



## Statement of Volatility – Dell PowerEdge FD332

Dell PowerEdge FD332 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 FD332.

| Item   | Non-Volatile or Volatile | Quantity | Reference Designator | Size      |
|--|--------------------------|----------|----------------------|-----------|
| <b>Storage Controller Module (Single PERC)</b> |                          |          |                      |           |
| 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       |
| SDRAM  | Volatile                 | 5        | U1043-U1047          | 512MB/1GB |
| <b>Storage Controller Module (Dual PERC)</b>   |                          |          |                      |           |
| NVSRAM   | Non-volatile             | 2        | U1033, U1035         | 128KB     |
| FRU  | Non-volatile             | 2        | U1019, U1023         | 256B      |
| 1-Wire EEPROM                                  | Non-volatile             | 2        | U1004, U1007         | 128B      |
| SPD  | Non-volatile             | 2        | U22, U23             | 256B      |
| SBR  | Non-volatile             | 2        | U1020, U1024         | 8KB       |
| Flash  | Non-volatile             | 2        | U1049, U1051         | 16MB      |
| ONFI Backup Flash                              | Non-volatile             | 2        | U1059, U1066         | 4GB       |


| Item                              | Non-Volatile or Volatile | Quantity | Reference Designator     | Size      |
|-----------------------------------|--------------------------|----------|--------------------------|-----------|
| NVSRAM                            | Non-volatile             | 2        | U1033, U1035             | 128KB     |
| SDRAM                             | Volatile                 | 10       | U1043-U1047, U1076-U1080 | 512MB/1GB |
| <b>Storage Expander Module</b>    |                          |          |                          |           |
| NVSRAM                            | Non-volatile             | 1        | U22                      | 128KB     |
| Flash ROM                         | Non-volatile             | 1        | U19                      | 128MB     |
| BP FRU EEPROM                     | Non-volatile             | 1        | U2                       | 256byte   |
| SEM FRU EEPROM                    | Non-volatile             | 1        | U7                       | 512byte   |
| <b>Mid-plane Interface Module</b> |                          |          |                          |           |
| FRU EEPROM                        | Non-volatile             | 1        | U3                       | 4KB       |

| 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)                    |
|--|--------------------------------|---|--|
| <b>Storage Controller Module (Single PERC)</b> |                                |   |  |
| 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                            |

| 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)                    |
|--|--------------------------------|---|--|
| <b>Storage Controller Module (Dual PERC)</b> |                                |   |  |
| 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                            |
| NVSRAM                                       | NVSRAM                         | No  | Configuration data                           |
| <b>Mid-plane Interface Module</b>            |                                |   |  |
| FRU EEPROM                                   | EEPROM                         | No  | MIM FRU Configuration data                   |
| <b>Storage Expander Module</b>               |                                |   |  |
| NVSRAM                                       | NVSRAM                         | No  | Expander Configuration data                  |
| Flash ROM                                    | Flash ROM                      | Yes   | Boot code+ system fw                         |
| BP FRU EEPROM                                | EEPROM                         | No  | BP FRU Configuration data                    |
| SEM FRU EEPROM                               | EEPROM                         | No  | SEM FRU Configuration data                   |

| Item   | How is data input to this memory?                                   | How is this memory write protected?   |
|--|---|---------------------------------------|
| <b>Storage Controller Module (Single PERC)</b> |   |                                       |
| NVSRAM   | ROC writes configuration data to NVSRAM                             | Not WP. Not visible to Host Processor |
| FRU  | Programmed at ICT during production.                                | Not WP                                |
| 1-Wire EEPROM                                  | ROC writes data to this memory                                      | Not WP. Not visible to Host Processor |
| SPD  | Pre-programmed before assembly                                      | Not WP. Not visible to Host Processor |
| SBR  | Pre-programmed before assembly                                      | Not WP. Not visible to Host Processor |
| Flash  | Pre-programmed before assembly. Can be updated using Dell/LSI tools | Not WP. Not visible to Host Processor |
| ONFI Backup Flash                              | FPGA backs up DDR data to this device in case of a power failure    | Not WP. Not visible to Host Processor |
| SDRAM  | ROC writes to this memory - using it as cache for data IO to HDDs   | Not WP. Not visible to Host Processor |
| <b>Storage Controller Module (Dual PERC)</b>   |   |                                       |
| NVSRAM   | ROC writes configuration data to NVSRAM                             | Not WP. Not visible to Host Processor |
| FRU  | Programmed at ICT during production.                                | Not WP                                |
| 1-Wire EEPROM                                  | ROC writes data to this memory                                      | Not WP. Not visible to Host Processor |
| SPD  | Pre-programmed before assembly                                      | Not WP. Not visible to Host Processor |
| SBR  | Pre-programmed before assembly                                      | Not WP. Not visible to Host Processor |
| Flash  | Pre-programmed before assembly. Can be updated using Dell/LSI tools | Not WP. Not visible to Host Processor |

| Item                              | How is data input to this memory?                                 | How is this memory write protected?     |
|-----------------------------------|---|---|
| ONFI Backup Flash                 | FPGA backs up DDR data to this device in case of a power failure  | Not WP. Not visible to Host Processor   |
| SDRAM                             | ROC writes to this memory - using it as cache for data IO to HDDs | Not WP. Not visible to Host Processor   |
| NVSRAM                            | ROC writes configuration data to NVSRAM                           | Not WP. Not visible to Host Processor   |
| <b>Mid-plane Interface Module</b> |   |   |
| FRU EEPROM                        | I2C interface via CMC.  | HW write protected function is disable. |
| <b>Storage Expander Module</b>    |   |   |
| NVSRAM                            | External Memory Bus interface via LSI SAS3x24_UL chip.            | No HW write protected function.         |
| Flash ROM                         | Offline programmed/Online programmed via LSI SAS3x24_UL.          | HW write protected function is disable. |
| BP FRU EEPROM                     | I2C interface via CMC.  | HW write protected function is disable. |
| SEM FRU EEPROM                    | I2C interface via CMC.  | HW write protected function is disable. |

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

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