

# PCN2003-10: CoolRunner™ XCR3128XL™ CPLD Change in Wafer Fabrication Facility

**Overview:** As previously announced in [PCN2002-11](#), the XCR3128XL CoolRunner XPLA3 CPLD will transition from the Philips MOSIV wafer fab in Nijmegen to the UMC wafer fab in Taiwan.

Two other members of the XPLA3 family, [XCR3064XL](#) and [XCR3256XL](#), have already completed the transition from Philips to UMC. The remaining members of the family, XCR3032XL, XCR3384XL, XCR3512XL, and the –6 commercial and –7 industrial speed grades of the XCR3128XL, have always been fabricated at UMC using the same 0.35µm five-layer metal flash CMOS process.

This change is being made to improve Xilinx's ability to support this product effectively, competitively, and to accommodate our customers' high volume demands.

The following part numbers are affected by this PCN:

XCR3128XL-7CS144C	XCR3128XL-7TQ144C	XCR3128XL-7VQ100C
XCR3128XL-10CS144C	XCR3128XL-10TQ144C	XCR3128XL-10VQ100C
XCR3128XL-10CS144I	XCR3128XL-10TQ144I	XCR3128XL-10VQ100I

Note this PCN does not affect the CoolRunner [XCR3128XL-Q](#) CPLD Automotive IQ product.

Upon availability of the production units from UMC on February 26, 2004, customers may expect to receive the XCR3128XL device from either UMC or Philips until the Philips inventory is depleted.

The XCR3128XL devices fabricated at UMC exhibit some performance improvements. The following tables list the datasheet changes that occur as a result of the change in fabrication location:

**Data Sheet Measurements:**

Data sheet measurement	Current Philips spec (-7C, -10C/I)	UMC spec
Write / erase cycles	1,000	10,000
$V_{OH}$	Min. of 2.4V when $I_{OH} = -8 \text{ mA}$	No change when $V_{CC} = 3.0 \text{ V}$ to 3.6V Adding the following conditions: If $V_{CC} = 2.7\text{V}$ to 3.0V, min = 2.0V If $I_{OH} = -500\mu\text{A}$ , min = 90% $V_{CC}$
$T_{LOGI3}$ (Fold-back NAND delay)	7.5 ns $T_{pd} = 7.5 \text{ ns}$ 10 ns $T_{pd} = 9.5 \text{ ns}$	7.5 ns $T_{pd} = 2.5 \text{ ns}$ 10 ns $T_{pd} = 3.0 \text{ ns}$

**Non-Data Sheet Measurement:**

Non- Data sheet measurement	Current Philips measurement (-7C, -10C/I)	UMC measurement
Weak pull-up resistance in I/O structure*	Range: 150K to 385K Ohms	Range: 62K to 150K Ohms

\*These ranges are from a typical lot, over the supported temperature and voltage ranges. It is recommended that you characterize the UMC devices in your system for this change.

Devices from UMC will follow the Typical  $I_{cc}$  vs Frequency numbers and curves as found in Figure 1 and Table 1, and the  $T_{pd2}$  derating curve in Figure 5 of the XCR3128XL data sheet ([DS016 v2.1](#)).

The XCR3128XL devices fabricated at UMC require an updated BSDL file. This updated BSDL file can be found at [http://www.xilinx.com/support/sw\\_bsd/bsdl.htm#CPLD](http://www.xilinx.com/support/sw_bsd/bsdl.htm#CPLD) and will also function with the XCR3128XL devices fabricated at Philips.

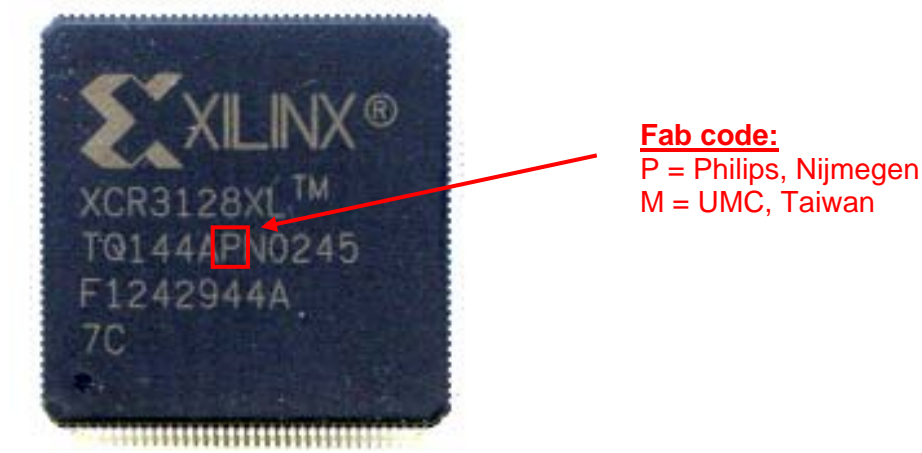
**Qualification Data:** The following table contains the qualification data for the 0.35 $\mu$ m process at UMC:

Lot #	Part	Package	Test	Quantity	Hours/Cy	Fails	Status
X8522LT	XCR3032XL	VQ44	HTOL	80	24	0	continue
			@145°C		48	0	continue
					256	0	continue
					500	0	continue
					1000	0	complete
X0026LT	XCR3032XL	VQ44	HTOL	80	256	0	complete
			@145°C				
X8535HS	XCR3032XL	VQ44	HAST	76	100	0	complete
			@130°C/85%RH				
X8535TC	XCR3032XL	VQ44	Temp Cycle	76	200	0	continue
			@-65°C / +150°C		500	0	continue
			Condition C		1000	0	complete

**Key Dates:** Qualification samples of the XCR3128XL fabricated at UMC are available today. Use special ordering number SCD0771 to obtain these qualification samples. These qualification samples will be equivalent to the production devices of the XCR3128XL fabricated at UMC that will be shipping beginning February 26, 2004. Product specifically manufactured at Philips can be ordered until February 27, 2004, and is subject to availability. Please contact your [Xilinx Sales Representative](#) to obtain qualification samples or production devices. Note that the last time buy date of February 27, 2004, is absolutely firm. Xilinx will not take any orders for the Philips material after this date.

**Traceability:** These devices can be distinguished by the second letter in the 3-letter code located on the second line of the package topmark in between the package/pin code and the datecode. The 2<sup>nd</sup> letter will be an “M” for product manufactured at UMC, and “P” for product manufactured at Philips. Reference the example below.

Example of a package topmark:



**Response and Contact:** Please contact your [Xilinx Sales Representative](#) to obtain qualification samples or production devices. For additional information or questions, please contact [Xilinx Technical Support](#).

Per JEDEC Standard JESD46-B, customers should acknowledge receipt of the PCN within 30 days of delivery of the PCN. Lack of acknowledgement of the PCN within 30 days constitutes acceptance of the change. After acknowledgement, lack of additional response within the 90-day period constitutes acceptance of the change.