Avnet UltraZed-EV SOM
Revision 1 Errata
08 December 2020

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1   Introduction

Thank you for your interest in the Avnet UltraZed-EV SOM. Although Avnet has made every effort to ensure the highest possible quality, these kits and associated software are subject to the limitations described in this errata notification.

Be aware that any of the optional workarounds requiring physical modifications to the board are done at the user's own risk, and Avnet is not liable for poorly performed rework.

2   Identifying Affected Modules

The SOM modules affected by this errata document can be identified by the product code sticker. First, looking at an UltraZed-EV SOM a product code sticker is located below the Xilinx SoC near the center of the board. This is when the board is oriented such that the Avnet logo is located in the upper left of the SOM while looking at it from a top view.

All UltraZed-EV I-grade SOM boards are subject to this issue, unless a second errata revision has added a serial number limitation. The current production product code affected is 4000088. Any boards that are labelled with this code is affected. Any board with a product code other than 4000088 is not affected.

The TOP number in the product sticker denotes the product code, as shown in the above image. Please note that in the above image, 4000086 is shown, which is an E grade part. This board is NOT afflicted by the below problem.

3 Errata

3.1 Industrial grade SOM does not power up at cold temperature limit

3.1.1 Applications Affected

Any UltraZed-EV that is afflicted with this issue cannot reach full industrial temperatures as indicated by original engineering validation.

3.1.2 Description

Through more robust testing and fielding of our SOM, we were able to generate a more reasonable customer use case and were able to define a limitation of:

-25°C

In the case of booting a board under -25°C, there is a reasonable possibility that the SOM will draw current in excess of conservative pre-programmed limiting values that will prevent the UltraZed-EV SOM from completing its power supply start up sequence. This power up sequence issue triggers a boot lockout on power supply 0x16 or U24.

If your SOM has trouble booting in these conditions, you can identify this specific issue through the use of the Infineon IR PowIRCenter software and a programming dongle.

Here you can see the Over Current Fault identified on Switcher B of chip 0x16 (U24).

A power cycle of an UltraZed-EV SOM which did not previously complete its power supply sequence will typically power up a board, allowing booting to complete. This is due to bulk capacitance on the board being charged and some warming occurring on the effected power supplies. In this scenario, the current required for start-up is provided and the power supply start up sequence completes.

3.1.3 Workaround

Currently, Avnet Engineering is investigating a solution to this by properly adjusting the current limits as well as a few other parameters within the affected Infineon programmable supply. Once this new configuration is validated, instructions teaching customers how to update their SOM will be provided. Currently, it is advised that customers contact their local Avnet Field Application

Engineering team or local Avnet sales office to be kept up to date on these events and to be notified when a solution is ready.

3.1.4 Identifying Updated Boards

Using the same identifying techniques listed above in "Identifying Affected Modules," any board that does not include 4000088 for product code should have this update. Future errata and product change notices will conclusively direct you in this matter. You can also contact your local Avnet Field Application Engineering team or local Avnet sales office for clarification. Please note, this technique is preliminary. You should consult the next revision of errata for a definitive identification technique.

3.2 Industrial Grade SOM w/ Example Thermal Solution Does Not Keep MPSoC Junction Temperatures Below High Temperature Limit

3.2.1 Applications Affected

Any UltraZed-EV SOM relying on the example thermal solution provided by Avnet requiring full industrial temperature support might not reach full industrial temperatures.

3.2.2 Description

Through more robust testing and fielding of our SOM, we were able to generate a more reasonable customer use case. This use case helped to define a hot temperature limitation of:

+77°C

While our provided example heatsink and fan combination has never claimed to be able to meet +85°C in all customer use cases, Avnet has tested this SOM at +85°C. In the use cases we had defined, we were able to run our SOM at +85°C.

In the case of not reaching the maximum hot temperature using the new reasonable customer use case, we felt it necessary to be clear about this use case and help customers understand that it can be a challenge to reach +85°C without proper thermal management. Using the Industrial Grade SBC Ultra96V2 as an example, we wanted to demonstrate how a customer, with use of a reasonable use case can reach such a temperature.

The intention is not to teach thermal management, but to be upfront about possible limitations using the provided heat sink and fan and provide a path forward for customers that may not have the engineering capability to properly manage heat for their use case.

3.2.3 Workaround

As we cannot account for every design, this might not affect your system. Here at Avnet, we are working towards a solution in a similar manner as the Industrial Grade Ultra96V2. Avnet is intending to provide an example thermal solution with engineering data to allow customers to provide the same in their system. This solution may or may not account for thermal issues in your system as there are many variables that we cannot account for, such as air flow, enclosure style, shape, material construction, etc. However, using our reasonable customer use case, we will provide a workable thermal solution for customers to purchase / leverage in their products, assuming they will be able to meet the needs as we define it using our reasonable customer use case combined with other engineering specifications. It is also recommended that a customer with advanced thermal solution needs reach out to their local Avnet Field Application Engineering team or local Avnet sales office in order to engage with our engineering support team to discuss a custom thermal solution for your product needs.

3.2.4 Identifying Repaired of New Boards

While the solution has not been identified at this time, a new errata detailing a retro fit solution as well as how to identify new SOMS that meet this tolerance will be indicated in a future errata and/or product change notification. Also, as stated before, any future solution that allows our SOM to reach +85°C using our current understanding of a reasonable customer use case, still might not meet your needs and as such should be considered an example design. This is the case with the current example thermal solution and shall be the case with any future solutions provided. Thermal needs of such a powerful SOM are critical and as mentioned above, if your engineering team cannot work out your thermal needs, reach out to your local Avnet Field Application Engineering team or local Avnet sales office in order to engage with our engineering support team to discuss a custom thermal solution for your end product needs.

4   New Erratum

Any new erratum found will be posted to the UltraZed-EV Carrier Card product page, under the Technical Documents tab:

http://avnet.me/UZEVEVCC_E14

5   Additional Support

For additional support, please contact your local Avnet FAE or sales office.

You may also review the discussions and post your questions in the UltraZed-EV Forum:

http://avnet.me/uzevforum

6   Revision History

Date	Version	Revision
11 Nov 2020	1.0	Added Items 3.1, 3.2