Statement of Volatility – Dell Precision Workstation R7910

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

The Dell Precision Workstation R7910 contains both volatile and non-volatile (NV) components. Volatile components lose their data immediately upon removal of power from the component. Non-volatile components continue to retain their data even after the power has been removed from the component:

List below contains volatile and non-volatile memory ICs used in Dell Precision Workstation R7910.

Description	Reference Designator	Volatility Description	User Accessible for external data	Remedial Action (action necessary to lose data)
Embedded Flash memory in embedded controller	UO1	256 K bytes non-volatile memory space. 8.25 K bytes volatile memory space	No	N/A
System BIOS	U_SPI_BIOS1	Non Volatile memory, one flash IC (16mb), System BIOS and Video BIOS for basic boot operation, PSA (on-board diags), PXE diags.	No	N/A
TPM	J_TPM_Module	Encrypted user keys generated by the TPM device for use by the security software are stored in this NVM.	No	N/A
System Memory – DDR4 DIMM memory	Connectors: DIMM1, DIMM2	Volatile memory in OFF state (see state definitions later in text).	Yes	Power off system.
iDRAC Controller	U_iDRAC_SPI	Volatile one flash IC (4mb) contains iDRAC and Lifecycle Controller management settings.	No	N/A
PCH CMOS	U_PCHA	Volatile battery back-backed CMOS memory 256 bytes. Stores CMOS information.	No	Removing the on board coin-cell battery.

Description	Reference Designator	Volatility Description	User Accessible for external data	Remedial Action (action necessary to lose data)
CPLD	U_CPLDA	Non-volatile memory that contains power up se-quence configuration data required by BIOS and Hardware to power up and boot the system	No	N/A
Video memory – type	UMA architecture-uses system DDR3.	Volatile memory in off state. UMA uses main system memory size allocated out of main memory.	No	Enter S3-S5 state below.
Hard drive	User replaceable	Non-volatile magnetic media, various sizes in GB.	Yes	Low-level format.
CD-ROM/RW/ DVD/ DVD+RW/ Diskette Drives/Blu Ray	User replaceable	Non-volatile optical/magnetic media.	No	Low-level format/erase.
SAS / SATA Hard Drives and optional storage controller cards	User replaceable	Non-volatile data	No	Low-level format/erase.

All other components on the motherboard will lose data once power is removed from the system. Primary power loss (Unplug the power cord and remove the battery) will destroy all user data on the memory (DDR3, 1333/1600MHz). Secondary power loss (removing the on board coin-cell battery) will destroy 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, 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 (CFPU or chip set) and hardware maintains all system contexts. The R7910 does not support S1 state at this time.

- S3 is called "suspend to RAM" state or stand-by mode. In this state the dynamic RAM is maintained. The R7910 system does not support S3 state at this time.

- 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.