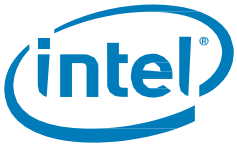
Intel® Solid-State Drive DC S3500 Series (1.2TB and 1.6TB)

Product Specification Addendum

- Capacity:
  - 1.2TB and 1.6TB
- Components:
  - Intel® 20nm NAND Flash Memory
  - Multi-Level Cell (MLC)
- Form Factor: 2.5–inch[1]
- Read and Write IOPS[2,3] (Full LBA Range, IOMeter* Queue Depth 32)
  - Random 4 KB[4] Reads: Up to 65,000 IOPS
  - Random 4 KB Writes: Up to 15,500 IOPS
  - Random 8 KB[4] Reads: Up to 44,500 IOPS
  - Random 8 KB Writes: Up to 8,000 IOPS
- Bandwidth Performance[2]
  - Sustained Sequential Read: Up to 500 MB/s[5]
  - Sustained Sequential Write: Up to 460 MB/s[5]
- Latency (average sequential)
  - Read: 55 µs (TYP)
  - Write: 65 µs (TYP)
- Quality of Service[6,7]
  - Read/Write: 500 µs / 5 ms (99.9%)
- AES 256-bit Encryption
- Compliance
  - SATA Revision 3.0; compatible with SATA 6Gb/s, 3Gb/s and 1.5Gb/s interface rates
  - ATA8-ACS2; includes SCT (Smart Command Transport) and device statistics log support
  - Enhanced SMART ATA feature set
  - Native Command Queuing (NCQ) command set
  - Data set management Trim command
- Compatibility
  - Windows 7*, Windows 8*, Windows 8.1*
  - Windows* Server 2012 R2*, Windows Server 2012*
  - Windows* Server 2008* Enterprise 32/64bit SP2
  - Windows* Server 2008* R2 SP1
  - Windows* Server 2003* Enterprise 64bit SP2
  - Red Hat* Enterprise Linux* 5.5, 5.6, 6.1, 6.3, 7.0
  - SUSE* Linux Enterprise Server 10*, 11 SP1CentOS* 64bit 5.7, 6.3
  - Intel® SSD Toolbox with Intel® SSD Optimizer
- Altitude[8]
  - Operating: -1,000 to 10,000 ft
  - Operating[9]: -10,000 to 15,000 ft
  - Non-operating: -1,000 to 40,000 ft
- Product Ecological Compliance
  - RoHS*
- Power Management
  - 2.5 inch: 5V or 5V +12V SATA Supply Rail[10]
  - SATA Interface Power Management
  - OS-aware hot plug/removal
  - Enhanced power-loss data protection
- Power[11]
  - Active: Up to 5.2 W (TYP)
  - Idle: 700 mW
- Weight
  - 94 grams ± 2 grams
- Temperature
  - Operating: 0° C to 70° C
  - Non-Operating[12]: -55° C to 95° C
  - Temperature monitoring and logging
  - Thermal throttling
- Shock (operating and non-operating):
  - 1,000 G/0.5 msec
- Vibration
  - Operating: 2.17 G_{RMS} (5-700 Hz)
  - Non-Operating: 3.13 G_{RMS} (5-800 Hz)
- Reliability
  - Uncorrectable Bit Error Rate (UBER):
    - 1 sector per $10^{\wedge 17}$ bits read
  - Mean Time Between Failures (MTBF):
    - 2 million hours
  - End-to-End data protection
- Endurance Rating[13]
  - 1.2TB: 660 TBW
  - 1.6TB: 880 TBW
- Certifications and Declarations
  - UL*, CE*, C-Tick*, BSMI*, KCC*, Microsoft WHCK*, VCCI*, SATA-IO

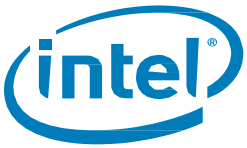
1. The 2.5 form factor is identical to the S3500 lower capacity models.
2. Performance values vary by capacity
3. Performance specifications apply to both compressible and incompressible data
4. 4KB = 4,096 bytes; 8KB = 8,192 bytes
5. MB/s = 1,000,000 bytes/second.
6. Based on Random 4KB QD=1 workload, measured as the time taken for 99.9 percentile of commands to finish the round-trip from host to drive and back to host
7. Measurement taken once the workload has reached steady state but including all background activities required for normal operation and data reliability
8. Altitude pressure is simulated in a test chamber; excludes soft error
9. Extended operation at a higher altitude might impact reliability.
10. If both 5V and 12V power supplies are present, will source power from both. 5V must be present
11. Based on 5V power supply only
12. Please contact your Intel representative for details on the non-operating temperature range
13. Based on JESD218 standard

Order Number: 331349-002US



Ordering Information

Contact your local Intel sales representative for ordering information.



Contents

Revision History

Revision	Description	Date
001	Initial release.	November 2014
002	Updated description and value of word 106 in Appendix A's Returned Sector Data table.	January 2015

Related Document

Title	Link
Intel® Solid-State Drive DC S3500 Series Product Specification	http://www.intel.com/content/dam/www/public/us/en/documents/product-specifications/ssd-dc-s3500-spec.pdf

1.0 Overview

This document is an addendum to the Intel® SSD DC S3500 Series and outlines the differences between the previously released products and the higher capacity 1.2TB and 1.6TB products.

The Intel SSD DC S3500 Series delivers leading performance and Quality of Service combined with world-class reliability for Serial Advanced Technology Attachment (SATA)-based computers. These two new models extend the storage capacities of the existing Intel SSD DC S3500 Series.

By combining 20nm Intel® SSD NAND Flash Memory technology with SATA 6Gb/s interface support, the Intel SSD DC S3500 Series delivers sequential read speeds of up to 500 MB/s and sequential write speeds of up to 450 MB/s. Intel SSD DC S3500 Series delivers Quality of Service of 500 us for random 4KB reads measured at a queue depth of 1.

Intel SSD DC S3500 Series offers these key features:

- Standard Endurance Technology
- High I/O and throughput performance
- Consistent I/O latency
- Enhanced power-loss data protection
- End-to-End data protection
- Thermal throttling
- Temperature Sensor
- Inrush current management
- Low power
- High reliability
- Enhanced ruggedness
- Temperature monitor and logging
- Power loss protection capacitor self-test

The 2.5 form factor is identical to Intel SSD DC S3500 Series lower capacity models. For the full mechanical specifications, see the Intel® Solid-State Drive DC S3500 Series Product Specification.

2.0 Product Specifications

2.1 Capacity

Table 1: User Addressable Sectors

Intel® SSD DC S3500 Series	Unformatted Capacity (Total User Addressable Sectors in LBA Mode)
1.2TB[1]	2,344,225,968[2]
1.6TB[1]	3,125,627,568[2]

Notes:
1. 1TB = 1,000,000,000,000 (trillion) bytes; 1 sector = 512 bytes.
2. LBA count shown represents total user storage capacity and will remain the same throughout the life of the drive.

2.2 Performance

Table 2: Random Read/Write Input/Output Operations Per Second (IOPS)

Specification[1]	Unit	Intel SSD DC S3500 Series	
		1.2TB	1.6TB
Random 4KB Read (up to)[2]	IOPS	65,500	65,000
Random 4KB Write (up to)	IOPS	15,500	14,600
Random 8KB Read (up to)[3]	IOPS	44,500	44,000
Random 8KB Write (up to)	IOPS	8,000	7,500

Notes:
1. Performance measured using IOMeter* with Queue Depth 32. Measurements are performed on a full Logical Block Address (LBA) span of the drive.
2. 4KB = 4,096 bytes
3. 8KB = 8,192 bytes

Table 3: Random Read/Write IOPS Consistency

Specification[1]	Unit	Intel SSD DC S3500 Series	
		1.2TB	1.6TB
Random 4 KB Read (up to)[2]	%	90	90
Random 4 KB Write (up to)	%	80	80
Random 8 KB Read (up to)[3]	%	90	90
Random 8 KB Write (up to)	%	80	80

Notes:
1. Performance consistency measured using IOMeter* based on Random 4KB QD=32 workload, measured as the (IOPS in the 99.9th percentile slowest 1-second interval)/(average IOPS during the test). Measurements are performed on a full Logical Block Address (LBA) span of the drive once the workload has reached steady state but including all background activities required for normal operation and data reliability.
2. 4KB = 4,096 bytes
3. 8KB = 8,192 bytes

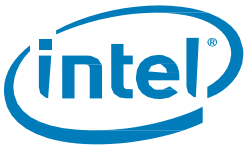


Table 4: Sequential Read and Write Bandwidth

Specification	Unit	Intel SSD DC S3500 Series	
		1.2TB	1.6TB
Sequential Read (SATA 6Gb/s)[1]	MB/s	500	500
Sequential Write (SATA 6Gb/s)[1]	MB/s	460	460

Note:
1. Performance measured using IOMeter* with 128 KB (131,072 bytes) of transfer size with Queue Depth 32.

Table 5: Latency

Specification	Intel SSD DC S3500 Series	
	1.2TB	1.6TB
Latency[1] (TYP)		
Read	50 µs	50 µs
Write	65 µs	65 µs
Power On to Ready[2]	6.0 s	7.0 s

Notes:
1. Device measured using IOMeter. Latency measured using 4KB (4,096 bytes) transfer size with Queue Depth equal to 1 on a sequential workload.
2. Power On To Ready time assumes proper shutdown. Time varies if shutdown is not preceded by STANDBY IMMEDIATE command.

Table 6: Quality of Service

Specification	Unit	Intel SSD DC S3500 Series			
		Queue Depth=1		Queue Depth=32	
		1.2TB	1.6TB	1.2TB	1.6TB
Quality of Service[1, 2] (99.9%)					
Reads	ms	0.5	0.5	5	5
Writes	ms	5	0.5	15	10
Quality of Service[1, 2] (99.9999%)					
Reads	ms	5	5	5	10
Writes	ms	15	10	20	20

Notes:
1. Device measured using IOMeter. Quality of Service measured using 4KB (4,096 bytes) transfer size on a random workload on a full Logical Block Address (LBA) span of the drive once the workload has reached steady state but including all background activities required for normal operation and data reliability.
2. Based on Random 4KB QD=1, 32 workloads, measured as the time taken for 99.9(or 99.9999) percentile of commands to finish the round-trip from host to drive and back to host.

2.3 Electrical Characteristics

Table 7: Operating Voltage for 2.5-inch Form Factor

Electrical Characteristics	Intel SSDDC S3500 Series
	1.2TB/1.6TB
5 V Operating Characteristics:	
Operating Voltage range	5 V (±5%)
Rise time (Max/Min)	1 s / 1 ms
Fall time (Min)[2]	1 ms
Noise level	500 mV pp 10 Hz – 100 KHz
	50 mV pp 100 KHz – 20 MHz
Min Off time[3]	500 ms
Inrush Current (Typical Peak)[1]	1.2 A, < 1 s
12 V Operating Characteristics:	
Operating Voltage range	12 V (±10%)
Rise time (Max/Min)	1 s / 1 ms
Fall time (Min)[2]	1 ms
Noise level	1000 mV pp 10 Hz – 100 KHz
	100 mV pp 100 KHz – 20 MHz
Min Off time[3]	500 ms
Inrush Current (Typical Peak)[1]	1.2 A, < 1 s

Notes:
1. Measured from initial device power supply application.
2. Fall time needs to be equal or better than minimum in order to guarantee full functionality of enhanced power loss management.
3. The drive needs to be powered off for at least 500 msec before powering on.

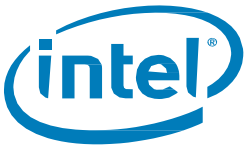


Table 8: Power Consumption for 2.5-inch Form Factor (5V Supply)

Specification	Unit	Intel SSD DC S3500 Series	
		1.2TB	1.6TB
Active Write - RMS Average [1]	W	5.0	5.2
Active Write - RMS Burst [2]	W	6.9	7.2
Active Write - RMS MAX Burst [3]	W	8.7	8.7
Active Read - RMS Average [4]	W	2.5	2.5
Active Read – RMS Burst [5]	W	3.0	3.4
Active Read – RMS MAX Burst [6]	W	4.8	4.8
Idle	W	0.7	0.7

Notes:

1. The workload equates 128 KB (131,072 bytes) Queue Depth equal to 32 sequential writes. RMS (Root Mean Squared) Average Power is measured using Agilent Power Analyzer over a 100 ms sample period with PLI capacitor charge enabled.
2. The workload equates 128 KB (131,072 bytes) Queue Depth equal to 32 sequential writes. RMS (Root Mean Squared) Burst Power is measured using Agilent Power Analyzer over a 500 µs sample period with PLI capacitor charge disabled.
3. The workload equates 128 KB (131,072 bytes) Queue Depth equal to 32 sequential writes. RMS (Root Mean Squared) Max burst power is measured using Agilent Power Analyzer over a 500 us sample period with PLI capacitor charge enabled. Pulse is 0.25% of total time.
4. The workload equates 128 KB (131,072 bytes) Queue Depth equal to 32 sequential reads. RMS (Root Mean Squared) Average power is measured using Agilent Power Analyzer over a 100 ms sample period with PLI capacitor charge enabled.
5. The workload equates 128 KB (131,072 bytes) Queue Depth equal to 32 sequential reads. RMS (Root Mean Squared) Burst power is measured using Agilent Power Analyzer over a 500 µs sample period with PLI capacitor charge disabled.
6. The workload equates 128 KB (131,072 bytes) Queue Depth equal to 32 sequential reads. RMS (Root Mean Squared) Max Burst power is measured using Agilent Power Analyzer over a 500 us sample period with PLI capacitor charge enabled. Pulse is approximately 0.25% of total time.

Table 9: Power Consumption for 2.5-inch Form Factor (5V and 12V Supply)

Specification	Unit	Intel SSD DC S3500 Series			
		1.2TB		1.6TB	
		5V	12V	5V	12V
Active Write - RMS Average [1]	W	1.9	2.9	2.0	3.4
Active Write - RMS Burst [2]	W	2.5	5.5	2.6	6.0
Active Write - RMS MAX Burst [3]	W	4.3	5.7	4.2	6.0
Active Read - RMS Average [4]	W	1.3	0.01	1.3	0.01
Active Read - RMS Burst [5]	W	2.1	0.1	2.0	0.1
Active Read – RMS MAX Burst [6]	W	3.6	0.2	3.5	0.3
Idle	W	0.7	0.01	0.7	0.01

Notes:

1. The workload equates 128 KB (131,072 bytes) Queue Depth equal to 32 sequential writes. RMS (Root Mean Squared) Average Power is measured using Agilent Power Analyzer over a 100 ms sample period with PLI capacitor charge enabled.
2. The workload equates 128 KB (131,072 bytes) Queue Depth equal to 32 sequential writes. RMS (Root Mean Squared) Burst Power is measured using Agilent Power Analyzer over a 500 µs sample period with PLI capacitor charge disabled.
3. The workload equates 128 KB (131,072 bytes) Queue Depth equal to 32 sequential writes. RMS (Root Mean Squared) Max burst power is measured using Agilent Power Analyzer over a 500 us sample period with PLI capacitor charge enabled. Pulse is 0.25% of total time.
4. The workload equates 128 KB (131,072 bytes) Queue Depth equal to 32 sequential reads. RMS (Root Mean Squared) Average power is measured using Agilent Power Analyzer over a 100 ms sample period with PLI capacitor charge enabled.

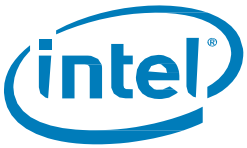
5. The workload equates 128 KB (131,072 bytes) Queue Depth equal to 32 sequential reads. RMS (Root Mean Squared) Burst power is measured using Agilent Power Analyzer over a 500 µs sample period with PLI capacitor charge disabled.
6. The workload equates 128 KB (131,072 bytes) Queue Depth equal to 32 sequential reads. RMS (Root Mean Squared) Max Burst power is measured using Agilent Power Analyzer over a 500 us sample period with PLI capacitor charge enabled. Pulse is approximately 0.25% of total time.

2.4 Environmental Conditions

Table 10: Temperature, Shock, Vibration for Intel SSD DC 3500 2.5-inch Form Factor

Temperature	**Range**
Case Temperature Operating Non-operating[1]	 0 – 70 °C -55 – 95 °C
Temperature Gradient[2] Operating Non-operating	 30 °C/hr (Typical) 30 °C/hr (Typical)
Humidity Operating Non-operating	 5 – 95 % 5 – 95 %
Shock and Vibration	**Range**
Shock[3] Operating Non-operating	 1,000 G (Max) at 0.5 msec 1,000 G (Max) at 0.5 msec
Vibration[4] Operating Non-operating	 2.17 G_{RMS} (5-700 Hz) 3.13 G_{RMS} (5-800 Hz)

Notes:
1. Contact your Intel representative for details on the non-operating temperature range.
2. Temperature gradient measured without condensation.
3. Shock specifications assume the SSD is mounted securely with the input vibration applied to the drive-mounting screws. Stimulus may be applied in the X, Y or Z axis. Shock specification is measured using Root Mean Squared (RMS) value.
4. Vibration specifications assume the SSD is mounted securely with the input vibration applied to the drive-mounting screws. Stimulus may be applied in the X, Y or Z axis. Vibration specification is measured using RMS value.



2.5 Product Regulatory Compliance

Intel® SSD DC S3500 Series meets or exceeds the regulatory or certification requirements listed in the following table:

Table 11: Product Regulatory Compliance Specifications

Title	Description	Region For Which Conformity Declared
TITLE 47-Telecommunications CHAPTER 1— FEDERAL COMMUNMICATIONS COMMISSION PART 15 — RADIO FREQUENCY DEVICES	FCC Part 15B Class B	USA
ICES*-003, Issue 4 Interference-Causing Equipment Standard Digital Apparatus	CA/CSA-CEI/IEC CISPR 22-10 (Ref. CISPR 22:2008).	Canada
IEC* 55024 Information Technology Equipment — Immunity characteristics— Limits and methods of measurement CISPR24:2010	EN-55024: 2010 and its amendments	European Union
IEC* 55022 Information Technology Equipment — Radio disturbance Characteristics— Limits and methods of measurement CISPR22:2008 (Modified)	EN-55022: 2010 and its amendments	European Union
EN-60950-1 2nd Edition	Information Technology Equipment — Safety — Part 1: General Requirements	USA/Canada
UL/CSA EN-60950-1 2nd Edition	Information Technology Equipment — Safety — Part 1: General Requirements	USA/Canada

2.6 Reliability

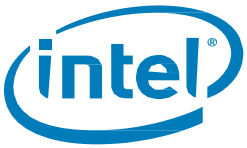
Intel® SSD DC S3500 Series meets or exceeds SSD endurance and data retention requirements as specified in the JESD218 standard. Reliability specifications are listed in the following table:

Table 12: Reliability Specifications

Parameter	Value
Uncorrectable Bit Error Rate (UBER) Uncorrectable bit error rate will not exceed one sector in the specified number of bits read. In the unlikely event of a non-recoverable read error, the SSD will report it as a read failure to the host; the sector in error is considered corrupt and is not returned to the host.	< 1 sector per 10^{17} bits read
Mean Time Between Failures (MTBF) Mean Time Between Failures is estimated based on Telcordia* methodology and demonstrated through Reliability Demonstration Test (RDT).	2 million hours
Power On/Off Cycles Power On/Off Cycles is defined as power being removed from the SSD, and then restored. Most host systems remove power from the SSD when entering suspend and hibernate as well as on a system shutdown.	24 per day
Insertion Cycles SATA/power cable insertion/removal cycles.	50 on SATA cable 500 on backplane
Data Retention The time period for retaining data in the NAND at maximum rated endurance.	3 months power-off retention once SSD reaches rated write endurance at 40 °C
Endurance Rating[1] The number of drive writes such that the SSD meets the requirements according to the JESD218[2] standard and JESD219 workload	1.2TB: Up to 660 TBW 1.6: Up to 880 TBW

Note:

1. Refer to JESD218 standard table 1 for UBER, FFR and other Enterprise SSD endurance verification requirements. UBER design and majority of life target is 1E-17. Endurance verification acceptance criterion based on establishing <1E-16 at 60 confidence.

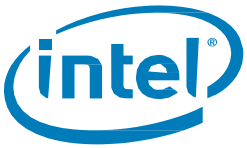


Appendix A: IDENTIFY DEVICE Command Data

Table 13: Returned Sector Data

Word	F = Fixed V = Variable X = Both	Default Value	Description
0	X	0040h	General configuration bit-significant information
1	X	3FFFh	Obsolete - Number of logical cylinders (16,383)
2	V	C837h	Specific configuration
3	X	0010h	Obsolete - Number of logical heads (16)
4-5	X	0h	Retired
6	X	003Fh	Obsolete - Number of logical sectors per logical track (63)
7-8	V	0h	Reserved for assignment by the CompactFlash* Association (CFA)
9	X	0h	Retired
10-19	F	varies	Serial number (20 ASCII characters)
20-21	X	0h	Retired
22	X	0h	Obsolete
23-26	F	varies	Firmware revision (8 ASCII characters)
27-46	F	varies	Model number (Intel® Solid-State Drive)
47	F	8001h	7:0—Maximum number of sectors transferred per interrupt on multiple commands
48	F	4000h	Trusted Computing Feature Set
49	F	2F00h	Capabilities
50	F	4000h	Capabilities
51-52	X	0h	Obsolete
53	F	0007h	Words 88 and 70:64 valid
54	X	3FFFh	Obsolete - Number of logical cylinders (16,383)
55	X	0010h	Obsolete - Number of logical heads (16)
56	X	003Fh	Obsolete - Number of logical sectors per logical track (63)
57-58	X	FC1000FBh	Obsolete
59	F	B101	Number of sectors transferred per interrupt on multiple commands
60-61	V	1200GB: 0FFFFFFFh 1600GB: 0FFFFFFFh	Total number of user-addressable sector
62	X	10000h	Obsolete
63	X	0007h	Multi-word DMA modes supported/selected
64	F	0003h	PIO modes supported
65	F	0078h	Minimum multiword DMA transfer cycle time per word
66	F	0078h	Manufacturer's recommended multiword DMA transfer cycle time
67	F	0078h	Minimum PIO transfer cycle time without flow control
68	F	0078h	Minimum PIO transfer cycle time with IORDY flow control
69	F	4030h	Additional Supported
70	F	0000h	Reserved
71-74	F	0h	Reserved for IDENTIFY PACKET DEVICE command
75	F	001Fh	Queue depth
76	F	850Eh	Serial ATA capabilities
77	F	0006h	Reserved for future Serial ATA definition

Word	F = Fixed V = Variable X = Both	Default Value	Description
78	F	0040h	Serial ATA features supported
79	V	0040h	Serial ATA features enabled
80	F	03FCh	Major version number
81	F	0110h	Minor version number
82	F	746Bh	Command set supported
83	F	7501h	Command sets supported
84	F	6163h	Command set/feature supported extension
85	X	7469h	Command set/feature enabled
86	X	B401h	Command set/feature enabled
87	X	6163h	Command set/feature default
88	X	407Fh	Ultra DMA Modes
89	F	0002h	Time required for security erase unit completion
90	F	0002h	Time required for enhanced security erase completion
91	V	0h	Current advanced power management value
92	V	0FFFEh	Master Password Revision Code
93	X	0h	Hardware reset result: the contents of bits (12:0) of this word shall change only during the execution of a hardware reset
94	V	0h	Vendor's recommended and actual acoustic management value
95	F	0h	Stream minimum request size
96	V	0h	Streaming transfer time - DMA
97	V	0h	Streaming access latency - DMA and PIO
98-99	F	0h	Streaming performance granularity
100-103	V	1200GB: 8BBA0CB0h 1600GB: BA4D4AB0h	Maximum user LBA for 48-bit address feature set
104	V	0h	Streaming transfer time - PIO
105	V	0006h	Maximum number of 512-byte blocks of LBA Range Entries per DATA SET MANAGEMENT command
106	F	6003h	Physical sector size / logical sector size
107	F	0h	Inter-seek delay for ISO-7779 acoustic testing in microseconds
108-111	F	varies	Unique ID
112-115	F	0h	Reserved for worldwide name extension to 128 bits
116	V	0h	Reserved for technical report
117-118	F	0h	Words per logical sector
119	F	405Ch	Supported settings
120	X	401Ch	Command set/feature enabled/supported
121-126	F	0h	Reserved
127	X	0h	Removable Media Status Notification feature set support
128	X	0029h	Security status
129	V	001Ch	Vendor-specific
130-159	X	0h	Vendor-specific
160	X	0h	CompactFlash Association (CFA) power mode 1
161-167	X	0h	Reserved for assignment by the CFA
168	X	0003h	Reserved for assignment by the CFA
169	X	0001h	Data set management Trim attribute support



Word	F = Fixed V = Variable X = Both	Default Value	Description
170-175	F	0h	Reserved for assignment by the CFA
176-205	V	Varies	Current media serial number
206	X	003Dh	SCT Command Transport
207-208	F	0000h	Reserved
209	X	4000h	Alignment of logical blocks within a physical block
210-211	V	0000h	Write-Read-Verify Sector Count Mode 3 (DWord)
212-213	F	0000h	Write-Read-Verify Sector Count Mode 2 (DWord)
214	X	0000h	NV Cache Capabilities
215-216	V	0000h	NV Cache Size in Logical Blocks (DWord)
217	F	0001h	Nominal media rotation rate
218	V	0000h	Reserved
219	F	0000h	NV Cache Options
220	V	0000h	Write-Read-Verify feature set
221	X	0000h	Reserved
222	F	101Fh	Transport major version number
223	F	0000h	Transport minor version number
224-229	F	0000h	Reserved
230-233	X	0000h	Extended Number of User Addressable Sectors (QWord)
234	F	0001h	Minimum number of 512-byte data blocks per DOWNLOAD MICROCODE command for mode 03h
235	F	FFFFh	Maximum number of 512-byte data blocks per DOWNLOAD MICROCODE command for mode 03h
236-254	X	0000h	Reserved
255	V	46A5h	Integrity word

Notes:

F = Fixed. The content of the word is fixed and does not change. For removable media devices, these values may change when media is removed or changed.

V = Variable. The state of at least one bit in a word is variable and may change depending on the state of the device or the commands executed by the device.

X = F or V. The content of the word may be fixed or variable.