Type of Change	
Date: **2021.08.30** <yyyy.mm.dd>	Document Number: **LPN-487e_1**

DDR3L Second Source Release

☒ Major Change
☐ Minor Change

Description of Change:
Due to the tight market situation, PHYTEC want to communicate an second source release for the DDR3L Intelligent Memory Limited - IM8G16D3FCBG-125I, PHYTEC internal part number IM914. The second source is the Micron Technology - MT41K512M16VRP-107IT:P, PHYTEC internal part number IM926.

This part is used with the phyCRORE@ AM335x design PCM-060. Despite our best efforts and high standards in replacement component search, some parameters of the alternative parts are not identical to the original part. Please see the chapter Engineering Change for a detailed description of the differences.

This part can be used without any changes to the PCB circuitry or software adaptation. We have tested this component intensively and found no anormalities or problems.

PHYTEC standard products can be equipped with one of the two components as soon as the LPN comes into force, in order to increase the security of supply. Customer-specific module versions remain unaffected until the customer's release.

Type of Change:	**Impacted Component:**	**Software Update necessary:**
Second Source	RAM	No

Affected Product	
Affected PHYTEC product group:	phyCORE® AM335x
Affected PHYTEC product group part:	PCM-060

Affected Product Number	Replacement Product Number
PCM-060-KSMxy.Az	PCM-060-KSMxy.Az+1
PCM-060-KSPxy.Az	PCM-060-KSPxy.Az+1

Possible Options		
☒	Second Source release	For KSM/KSP versions, please contact PHYTEC sales
☐	Change to different PHYTEC product	
☐	Change to different option of product	
☐	Final stock	

Schedule	
Last Time Buy (current product version): (Last date to set an order for the current product version)	. . <yyyy.mm.dd> **ORDERS ARE NON-CANCELABLE AND NON-RETURNABLE.**
Samples of new PHYTEC product revision **orderable:**	
Planned mass production of new PHYTEC product revision**:**	(depending on stock)

Anticipated Impact on Form, Fit, Function, EMC, Quality or Reliability
(1) No impact in fit, form or function expected

Engineering Change (Component, Firmware, Process, other)		
Current Part		**New Part**
512M*16 DDR3L-1600	**Description**	512M*16 DDR3L-1866
Intelligent Memory Limited	**Manufacturer**	Micron Technology
IM8G16D3FCBG-125I	**Manufacturer Part #**	MT41K512M16VRP-107 IT:P
IM914	**PHYTEC Internal Part #**	IM926

Technical Parameters			
Parameter	**Original IM8G16D3FCBG-125I**	**Replacement MT41K512M16VRP-107 IT:P**	**Assess-ment[1]**
Package, pitch, form (mm)	96-ball FBGA, 13.5 * 9 * 1.2, pitch 0.8	96-ball TFBGA, 14 * 8 * 1.1, pitch 0.8	2
Operating Temperature (°C)	IT: -40 to +95	IT: -40 to +95	2
Supply voltage (V)	1.283 to 1.45 1.425 to 1.575	1.283 to 1.45 1.425 to 1.575	2
Maximum peak amplitude for overshoot / undershoot	max. 0.4 V 0.33 V-ns	-	2
Configuration	64M words * 16 bits * 8 banks	64M words * 16 bits * 8 banks	2
Density	8 Gbit / 1 GByte	8 Gbit / 1 GByte	2
Bus width	16-bit	16-bit	2
Page size (kByte)	2	2	2
Count of chip select	1	1	2
Row addressing	A0 to A15	A0 to A15	2
Col addressing	A0 to A9	A0 to A9	2
Data rate (Mbps)	1600	1866	2
Target tRCD-tRP-CL	11-11-11	13-13-13	2
Row active time (tRAS)	min. 35	min. 34	2
Row cycle time (tRC)	48.75 ns (48.125 ns)	47.91 ns	2
Row active to column address delay (tRCD)	13.75 ns (13.125 ns)	13.91 ns	2
Row precharge time (tRP)	13.75 ns (13.125 ns)	13.91 ns	2
Referenced Documents: datasaheet IM8G16D3FCBG-125I, datasheet MT41K512M16VRP-107 IT:P			

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.	
☐ PCB redesign was necessary:	☐ Software adaption was necessary:
☒ Software tests were conducted with:	
BSP used:	phyCORE-AM335x-R2-PD16.1.0: (1) barebox 2016.04.0-phyCORE-AM335x-R2-PD16.1.0 (2) Linux version 3.12.30-phyCORE-AM335x-R2-PD16.1.0
Test programs:	(1) boot tests (2) hackbench (3) memtester (4) MD5SUM
Condition	At room temperature and in climating chamber with a temperature range from -40°C to +85°C

Recommended Measures for Customer
☐ Software update or patch ☐ Linux BSP: ☐ Backward compatible Link:
☐ Update Programming Tool
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, if this option is offered.
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