xCORE XA Module Design Advisory: xCORE Core Power Supply

IN THIS DOCUMENT

▸ Affected boards

▸ Problem

▸ Solution

1 Affected boards

xCORE-XA Module Board (XK-XAC-XA8), date code 0415 or earlier (refer to serial number sticker on reverse, format "NSwwyy <serial number>").

Figure 1:
XK-XAC-XA8
Serial
Number

Factory reworked boards with these date codes that are marked with an "R" on the reverse, are not impacted by the advisory.

2 Problem

The XA Module board provides the option to control the xCORE core power supply from either an ARM GPIO or with a jumper setting (J12). This controls a MOSFET (Q2) acting as a high side switch for the 1V0 supply to the xCORE. The XA Module Board uses the FDV303N MOSFET with an on-state resistance of c.500mOhm at the effective applied gate voltage, which in certain circumstances can cause the xCORE core power supply to be pulled below the recommended operating level of 0.95V.

3 Solution

XMOS recommends that for critical applications this FET should be replaced with a lower RDS(on) FET to avoid this issue. The Diodes Incorporated DMN2075U has been shown to eliminate this issue; an equivalent component can be chosen provided it displays low resistance (< c.50mOhm) Ohmic behaviour at Vgs = 2.0V.

XMOS will, on request, accept the return of any affected boards and supply the customer with reworked boards.

XMOS®