



Statement of Volatility – Dell Precision 3591

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

The Dell Precision 3591 contains both volatile and non-volatile (NV) components. Volatile components lose their data immediately after power is removed from the component. Non-volatile (NV) components continue to retain their data even after power is removed from the component. The following NV components are present on the Precision 3591 system board.

Table 1. List of Non-Volatile Components on System Board

Description	Reference Designator	Volatility Description	User Accessible for external data	Remedial Action (Action necessary to prevent loss of data)
SSD drive(s)	M.2 – 2280/2230	Non-Volatile memory, various sizes in GB. SSD (solid state flash drive).	Yes	Low level format
Embedded Flash in embedded controller MEC5200	U2401	384KB Code/Data SRAM	No	NA
System BIOS/EC	vPro: U2501-64MB U7901(up-sell GPU config)	Non-Volatile memory, System BIOS, embedded controller and Video BIOS for basic boot operation, PSA (on board diags), PXE diags.	No	NA
Thunderbolt EEPROM	U7103 (1MB)	Non-Volatile memory	No	NA
System memory SPD EEPROM	On System memory SODIMM(s) DM1, DM2 present	Non-Volatile memory 1024 bytes for DDR5. Stores memory manufacturer data and timing information for correct operation of system memory.	No	N/A
RTC CMOS	CPU1(PCH)	Non-Volatile memory 256 bytes Stores CMOS information	No	Remove the onboard coin cell battery
Security Controller Serial Flash Memory	U401 (up-sell USH daughter board)	Non-Volatile memory, 128 Mbit (16Mbyte)	No	N/A
TPM Controller	U9101	Non-Volatile memory, 43K bits	No	N/A
LCD Panel EEDID EEPROM	Part of panel assembly	Non-Volatile memory, Stores panel manufacturing information, display configuration data	No	NA
Touch screen Embedded Flash	N/A	Non-Volatile memory	No	N/A

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Description	Reference Designator	Volatility Description	User Accessible for external data	Remedial Action (Action necessary to prevent loss of data)
Digital IMVP9.2 controller	PU4601	Non-Volatile memory, 13344 bits (full config size) Digital IMVP9.2 controller (OTP space supports up to 4 full configs)	No	N/A
Camera ISP Flash ROM	On Camera module	Non-Volatile memory, 4M-bit	No	N/A

△ CAUTION: All other components on the system board lose data if power is removed from the system. Primary power loss (unplugging the power cord and removing the battery) destroys all user data on the memory. Secondary power loss (removing the on-board coin-cell battery) destroys system data on the system configuration and time-of-day information.

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, Modern standby, S4 and S5):

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

Modern standby is a standby mode state that is different from S3 mode. In this state, the dynamic RAM is maintained.

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.

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.

The following table shows all the states supported by Dell Precision™ 3591:

Model Number	S0	Modern standby	S4	S5
Dell Precision™ 3591	V	V	V	V

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