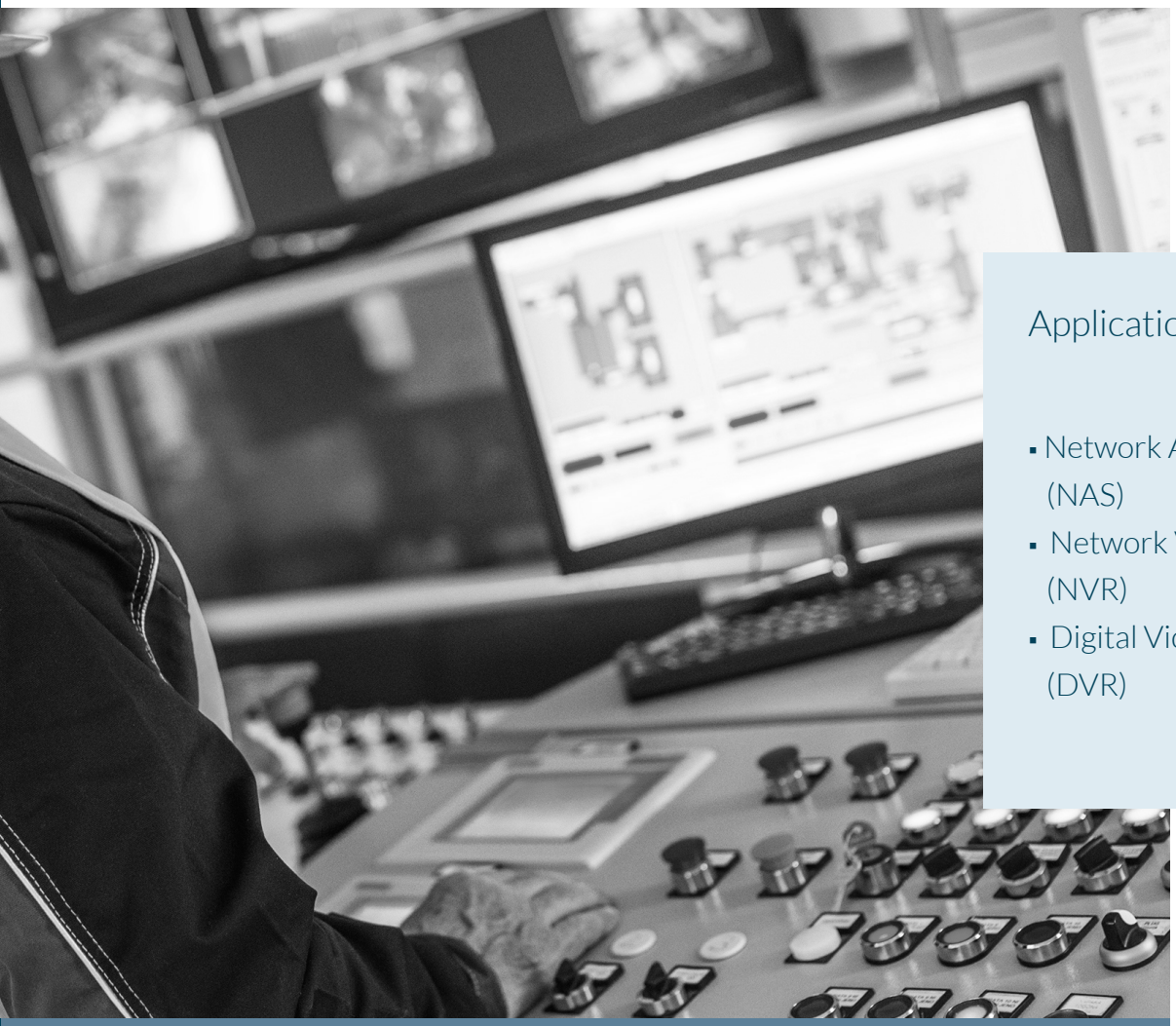
Optimized Surveillance Solutions

Storage, Memory and Cloud Solutions for the Surveillance Market

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 an 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.

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

Drones ▼

Smart City ▶

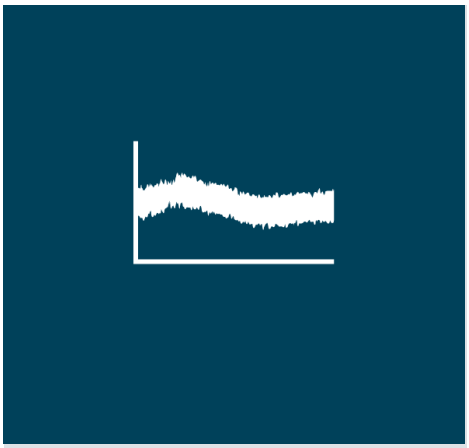
Traffic ▲

◀ Transportation

Security ▶

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.

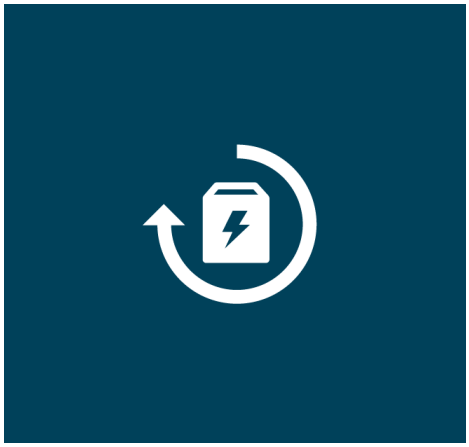


▼iData Guard

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

▲RECLine™

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



▲iCell

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

▼ 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

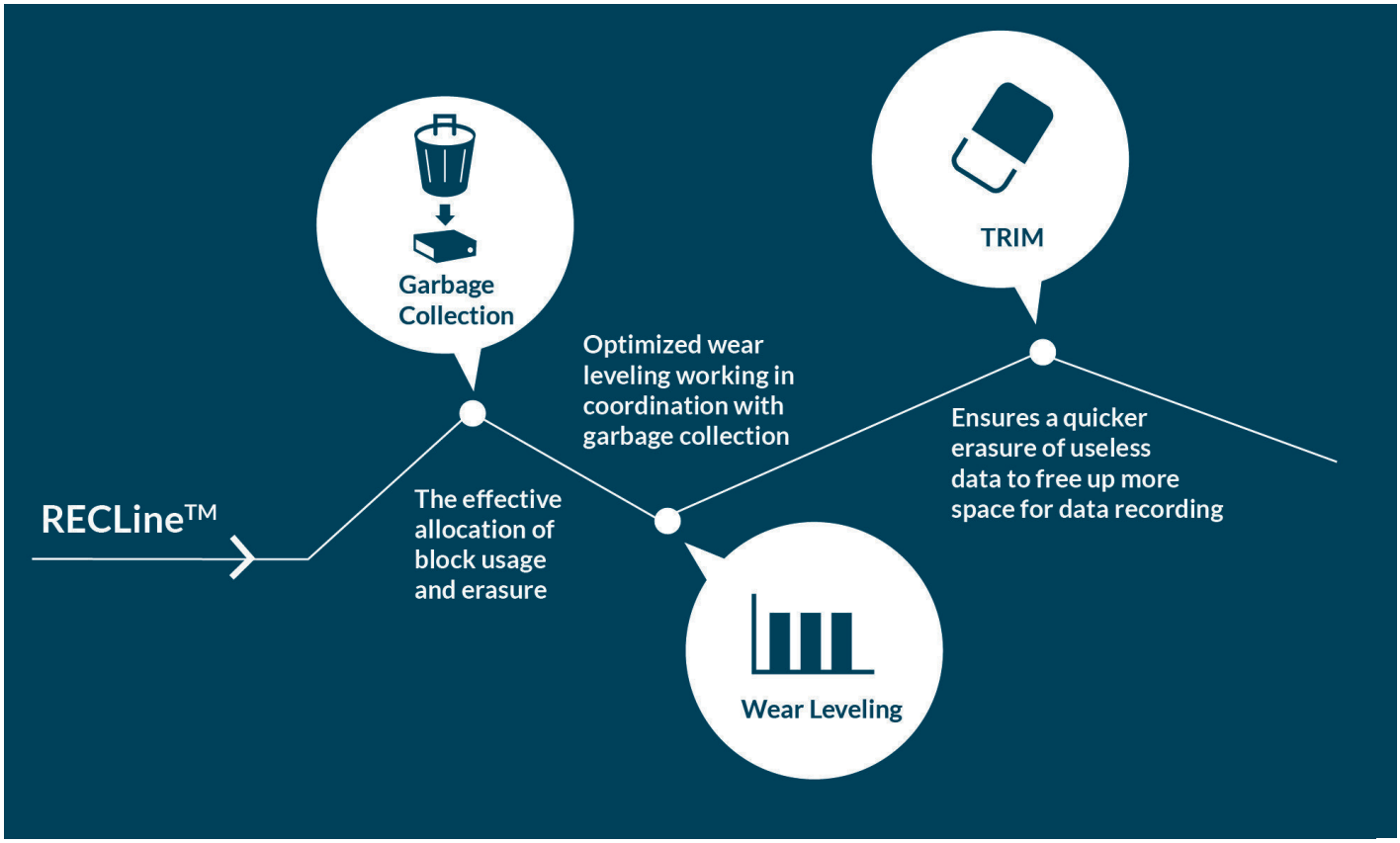
▲ Quick Erase

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

▲ Passive Cooling

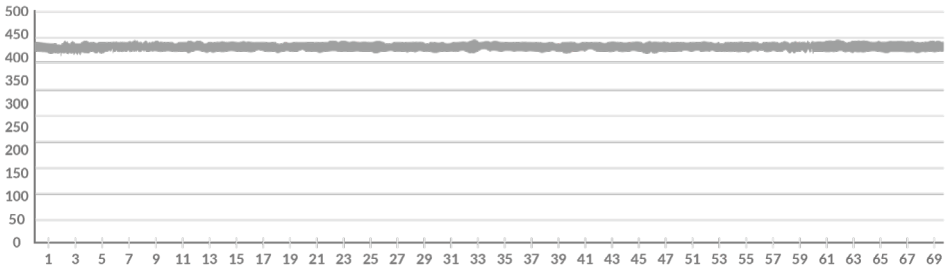
The SSD layout is design for maximum heat dissipation – ensuring performance and enhanced data retention

The composition of RECLine™



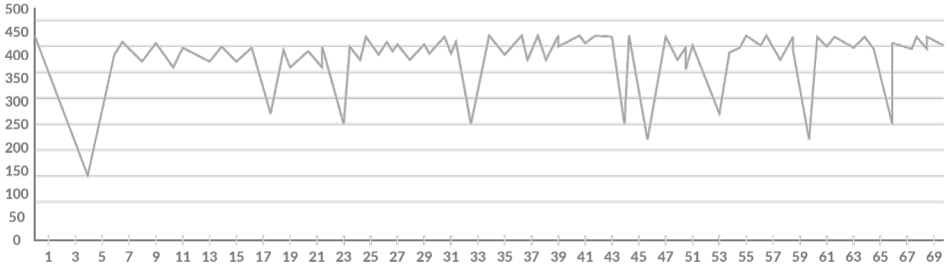
RECLine™ is our comprehensive solution to surpass the inherent issues of data writing and erasure for solid state storage. The optimization of these firmware features avoids any interruption to data recording and ensures a smooth performance.

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

The InnoREC™ 3MV2-P series SSDs are tailor-made surveillance storage that incorporates a suite of hardware and firmware technologies aimed at maximizing recording performance. InnoREC SSDs ensures continuous and seamless operation with minimal frame loss.

Model Name	2.5" SATA SSD 3MV2-P	SATA Slim 3MV2-P
Key Features	1. High Sequential/IOPS performance 2. iData Guard Protection 3. Exclusive REC Line architecture 4. Supports iCell protection	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~512GB
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: -40°C ~ +85°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, , 1TB=01T, 2TB=02T) ***= flash configuration (internal control code) %=Flash Type	

Model Name	CFast 3MV2-P	M.2 (S80) 3MV2-P	mSATA 3MV2-P
Key Features	1. Exclusive REC Line architecture 2. High Sequential/IOPS performance 3. iData Guard Protection	1. Type 2280-D2-B-M 2. High Sequential/IOPS performance 3. iData Guard Protection 4. Exclusive REC Line architecture	1. High IOPS by on-board DRAM design 2. Exclusive REC Line architecture 3. iData Guard Protection 4. 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~1TB
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)	2.8 W (3.3 V x 0.86 A)
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: -40°C ~ +85°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, 1TB=01T) ***= flash configuration (internal control code) %=Flash Type		

Innodisk is launching its industrial-grade 3D NAND SSD series, making the newest NAND flash technology available for the challenging requirements of embedded and industrial applications

Model Name	2.5" SATA SSD 3TG6-P	mSATA 3TG6-P
Key Features	1. Extreme seq. and random performance with 3D NAND solution 2. Advanced LDPC ECC engine 3. RAID engine offers an additional level of data protection	1. Extreme seq. and random performance with 3D NAND solution 2. Designed with LDPC ECC engine 3. RAID engine offers an additional level of data protection
Interface	SATA III 6.0Gb/s	SATA III 6.0Gb/s
Flash Type	3D TLC	3D TLC
Capacity	128GB~4TB	128GB~1TB
Max. Channel	4	4
Sequential R/W (MB/sec, max.)	540 /470	560/510
Max. Power Consumption	128GB~1TB 3.1W (5V x 620 mA) 2TB~4TB 6W (5V x 1.2 A)	2.8 W (3.3V x 850mA)
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	29.8 x 50.8 x 3.7
Environment	Vibration: 20G@7~2000Hz Shock: 1500G@0.5ms Storage Temperature: -40°C ~ +85°C MTBF: >3 million hours	
Standard Temp. OP (0°C~+70°C)	DGS25-XXXM71%C***(P)	DGMSR-XXXM71%C***
Wide Temp. OP (-40°C~+85°C)	DGS25-XXXM71%W***(P)	DGMSR-XXXM71%W***
Note	XXX = density (02GB=02G, 04GB=04G, 08GB=08G, 16GB=16G, 32GB=32G, 64GB=64G, 128GB=A28, 256GB=B56, 512GB=C12, , 1TB=01T, 2TB=02T, 4TB=04T) ***= flash configuration (internal control code) %=Flash Type	

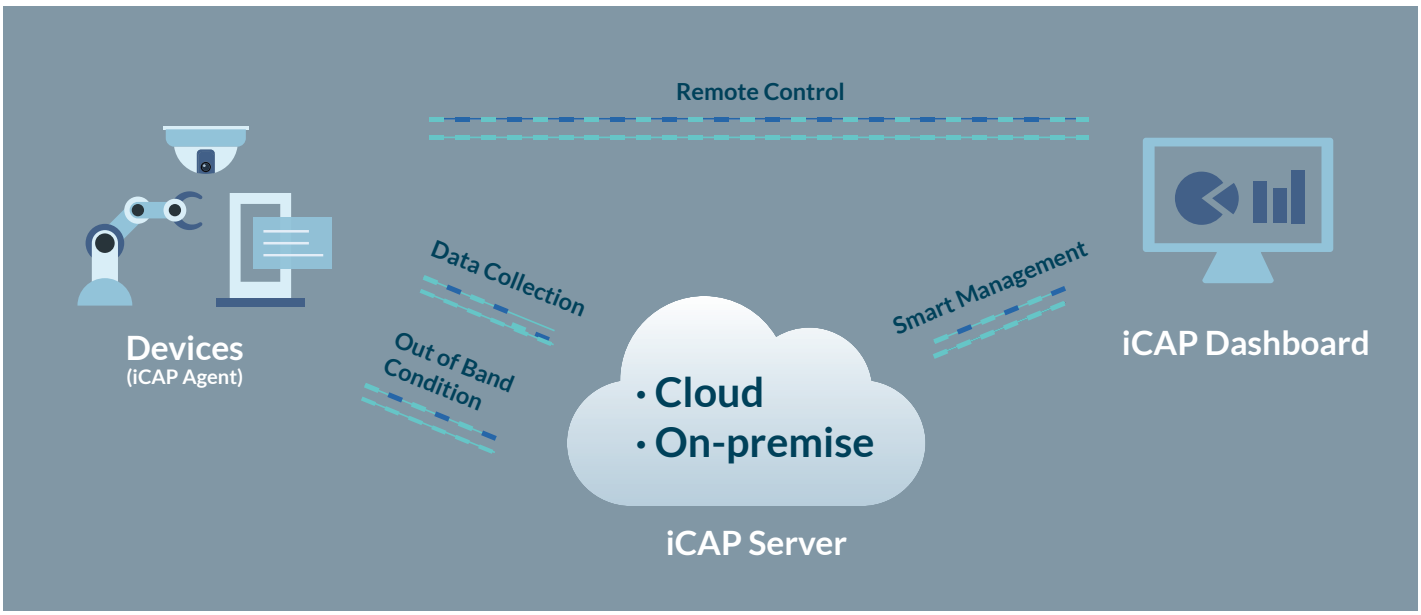
Model Name	M.2 (S80) 3TG6-P	M.2 (P80) 3TG6-P
Key Features	1. Extreme seq. and random performance with 3D NAND solution 2. Advanced LDPC ECC engine 3. RAID engine offers an additional level of data protection 4. AES 256-key end-to-end data path protection 5. Type-2280-D2-B-M	1. With-DRAM Solution 2. Supports NVMe 1.3 3. iData Guard Data Protection 4. End-to-End Data Path Protection
Interface	SATA III 6.0Gb/s	PCIe Gen3x4
Flash Type	3D TLC	3D TLC
Capacity	128GB~1TB	64GB~2TB
Max. Channel	4	8
Sequential R/W (MB/sec, max.)	560/510	3400/2700
Max. Power Consumption	2.6W (3.3V x 799mA)	5.6W (3.3V x 1700mA)
Thermal Sensor	Y	Y
External DRAM Buffer	Y	Y
iData Guard	Y	Y
iCell	Optional	TBC
TRIM	Y	Y
ATA Security	Y	N
S.M.A.R.T	Y	Y
Dimension (WxLxH/mm)	22.0 x 80.0 x 3.5	22.0 x 80.0 x 3.5
Environment	Vibration: 20G@7~2000Hz Shock: 1500G@0.5ms Storage Temperature: -40°C ~ +85°C MTBF: >3 million hours	
Standard Temp. OP (0°C~+70°C)	DGM28-XXXM71%C***	DGM28-XXXDC1EC*** DGM28-XXXDC1GC***
Wide Temp. OP (-40°C~+85°C)	DGM28-XXXM71%W***	DGM28-XXXDC1EW***
Note	XXX = density (02GB=02G, 04GB=04G, 08GB=08G, 16GB=16G, 32GB=32G, 64GB=64G, 128GB=A28, 256GB=B56, 512GB=C12, , 1TB=01T, 2TB=02T) ***= 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

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

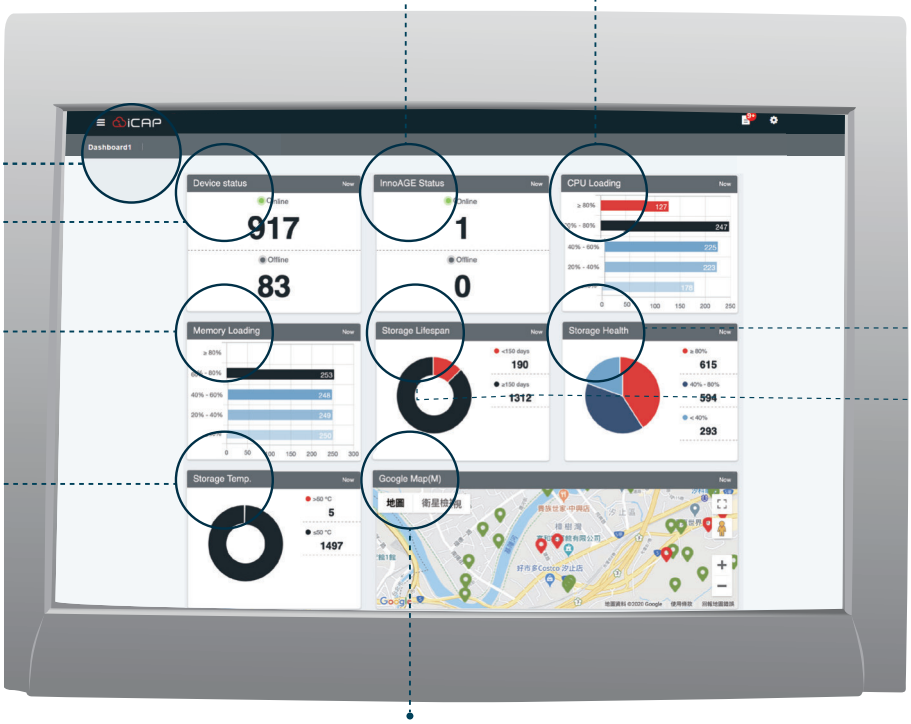
2 Keep track of out-of-band-enabled devices' operating status

3 Keep tabs on current CPU and Memory loading

4 Effectively monitor remote device status

Same as 3

Same as 5



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

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

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

DRAM

DRAM VLP DIMM

Extraordinary Surveillance Capabilities in a Small Package

At 1U, a majority of surveillance platforms are significantly more compact than standard solutions. This is where the Very Low-Profile (VLP) DIMM truly shines, delivering long-time performance, resistance to outdoor conditions, and wide temperature capabilities. Available in the Commercial DIMM, ECC DIMM, and RDIMM models, the VLP DIMM comes in both DDR3 and DDR4 versions, with DDR reaching a transfer rate of 2666MT/s.

Features

Very low-profile module compatible with 1U platforms with system heights only reaching 1.18 inches. Improves airflow and reduces thermal impact.

ECC modules designed to correct single-bit errors that occur during data storage and transmission.

Register that enhances clock, command, and control signals.

Original DRAM IC: High quality components that ensure performance and enhances warranties and after-sales support.

iRAM: Efficient testing tool that identify underperforming components and weeds them out while also simulating real-world scenarios to ensure high performance.

Anti-sulfuration: Sulfur-resistant material and 30μ" Gold Fingers allow the DRAM to remain unaffected by environmental threats.

Wide temperature: Fully operational in -40°C ~ 85°C environments, the DRAM will run in sustained harsh conditions without sacrificing performance.

DRAM

Embedded UDIMM

UDIMM modules are general 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, DDR3L and DDR4.

Series	Standard Solution
Module Type	DDR4 UDIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s
Capacity	2GB/4GB/8GB/16GB/32GB
Function	Non-ECC Unbuffered Memory
Pin Number	288pin
Width	64Bits
Voltage	1.2V
PCB Height	1.23 Inches
Operating Temperature	0 ~ 85°C
Value-Added Service (Optional)	Conformal Coating / Side Fill/Heat Spreader
Anti-sulfuration	√

Embedded SODIMM

Small-outline DIMMs (SODIMM) modules are general DRAM modules meant to be usesd 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
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s
Capacity	2GB/4GB/8GB/16GB/32GB
Function	Non-ECC Unbuffered Memory
Pin Number	260pin
Width	64Bits
Voltage	1.2V
PCB Height	1.18 Inches
Operating Temperature	0 ~ 85°C
Value-Added Service (Optional)	Conformal Coating / Side Fill/Heat Spreader
Anti-sulfuration	√

Server

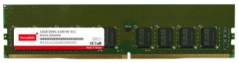
Server Registered DIMM

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
Data Rate	2133MT/s, 2400 MT/s, 2666MT/s, 2933MT/s, 3200MT/s
Capacity	4GB/8GB/16GB/32GB
Function	Registered Memory with ECC
Pin Number	288pin
Width	72Bits
Voltage	1.2V
PCB Height	1.23 Inches
Operating Temperature	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
Data Rate	2133 MT/s, 2400 MT/s, 2666MT/s, 2933MT/s, 3200MT/s	2133 MT/s, 2400 MT/s, 2666MT/s, 2933MT/s, 3200MT/s
Capacity	4GB/8GB/16GB/32GB	4GB/8GB/16GB/32GB
Function	Unbuffered Memory with ECC	
Pin Number	288pin	260pin
Width	72Bits	72Bits
Voltage	1.2V	1.2V
PCB Height	1.23 Inches	1.18 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C
Golden finger 30μ"	√	√
Anti-sulfuration	√	√
Value-Added Service (Optional)	Conformal Coating / Side Fill/Heat Spreader	

Very Low-Profile (VLP) DIMM

Very Low-Profile (VLP) DIMM modules and Ultra Low-Profile (ULP) DIMM modules are specialized for use in 1U systems, such as blade server data centers, where the system height is lower than 1.18 inches(SODIMM PCB Height). The design of these modules improves air flow inside a compact system and reduces thermal impact.

Series	Very Low-Profile (VLP) Solution	
Module Type	DDR4 UDIMM VLP	DDR4 ECC UDIMM VLP
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s
Capacity	4GB/8GB/16GB/32GB	4GB/8GB/16GB/32GB
Function	Non-ECC Unbuffered Memory	Unbuffered Memory with ECC
Pin Number	288pin	288pin
Width	64Bits	72Bits
Voltage	1.2V	1.2V
PCB Height	0.738 Inches	0.738 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C
Golden finger 30μ"	—	√
Anti-sulfuration	√	√
Value-Added Service (Optional)	Conformal Coating / Side Fill/ Heat Spreader	

Series	Very Low-Profile (VLP) Solution		
Module Type	DDR4 SODIMM VLP	DDR4 ECC SODIMM VLP	DDR4 RDIMM VLP
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s
Capacity	4GB/8GB	4GB/8GB	4GB/8GB/16GB/32GB
Function	Non-ECC Unbuffered Memory	ECC Unbuffered Memory	Registered Memory with ECC
Pin Number	260pin	260pin	288pin
Width	64Bits	72Bits	72Bits
Voltage	1.2V	1.2V	1.2V
PCB Height	0.7 Inches	0.7 Inches	0.738 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/ Heat Spreader		

Wide Temperature

Wide Temperature Unbuffered DIMM

Designed for industrial systems, Innodisk's Wide Temperature DRAM modules are best suited for applications that must work in extreme temperatures. These modules use industrial-grade SDRAM components with 30u" gold finger to ensure that the memory maintains its high-quality signal, even at temperatures as low as -40°C or as high as 85°C.



Series	Wide Temperature Solution		
Module Type	DDR4 WT UDIMM	DDR4 WT UDIMM VLP	DDR4 WT SODIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s	2133 MT/s, 2400 MT/s, 2666MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s
Capacity	4GB/8GB/16GB/32GB	8GB/16GB//32GB	4GB/8GB/16GB/32GB
Function	Non-ECC Unbuffered Memory		
Pin Number	288pin	288pin	260pin
Width	64Bits	64Bits	64Bits
Voltage	1.2V	1.2V	1.2V
PCB Height	1.23 Inches	0.738 Inches	1.18 Inches
Operating Temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
Golden finger 30μ"	√	√	√
Anti-sulfuration	√	√	√
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader		

Wide Temperature Unbuffered DIMM with ECC

Wide Temperature ECC DIMMs are designed for both industrial systems and servers, Innodisk's Wide Temperature DRAM modules are best suited for applications that must work in extreme temperatures. With the ECC function, the Wide Temperature DIMMs also ensure that data is corrected when corrupted data bits are found during data retrieval.


Series	Wide Temperature Solution	
Module Type	DDR4 WT ECC UDIMM	DDR4 WT ECC SODIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s
Capacity	4GB/8GB/16GB/32GB	4GB/8GB/16GB/32GB
Function	ECC Unbuffered Memory	
Pin Number	288pin	260pin
Width	72Bits	72Bits
Voltage	1.2V	1.2V
PCB Height	1.23 Inches	1.18 Inches
Operating Temperature	-40 ~ 85°C	-40 ~ 85°C
Golden finger 30μ"	√	√
Anti-sulfuration	√	√
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader	

Wide Temperature Registered DIMM

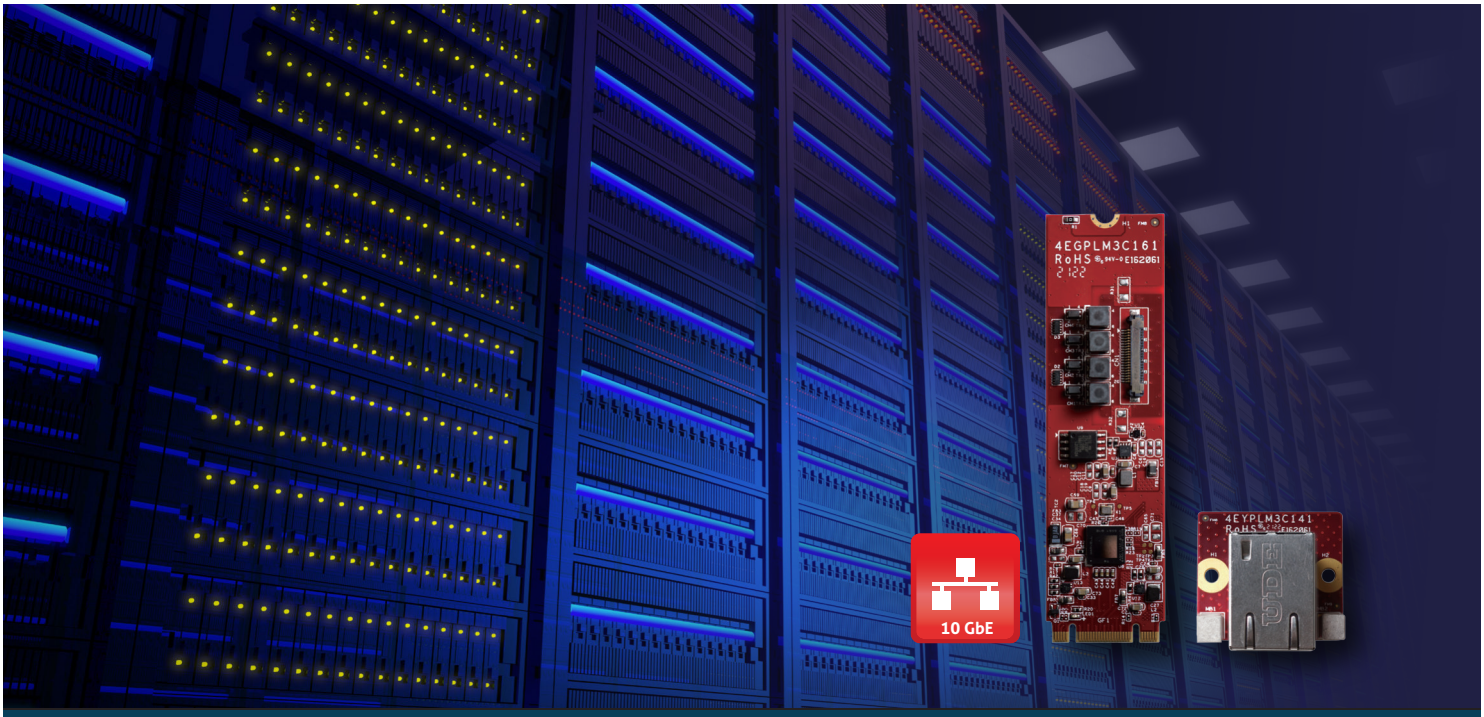
Designed for industrial systems, Innodisk's Wide Temperature DRAM modules are best suited for applications that must work in extreme temperatures. These modules use industrial-grade SDRAM components with 30µ" gold fingers to ensure that the memory maintains its high-quality signal, even at temperatures as low as -40°C or as high as 85°C.

Series	Wide Temperature Solution	
Module Type	DDR4 WT RDIMM	DDR4 WT RDIMM VLP
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s ,2933MT/s, 3200MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s
Capacity	4GB/8GB/16GB/32GB	4GB*/8GB/16GB/32GB 4GB* is only for 2133MT/s and 2400MT/s
Function	Registered Memory with ECC	
Pin Number	288pin	288pin
Width	72Bits	72Bits
Voltage	1.2V	1.2V
PCB Height	1.23 Inches	0.738 Inches
Operating Temperature	-40 ~ 85°C	-40 ~ 85°C
Golden finger 30µ"	√	√
Anti-sulfuration	√	√
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader	

DDR5

DRAM modules that deliver high capacities and speeds reaching up to 128GB & 6400MT/s – making it the ideal candidate for surveillance applications where you cannot compromise on performance. Only uses Original IC that meets strict industrial standards.

Series	DDR5 Standard Solution		
Module Type	DDR5 UDIMM	DDR5 SODIMM	DDR5 RDIMM
Data Rate	4800 MT/s		
Capacity	16GB/32GB		
Function	Non-ECC Unbuffered Memory	Non-ECC Unbuffered Memory	Registered Memory with ECC
Pin Number	288pin	262pin	288pin
Width	64Bits	64Bits	80Bits
Voltage	1.1V		
PCB Height	1.23 Inches	1.18 Inches	1.23 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C	0 ~ 85°C
Anti-sulfuration	√	√	√
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader		



Embedded Peripherals

EGPL-T101 High Speed Ethernet Module

Extraordinary Surveillance Capabilities in a Small Package

The Innodisk EGPL-T101 is the first M.2 2280 to single 10GbE Base-T Ethernet Module based on the Marvell AQC FastlinQ 113C controller. The module provides bandwidth for one 10GbE LAN port – a whole 10 times faster than standard Ethernet! This speed makes the EGPL-T101 the ideal solution for implementing high-resolution surveillance without major system modifications.

Features

- M.2 2280 B/M Key Form Factor
- Marvell AQtion Ethernet Controller
- Supports 10G/5G/2.5G/1000M/100M/10M LAN speed
- Lowest power and smallest 10GbE expansion solution
- Support x2/x1 PCI Express with Gen3/Gen2
- Tiny daughter board with high speed shielding cable
- Complies with EN61000-4-2 (ESD) Air-15kV, Contact-8kV
- Operating temperature 0°C to +55°C

Model Name	EGPL-T101
Module Type	M.2 2280 to single 10GbE LAN Module
Form-Factor	M.2 2280
Input I/F	PCI Express 3.0 x2
Input Connector	M.2 B-M
Output I/F	GbE LAN x 1
Output Connector	RJ45 x 1
Dimension (WxLxH/mm)	22 x 80 x 9
Operating Temperature	STD temp : 0°~55°C
Order Infomation	EGPL-T101-C1


Industrial


Networking


Gaming


Surveillance

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	mPCIe to dual PoE module	mPCIe to dual PoE module
Key Features	1. Supports dual 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 EN61000-4-2 (ESD) Air-15kV, Contact-8kV 6. Industrial temperature -40 °C to 85 °C	1. Supports dual 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 EN61000-4-2 (ESD) Air-15kV, Contact-8kV 6. 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)

Storage & Disk Array

Innodisk is a specialist in a wide range of storage interfaces. Our modules allow system integrators to expand more interfaces in embedded systems. RAID(Redundant Array of Independent Disks) 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	EMPS-3401	EMPS-32R1
Module Type	mPCIe to four SATA III module	mPCIe to dual SATA III RAID module
Key Features	1. PCIe 2.0 to four SATA III ports 2. Supports AHCI, Port-Multiplier 3. Low power consumption 4. Industrial temperature -40 °C to 85 °C	1. PCIe to dual SATA III ports. 2. Supports AHCI, Port-Multiplier. 3. Supports Hardware RAID 0, RAID1
Form-Factor	mPCIe	mPCIe
Input I/F	PCI Express 2.0	PCI Express 2.0
Input Connector	mPCIe	mPCIe
Output I/F	SATA III	SATA III
Output Connector	SATA 7 Pin x 4	SATA 7 Pin x 2
Dimension (WxLxH/mm)	30 x 50.9 x 10.9	30 x 50.9 x 10.7
Operating Temperature	Wide temp : -40°~85°C	STD temp : 0°~70°C
Order Infomation	EMPS-3401-W1	EMPS-32R1-C1

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
- 2TB 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.

Making Roads Safer with Rugged AIoT License Plate Readers

Situation

A police department needed a remote trailer that could detect and transmit alert messages. The Automatic License Plate Reader (ALPR), was designed to record suspicious criminal activities and send messages to alert police authorities.

Challenges

1. Traffic monitoring and border control requires consistent camera recording quality
2. The trailer needs to endure harsh outdoor climate with temperatures -5° to 60°C and high humidity
3. The ALPR has to match vehicle license plates with police databases to find crime/insurance violations
4. The ALPR needs to send alerts to the control center in real time

Solutions

1. Innodisk SSD with RECLine™ to avoid frame loss
2. Innodisk Wide-temperature SSD and DRAM with conformal coating
3. Aetina's Jetson GPU installed to support accurate ALPR processing
4. Back-end control dashboard (iCAP™) to monitor all connected trailers via the ALPR

Our Roadmap to Success

3MV2-P 2.5" Surveillance SSD
- AES 256-bit hardware encryption supported by TCG Opal 2.0
- Wide temperature design: −40 to 85 °C
- Compliant with MIL-STD-810G
- Standard secure erase function

High-Performance DRAM
- Industrial-grade IC
- Compact form factor
- Conformal coating

iCAPTM Cloud-based Management
- Browser-based real-time monitoring of all connected devices and onboard components
- One-button backup and recovery function
- Sophisticated alert system

Result

With Innodisk's storage and memory solutions, the ALPR can deliver high-quality footage with protection from roadside elements such as extreme temperatures, humidity, and dust. The Jetson GPU helps seamlessly process thousands of license plates per day. Lastly, the iCAP dashboard ensures enhanced monitoring and maintenance.

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 mission critical, 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 Europe, the United States, China and APAC. 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.

Our Vision

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."

Headquarters

Innodisk Corporation

5F., No. 237, Sec. 1, Datong Rd., Xizhi Dist.,
New Taipei City, 221, Taiwan

T +886-2-7703-3000
F +886-2-7703-3555
E sales@innodisk.com

Branch Offices

Japan

2F., 1-1-14, Nihonbashi-Ningyocho,
Chuo-ku, Tokyo, 103-0013 Japan
T +81-3-6667-0161
F +81-3-6667-0162
E jpsales@innodisk.com

Europe

Pisanostraat 57, 5623 CB,
Eindhoven, The Netherlands
T +31-(0)40 3045 400
F +31-(0)40 3045 419
E eusales@innodisk.com

Paris

Regus, Immeuble Stephenson 1 rue Stephenson,
78180 Montigny le Bretonneux
T +33 (0)6 25 35 28 99

USA

42996 Osgood Road
Fremont, CA 94539
T +1-510-770-9421
F +1-510-770-9424
E usasales@innodisk.com

9 Timber Lane, Marlboro, NJ 07746
T +1-732-8530455
F +1-732-7846401

1 Chisholm Trail Road
Suite 4150, Round Rock, TX 78681
T +1-512-828-7464

China

807, 8 Floor, Building B, Hengyue
Center, Dengliang Road, Nanshan
District, Shenzhen, China
T +86-0755-2167-3689
+86-0755-2167-3690
F +86-0755-2167-3691
E sales_cn@innodisk.com

Shanghai **T** +86-021-64198038

Beijing **T** +86-010-82458120
T +86-010-82458130
Chengdu **T** +86-028-67197490
Wuhan **T** +86-027-81941314

For more warranty details, please contact the Innodisk Sales Department or visit our website:
www.innodisk.com