



ROCKET ENTERPRISE

PCIe 4.0 U.2/U.3 NVMe SSD



SB-P4U2 / USER MANUAL FOR 1.92TB - 3.84TB- 7.68TB

FEATURES

- Enterprise-class U.2/U.3 PCIe 4.0 x4 NVMe SSD with high performance and endurance
- Up to over 30TB capacity for maximum storage space
- Up to 7,000/6,800 MB/s (7.68/15.36TB) read/write sequential performance and 1,600K/180K (7.68TB+) 4K random read/write IOPS
- As low as 90 μ s/15 μ s 4K QD1 sustained random read/write latency
- 1 DWPD endurance up to 56,064TBW (30.72TB model) with UBER at <1 sector per 10¹⁸ bits read, MTBF 2.5M hours
- Enterprise features such as namespaces, E2E metadata protection, PLP, and more

SUPPORTED OPERATING SYSTEMS

- Windows
- macOS
- Linux

PACKAGE CONTENTS

- Rocket Enterprise PCIe 4.0 U.2/U.3 SSD

PRODUCT OVERVIEW



- A. U.2/U.3 interface connector
- B. 2.5", 15mm metal SSD casing

ROCKET ENTERPRISE MASTER TABLE

PERFORMANCE, QOS, AND POWER CONSUMPTION DETAILS BY MODEL

Model	SB-P4U2 -1920	SB-P4U2 -3840	SB-P4U2 -7680	SB-P4U2 -15360	SB-P4U2 -30720
Capacity (Decimal)	1.92TB	3.84TB	7.68TB	15.36TB	30.72TB
PERFORMANCE					
128KB QD32 Seq R/W (GB/s)	7.0 / 3.5	7.0 / 6.7	7.0 / 6.8	7.0 / 6.8	7.0 / 6.0
4K QD64 Sus RND R/W (IOPS)	1.6M / 95K	1.6M / 170K	1.6M / 180K	1.6M / 180K	1.6M / 180K
4K QD1 Sus RND R/W (μ s)	110 / 15	100 / 15	100 / 15	100 / 15	90 / 15
4K QD32 Sus RND R/W (μ s)	120 / 400	110 / 300	110 / 300	110 / 300	100 / 200
4K QD64 Sus RND R/W (ms)	0.45 / 5.0	0.45 / 4.0	0.45 / 3.8	0.45 / 3.8	0.32 / 3.15
QUALITY OF SERVICE (QOS, 95%)					
QD1 Sus RND 4K R/W (μ s)	100 / 12	100 / 12	100 / 12	100 / 12	100 / 12
QD32 Sus RND 4K R/W (μ s)	160 / 350	140 / 200	130 / 200	120 / 200	120 / 200
QD64 Sus RND 4K R/W (ms)	1.0 / 5.7	0.6 / 3.2	0.6 / 3.2	0.6 / 3.0	0.6 / 3.2
POWER CONSUMPTION					
Typ RND R/W Power (W)	12.4 / 11.9	13.3 / 15.5	15.7 / 17.4	16.2 / 19.6	18.5 / 20.6
Typ Seq R/W Power (W)	10.1 / 12.8	10.6 / 17.9	11.6 / 19.1	12.3 / 20.1	13.7 / 20.1
Typ Idle Power (W)	5.46	5.8	5.75	7.32	8.16

PHYSICAL & ENVIRONMENTAL PROPERTIES

LIST OF PHYSICAL DIMENSIONS AND ENVIRONMENTAL ENDURANCE

Measure	Value/Range		
L x W x H	100.1 x 69.85 x 14.65 mm		
Tolerance	$\pm 0.30 \times \pm 0.25 \times \pm 0.20$ mm		
Weight	198 to 208 grams		
Condition	Type	Value 1	Value 2
Temperature	Operating	0°C to 70°C	
	Non-operating	- 40°C to 85°C	
Humidity	Operating/Non-operating	5% to 95%	
	Shock	Operating/Non-operating	500G accel
Vibration	Operating/Non-operating	1000G accel	0.5ms
	Operating	200 to 2000 Hz	2.17 Grms
	Non-operating	10 to 2000 Hz	16.3 Grms
Altitude		2-5 to 500 Hz	3 Grms
	Operating	0 to 18,000 ft	
	Non-operating	0 to 40,000 ft	
Airflow	Operating (Ambient)	34.5°C	~750 LFM
		40.5°C	~1000 LFM

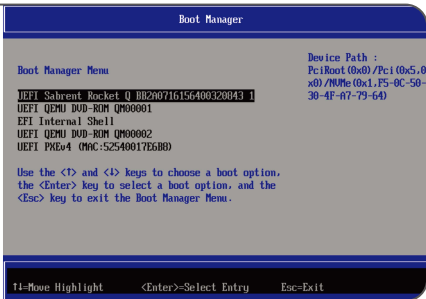
NOTE: LFM (Linear Feet per Minute) refers to the velocity of airflow across the drive's surface area.

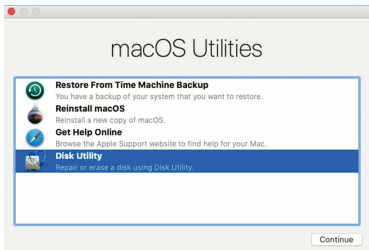
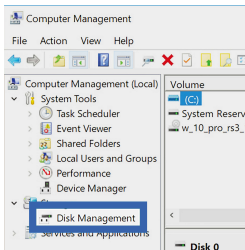
GETTING STARTED

Step 1. Connect the Rocket Enterprise U.2 SSD to your system. Methods of connecting the drive include, but are not limited to: direct U.2/U.3 cable connection, full-height PCIe adapter card installation, or insertion into a compatible U.2 drive bay. Utilizing our EC-U2SA SATA/U.2 to USB adapter is also a convenient way to attach and operate the Rocket Enterprise.



Step 2. Ensure that the drive is detected in the BIOS/UEFI and in the operating system.





Step 3. If desired, format the drive and set it up in a pool or array if multiple drives are being utilized.

Step 4. If necessary, optimize the drive for your storage environment. This includes, but is not limited to: keeping drive firmware up-to-date, maintaining any and all software with updates, and utilizing a proper configuration of hardware for your particular use case.

Enjoy a high performance, high endurance enterprise SSD. For an optimal experience, regularly inspect and maintain your storage solution.



FREQUENTLY ASKED QUESTIONS

Q. How much power does this drive pull?

A. The drive is capable of using up to 25W of active power with idle power at 6-8W. The inrush current is 1.5A @ 12V. Check the power consumption table to get specific SKU data.

Q. Does this drive have DRAM?

A. Yes, it comes equipped with DDR4. DRAM is essential for achieving the best performance with heavier workloads.

Q. What is the logical sector size and how are capacities derived?

A. 512B. Capacities are based on industry standard decimal values. The capacities in GB, rather than GiB, are: 1,920GB, 3,840GB, 7,680GB, 15,360GB, and 30,720GB. In an operating system these values may be reported in GiB instead in some cases. These values imply an overprovisioning (OP) value of around 7%, which can improve drive endurance and write performance.

Q. How does thermal throttling work on this drive?

A. There is a thermal throttling mechanism that protects the controller and flash based on multiple temperature sensors. When throttling, performance automatically is capped at one of several throttling states.

Q. What is Quality of Service for a storage device of this class?

A. Quality of Service, or QoS, is a measurement of how responsive a drive will be to I/O requests when already engaged significantly in read and write operations. The latency values therefore reflect the consistency and predictability of the drive's performance while in a worst case scenario of ongoing I/O.

Q. Does this drive support optional features?

A. Yes, this drive includes advanced features such as block and crypto erase for secure sanitization, namespaces, and end-to-end (E2E) metadata protection. It also offers power loss protection (PLP) and supports NVMe-MI over SMBus as well as VPD. For additional functionality, customizable firmware solutions are available upon request, including options like TCG Opal encryption.

Q. What is metadata protection?

A. Metadata protection is a type of end-to-end (E2E) data protection that helps ensure data integrity during transfers. The metadata is made up of multiple bits which are related to the logical block address (LBA) in such a way that data corruption or mismatch can be detected.



**Please contact our Technical Support Team
for additional troubleshooting**

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