

Features

- **User Capacities**
 - 480GB, 960GB, 1.92TB, 3.84TB
- **Industry Standard SATA Host Interface**
 - SATA 1.5Gb/s, 3Gb/s and 6Gb/s
 - SATA Revision 3.2
 - Hot Pluggable Support
 - Bootable Function Support
- **Sequential Performance**
 - Read: up to 530MB/s
 - Write: up to 500MB/s
- **Random Performance**
 - Read (4KB): up to 92K IOPS
 - Write (4KB): up to 34K IOPS
- **Performance Consistency**
 - Read/Write: up to 90%/90% (99.9%)
- **Latency**
 - Sequential Read/Write: 126µs/26µs (typical)
 - Random Read/Write: 135µs/28µs (typical)
- **Quality of Service**
 - Read/Write: 194µs/34µs (99.0%)
 - Read/Write: 204µs/94µs (99.99%)
- **Power Specifications**
 - 5V ±10% power supply
 - Active mode:
 - 3.84TB: 4.5W (typical)
 - 1.92TB: 3.8W (typical)
 - 960GB: 3.2W (typical)
 - 480GB: 2.8W (typical)
- **Built-in ECC**
 - Uses advanced LDPC bit error detection and correction optimized for 3D NAND
- **Operating System Compatibility**
 - CentOS 6.5 / 7.0/7.4/7.5 64-bit
 - RHEL 6.5/7.0/7.4/7.5 64-bit
 - MS Windows Server 2008/2012/2016 64-bit
 - VMware ESXi 6.0/6.5/7.0
 - 中标麒麟NeoKylin
 - 深度 操作系统Deepin
- **Supports SMART and TRIM Commands**
- **Static and Dynamic Wear Leveling**
- **Data Security**
 - AES 256-bit encryption
 - End-to-end data path protection
 - Secure Erase (data sanitization)
- **Dedicated Power Interrupt Data Protection**
- **Reliability**
 - Mean Time Between Failures (MTBF): 1.5 million hours
 - Unrecoverable Bit Error Rate (UBER): < 1 sector per 10¹⁷ bits read
- **NAND Configuration**
 - 3 bits per cell (3D TLC)
- **Lifetime Endurance**
 - Up to 1.3 Drive Writes Per Day (DWPD) for 3 years
- **Operating Temperature Range**
 - Datacenter: 0°C to 55°C
- **2.5-inch Form Factor**
 - 100.00mm x 69.85mm x 7.00mm
- **CE and FCC Certifications**
- **All Devices are RoHS Compliant**

Product Description

The G3100 SATA 2.5" Enterprise SSD PX Series (referred to as "2.5" Enterprise SSD" in this datasheet) are high-performance, high-reliability solid state drives, built with NAND flash memory, DRAM memory and an advanced Serial ATA (SATA) controller in a standard 2.5-inch form factor housing.

2.5" Enterprise SSD is designed for datacenter applications that require hot-swappable and reliable data storage. Datacenter 2.5" SATA solid state storage products are widely used in cloud computing, online transaction processing (OLTP), web / applications hosting, content delivery network (CDN), computer aided design (CAD), high-performance database, virtual desktop infrastructure (VDI) and big data analytics systems. These removable solid state drives (SSDs) surpass traditional hard disk drives (HDDs) in their security, reliability, ruggedness and low power consumption.

The SATA SSD controller with built-in advanced NAND management firmware communicates with the host through the standard SATA protocol. It does not require any additional or proprietary software such as the Flash File System (FFS) and Memory Technology Driver (MTD). The firmware effectively optimizes the use of NAND flash memory's program/erase (P/E) cycles and minimizes write amplification.

2.5" Enterprise SSD's advanced NAND management technology improves endurance, enhances data security and helps prevent data loss during unexpected power failure events. This innovative technology combines robust NAND controller hardware error correction capabilities with advanced wear-leveling algorithms and bad block management to improve data reliability and significantly extend the life of the product.

2.5" Enterprise SSDs are ideal storage solutions for outstanding performance, low latency and quality of service.

1.0 GENERAL DESCRIPTION

Each 2.5" Enterprise SSD integrates a SATA SSD controller with up to 16 NAND flash multi-chip packages and DRAM in a standard 2.5-inch form factor housing .

1.1 Power Interrupt Data Protection

Power Interrupt Data Protection is a mechanism to help prevent data loss during unexpected power failure events. Enhanced data integrity is supported by the controller's advanced firmware during abnormal power loss. The controller proactively optimizes the amount and stay time of the "in-flight" data residing in the cache. To ensure there is no data loss risk caused by power cycling, the controller sends an acknowledgement to the host only when the incoming data is fully committed to the NAND flash.

1.2 Error Correction Code (ECC)

The ECC technology uses advanced Low Density Parity Check (LDPC) algorithms to detect and correct errors, ensuring data integrity and extending the SSD lifespan.

1.3 Advanced NAND Management

2.5" Enterprise SSD's SATA controller uses advanced wear-leveling algorithms to substantially increase the longevity of NAND flash media. Wear caused by data writes is evenly distributed in all or select blocks in the device that prevents "hot spots" in locations that are programmed and erased extensively. This effective wear-leveling technique results in optimized device endurance, enhanced data retention and higher reliability required by long-life applications.

1.4 Advanced Data Security

Advanced data security measures include end-to-end data path protection, data sanitization (Secure Erase) and cryptographic erase (Crypto Erase) support. Secure Erase is an effective method to quickly wipe all data from a SATA-based SSD using the SATA protocol. Cryptographic erase resets the cryptographic key of an OPAL-activated SSD making all encrypted user data useless. 2.5" Enterprise SSD's controller supports industry standard AES-256 encryption to protect sensitive user data.

2.0 APPENDIX

2.1 Product Ordering Information

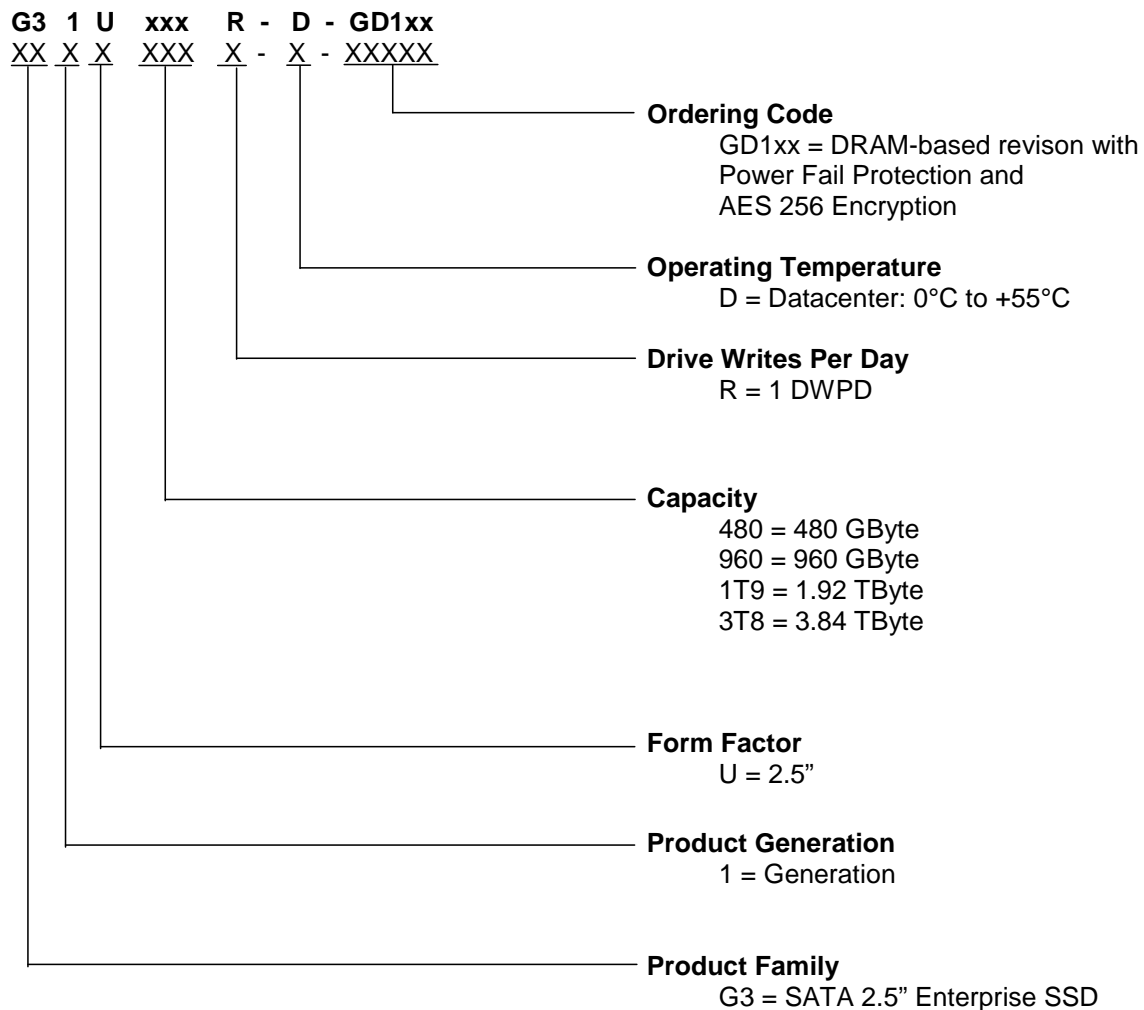


Table 2-1: SATA 2.5" Enterprise SSD Product Valid Ordering Numbers

Capacity	Operating Temperature	Part Number	Form Factor
480GB	Datacenter (0°C to 55°C)	G31U480R-D-GD100	2.5-inch
960GB	Datacenter (0°C to 55°C)	G31U960R-D-GD100	2.5-inch
1.92TB	Datacenter (0°C to 55°C)	G31U1T9R-D-GD100	2.5-inch
3.84TB	Datacenter (0°C to 55°C)	G31U3T8R-D-GD100	2.5-inch

2.2 Mechanical Diagrams

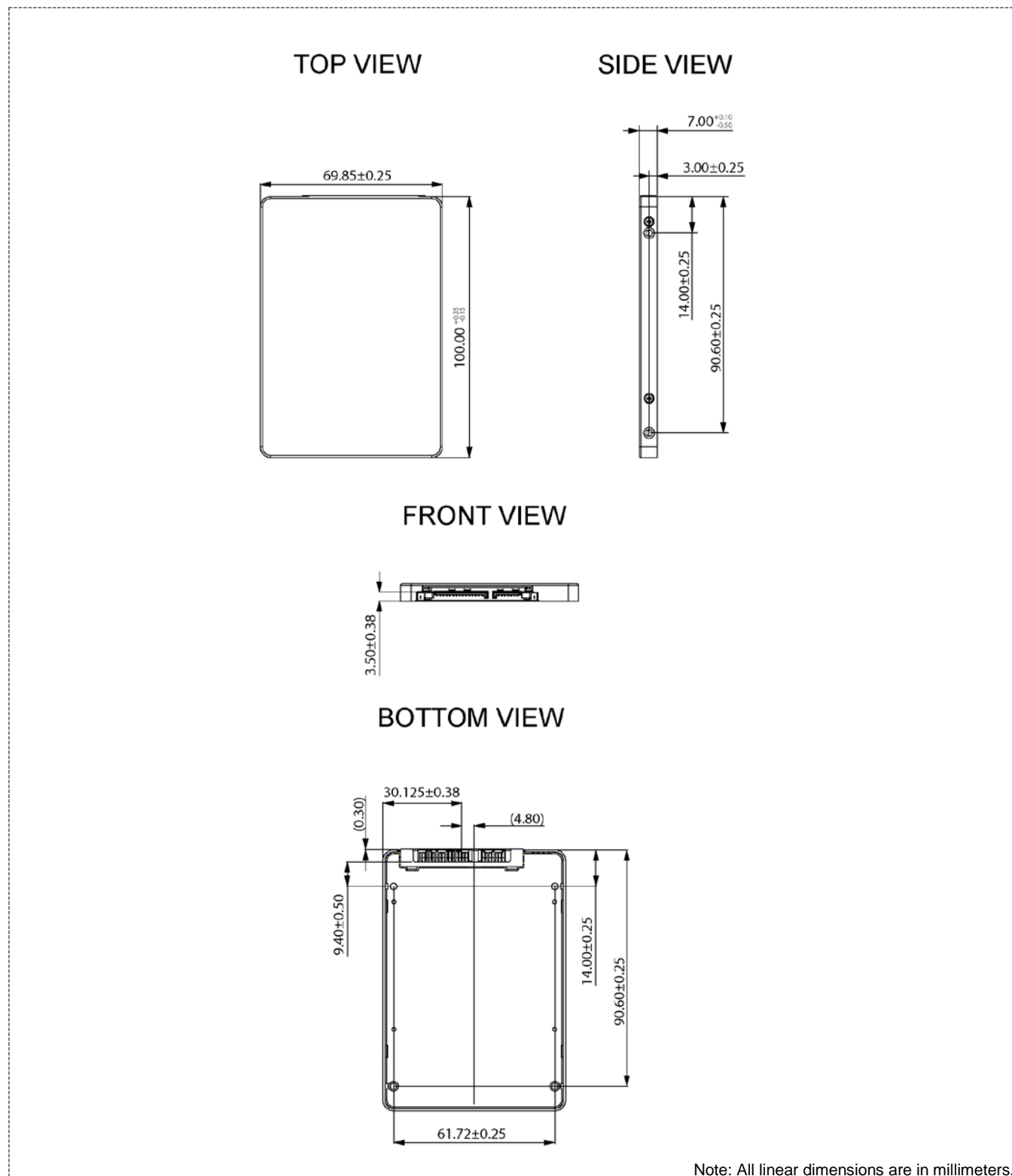


Figure 2-1: SATA 2.5" Enterprise SSD Dimensions

Revision History

Revision	Description	Date
01.000	Initial Release as Factsheet	August 5, 2019

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[G31U480R-D-GD123](#) [G31U960R-D-GD123](#)