



Statement of Volatility – Dell PowerEdge R230

Dell PowerEdge R230 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 R230 server.

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size
Planer				
PCH Internal CMOS RAM	Non-Volatile	1	U_SRP1	256 Bytes
BIOS Password	Non-Volatile	1	U_SRP1	16 bytes
BIOS SPI Flash	Non-Volatile	1	U_SPI_BIOS_1	16 MB
iDRAC SPI Flash	Non-Volatile	1	U_IDRAC_SPI1	4 MB
BMC EMMC	Non-Volatile	1	U_EMMC1	4 GB
System CPLD RAM	Volatile	1	U_CPLD1	8 KB
System Memory	Volatile	Up to 4 for CPU1	CPU1: DIMMA1/A2/B1/B2	Up to 16GB per DIMM (UDIMM)
Internal USB Key	Non-Volatile	Up to 1	INT_USB1	Varies (not factory installed)
CPU	Volatile	1	CPU1	Various
iDRAC DDR	Volatile	1	U_IDRAC7_MEM1	256MByte
iDRAC	Volatile	1	U_IDRAC1	64 kbyte + registers
LOM EEPROM	Non-Volatile	1	U30	8Mb
1U 4x3.5" Backplanes				
SEP internal flash	Non-Volatile	1	U_SEP1	Flash: 32KB+4KB EEPROM: 2KB
SAS12G HBA Card				

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size
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
H730, H830 PERCs				
NVSRAM	NVSRAM	NVSRAM	NVSRAM	NVSRAM
FRU	FRU	FRU	FRU	FRU
1-Wire EEPROM	1-Wire EEPROM	1-Wire EEPROM	1-Wire EEPROM	1-Wire EEPROM
SPD	SPD	SPD	SPD	SPD
SBR	SBR	SBR	SBR	SBR
Flash	Flash	Flash	Flash	Flash
ONFI Backup Flash	ONFI Backup Flash	ONFI Backup Flash	ONFI Backup Flash	ONFI Backup Flash
ONFI Backup Flash	ONFI Backup Flash	ONFI Backup Flash	ONFI Backup Flash	ONFI Backup Flash
H330, PERC				
NVSRAM	NVSRAM	NVSRAM	NVSRAM	NVSRAM
FRU	FRU	FRU	FRU	FRU
1-Wire EEPROM	1-Wire EEPROM	1-Wire EEPROM	1-Wire EEPROM	1-Wire EEPROM
SBR	SBR	SBR	SBR	SBR
Flash	Flash	Flash	Flash	Flash
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), 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

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)
LOM EEPROM	EEPROM	No	Onboard LOM FW
1U 4x3.5" Backplanes			
SEP internal flash	Integrated Flash+EEPROM	No	Firmware + FRU
SAS12G HBA Card			
NVSRAM	NVSRAM	No	Configuration data
FRU	FRU	No	Card manufacturing information
1-Wire EEPROM	1-Wire EEPROM	No	Holds default controller properties/settings
SBR	SBR	No	Bootloader
Flash	Flash	No	Card firmware
H730, H830 PERCs			
NVSRAM	NVSRAM	NVSRAM	NVSRAM
FRU	FRU	FRU	FRU
1-Wire EEPROM	1-Wire EEPROM	1-Wire EEPROM	1-Wire EEPROM
SPD	SPD	SPD	SPD
SBR	SBR	SBR	SBR
Flash	Flash	Flash	Flash
ONFI Backup Flash	ONFI Backup Flash	ONFI Backup Flash	ONFI Backup Flash
SDRAM	SDRAM	SDRAM	SDRAM
H330, PERC			
NVSRAM	NVSRAM	NVSRAM	NVSRAM
FRU	FRU	FRU	FRU
1-Wire EEPROM	1-Wire EEPROM	1-Wire EEPROM	1-Wire EEPROM
SBR	SBR	SBR	SBR

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)
Flash	Flash	Flash	Flash
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 BCM5720	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
1U 4x3.5" 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 using Dell/LSI tools	Not WP. Not visible to Host Processor	Cannot be cleared with existing tools available to the customer
H730, H830 PERCs			
NVSRAM	NVSRAM	NVSRAM	NVSRAM
FRU	FRU	FRU	FRU
1-Wire EEPROM	1-Wire EEPROM	1-Wire EEPROM	1-Wire EEPROM
SPD	SPD	SPD	SPD
SBR	SBR	SBR	SBR
Flash	Flash	Flash	Flash

ONFI Backup Flash	ONFI Backup Flash	ONFI Backup Flash	ONFI Backup Flash
SDRAM	SDRAM	SDRAM	SDRAM
H330, PERC			
NVSRAM	NVSRAM	NVSRAM	NVSRAM
FRU	FRU	FRU	FRU
1-Wire EEPROM	1-Wire EEPROM	1-Wire EEPROM	1-Wire EEPROM
SBR	SBR	SBR	SBR
Flash	Flash	Flash	Flash
<u>TPM</u>			
Trusted Platform Module (TPM)	Using TPM Enabled operating systems	SW write protected	F2 Setup option



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