



Statement of Volatility – Dell PowerEdge R430

Dell PowerEdge R430 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. Components chosen as user-definable configuration options (those not soldered to the motherboard) are not included in the Statement of Volatility. Configuration 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 PowerEdge R430 server.

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size
Planer				
PCH Internal CMOS RAM	Non-Volatile	1	U_PCH1	256 Bytes
BIOS Password	Non-Volatile	1	U_PCH1	16 bytes
BIOS SPI Flash	Non-Volatile	1	U_SPI_BIOS1	16 MB
iDRAC SPI Flash	Non-Volatile	1	U_IDRAC_SPI-1	4 MB
BMC EMMC	Non-Volatile	1	U_EMMC1	4 GB
System CPLD RAM	Volatile	1	U_CPLD1	1 KB
System Memory	Volatile	Up to 8 for CPU1 Up to 4 for CPU2	CPU1: DIMM1~DIMM8, CPU2: DIMM9~DIMM12	Up to 32GB per DIMM (RDIMM)
Internal USB Key	Non-Volatile	Up to 1	N/A	Varies (not factory installed)
CPU	Volatile	1 or 2	CPU1 / CPU2	Various
iDRAC DDR	Volatile	1	U_IDRAC_MEM1	256MByte
iDRAC	Volatile	1	U_IDRAC1	64 kbyte + registers
LOM EEPROM	Non-Volatile	2	U_LOM1_ROM U_LOM2_ROM	8Mb
Power Supplies				
PSU FW	Non-Volatile	1 per PSU	Varies by part number	Up to 2MB. Varies by part number

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size
1U 4x3.5", 1U 10x2.5" and 1U 8x2.5" Backplanes				
SEP internal flash	Non-Volatile	1	U_SEP1	Flash:32KB+4KB EEPROM: 2KB
SAS12G HBA Card				
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
H830 PERC				
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
H730, Mini PERC				
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	U1049	16MB
ONFI Backup Flash	Non-volatile	1	U1059	4GB

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size
H330, Mini PERC				
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
IDSDM				
SPI Flash	Non-Volatile	1	U2	8Mb
MCU	Non-Volatile	1	U6	512KB
TPM				
Trusted Platform Module (TPM)	Non-Volatile	1	U_TPM	128 Bytes

Item	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)
Planer			
PCH Internal CMOS RAM	Battery-backed CMOS RAM	No	Real-time clock and BIOS configuration settings
BIOS Password	Battery-backed CMOS RAM	Yes	Password to change BIOS settings
BIOS SPI Flash	SPI Flash	No	Boot code, system configuration information, UEFI environment, Flash Disceptor, ME
iDRAC SPI Flash	SPI Flash	No	iDRAC Uboot (bootloader), server managent persistent store (i.e. IDRAC MAC Address, iDRAC boot variables),

Item	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)
			lifecycle log cache, virtual planar FRU and EPPID, rac log, System Event Log,
BMC EMMC	eMMC NAND Flash	No	Operational iDRAC FW, Lifecycle Controller (LC) USC partition, LC service diags, LC OS drivers, USC firmware
System CPLD RAM	RAM	No	Not utilized
System Memory	DRAM	Yes	System OS RAM
Internal USB Key	Flash	Yes	General purpose USB key drive
CPU	Cache + registers	Yes	Processor cache + registers
iDRAC DDR	DRAM	No	iDRAC local memory
iDRAC	Cache + registers	No	Processor cache + registers
LOM EEPROM	EEPROM	No	Onboard LOM FW
Power Supplies			
PSU FW	Embedded microcontroller flash	No	Power Supply operation, power management data and fault behaviors
1U 4x3.5", 1U 10x2.5" and 1U 8x2.5" Backplanes			
SEP internal flash	Integrated Flash+EEPROM	No	Firmware + FRU
SAS12G HBA Card			
NVSRAM	NVSRAM	No	Configuration data
FRU	FRU	No	Card manufacturing information

Item	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)
1-Wire EEPROM	1-Wire EEPROM	No	Holds default controller properties/settings
SBR	SBR	No	Bootloader
Flash	Flash	No	Card firmware
H730 Mini, H830 PERCs			
NVSRAM	NVSRAM	No	Configuration data
FRU	FRU	No	Card manufacturing information
1-Wire EEPROM	1-Wire EEPROM	No	Holds default controller properties/settings
SPD	SPD	No	Memory configuration data
SBR	SBR	No	Bootloader
Flash	Flash	No	Card firmware
ONFI Backup Flash	ONFI Backup Flash	No	Holds cache data during power loss
SDRAM	SDRAM	No	Cache for HDD I/O
H330, Mini PERC			
NVSRAM	NVSRAM	No	Configuration data
FRU	FRU	No	Card manufacturing information
1-Wire EEPROM	1-Wire EEPROM	No	Holds default controller properties/settings
SBR	SBR	No	Bootloader
Flash	Flash	No	Card firmware

Item	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)
IDSDM			
SPI Flash	SPI Flash	No	Exclusively used by the controller
MCU	Embedded Flash	Yes	Firmware
TPM			
Trusted Platform Module (TPM)	EEPROM	Yes	Storage of encryption keys

Item	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
Planar			
PCH Internal CMOS RAM	BIOS	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	Keyboard	N/A	Place shunt on J_PSWD_NVRAM jumper pins 2 and 4.
BIOS SPI Flash	SPI interface via iDRAC	Software write protected	Not possible with any utilities or applications and system is not functional if corrupted/removed.
iDRAC SPI Flash	SPI interface via iDRAC	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	NAND Flash interface via iDRAC	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 utilized	Not accessible	Not accessible
System Memory	System OS	OS Control	Reboot or power down system
Internal USB Key	USB interface via PCH. Accessed via system OS	No write protect	Can be cleared in system OS
CPU	Various	Various	Power off
iDRAC DDR	iDRAC Firmware	NA	Power off
iDRAC	iDRAC Firmware	NA	Power off
LOM EEPROM	SPI interface via i350	NA	Not user clearable
LOM Flash	SPI interface via i350	NA	Not user clearable
Expander FRU image	I2C interface via expander	Hardware strapping	Not user clearable
BP FRU image	I2C interface via iDRAC	Hardware strapping	Not user clearable
Power Supplies			
PSU FW	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)	NA	Protected by the embedded microcontroller. Special keys are used by special vendor provided utilities to unlock the ROM with various CRC checks during load.
1U 4x3.5", 1U 10x2.5" and 1U 8x2.5" Backplanes			
SEP internal flash	I2C interface via iDRAC	Program write protect bit	Not user clearable
SAS12G HBA Card			
NVSRAM	ROC writes configuration data to NVSRAM	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
FRU	Programmed at ICT during production	Not WP	Cannot be cleared with existing tools available to the customer
1-Wire EEPROM	ROC writes data to this memory	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
SBR	Pre-programmed before assembly	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
Flash	Pre-programmed before assembly. Can be updated	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer

	using Dell/LSI tools		
H730 mini, H830 PERCs			
NVSRAM	ROC writes configuration data to NVSRAM	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
FRU	Programmed at ICT during production.	Not WP	Cannot be cleared with existing tools available to the customer
1-Wire EEPROM	ROC writes data to this memory	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
SPD	Pre-programmed before assembly	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
SBR	Pre-programmed before assembly	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
Flash	Pre-programmed before assembly. Can be updated using Dell/LSI tools	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
ONFI Backup Flash	FPGA backs up DDR data to this device in case of a power failure	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 VD's. If the VD's are no longer available, cache can be cleared by going into controller bios and selecting Discard Preserved Cache.
SDRAM	ROC writes to this memory - using it as cache for data IO to HDDs	Not WP. Not visible to Host Processor	Cache can be cleared by powering off the card
H330, Mini PERC			
NVSRAM	ROC writes configuration data to NVSRAM	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
FRU	Programmed at ICT during production	Not WP	Cannot be cleared with existing tools available to the customer
1-Wire EEPROM	ROC writes data to this memory	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
SBR	Pre-programmed before assembly	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
Flash	Pre-programmed before assembly. Can be updated using Dell/LSI tools	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer

IDSDM			
SPI Flash	SPI interface via iDRAC	Hardware strapping	Not user clearable
MCU	USB3.0 interface via PCH, FW can be updated via iDRAC which runs on Linux	N/A	Not user clearable
TPM			
Trusted Platform Module (TPM)	Using TPM Enabled operating systems	SW write protected	F2 Setup option

To obtain optional component information, please refer to the Dell Statement of Volatility for the individual components. Please direct any questions to your Dell Marketing contact.

Sincerely,

Dell Enterprise Server Marketing



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

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