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Kinetis K22F 120 MHz Family Mask Sets and Revision Numbers

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Contents

1 Introduction

Freescale introduces K2 - the next generation of Kinetis solutions, which bring a comprehensive set of software and development tools with next-generation devices offering optimized performance and power efficiency with low dynamic power consumption and flexible low-power modes.

In order to differentiate the K2 devices from legacy Kinetis devices, this engineering bulletin contains the device revision numbers (REVID), along with their corresponding mask set numbers and JTAG ID codes, for all existing revisions of Freescale's Kinetis K22F 120 MHz 32-bit MCUs. Device revisions can be referred to by either the revision number or the silicon mask set identifier. Both of these are provided in this document for easy reference.

2 JTAG device identification register

The Kinetis family of devices have two JTAG TAPs. One is the ARM® Cortex-M4® JTAG TAP and the second is the SoC JTAG TAP.

The ARM Cortex-M4 JTAG TAP, which is accessed first by default with IDCODE (1110), reads back as 0x4BA0_0477. For further details, please refer to the ARM website at www.arm.com.

The SOC JTAG TAP, accessible via SOC_IDCODE (0000), allows these elements to be determined through the TAP:

- Part revision number
- Design center
- Part identification number
- Manufacturer identity code

The part revision number (PRN), which is a copy of the SIM_SDID[REVID], may change for a mask revision. The part identification number (PIN) will vary depending on the Kinetis family identification SIM_SDID[FAMID]. Further details can be found in the JTAG chapter of each device-specific Kinetis reference manual.

3 Device revision numbers

For each device, Table 1 shows the:

- Mask set number
- Family
- Flash memory size - Program Flash(P-Flash) or FlexMemory(FlexNVM)
- Shortened part number
- Internal ID numbers

The SIM_SDID[REVID] and SIM_SDID[DIEID] can be used to determine the part that is being used at run-time. The PRN is part of the JTAG ID register used to identify the part during factory test.

Table 1. Kinetis K22F 120 MHz family device revision numbers

Mask Set	0N50M	0N51M	2N03G	3N03G	1N41K
Flash memory size	512 KByte (P-Flash)	256 KByte (P-Flash)	1 MByte (P-Flash), 512 KByte (P-Flash) and 128 KByte (FlexNVM)	1 MByte (P-Flash), 512 KByte (P-Flash) and 128 KByte (FlexNVM)	1 MByte (P-Flash), 512 KByte (P-Flash) and 128 KByte (FlexNVM)
Flash memory type	FTFA	FTFA	FTFE	FTFE	FTFE
Short part number (no package/speed information)	MK22FN512	MK22FN256	MK22FN1M0, MK22FX512	MK22FN1M0, MK22FX512	MK22FN1M0A, MK22FX512A
SIM_SDID[DIEID]	0x1D	0x15	0x06	0x06	0x06
SIM_SDID[REVID]	0x1	0x1	0x1	0x2	0x9
JTAG PIN	0x29*n*[1]	0x29*n*[1]	0x31*n*[1]	0x31*n*[1]	0x31*n*[1]
JTAG PRN	0x1	0x1	0x1	0x2	0x9

[1] *n* represents the SIM_SDID[PINID], which can vary based on package.

4 Documentation

While the MK22FN512 and MK22FN256 devices share a lot of common functionality with the MK22FN1M0 and MK22FX512, there are functional differences between the devices. Therefore, there are different documentation sets for the parts. Table 2 lists the document IDs for the reference manual, data sheet, and errata documents for both parts.

Table 2. Kinetis K22F 120 MHz family documentation

Short part number	MK22FN512 and MK22FN256	MK22FN1M0 and MK22FX512	MK22FN1M0A and MK22FX512A
Reference manual	K22P121M120SF7RM and K22P121M120SF8RM	K22P100M120SF5RM, K22P121M120SF5RM, K22P144M120SF5RM, K22P64M120SF5RM, K22P80M120SF5RM	K22P100M120SF5V2RM, K22P121M120SF5V2RM, K22P144M120SF5V2RM, K22P64M120SF5V2RM, K22P80M120SF5V2RM
Data sheet	K22P121M120SF7 and K22P121M120SF8	K22P100M120SF5, K22P121M120SF5, K22P144M120SF5, K22P64M120SF5, K22P80M120SF5	K22P100M120SF5V2, K22P121M120SF5V2, K22P144M120SF5V2, K22P64M120SF5V2, K22P80M120SF5V2
Errata	KINETIS_0N50M and KINETIS_0N51M	KINETIS_2N03G and KINETIS_3N03G	KINETIS_1N41K

5 Revision history

The table given in this section provides details regarding the current and previous versions of this document and the major changes incorporated in each of these versions.

Table 3. Revision history

Rev No.	Substantive change(s)
0	Initial release
1	Added Mask Set 1N41K: MK22FN1M0A, MK22FX512A devices

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