

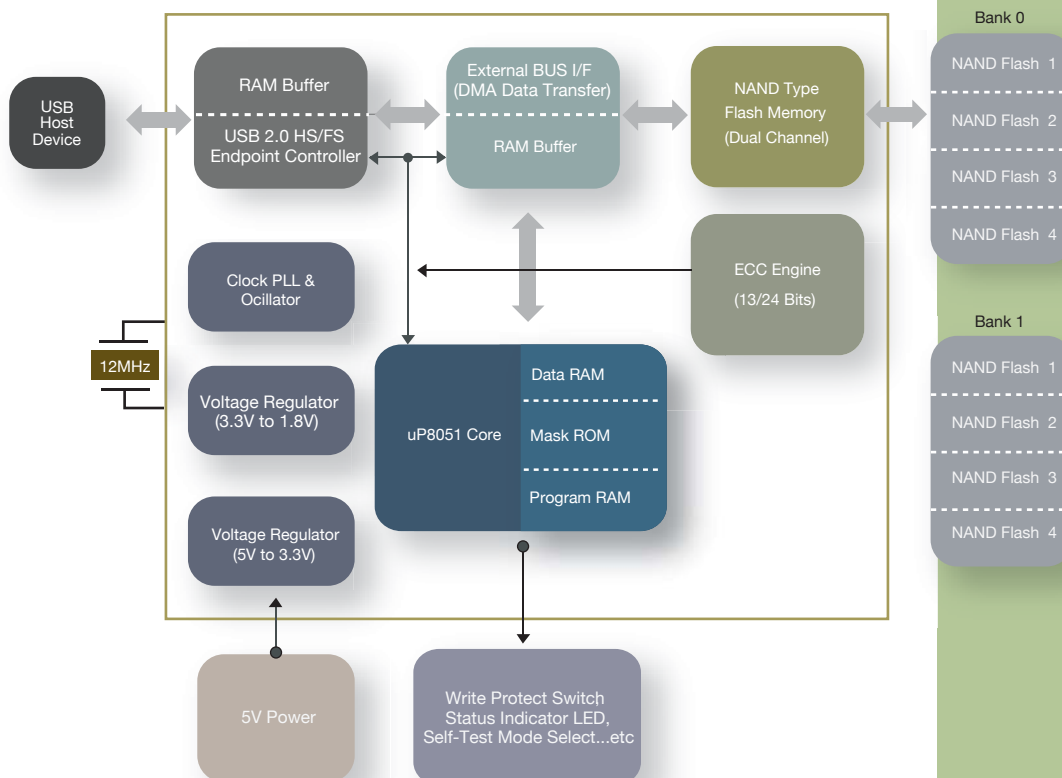
Mobile Storage **Dyna Family**

Silicon Motion's Dyna family provides USB flash drive and flash memory card reader card controllers with the highest performance and compatibility designed by our innovative technology.

Silicon Motion's high performance USB flash drive controllers enable OEMs to achieve high levels of compatibility with host devices and the flexibility to use the vast majority of SLC and MLC NAND flash memory components manufactured, whether from Samsung, Toshiba, Hynix, Micron, Intel, or Numonyx. For USB2.0 flash drive applications, our controllers support high memory capacity, write protection, PC boot-up, password protection, and secure partitioning. Our controllers deliver high data transfer rates through a highly reliable hardware ECC (error correction code) engine and maximize product endurance with the use of our proprietary advance wear-leveling algorithm.

Silicon Motion's flash memory card reader controllers provide maximum performance and compatibility through the use of innovative technologies. SM33x series card reader controllers maximize compatibility with popular flash memory card standards, such as CF@4.1 (UDMA), MicroSD™/SDHC, MMC Plus™, M2/MS Pro-HG, xD1.2 and Smart Media™.

SM3254 Block Diagram



USB Flash Drive Controllers

Parameter	SM3251	SM3253	SM3252	SM3254	SM3233	SM3235
USB 2.0 and 1.1 compatible	Yes	Yes	Yes	Yes	Yes	Yes
Flash interface	1-channel	1-channel	2-channel	2-channel	4-channel	4-channel
Max speed for NAND Flash	R: 24*MB/s; W: 22*MB/s	R: 24*MB/s; W: 22*MB/s	R: 35*MB/s; W: 28*MB/s	R: 35*MB/s; W: 28*MB/s	R: 35*MB/s; W: 30*MB/s (MLC, 4-channel, 2-CE)	R: 35*MB/s; W: 30*MB/s (MLC, 4-channel, 2-CE)
In-System-Programming support	Yes	Yes	Yes	Yes	Yes	Yes
Flash type support	2KB/4KB per page SLC/MLC	2KB/4KB/8KB per page SLC/MLC	2KB/4KB per page SLC/MLC	2KB/4KB/8KB per page SLC/MLC	2KB/4KB per page SLC/MLC	2KB/4KB per page SLC/MLC
NAND Flash data banks	4 banks	4 banks	8 banks	8 banks	32 banks	32 banks
ECC support	15bits/512bytes	24bits/1Kbytes	15bits/512bytes	24bits/1Kbytes	8bits/512bytes	15bits/512bytes
LED indicator support	Yes	Yes	Yes	Yes	Yes	Yes
"Write protect" support	Yes	Yes	Yes	Yes	Yes	Yes
Suspend and wake-up resume support	Yes	Yes	Yes	Yes	Yes	Yes
VID, PID, serial number & vender information update support	Yes	Yes	Yes	Yes	Yes	Yes
OS support	Win 7/Vista/XP/2000/ME/98SE; Mac OS 9.x and above; Linux Kernel 2.4.0 and above	Win 7/Vista/XP/2000/ME/98SE; Mac OS 9.x and above; Linux Kernel 2.4.0 and above	Win 7/Vista/XP/2000/ME/98SE; Mac OS 9.x and above; Linux Kernel 2.4.0 and above	Win 7/Vista/XP/2000/ME/98SE; Mac OS 9.x and above; Linux Kernel 2.4.0 and above	Win 7/Vista/XP/2000/ME/98SE; Mac OS 9.x and above; Linux Kernel 2.4.0 and above	Win 7/Vista/XP/2000/ME/98SE; Mac OS 9.x and above; Linux Kernel 2.4.0 and above
CMOS process	0.16µm	0.16µm	0.16µm	0.16µm	0.16µm	0.16µm
Package	48-pin LQFP/ 44-pin LGA / 40-pin QFN	48pin LQFP/ 44-pin LGA/ 40-pin QFN	48-pin LQFP/ 64-pin LQFP	48pin LQFP/ 64-pin LQFP	124-pin BGA	124-pin BGA
Power core operation	1.8V	1.8V	1.8V	1.8V	1.8V	1.8V
Power supply	5V	5V	5V	5V	5V	5V

* This figure may vary on different platform

Card Reader Controllers

Parameter	SM331	SM331L	SM333	SM334
USB 2.0 and 1.1 compatible	Yes	Yes	Yes	Yes
UDMA CF card support	--	--	R: 31*MB/s(206x) W: 26*MB/s(120x)	R: 31*MB/s(206x) W: 26*MB/s(120x)
SDHC card support	R: 21*MB/s(140x) W: 16*MB/s(120x)	R: 21*MB/s(140x) W: 16*MB/s(120x)	R: 21*MB/s(140x) W: 18*MB/s(106x)	R: 21*MB/s(140x) W: 18*MB/s(106x)
MS Pro card support	R: 17*MB/s(113x) W: 15*MB/s(100x)	--	R: 17*MB/s(113x) W: 15*MB/s(100x)	R: 34*MB/s(226x) W: 28*MB/s(186x)
xD/Smart Media card support	--	--	Yes	Yes
S3/S4 support	Yes	Yes	Yes	Yes
OS support	Win 7/Vista/XP/2000/ME/98SE Mac OS 9.x and above Linus Kernel 2.4.0 and above	Win 7/Vista/XP/2000/ME/98SE Mac OS 9.x and above Linus Kernel 2.4.0 and above	Win 7/Vista/XP/2000/ME/98SE Mac OS 9.x and above Linus Kernel 2.4.0 and above	Win 7/Vista/XP/2000/ME/98SE Mac OS 9.x and above Linus Kernel 2.4.0 and above
Support Serial EEPROM (VID, PID, ISP upgrade)	Yes	--	Yes	Yes
CMOS process	0.16 µm	0.16 µm	0.16 µm	0.16 µm
Package	48-pin QFP/ 28-pin QFN	28-pin QFN	100-pin LQFP	48/64-pin LQFP
Power supply	5V	5V	3.3V	5V
Programmable LUN	--	--	Yes	Yes
Build-in ROM Mode	--	--	Yes	Yes
Other features	Card monitor	--	Dual SD/MS interface	Dual SD/MS interface

* This figure may vary on different platform