DELL Technologies

Statement of Volatility – Dell PowerEdge R7615

Dell

PowerEdge R7615 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 R7615 server.

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
Planar										
CPU Internal CMOS RAM	Non-Volatile	1	CPU1	256 Bytes	Battery-backed CMOS RAM	No	Real-time clock and BIOS configuration settings	BIOS	N/A – BIOS only control	1) Set NVRAM_CLR jumper to clear BIOS configuration settings at boot and reboot system. 2) Power off the system, remove coin cell battery for 30 seconds, replace battery and then power back on. 3) Restore default configuration in F2 system setup menu.
BIOS SPI Flash	Non-Volatile	1	U4103	32 MB	SPI Flash	No	Boot code, system configuration information,	SPI interface via CPU	Software write protected	Not possible with any utilities or applications and system is not functional if corrupted or

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
							UEFI environment			removed.
BIOS Data SPI Flash	Non-Volatile	1	U19	4 MB	SPI Flash	No	4MB Data SPI ROM storage BIOS setting.	SPI interface via CPU	Software write protected	Not possible with any utilities or applications and the system is not functional if BIOS SPI is corrupted or removed.
iDRAC SPI Flash	Non-Volatile	1	U29	4 MB	SPI Flash	No	iDRAC Uboot (boot loader), server management persistent store (i.e. iDRAC boot variables), and virtual planar FRU	SPI interface via iDRAC	Embedded iDRAC subsystem firmware actively controls sub area based write protection as needed.	The user cannot clear memory completely. However, user data, lifecycle log and archive, SEL, and firmware image repository can be cleared using Delete Configuration and Retire System, which can be accessed through the Lifecycle Controller interface.
BMC EMMC	Non-Volatile	1	U4101	8 GB	eMMC NAND Flash	No	Operational iDRAC FW, Lifecycle Controller (LC) USC partition, LC service diags, LC	NAND Flash interface via iDRAC	Embedded FW write protected	The user cannot clear memory completely. However, user data, lifecycle log and archive, SEL, and firmware image repository can be cleared

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
							OS drivers, USC firmware, IDRAC MAC Address, and EPPID, rac log, System Event Log, lifecycle log cache			using Delete Configuration and Retire System, which can be accessed through the Lifecycle Controller interface.
iDRAC DDR4	Volatile	1	U_IDRAC9_DRAM1	8Gb	RAM	Yes	iDRAC RAM	iDRAC firmware	Not write-protected	Remove AC
System CPLD RAM	Volatile	1	U_CPLD1	432 kb	RAM	No	Not utilized	Not utilized	Not accessible	Not accessible
System CPLD Flash	Non-Volatile	1	U_CPLD1	448 kb	FLASH	No	Power on System Firmware	Firmware update	BIOS Security Protocols	Not user clearable
System Memory: RDIMM	Volatile	Up to 12	CPU1: A1~A12	Up to 256GB per DIMM	RAM	Yes	System OS RAM	System OS	OS Control	Reboot or power down system
CPU _VDDCR_CORE0, , CPU _VDDCR_CORE1,	Non-Volatile	3	CPU1: U50, U128,U123,	64KB	OTP (one time programmable)	No	Operational parameters	Once values are loaded into register space a cmd writes to nvm.	There are passwords for different sections of the register space	The user cannot clear memory.

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
VDDIO IO Controller										

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
8x3.5" SAS3/SATA BP (5TP8Y)										
SEP internal flash	Non-Volatile	1	U46	4Mbit in-chip SPI Serial Flash	Integrated Flash+EEPROM	No	Firmware + FRU	I2C interface via iDRAC	Program write protect bit	The user cannot clear memory.
Backplane External FRU	Non-Volatile	1	U46	256 Bytes	I2C EEPROM	No	FRU	Programmed at ICT during production.	No write protected	The user cannot clear memory.
12 x3.5" SAS3/SATA BP (T158T)										

SEP internal flash	Non-Volatile	1	U16	4Mbit in-chip SPI Serial Flash	Integrated Flash+EEPROM	No	Firmware + FRU	I2C interface via iDRAC	Program write protect bit	The user cannot clear memory.
Backplane External FRU	Non-Volatile	1	U16	256 Bytes	I2C EEPROM	No	FRU	Programmed at ICT during production.	No write protected	The user cannot clear memory.
8x2.5" Uni BP (YD2C2)										
SEP internal flash	Non-Volatile	1	U14	4Mbit in-chip SPI Serial Flash	Integrated Flash+EEPROM	No	Firmware + FRU	I2C interface via iDRAC	Program write protect bit	The user cannot clear memory.
Backplane External FRU	Non-Volatile	1	U14	256 Bytes	I2C EEPROM	No	FRU	Programmed at ICT during production.	No write protected	The user cannot clear memory.
8x2.5" SAS4/SATA v2 BP (XRXG5)										
SEP internal flash	Non-Volatile Non-Volatile	1	U46	4Mbit in-chip SPI Serial Flash	Flash	No	Firmware + FRU	I2C interface via iDRAC	Program write protect bit	The user cannot clear memory.
Backplane External FRU				256 Bytes		No	FRU	Programmed at ICT during production	No write protected	
24x2.5" SAS4/SATA expander Backplane(GRT5N)										
SEP internal flash	Non-Volatile	2	U14,U15	4Mbit in-chip SPI Serial Flash	Integrated Flash+EEPROM	No	Firmware + FRU	I2C interface via iDRAC	Program write protect bit	The user cannot clear memory.

Expander Fru	Non-Volatile	1	U3	256Kb	EEPROM	No	Expander FRU	Programmed at ICT during production.	No write protected	The user cannot clear memory.
Expander Flash	Non-Volatile	1	U_FLASH1	128Mb	SPI Flash	No	Card firmware	I2C interface via iDRAC	Program write protect bit	The user cannot clear memory.
Expander NVSRAM	Non-Volatile	1	U_NVSRAM 1	128KB	NVSRAM	No	Configuration data	I2C interface via iDRAC	Program write protect bit	The user cannot clear memory.
Rear 2x2.5" univ SAS4 (X6XG3)										
SEP internal flash	Non-Volatile	1	U47	4Mbit in-chip SPI Serial Flash	Integrated Flash+EEPROM	No	Firmware + FRU	I2C interface via iDRAC	Program write protect bit	The user cannot clear memory.
Backplane External FRU	Non-Volatile	1	U47	256 Bytes	I2C EEPROM	No	FRU	Programmed at ICT during production.	No write protected	The user cannot clear memory.
Rear 4x2.5" univ SAS4 (69NN3)										
SEP internal flash	Non-Volatile	1	U47	4Mbit in-chip SPI Serial Flash	Integrated Flash+EEPROM	No	Firmware + FRU	I2C interface via iDRAC	Program write protect bit	The user cannot clear memory.

Backplane External FRU	Non-Volatile	1	U47	256 Bytes	I2C EEPROM	No	FRU	Programmed at ICT during production.	No write protected	The user cannot clear memory.
4x E3 G5x2 Rear Ortho(62W2P)										
2U 24x2.5" NVMe Switch BP - Atlas 2 Gen5 (3TMCM)										
2U 8x E3 G5x2 G5x4 Ortho(32M85)										
HBA355i fPERC (Internal controller)(T761Y)										
SPI Flash	Non-Volatile	1	U2	128Mb	SPI Flash	No	Card firmware	Pre-programmed before assembly. Can be updated using Dell/LSI tools	Not write protected. Not visible to Host Processor	User cannot clear the memory.
FRU	Non-volatile	1	U5	2Kb	EEPROM	No	Card manufacturing information	Programmed at ICT during production.	Not write protected	User cannot clear the memory.

CPLD	Non-volatile	1	U23	24kb	Flash	No	Power sequencing and Cache Offload	Controller may program data during FW update	Not write protected Not visible to host CPU	User cannot clear this memory
MCU (Cordoba)	Non-volatile	1	U41	8kB	EEPROM	No	PCIe Bifurcation information to system iDRAC	BMC may program data if there is an updated version packaged with iDRAC	Not write protected Not visible to host CPU	User cannot clear this memory
H355,FPERC (Internal controller)(TKK9K)										
SPI Flash	Non-Volatile	1	U2	128Mb	SPI Flash	No	Card firmware	Pre-programmed before assembly. Can be updated using Dell/LSI tools	Not write protected. Not visible to Host Processor	User cannot clear the memory.
FRU	Non-volatile	1	U5	2Kb	EEPROM	No	Card manufacturing information	Programmed at ICT during production.	Not write protected	User cannot clear the memory.
CPLD	Non-volatile	1	U23	24kb	Flash	No	Power sequencing and Cache Offload	Controller may program data during FW update	Not write protected Not visible to host CPU	User cannot clear this memory
MCU (Cordoba)	Non-volatile	1	U41	8kB	EEPROM	No	PCIe Bifurcation information to system iDRAC	BMC may program data if there is an updated version packaged with	Not write protected Not visible to host CPU	User cannot clear this memory

								iDRAC		
NVSRAM	Non-volatile	1	U3	128kB	NVSRAM	No	Configuration data	ROC writes configuration data to NVSRAM	Not write protected Not visible to host CPU	User cannot clear this memory
H355,ADPT (Internal controller)(VCV6T)										
SPI Flash	Non-Volatile	1	U2	128Mb	SPI Flash	No	Firmware	Pre-programmed before assembly. Can be updated using Dell/LSI tools	no write protected. Not visible to Host Processor	User can clear the memory.
FRU	Non-volatile	1	U5	2Kb	EEPROM	No	Card manufacturing information	Programmed at ICT during production.	no write protected	User cannot clear the memory.
CPLD	Non-volatile	1	U23	24kb	Integrated Flash+EEPROM	No	Power sequencing and Cache Offload	Pre-programmed before assembly. Can be updated using Dell/LSI tools	no write protected. Not visible to Host Processor	User cannot clear the memory.
HBA465E,ADPT (External controller)(8Y0MW)										
SPI Flash	Non-Volatile	1	U2	128Mb	SPI Flash	No	Firmware	Pre-programmed before assembly. Can be updated using Dell/LSI tools	no write protected. Not visible to Host Processor	User can clear the memory.
FRU	Non-	1	U5	2Kb	EEPROM	No	Card	Programmed	no write protected	User cannot clear the

	volatile						manufacturing information	at ICT during production.		memory.
CPLD	Non-volatile	1	U23	24kb	Integrated Flash+EEPROM	No	Power sequencing and Cache Offload	Pre-programmed before assembly. Can be updated using Dell/LSI tools	no write protected. Not visible to Host Processor	User cannot clear the memory.
H755 PERC (Internal Controller)(3KDWX)										
SDRAM	Volatile	9	U1077~U1085	8GB	SDRAM	No	Cache for HDD I/O	ROC writes to this memory - using it as cache for data IO to HDDs	no write protected. Not visible to Host Processor	Cache can be cleared by powering off the card
ONFI	Non-volatile	1	U1100	512Gb	NAND Flash	No		ROC backs up DDR data to this device in case of a power failure	no write protected. Not visible to Host Processor	User cannot clear the memory.
BMU	Non-Volatile	1	U1126	180KB	Integrated Flash+EEPROM	No	Battery Management control	Programmed at ICT during production	no write protected. Not visible to Host Processor	User cannot clear the memory.
SPI Flash	Non-Volatile	1	U1086	128Mb	SPI Flash	No	Holds cache data during power loss	Pre-programmed before assembly. Can be updated using Dell/LSI tools	no write protected. Not visible to Host Processor	User can clear the memory.
NVSRAM	Non-volatile	1	U1087	128KB	NVSRAM	No	Configuration data	ROC writes configuration data to NVSRAM	no write protected. Not visible to Host Processor	

FRU	Non-volatile	1	U1019	2Kb	EEPROM	No	Card manufacturing information	Programmed at ICT during production.	no write protected	User cannot clear the memory.
SPD	Non-volatile	1	U22	2Kb	EEPROM	No	Memory configuration data	Programmed at ICT during production. ROC read the configured data from the SPD for DDR settings	no write protected. Not visible to Host Processor	User cannot clear the memory.
CPLD	Non-volatile	1	U1088	64kb	Flash	No	Power sequencing and Cache Offload	Pre-programmed before assembly. Can be updated using Dell/LSI tools	no write protected. Not visible to Host Processor	User cannot clear the memory.
MCU (Cordova)	Non-volatile	1	U41	8KB	EEPROM	No	PCIe Bifurcation information to system iDRAC	Pre-programmed before assembly. Can be updated using Dell/LSI tools	no write protected. Not visible to Host Processor	User cannot clear the memory.
H755N PERC (Internal Controller) (9K2C2)										
NVSRAM	Non-volatile	1	U1087	128KB	NVSRAM	No	Configuration data	ROC writes configuration data to NVSRAM	No write protected. Not visible to Host Processor	User cannot clear the memory.
FRU	Non-volatile	1	U1019	2Kb	EEPROM	No	Card manufacturing information	Programmed at ICT during production.	No write protected	User cannot clear the memory.

SPD	Non-volatile	1	U1019	2Kb	EEPROM	No	Memory configuration data	Pre-programmed before assembly	No write protected. Not visible to Host Processor	User cannot clear the memory.
NV Flash	Non-volatile	1	U1100	512Gb	SPI Flash	No	Card firmware	Pre-programmed before assembly. Can be updated using Dell/LSI tools	No write protected. Not visible to Host Processor	User cannot clear the memory.
CPLD	Non-volatile	1	U1088	64kb	Flash	No	Power sequencing and Cache Offload	NA	NA	NA
SPI Flash	Non-Volatile	1	U1086	128Mb	SPI Flash	No	Holds cache data during power loss	FPGA backs up DDR data to this device in case of a power failure	No write protected. 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	Volatile	9	U1077~U1085	8GB	SDRAM	No	Cache for HDD I/O	ROC writes to this memory - using it as cache for data IO to HDDs	No write protected. Not visible to Host Processor	Cache can be cleared by powering off the card
MCU (Cordoba)	Non-volatile	1	U41	8KB	EEPROM	No	PCIe Bifurcation information to system iDRAC	NA	NA	NA
BMU	Non-Volatile	1	U1126	180KB	NA	No	Battery Management control	NA	NA	NA

H755 ADPT PERC (Internal Controller) (29XMF)										
SDRAM	Volatile	9	U1077~U1085	8GB	SDRAM	No	Cache for HDD I/O	ROC writes to this memory - using it as cache for data IO to HDDs	no write protected. Not visible to Host Processor	Cache can be cleared by powering off the card
NV Flash	Non-volatile	1	U1100	512Gb	SPI Flash	No	Card firmware	Pre-programmed before assembly. Can be updated using Dell/LSI tools	no write protected. Not visible to Host Processor	User cannot clear the memory.
BMU	Non-Volatile	1	U1126	180KB	Integrated Flash + EEPROM	No	Battery Management Control	ROC may program data during FW and during boot during battery detection	Not write protected Not visible to host CPU	User cannot clear this memory
SPI Flash	Non-Volatile	1	U1086	128Mb	SPI Flash	No	Holds cache data during power loss	FPGA backs up DDR data to this device in case of a power failure	no write protected. 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.
NVSRAM	Non-volatile	1	U1087	128KB	NVSRAM	No	Configuration data	ROC writes configuration data to NVSRAM	no write protected. Not visible to Host Processor	User cannot clear the memory.

FRU	Non-volatile	1	U1019	2Kb	EEPROM	No	Card manufacturing information	Programmed at ICT during production.	no write protected	User cannot clear the memory.
SPD	Non-volatile	1	U22	2Kb	EEPROM	No	Memory configuration data	Pre-programmed before assembly	no write protected. Not visible to Host Processor	User cannot clear the memory.
CPLD	Non-volatile	1	U1088	64kb	Flash	No	Power sequencing and Cache Offload	ROC may program data during FW update	Not write protected Not visible to host CPU	User cannot clear this memory
H965i FPERC (Internal Controller) (NG8NP)										
SPI Flash	Non-Volatile	1	U2	256Mb	SPI Flash	No	Card firmware	Pre-programmed before assembly. Can be updated using Dell/Broadcom tools	Not write protected. Not visible to Host Processor	User cannot clear the memory.
FRU	Non-volatile	1	U1019	2Kb	EEPROM	No	Card manufacturing information	Programmed at ICT during production.	Not write protected	User cannot clear the memory.
CPLD	Non-volatile	1	U1088	64kb	Flash	No	Power sequencing and Cache Offload	Controller may program data during FW update	Not write protected Not visible to host CPU	User cannot clear this memory
MCU (Cordoba)	Non-volatile	1	U41	8kB	Flash	No	PCIe Bifurcation information to system iDRAC	BMC may program data if there is an updated version packaged with	Not write protected Not visible to host CPU	User cannot clear this memory

								iDRAC		
NVSRAM	Non-volatile	1	U1087	128kB	NVSRAM	No	Configuration data	ROC writes configuration data to NVSRAM	Not write protected Not visible to host CPU	User cannot clear this memory
BMU	Non-Volatile	1	U1126	180KB	Integrated Flash + EEPROM	No	Battery Management control	ROC may program data during FW and during boot	Not write protected	User cannot clear this memory
SPD	Non-volatile	1	U22	256b	EEPROM	No	Memory configuration data	Pre-programmed before assembly	No write protected. Not visible to Host Processor	User cannot clear the memory.
NAND Flash	Non-volatile	1	U1100	512Gb	ONFI Flash	No	Cache offload during unexpected power loss	Programmed by ROC during cache offload	No write protected. Not visible to Host Processor	User cannot clear the memory.
SDRAM	Volatile	9	U1077~U1086	8GB	SDRAM	No	Cache for HDD I/O	ROC writes to this memory - using it as cache for data IO to HDDs	No write protected. Not visible to Host Processor	Cache can be cleared by powering off the card
H965e PERC (External Controller) (VWHMH)										
SDRAM	Volatile	9	U1077~U1085	8GB	SDRAM	No	Cache for HDD I/O	ROC writes to this memory - using it as cache for data IO to HDDs	no write protected. Not visible to Host Processor	Cache can be cleared by powering off the card
ONFI	Non-volatile	1	U1100	512Gb	ONFI Nand	No	Memory backup storage for DDR4	ROC backs up DDR data to this device in case of a	no write protected. Not visible to Host Processor	User cannot clear the memory.

								power failure		
BMU	Non-Volatile	1	U1126	180KB	Integrated Flash+EEPROM	No	Battery Management control	Programmed at ICT during production	no write protected. Not visible to Host Processor	User cannot clear the memory.
SPI Flash	Non-Volatile	1	U2	128Mb	SPI Flash	No	Firmware	Pre-programmed before assembly. Can be updated using Dell/LSI tools	no write protected. Not visible to Host Processor	User can clear the memory.
NVSRAM	Non-volatile	1	U1087	128KB	Flash	No	Power sequencing and Cache Offload	ROC writes configuration data to NVSRAM	no write protected. Not visible to Host Processor	User cannot clear the memory.
FRU	Non-volatile	1	U1019	2Kb	EEPROM	No	Board manufacture information	Programmed at ICT during production.	no write protected	User cannot clear the memory.
SPD	Non-volatile	1	U22	2Kb	EEPROM	No	Memory configuration information	Pre-programmed before assembly	no write protected. Not visible to Host Processor	User cannot clear the memory.
CPLD	Non-volatile	1	U1088	64kb	Integrated Flash+EEPROM	No	Power sequencing and Cache Offload	Pre-programmed before assembly. Can be updated using Dell/LSI tools	no write protected. Not visible to Host Processor	User cannot clear the memory.
MCU (Cordova)	Non-volatile	1	U41	8KB	Integrated Flash+EEPROM	No	Battery Management control	Pre-programmed before assembly. Can	no write protected. Not visible to Host Processor	User cannot clear the memory.

								be updated using Dell/LSI tools		
H965I ADPT PERC(External Controller) (W3T2J)										
SPI Flash	Non-Volatile	1	U2	256Mb	SPI Flash	No	Card firmware	Pre-programmed before assembly. Can be updated using Dell/LSI tools	Not write protected. Not visible to Host Processor	User cannot clear the memory.
FRU	Non-volatile	1	U1019	2Kb	EEPROM	No	Card manufacturing information	Programmed at ICT during production.	Not write protected	User cannot clear the memory.
CPLD	Non-volatile	1	U1088	24kb	Flash	No	Power sequencing and Cache Offload	Controller may program data during FW update	Not write protected Not visible to host CPU	User cannot clear this memory
BMU	Non-Volatile	1	U1126	180KB	Integrated Flash + EEPROM	No	Battery Management control	ROC may program data during FW and during boot	Not write protected	User cannot clear this memory
NVSRAM	Non-volatile	1	U1087	128kB	NVSRAM	No	Configuration data	ROC writes configuration data to NVSRAM	Not write protected Not visible to host CPU	User cannot clear this memory
SPD	Non-volatile	1	U22	256b	EEPROM	No	Memory configuration data	Pre-programmed before assembly	No write protected. Not visible to Host Processor	User cannot clear the memory.
NAND Flash	Non-volatile	1	U1100	512Gb	ONFI Flash	No	Cache offload during	Programmed by ROC during cache offload	No write protected. Not	User cannot clear the memory.

							unexpected power loss		visible to Host Processor	
SDRAM	Volatile	9	U1077~U1086	8GB	SDRAM	No	Cache for HDD I/O	ROC writes to this memory - using it as cache for data IO to HDDs	No write protected. Not visible to Host Processor	Cache can be cleared by powering off the card

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
Status LED Control Panel										
Microcontroller	Non-Volatile	1	U_TINY	8KB	Flash	No	Driving Health and Status LED	I2C via iDRAC	Hardware strapping	User cannot clear the memory.
Standard/LC RIO										
MCU	Non-Volatile	1	U6	8kB	Flash ROM	No	Standard /LC RIO information	The data is flash via iDRAC auto update	No write protected. Not visible to Host Processor	User cannot clear the memory.
Power Button Control Panel										
SPI Flash	Non-Volatile	1	U2	32 Mb	SPI Flash	No	EasyRestore functionality contains Service Tag, Copy of SEL logs	SPI interface from iDRAC to Right Cntl Panel	Embedded iDRAC subsystem firmware actively controls sub area based write protection as needed.	The user cannot clear memory.

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
LOM										
SPI Flash	Non-Volatile	1	U1	8-Mbit DataFlash (with Extra 256-Kbits)	SPI Flash EEPROM	Yes	Firmware, configuration data	Firmware and some configuration data flashed via Dell Update Package (DUP); some configuration data is programmed during manufacturing; end user configuration data is written via UEFI HII	Reserving write protection function for HW design.	User cannot clear the memory.
MCU	Non-Volatile	1	U2	64KB Flash and 8KB of SRAM	Flash ROM	No	LOM Security data	Off-line programming Before production	No write protected. Not visible to Host Processor	User cannot clear the memory
TPM										

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
Trusted Platform Module (TPM)	Non-Volatile	1	U2	128 Bytes	EEPROM	Yes	Storage of encryption keys	Using TPM Enabled operating systems	SW write protected	F2 Setup option
BOSS N1										
FRU	Non-volatile	1	U4	2Kbit	EEPROM	No	Card manufacturing information	During Manufacturing, by programming the image via firmware update process. During runtime, by I2C Proprietary Command Protocol	no write protected	User cannot clear the memory.
MCU	Non-Volatile	1	U41	8kB	Flash ROM	No	BOSS-N1 information	The data is flash via iDRAC auto update	No write protected	User cannot clear the memory.
SPI flash	Non-Volatile	1	U5	128 Mb	SPI Flash EEPROM	Yes	Firmware, Boot code	Firmware and some configuration data flashed via Dell Update Package (DUP); some	no write protected	User cannot clear the memory.

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
								configuration data is programmed during manufacturing; end user configuration data is written via UEFI HII		
IDSDM										
iDSDM (uSD1, uSD2)	Non-Volatile	2	J1, J2	16GB, 32GB, 64GB	NAND Flash	Yes	Provides mass storage	device resides in host domain; they are exposed to the user via an internally connected, non-removable USB mass storage device	physical write protect switch on ACE card	(1) card may be physically removed and destroyed or cleared via standard means on a separate computer OR (2)User has access to the card in the host domain and may clear it manually
SPI Flash	Non-Volatile	1	U2	8Mb	SPI Flash	SPI flash is only indirectly connected to iDRAC.	Boot firmware storage, configuration and state data for IDSDM.	User can initiate a firmware update of the IDSDM device.	There is no mechanism provided to iDRAC to write any SPI NOR area outside	iDRAC may issue a clear command to erase all contents of the SPI NOR, but doing this will leave

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
						iDRAC can read any address in the SPI flash, but may only write the primary firmware storage area as a part of a firmware update procedure.			of the primary IDSDM firmware region.	the IDSDM non-functional.
LCD Bezel										
MCU	Non-Volatile	1	IC1	2MB Flash in chip	Internal Flash	No	bootloader and s/w implementation of LCD command set	Updated as part of secure iDRAC software update. Configuration parameters can change only as part of	Writes are only allowed as part of secure iDRAC update	not user clearable.

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
								iDRAC update		
R1T										
MCU	Non-Volatile	1	U1	8kB	Flash ROM	No	Riser information	The data is flash via iDRAC auto update	No write protected. Not visible to Host Processor	User cannot clear the memory.
R1U										
MCU	Non-Volatile	1	U1	8kB	Flash ROM	No	Riser information	The data is flash via iDRAC auto update	No write protected. Not visible to Host Processor	User cannot clear the memory.
R2A										
MCU	Non-volatile	1	U1	8kB	Flash ROM	No	Riser information	The data is flash via iDRAC auto update	No write protected. Not visible to Host Processor	User cannot clear the memory.
R2T										
MCU	Non-volatile	1	U1	8kB	Flash ROM	No	Riser information	The data is flash via iDRAC auto update	No write protected. Not visible to Host Processor	User cannot clear the memory.
R3A										
MCU	Non-	1	U1	8kB	Flash ROM	No	Riser	The data is	No write	User cannot clear

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
	volatile						information	flash via iDRAC auto update	protected. Not visible to Host Processor	the memory.
R3B										
MCU	Non-volatile	1	U1	8kB	Flash ROM	No	Riser information	The data is flash via iDRAC auto update	No write protected. Not visible to Host Processor	User cannot clear the memory.
R4A										
MCU	Non-volatile	1	U1	8kB	Flash ROM	No	Riser information	The data is flash via iDRAC auto update	No write protected. Not visible to Host Processor	User cannot clear the memory.
R4P										
MCU	Non-volatile	1	U1	8kB	Flash ROM	No	Riser information	The data is flash via iDRAC auto update	No write protected. Not visible to Host Processor	User cannot clear the memory.
R4Q										
MCU	Non-volatile	1	U1	8kB	Flash ROM	No	Riser information	The data is flash via iDRAC auto update	No write protected. Not visible to Host Processor	User cannot clear the memory.
R4S										

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
MCU	Non-volatile	1	U1	8kB	Flash ROM	No	Riser information	The data is flash via iDRAC auto update	No write protected. Not visible to Host Processor	User cannot clear the memory.

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
PSU2800W										
DELTA PSU										
Primary MCU	Non-volatile	1	IC703	64KB	Internal Flash	No	Boot code, FW	The data is flash via Dell	SW write protected	Before firmware update, the memory will be

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
								Update Package(DUP)		cleared.
Secondary MCU	Non-volatile	1	IC805	64KB	Internal Flash	No	Boot code, FW	The data is flash via Dell Update Package(DUP)	SW write protected	Before firmware update, the memory will be cleared.
FRU	Non-volatile	1	IC704	16KB	EEPROM	No	PSU information	During Manufacturing , by programming the image via firmware update process	SW write protected	User cannot clear the memory.
LiteOn PSU										
Primary MCU	Non-volatile	1	IC050	64K	Internal Flash	No	Boot code, FW	The data is flash via Dell Update Package(DUP)	SW write protected	Before firmware update, the memory will be cleared.
Secondary MCU/FRU	Non-volatile	1	IC900	128K	Internal Flash	No	Boot code, FW	The data is flash via Dell Update Package (DUP)	SW write protected	Before firmware update, the memory will be cleared.
PSU 2400W										

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
DELTA PSU										
Primary MCU	Non-volatile	1	IC703	64KB	Internal Flash	No	Boot code, FW	The data is flash via Dell Update Package (DUP)	SW write protected	Before firmware update, the memory will be cleared.
Secondary MCU	Non-volatile	1	IC805	64KB	Internal Flash	No	Boot code, FW	The data is flash via Dell Update Package (DUP)	SW write protected	Before firmware update, the memory will be cleared.
FRU	Non-volatile	1	IC704	16KB	EEPROM	No	PSU information	During Manufacturing, by programming the image via firmware update process	SW write protected	User cannot clear the memory.
LiteOn PSU										
Primary MCU	Non-volatile	1	IC050	64K	Internal Flash	No	Boot code, FW	The data is flash via Dell Update Package (DUP)	SW write protected	Before firmware update, the memory will be cleared.
Secondary MCU/FRU	Non-volatile	1	IC900	128K	Internal Flash	No	Boot code, FW	The data is flash via Dell Update	SW write protected	Before firmware update, the memory will be cleared.

Item	Non-Volatile or Volatile	Quantity	Reference Designator	Size	Type (e.g. Flash PROM, EEPROM)	Can user programs or operating system write data to it during normal operation?	Purpose? (e.g. boot code)	How is data input to this memory?	How is this memory write protected?	How is the memory cleared?
								Package (DUP)		

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

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