

## **Errata**

*UnityX4 ERR/D  
Rev. G, 7/2003*

*Unity/Sandpoint  
Microprocessor Evaluation  
System  
Errata*



**MOTOROLA**  
*intelligence everywhere™*

*digitaldna™* 

# **1 Introduction**

This document describes the known errata and limitations of the Unity MPMC card for the Sandpoint reference platform. In all cases, if an errata has a workaround, it is applied to the system before shipped to customers.

The errata revision (“A”, “B”, etc.) is updated every time a new problem is found and systems have been shipped. If your current system is a “Unity X4 rev ‘A’”, then it has all rev “A” fixes, but no rev “B” fixes.

The errata should be applied to the published schematics to determine the correct wiring of the MPMC+Sandpoint system (i.e. after changes are applied).

Lastly, note that some errata are not true errors but requests for minor modifications to improve the system. These errata are not performed but may be rolled into possible future revisions of the system, if any.

# ERRATA

**Table 1: Summary of Unity Errata**

#	Type	Problem	Impact	Work-Around	Affects	Rev
1	Design	MA11 is not a ROM address pin for the MPC8240.  Cause: MPC8245 does have it. Wasteful to use same flash for both.	None. MPC8240-based Unity boards cannot access all of Am29DL323 flash devices.	Change BOM for U7 to use a 1MB flash device (Am29LV800).  For X5: No change to schematic.	X4	A
2	Design	R28 is not properly placed to allow sector protection of second flash.	Cannot use sector protection on second flash (U4).	Lift U4 pin 12 and connect to TP “SPR”.  For X5: Change R28 to 0 ohms. Delete pullup.	X4	A
3	Design	If debug mode is enabled (R29 installed), REQ4 will remain low, causing the arbiter to grant bus. Eventually this will be detected as a broken master and the arbiter will disable it.	May reduce performance during startup for first 100 clock cycles or so.	Don’t enable debug mode if this is a problem.  For X5: Instead of ground, connect to <u>HRESET</u> .	X4	A
4	Design	AVDD/LAVDD pins are connected internally; no need for separate filters.  Cause: was not true of early substrates (V1.0 MPC8240)	Little (board space, cost).	None needed:  For X5: Remove one of the PLL circuits if needed. On Unity-based systems, eliminate one and connect the two pins.	X4	B
5	Design	<u>QACK</u> not needed on COP header.	Little. <u>COP</u> rarely if ever drives <u>QACK</u> (an active low output) high.	Remove R31 or remove pin 2 of J4.  For X5: Disconnect <u>QACK</u> from header.	X4	C
6	Design	<u>CHKSTP_IN</u> not connected.	COP cannot drive <u>CHKSTP_IN</u> signal on MPC8240 or MPC8245 when in non-extended mode.	None.  For X5: Connect <u>CHKSTP_IN</u> to pin 8 of the COP header, plus a 10K pullup to OVDD.	X4	C

**Table 1: Summary of Unity Errata**

#	Type	Problem	Impact	Work-Around	Affects	Rev
7	Design + CAD	Pins 12 and 13 on the QS3384 are shorted on the PCB, despite being shown as separate on the schematic. If INTA# were really an output-only pin, interrupts would not work.  Cause: An invisible net-name property over-rode the drawn connection.	None: INTA# is really output-only open-drain signal, per PCI specifications.  Consequently, wire-ORing IRQ0* and INTA* is perfectly fine. The QS3384 is not needed.	None.  <b>For X5: Connect INTA# to IRQ0* and to the INTA# PMC connector, without using the QS3384 switch.</b>	X4	E
8	Doc	A complaint that the ISP and COP headers on page 4 are rotated 180 degrees.	If sheet 4 is used as an installation guide, might install COP header backwards. Otherwise, none.	None.	X4	E
9	Design	Pulldown on QACK causes clock-flip to be enabled.	Minor, longer startup.	1. Remove R31. 2. Clip J4 pin 2.  <b>For X5: Disconnect QACK from header.</b>	X4	F
10	Design	Selectable output impedance for memory doesn't support 30 ohms.	Slightly increased ringing if $Z_o = 20$ ohms, slightly slower if $Z_o = 40$ ohms.	1. Replace RN8, RN12, RN13, RN15, RN18, RN20 with 33 ohms. 2. Replace R7, R8 with 33 ohms.  <b>For X5: Change components to 33 ohms.</b>	X4	F
11	Design	MAX211E is a 5V part so signals to MPC8245 PCICLK/UART pins are 5V TTL.	Long-term degradation of MPC8245 IOs may eventually damage part.	1. None.  <b>For X5: Change component to MAX3381E.</b>	X4	F
12	MFG	R36 and R37 should have IF_8245 property.	None.	1. None.  <b>For X5: Add property.</b>	X4	F

**Table 1: Summary of Unity Errata**

#	Type	Problem	Impact	Work-Around	Affects	Rev
13	Design	Interrupts not receivable on IRQ0* (in spite of errata #7) when not in SYSCON* mode, which is true on SPX# systems with serial numbers >= 6000, or when SYSCON is not selected.	Lack of interrupts on IRQ0*.	For SPX3 systems <= 5999: Select MPMC mode on the MPMC and SPX3 (SYSCON LED should be active).  For SPX3 systems >=6000: Add a solder-blob across U9 (QS3384) pins 13 and 14.  <b>For X5: Connect INTA# to IRQ0# with no QS involvement (new standard method).</b>	X4	G

# Revision History

Version	Date	Changes
A	2000 Mar 24	Initial Errata
B	2001 Feb 20	Note added.
C	2001 May 24	5, 6 added.
D	2001 Jun 03	7 added.
F	2002 Jan 02	New format, 9 & 10 added.
-	2002 Apr 15	Added UART issue; no fix so no version update.
-	2003 Jan 23	Added 11 and 12.
G	2003 Jul 14	Added 13.

**HOW TO REACH US:****USA/EUROPE/LOCATIONS NOT LISTED:**

Motorola Literature Distribution;  
P.O. Box 5405, Denver, Colorado 80217  
1-303-675-2140 or 1-800-441-2447

**JAPAN:**

Motorola Japan Ltd.; SPS, Technical Information Center,  
3-20-1, Minami-Azabu Minato-ku, Tokyo 106-8573 Japan  
81-3-3440-3569

**ASIA/PACIFIC:**

Motorola Semiconductors H.K. Ltd.; Silicon Harbour  
Centre, 2 Dai King Street, Tai Po Industrial Estate,  
Tai Po, N.T., Hong Kong  
852-26668334

**TECHNICAL INFORMATION CENTER:**

1-800-521-6274

**HOME PAGE:**

<http://www.motorola.com/semiconductors>

**DOCUMENT COMMENTS:**

FAX (512) 933-2625,  
Attn: RISC Applications Engineering

Information in this document is provided solely to enable system and software implementers to use Motorola products. There are no express or implied copyright licenses granted hereunder to design or fabricate any integrated circuits or integrated circuits based on the information in this document.

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in Motorola data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part.



Motorola and the Stylized M Logo are registered in the U.S. Patent and Trademark Office. digital dna is a trademark of Motorola, Inc. All other product or service names are the property of their respective owners. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

© Motorola, Inc. 2001