://www.nxp.com/design/microcontrollers-developer-resources/ides-for-kinetis-mcus/opensda-serial-and-debug-adapter:OPENSDA#FRDM-K32L2B3. The hardware design is open source for you to copy the debug interface.

25. Where can we find the documentation about the tracing capability?
This is in the documentation built into the IDE. You can open 'help' in the IDE and search for the topic, or go to the home screen of the IDE and click the 'documents' icon for links.

26. Does MCUXpresso support multi-core debugging using J-Link debuggers?
Yes. Please refer to the built-in documentation for details.

27. Is MCUXpresso going to add Arm assembly language?
Assembly language is supported with in-line coding or by including separate assembler (.s) files.

28. Can you save the trace data?
Yes. I didn't have time to show that, but you can save it to a comma separated file.

29. How does MCUXpresso integrate with Zephyr RTOS?
Zephyr support for NXP devices is mainly built on MCUXpresso SDK drivers, but the typical build environment is currently using cmake. We'll look into providing some more information on how best to use MCUXpresso IDE and Zephyr.

30. Can you import into MCUXpresso from Keil?
No, you cannot import from Keil into MCUXpresso IDE. Note that all the example SDK projects are available for MCUXpresso IDE, Keil and IAR.

31. Can I do plot/trace of variables with PE Micro debugger?
Not with the global variable view, but you can use FreeMASTER to do that (although not while simultaneously doing debug).

32. Can you debug the project without the jlink debugger?
Yes, you can use the on-board debug probe which uses CMSIS-DAP protocol. You do need to have a debug probe of some kind to be able to debug.

33. Are there any limitations of MCUXpresso IDE on using PE Micro over DAP programmer?
MCUXpresso IDE cannot use PE Micro probes for live global variable access/plotting. PE Micro does provide other utilities for this however, and FreeMASTER can also be used to variable display and control using these probes.

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