Innodisk Medical Solutions

Storage, Memory, Expansion Card, and Software Solutions for the Medical Market

Introduction

Applications

- Medical Cart
- Nursing Station
- Vital Sign Monitor
- Ultrasound Scanner
- Smart Bed

AI and technological advances hold great promises for the future of the medical field. Smart devices will greatly enhance our capabilities for diagnostics, patient care, and data analysis.

In the hospital of tomorrow, images and data from each patient can be evaluated by AI though immense data sets, both faster and more accurately than any human actor. Bedside systems can read and analyze data in real-time and alert personnel if early signs of trouble are showing. These systems have traditionally been separate, only monitoring one specific function, but a smart system has the potential to gather data from all devices and analyze it real-time.

Employing these smart solutions requires comprehensive infrastructure to handle data transfer and storage needs.

The Innodisk Solution

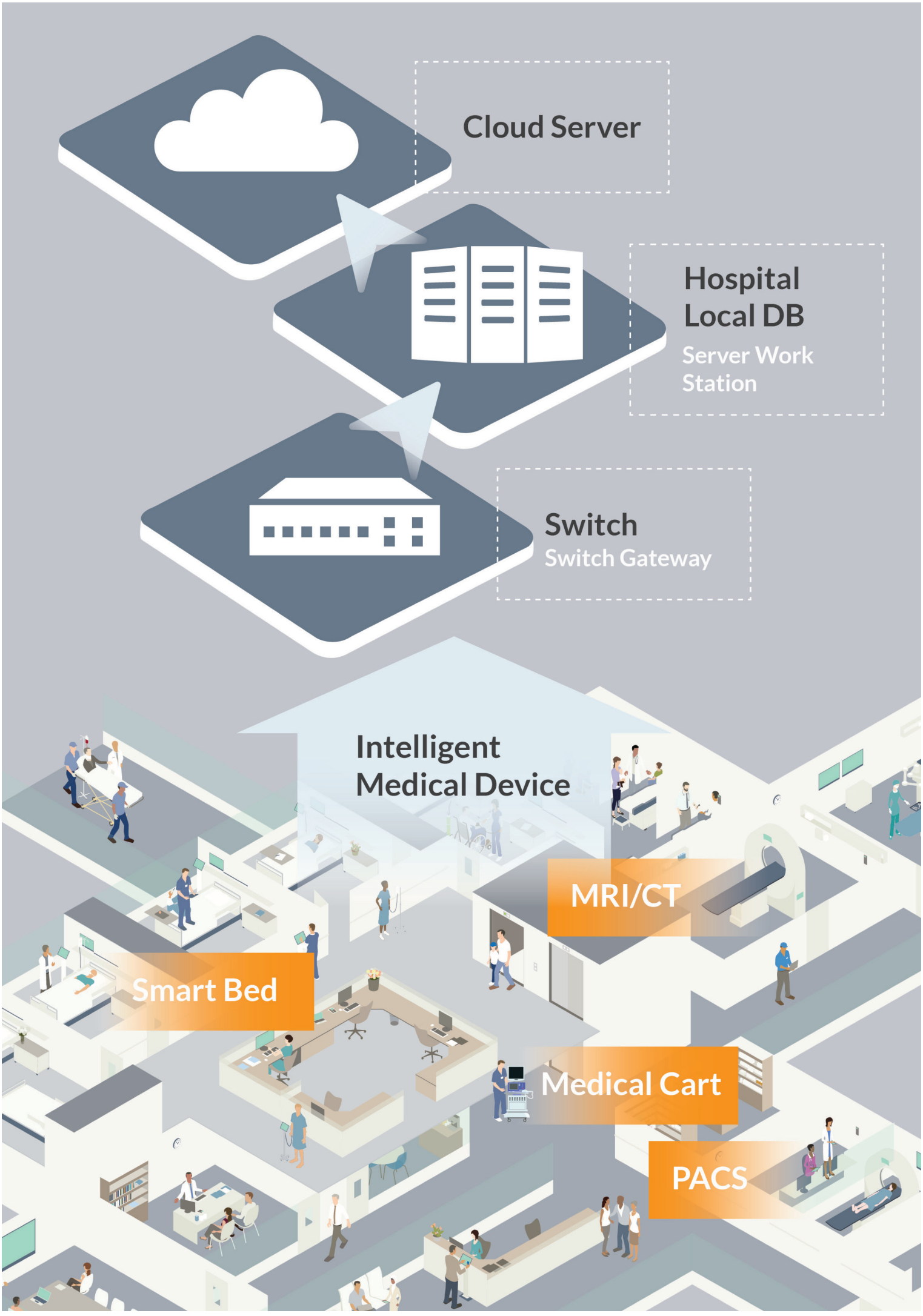
Using iCAP™ your devices can be gathered under a single umbrella regardless of physical location. This way, every device and associated storage and memory components can be monitored and managed remotely. This is a crucial tool to ensure timely maintenance for the growing number of interconnected medical devices where downtime and failure can have drastic consequences.

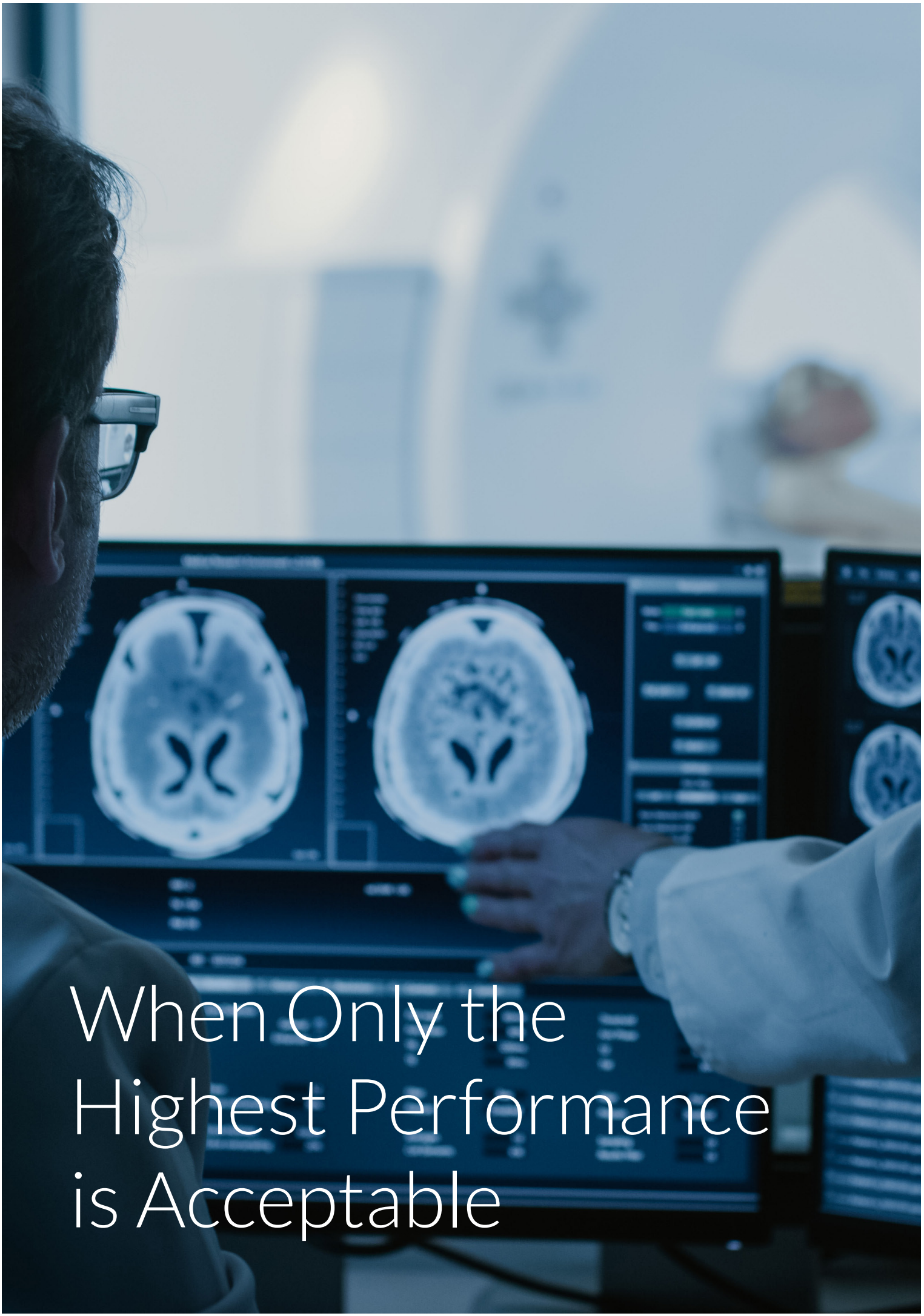
Flash-based solutions are varied and are easily customizable to fit the requirements of each medical application. Special circumstances require heavy modification to the SSD. With years of experience in the embedded and industrial sector, Innodisk offers diversified form factors that are optimized for the medical market.

DRAM is an essential component in every smart device. However, medical devices vary widely in terms of size and requirements. This is why Innodisk has perfected their DRAM portfolio to include various form factors and specifications. These are industrial-grade modules with the potential to be fitted with additional protective measures such as Anti-Sulfuration Resistors, Conformal Coating and Side Fill.

These systems require being linked up to each other and other external devices. With robust Communications Card, these connections are easily added to already existing platforms.

There is no need for concern about future component availability. These hardware solutions are all ensured to have long-time supply and a fixed BOM.


Cloud Server
Hospital
Local DB
Server Work
Station
Switch
Switch Gateway
Intelligent
Medical Device
MRI/CT
Smart Bed
Medical Cart
PACS



When Only the Highest Performance is Acceptable

iCAP™ Successful Story

Smart Nursing Station Monitoring System

Patient Care and Nursing Cart Monitoring Through iCAP™ Integration for Nursing Station

Overview

It is not easy or convenient to track patient treatment with traditional nursing stations. However, smart nursing station monitoring systems can keep tabs on not only patient status but also the status of nursing carts; including battery health and other components. As the number of patients increase, an effective central management dashboard and notification system will provide adequate means of on-time patient care.

Challenges

1. Need to collect the battery information from nursing cart
2. Central management user interface is needed for intuitive and user—friendly operation
3. Real-time notifications are necessary to get the on-time patient status updates

Solutions

1. iCAP™ client can collect battery information through serial port
2. An intuitive dashboard allows the user central management capabilities for efficient patient care
3. iCAP™ dashboard can integrate with bedside care systems to trigger an alert when the patient presses the help button

Our Roadmap to Success

- **Customized iCAP™ client that gathers not only components data but also battery lifespan status**
- **Easily accessible through browser=based dashboard on any online device, no matter the location**

Result

Innodisk provided the client with a customized patient care dashboard and full monitoring capabilities with iCAP™. Through customization, our customer could deliver a stable, intelligent nursing station solution.

Flash




Model Name	2.5"SATA SSD 3TE7	2.5"SATA SSD 3TG6-P	2.5" SATA SSD 3MG2-P	2.5" SATA SSD 3SE2-P
Key Features	1. Truly industrial designed firmware with 3D NAND 2. Advanced LDPC ECC engine 3. Internal RAID Technology 4. DRAM-less, high-level data integrity 5. Excellent data transfer speed	1. Extreme seq. and random performance with 3D NAND solution 2. Advanced LDPC ECC engine 3. RAID engine offer additional level of data protection	1. EverGreen L² architecture 2. High Sequential/IOPS performance 3. Support DEVSLP 4. iData Guard Protection	1. High IOPS performance with DRAM solution 2. High quality SLC-based solution 3. Support AES function
Interface	SATA III 6.0Gb/s	SATA III 6.0Gb/s	SATA III 6.0Gb/s	SATA III 6.0Gb/s
Flash Type	3D TLC	3D TLC	MLC	SLC
Capacity	32GB~1TB	128GB~4TB	8GB-2TB	8GB~512GB
Max. Channel	4	4	4	4
Sequential R/W (MB/sec, max.)	560/525	540 /470	520/480	520/420
Max. Power Consumption	0.8W (5V x 160mA)	128GB~1TB 3.1W (5V x 620mA) 2TB~4TB 6W (5V x 1.2A)	6W (5V x 1.2A)	2.15W (5V x 430mA)
Thermal Sensor	Y			
External DRAM Buffer	N	Y	Y	Y
iData Guard	Y	Y	Y	Y
iCell	N	Optional	Optional	Optional
TRIM	Y	Y	Y	Y
ATA Security	Y	Y	Y	Y
S.M.A.R.T	Y	Y	Y	Y
Dimension (WxLxH/mm)	69.85 x 100.1 x 6.9	69.8 x 100.1 x 6.9	69.8 x 100.1 x 6.9 69.8 x 100.0 x 9.5 (2TB)	69.8 x 99.8 x 9.2
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)	DES25-XXXDK1EC***	DGS25-XXXM71EC***	DGS25-XXXD81%C***(P)	DES25-XXXD82SC***
Wide Temp.OP(-40°C~+85°C)	DES25-XXXDK1EW***	DGS25-XXXM71EW***	DRS25-XXXD81%W***(P)	DES25-XXXD82SW***
Notes	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			





Model Name	mSATA 3TE7	mSATA 3TG6-P	mSATA 3SE4	mSATA 3ME4	mSATA 3IE4
Key Features	1. Industrial-grade firmware with 3D NAND 2. Advanced LDPC ECC engine 3. Internal RAID Technology 4. DRAM-less, high-level data integrity 5. Excellent data transfer speed	1. Extreme seq. and random performance with 3D NAND solution 2. Advanced LDPC ECC engine 3. RAID engine offers additional level of data protection	1. High quality SLC-based solution 2. DRAM-less, high-level data integrity 3. LDPC technology secures SSD reliability 4. Excellent data transfer speed	1. LDPC technology secures SSD reliability 2. DRAM-less, high-level data integrity	1. Cost-effective industrial Flash with iSLC 2. Lifespan 7 times longer than MLC 3. Performance and data quality congruent to SLC 4. Excellent data transfer speed 5. LDPC technology secures SSD reliability
Interface	SATA III 6.0Gb/s	SATA III 6.0Gb/s	SATA III 6.0Gb/s	SATA III 6.0Gb/s	SATA III 6.0Gb/s
Flash Type	3D TLC	3D TLC	SLC	MLC	iSLC
Capacity	32GB~1TB	128GB~512GB	8GB~64GB *For 4GB/ 128GB, please check mSATA 3SE3	8GB~256GB *For 512 GB, please check mSATA 3ME3	8GB~128GB
Max. Channel	4	4	2	2	2
Sequential R/W (MB/sec, max.)	560/525	560/510	525/350	535/210	530/365
Max. Power Consumption	2.2 W (3.3V x 674mA)	2.64 W (3.3V x 800mA)	1.32W(3.3V x 400mA)	0.6W (3.3V x 205mA)	0.6W(3.3V x 200mA)
Thermal Sensor	Y	Y	Y	Y	Y
External DRAM Buffer	N	Y	N	N	N
iData Guard	Y	Y	Y	Y	Y
iCell	N	N	N	N	N
TRIM	Y	Y	Y	Y	Y
ATA Security	Y	Y	Y	Y	Y
S.M.A.R.T	Y	Y	Y	Y	Y
Dimension (WxLxH/mm)	29.8 x 50.8 x 3.7	29.8 x 50.8 x 3.7	29.8 x 50.8 x 3.7	29.8 x 50.8 x 3.7	29.8 x 50.8 x 3.7
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)	DEMSR-XXXDK1EC***	DGMSR-XXXM71EC***	DEMSR-XXXM41SC***	DEMSR-XXXM41BC***	DHMSR-XXXM41BC***
Wide Temp.OP(-40°C~+85°C)	DEMSR-XXXDK1EW***	DGMSR-XXXM71EW***	DEMSR-XXXM41SW***	DEMSR-XXXM41BW***	DHMSR-XXXM41BW***
Note	XXX = density (02GB=02G, 04GB=04G, 08GB=08G, 16GB=16G, 32GB=32G, 64GB=64G) ***= flash configuration (internal control code)%=Flash Type				





Model Name	M.2 (S42) 3TE7	M.2 (S42) 3SE4	M.2 (S42) 3IE4	M.2 (S42) 3MG2-P	M.2 (S80) 3TE7
Key Features	1. Truly industrial designed firmware with 3D NAND 2. Advanced LDPC ECC engine 3. Internal RAID Technology 4. DRAM-less, high-level data integrity 5. Excellent data transfer speed	1. Type 2242-D2-B-M 2. High quality SLC-based solution 3. DRAM-less, high-level data integrity 4. LDPC technology secures SSD reliability 5. Excellent data transfer speed	1. Type 2242-D2-B-M 2. Designed with LDPC ECC engine 3. Lifespan 7 times longer tham MLC 4. Cost-effective industrial flash with iSLC	1. Type 2242-D2-B-M 2. High sequential/IOPS performance 3. Support DEVSLP 4. iData Guard Protection	1. Truly industrial designed firmware with 3D NAND 2. Advanced LDPC ECC engine 3. Internal RAID Technology 4. DRAM-less, high-level data integrity 5. Excellent data transfer speed
Interface	SATA III 6.0Gb/s	SATA III 6.0Gb/s	SATA III 6.0Gb/s	SATA III 6.0Gb/s	SATA III 6.0Gb/s
Flash Type	3D TLC	SLC	iSLC	MLC	3D TLC
Capacity	32GB~512GB	8GB~64GB	8GB~128GB	32GB~256GB	32GB~1TB
Max. Channel	4	2	2	4	4
Sequential R/W (MB/sec, max.)	560/330	520/360	530/380	560/360	550/370
Max. Power Consumption	1.6W (3.3V x 475mA)	0.6W (3.3V x 185mA)	1.5W (3.3V x 460mA)	1.09 W (3.3V x 330mA)	2.0W (3.3V x 614mA)
Thermal Sensor	Y	Y	Y	Y	Y
External DRAM Buffer	N	N	N	Y	N
iData Guard	Y	Y	Y	Y	Y
iCell	N	N	N	N	N
TRIM	Y	Y	Y	Y	Y
ATA Security	Y	Y	Y	Y	Y
S.M.A.R.T	Y	Y	Y	Y	Y
Dimension (WxLxH/mm)	22.0 x 42.0 x 3.5	22.0 x 42.0 x 3.5	22.0 x 42.0 x 3.2	22.0 x 42.0 x 3.5	22.0 x 80.0 x 3.5
Environment	Shock: 1500G@0.5ms/Storage Temperature: -55°C ~ +95°C/MTBF: >3 million hours				
Standard Temp. OP (0°C~+70°C)	DEM24-XXXDK1EC***	DEM24-XXXM41SC***	DHM24-XXXM41BC***	DGM24-XXX-D81%C***	DEM28-XXXDK1EC***
Wide Temp. OP (-40°C~+85°C)	DEM24-XXXDK1EW***	DEM24-XXXM41SW***	DHM24-XXXM41BW***	DGM24-XXX-D81%W***	DEM28-XXXDK1EW***
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	M.2 (S80) 3TG6-P	M.2 (S80) 3SE4	M.2 (S80) 3IE4	M.2 (S80) 3ME4	M.2 (S80) 3MG2-P
Key Features	1. Extreme seq. and random performance with 3D NAND solution 2. Advanced LDPC ECC engine 3. RAID engine offer additional level of data protection 4. AES 256-key ,end to end data path protection	1. Type 2280-S2-B-M (single side) 2. High quality SLC-based solution 3. DRAM-less, high-level data integrity 4. LDPC technology secures SSD reliability 5. Excellent data transfer speed	1. Type 2280-D2-B-M 2. Designed with LDPC ECC engine 3. Lifespan 7 times longer tham MLC 4. Cost-effective industrial flash with iSLC	1. Type 2280-D2-B-M 2. Exclusive L^3 architecture 3. Designed with LDPC ECC Engine 4. Budget-friendly MLC-based solution	1. Type 2280-D2-B-M 2. High sequential/IOPS performance 3. Support DEVSLP 4. iData Guard Protection
Interface	SATA III 6.0Gb/s	SATA III 6.0Gb/s	SATA III 6.0Gb/s	SATA III 6.0Gb/s	SATA III 6.0Gb/s
Flash Type	3D TLC	SLC	iSLC	MLC	MLC
Capacity	128GB~1TB	8GB~64GB	8GB~128GB	8GB~256GB	16GB~1TB
Max. Channel	4	2	2	2	4
Sequential R/W (MB/sec, max.)	560/510	520/360	530/360	530/210	530/450
Max. Power Consumption	2.6W (3.3V x 799mA)	1.6W (3.3V x 500 mA)	0.9 W (3.3V x 270mA)	0.9 W (3.3V x 270mA)	3.63W (3.3V x 1.1A)
Thermal Sensor	Y	Y	Y	Y	Y
External DRAM Buffer	Y	N	N	N	Y
iData Guard	Y	Y	Y	Y	Y
iCell	N	N	N	N	Optional
TRIM	Y	Y	Y	Y	Y
ATA Security	Y	Y	Y	Y	Y
S.M.A.R.T	Y	Y	Y	Y	Y
Dimension (WxLxH/mm)	22.0 x 80.0 x 3.5	22.0 x 80.0 x 3.2	22.0 x 80.0 x 3.2	22.0 x 80.0 x 3.2	22.0 x 80.0 x 3.5
Environment	Shock: 1500G@0.5ms/Storage Temperature: -55°C ~ +95°C/MTBF: >3 million hours				
Standard Temp. OP (0°C~+70°C)	DGM28-XXXM71EC***	DEM28-XXXM41SC***	DHM28-XXXM41BC***	DEM28-XXXM41BC***	DGM28-XXXD81%C***
Wide Temp. OP (-40°C~+85°C)	DGM28-XXXM71EW***	DEM28-XXXM41SW***	DHM28-XXXM41BW***	DEM28-XXXM41BW***	DGM28-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				

Successful Story

Ensuring Safety through Customization

Tailor-made mSATA SSD and Optimized DRAM for MRI and NMR Devices

Situation

Anti-magnetic components are required if system or devices are placed directly into the magnetic field of MRI or NMR systems. Safety becomes a major concern because where extreme magnetism is present, even a small amount of magnetic response can cause catastrophic failures and injuries within this application.

Challenges

1. Non-magnetic components in PCBA design
2. Maintaining device stability while using alternative parts
3. Monitoring of asset condition and predictive maintenance

Solutions

1. Redesign SSD schematic and removal of magnetic components
2. DRAM and storage devices manufactured under strict quality standards
3. iSMART feature to monitor device health

Our Roadmap to Success

3ME4 mSATA SSD
· 128GB of Capacity
· Industrial-Grade MLC Flash
· Customized HW to Ensure Anti-Magnetic Capabilities

1866 DDR3 SODIMM
· 4GB of Capacity
· Industrial-Grade Design

Result

Even with the difficult conditions laid out by this application, the customer achieved their design goals with a tailor-made SSD design nd oprimized memory that ensured smooth device operation and an efficient monitoring scheme. This combination provided an easily integrated anti-magnetic solution for the Innodisk customer.

DRAM

Anti-Sulfuration DRAM for ALL DDR4 DRAM Modules

Robust Modules that Bring the Needed Endurance to the Industrial 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

Free

Free-of-Cost Upgrade

- All Innodisk DDR4 modules will be upgraded without any added cost to include robust anti-sulfuration measures

Long-term Protection

- Decrease your TCO by investing in modules with lasting durability in hostile environments

DRAM




Series	Standard Solution			
Module Type	DDR4 UDIMM	DDR3 UDIMM	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	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/32GB*	2GB/4GB/8GB	2GB/4GB/8GB/16GB/32GB*	1GB/2GB/4GB/8GB
Function	Non-ECC Unbuffered Memory			
Pin Number	288pin	240pin	260pin	204pin
Width	64Bits	64Bits	64Bits	64Bits
Voltage	1.2V	1.5V/1.35V	1.2V	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
Anti-Sulfuration	√	–	√	–
Value-Added Service (Optional)	Conformal Coating / Side Fill			

32GB*: The availability of 32GB by 2Gbx8 IC depends on supplier status


Series	Server Solution	
Module Type	DDR4 RDIMM	DDR3 RDIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/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	√ (*With exception of the 32GB module)	–




Series	ECC Unbuffered DIMM Solution			
Module Type	DDR4 ECC UDIMM	DDR4 ECC SODIMM	DDR3 ECC UDIMM	DDR3 ECC SODIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/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/32GB*	4GB/8GB/16GB/32GB*	2GB/4GB/8GB	2GB/4GB/8GB
Function	ECC Unbuffered Memory			
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			

32GB*: The availability of 32GB by 2Gbx8 IC depends on supplier status




Series	Wide Temperature Solution			
Module Type	DDR4 WT UDIMM	DDR3 WT UDIMM	DDR4 WT SODIMM	DDR3 WT SODIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s
Capacity	4GB/8GB/16GB/32GB*	2GB/4GB/8GB	4GB/8GB/16GB/32GB*	2GB/4GB/8GB
Function	Non-ECC Unbuffered Memory			
Pin Number	288pin	240pin	260pin	204pin
Width	64Bits	64Bits	64Bits	64Bits
Voltage	1.2V	1.5V/1.35V	1.2V	1.5V/1.35V
PCB Height	1.23 Inches	1.18 Inches	1.18 Inches	1.18 Inches
Operating Temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
Golden finger 30μ"	√	√	√	√
Anti-Sulfuration	√	—	√	—
Value-Added Service (Optional)	Conformal Coating / Side Fill			

32GB*: The availability of 32GB by 2Gbx8 IC depends on supplier status




Series	Wide Temperature Solution			
Module Type	DDR4 WT ECC UDIMM	DDR4 WT ECC SODIMM	DDR3 WT ECC UDIMM	DDR3 WT ECC SODIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/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/32GB*	4GB/8GB/16GB/32GB*	2GB/4GB/8GB	2GB/4GB/8GB
Function	ECC Unbuffered Memory			
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	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
Golden finger 30μ"	√	√	√	√
Anti-Sulfuration	√	√	—	—
Value-Added Service (Optional)	Conformal Coating / Side Fill			

32GB*: The availability of 32GB by 2Gbx8 IC depends on supplier status



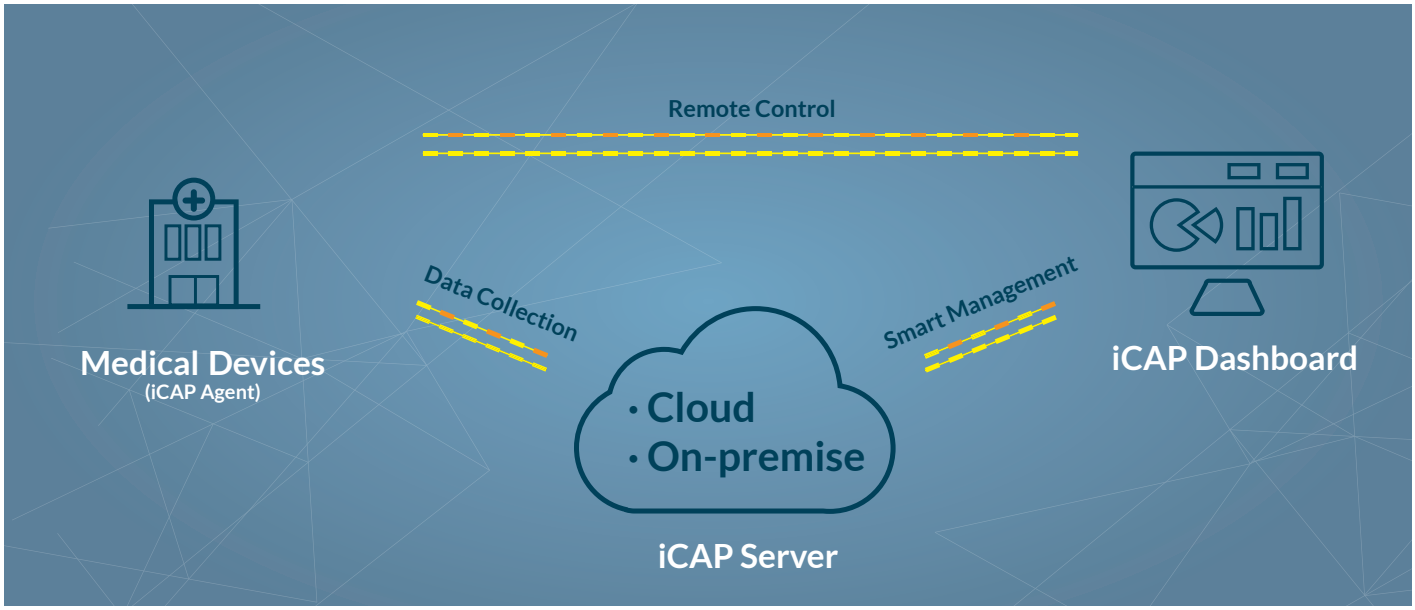


Series	Very Low-Profile (VLP) Solution				
Module Type	DDR4 UDIMM VLP	DDR4 ECC UDIMM VLP	DDR4 SODIMM VLP	DDR4 ECC SODIMM VLP	DDR4 RDIMM VLP
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s
Capacity	4GB/8GB/16GB	4GB/8GB/16GB	4GB/8GB	4GB/8GB	4GB/8GB/16GB/32GB
Function	Non-ECC Unbuffered Memory	ECC Unbuffered Memory	Non-ECC Unbuffered Memory	ECC Unbuffered Memory	Registered Memory with ECC
Pin Number	288pin	288pin	260pin	260pin	288pin
Width	64Bits	72Bits	64Bits	72Bits	72Bits
Voltage	1.2V	1.2V	1.2V	1.2V	1.2V
PCB Height	0.738 Inches	0.738 Inches	0.7 Inches	0.7 Inches	0.738 Inches
Operating Temperature	0 ~ 85°C	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				

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 medical 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 company intranet. From here the data is easily accessible any compatible browser.

System Architecture



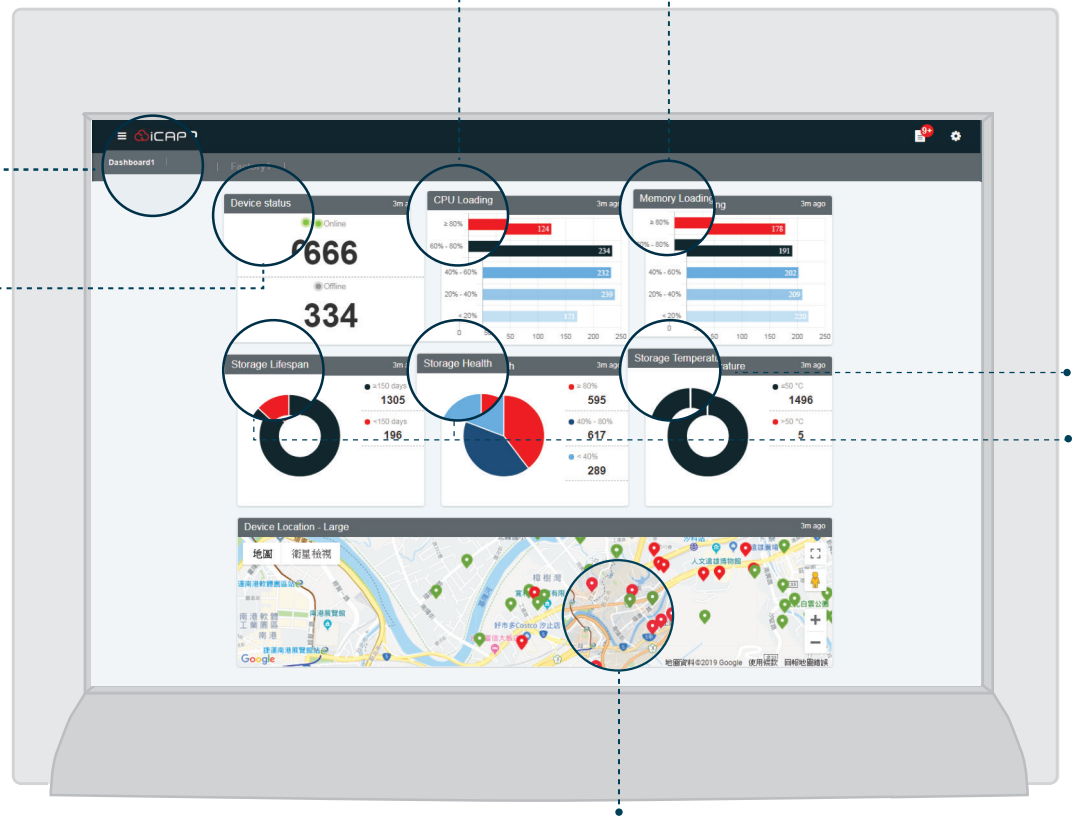
iCAP Dashboard Management Interface

The web page allows multiple dashboards that enable the user to easily manage connected devices through supported browsers

Keep tabs on current CPU and Memory loading

Effectively monitor remote device status

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



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

iCAP Advantage

Extensive Compatibility

The iCAP agent is supported on both Windows and Linux platforms and can be seamlessly accessed through long list of supported web browser.

Flexible Dashboard

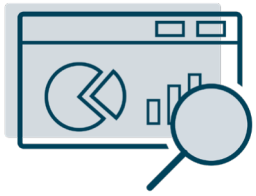
User can freely alter the dashboard through a dynamic UI and device grouping and choose the parameters and widgets relevant to their application.

System Backup & Recovery

iCAP integrates Innodisk's proprietary iCover tool that allows for remotely initialized system backup and recovery

Effective Event Tracker

The event notification tracker will log all changes and keep the user up to speed, enabling a swift resolution to any issues that might occur.



Comprehensive Indexing

The index table accessible through the dashboard allows you to quickly get more details on device status

3rd Party Support

iCAP can also monitor devices of other brands as long as the it runs Innodisk storage components

System Requirements

Web Service

Web browsers that supports HTML5, CSS3, JavaScript:
Microsoft Internet Explorer 10+ | Google Chrome:9.0+ | Firefox:15.0+ | Safari:5.1+

Server

Hardware Minimum Requirements:
IntelR Core™ i3 2.3 Ghz CPU or above | 4 GB RAM | 20 GB root partition for the system | 100 GB data storage
Operating System:
Ubuntu 14.04+ | Docker 17.03+

Agent

Hardware:
Bundled with Innodisk Storage products
Operating System:
Windows 10/8.1/7/XP kernel 32/64-bits | Ubuntu 16.04 64-bits | Debian 8 64-bits | Others by request

Embedded Peripherals

Flexible expansion solutions

1. Complete industrial expansion card solutions: Innodisk supports both M.2 and mPCIe standard interfaces
2. Industrial-grade component
3. Complete driver support: Linux、Windows and RTOS



Model Name	EMP2-X203	EMP2-X403	EGPV-1101
Module Type	mPCIe to dual RS-232 Module	mPCIe to four RS-232 Module	M.2 to to HDMI or DVI & Single/Dual Channel LVDS Module
Key Features	1. PCI-Express specification Rev. 2.0 compliant 2. Up to 1 Mbps serial data rate. 16550 compatible. 256-byte FIFOs 3. Flexible design with DB-9 connectors and cable 4. Supports CTS/RTS hardware flow control 5. Complies with EN61000-4-2 (ESD) Air-15kV, Contact-8kV 6. Industrial temperature -40 °C to 85 °C	1. PCI-Express specification Rev. 2.0 compliant 2. Up to 1 Mbps serial data rate. 16550 compatible. 256-byte FIFOs 3. Flexible design with DB-9 connectors and cable 4. Supports CTS/RTS hardware flow control 5. Complies with EN61000-4-2 (ESD) Air-15kV, Contact-8kV 6. Industrial temperature -40 °C to 85 °C	1. Support display output of HDMI 1.4 or DVI-D, single/dual 24bit LVDS channel 2. Single HDMI/DVI-D display resolution up to 4K UHD (3840x2160@30p) 3. Dual LVDS display resolution up to FHD (1920x1080@60p) 4. HW video decoder supports multiple formats H264\AVC\DIVX\XVID\MPEG-4\MPEG-2 5. Built-in 256MB DDR 3 memory. 6. Industrial temperature -40 °C to 85 °C
Form-Factor	mPCIe	mPCIe	M.2 2280
Input I/F	PCI Express 2.0	PCI Express 2.0	PCI Express 2.0 x 2
Input Connector	mPCIe	mPCIe	M.2 B-M
Output I/F	RS-232 x 2	RS-232 x 4	HDMI or DVI-D x 1 , Single & Dual LVDS
Output Connector	DB-9 x 2	DB-9 x 4	20 pin x 1(HDMI), 20 pin x 2 (LVDS)
Dimension (WxLxH/mm)	30 x 50.9 x 6.7	30 x 50.9 x 6.7	30.0 x 50.9 x 8.2
Operating Temperature	Wide temp : -40°~85°C	Wide temp : -40°~85°C	STD temp : 0°~70°C Wide temp : -40°~85°C
Order Infomation	EMP2-X203-W1	EMP2-X403-W1	EGPV-1101-C1, EGPV-1101-W1 EGPV-1101-C2, EGPV-1101-W2


Model Name	EMPU-3201	EMPU-3401
Module Type	mPCIe to dual USB 3.0 module	mPCIe to four USB 3.0 module
Key Features	1. Compliant with PCI Express Base Specification Revision 2.0 2. Compliant with Universal Serial Bus 3.0 Specification Revision 1.0 3. Supports 2 downstream USB 3.0 ports 4. Complies with EN61000-4-2 (ESD) Air-15kV, Contact-8kV 5. 30µ golden finger, 3 year warranty.	1. PCI Express 2.0 to 4 x USB ports with SuperSpeed (5Gbps) data rate 2. Independent 1.5A overcurrent protection (OCP) for each port 3. Compliant with xHCI 1.0, USB 3.0 Rev 1.0 4. Supports USB Battery Charging Specification Revision 1.2 5. Industrial temperature -40 °C to 85 °C
Form-Factor	mPCIe	mPCIe
Input I/F	PCI Express 2.0	PCI Express 2.0
Input Connector	mPCIe	mPCIe
Output I/F	USB 3.0	USB 3.0
Output Connector	19 Pin box header x 1	19 Pin box header x 2
Dimension (WxLxH/mm)	30.0 x 50.9 x 8.45	30.0 x 50.9 x 8.45
Operating Temperature	STD temp : 0°~70°C Wide temp : -40°~85°C	STD temp : 0°~70°C Wide temp : -40°~85°C
Order Infomation	EMPU-3201-C1 EMPU-3201-W1	EMPU-3401-C1 EMPU-3401-W1

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.

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."

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www.innodisk.com

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