



Statement of Volatility – Dell Latitude™ E6420, Dell Latitude™ E6420 ATG

The Dell Latitude™ E6420 and Dell Latitude™ E6420 ATG 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. The following volatile and NV components are present on the Dell Latitude™ E6420 motherboard:

Description	Reference Designator	Volatility Description	User Accessible for external data	Remedial Action (action necessary to lose data)
Embedded Flash memory in embedded controller MEC5055	U51	256K byte and 2K byte of embedded Flash memory for embedded controller BIOS code, asset tag and BIOS passwords	No	N/A
Panel EDID EEPROM	Part of LCD panel assembly	Non Volatile memory 64K bytes. Stores panel manufacturing information, display configuration data	No	N/A
System BIOS	U52, U53	Non Volatile memory, 64Mbit (8MB), 16Mbit (2MB) System BIOS and Video BIOS for basic boot operation, PSA (on board diags), PXE diags.	No	N/A
System Memory – DDR3 SODIMM memory	Connectors JDIMMA and JDIMMB	Volatile memory in OFF state (see state definitions later in text) One or both modules will be populated. System memory size will depend on SoDIMM modules and will be between 1GB to 8GB.	Yes, No	Power off system N/A
System memory SPD EEPROM	On memory SoDIMM(s) – one or two present	Non-Volatile EEPROM memory. 2Kbit (256 bytes) One Device present on each SoDIMM. Stores memory manufacturer data and timing information for correct operation of system memory.	No	N/A
RTC CMOS	UH4	Non 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)
Video memory – type – see next column	UMA architecture-uses system DDR3. Discrete graphics systems use gDDR3 (UV3-UV6) for frame buffer	Volatile memory in off state. 512MB gDDR3 for Discrete Graphics systems. UMA uses main system memory size allocated out of main memory.	No	Enter S3-S5 state below.
Security Controller Serial Flash Memory	U36	Non Volatile memory, 16 Mbit (2Mbyte)	No	NA
Security Controller	U33	128K byte ROM 128K bit one time programmable	No	NA
Hard drive	User replaceable	Non Volatile magnetic media, various sizes in GB	Yes	Low level format
<u>CD-ROM/RW/</u> <u>DVD/</u> <u>DVD+RW/</u> <u>Diskette</u> <u>Drives</u>	User replaceable	Non Volatile optical/magnetic media	Yes	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, 1333MHz). 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 (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. Ubuntu, Win XP, Vista and Win 7 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. Win XP, Vista and Win 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.

The following table shows all the states supported by Dell Latitude™ E6420 and Dell Latitude™ E6420 ATG:

Model Number	S0	S1	S3	S4	S5
Dell Latitude™ E6420	X		X	X	X
Dell Latitude™ E6420 ATG	X		X	X	X