Statement of Volatility – Dell DSS 1510

Dell DSS 1510 contain 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. R6Configuration option information (pertinent to options such as microprocessors, remote access controllers, and storage controllers) is available by component separately. The following NV components are present in the DSS 1510 servers.

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size
Planer				
PCH Internal CMOS RAM	Non-Volatile	1	U_PCH	256 Bytes
BIOS Password	Non-Volatile	1	U_PCH	16 bytes
BIOS SPI Flash	Non-Volatile	1	U_SPI_BIOS	8 MB
iDRAC SPI Flash	Non-Volatile	1	U_IDRAC_SPI	4 MB
BMC EMMC	Non-Volatile	1	U_EMMC	4 GB
System CPLD RAM	Volatile	1	U_CPLD	1 KB
System Memory	Volatile	Up to 8 per CPU	CPU<2:1>_CH<3:0>_D<2:0>	Up to 32GB per DIMM
Internal USB Key	Non-Volatile	Up to 1	N/A	Varies (not factory installed)
Trusted Platform Module (TPM, TPM 2.0 only)	Non-Volatile	1	U_TPM	128 Bytes
CPU	Volatile	1 or 2	CPU1 / CPU2	Various
iDRAC DDR	Volatile	1	U_IDRAC_MEM	256MByte
iDRAC	Volatile	1	U_IDRAC	64 kbyte + registers
Power Supplies				
PSU FW	Non-Volatile	1 per PSU	Varies by part number	Up to 2MB. Varies by part number
12x3.5" Backplane				
NVSRAM memory	Non-Volatile	1	U_NVSRAM	1 Mb

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size
Flash memory	Non-Volatile	1	U_FLASH	32 Mb
BP FRU image	Non-Volatile	1	U_BP_FRU	256 Bytes
Expander FRU image	Non-Volatile	1	U_EXP_FRU	512 Bytes
1U 4x3.5"and 1U 8x2.5"Backplanes				
SEP internal flash	Non-Volatile	1	U_SEP1	Flash:32KB+4KB EEPROM: 2KB
H730, H830, H730p PERCs				
NVSRAM	Non-volatile	1	U1033	128KB
FRU	Non-volatile	1	U1019	256B
1-Wire EEPROM	Non-volatile	1	U1004	128B
SPD	Non-volatile	1	U22	256B
SBR	Non-volatile	1	U1020	8KB
Flash	Non-volatile	1	U1031	16MB
ONFI Backup Flash	Non-volatile	1	U1059	4GB
SDRAM	Volatile	5	U1043-U1047	512MB/1GB
H330, H330M PERCs				
NVSRAM	Non-volatile	1	U1033	128KB
FRU	Non-volatile	1	U1019	256B
1-Wire EEPROM	Non-volatile	1	U1004	128B
SBR	Non-volatile	1	U1020	8KB
Flash	Non-volatile	1	U3	16MB
2U in Left Ear, 1U in x4 and x8 CP				
SPI Flash	Non-Volatile	1	U_SPI_EEPROM	32Mb

Item	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?
Planer		
PCH Internal CMOS RAM	Battery-backed CMOS RAM	No
BIOS Password	Battery-backed CMOS RAM	Yes
BIOS SPI Flash	SPI Flash	No
iDRAC SPI Flash	SPI Flash	No
BMC EMMC	eMMC NAND Flash	No
System CPLD RAM	RAM	No
System Memory	DRAM	Yes
Internal USB Key	Flash	Yes
Trusted Platform Module (TPM, TPM 2.0 only)	EEPROM	Yes
CPU	Cache + registers	Yes
iDRAC DDR	DRAM	No
iDRAC	Cache + registers	No
Power Supplies		
PSU FW	Embedded microcontroller flash	No
12x3.5" Backplane		
NVSRAM memory	Flash	No
Flash memory	Flash	No
BP FRU image	I2C EEPROM	No
Expander FRU image	I2C EEPROM	No
1U 4x3.5" and 1U 8x2.5"Backplanes		
SEP internal flash	Integrated Flash+EEPROM	No
H730, H830, H730p PERCs		
NVSRAM	NVSRAM	No

FRU	FRU	No
1-Wire EEPROM	1-Wire EEPROM	No
SPD	SPD	No
SBR	SBR	No
Flash	Flash	No
ONFI Backup Flash	ONFI Backup Flash	No
SDRAM	SDRAM	No
H330, H330M PERCs		
NVSRAM	NVSRAM	No
FRU	FRU	No
1-Wire EEPROM	1-Wire EEPROM	No
SBR	SBR	No
Flash	Flash	No
2U in Left Ear, 1U in x4 and x8 CP		
SPI Flash	SPI Flash	No

Item	Purpose? (e.g. boot code)	How is data input to this memory?
Planer		
PCH Internal CMOS RAM	Real-time clock and BIOS configuration settings	BIOS
BIOS Password	Password to change BIOS settings	Keyboard
BIOS SPI Flash	Boot code, system configuration information, UEFI environment, Flash descriptor, ME	SPI interface via iDRAC
iDRAC SPI Flash	iDRACUboot (bootloader), server management persistent store (i.e. IDRAC MAC Address, iDRAC boot variables), lifecycle log cache, virtual planar FRU and EPPID, rac log, system event log, JobStore, iDRAC Secure boot code,	SPI interface via iDRAC
BMC EMMC	Operational iDRAC FW, Lifecycle Controller (LC) USC partition, LC service diags, LC OS drivers, USC firmware	NAND Flash interface via iDRAC
System CPLD RAM	Not utilized	Not utilized
System Memory	System OS RAM	System OS
Internal USB Key	General purpose USB key drive	USB interface via PCH. Accessed via system OS
Trusted Platform Module (TPM, TPM 2.0 only)	Storage of encryption keys	Using TPM Enabled operating systems
CPU	Processor cache + registers	Various
iDRAC DDR	iDRAC local memory	iDRAC Firmware
iDRAC	Processor cache + registers	iDRAC Firmware
Power Supplies		
PSU FW	Power Supply operation, power management data and fault behaviors	Different vendors have different utilities and tools to load the data to memory. It can also be loaded by Dell Update Package from LC or OS (Windows and Linux)
12x3.5" Backplane		
NVSRAM memory	FW config data	Common Flash memory Interface (CFI)

Item	Purpose? (e.g. boot code)	How is data input to this memory?
Flash memory	Firmware	Common Flash memory Interface (CFI)
BP FRU image	FRU	I2C interface via iDRAC
Expander FRU image	FRU	I2C interface via iDRAC
1U 4x3.5"and 1U 8x2.5"Backplanes		
SEP internal flash	Integrated Flash+EEPROM	I2C interface via iDRAC
H730, H830, H730p PERCs		
NVSRAM	Configuration data	ROC writes configuration data to NVSRAM
FRU	Card manufacturing information	Programmed at ICT during production.
1-Wire EEPROM	Holds default controller properties/settings	ROC writes data to this memory
SPD	Memory configuration data	Pre-programmed before assembly
SBR	Bootloader	Pre-programmed before assembly
Flash	Card firmware	Pre-programmed before assembly. Can be updated using Dell/LSI tools
ONFI Backup Flash	Holds cache data during power loss	FPGA backs up DDR data to this device in case of a power failure
SDRAM	Cache for HDD I/O	ROC writes to this memory - using it as cache for data IO to HDDs
H330, H330M PERCs		
NVSRAM	Configuration data	ROC writes configuration data to NVSRAM
FRU	Card manufacturing information	Programmed at ICT during production
1-Wire EEPROM	Holds default controller properties/settings	ROC writes data to this memory
SBR	Bootloader	Pre-programmed before assembly
Flash	Card firmware	Pre-programmed before assembly. Can be updated using Dell/LSI tools
2U in Left Ear, 1U in x4 and x8 CP		
SPI Flash	For field maintenance. Have License, Service Tag and system information.	SPI interface via iDRAC

Item	How is this memory write protected?	How is the memory cleared?
Planer		
PCH Internal CMOS RAM	N/A – BIOS only control	1) Set NVRAM_CLR jumper to clear BIOS configuration settings at boot and reboot system; 2) AC power off system, remove coin cell battery for 30 seconds, replace battery and power back on; 3) restore default configuration in F2 system setup menu.
BIOS Password	N/A	Place shunt on J_PSWD_NVRAM jumper pins 2 and 4.
BIOS SPI Flash	Software write protected	Not possible with any utilities or applications and system is not functional if corrupted/removed.
iDRAC SPI Flash	Embedded iDRAC subsystem firmware actively controls sub area based write protection as needed.	Not completely user clearable; however, user data, lifecycle log and archive, SEL, fw image repository can be cleared via Delete Configuration and Retire System, accessible in Lifecycle Controller interface
BMC EMMC	Embedded FW write protected	Not completely user clearable; however, user data, lifecycle log and archive, SEL, fw image repository can be cleared via Delete Configuration and Retire System, accessible in Lifecycle Controller interface
System CPLD RAM	Not accessible	Not accessible
System Memory	OS Control	Reboot or power down system
Internal USB Key	No write protect	Can be cleared in system OS
Trusted Platform Module (TPM, TPM 2.0 only)	SW write protected	F2 Setup option
CPU	Various	Power off
iDRAC DDR	NA	Power off
iDRAC	NA	Power off
Power Supplies		
PSU FW	Protected by the embedded microcontroller. Special keys are used by special vendor provided utilities to unlock the ROM with various CRC checks during load.	Not clearable
12x3.5" Backplane		

Item	How is this memory write protected?	How is the memory cleared?
NVSRAM memory	Hardware strapping	Not user clearable
Flash memory	Hardware strapping	Not user clearable
BP FRU image	Hardware strapping	Not user clearable
Expander FRU image	Hardware strapping	Not user clearable
1U 4x3.5" and 1U 8x2.5"Backplanes		
SEP internal flash	Program write protect bit	Not user clearable
H730, H830, H730p PERCs		
NVSRAM	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
FRU	Not WP	Cannot be cleared with existing tools available to the customer
1-Wire EEPROM	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
SPD	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
SBR	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
Flash	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
ONFI Backup Flash	Not WP. Not visible to Host Processor	Flash can be cleared by powering up the card and allowing the controller to flush the contents to VDs. If the VDs are no longer available, cache can be cleared by going into controller bios and selecting Discard Preserved Cache.
SDRAM	Not WP. Not visible to Host Processor	Cache can be cleared by powering off the card
H330, H330M PERCs		
NVSRAM	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
FRU	Not WP	Cannot be cleared with existing tools available to the customer
1-Wire EEPROM	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer

SBR	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
Flash	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
PCIe SSD Extension Card		
SPI Flash	Hardware strapping	Not user clearable
MCU	N/A	Not user clearable

NOTE: For any information that you may need, direct your questions to your Dell Marketing contact.