Intel® Solid-State Drive DC S3500 Series M.2

Product Specification Addendum

- Capacity:
  - 80GB, 120GB, 340GB
- Components:
  - Intel® 20nm NAND Flash Memory
  - Multi-Level Cell (MLC)
- Form Factor:
  - Type 2280-D5-BM: 22mm x 80mm
  - Z-Height 1.5mm x 1.5mm
- Read and Write IOPS[1,2] (Full LBA Range, IOMeter* Queue Depth 32)
  - Random 4KB[3] Reads: Up to 67,000 IOPS
  - Random 4KB Writes: Up to 14,500 IOPS
  - Random 8KB[3] Reads: Up to 45,000 IOPS
  - Random 8KB Writes: Up to 7,300 IOPS
- Bandwidth Performance[1]
  - Sustained Sequential Read: Up to 470 MB/s[4]
  - Sustained Sequential Write: Up to 320 MB/s
- Latency (average sequential)
  - Read: 50 µs (TYP)
  - Write: 65 µs (TYP)
- Quality of Service[5, 6]
  - 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
  - ATA-ACS2 Rev-7; includes SCT (Smart Command Transport) and device statistics log support
  - SSD-enhanced SMART ATA feature set
  - Native Command Queuing (NCQ) command set
  - Data set management Trim command
  - SATAIO M.2 Card Format Version 11
- Altitude[7]
  - Operating: -1,000 to 10,000 ft
  - Operating[8]: -10,000 to 15,000 ft
  - Non-operating: -1,000 to 40,000 ft
- Power Management
  - 3.3V Only
  - SATA Interface Power Management
  - Enhanced power-loss data protection
  - DIPM and Hot plug/removal not Supported
- 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
- Product Ecological Compliance
  - RoHS*
- Power
  - Active: Up to 3.8W (TYP)
  - Idle: 500 mW
  - Power on to Ready after planned Shutdown: Typical 2 Sec.
- Weight: 11 grams ± 1 grams
- Temperature
  - Operating: 0° C to 70° C
  - Non-Operating[9]: -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 10^17 bits read
  - Mean Time Between Failures (MTBF): 2 million hours
  - End-to-End data protection
- Endurance Rating[10]:
  - 80GB: Up to 45TB
  - 120GB: Up to 70TB
  - 340GB: Up to 180TB
- Certifications and Declarations
  - UL*, CE*, C-Tick*, BSMI*, KCC*, Microsoft WHCK*, VCCI*, SATA-IO

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

Order number: 331061-002US

Ordering Information

Contact your local Intel sales representative for ordering information.

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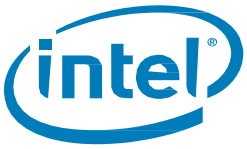
Revision History

Revision	Description	Date
001	Initial release	November 2014
002	• Updated description and value of word 106 in Appendix A's Returned Sector Data table. • Updated M.2 dimensions graphic (figure 1) in section 3.0, "Mechanical Information."	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 describes the specifications and capabilities of the Intel® Solid-State Drive (SSD) Data Center (DC) S3500 Series specific to the M.2 Form Factor.

The Intel SSD DC S3500 Series delivers leading performance and Quality of Service combined with world-class reliability for Serial Advanced Technology Attachment (SATA) interface-enabled computers in three capacities: 80GB, 120GB and 340GB in the M.2 Form Factor.

By combining 20nm Intel® NAND Flash Memory technology with SATA 6 Gb/s interface support, the Intel SSD DC S3500 Series M.2 delivers sequential read speeds of up to 470 MB/s and sequential write speeds of up to 320 MB/s. Intel SSD DC S3500 Series delivers Quality of Service of 500 µs for random 4KB reads measured at a queue depth of 1.

Intel SSD DC S3500 Series M.2 offers these key features:

- Standard Endurance Technology
- Higher IO and throughput performance
- Consistent IO latency
- Enhanced power-loss data protection features
- End-to-End data protection
- Thermal throttling
- Temperature Sensor
- Inrush current management
- Low power
- Higher reliability
- Temperature monitor and logging
- Power loss protection capacitor self-test

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)
80GB[1]	156,301,488[2]
120GB	234,441,648
340GB	664,212,528

Notes:
1. 1GB = 1,000,000,000 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		
		80GB	120GB	340GB
Random 4KB Read (up to)[1]	IOPS	67,000[3]	67,000	67,000
Random 4KB Write (up to)	IOPS	8,300	12,000	14,500
Random 8KB Read (up to)[2]	IOPS	38,000	45,000	45,000
Random 8KB Write (up to)	IOPS	4,200	6,100	7,300

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

Table 3: Random Read/Write IOPS Consistency

Specification[1]	Unit	Intel SSD DC S3500 Series		
		80GB	120GB	340GB
Random 4KB Read (up to)[2]	%	90[3]	90	95
Random 4KB Write (up to)	%	85	90	90
Random 8KB Read (up to)[3]	%	90	90	95
Random 8KB Write (up to)	%	84	90	90

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		
		80GB	120GB	340GB
Sequential Read (SATA 6Gb/s)[1]	MB/s	340	440	480
Sequential Write (SATA 6Gb/s)[1]	MB/s	110	160	355

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	
	80GB, 120GB	340GB
Latency[1] (TYP)		
Read	50 µs	50 µs
Write	65us	65us
Power On to Ready[2]	2.0 s	3.0 s

Notes:
1. Device measured using IOMeter. Latency measured using 4 KB (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	
		80GB, 120GB	340GB	80GB, 120GB	340GB
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 M.2 Form Factor

Electrical Characteristics	Intel SSD DC S3500 Series		
	80 GB	120 GB	340 GB
Operating Voltage for 3.3V (±5%) Min Max	3.13V 3.47V		
Inrush Current (Typical Peak) [1]	1.2 A, < 1 s		
PLI Capacitor Charge Voltage[2]	Average 34 Volts		

Note:
1. Measured from initial device power supply application.
2. This is the voltage stored in the onboard capacitors used to save data held in the DRAM to NAND in the event of an unplanned power loss. As the electronic components are exposed, care must be taken not to allow the M.2 drive to touch other electronic devices if removed from the circuit until the capacitors have fully discharged. Allow 10 minutes for full discharge.

Table 8: Power Consumption for M.2 Form Factor

Specification	Unit	Intel SSD DC3500 Series		
		80GB	120GB	340GB
Active Write - RMS Average [1]	W	1.9	2.3	3.8
Active Write - Burst [2]	W	2.1	2.5	4.5
Active Write - MAX Burst [3]	W	3.7	4.2	5.9
Active Read - RMS Average [4]	W	1.7	1.9	2.0
Active Read - Burst [5]	W	1.9	2.1	2.4
Active Read - MAX Burst [6]	W	3.4	3.6	3.6
Idle	W	0.5	0.5	0.5

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 µs 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 µs sample period with PLI capacitor charge enabled. Pulse is approximately 0.25% of total time.

2.4 Environmental Conditions

Table 9: Temperature, Shock, Vibration for Intel SSD DC S3500 Series M.2 Form Factor

Temperature	Range
PCB Temperature[1] Operating Non-operating[2]	 0 – 70 °C -55 – 95 °C
Temperature Gradient[3] Operating Non-operating	 30 °C/hr (Typical) 30 °C/hr (Typical)
Thermal Throttling Full Performance Temperature Range Reduced Performance Temperature[4]	 0 – 59 °C 60 -70 °C
Humidity Operating Non-operating	 5 – 95 % 5 – 95 %
Shock and Vibration	**Range**
Shock[5] Operating Non-operating	 1,000 G at 0.5 msec 1,000 G at 0.5 msec
Vibration[6] Operating Non-operating	 2.17 G_{RMS} (5-700 Hz) 3.13 G_{RMS} (5-800 Hz)

Notes:

1. PCB temperature is best represented by the onboard temperature sensor data reported by the SMART BEh/C2h attributes.
2. Please contact your Intel representative for details on the non-operating temperature range.
3. Temperature gradient measured without condensation.
4. Thermal throttling (reduction of read/write performance helps to control device temperature).
5. Shock specifications assume the SSD is mounted securely with the input shock pulse applied to the drive-mounting screws. Stimulus may be applied in the X±, Y± or Z± axis. Shock specification is measured using the amplitude value (G) and the duration value (msec) of the shock pulse.
6. 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 in the following table:

Table 10: Product Regulatory Compliance

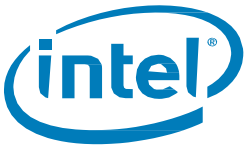
Title	Description	Region For Which Conformity Declared
TITLE 47-Telecommunications CHAPTER 1— FEDERAL COMMUNMICATIONS COMMISSION PART 15 — RADIO FREQUENCY DEVICES	FCC Part 15B Class B	USA
ICES*-003, Issue 4 Interference-Causing Equipment Standard Digital Apparatus	CA/CSA-CEI/IEC CISPR 22-10 (Ref. CISPR 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 11: 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[1]	N/A
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



Parameter	Value
Endurance Rating[2] The number of drive writes such that the SSD meets the requirements according to the JESD218[2] standard and JESD219 workload.	80 GB: Up to 45 TB 120 GB: Up to 70 TB 340 GB: Up to 180 TB

Notes:
1. The M.2 Standard does not support Hot plug operations and therefore does not specify Insertion cycles
2. 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.

2.7 Temperature Sensor

The Intel SSD DC S3500 Series has an onboard temperature sensor with an accuracy of +/-2C over a range of -20C to +80C which can be monitored using two SMART attributes: Airflow Temperature (BEh) and Device Internal Temperature (C2h). The M.2 product will report the same value for both SMART attributes.

2.8 Thermal Considerations

Because there is no enclosure on the device, the Intel SSD DC S3500 Series M.2 form factor requires thermal considerations in both device location and airflow design within the system environment. The system design must guarantee that the M.2 SSD does not exceed the PCB temperature specification (as defined in Table 9) by providing the proper amount of forced airflow.

As temperatures approach the PCB maximum temperature specification (as defined in Table 9), thermal throttling will activate, reducing the total power consumed, which has the effect of slowing write performance to help reduce operating temperature (read performance may also be reduced). As the PCB temperature lowers, the throttling operation deactivates and the M.2 SSD will return to normal operating performance after reaching the full performance temperature range.

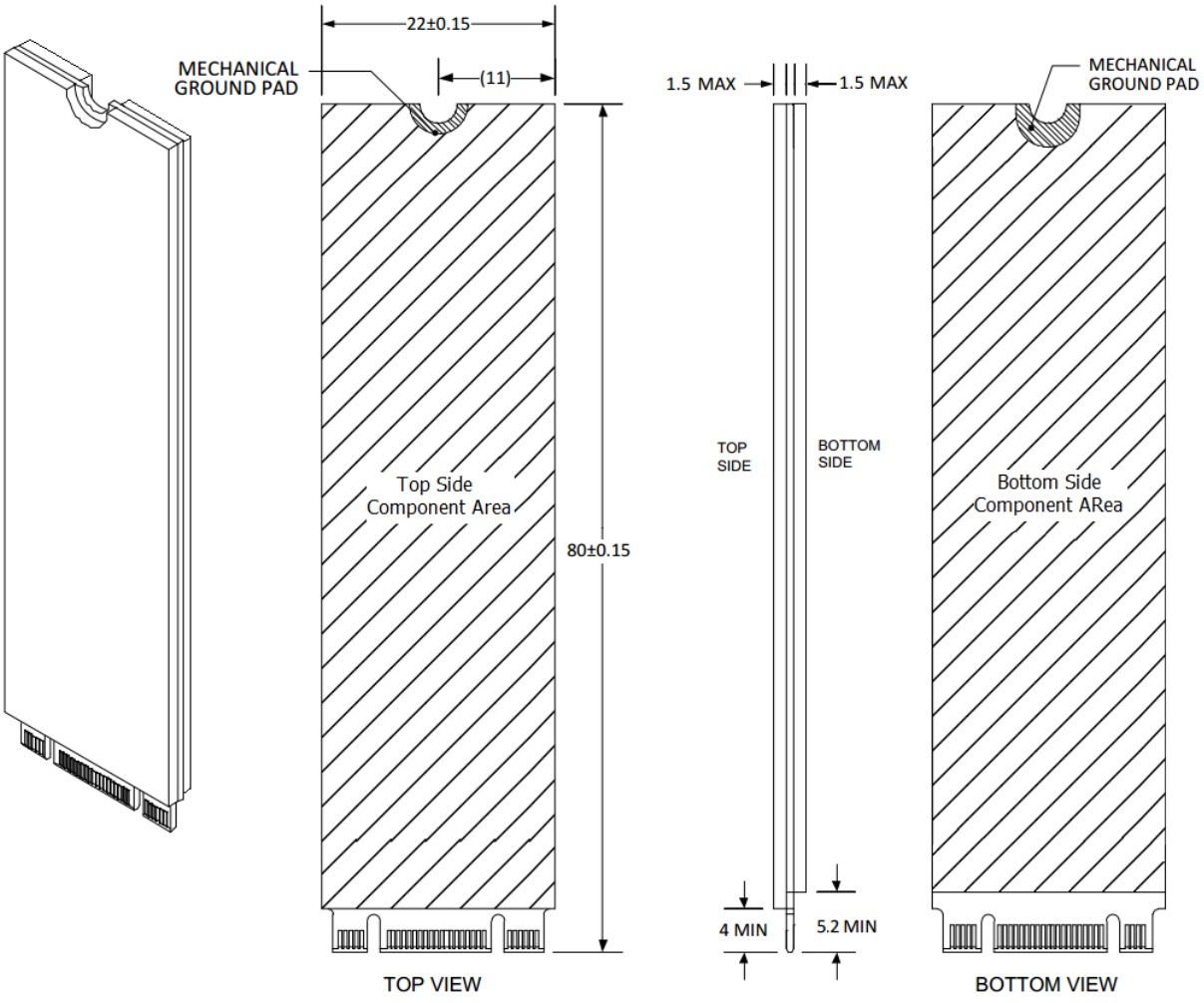
2.9 Hot Plug Support

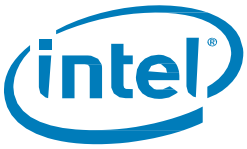
Hot plug is not supported in the M.2 Specification. However, the DC S3500 M.2 can support hot plug operations when used with an interposer design that electrically supports hot plug operations. User Data is protected from planned or unplanned power loss by the Enhanced Power Management technology on the DC S3500 Series.

3.0 Mechanical Information

Figure 1 shows the physical information for the Intel SSD DC S3500 Series M.2 form factor type 2280-D5-BM. All dimensions are in millimeters.

Figure 1: Intel SSD DC S3500 Series M.2 Dimensions





4.0 Pin and Signal Descriptions

Table 12: Serial ATA, M.2 and Socket 2 Pin-out

Pin	Function	Function	Pin
74	3.3V	GND	75
72	3.3V	GND	73
70	3.3V	GND	71
68	N/C	GND	69
x	Module Key M	N/C	67
x	Module Key M	Module Key M	x
x	Module Key M	Module Key M	x
x	Module Key M	Module Key M	x
58	Reserved for MFG_CLOCK	Module Key M	x
56	Reserved for MFG_DATA	GND	57
54	N/C	N/C	55
52	N/C	N/C	53
50	N/C	GND	51
48	N/C	SATA-A+	49
46	N/C	SATA-A-	47
44	N/C	GND	45
42	N/C	SATA-B-	43
40	N/C	SATA-B+	41
38	DEVSLP (I)	GND	39
36	N/C	N/C	37
34	N/C	N/C	35
32	N/C	GND	33
30	N/C	N/C	31
28	N/C	N/C	29
26	N/C	GND	27
24	N/C	N/C	25
22	N/C	N/C	23
20	N/C	GND	21
x	Module Key B	Module Key B	x
x	Module Key B	Module Key B	x
x	Module Key B	Module Key B	x
x	Module Key B	Module Key B	x
10	DAS/DSS#(I/O)	N/C	11
8	N/C	N/C	9
6	N/C	N/C	7
4	3.3V	N/C	5
2	3.3V	GND	3
		GND	1

5.0 References

The following table identifies the standards information referenced in this document.

Table 13: Standards References

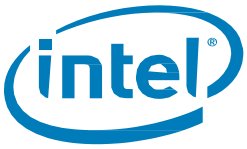
Date	Title	Location
2013	PCI Express M.2 Specification, Revision 1.0	http://www.pcisig.com/specifications/pciexpress/M.2_Specification/
July 2012	Solid-State Drive (SSD) Requirements and Endurance Test Method (JESD219)	http://www.jedec.org/standards-documents/results/jesd219
Sept 2010	Solid-State Drive (SSD) Requirements and Endurance Test Method (JESD218)	http://www.jedec.org/standards-documents/docs/jesd218/
June 2009	RoHS*	http://qdms.intel.com/ Click *Search MDDS Database* and search for material description datasheet
August 2009	ACS-2-ATA/ATAPI Command Set 2 Specification	http://www.t13.org/
June 2009	Serial ATA Revision 3.0	http://www.sata-io.org/
Dec 2008	VCCI	http://www.vcci.jp/vcci_e/
May 2006	SFF-8223, 2.5-inch Drive w/Serial Attachment Connector	http://www.sffcommittee.org/
May 2005	SFF-8201, 2.5-inch drive form factor	http://www.sffcommittee.org/
1995 1996 1995 1995 1997 1994	International Electrotechnical Commission EN 61000 4-2 (Electrostatic discharge immunity test) 4-3 (Radiated, radio-frequency, electromagnetic field immunity test) 4-4 (Electrical fast transient/burst immunity test) 4-5 (Surge immunity test) 4-6 (Immunity to conducted disturbances, induced by radio-frequency fields) 4-11 (Voltage Variations, voltage dips, short interruptions and voltage variations immunity tests)	http://www.iec.ch/
1995	ENV 50204 (Radiated electromagnetic field from digital radio telephones)	http://www.dbicorporation.com/radimmun.htm/

Appendix A: IDENTIFY DEVICE Command Data

Table 14: 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
60-62	V	80GB: 0950F8B0h 120GB: 0DF94B80h 340GB: 0FFFFFFFh	Total number of user-addressable sector
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	80GB: 0950F8B0h 120GB: 0DF94BB0h 340GB: 27971430h	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	Default Physical sector size / logical sector size. Can be changed to 0004h to reflect 512Bytes/Sector
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 world wide 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	0021h	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



Word	F = Fixed V = Variable X = Both	Default Value	Description
169	X	0001h	Data set management Trim attribute support
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	52A5	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.