

# Memoright

## Product Data Sheet

**GT II**

**SATAII-3.0 Gb/s**

Commercial Temperature Grade  
Standard 2.5" SSD



# Commercial-Temp SATA Solid State Drive 2.5" – GT II Series

## 32~512 GB

### 1. Features

- ◆ **Form Factor**
  - 2.5" SATA solid State Drive (SSD)
  - 100.2 mm x 69.85 mm 9.5 mm
  - Totally compliant to standard SATA hard disk drive
  - 7+15 pin (SATA power) SATA connector
- ◆ **Available Capacities**
  - 16~512 GB (SLC NAND Flash)
- ◆ **Highly integrated controller for NAND Flash memory**
  - Supported max. to UDMA6
  - Supported max. to PIO mode 4.
  - SLC NAND Flash
- ◆ **ECC**
  - It supports Enhanced ECC algorithm from 9~22 bits to reduce error rate and enforce write endurance at the same time
- ◆ **High Performance**
  - Up to 300 MB/s burst transfer rate in SATAII, 3 Gb/s
  - Sustained Read Performance: up to 220 MB/s
  - Sustained Write Performance: up to 210 MB/s
- ◆ **High Reliability**
  - MTBF > 4,000,000 hours
  - Endurance: In normal operation condition, guarantees for 5 years product lifetime for the SSD capacity sequential write per day
  - Dynamic, static and active balanced wear-leveling strategy
  - Bad-Block Management
- ◆ **Temperature Ranges**
  - Commercial Temperature Range: 0°C ~+70°C



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### 3. Ordering Information

The following Table 1 lists the part No. for Memoright GT II series SSDs.

Table 1: Commercial temperature product list

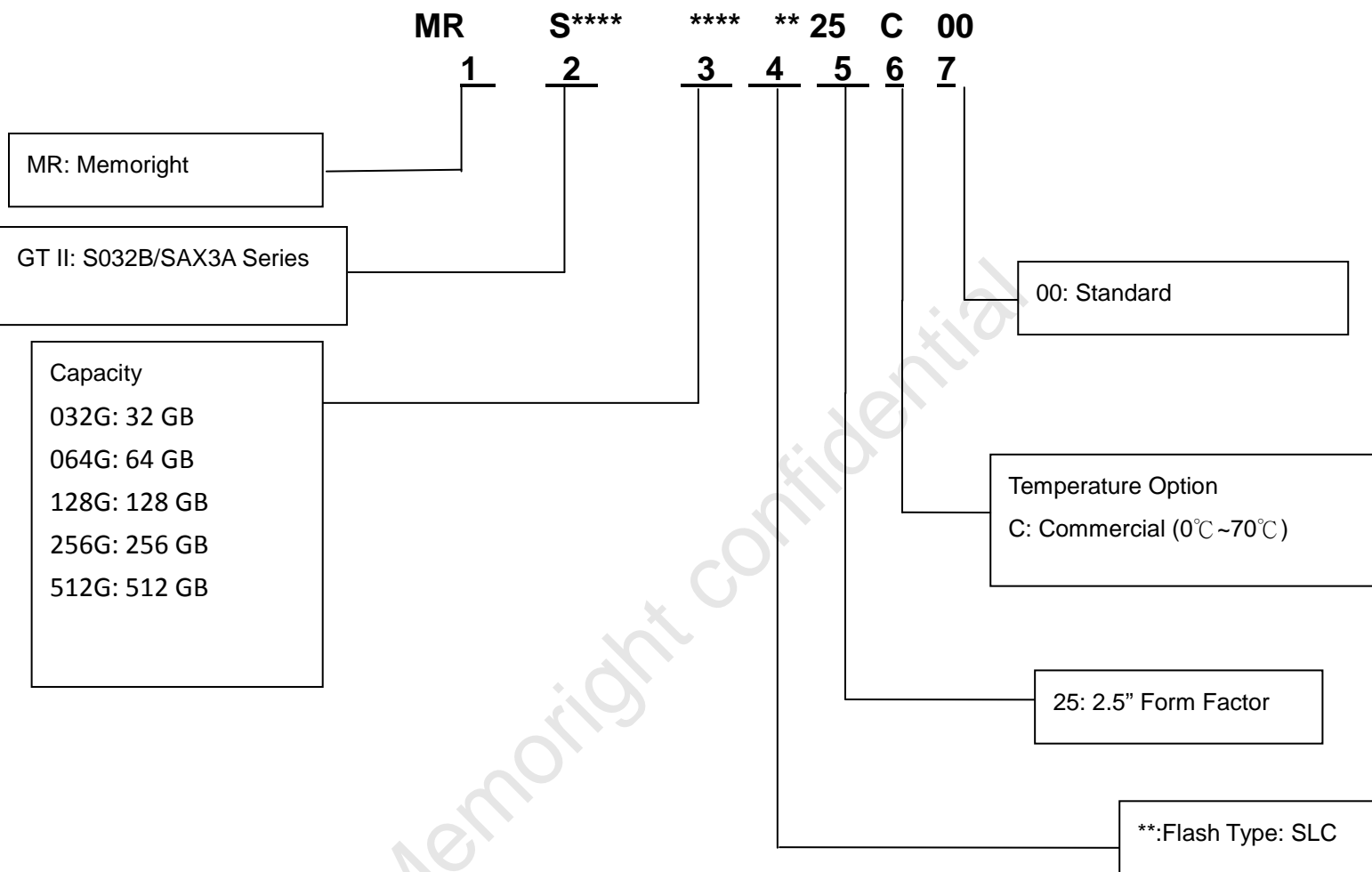
Part Number	Capacity	Flash Type	Form Factor
MRS032B032GT425C00	32 GB*	SLC	2.5"
MRS032B064GT525C00	64 GB*	SLC	2.5"
MRS032B128GT625C00	128 GB*	SLC	2.5"
MRSAX3A256GN025C00	256 GB*	SLC	2.5"
MRSAX3A512GNJ25C00	512 GB*	SLC	2.5"

\* 1 GB=1,000,000,000 Bytes

For latest ordering information, please consult Memoright's sales representatives or check on our website:

<http://www.memoright.com>

### 3.1 Part Number Decoder



## 4. General Description

The Memoright GT II series SSD provides you ultimate performance and ultra-high reliability over traditional hard disk drive by achieving up to 220 MB/s/210 MB/s sequential read/write rate and integrated protection technologies such as bad block management, wear-leveling. The above-mentioned features made Memoright GT II series SSD the best solution for various consumer electronics and industrial applications.

For reliability, Memoright GT II series SSD integrates **dynamic, static and active (inactive) balanced wear leveling technology** to ensure an equal usage of the Flash memory cells to extend the SSD life time. Moreover, it provides features such as Enhanced **ECC algorithm, bad block management algorithm and MTBF>4,000,000** hours to assure overall reliability.

Memoright GT II series SSD consists solely of semiconductor devices, which means it doesn't have any mechanical part such as platter (disk), motor and suspension as traditional hard disk drive. Its characteristics such as high performance, capacity, reliability, ruggedness, low power consumption and small form factor make it the best storage solution not only for military & industrial application with extreme environment and increased MTBF requirements. Due to Memoright GT II series' SATA interface and 2.5" form factor, it is the best solution to replace traditional 2.5" HDD.

### 4.1 Physical Description

The important component of Memoright GT II SSD includes a Flash controller and NAND Flash memory modules. The controller works with a host system to allow data to be written to and read from the Flash memory modules through a (SATA) interface. The SSD is offered in a 2.5" form factor with a SATA connector.

## 4.2 System Performance

Table 2: System Performance Table

System Performance		Max.	Unit
Data transfer Rate (SATA burst (3 Gb/s))		300	MB/s
Sustained Sequential Read Rate	32 GB	210	MB/s
Sustained Sequential Write Rate	32 GB	200	MB/s
4KB Random Read IOPS	32 GB	3,800	IOPS
4KB Random Write IOPS	32 GB	140	IOPS
Sustained Sequential Read Rate	64 GB	210	MB/s
Sustained Sequential Write Rate	64 GB	200	MB/s
4KB Random Read IOPS	64 GB	4,000	IOPS
4KB Random Write IOPS	64 GB	350	IOPS
Sustained Sequential Read Rate	128 GB	210	MB/s
Sustained Sequential Write Rate	128 GB	210	MB/s
4KB Random Read IOPS	128 GB	4,000	IOPS
4KB Random Write IOPS	128 GB	350	IOPS
Sustained Sequential Read Rate	256 GB	210	MB/s
Sustained Sequential Write Rate	256 GB	200	MB/s
4KB Random Read IOPS	256 GB	4,500	IOPS
4KB Random Write IOPS	256 GB	250	IOPS
Sustained Sequential Read Rate	512 GB	220	MB/s
Sustained Sequential Write Rate	512 GB	210	MB/s
4KB Random Read IOPS	512 GB	4,500	IOPS
4KB Random Write IOPS	512 GB	400	IOPS

### 4.3 Environmental Specifications

#### 4.3.1 Recommended Operating Conditions

Table 3: Recommended Operating Conditions

Parameter	Value
Commercial Operating Temperature	0°C to 70°C
Power Supply Voltage Range	5V DC $\pm$ 5%

#### 4.3.2 Power Consumption (\*)

Table 4: Power Consumption

Current/Power Consumption	5V	Unit
Input Current (Max.)	1	A
Continue Read Power (Average)	2.7	W
Typical Continue Read Current (Average)	500	mA
Continue Write Power (Average)	3.8	W
Typical Continue Write Current (Average)	700	mA
Idle Mode Power (Average)	2	W
Typical Idle Mode/Standby Current (Average)	300	mA
Standby Mode Power (Average)	2.1	W

\* All values are tested under room temperature 25°C @ 5V. The power consumption may vary depends on different platform, OS, BIOS & test tools.

#### 4.3.3 Recommended Storage Conditions

Table 5: Recommended Storage Conditions

Parameter	Value
Commercial Storage Temperature	-40°C to 85°C

#### 4.3.4 Shock, Vibration and Humidity

Table 6: Shock, Vibration and Humidity

Parameter	Value
Humidity (non-condensing)	5%~95% (Operating)
Vibration	16.4G (Peak, 10~2000Hz,x3 Axis)
Shock (Operating)	50G, (11ms duration, half sine wave)
Shock (Non-Operating)	1500G, (0.5ms duration, half sine wave)



## 4.4 Reliability

Table 7: Reliability

Parameter	Value
Mean Time Between Failures (MTBF)	> 4,000,000 hours (Calculation mode: Telcordia SR-332 Issue 1 Method 1, Case 1)
Data Reliability	< 1 Non-Recoverable Error per 10 <sup>15</sup> bits Read
Data Retention	10 years

## 4.5 Physical Dimensions

Physical Dimensions		Unit
Length	100.2	mm
Width	69.85	mm
Thickness	9.5	mm

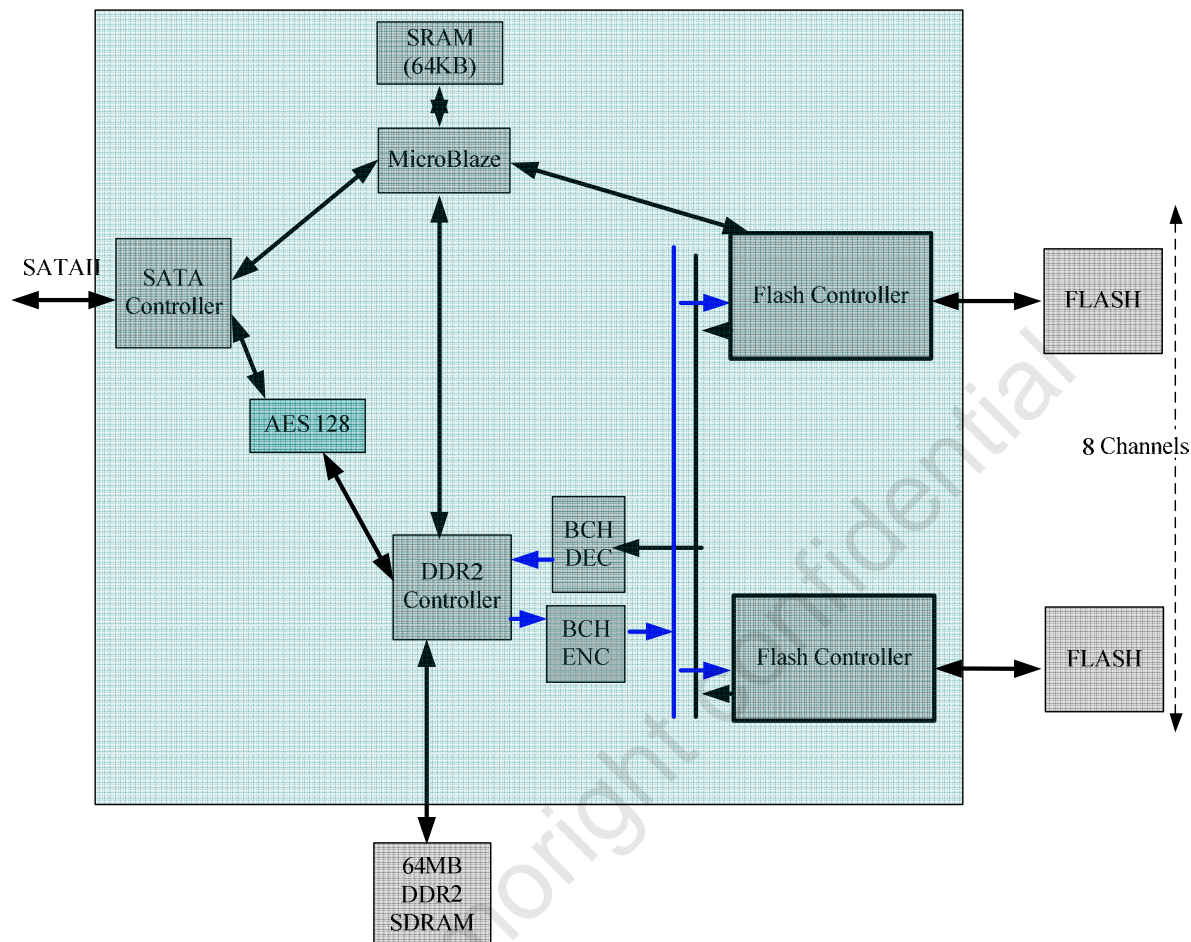
## 4.6 CHS Parameter

Unformatted Capacity	Guaranteed Sectors	Bytes per Sector
32 GB*	62,914,560	512
64 GB*	125,829,120	512
128 GB*	251,658,240	512
256 GB*	503,316,480	512
512 GB*	1,006,632,960	512

\*1GB=1,000,000,000 Bytes

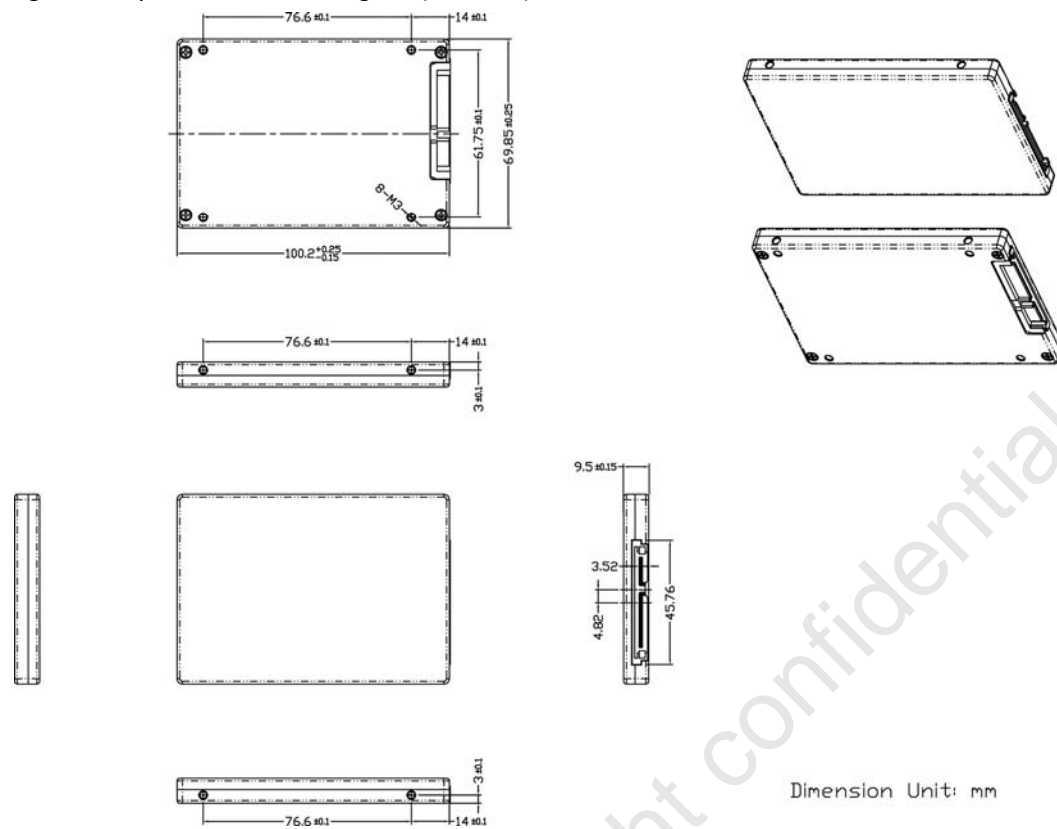
## 5. Functional Block Diagram

Figure 1: Functional Block Diagram



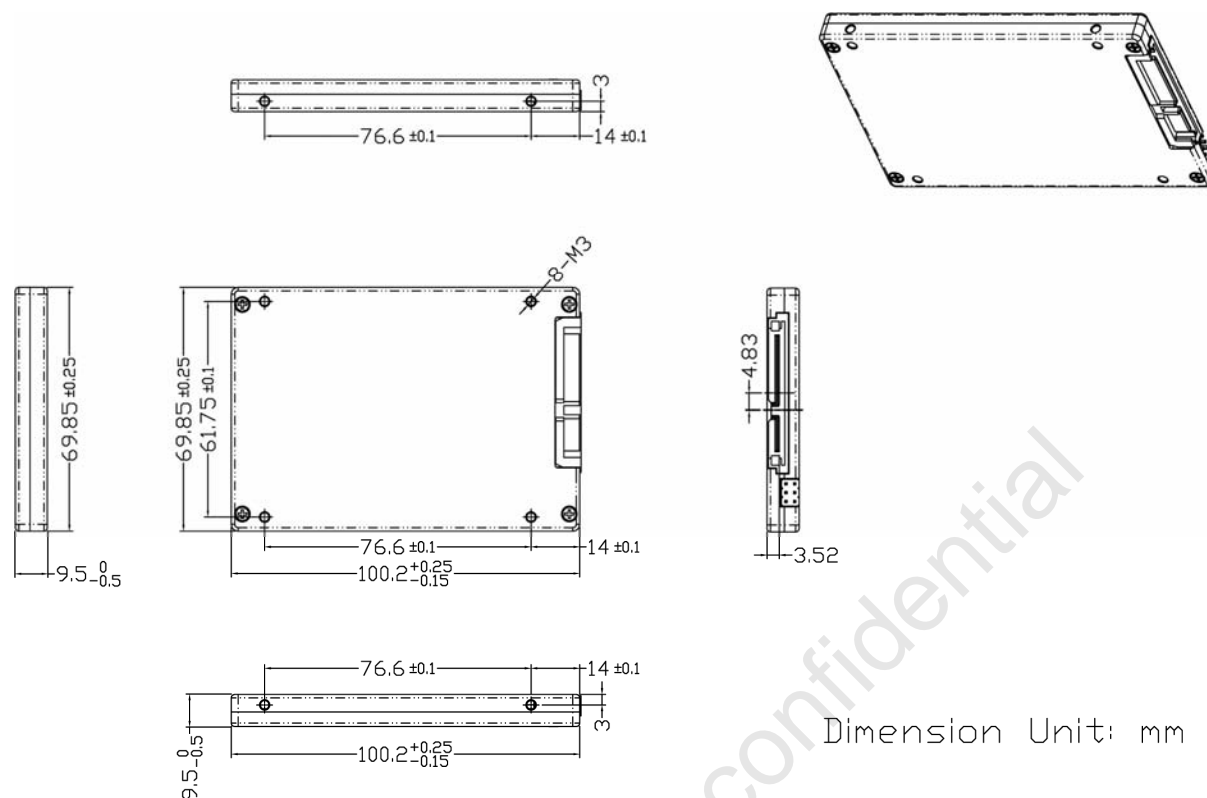
## 6. Physical Dimension Diagram

Figure 2: Physical Dimension Diagram (standard)



Physical Dimensions		Unit
Length	100.2	mm
Width	69.85	mm
Thickness	9.5	mm

Figure 3 Physical Dimension Diagram with hardware trigger (optional)



Physical Dimensions		Unit
Length	100.2	mm
Width	69.85	mm
Thickness	9.5	mm

## 7. Electrical Interface

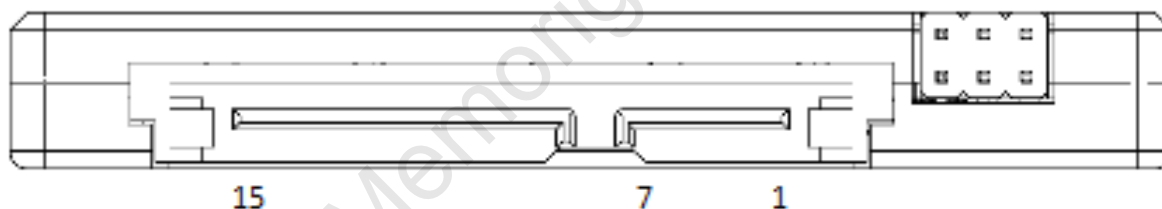
### 7.1 Electrical Description

The drive uses the industry-standard Serial ATA interface that supports 16-bit data transfers. It supports programmed input/output (PIO) modes 0–4; Ultra DMA modes 0–6. The drive also supports the use of the IORDY signal to provide reliable high-speed data transfers.

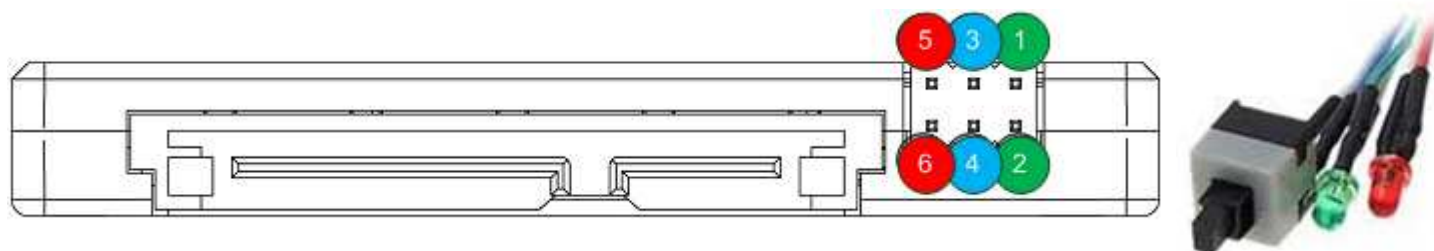
For detailed information about the Serial ATA interface, refer to the draft of AT Attachment with Packet Interface Extension (ATA/ATAPI-7), NCITS T13 1410D, subsequently referred to as the Draft ATA-7 Standard. For detailed information about the Serial ATA interface, refer to the draft of AT Attachment with Packet Interface Extension (ATA/ATAPI-7), NCITS T13 1410D, subsequently referred to as the Draft ATA-7 Standard. The connector on Memoright SATA GT II Series SSD is divided into a signal Segment and a power Segment. The following tables summarize the signals on the SATA interface connector. For a detailed description of these signals, refer to the Draft ATA-7 Standard. Please see following Figure and table for signal and power pin assignment.

### 7.2 Standard

Figure 4 SATA pin



### 7.3 Extra Pin (optional)



	Write Protection	Erase/Destroy	LED Status Indicator
Signal	3	2	6
GND	4	1	5

Write Protection function: pin 3 and pin 4 must be connected.

Hardware Erase Trigger signals: It can be send via a switch button connected to pin 1 and 2.

LED status indicator: It can be added on pin 5 and 6. Please note polarity while connecting LED.

Table 8 Pin Assignment and description for Signal and Power pins

Pin Name	Signal Name	Description
S1	Ground	Second Mate
S2	R+	+Differential Receive Signal
S3	R-	-Differential Receive Signal
S4	Ground	Second Mate
S5	T-	-Differential Transmit Signal
S6	T+	+Differential Transmit Signal
S7	Ground	Second Mate
Pin Name	Signal Name	Description
P1, P2,P3	V3.3	3.3V Power
P4	Ground	First Mate
P5	Ground	Second Mate
P6	Ground	Second Mate
P7	V5	5V power, pre-charge, second Mate
P8	V5	5V power
P9	V5	5V power
P10	Ground	Second Mate
P11	Reserved	Reserved
P12	Ground	First Mate
P13	V12	12V Power(Not used)
P14	V12	12V Power(Not used)
P15	V12	12V Power(Not used)

## **8. Feature Descriptions**

### **8.1 Wear Leveling**

For extending SSD's life time, a sophisticated wear leveling technology is important. Memoright GT II series provides dynamic, static (initative) balanced wear leveling strategy. The dynamic wear leveling algorithm ensures that erase/write cycles can be evenly distributed across all flash memory block locations to prevent excessive writes to the same physical flash memory location.

### **8.2 Bad Block Management**

Memoright GT II series SSD provides bad block management function with a certain number of reserved blocks. When a user data block fails, a reserved block will replace the failed block. The replacement of bad block is transparent to user.

### **8.3 Endurance**

In normal operation condition, guarantees for 5 years product lifetime for the SSD.

### **8.4 ECC**

It supports Enhanced ECC algorithm from 9~22 bits to reduce error rate and enforce write endurance at the same time.

### **8.5 Unrecoverable Read Errors**

The unrecoverable read errors are less than 1 error per  $10^{15}$  bits read.

### **8.6 Standards Compliance**

Memoright GT II SSD complies with following standards.

FCC

CE

RoHS



## 9. Supported ATA Commands

Memoright GT II series SSD supports ATA commands that is shown as following table. For details of the ATA command, please refer to the Draft ATA-8 Standard.

Table 9 Supported ATA Commands

Command Name	Code (hex)
Recalibrate	10h
Read Sectors	20h
Write Sectors	30h
Read Verify Sectors	40h
Seek	70h
Executive Device Diagnostic	90h
Initialize Device Parameters	91h
S.M.A.R.T	B0h
Read Multiple	C4h
Write Multiple	C5h
Set Multiple Mode	C6h
Read DMA	C8h
Write DMA	CAh
Read Buffer	E4h
Flush Cache	E7h
Write Buffer	E8h
Identify Device	ECh
Set Features	EFh
<b>Power Management</b>	
Check Power Mode	98h, E5h
Sleep	E6h
Standby Immediate	E0h
Idle Immediate	95h, E1h
Standby	E2h
Idle	97h, E3h
<b>48 bit addressing</b>	
Read Sector (s) EXT	24h
Read DMA EXT	25h
Read Multiple EXT	29h
Write Sector (s) EXT	34h

Write DMA EXT	35h
Write Multiple EXT	39h
Read Verify Sector (S) EXT	42h
Flush CACHE EXT	EAh

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## 9.1 ATA Command Specifications

- **Recalibrate (10h)**

When this command is issued, the GT II series SSD sets BSY and waits for that the device is initialized, and then clears BSY.

- **Read Sector (s) (20h)**

This command will read from 1 to 256 sectors as specified in the Sector Count Register. A sector count of 0 (zero) requests 256 sectors. The transfer will begin at the sector specified in the Sector Number Register.

- **Read Sectors (s) EXT (24h)**

This command reads from 1 to 65,536 sectors as specified in the Sector Count register. A sector count of 0000h requests 65,536 sectors. The transfer shall begin at the sector specified in the LBA Low, LBA Mid, and LBA High registers.

- **Read DMA EXT (25h)**

The Read DMA EXT command allows the host to read data using the DMA data transfer protocol.

- **Read Multiple EXT (29h)**

This command reads the number of sectors specified in the Sector Count register.

- **Write Sector(s) (30h)**

This command will write from 1 to 256 sectors as specified in the Sector Count Register. A sector count of 0 (zero) will request 256 sectors. The transfer begins at the sector specified in the Sector Number Register.

- **Write Sector(s) EXT (34h)**

This command reads the number of sectors specified in the Sector Count register.

- **Read/Verify Sector(s) (40h)**

This command will verify one or more sectors by transferring data from the flash media to the data buffer and verifying the ECC is correct. The command is identical to the Read Sector(s) - 20h command except that DRQ is never set and no data is transferred to the host.

- **Read Verify Sector (s) EXT (42h)**

This command is identical to the Read Sector(s) EXT command, except that the device shall have read the data from the media, the DRQ bit is never set to one, and no data is transferred to the host.

- **Seek (70h)**

This command will cause the device performing a range check.

- **Execute Device Diagnostic (90h)**

This command performs the internal diagnostic tests implemented by the controller.

- **Initialize Device Parameters (91h)**

This command will enable the host to set the number of sectors per track and the number of heads per cylinder.

- **S.M.A.R.T (B0h)**

When this command is issued, the GT II Series SSD will report the SMART data to Host.

- **Read Multiple (C4h)**

This command is similar to the Read Sector(s) -20h command. Interrupts are not generated on each sector, but on the transfer of a block that contains the number of sectors as defined by a Set Multiple Mode - C6h command.

- **Write Multiple (C5h)**

This command is similar to the Write Sector(s) - 30h command. Interrupts are not presented on each sector, but on the transfer of a block which contains the number of sectors defined by the Set Multiple Mode - C6h command.

- **Set Multiple Mode (C6h)**

This command enables the SSD to perform multiple Read and Write operations and establishes the block count for these commands.

- **Read DMA (C8h)**

When this command is issued, the GT II Series SSD will prepare for receiving the data transfer from host via ultra DMA protocol.

- **Write DMA (CAh)**

When this command is issued, the GT II Series SSD will prepare for receiving the data transfer from host via ultra DMA protocol.

- **Standby Immediate (E0h)**

This command will cause the GT II Series SSD to set BSY, enter the Standby Mode, clear BSY, and return the interrupt immediately.

- **Idle Immediate (E1h or 95h)**

This command will cause the drive to set BSY, enter the IDLE (READ) mode, clear BSY, and generate an interrupt.

- **Standby (E2h)**

This command is similar to Standby immediate.

- **Idle (E3h)**

This command is similar to Idle immediate.

- **Read Buffer (E4h)**

This command enables the GT II Series SSD to transfer the buffer data in cache.

- **Check Power (E5h or 98h)**

This command enables the Host to check the GT II Series SSD power mode.

- **Sleep (E6h)**

This command enables the Host set GT II Series SSD into sleep mode.

- **Flush Cache (E7h)**

When this command is issued, the device will flush all data in cache into GT II Series SSD disk to protect the data.

- **Write Buffer (E8h)**

This command enables the GT II Series SSD to receive the buffer data from host into cache.

- **Flush CACHE EXT (EAh)**

This command is used by the host to request the device to flush the write cache. If there is data in the write cache, that data shall be written to the media. The BSY bit shall remain set to one until all data has been successfully written or an error occurs.

- **Identify Device (ECh)**

The Identify Device command (command code ECH) transfers information about the drive to the host following power up. The data is organized as a single 512-byte block of data, whose contents are shown in Table 7 on page 20. All reserved bits or words should be set to zero. Parameters listed with an “x” are drive-specific or vary with the state of the drive. See Section 2.0 on page 3 for default parameter settings.

The following commands contain drive-specific features that may not be included in the Draft ATA-7 Standard.

Table 11 Drive-Specific features

Word	Description	Value
0	Configuration information: Bit 15: 0=ATA; 1=ATAPI Bit 7: removable media Bit 6: removable Controller Bit 0: reserved	0040h
1	Number of logical cylinders	3FFFh
2	Specific configuration	C837h
3	Number of logical heads	0010h
4	Retired	0000h
5	Retired	0000h
6	Number of logical sectors per logical track	003Fh
7-9	Retired	0000h
10-19	Serial number: 20 ASCII characters	ASCII
20	Retired	0000h
21	Retired	0000h
22	Obsolete	0000h
23-26	Firmware revision: 8ASCII characters	ASCII
27-46	Drive model number: 40 ASCII characters	ASCII
47	(Bits 7–0) Maximum sectors per interrupt on Read multiple and Write multiple (1)	8001h
48	Reserved	0000h
49	Standard Standby timer, IORDY supported and may be disabled	2F00h
50	Capabilities	4000h
51	Retired	0000h
52	Retired	0000h
53	Words 54–58, 64–70 and 88 are valid	0007h

54	Number of current logical cylinders	XXXXh
55	Number of current logical heads	XXXXh
56	Number of current logical sectors per logical track	XXXXh
57-58	Current capacity in sectors	XXXXh
59	Multiple sector setting	0101h
60-61	Total number of user address sectors(LBA mode)	XXXX XXXXh
62	Obsolete	0000h
63	Multi-word DMA transfer(Not support)	0000h
64	Flow control PIO transfer modes supported	0003h
65	Minimum Multiword DMA transfer cycle time per word	0078h
66	Manufacturer's recommended Multiword DMA transfer cycle time per word	0078h
67	Minimum PIO transfer cycle time without flow control	0078h
68	Minimum PIO transfer cycle time with IORDY flow control	0078h
69-74	Reserved	0000h
75	No DMA QUEUED command supports	0000h
76-79	Reserved	0000h
80-81	ATA Ver support (ATA/ATAPI-7 T13 1532D revision 4a)	00FE 0021h
82	Command set supported 15 0 = Obsolete 14 1 = NOP Command supported 13 1 = READ BUFFER Command supported 12 1 = WRITE BUFFER Command supported 11 1 = Obsolete 10 0 = Host Protected Area Feature Set not supported 09 0 = DEVICE RESET Command not supported 08 0 = SERVICE Interrupt not supported 07 0 = RELEASE Interrupt not supported 06 1 = Look Ahead supported 05 1 = Write Cache supported 04 0 = indicate that the PACKET feature set not supported 03 1 = Power Management Feature Set supported (mandatory) 02 0 = Removable Media feature set not supported 01 1 = Security Mode Feature Set supported 00 1 = SMART Feature Set supported	786Bh
83	Command set supported 15 Shall be cleared to zero 14 Shall be set to one	5028h/5428h

	13 0 = FLUSH CACHE EXT Command not supported 12 1 = FLUSH CACHE Command supported (mandatory) 11 0 = Device Configuration Overlay feature set not supported 10 1/0 = 48-Bit Address feature set supported /not supported 09 0 = Automatic Acoustic Management feature set not supported 08 0 = SET MAX security extension not supported 07 0 = See Address Offset Reserved Area Boot, INCITS TR27:2001 06 0 = SET FEATURES subcommand not required to spin-up after power-up 05 1 = Power-Up in Standby feature set supported 04 0 = Obsolete 03 1 = Advanced Power Management feature set supported 02 0 = CFA feature set not supported 01 0 = READ/WRITE DMA QUEUED not supported 00 0 = DOWNLOAD MICROCODE Command not supported	
84	Command Set/Feature Supported Extension 15 Shall be cleared to zero 14 Shall be set to one 13 0 = IDLE IMMEDIATE with UNLOAD FEATURE not supported 12 0 = Reserved 11 0 = Reserved 10:9 0 = Obsolete 08 0 = 64-Bit World Wide Name not supported 07 0 = Write DMA QUEUED FUA EXT Command not supported 06 0 = Write DMA FUA EXT and WRITE MULTIPLE FUA EXT commands not supported 05 0 = General Purpose Logging feature set not supported 04 0 = Streaming feature set not supported 03 0 = Media Card Pass Through Command feature set not supported 02 0 = Media Serial Number not supported 01 1 = SMART Self-Test supported 00 1 = SMART Error-Logging supported	4003h
85	Command set/feature enabled 15 0 = Obsolete 14 1 = NOP Command enabled 13 1 = READ BUFFER Command enabled 12 1 = WRITE BUFFER Command enabled 11 1 = Obsolete	7869h



	10 0 = Host Protected Area has not been established 09 0 = DEVICE RESET Command not enabled 08 0 = SERVICE Interrupt not enabled 07 0 = RELEASE Interrupt not enabled 06 1 = Look Ahead enabled 05 1 = Write Cache enabled 04 0 = indicate that the PACKET feature is not supported. 03 1 = Power Management Feature Set enabled 02 0 = Obsolete 01 0 = Security Mode Feature Set enabled 00 1 = SMART Feature Set enabled	
86	Command set/feature enabled 15 0 = Reserved 14 0 = Reserved 13 0 = FLUSH CACHE EXT Command not supported 12 1 = FLUSH CACHE Command supported 11 0 = Device Configuration Overlay not supported 10 1/0 = 48-Bit Address features set supported/not supported 09 0 = Automatic Acoustic Management feature set not enabled 08 0 = SET MAX security extension not enabled by SET MAX SETPASSWORD 07 0 = Reserved 06 0 = SET FEATURES subcommand required to spin-up after power-up not enabled 05 0 = Power-Up in Standby feature set not enabled 04 0 = Obsolete 03 1 = Advanced Power Management feature set enabled 02 0 = CFA feature set not supported 01 0 = READ/WRITE DMA QUEUED Command not supported 00 0 = DOWNLOAD MICROCODE Command not supported	1008h/1408h
87	Command set/feature default 15 Shall be cleared to zero 14 Shall be set to one 13 1 = IDLE IMMEDIATE with UNLOAD FEATURE supported 12 0 = Reserved for Technical Report, INCITS TR-37-2004 (TLC) 11 0 = Reserved for Technical Report, INCITS TR-37-2004 (TLC) 10:9 0 = Obsolete 08 0 = 64-Bit World Wide Name not supported	4003h

	07 0 = WRITE DMA QUEUED FUA EXT Command not supported 06 0 = WRITE DMA FUA EXT and WRITE MULTIPLE FUA EXT commands not supported 05 0 = General Purpose Logging feature set not supported 04 0 = Obsolete 03 0 = Media Card Pass Through Command feature set not supported 02 0 = Media Serial Number is not valid 01 1 = SMART Self-Test supported 00 1 = SMART Error-Logging supported	
88	Ultra DMA modes	007Fh
89	Time required for security erase unit completion	XXXXh
90	Time required for Enhanced security erase unit completion(Not support)	0000h
91	Current advanced power management value	4080h
92	Master Password Revision Code	FFFEh
93	Hardware reset result	600Bh
94-99	Reserved	0000h
100-103	Maximum user LBA for 48-bit Address feature set	XXXXh
104-126	Reserved	0000h
127	Removable Media Status Notification feature set support	0000h
128	Security Status	0001h
129-159	Vendor specific	0000h
160	CFA power mode 1(Not support)	0000h
161-175	Reserved	0000h
176-205	Current media serial number	0000h
206-254	Reserved	0000h
255	CheckSum	XXXXh

- Set Features (EFh)**

This command is used by the host to establish or select certain features.

- Set Features command**

This command controls the implementation of various features that the drive supports. When the drive receives this command, it sets BSY, checks the contents of the Features register, clears BSY and generates an interrupt. If the value in the register does not represent a feature that the drive supports, the command is aborted. Power-on default has the read look-ahead and writes caching features enabled. The acceptable values for the Features register are defined as follows:

Table 12 Set Features Description

Value	Description
01h	Reserved
02h	Enable write cache
03h	Set transfer mode based on value in Sector Count register
04h	Obsolete
05h	Enable advanced power management
06h	Enable Power-Up In Standby feature set.
07h	Power-Up In Standby feature set device spin-up
09h	Reserved
0Ah	Reserved
10h	Reserved for Serial ATA
20h	Reserved
21h	Reserved
31h	Reserved
33h	Obsolete
42h	Reserved
43h	Reserved
44h	Obsolete
54h	Obsolete
55h	Disable read look-ahead feature
5Dh	Reserved
5Eh	Reserved
66h	Disable reverting to power-on defaults
77h	Obsolete
81h	Reserved
82h	Disable write cache
84h	Obsolete
85h	Disable advanced power management
86h	Disable Power-Up In Standby feature set
88h	Obsolete
89h	Reserved
8Ah	Reserved
90h	Reserved for Serial ATA
95h	Reserved
99h	Obsolete

9Ah	Obsolete
AAh	Enable read look-ahead feature
ABh	Obsolete
BBh	Obsolete
C2h	Reserved
CCh	Enable reverting to power-on defaults
DDh	Reserved
DEh	Reserved
E0h	Obsolete
F0-FFh	Reserved

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## 10. Memoright SSD Marking Information

### 10.1 Top View



#### 10.1.1 Label Content

- Memoright Logo
- CE Logo
- FCC Logo
- WEEE Logo
- RoHS (pb-free) Logo
- Warranty Warning
- BSMI Logo

## 11. Contact Information

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