

## Controller

## PS3112-S12

Features	Specifications
<b>Host Interface</b>	<ul style="list-style-type: none"> <li>• SATA III (Bandwidth: 6Gb/s)</li> <li>• Compliance with SATA Revision 3.2</li> </ul>
<b>Processor</b>	<ul style="list-style-type: none"> <li>• Dual-CPU architecture with built-in 32-bit microcontroller</li> <li>• TSMC 28nm process technology</li> </ul>
<b>Flash Controller</b>	<ul style="list-style-type: none"> <li>• Up to 8 Channels with 32 chips enable (CE)</li> <li>• Flash transfer rate up to 667MT/s</li> <li>• Capacity up to 16TB</li> <li>• Support 3D TLC and QLC NAND flash memory</li> <li>• Compliance with Toggle 3.0 and ONFi 4.0</li> <li>• Flash I/O operating voltage supply 1.2V/1.8V</li> </ul>
<b>DRAM Controller</b>	<ul style="list-style-type: none"> <li>• DDR3L (16 bit, 1600Mbps)</li> <li>• DDR4 (8/16 bit, 1600Mbps)</li> </ul>
<b>Data Reliability</b>	<ul style="list-style-type: none"> <li>• Phison 3rd generation LDPC ECC engine</li> <li>• DDR ECC engine</li> <li>• End-To-End Data Path Protection</li> </ul>
<b>Security</b>	<ul style="list-style-type: none"> <li>• Pyrite</li> <li>• AES256</li> <li>• TCG OPAL</li> </ul>
<b>Performance</b>	<ul style="list-style-type: none"> <li>• Sequential Read up to 550MB/s</li> <li>• Sequential Write up to 530MB/s</li> <li>• 4K Random Read up to 99K IOPS</li> <li>• 4K Random Write up to 90K IOPS</li> </ul>
<b>Power Management</b>	<ul style="list-style-type: none"> <li>• DEVSLP &lt; 5mW</li> </ul>
<b>Temperature Range</b>	<ul style="list-style-type: none"> <li>• Operating range: 0~70°C</li> <li>• Storage range: -40~85°C</li> <li>• Operating junction temperature: -40~125°C</li> </ul>
<b>Package</b>	<ul style="list-style-type: none"> <li>• 529-ball TFBGA, 16 mm x 16 mm</li> </ul>
<b>Peripheral</b>	<ul style="list-style-type: none"> <li>• Built-in internal thermal sensor</li> <li>• GPIO pins</li> <li>• Built-in UART function</li> <li>• I2C and SPI for external ROM</li> </ul>

## Solutions

## PS3112-S12

Capacity <sup>1</sup>	128GB	256GB	512GB	1024GB	2048GB	3840GB	7680GB
Interface	SATA III 6Gb/s						
Form Factor	2.5"						
NAND Flash	3D TLC						
<b>Performance (Up to)<sup>2,3</sup></b>							
Sequential Read	550 MB/s	550 MB/s	550 MB/s	550 MB/s	550 MB/s	550 MB/s	550 MB/s
Sequential Write	530 MB/s	530 MB/s	530 MB/s	530 MB/s	530 MB/s	520 MB/s	520 MB/s
4K Random Read	94K IOPS	98K IOPS	99K IOPS	99K IOPS	99K IOPS	95K IOPS	80K IOPS
4K Random Write	90K IOPS	90K IOPS	90K IOPS	90K IOPS	90K IOPS	69K IOPS	72K IOPS
<b>Power</b>							
Supply Voltage	2.5" 5V						
Active (Average)	2W	2W	2W	2.1W	2.2W	3.9W	4.7W
Idle	95mW	95mW	100mW	105mW	105mW	1.4W	1.8W
DEVSLP	5mW	5mW	5mW	5mW	5mW	-	-
<b>Temperature</b>							
Operating	0°C - 70°C						
Non-Operating	-40°C - 85°C						
Advanced Features	<ul style="list-style-type: none"> <li>• End-to-End Data Protection</li> <li>• OPAL Support</li> <li>• Thermal Monitoring</li> </ul>						

<sup>1</sup> 1GB = 1,000,000,000 bytes

<sup>2</sup> 1MB/s = 1,000,000 bytes / second

<sup>3</sup> Performance is based on Crystal Disk Mark 6.0.0 for sequential test and Iometer for random test. Test size 1GiB. Test drive is set as secondary

<sup>4</sup> Measured power consumption during sequential read/write test on Crystal Disk Mark 6.0.0

## Solutions

## PS3112-S12

Capacity <sup>1</sup>	500GB	1000GB	2000GB	4000GB
Interface	SATA III 6Gb/s			
Form Factor	2.5"			
NAND Flash	3D QLC			
<b>Performance (Up to)<sup>2,3</sup></b>				
Sequential Read	550 MB/s	550 MB/s	550 MB/s	550 MB/s
Sequential Write	530 MB/s	530 MB/s	530 MB/s	530 MB/s
4K Random Read	91K IOPS	99K IOPS	99K IOPS	98K IOPS
4K Random Write	90K IOPS	90K IOPS	90K IOPS	90K IOPS
<b>Power</b>				
Supply Voltage	2.5" 5V			
Active (Average) <sup>4</sup>	1.8W	1.8W	1.9W	2W
Idle	90mW	95mW	100mW	105mW
<b>Temperature</b>				
Operating	0°C - 70°C			
Non-Operating	-40°C - 85°C			
Advanced Features	<ul style="list-style-type: none"> <li>• End-to-End Data Protection</li> <li>• Thermal Monitoring</li> </ul>			

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