Statement of Volatility – Latitude 7220 Rugged Extreme Tablet

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

The Dell Latitude 7220 Rugged Extreme Tablet contains both volatile and non-volatile (NV) components. Volatile components lose their data immediately upon removal of power from the component. Non-volatile (NV) components continue to retain their data even after the power has been removed from the component. The following volatile and NV components are present on the Dell Latitude 7220 Rugged Extreme Tablet motherboard:

Description	Reference Designator	Volatility Description	User Accessible for external data	Remedial Action (action necessary to lose data)
Embedded controller	U3001	Boot ROM: Non-programmable boot code 320K of SRAM: EC code loaded from external SPI Flash 128 Bytes of battery-powered SRAM: Asset tag, BIOS passwords	No	N/A
Panel EEDID EEPROM	Part of panel assembly	Non Volatile memory, 128 bytes.	No	N/A
System BIOS SPI Flash	U2800	Non Volatile memory, 32 MB, System BIOS and Video BIOS for basic boot operation, PSA (on board diags), PXE diags., EC code, and PD firmware	No	N/A
System Memory – LPDDR3 memory	U1600, U1601, U1700, U1701	Volatile memory in OFF state Components are 16 GB or 32 GB capacity. Total support 8 GB or 16 GB of system memory	Yes	Power off system
RTC CMOS – BBRAM (battery backed RTC RAM)	UCPU1	Non Volatile memory, 256 Bytes. Stores CMOS information.	No	N/A.
TPM – Trusted Platform Module	U4100A	Discrete TPM 1.2 and TPM 2.0 support. 24K bytes for user defined data	No	N/A
Hard drive	JSSD1	Non Volatile SSD, various sizes in GB.	Yes	Low level format.

CAUTION: All other components on the motherboard will lose data once power is removed from the system. Primary power loss (unplug the power cord and removing the battery) destroys all user data on the memory (DDR4, SKL (2133 MHz), KBL (2400 MHz)). Secondary power loss (removing the on-board coin-cell battery) destroys system data on the system configuration and time-of-day information.

May 2021

In addition, to clarify memory volatility and data retention in situations where the system is put in different ACPI power states the following is provided (those ACPI power states are S0, S1, S3, S4 and S5):

S0 state is the working state where the dynamic RAM is maintained and is read/write by the processor.

S1 state is a low wake-up latency sleeping state. In this state, no system context is lost (CPU or chip set) and hardware maintains all system contexts.

S3 is called “suspend to RAM” state or stand-by mode. In this state the dynamic RAM is maintained. Dell systems will be able to go to S3 if the OS and the peripherals used in the system supports S3 state. Linux and Windows7 support S3 state.

S4 is called “suspend to disk” state or “hibernate” mode. There is no power. In this state, the dynamic RAM is not maintained. If the system has been commanded to enter S4, the OS will write the system context to a non-volatile storage file and leave appropriate context markers. When the system is coming back to the working state, a restore file from the non-volatile storage can occur. The restore file has to be valid. Dell systems will be able to go to S4 if the OS and the peripherals support S4 state. Windows 7 support S4 state.

S5 is the “soft” off state. There is no power. The OS does not save any context to wake up the system. No data will remain in any component on the system board, i.e. cache or memory. The system will require a complete boot when awakened. Since S5 is the shut off state, coming out of S5 requires power on which clears all registers.

MS is “Modern Standby”, a low-power version of S0 with screen off and various other components being in a low power state. Dynamic RAM is maintained, and MS supports a rapid return to full S0 state.

The following table shows all the states supported by Dell Latitude 7220 Rugged Extreme Tablet:

Model Number	S0	S1	S3	S4	S5	MS
Dell Latitude 7220 Rugged Extreme Tablet	X			X	X	X

May 2021