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Letter of Volatility   **April 12, 2021**

This letter shows the memory types included in the stated Icron Technologies products.
Note: User data is not retained if device power is turned off.

Product	Unit	Storage Type	Size	Volatility	Usage	Access Restrictions
USB 3-2-1 Starling 3251C (all Variants)	LEX /REX	IRAM	384kbit	Volatile	Firmware code	Internal firmware access only
		DRAM	128kbit	Volatile	Firmware code	Internal firmware access only
		Cache	694kbit	Volatile	User Data	Internal firmware access only
		Flash	4Mbit	Non-volatile	Firmware code	Read-only except during firmware upgrade
		EEPROM	4kbit	Non-volatile	Configuration	Read-only except during firmware upgrade
Maverick DisplayPort 1.2a and USB 3-2-1 63104 and 63100 Core	LEX /REX	DRAM	128kbit	Volatile	Firmware code	Internal firmware access only
		Cache	694kbit	Volatile	User Data	Internal firmware access only
		Flash	4Mbit	Non-volatile	Firmware code	Read-only except during firmware upgrade
		EEPROM	4kbit	Non-volatile	Configuration	Read-only except during firmware upgrade
		Data Cache	8kbit	Volatile	Firmware Data	Internal firmware access only
		Flash	264Mbit	Non-volatile	Firmware Code + Configuration Data	Read-only except during firmware upgrade
USB 3-2-1 Raven 3104, 3104 Pro, 3124 and 3100 Core	LEX /REX	IRAM	896kbit	Volatile	Firmware Code	Internal firmware access only
		DRAM	256kbit	Volatile	Firmware Data	Internal firmware access only
		Cache	694Kbit	Volatile	User Data	Internal firmware access only
		Code Cache	8kbit	Volatile	Firmware Code	Internal firmware access only
		Data Cache	8kbit	Volatile	Firmware Data	Internal firmware access only
		Flash	264Mbit	Non-volatile	Firmware Code + Configuration Data	Read-only except during firmware upgrade
VU/EL 5353 DVI + USB 2.0 VU/EL 5363 HDMI + USB2.0	LEX	IRAM	384kbit	Volatile	Firmware code	Internal firmware access only
		DRAM	128kbit	Volatile	Firmware code	Internal firmware access only
		Cache	694kbit	Volatile	User Data	Internal firmware access only
		Flash	4Mbit	Non-volatile	Firmware code	Read-only except during firmware upgrade
		EEPROM	1Mbit	Non-volatile	Firmware code	Read-only except during firmware upgrade

Icron Technologies – Letter of Volatility

Product	Unit	Memory	Size	Volatility	Use	Access
	REX	EEPROM	4kbit	Non-volatile	Configuration	Read-only except during firmware upgrade
		IRAM	384kbit	Volatile	Firmware code	Internal firmware access only
		DRAM	128kbit	Volatile	Firmware code	Internal firmware access only
		Cache	694kbit	Volatile	User Data	Internal firmware access only
		Flash	4Mbit	Non-volatile	Firmware code	Read-only except during firmware upgrade
		EEPROM	1Mbit	Non-volatile	Firmware code	Read-only except during firmware upgrade
		EEPROM	2kbit	Non-volatile	Firmware code	Read-only except during firmware upgrade
		EEPROM	4kbit	Non-volatile	Configuration	Read-only except during firmware upgrade
		Flash	32kbit	Non-volatile	User Data	Read-only except during firmware upgrade
USB 2.0 Ranger/RG 2301 series USB 2.0 Ranger/RG 2304 series USB 2.0 Ranger/RG 2302 USB 2.0 Ranger/RG 2311 USB 2.0 Ranger/RG 2312 USB 2.0 Ranger/RG 2324 USB 2.0 Ranger/RG 2344 USB 2.0 RG2300A Core USB 2.0 RG2310A Core	LEX	IRAM	384kbit	Volatile	Firmware code	Internal firmware access only
		DRAM	128kbit	Volatile	Firmware code	Internal firmware access only
		Cache	694kbit	Volatile	User Data	Internal firmware access only
		Flash	4Mbit	Non-volatile	Firmware code	Read-only except during firmware upgrade
		EEPROM	4kbit	Non-volatile	Configuration	Read-only except during firmware upgrade
	REX	IRAM	384kbit	Volatile	Firmware code	Internal firmware access only
		DRAM	128kbit	Volatile	Firmware code	Internal firmware access only
		Cache	694kbit	Volatile	User Data	Internal firmware access only
		Flash	4 Mbit	Non-volatile	Firmware code	Read-only except during firmware upgrade
		EEPROM	4kbit	Non-volatile	Configuration	Read-only except during firmware upgrade
USB 2.0 Ranger/RG 2201 USB 2.0 Ranger/RG 2204 USB 2.0 Ranger/RG 2211 USB 2.0 Ranger/RG 2212 USB 2.0 Ranger/RG 2224	LEX	IRAM	8192kbit	Volatile	Firmware code	Internal access only
		DRAM	4096kbit	Volatile	Firmware data	Internal access only
		Cache	8-1024 bytes	Volatile	User Data	Internal access only
		Flash	1Mbit	Non-volatile	Firmware Code	Read-only except during firmware upgrade
	REX	IRAM	8192kbit	Volatile	Firmware code	Internal access only
		DRAM	4096kbit	Volatile	Firmware data	Internal access only
		Cache	8-1024 bytes	Volatile	User Data	Internal access only

USB 2.0 Ranger/RG 2244 **USB 2.0 RG2210 Core** **USB 2.0 RG2220 Core** **USB 2.0 RG2230 Core** **USB 2.0 RG2240 Core**		Flash	1Mbit	Non-volatile	Firmware Code	Read-only except during firmware upgrade
USB 2.0 Ranger/RG 2101 **USB 2.0 Ranger/RG 2104** **USB 2.0 RG2100 Core**	LEX	FPGA	486kbit	Volatile	User Data	Internal Access Only
		SPI Flash	4Mbit	Non-Volatile	Firmware Code	Read-only except during firmware upgrade
		CryptoAuthentication Chip	2kbit	Non-Volatile	Authentication	Internal Access Only
	REX	FPGA	486kbit	Volatile	User Data	Internal Access Only
		SPI Flash	4Mbit	Non-Volatile	Firmware Code	Read-only except during firmware upgrade
USB 3.0 Spectra/SP 3022	LEX	Flash	16kbit	Non-Volatile	Firmware Code	Internal Access Only
	REX	Flash	16kbit	Non-Volatile	Firmware Code	Internal Access Only
USB 3.0 Spectra/SP 3001-15	LEX	Flash	512Byte	Non-Volatile	Firmware Code	Read Only
	REX	Flash	512Byte	Non-Volatile	Firmware Code	Read Only
		EEPROM	2kbit	Non-Volatile	Firmware Code	Read Only

Icron Technologies – Letter of Volatility

Product	Unit	Storage Type	Size	Volatility	Usage	Access Restrictions
EL3500 EL4500	LEX	SPI Flash	8Mbit	Non-Volatile	Firmware Code + User Data	Read-only except during firmware upgrade; Internal Access Only
		IC NAND Flash	1GBit	Non-Volatile	Firmware Code + User Data	Read-only except during firmware upgrade; Internal Access Only
		SDRAM	1GB	Volatile	User Data	Internal Access Only
		SRAM	2Mbit	Volatile	User Data	Internal Access Only
		Flash	16kBit	Non-Volatile	Firmware Code	Internal Access Only
	REX	SPI Flash	8Mbit	Non-Volatile	Firmware Code + User Data	Read-only except during firmware upgrade; Internal Access Only
		IC NAND Flash	1GBit	Non-Volatile	Firmware Code + User Data	Read-only except during firmware upgrade; Internal Access Only
		SDRAM	1GB	Volatile	User Data	Internal Access Only
		SRAM	2Mbit	Volatile	User Data	Internal Access Only
EL5100 EL5200	LEX	IRAM	8192kbit	Volatile	Firmware code	Internal access only
		DRAM	4096kbit	Volatile	Firmware data	Internal access only
		Cache	8-1024 bytes	Volatile	User Data	Internal access only
		Flash	1Mbit	Non-Volatile	Firmware Code	Read-only except during firmware upgrade
		EEPROM	1Mbit	Non-Volatile	Firmware Code	Read-only except during firmware upgrade
	REX	IRAM	8192kbit	Volatile	Firmware code	Internal access only
		DRAM	4096kbit	Volatile	Firmware data	Internal access only
		Cache	8-1024 bytes	Volatile	User Data	Internal access only
		Flash	1Mbit	Non-Volatile	Firmware Code	Read-only except during firmware upgrade
		EEPROM	1Mbit	Non-Volatile	Firmware Code	Read-only except during firmware upgrade
		EEPROM	2kbit	Non-Volatile	Firmware Code	Read-only except during firmware upgrade
		Flash	32kbit	Non-Volatile	User Data	Internal Access Only
USB 1.1 Rover 1650/2650	LEX	CPLD	2kbit	Non-Volatile	Firmware Code	Internal Access Only
	REX	CPLD	2kbit	Non-Volatile	Firmware Code	Internal Access Only
USB 1.1 Rover 1850/2850	LEX	CPLD	8kbit	Non-Volatile	Firmware Code	Internal Access Only
	REX	CPLD	8kbit	Non-Volatile	Firmware Code	Internal Access Only