

### To Our Valued Customers,

This PCN affects our LPC1788 OEM board (product number: EA-OEM-009). This board is also sold as part of the LPC1788 Developer's Kit (product number: EA-OEM-509).

The NAND flash (U16, currently Macronix MX30LF1G08AA-TI) will be replaced by Macronix MX30LF1G18AC-TI.

The new NAND component is very compatible. There are however a few major differences that are important to be aware of:

NAND chip	Macronix MX30LF1G08AA-TI	Macronix MX30LF1G18AC-TI
Status	Old, now obsolete	New
Differences		
Sequential read	30 ns / byte	20 ns / byte
Page program time	250 us (typ) / 700 us (max)	300 us (typ) / 600 us (max)
Cache read busy time	5 us (max)	3.5 us (typ) / 25 us (max)
Block erase time	2 ms (typ) / 3 ms (max)	1 ms (typ) / 3.5 ms (max)
Endurance (100K cycles)	1-bit ECC per 512+16 bytes required	4-bit ECC per 512+16 bytes required
Read ID operation (command 0x90)	First byte: 0xC2 Second byte: 0xF1 Third byte: 0x80 Fourth byte: 0x1D No fifth byte	First byte: 0xC2 Second byte: 0xF1 Third byte: 0x80 Fourth byte: 0x95 Fifth byte: 0x02

Depending on how general and flexible the NAND flash driver you have implemented in your system, these timing and ID changes may, or may not, be handled automatically. The timing changes are typically handled automatically if the ready/busy signal is sampled instead of using fixed delays in the driver code.

There is a migration document from Macronix that can be accessed here:

[https://www.macronix.com/Lists/ApplicationNote/Attachments/2055/AN-0351V2-MGRT\\_MX30LF1G08AA\\_to\\_MX30LF1G18AC\\_REV2.pdf](https://www.macronix.com/Lists/ApplicationNote/Attachments/2055/AN-0351V2-MGRT_MX30LF1G08AA_to_MX30LF1G18AC_REV2.pdf)

The datasheet of the MX30LF1G18AC component can be found here:

<https://www.macronix.com/Lists/Datasheet/Attachments/6855/MX30LF1G18AC,%203V,%201Gb,%20v1.2.pdf>

The product page of the MX30LF1G18AC can be found here:

<https://www.macronix.com/en-us/products/NAND-Flash/SLC-NAND-Flash/Pages/spec.aspx?p=MX30LF1G18AC&m=SLC%20NAND&n=PM2133>

## Identification

The new NAND flash will be mounted on boards produced after January 2020. All boards from Embedded Artists have a marking: WO-XXXX-YYWW, where XXXX is the WO-number. YY is the year and WW is the week number when the board was produced.

The affected boards will have a WO-number above or including:  $XXXX \geq 0991$

Kind Regards,  
Embedded Artists AB  
January 17, 2020