JEDEC PUBLICATION

JC-42.6 Manufacturer Identification (ID) Code for Low Power Memories

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JEP166E

(Revision of JEP166D, April 2021)

July 2023

JEDEC SOLID STATE TECHNOLOGY ASSOCIATION

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JC-42.6 Manufacturer Identification (ID) Code for Low Power Memories

(From JEDEC Board Ballot JCB-12-64, JCB-14-48, and JCB-15-47, formulated under the cognizance of the JC-42.6 Subcommittee on Low Power Memory.)

1 Scope

This document defines the JC-42.6 Manufacturer ID. This document covers Manufacturer ID Codes for the following technologies: LPDDR (JESD209), LPDDR2 (JESD209-2), LPDDR3 (JESD209-3), LPDDR4 (JESD209-4), LPDDR5 (JESD209-5), Wide-IO (JESD229), and Wide-IO2 (JESD229-2). The purpose of this document is to define the Manufacturer ID for these devices.

2 LPDDR (JESD209) Manufacturer ID

DQ3	DQ2	DQ1	DQ0
LPDDR Manufacturer ID			

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LPDDR Manufacturer ID	Read-Only	OP<3:0>	0000B : Reserved 0001B : Samsung 0010B : Infineon 0011B : Elpida 0100B : Etron 0101B : Nanya 0110B : SK hynix 0111B : Mosel 1000B : Winbond 1001B : ESMT 1010B : NVM 1011B : ISSI 1100B : JSC 1101B : AP Memory 1110B : all others 1111B : Micron

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3 LPDDR2 and LPDDR3 (JESD209-2 and JESD209-3) Manufacturer ID

OP7	OP6	OP5	OP4	OP3	OP2	OP1	OP0
LPDDR2/LPDDR3 Manufacturer ID							

LPDDR2/LPDDR3 Manufacturer ID	Read-Only	OP<7:0>	0000 0000B : Reserved 0000 0001B : Samsung 0000 0010B : Qimonda 0000 0011B : Elpida 0000 0100B : Etron 0000 0101B : Nanya 0000 0110B : SK hynix 0000 0111B : Mosel 0000 1000B : Winbond 0000 1001B : ESMT 0000 1010B : Zentel 0000 1011B : Spansion 0000 1100B : SST 0000 1101B : ZMOS 0000 1110B : Intel 0000 1111B : Reserved 0001 0000B : Reserved 0001 0001B : Reserved 0001 0010B : Being Advanced Memory Corp 0001 0011B : Reserved 0001 1010B : Xi'an UniIC Semiconductors Co., Ltd 0001 0100B : Unim Innovation Technology 0001 1011B : ISSI 0001 1100B : JSC 1010 1010B : Tezzaron 1100 0010B : Macronix 1100 0100B : HT Micron Semicondutores S.A 1100 0101B : SINKER 1111 1000B : Fidelix 1111 1100B : eveRAM 1111 1101B : AP Memory 1111 1110B : Numonyx 1111 1111B : Micron All Others : Reserved

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4 WIDE I/O (JESD229) Manufacturer ID

DQ3	DQ2	DQ1	DQ0
Wide I/O Manufacturer ID			

Wide I/O Manufacturer ID	Read-Only	OP<3:0>	0000B : Reserved 0001B : Samsung 0010B : Being Advanced Memory Corporation 0011B : Elpida 0100B : Reserved 0101B : Nanya 0110B : SK hynix 0111B : Reserved 1000B : Winbond 1001B : ESMT 1010B : Reserved 1011B : Reserved 1100B : Reserved 1101B : Reserved 1110B : Reserved 1111B : Micron

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5 LPDDR4 (JESD209-4) Manufacturer ID

OP7	OP6	OP5	OP4	OP3	OP2	OP1	OP0
LPDDR4 Manufacturer ID							

LPDDR4 Manufacturer ID	Read-Only	OP<7:0>	0000 0000B : Reserved 0000 0001B : Samsung 0000 0010B : Reserved* 0000 0011B : Reserved* 0000 0100B : Reserved* 0000 0101B : Nanya 0000 0110B : SK hynix 0000 0111B : Reserved* 0000 1000B : Winbond 0000 1001B : ESMT 0000 1010B : Reserved 0000 1011B : Reserved* 0000 1100B : Reserved* 0000 1101B : Reserved* 0000 1110B : Reserved* 0000 1111B : Reserved* 0001 0010B : Reserved* 0001 0011B : CXMT 0001 1010B : Xi'an UniIC Semiconductors Co., Ltd 0001 0100B : Reserved* 0001 1011B : ISSI 0001 1100B : JSC 1010 1010B : Reserved* 1100 0010B : Reserved* 1100 0100B : Reserved* 1100 0101B : SINKER 1110 0101B : Dosilicon Co,Ltd. 1111 1000B : Fidelix 1111 1001B : Ultra Memory 1111 1100B : Reserved* 1111 1101B : AP Memory 1111 1110B : Reserved* 1111 1111B : Micron All others : Reserved

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* Reserved codes highlighted with an asterisk (*) have vendor name assignments in other standards in this document. Use caution when assigning those codes in the future.

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6 LPDDR5 (JESD209-5) Manufacturer ID

OP7	OP6	OP5	OP4	OP3	OP2	OP1	OP0
LPDDR5 Manufacturer ID							

LPDDR5 Manufacturer ID	Read-Only	OP<7:0>	0000 0000B : Reserved 0000 0001B : Samsung 0000 0010B : Reserved* 0000 0011B : Reserved* 0000 0100B : Reserved* 0000 0101B : Nanya 0000 0110B : SK hynix 0000 0111B : Reserved* 0000 1000B : Winbond 0000 1001B : ESMT 0000 1010B : Reserved 0000 1011B : Reserved* 0000 1100B : Reserved* 0000 1101B : Reserved* 0000 1110B : Reserved* 0000 1111B : Reserved* 0001 0010B : Reserved* 0001 0011B : CXMT 0001 0100B : Reserved* 0001 1010B : Reserved 0001 1011B : Reserved* 0001 1100B : Reserved 1001 1011B : YMTC 1010 1010B : Reserved* 1100 0010B : Reserved* 1100 0100B : Reserved* 1100 0101B : Reserved* 1110 0101B : Dosilicon Co,Ltd. 1111 1000B : Reserved 1111 1001B : Reserved 1111 1100B : Reserved* 1111 1101B : Reserved 1111 1110B : Reserved* 1111 1111B : Micron All others : Reserved

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7 Summary of LPDDR2/3/4/5 Manufacturer ID

OP7	OP6	OP5	OP4	OP3	OP2	OP1	OP0
LPDDR2/3/4/5 Manufacturer ID							

LPDDR	**LPDDR2/3**	**LPDDR4**	**LPDDR5**
0000B : Reserved	0000 0000B : Reserved	0000 0000B : Reserved	0000 0000B : Reserved
0001B : Samsung	0000 0001B : Samsung	0000 0001B : Samsung	0000 0001B : Samsung
0010B : Infineon	0000 0010B : Qimonda	0000 0010B : Reserved*	0000 0010B : Reserved*
0011B : Elpida	0000 0011B : Elpida	0000 0011B : Reserved*	0000 0011B : Reserved*
0100B : Etron	0000 0100B : Etron	0000 0100B : Reserved*	0000 0100B : Reserved*
0101B : Nanya	0000 0101B : Nanya	0000 0101B : Nanya	0000 0101B : Nanya
0101B : SKHynix	0000 0110B : SK hynix	0000 0110B : SK hynix	0000 0110B : SK hynix
0111B : Mosel	0000 0111B : Mosel	0000 0111B : Reserved*	0000 0111B : Reserved*
0111B : Winbond	0000 1000B : Winbond	0000 1000B : Winbond	0000 1000B : Winbond
0111B : ESMT	0000 1001B : ESMT	0000 1001B : ESMT	0000 1001B : ESMT
1010B : NVM	0000 1010B : Zentel	0000 1010B : Reserved*	0000 1010B : Reserved*
1011B : ISSI	0000 1011B : Spansion	0000 1011B : Reserved*	0000 1011B : Reserved*
1100B : JSC	0000 1100B : SST	0000 1100B : Reserved*	0000 1100B : Reserved*
1101B : AP Memory	0000 1101B : ZMOS	0000 1101B : Reserved*	0000 1101B : Reserved*
1110B : all others	0000 1110B : Intel	0000 1110B : Reserved*	0000 1110B : Reserved*
1111B : Micron	0000 1111B : Reserved* Be careful, could conflict with Micron LPDDR code	0000 1111B : Reserved* Be careful, could conflict with Micron LPDDR code	0000 1111B : Reserved* Be careful, could conflict with Micron LPDDR code
	0001 0010B : Being Advanced Memory Corp	0001 0010B : Reserved*	0001 0010B : Reserved*
	0001 0011B : Reserved	0001 0011B : CXMT	0001 0011B : CXMT
	0001 0100B : Unim Innovation Technology	0001 0100B : Reserved	0001 0100B : Reserved
	0001 1010B : Xi'an UniIC Semiconductors Co., Ltd	0001 1010B : Xi'an UniIC Semiconductors Co., Ltd	0001 1010B : Reserved
	0001 1011B : ISSI	0001 1011B : ISSI	0001 1011B : Reserved*
	0001 1100B : JSC	0001 1100B : JSC	0001 1100B : Reserved
	1001 1011B: Reserved	1001 1011B: Reserved	1001 1011B: YMTC
	1010 1010B : Tezzaron	1010 1010B : Reserved*	1010 1010B : Reserved*

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	1100 0010B : Macronix	1100 0010B : Reserved*	1100 0010B : Reserved*
	1100 0100B : HT Micron Semicondutores S.A.	1100 0100B : Reserved*	1100 0100B : Reserved*
	1100 0101B : Reserved*	1100 0101B : SINKER	1100 0101B : Reserved*
	1110 0101B : Dosilicon Co,Ltd.	1110 0101B : Reserved*	1110 0101B : Reserved*
	1111 1000B : Fidelix	1111 1000B : Fidelix	1111 1000B : Reserved
	1111 1001B : Reserved	1111 1001B : Ultra Memory	1111 1001B : Reserved
	1111 1100B : eveRAM	1111 1100B : Reserved*	1111 1100B : Reserved*
	1111 1101B : AP Memory	1111 1101B : AP Memory	1111 1101B : Reserved
	1111 1110B : Numonyx	1111 1110B : Reserved*	1111 1110B : Reserved*
	1111 1111B : Micron	1111 1111B : Micron	1111 1111B : Micron
	All others : Reserved	All others : Reserved	All others : Reserved

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8 WIDE I/O2 (JESD229-2) Manufacturer ID

OP7	OP6	OP5	OP4	OP3	OP2	OP1	OP0
Wide I/O2 Manufacturer ID							

Wide I/O 2 Manufacturer ID	Read-Only	OP<7:0>	0000 0000B : Reserved 0000 0001B : Samsung 0000 0010B : Reserved* 0000 0011B : Reserved* 0000 0100B : Reserved* 0000 0101B : Nanya 0000 0110B : SK hynix 0000 0111B : Reserved* 0000 1000B : Winbond 0000 1001B : ESMT 0000 1010B : Reserved 0000 1011B : Reserved* 0000 1100B : Reserved* 0000 1101B : Reserved* 0000 1110B : Reserved* 0000 1111B : Reserved* 0001 0010B : Reserved* 0001 1011B : Reserved* 0001 1100B : Reserved* 1100 0010B : Reserved* 1111 1110B : Reserved* 1111 1111B : Micron All others : Reserved

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Annex A (informative) Obtaining a JC42.6 Manufacturer Identification Code (ID)

JC-42.6 Manufacturer Identification Codes for Low-Power Memories are assigned, maintained, and updated by the JC-42.6 Subcommittee. The JC-42.6 chairperson is responsible for assigning the ID code. The JEDEC office will update JEP166 editorially and publish it in a timely manner.

A new Manufacturer Identification Code for Low-Power Memories can be obtained at the following web page **https://www.jedec.org/id-codes-low-power-memories**.

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Annex B (informative) Differences between revisions

This annex briefly describes most of the additions/changes made to entries that appear in this publication, JEP166E, compared to its predecessors.

Clause	Description of change
All	Added “xxx” to 0001 0xxx011B.
3, 5, 6	New ID codes assigned
6	The former clause 6 is now clause 8
7	New clause added

B.1 Differences between JEP166C and JEP166B (February 2016)

Clause	Description of change
5	Added “CXMT” to 0001 0011B.

B.2 Differences between JEP166C and JEP166B (February 2016)

Clause	Description of change
2, 3 and 5	“EMLSI” changed to “JSC” (LPDDR4)
3, 5	Added: “0001 1010B : Xi'an UniIC Semiconductors Co., Ltd” (LPDDR4 and LPDDR2/3)
5	Added: “1111 1001B : Ultra Memory” (LPDDR4)

B.3 Differences between JEP166B and JEP166A (December 2014)

Clause	Description of change
Annex A	modified with new information
2, 3, 5	new ID codes assigned

B.4 Differences between JEP166A and JEP166 (March 2014)

Clause	Description of change
1	In Scope: added reference to JESD209-4, and JESD229-2
5	Added
6	Added

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The purpose of this form is to provide the Technical Committees of JEDEC with input from the industry regarding usage of the subject standard. Individuals or companies are invited to submit comments to JEDEC. All comments will be collected and dispersed to the appropriate committee(s).

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Angie Stiegleman : angies@jedec.org

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1. I recommend changes to the following:

☐ Requirement, clause number ____________

☐ Test method number ____________ Clause number ____________

The referenced clause number has proven to be:

☐ Unclear ☐ Too Rigid ☐ In Error

☐ Other ____________

xxx

2. Recommendations for correction:

____

____

____

____

3. Other suggestions for document improvement:

____

____

____

____

Submitted by

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Company: ____________ E-mail: ____________

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