

Type of Change		
Date: 2020.10.14 <yyyy.mm.dd>	Document Number: LPN-437e_1 Preliminary Version	
<input checked="" type="checkbox"/> Major Change <input type="checkbox"/> Minor Change		
Description of Change: We received information that Micron 1Gb SLC 34 nm Nand is NRND (Not Recommended for New Designs). Therefore, we have found and tested a replacement.		
Type of Change: Component Change	Impacted Component: Flash	Software Update necessary: No

Affected Product	
Affected PHYTEC product group:	phyCORE®-AM335x
Affected PHYTEC product group part:	PCM-051, PCL-051
Affected Product Number	Replacement Product Number
PCM-051-00051FOI.A2/A3	PCM-051-00051FOI.A4
PCM-051-KSMxy.Az	PCM-051-KSMxy.Az
PCM-051-KSPxy.Az	PCM-051-KSPxy.Az
PCL-051-00042F1C.A2	PCL-051-00042F1C.A3
PCL-051-0005170I.A1	PCL-051-0005170I.A2
KPB-00802-0200C.A2	KPB-00802-0200C.A3
PB-00802-008.A2	PB-00802-008.A3
PB-00802-0101C.A2	PB-00802-0101C.A3
PB-00802-010C-SYS.A3	PB-00802-010C-SYS.A4
PB-00802-012I-SYS.A0/A1	PB-00802-012I-SYS.A2
PB-00802-0200C.A2	PB-00802-0200C.A3
PB-00802-020C-SYS.A2	PB-00802-020C-SYS.A3
PB-00802-KSPxy.Az	PB-00802-KSPxy.Az+1

Possible Options	
<input checked="" type="checkbox"/>	Change to new product revision with replacement
<input type="checkbox"/>	Change to different PHYTEC product
<input type="checkbox"/>	Change to different option of product
<input checked="" type="checkbox"/>	Final stock

Schedule	
Last Time Buy (current product version): (Last date to set an order for the current product version)	2021.01.07 <yyyy.mm.dd> ORDERS ARE NON-CANCELABLE AND NON-RETURNABLE.
Samples of new PHYTEC product revision orderable:	2020, Q4
Planned mass production of new PHYTEC product revision:	2020, Q2 (in dependence from stock)

Anticipated Impact on Form, Fit, Function, EMC, Quality or Reliability
(1) No impact in fit or form (2) No impact in function if you use BSP version PD17.2.2 or newer (3) No impact in EMC/EMI performance expected

Engineering Change (Component, Firmware, Process, other)		
Original		Replacement
IM688	PHYTEC Internal Part #	IM944
Micron	Manufacturer	Micron
MT29F1G08ABADAH4-IT:D	Manufacturer Part #	MT29F1G08ABAEAH4-ITX:E
SLC NAND Flash Parallel 3.3V 1G-bit 128M x 8 63-Pin VFBGA -40/85	Description	SLC NAND Flash Parallel 3.3V 1G-bit 128M x 8 63-Pin VFBGA -40/85

Technical Parameter			
Parameter	Original MT29F1G08ABADAH4-IT:D	Replacement MT29F1G08ABAEAH4-ITX:E	Assess- ment ¹
Package, pitch, form (mm)	63-ball 10.5x13x0.65mm VFBGA	63-ball 10.5x13x0.65mm VFBGA	2
Operating Temperature (°C)	-40°C to +85°C	-40°C to 85°C	2
Supply voltage (V)	2.7V to 3.6V	2.7V to 3.6V	2
VIL undershoot (V)	-0.3 to 0.2 * Vcc	-0.3 to 0.2 * Vcc	2
VIH overshoot (V)	0.8 * Vcc to Vcc + 0.3	0.8 * Vcc to Vcc + 0.3	2
Density	128 MByte	128 MByte	2
Bus width	8-bit	8-bit	2
Page size (Byte)	2112 (2048 + 64)	2112 (2048 + 64)	2
Eraseblock size (Byte)	128K+4K	128K+4K	2
Count of chip select	1	1	2
Open NAND Flash Interface (ONFI)	1.0 compliant	1.0 compliant	2
ECC minimum	4-bit ECC per 528 bytes	4-bit ECC per 512+16 bytes	2
Read / write cycle time (tRC, tWC)	(min.20ns, min.20ns)	(min.20ns, min.20ns)	2
Block Erase Time (tBERS)	0.7 to 3 ms	0.7 to 3 ms	2
Programm Time (tPROG)	200 to 600 us	200 to 600 us	2
Maximum page read time (tR)	25us	25us	2
Valid blocks	2008 to 2048 Blocks	2008 to 2048 Blocks	2
Data retention (years)	10	10	2
Program / erase cycle	100,000	100,000	2
Number of partial program cycles	4	4	2
Manufacture and device ID	2Ch and F1h	2Ch and F1h	2
Referenced Documents:	Micron Datasheet: 1Gb x8, x16: NAND Flash Memory m68a.pdf – Rev. D 06/10 EN 1Gb x8, x16: NAND Flash Memory m68m_non_ecc.pdf – Rev. E 7/12 EN		

Note:

Technical differences and similarities in the tables above may not be complete. Please refer to the manufacture datasheets for a complete comparison.

¹ Assessments:
 1: Effects are to be expected
 2: No negative effects are to be expected

PHYTEC Qualification	
The new product(s) were qualified according to our company qualification procedure and best practices.	
<input type="checkbox"/> PCB redesign was necessary,	<input checked="" type="checkbox"/> Software adaption is necessary, when the customer BSP version is older than PD17.2.2
<input checked="" type="checkbox"/> Software tests were conducted with:	
BSP used:	Yogurt (Phytec Example Distribution) BSP-Yocto-AM335x-PD17.2.2 phycore-am335x-5 tty00 Barebox: barebox 2017.10.0-bsp-yocto-am335x-pd17.2.2 Linux: Linux version 4.9.98-bsp-yocto-am335x-pd17.2.2
Test programs:	Nand Tests: subpagetest test, speed test, stress test, bonnie test, copy large file Boot Tests: Barebox hard/soft reboot, Linux hard/soft reboot

Recommended Measures for Customer
<input type="checkbox"/> Software update or patch
<input type="checkbox"/> Linux BSP: <input type="checkbox"/> backward compatible Link:
<input type="checkbox"/> Update Programming Tool
<input checked="" type="checkbox"/> Test the recommended measures in combination with your system and use case. PHYTEC recommends that customers take this opportunity to review these changes against their specifications, system design considerations, and environment conditions to assess impact (if any) to their application.

Please contact our order team to ask for an interims or final stock for components or PHYTEC products.
Please contact our support, if you need any further information.

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Purpose: This Product Change Notification (PCN) is to provide notification to PHYTEC customers of component, process, or other relevant engineering changes on a PHYTEC hardware subassembly. Impact, qualification, validation, and approval of this change shall be documented on the corresponding Customer-Specific Modification (KSM/KSP) form for the PHYTEC hardware subassembly.

Per JEDEC Standard JESD46-D Section 3.2.3; lack of acknowledgment of this PCN within 30 days constitutes acceptance of change.

Revision History of the Document
_1: Initial document