

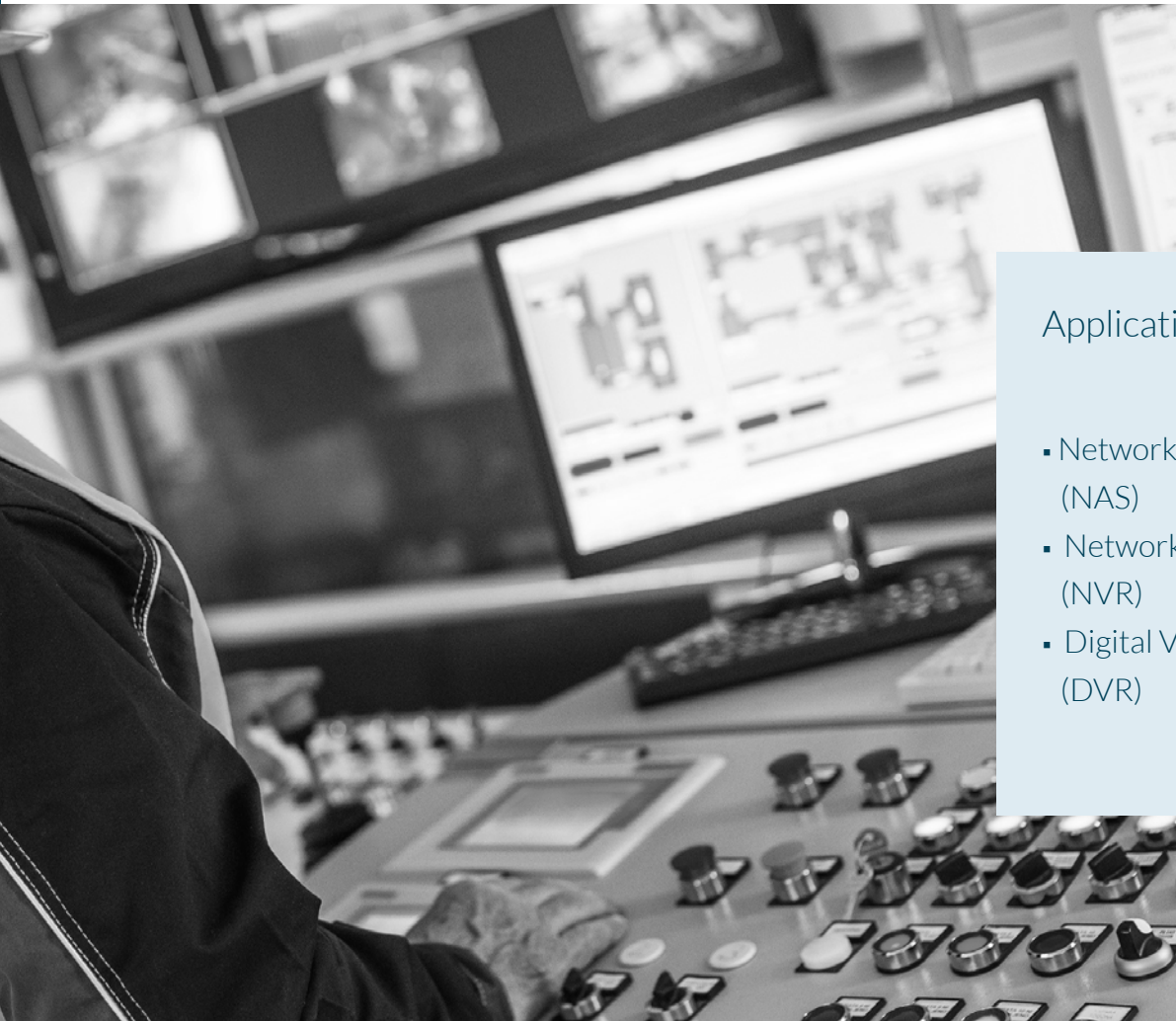
Optimized Surveillance Solutions

Storage, Memory and Cloud Solutions for the Surveillance Market



innodisk

Introduction



Applications

- Network Attached Storage (NAS)
- Network Video Recorders (NVR)
- Digital Video Recorders (DVR)

Modern day surveillance has come long way since the days of analog surveillance systems. Digitization and IoT spurs ever increasing demands for higher surveillance data throughput, retention, and retrieval at the edge. For these reasons, it is crucial to effectively manage all the related devices. However the basic requirement for surveillance should not be forgotten, namely data recording stability.

Smart cities is another burgeoning market for IoT surveillance. Cameras are not only used for basic security measures, but can be utilized in traffic flow systems, facial recognition, and emergency prevention. The edge devices provide the needed performance for the data analytics that power these new and sophisticated systems.

Using SSDs for surveillance applications have previously been dismissed due to a fear of a low mean time between failure (MTBF) and high costs. These were relevant concerns in the earlier days of SSD technology, but with the right optimization these problems can be efficiently mitigated. When looking at the total cost of ownership (TCO), SSD solutions can in many situations prove to be the more cost efficient alternative.

The Innodisk Solution

Innodisk brings storage solutions with high capacities and fast speeds. With our InnoREC™ feature set, firmware is optimized to ensure lasting and stable writing performance – ensuring zero loss of data quality.

The IoT trend means more devices at the edge. This raises the need for timely maintenance and management of the onboard solid state drives and other components. With iCAP™, the user can easily monitor every connected device and plan maintenance in a manner where no resources are wasted.

With restricted space and simultaneous read/write operations, high speed and compact memory solutions are essential. Our Very Low Profile (VLP) and Mini DRAM modules combine small form factors with high performance to make sure data recording goes off without a hitch.

With both the data signal and power supply running through the same wire, PoE is a staple for the modern surveillance system. With PoE it is easy to link up cameras and other equipment to the main system, while at the same time keeping cabling to a minimum. Innodisk's PoE extension cards also provide galvanic isolation and can withstand rugged conditions.



◀ Smart City



Drones ▶



◀ Security

Traffic ▶



▼ Transportation



Surveillance is used in vastly different areas with widely different objectives.

InnoREC™

InnoREC™ is Innodisk's proprietary flash feature set designed specifically for surveillance applications. Through the smart integration of firmware and hardware, the speed and steady performance required by modern surveillance solutions is fully met.

RECLine™

RECLine™ is the exclusive firmware algorithm for video recording that ensures steady performance without any frame-loss



iData Guard

iData Guard is our patented power cycling data management system, which helps to ensure surveillance data integrity during and after unexpected power outages

iCell

Ensures data is flushed from volatile storage to prevent the loss of valuable surveillance data during sudden power failures



Quick Erase

Quick Erase can delete all data within a few seconds – preventing leakage of potentially sensitive data

Thermal Sensor

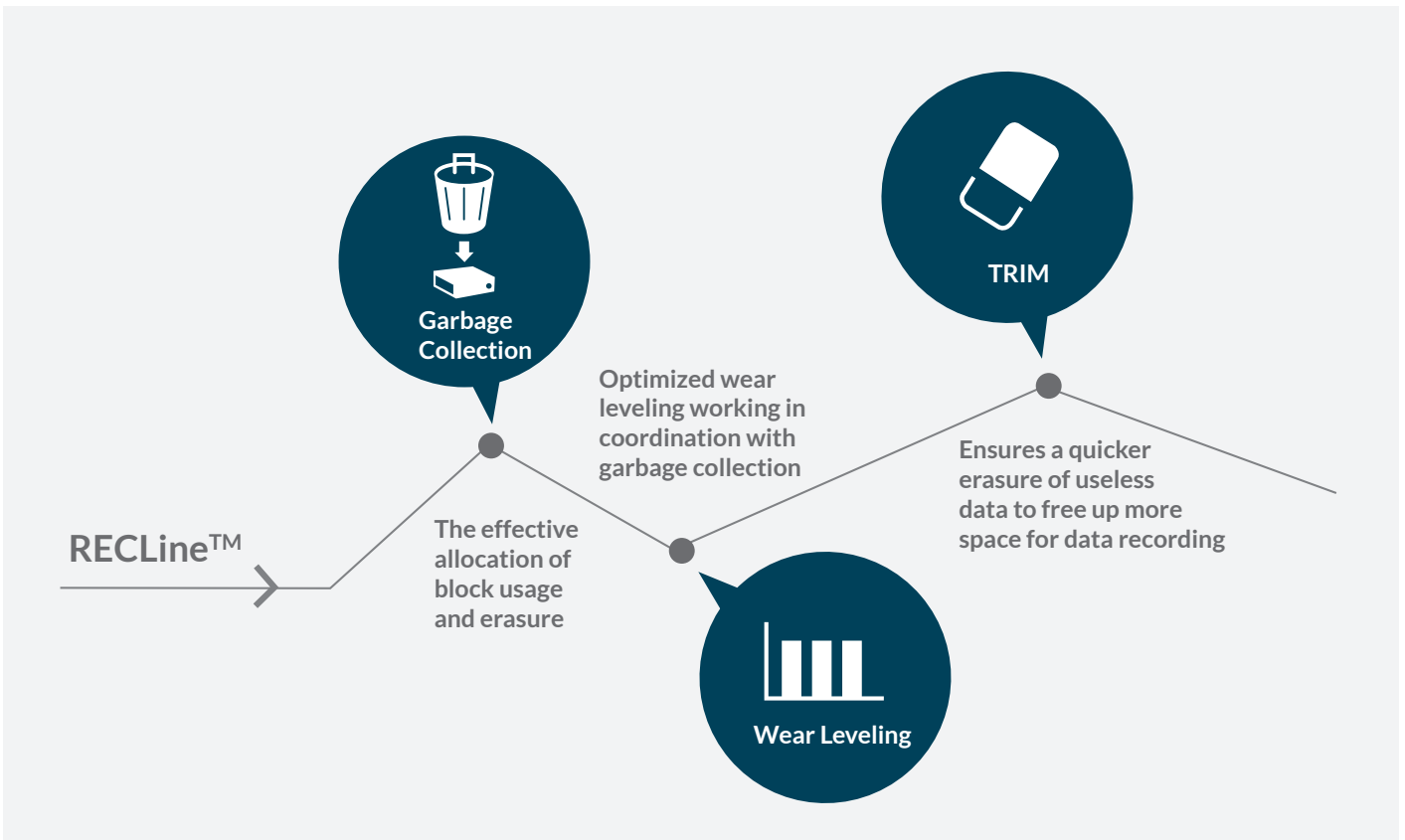
When the surveillance system threatens to overheat, an immediate warning is issued. The SSD will automatically adjust the transmission frequency to ensure continued performance and reliability



Passive Cooling

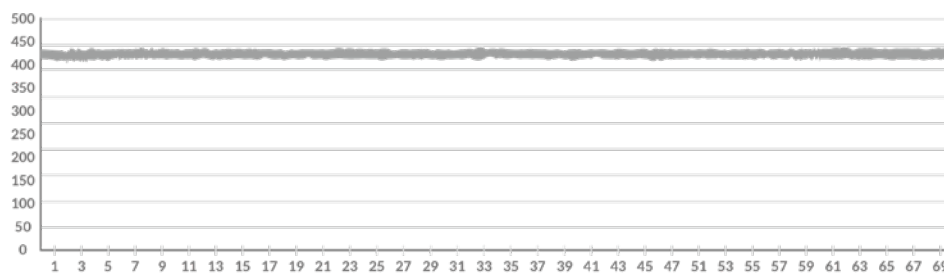
The SSD layout is design for maximum heat dissipation – ensuring performance and enhanced data retention

The composition of RECLine™



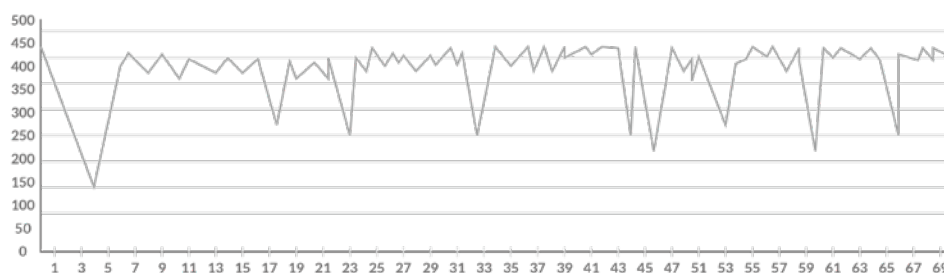
RECLine™ is our comprehensive solution to surpass the inherent issues of data writing and erasure for solid state storage. The optimization of these firmware features avoids any interruption to data recording and ensures a smooth performance.

w/RECLine™



Steady sustained write performance @ 430MB/s

w/o RECLine™



Unstable sustained write performance

Steady sustained write performance @430MB/s with 2.5" SATA SSD 3MV2-P 1TB



Unwavering Data Recording Performance

Flash

Featured here are 5 of Innodisk's advanced Flash products for surveillance applications.



Model Name	2.5" SATA SSD 3MV2-P	SATA Slim 3MV2-P
Key Features	<ol style="list-style-type: none"> 1. High Sequential/IOPS performance 2. iData Guard Protection 3. Exclusive REC Line architecture 4. Supports iCell protection 	<ol style="list-style-type: none"> 1. High Sequential/IOPS performance 2. iData Guard Protection 3. Exclusive REC Line architecture 4. Compatible with JEDEC MO-297
Interface	SATA III 6.0Gb/s	SATA III 6.0Gb/s
Flash Type	MLC	MLC
Capacity	8GB~2TB	8GB~256GB
Max. Channel	4	4
Sequential R/W (MB/sec, max.)	520/480	520/460
Max. Power Consumption	6W (5V x 1.2A)	2.6W (5V x 520mA)
Thermal Sensor	Y	Y
External DRAM Buffer	Y	Y
iData Guard	Y	Y
iCell	Optional	N
TRIM	Y	Y
ATA Security	Y	Y
S.M.A.R.T	Y	Y
Dimension (WxLxH/mm)	69.8 x 100.1 x 6.9 (8GB-1TB) 69.8 x 100.1 x 9.5 (2TB)	54.0 x 39.0 x 4.0
Environment	Vibration: 20G@7~2000Hz Shock: 1500G@0.5ms Storage Temperature: -55°C ~ +95°C MTBF: >3 million hours	
Standard Temp. OP (0°C~+70°C)	DVS25-XXXD81%C*** (P)	DVSLM-XXXD81%C***
Wide Temp. OP (-40°C~+85°C)	DVS25-XXXD81%W*** (P)	DVSLM-XXXD81%W***
Note	XXX = density (02GB=02G, 04GB=04G, 08GB=08G, 16GB=16G, 32GB=32G, 64GB=64G, 128GB=A28, 256GB=B56, 512GB=C12) *** = flash configuration (internal control code) % = Flash Type	



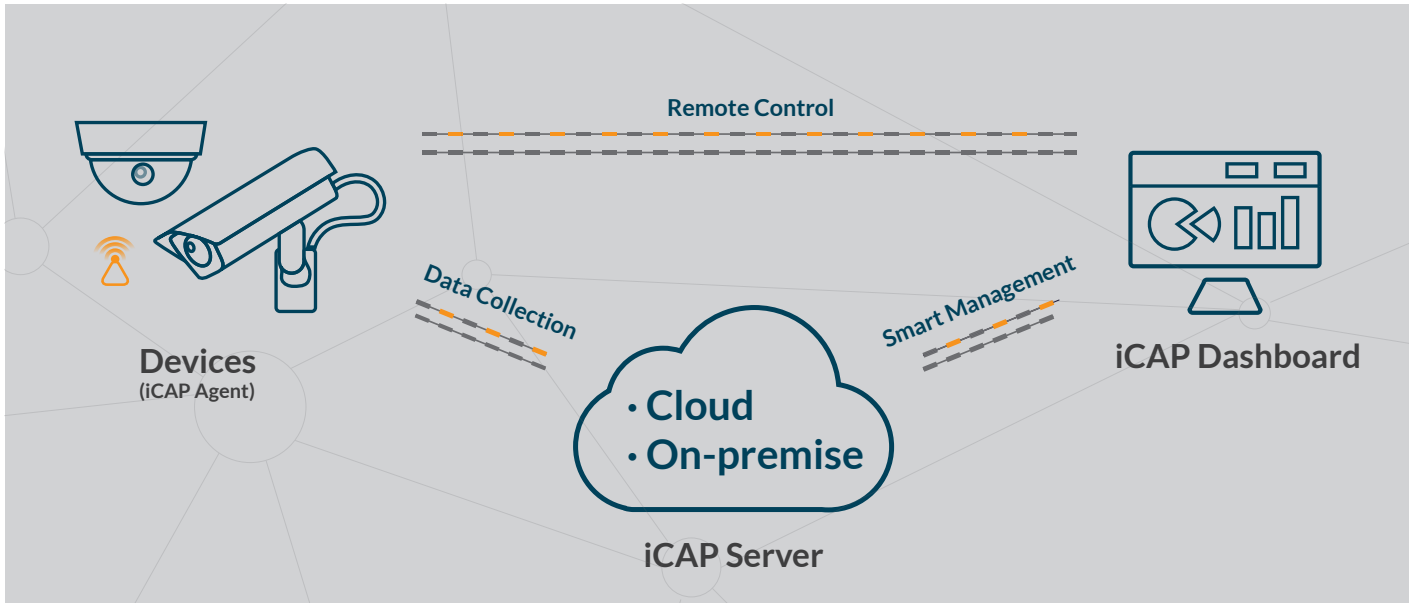
Model Name	CFast 3MV2-P	M.2 (S80) 3MV2-P	mSATA 3MV2-P
Key Features	<ol style="list-style-type: none"> 1. Exclusive REC Line architecture 2. High Sequential/IOPS performance 3. iData Guard Protection 	<ol style="list-style-type: none"> 1. Type 2280-D2-B-M 2. High Sequential/IOPS performance 3. iData Guard Protection 4. Exclusive REC Line architecture 	<ol style="list-style-type: none"> 1. High IOPS by on-board DRAM design 2. Featuring L² architecture, the life span of the MLC SSD is - maximized 3. Exclusive REC Line architecture 4. iData Guard Protection 5. Compatible with JEDEC MO-300
Interface	SATA III 6.0Gb/s	SATA III 6.0Gb/s	SATA III 6.0Gb/s
Flash Type	MLC	MLC	MLC
Capacity	32GB~256GB	32GB~1TB	8GB~512GB
Max. Channel	4	4	4
Sequential R/W (MB/sec, max.)	560/450	560/450	520/450
Max. Power Consumption	2.5W (3.3V x 760mA)	3.63W (3.3V x 1.1A)	2.8W (3.3V x 0.86A)
Thermal Sensor		Y	
External DRAM Buffer	Y	Y	Y
iData Guard	Y	Y	Y
iCell	N	N	N
TRIM	Y	Y	Y
ATA Security	Y	Y	Y
S.M.A.R.T	Y	Y	Y
Dimension (WxLxH/mm)	42.8 x 36.4 x 3.6	22.0 x 80.0 x 3.5	29.85 x 50.8 x 3.6
Environment	Shock: 1500G@0.5ms Storage Temperature: -55°C ~ +95°C MTBF: >3 million hours		
Standard Temp. OP (0°C~+70°C)	DVCFA-XXXD81%C***	DVM28-XXXD81%C***	DVMSR-XXXD81%C***
Wide Temp. OP (-40°C~+85°C)	DVCFA-XXXD81%W***	DVM28-XXXD81%W***	DVMSR-XXXD81%W***
Note	XXX = density (02GB=02G, 04GB=04G, 08GB=08G, 16GB=16G, 32GB=32G, 64GB=64G, 128GB=A28, 256GB=B56, 512GB=C12) *** = flash configuration (internal control code) % = Flash Type		

Innodisk Cloud Administration Platform (iCAP™)

iCAP™ is a browser-accessed management platform that allows you to monitor the status of solid state drives (SSD), memory and other components in edge devices. It does this by gathering data from all connected devices and storing it on a central server, either on the cloud or on a local intranet. From here the data is easily accessible from any cell phone, pad or laptop with access to the network.

This is an optimal platform to monitor surveillance systems as each device can be added and managed separately. The platform can be customized to your specific requirements to monitor and alert you of any changes; allowing you to pinpoint each issue and handle it accordingly.

System Architecture



iCAP Dashboard Management Interface

The web page dashboard enables the user to easily manage connected devices through supported browsers

Effectively monitor remote device status

Keep tabs on current CPU and Memory loading

User-friendly monitoring function allowing the user to manage and analyze storage information in detail

The screenshot shows a dashboard with several widgets:

- Device status:** Shows a large number '72' and a smaller number '8'.
- CPU Loading:** A horizontal bar chart showing loading levels across different categories.
- Memory Loading:** A horizontal bar chart showing memory usage levels.
- Storage Lifespan:** A donut chart with values 245 and 35.
- Storage Health:** A pie chart with values 127, 103, and 50.
- Storage Temperature:** A donut chart with values 174 and 169.
- Device Location:** A Google Map showing the locations of connected devices with red pins.

By analyzing the read/ write behavior of connected storage devices, iCAP can accurately predict remaining storage device lifetime

Customizable widgets including gauges, Google Maps, and various tables presenting device data

Anti-Sulfuration DRAM for Hostile Environments

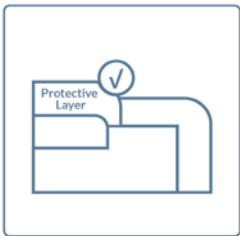
Robust Modules that Bring the Needed Endurance to the Surveillance Market

The Innodisk Many Anti-Sulfuration DRAM modules are designed for operators that are facing increasing difficulty with high sulfur content in their surroundings. The sulfur can cause corrosion damage to DRAM modules and lead to complete module failure, and, most detrimental to the operator, costly downtime.

These modules are protected against the high sulfur concentrations by a specialized design that shields the components, effectively sealing off the exposed parts of the module from the sulfur in the air.

What is sulfuration?

- Sulfur reacts with silver used in DRAM modules and creates silver sulfide (Ag₂S)
- This corrosion lowers conductivity and can potentially lead to module failure
- Sulfuration is most commonly encountered in areas with pollution and volcanic activity; as well as in the petrochemical, mining and energy sector

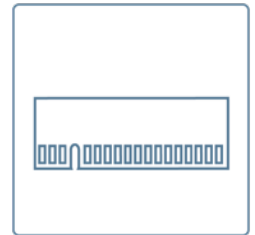


Extended Longevity

- The robust anti-sulfuration design greatly increases the modules longevity in harsh environments

Full DDR4 Implementation

- To help strengthen Innodisk's overall product performance, all DDR4 modules come equipped with Anti-Sulfuration functionalities as a standard.



DRAM

Embedded UDIMM

UDIMM modules are DRAM modules meant to be used as standard products for general embedded applications. These modules are compliant with JEDEC standards and available in DDR1, DDR2, DDR3, and DDR4.



Series	Standard Solution	
Module Type	DDR4 UDIMM	DDR3 UDIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s
Capacity	2GB/4GB/8GB/16GB	1GB/2GB/4GB/8GB
Function	Non-ECC Unbuffered Memory	
Pin Number	288pin	240pin
Width	64Bits	64Bits
Voltage	1.2V	1.5V/1.35V
PCB Height	1.23 Inches	1.18 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C
Value-Added Service (Optional)	Conformal Coating / Side Fill	
Anti-sulfuration	√	—

Embedded SODIMM

Small-outline DIMMs (SODIMM) modules are general DRAM modules meant to be used as standard products for embedded applications with limited space. These modules are compliant with JEDEC standards and help in eliminating the need for changing designs due to limited space.



Series	Standard Solution	
Module Type	DDR4 SODIMM	DDR3 SODIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s
Capacity	2GB/4GB/8GB/16GB	1GB/2GB/4GB/8GB
Function	Non-ECC Unbuffered Memory	
Pin Number	260pin	204pin
Width	64Bits	64Bits
Voltage	1.2V	1.5V/1.35V
PCB Height	1.18 Inches	1.18 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C
Value-Added Service (Optional)	Conformal Coating / Side Fill	
Anti-sulfuration	√	—

Server

Server Registered DIMM

Registered DIMM modules are designed to ensure data integrity at both the device and system level of the server. In addition, all Innodisk Registered DIMM modules are tested by our exclusive iRAM testing software to ensure stable performance.



Series	Server Solution	
Module Type	DDR4 RDIMM	DDR3 RDIMM
Data Rate	2133MT/s, 2400 MT/s, 2666MT/s	1066MT/s, 1333MT/s, 1600MT/s, 1866MT/s
Capacity	4GB/8GB/16GB/32GB	2GB/4GB/8GB
Function	Registered Memory with ECC	
Pin Number	288pin	240pin
Width	72Bits	72Bits
Voltage	1.2V	1.5V/1.35V
PCB Height	1.23 Inches	1.18 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C
Golden finger 30μ"	√	√
Anti-sulfuration	√	—

ECC DIMM

ECC modules are designed to detect and correct single-bit errors that occur during data storage and transmission. ECC modules use Hamming Code or Triple Modular Redundancy for error detection and correction, and manage error corrections on their own, without requesting that the data source resend original data.



Series	Unbuffered DIMM with ECC Solution			
Module Type	DDR4 ECC UDIMM	DDR4 ECC SODIMM	DDR3 ECC UDIMM	DDR3 ECC SODIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666MT/s	2133 MT/s, 2400 MT/s, 2666MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s
Capacity	4GB/8GB/16GB	4GB/8GB/16GB	2GB/4GB/8GB	2GB/4GB/8GB
Function	Unbuffered Memory with ECC			
Pin Number	288pin	260pin	240pin	204pin
Width	72Bits	72Bits	72Bits	72Bits
Voltage	1.2V	1.2V	1.5V/1.35V	1.5V/1.35V
PCB Height	1.23 Inches	1.18 Inches	1.18 Inches	1.18 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C	0 ~ 85°C	0 ~ 85°C
Golden finger 30μ"	✓	✓	✓	✓
Anti-sulfuration	✓	✓	—	—
Value-Added Service (Optional)	Conformal Coating / Side Fill			

Very Low-Profile (VLP) DIMM

Very Low-Profile DIMM modules are designed for use in 1U systems, such as blade server data centers, where system height is lower than 1.18 inches. The design of these modules improves air flow inside the system and reduces thermal impact.



Series	Very Low-Profile (VLP) Solution			
Module Type	DDR4 UDIMM VLP	DDR4 UDIMM VLP	DDR4 ECC UDIMM VLP	DDR4 RDIMM VLP
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	2400 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s
Capacity	4GB/8GB/16GB	8GB/16GB	4GB/8GB/16GB	4GB/8GB/16GB
Function	Non-ECC Unbuffered Memory	Non-ECC Unbuffered Memory	Unbuffered Memory with ECC	Registered Memory with ECC
Pin Number	288pin	288pin	288pin	288pin
Width	64Bits	64Bits	72Bits	72Bits
Voltage	1.2V	1.2V	1.2V	1.2V
PCB Height	0.738 Inches	0.738 Inches	0.738 Inches	0.738 Inches
Operating Temperature	0 ~ 85°C	-40 ~ 85°C	0 ~ 85°C	0 ~ 85°C
Golden finger 30μ"	—	✓	✓	✓
Anti-sulfuration	✓	✓	✓	✓
Value-Added Service (Optional)	Conformal Coating / Side Fill			



Series	Very Low-Profile (VLP) Solution		
Module Type	DDR3 UDIMM VLP	DDR3 ECC UDIMM VLP	DDR3 RDIMM VLP
Data Rate	1066MT/s, 1333MT/s, 1600MT/s, 1866MT/s	1066MT/s, 1333MT/s, 1600MT/s, 1866MT/s	1066MT/s, 1333MT/s, 1600MT/s, 1866MT/s
Capacity	2GB/4GB/8GB	2GB/4GB/8GB	4GB/8GB
Function	Non-ECC Unbuffered Memory	Unbuffered Memory with ECC	Registered Memory with ECC
Pin Number	240pin	240pin	240pin
Width	64Bits	72Bits	72Bits
Voltage	1.5V/1.35V	1.5V/1.35V	1.5V/1.35V
PCB Height	0.738 Inches	0.738 Inches	0.738 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C	0 ~ 85°C
Golden finger 30μ"	—	√	√
Value-Added Service (Optional)	Conformal Coating / Side Fill		



Series	Very Low-Profile (VLP) Solution		
Module Type	DDR4 SODIMM VLP	DDR4 ECC SODIMM VLP	DDR3 SODIMM VLP
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s	1333 MT/s, 1600 MT/s, 1866 MT/s
Capacity	4GB/8GB	4GB/8GB	2GB/4GB/8GB
Function	Non-ECC Unbuffered Memory	ECC Unbuffered Memory	Non-ECC Unbuffered Memory
Pin Number	260pin	260pin	204pin
Width	64Bits	72Bits	64Bits
Voltage	1.2V	1.2V	1.5V, 1.35V
PCB Height	0.7 Inches	0.7 Inches	1.0 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C	0 ~ 85°C
Golden finger 30μ"	—	√	—
Anti-sulfuration	√	√	—
Value-Added Service (Optional)	Conformal Coating / Side Fill		

Embedded Peripherals

PoE Communication Card

Innodisk's Power over Ethernet communication card provides a reliable and robust system expansion. Complying with industry thermal and isolation standards, performance is ensured in even the harshest conditions.



Model Name	EGPL-G2P1	EMPL-G2P1
Module Type	M.2 to dual Isolated PoE Module	mPCIe to dual Isolated PoE module
Key Features	<ol style="list-style-type: none"> 1. Supports dual isolated GbE LAN ports 2. Two independent PSE channels 3. Supports 12V~24V power input via 4pin header or DC Jack 4. Complies with IEEE 802.3af, up to 15.4W at 48V per PoE port. 5. Complies with IEC 60950-1:2005 + A1: 2009 + A2:2013 1.7KV HiPOT protection 6. Complies with EN61000-4-2 (ESD) Air-15kV, Contact-8kV 7. Industrial temperature -40 °C to 85 °C 	<ol style="list-style-type: none"> 1. Supports dual isolated GbE LAN ports 2. Two independent PSE channels 3. Supports 12V~24V power input via 4pin header or DC Jack 4. Complies with IEEE 802.3af, up to 15.4W at 48V per PoE port. 5. Complies with IEC 60950-1:2005 + A1: 2009 + A2:2013 1.7KV HiPOT protection 6. Complies with EN61000-4-2 (ESD) Air-15kV, Contact-8kV 7. Industrial temperature -40 °C to 85 °C
Form-Factor	M.2 2280	mPCIe
Input I/F	PCI Express 2.1	PCI Express 2.1
Input Connector	M.2 B-M	mPCIe
Output I/F	PoE x 2	PoE x 2
Output Connector	RJ45 x 2	RJ45 x 2
Dimension (WxLxH/mm)	22 x 80 x 7.1	30 x 50.9 x 7.6
Operating Temperature	STD temp : 0°~70°C Wide temp : -40°~85°C	STD temp : 0°~70°C Wide temp : -40°~85°C
Order Infomation	EGPL-G2P1-C1 (Terminal mounting, 4pin header) EGPL-G2P1-W1 (Terminal mounting, 4pin header) EGPL-G2P1-C2 (Bracket, 4pin header) EGPL-G2P1-W2(Bracket, 4pin header) EGPL-G2P1-C3 (Terminal mounting, DC Jack) EGPL-G2P1-W3 (Terminal mounting, DC Jack) EGPL-G2P1-C4 (Bracket, DC Jack) EGPL-G2P1-W4(Bracket, DC Jack)	EMPL-G2P1-C1 (Terminal mounting, 4pin header)/ EMPL-G2P1-W1 (Terminal mounting, 4pin header) EMPL-G2P1-C2 (Bracket, 4pin header)/ EMPL-G2P1-W2(Bracket, 4pin header) EMPL-G2P1-C3 (Terminal mounting, DC Jack)/ EMPL-G2P1-W3 (Terminal mounting, DC Jack) EMPL-G2P1-C4 (Bracket, DC Jack)/ EMPL-G2P1-W4(Bracket, DC Jack)

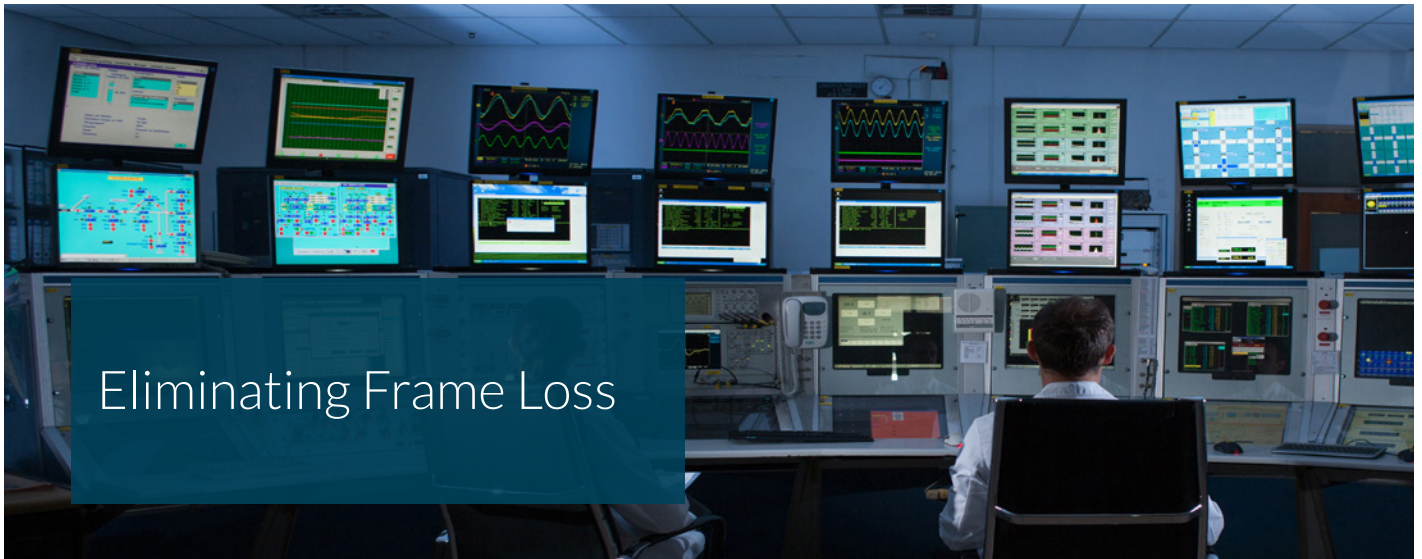
RAID Modules

RAID is a cost-efficient, well-proven method of providing data integrity. By utilizing hardware RAID the process is handled by the module controller, which ensures that CPU operations remain unaffected.



Model Name	EMSS-32R1	EMPS-32R1
Module Type	mSATA to dual SATA III RAID Module	mPCIe to dual SATA III RAID module
Key Features	<ol style="list-style-type: none"> 1. Supports SATA to dual SATA III Port Multiplier. 2. Supports H/W RAID 0/1 over SATA. 3. optional USB 2.0 to dual SATA III 	<ol style="list-style-type: none"> 1. PCIe to dual SATA III ports. 2. Supports AHCI, Port-Multiplier. 3. Supports Hardware RAID 0, RAID1
Form-Factor	mSATA	mPCIe
Input I/F	SATA III	PCI Express 2.0
Input Connector	mPCIe	mPCIe
Output I/F	SATA III	SATA III
Output Connector	SATA 7 Pin x 2	SATA 7 Pin x 2
Dimension (WxLxH/mm)	29.8 x 50.8 x 11.5	30 x 50.9 x 10.7
Operating Temperature	STD temp : 0°~70°C Wide temp : -40°~85°C	STD temp : 0°~70°C Wide temp : -40°~85°C
Order Infomation	EMSS-32R1-C1 EMSS-32R1-W1	EMPS-32R1-C1 EMPS-32R1-W1

Successful Story



Eliminating Frame Loss

Situation

An American manufacturer encountered recording issues with their SSD-based surveillance system. Innodisk identified the issues to be interruptions from firmware processes and designed a customized SSD with firmware optimized for surveillance recording. Testing showed that the SSD ran smoothly without any interruptions. A high-performance DRAM was added to enhance data processing time.

Challenges

1. Unknown parameter: the manufacturer was unable to determine the cause of the frame loss
2. No alternative: the manufacturer needed a new and customized solution to replace the non-viable SSD
3. Slow performance: The system needed to rapidly process data from the surveillance cameras

Solutions

1. Experienced firmware team: after analyzing the setup, the Innodisk team was able to accurately pinpoint the firmware issues
2. Custom-made firmware: based on the manufacturer's input, Innodisk optimized the firmware according to the surveillance system specifications
3. High-performance DRAM: Industrial-grade DRAM with high transfer speed could easily handle the performance requirements of the client

Our Roadmap to Success

Optimized Surveillance Solution 3MV2-P InnoREC™ SSD

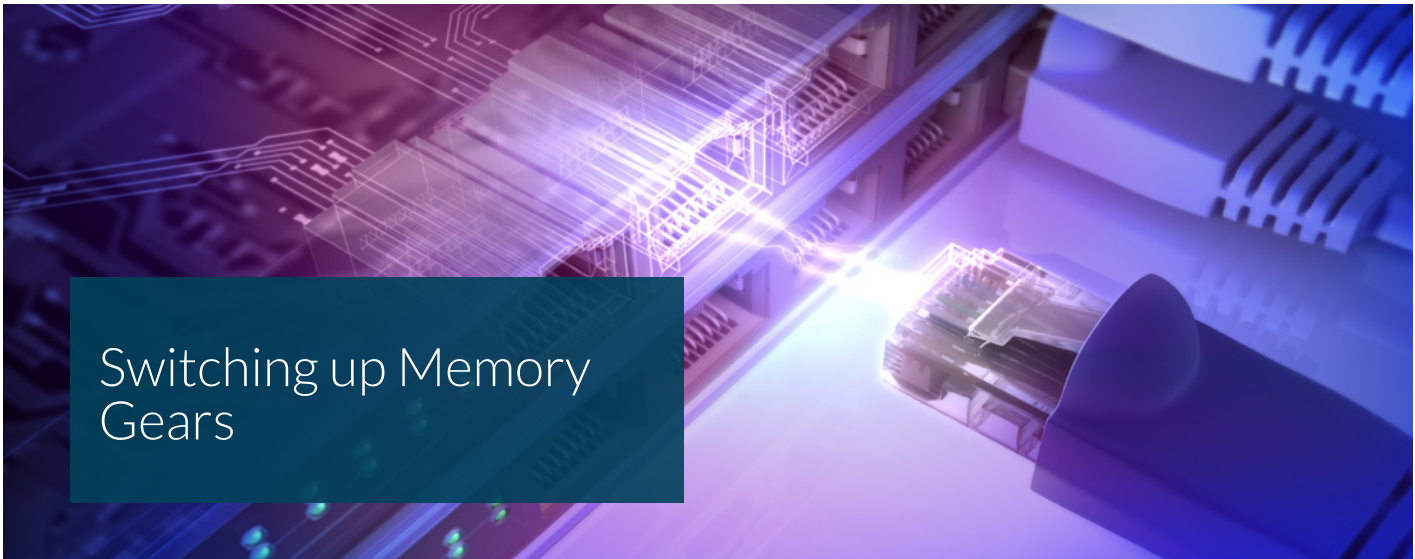
- 512GB capacity
- mSATA form factor

Industrial-grade DRAM Solution 2666MT/s DDR4 SODIMM

- High transfer speed
- Compact form factor
- Anti-Sulfuration capability

Result

The SSD is new to the surveillance market, and as such, manufacturers are bound to encounter some unknown hurdles. However, by working together, Innodisk and the manufacturer quickly identified the underlying issues, and created an optimized SSD that along with high-performance memory solved the quality issues experienced by the client. With extremely promising results from testing and later implementation, Innodisk decided to expand this concept under the new dedicated SSD series InnoREC™. This case shows the importance of close-knit cooperation, and how technical expertise can lead to new and exciting innovations.



Switching up Memory Gears

Situation

A longstanding partner of Innodisk in China was in need of a memory solution for their newest surveillance networking switch. The switch would operate under heavy workloads, and the system had a low error tolerance. Furthermore, the client was worried about potential heat dispersal issues. The manufacturer looked to Innodisk for help in solving these challenges, and with assistance the manufacturer could implement a solution that provided a small-footprint, high-performance and a sophisticated error correcting code (ECC) function.

Challenges

1. Strict Requirements: Network switches require both high- speed and high-capacity memory
2. Low Error Tolerance: Errors during transmission can severely impact networking operations
3. High Temperature: Heat dispersal issues due to the small- sized 1U cabinet

Solutions

1. High-Performance Module: Provided both the needed speed and capacity
2. Handling Every Error: Implemented Error Correcting Code (ECC) ensures minimal errors during data transfer
3. Easy Fit: The low profile of the VLP DIMM ensures optimized airflow and efficient heat dispersal

Our Roadmap to Success

DDR4 ECC UDIMM VLP

- Low-profile – 0.738 inches, an easy fit for 1U platforms
- 8GB capacity for heavy workloads
- Data transfer speed at 2400MT/s
- Excellent heat dispersal
- 30μ" Gold Fingers
- Anti-Sulfuration protection

Result

With Innodisk's 8GB 2400MT/s VLP DIMM installed, the customer found that all requirements had been fully met. This solution ensured that that the network switch could efficiently handle large data streams with no performance issues and efficient heat dispersal. The switch could thus easily fit into any high- performance surveillance infrastructure without the risk of data or quality loss.



ABOUT US

Innodisk is a service-driven provider of flash memory, DRAM modules and embedded peripherals for industrial and enterprise applications. With satisfied customers across the embedded, aerospace and defense, cloud storage markets and more, we have set ourselves apart with a commitment to dependable products and unparalleled service. This has resulted in products, including embedded peripherals, designed to supplement existing industrial solutions and high IOPS flash arrays for industrial and enterprise applications. The expanded business lines are leading our next steps in being a comprehensive solution and service provider in the industrial storage industry.

Founded in 2005 and headquartered in Taipei, Taiwan, Innodisk services clients globally with engineering experts and sales teams in China, Europe, Japan, and the United States. With abundant experience and an unrivaled knowledge of the memory industry, Innodisk develops products with excellent quality, remarkable performance and the highest reliability.

For more information about Innodisk, please visit <http://www.innodisk.com>.

Our Advantages



Technical Aptitude by Design

Our advantage lies in our portfolio of hardware, software and firmware technology and how we arrange these basic building blocks into new works of innovation.



Deeply Rooted in the Market

The awareness of the pit falls and opportunities of vertical markets allow us to view the full picture when crafting the optimal solution.



We Are in It Together

To reach the optimal solution, working together with our partner from day one is paramount. The best possible outcome can be managed by developing solutions jointly.

Absolute Integration™

Absolute Integration™ is our envisioned path that moves toward a more interconnected world.

“To us, integration is not merely the combination of hardware, software and firmware; it is a philosophy that assimilates all relevant elements to create an optimal solution.”

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