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Subject: Statement of Volatility – Dell Precision 7920 Rack

The Dell Precision 7920 Rack contains both volatile and non-volatile 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.

The following memory components are present in the Dell Precision 7920 Rack

BIOS Configuration:
The BIOS information is stored in one flash IC (16mb). This device is identified as U_SPI_BIOS1 on the motherboard. This device contains boot code and data necessary to take the hardware from a power off or low-power-state to a state where it is ready to be managed by the operating system. No information pertaining to user applications or data is stored in this device. They do store System password, Setup Password and TPM security settings if those features are enabled by the user.

iDRAC Controller:
The iDRAC information is stored in one flash IC (4mb). This device is identified as U_iDRAC_SPI on the motherboard. This device contains iDRAC and Lifecycle Controller management settings. No information pertaining to user applications or data is stored in this device. It does store Front Panel security and Remote enablement settings if those features are enabled by the user.

PCH CMOS:
The PCH identified as U_PCHA on the motherboard contains a 256 byte battery-backed memory. This memory contains configuration data required by the BIOS to boot the system. It does not store passwords or other user level data. The contents of this memory are lost after several minutes, if the coin-cell battery is removed from the motherboard.

CPLD:
The CPLD identified as U_CPLDA on the motherboard contains a non-volatile memory that contains power up sequence configuration data required by BIOS and Hardware to power up and boot the system. It does not store password or other user level data.

TPM 1.2/2.0 (Trusted Platform Module) Security Device:
This device is a module that plugs in to the motherboard at connector J_TPM_Module. It stores the TPM configuration data used by the hardware and the security software offered by Dell. Encrypted user keys generated by the TPM device for use by the security software are stored in this non-volatile memory.

All other components on the motherboard will lose data once power is removed from the system. Primary power loss (unplugging the power cord) will destroy all user data in the main system memory (DDR4 DIMMs) and the on-board graphics and storage interface devices. However, the user should note that under some circumstances (for example, cold temperatures) the DDR4 DIMMs may retain their data for a significant amount of time – up to several minutes. That may potentially allow the DIMMs to be removed from one system and installed in another without loss of the data contained in them.

Secondary power loss (removing the on-board coin-cell battery) will destroy system data in the PCH, including time of day information.

If the system is unpowered, but still plugged in to AC power, the iDRAC will remain powered to enable remote user console access.

There are other volatile and non-volatile components on the devices or peripherals attached to the motherboard as follows:

    Video card: Contains volatile and non-volatile memory components. The volatile frame buffer memory will lose data once power is removed. The non-volatile memory (video BIOS) stores only video card setup information. The video BIOS is not accessible by the user.

    DVD-R/W, Blu Ray DVD-R/W are input/output devices (data can be written to them) whereas the DVD-ROM is an input device only (read only). Ass data is processed through cache (volatile) memory. Any associated internal NVRAM is factory programmed. It does not contain any user data and is not accessible by the user.

    SAS and/or SATA Hard Drives: These store non-volatile data. All data is processed through cache (volatile) memory. Any associate internal NVRAM is factory programmed. It does not contain any user data and is not accessible by the user.

    Monitor: May retain "burned in" images after long periods of displaying static data. If any burn-in images exist, they can readily be seen using simple procedures. NV memory components are used for storing monitor calibration/configuration data and are not accessible by the user.

To help clarify memory volatility and data retention in situations where the system is put in different ACPI power states, the following information is provided regarding ACPI power states S0, S1, S3, S4, 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 Precision 7920 Rack 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 Precision 7920 Rack 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 system will be able to go to S4 if the OS and the peripherals support S4 sate.

    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.

Please direct any questions to the undersigned.

Very truly yours,

Dell Marketing L.P.