Innodisk Group Solution Guide

Smart Solutions for the Industrial and Embedded Market

innodisk

Introducing the Innodisk Group

The Innodisk Group is the consolidation of five partners that share the goal of creating exceptional industrial-grade solutions.

Together we bring a diversified set of expertise and knowledge to the table that puts us at the very edge of industrial-grade AIoT innovation. We combine everything from storage and memory to AI platforms, communication, and remote cloud-based management.

This enables us to deliver leading solutions for surveillance applications, in-vehicle systems, intelligent medical devices, smart factories, clean air systems, and smart cities. Our products adhere to the strictest industrial standards for robustness and protection, and will deliver continuous performance in harsh and challenging environments thanks to rigorous testing.

innodisk

Innodisk
Industrial-grade storage, memory, and expansion-cards paired with extensive cloud to edge-based software solutions.

antzer

Antzertech
Communication and system integration for in-vehicle applications – enabling seamless fleet management and data collection.

aetina

Aetina
Edge AI solutions tailored for AI training, AI inference, and AI computing, powered by highly reputable GPU and AI accelerators.

MILLITRONIC

Millitronic
Highly reliable wireless software defined network and virtualized connectivity products for Metaverse, Neural Network, and AI computing applications.

sysinno

Sysinno
Ensuring safe indoor and outdoor air quality through sophisticated and robust sensors.

The Applications of a Smarter Future

We endeavor to be a catalyst in the development and deployment of smart solutions. Our products and services promise a smooth integration across all sectors of smart industries – ultimately providing you with an easier path towards full AIoT deployment.

◀ Manufacturing

Design the smart factories of tomorrow with intelligent and connected devices today.

◀ Healthcare

Provide healthcare professionals with carefully crafted intelligent solutions.

Agriculture ▶

Bring connected and intelligent solutions to the field. Literally.

Retail ▶

Deliver next-generation retail experiences with AIoT.

innodisk

◀ Road Infrastructure

On the way to a better future with smart and connected technologies ready for life on the road.

Public Transportation ▶

Enhance mass transit with massive improvements to convenience and customer safety.

▲ Security Systems

Boost security everywhere with smart and connected security systems optimized for operations anywhere.

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Successful Stories

ABOUT Innodisk

Innodisk is a service-driven provider of flash memory, DRAM modules, embedded peripherals and software solutions for industrial and enterprise applications. With satisfied customers across the embedded, server, in-vehicle, cloud storage markets and more, we have set ourselves apart with a commitment to dependable products and unparalleled service. This has resulted in solutions 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 unrivalled knowledge of the memory industry, Innodisk develops products with excellent quality, remarkable performance and the highest reliability.

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 partners from day one is paramount. The best possible outcome can be managed by developing solutions jointly.

Flash Memory

PCIe Gen. 4 Solutions

4TE2/ 4TG2-P

- Interface: PCIe Gen. 4 x 4
- Form Factor: U.2 / M.2 2280
- Capacity: 256GB~16TB
- Sequential R/W: Up to 7100/5200 MB/sec
- Temperature: 0°C ~ +70°C / -40°C ~+85°C
- Key Feature: High capacity & High sustained performance
- Optional Function: iSLC/ AES 256bits / TCG OPAL

SATA 3TE7 Family

- DRAM-less architecture with high C/P ratio
- Industrial-grade 3D TLC NAND flash
- Built-in multi PLP function (Power-loss protection)
- Supports iSMART™ & iCAP™ for easy integration with existing storage and management systems

SATA 3TG6-P Family

- High IOPS
- Supports iSMART disk health monitoring
- Supports 256 bit AES encryption
- End-to-End Data Path Protection
- Built-in multi PLP function (Power-Loss Protection)
- Supports iSMART™ & iCAP™ for easy integration with existing storage and management systems

PCIe 3TG6-P/3TE6

- PCIe Gen3 by 4 with excellent performance
- Supports AES, TCG OPAL 2.0
- Industrial grade 3D TLC NAND flash
- Purpose-built firmware algorithm for industrial applications
- Built-in multi PLP function (Power-Loss Protection)
- Supports iSMART™ & iCAP™ for easy integration with existing storage and management systems

DRAM Modules

Innodisk Ultra Temperature DDR4 DRAM Module Handles Up To 125°C

A memory module built for the new era

- Industrial-grade temperature range to support from -40°C to 125°C
- 45μ" Gold Finger
- Side Fill
- Anti-Sulfuration
- Thermal Sensor
- Gold Finger Insertion & Extraction
- Thermal Shock & Vibration Test
- Drop Test
- Bending Test

-40°C

125°C

DDR5 Series

- UDIMM/SODIMM/RDIMM /ECC series
- 4800MT/s up
- 8GB~32GB up
- -40°C~85°C
- Anti-Sulfuration
- 30μ" golden finger
- On module Power Management IC
- Value-Added Optional Service: Heat Spreader/ Conformal Coating/ Side Fill

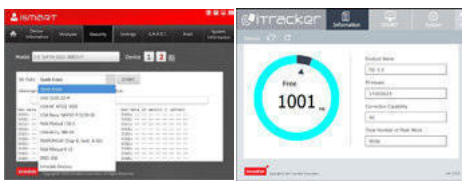## DDR4 Series

- UDIMM/SODIMMRDIMM /ECC series/VLP series
- 2133 MT/s~3200 MT/s
- 2GB~32GB
- -40°C~85°C
- Anti-Sulfuration
- Value-Added Optional Service: Heat Spreader/ Conformal Coating/ Side Fill
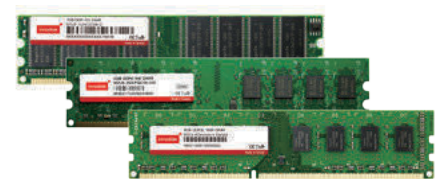
Legacy Series

- SDRAM/DDR1/DDR2 /DDR3
- 100MT/s~1866MT/s
- 128MB~8GB
- 0°C~85°C (SDRAM&DDR1)
- -40°C~85°C (DDR2&DDR3)
- Value-Added Optional Service: Heat Spreader/ Conformal Coating/ Side Fill

Software Solutions

Edge AI chipset management on cross heterogeneous platforms

- Dual-band management
- AI chipset compatibility
- AI model deployment
- Support Second development
- Remote disaster recovery
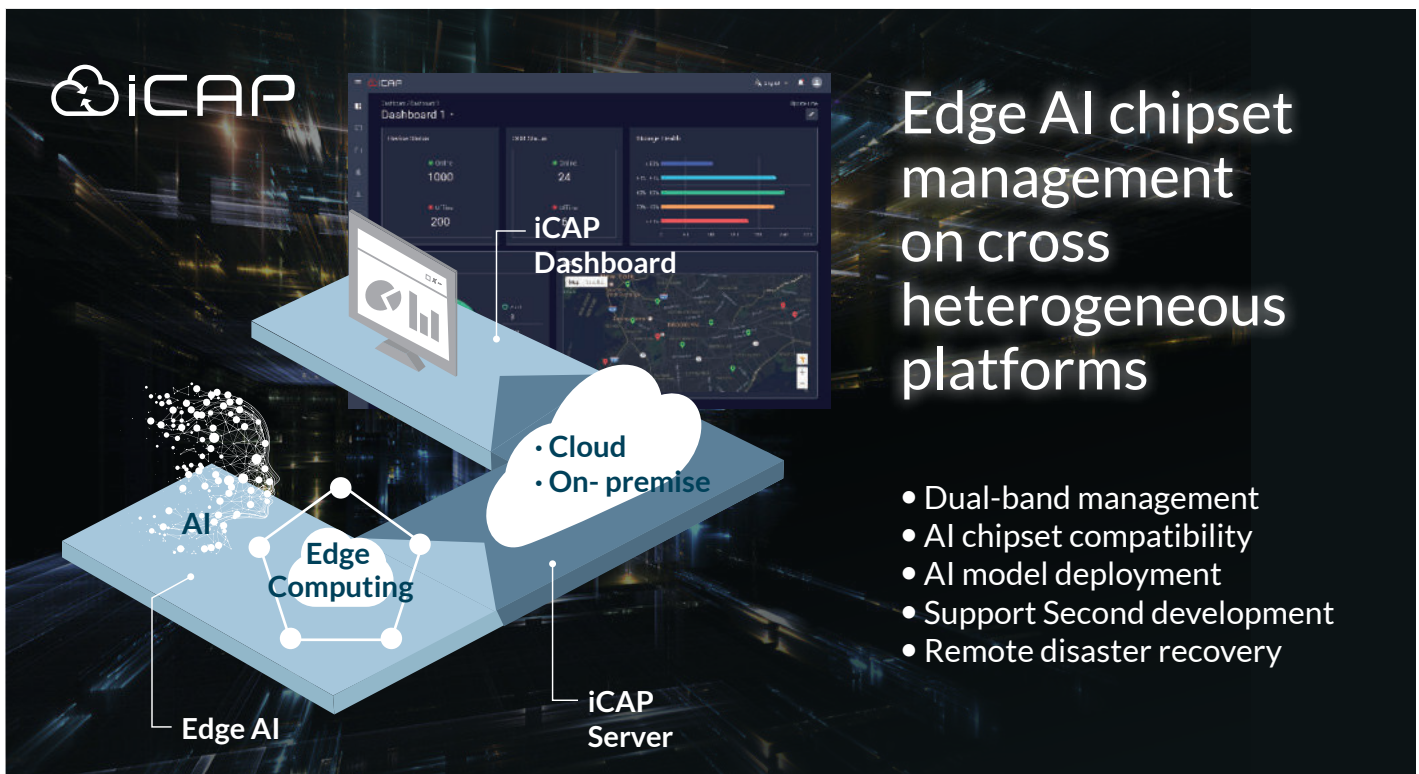
iSmart™ and iTracker™

iSmart™
- Smart Dashboard
- DRAM Information
- iAnalyzer
- Alert
- PCIe NVMe Support

iTracker™
- Dedicated Innodisk Industrial SD Card and USB Management Software
- Intuitive visualized SMART information
- Flexible widgets for customized requirements
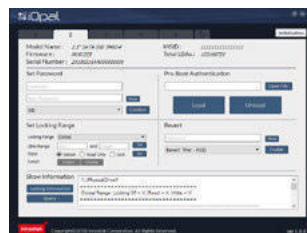
iOpal™

User Friendly
- Intuitive TCG Opal 2.0 user interface and SED management with support for up to 5 devices

Multi Function
- Data storage management features that enhance security and host system communication

High Compatibility
- Windows and Linux compatibility for broader applicability
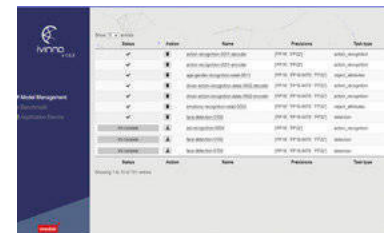
iVinno™

Excellent AI Toolkit for Everyone
- Easy AI model management and pre-training, with benchmarks done in minutes.

Intuitive GUI and No Clunky Coding
- With iVINNO's intuitive GUI, not a single string of code is necessary

Straightforward Management
- Downloading and managing pre-trained models are only clicks away

Embedded Peripheral Modules

Smaller and 10X Faster! Innodisk is Introducing the First Embedded 10GbE LAN Module in M.2 Form Factor

To meet the demand for increased speed and reduced size, high-speed LAN solutions, Innodisk releases the smallest 10GbE expansion solution that is 10x faster than Gigabit Ethernet, and creates numerous opportunities for markets ranging from surveillance to gaming, networking, and industrial uses.

10
10GbE High-Speed

Low Power Consumption

RJ45 Port
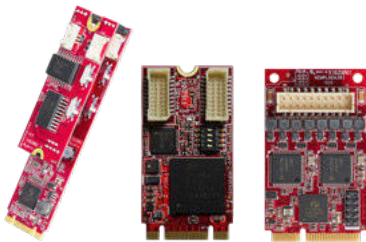
M.2 Form Factor

Communication
LAN/PoE/CAN Bus/Serial/DIO

LAN
- World first Single 10GbE LAN solution
- M.2/mPCIe Form Factor
- Single/Dual isolated GbE LAN ports

PoE
- PCIe/M.2/mPCIe Complete Form Factor
- Complies with IEEE 802.3af/at, up to 15.4W/25.5W per PoE port

CANBus
- 2-4 Ports CANbus 2.0A/2.0B
- Support High Layer Protocol J1939 /CANopen
- Support Linux SocketCAN

Serial
- M.2/mPCIe Form Factor
- Supports RS-232/422/485
- 2 to 8 COM Ports
- Support 2.5KV Hi-POT protection

Display
VGA/HDMI/DVI/LVDS

M.2 Display Card
- First M.2 Display Card in the world
- Supports HDMI 1.4 or DVI-D, single/dual 24bit LVDS channel
- Single HDMI display resolution up to 4K UHD (3840x2160@30p)
- Single DVI-D display resolution up to FHD (1920x1080@60p)
- Dual LVDS display resolution up to FHD (1920x1080@60p)

mPCIe Display Card
- Supports HDMI 1.3 or DVI-D or single/dual VGA, 18/24bit LVDS
- HDMI/DVI-D display resolution up to FHD (1920x1080@60p)
- VGA display resolution up to FHD (1920x1080@60p)
- LVDS display resolution up to 1600x1200
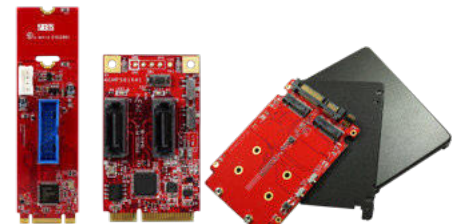
Storage & RAID
SATA/USB 3.1/RAID 0/1

Storage
- mPCIe/2.5" Form Factor
- Supports PCIe 2.0 to dual/four SATAIII ports
- Support PCIe 2.0 to dual/four USB 3.1 ports

RAID
- M.2/mPCIe/2.5"/PCIe Form Factor
- Supports H/W RAID 0/1 over SATA
- Supports SATA/PCIe to dual SATA III Port Multiplier

iRAID
- GUI RAID management tool
- Monitor RAID status
- Change RAID mode
- Get S.M.A.R.T information
- Notification by Email
- Supports Windows and Linux

ABOUT Aetina

Aetina Aetina Corporation is a long-term support provider of Edge AI computing solutions. With continuous focus on GPU-accelerated products and edge computing platforms, Aetina has expanded into diversified applications, including automation, industrial inspection, robotics, drones, medical imaging, and gaming.

In the era of AIoT, Aetina plays a pivotal role in helping developers build AI projects and implement comprehensive services by providing hardware and software integration with a complete value-added ecosystem.

Our Advantages

Diverse AI Products

Aetina provides full AI product lines, including AI accelerators, AI computing devices, AI inference platforms, and AI training platforms.

Seamless Integration Service

Aetina created a one-stop AI service, featuring HW/SW customization, no code AI tools, edge AI device monitoring software, and collaboration with ecosystem partners.

Agile and Reliable Team

Aetina helps customers break into the AI industry easily and accelerate the development of AI projects.

AI Accelerator

MXM with Embedded NVIDIA RTX™ A2000

M3A2000-VY

- NVIDIA RTX™ A2000 embedded graphics based on NVIDIA Ampere architecture
- 2560 CUDA cores, 20 RT cores and 80 Tensor cores, 8GB GDDR6 memory
- 8.25 TFLOPS peak FP32 performance
- Supports CUDA Compute version 8.6, OpenGL 4.6, Vulkan 1.2, DirectX 12 Ultimate and Shader Model 7.0

MXM designed for Thinnest GPGPU

- NVIDIA Embedded GPU based
- Industrial MXM 3.1
- Small, thin and energy-efficient
- Wide operating temperature from -40 ℃ to 85℃
- Five-year product longevity

Rugged VPX designed for Robust GPGPU

- NVIDIA Embedded GPU based
- Compact, robust design
- VITA 46.0 VPX Base Standard
- VITA 65 OpenVPX Architecture Framework
- Rugged conduction-cooled
- Wide operating temperature from -40℃ to 71℃ (at wedge lock)

Multi-Display Graphics Card designed for GPU-driven Signage

- Powered by NVIDIA GPU
- Supports up to 12 Displays
- Flexible in clone, extend or independent mode
- Max Resolution:7680x4320 60Hz with 30-bit color
- Fantastic video streaming

AI Computing Platform and Device

Fanless, Compact Edge AI Computing Device with HW/SW Integration

Mini Series

- Fanless, palm-size design to fit in limited space
- Remote monitoring via EdgeEye; iTons button with one-key recovery function
- Flexible choices:NVIDIA® Jetson™, Xavier™ NX and TX2 NX module
- Expandable storage to 128G
- Different I/O configuration:M1 with PD function, M2 with PSE function, and M3 with 9 x USB function
- Suitable for various edge AI applications such as smart city, factory, retail, security, healthcare and so on

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NVIDIA® Jetson AGX Xavier™ Edge AI Computing Platform

AX720-X32
- Supports NVIDIA Jetson AGX Xavier module
- Supports 4K MIPI camera
- Supports dual 10G LAN extension module and 5G/LTE M.2 modules
- Wide operating temperature from -25℃ to 80℃
- Ideal for high performance applications, including industrial inspection, robots, medical imaging and deep learning

NVIDIA® Jetson Xavier NX™ Edge AI Computing Platform

AN810-XNX
- Supports NVIDIA Jetson Xavier NX module
- Flexibly supports full M.2 expansion and on-board SIM card slot
- Microsoft Azure certification to accelerate IoT solutions
- Wide operating temperature from -20℃ to 70℃
- Ideal for automation, UAV, industrial inspection and medical imaging

NVIDIA® Jetson Nano™ Edge AI Computing Platform

AN110-NAO
- Supports NVIDIA Jetson Nano module
- On-board 2x FPC connector to support 2-lanes 2M MIPI cameras or 4-lanes 4K MIPI cameras
- Extended operating temperature from -20℃ to 55℃
- Ideal for computing-intensive applications, including drone, smart camera and smart sensor

AI Inference and Training Platform

AI Inference Platform with Two Removeable 2.5" SSD Drive Trays and 1xMXM Slot

AIP-SQ37-A Series
- Intel® 9th Core™ i7/i5 processor
- 2 x DDR4 SO-DIMM sockets and up to 32GB
- 2x Display Port Ports
- 2 x SATA III with external 2.5" drive bays
- 2 x RJ45 GbE LAN ports
- 6 x USB3.2 Gen2, 2 x USB2.0
- 1 x Mini PCIe Full slot, support PCIe x1 and USB 2.0 interface
- 1 x M.2 M-Key 2280, support PCIe x4 for NVME

AI Training Platform designed for High-performance Computing

AIS-D422-A1
- NVIDIA-Certified Systems (NCS) 2.5 by bundling NVIDIA A2 Tensor Core GPU
- Intel® Xeon® processor D-2146NT
- 4x DIMM slots
- 4 x SATA III with internal 2.5" drive bays
- 9 x RJ45 for GbE, 2 x RJ-45 for 10GbE, 2 x 10G SFP and LAN ports
- 2 x USB3.0, 2 x USB2.0
- 2 x PCIe 3.0 x16 or 2 x PCIe 3.0 x8, 1 x PCIe 3.0 x16
- 1 x M.2 E-Key 2230, 1 x M.2 B-Key 3042, 1 x M.2 M-Key 2280/22110

AI Inference Platform with 1x PCIex1 and PCIex16

AIP-FH31-A Series
- Intel® 9th Core™ i7/i5 processor
- 2 x DDR4 SO-DIMM sockets and up to 32GB
- 1 x Display Port, 1 x DVI-D, 1 x VGA
- 3 x SATA III with Internal 2.5" drive bays
- 4 x RJ45 GbE LAN ports
- 4 x USB3.2, 4 x USB2.0
- 1x PCIe x16 (Gen3 x16), 1x PCIe x1 (Gen3 x1)
- 1 x M.2 M-Key 2280
- Supports NVIDIA A2 Tensor core GPU

AI Inference Platform with PCIe Auto Switch

AIP-FQ47-B Series
- Intel® 10th Core™ i7/i5 processor
- 2 x DDR4 SO-DIMM sockets and up to 32GB
- 1 x Display Port, 1 x DVI-D, 1 x VGA
- 4 x SATA III with Internal 2.5" drive bays
- 4 x RJ45 GbE LAN ports
- 4 x USB3.2, 6 x USB2.0
- 1x PCIe x16 (Gen3 x16)-Auto Switch 1 x PCIe x16 or 2 x PCIe x 8, 1x PCIe x4 (Gen3 x1)
- 1 x M.2 M-Key 2280
- Supports full length Graphic card such as NVIDIA® RTX™ A4500
- Supports NVIDIA Triton™ Inference Server
- Supports TPM2.0

ABOUT Antzer Tech

Antzer Tech is a subsidiary of Innodisk Corporation that targets the rapid growing IoV (Internet of Vehicles) market and aims to provide the most advantageous solution with comprehensive hardware, software and system integration knowledge to realize smart Fleet Management, Vehicle and Trailer Tracking, Telematics, Vehicle Inspection, UBI (Usage-based Insurance) and IoT applications.

Our Advantages

CAN Bus Communication

Antzer Tech specializes in designing and developing our own firmware and hardware, and we are experienced in accommodating customization requests.

Dead Reckoning

Antzer Tech offers three different Dead Reckoning options. With Dead Reckoning technology, the GNSS module in Antzer Tech's products enable vehicles to be accurately positioned in signal poor or no-signal locations and environments.

Wireless Communication

Passing Data with various options of Wireless communication including LPWAN (NB-IoT, LTE Cat-M1) LTE Cat-1, BLE 5, and Wi-Fi.

CAN Bus & GNSS Expansion Cards

CAN Bus + GNSS Mini-PCIe Card [GADN Series]

- Built-in u-blox M8 GNSS Modules
- Optional Support for Dead Reckoning (UDR/ADR/CAN-to-ADR)
- 2-Channel Individual CAN and J1708 Interfaces
- CAN bus 2.0 a/b, OBD-II, J1939 and J1708
- 3D Gyroscope, 3D Accelerometer
- Compact Single Mini PCI Express with GNSS & Full FARO Features
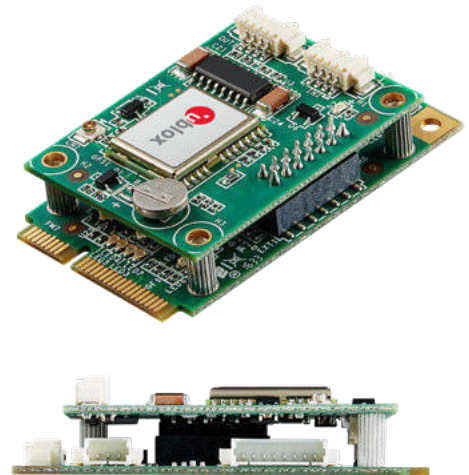
CAN Bus Mini-PCIe Card [FARO Series]

- 2-Channel Individual CAN and J1708 Interfaces
- CAN bus 2.0 a/b, OBD-II, J1939 and J1708
- 3D Gyroscope, 3D Accelerometer
- SocketCAN & Linux/Windows SDK for Easy Integration

GNSS mPCIe/M.2 Card [ANNA Series]

- Built in u-blox NEO-M8 GNSS module (GPS, GLONASS, BeiDou, Galileo, QZSS and SBAS)
- Supports Dead Reckoning Features: UDR/ADR/CAN-to-ADR
- Sensor Integrated: 3D Gyroscope, 3D Accelerometer
- mPCIe form factor with u-blox ZED-F9 GNSS module for high precision position solution

High Precision GNSS mPCIe Card [ANNA-F9 Series]

- Built-in u-blox ZED-F9 GNSS module which provides centimeter level accuracy
- Multi-band RTK with fast convergence times and reliable performance
- Concurrent reception of GPS, GLONASS, Galileo and BeiDou
- Optionally support Dead Reckoning Features: UDR, ADR, CAN-to-ADR
- Sensors Integrated: 3D Gyroscope, 3D Accelerometer, 3D Magnetometer

Telematics Device

RIFA-M Ecosystem

Heavy-duty Vehicle

OBDII/J1939/CAN

3G/LTE/Cat-M1/NB-IoT

Cloud

RIFA-M

ADAS   Mobileye®

Bluetooth   BLE 5.0 Temp. sensor

Device
Inputs and Outputs

RS-232/BLE	RS-232	Analog Input	Digital Input	RS-485	Digtal Output
TPMS	RFID Reader	Fuel Sensor	Button	RS-485 Extend I/O Device	Warning Light

Multifunctional Vehicle Tracker [RIFA-M Series]

- Built-in Multifunctional Connector for I/Os
- Configurable Vehicle Protocols, Support OBDII, J1939 and Mobileye® protocol
- Built-in G-Sensor for Motion Detection
- Integrated Design for GNSS and LTE Cat-1 and BLE 5.0 Module
- Supports Firmware Over-the-Air (FOTA) Upgrade and Configuration
- Bluetooth Low Energy (BLE) 5.0 Long Range Transmission
- Supports Wireless Temperature Sensor for IoT Solutions

B-Fresh Cold Chain Management System

Antzertech Cold Chain Logistics Solution

PDC

Vehicle tracking

Motorcycle delivery

Restaurant

Hospital

Supermarket

RIFA-G Gateway

RIFA-M (Optional) GNSS Vehicle Tracker

ELSA-BT Temp Sensor
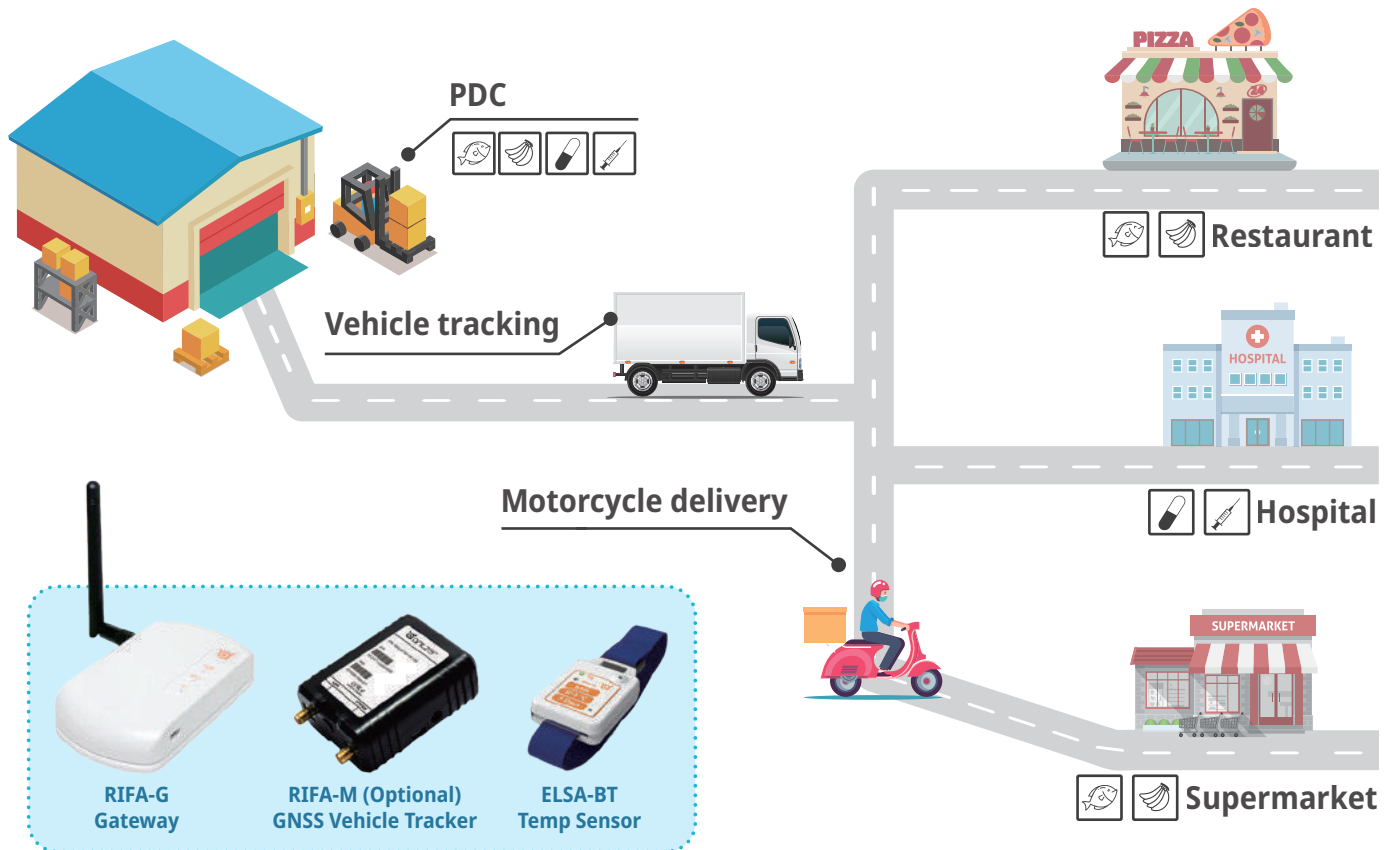
BLE to WLAN/WWAN Gateway[RIFA-G Series]

- Bluetooth broadcast mode via Standard protocol iBeacon and Eddystone Beacon
- Optionally support customized data protocol for Bluetooth pairing mode and data parsing
- Supports bi-direction communication with server
- Easy integration with TCP/IP or MQTT protocol
- Supports e-SIM or Nano SIM Card for WWAN Module
- Firmware Over-the-Air (FOTA) Upgrade and Configuration

BLE 5.0 Temperature Sensor[ELSA-BT Series]

- 2.4 GHz, Bluetooth 5.0
- -103 dBm sensitivity in 125Kbps BLE mode (long range)
- Expiry time counting
- Temp record all the time
- Tiny size yet robust for fixed and mobile
- Transmission Range: Up to 70 meters (open field)
- Operating Temperature: -40 to +80 °C
- Battery: Up to 3 years

ABOUT Millitronic

Millitronic delivers highly reliable wireless software, defined network, and virtualized connectivity products for Metaverse, Neural Network, and AI computing applications. We use software core to match the newest WiFi 6/6E (IEEE 802.11ax) and mmW (IEEE 802.11ad/ay) radio technology to satisfy customer's requirement.

With powerful networking, software, and radio technology abilities, Millitronic will be your professional wireless solution partner in industries such as HD video streaming, computer vision, and interactive HMI. Our customers have implemented our solutions into wireless A/VR devices, lighting kiosks, AI cameras, and interactive displays. We also provide high quality in-house manufacturing, which contains an RF test lab, SPI & AOI, SMT change model system, and strategic POC partnerships to create a win-win situation for the customers.

Our Advantages

Millitronic's advanced 60GHz gigabit distribution network products provide outstanding performance, all with versatile and fast deployment enabled by our edge and cloud tools.

High Performance
Multi-gigabit throughput and ultra-low latency.

Cloud Management
Edge and cloud-based tools enable quick and easy installation, commissioning and management of our distribution networks.

Quick Installation
Installation and support of Millitronic products can be performed by anyone, with minimal training.

Customized Service
High gain and cost-effective solutions for video or networking.

Wireless Docking Station

WiLink Station

Millitronic's Wilink Station is designed to easily connect and share IT assets and peripherals to a remote or virtualized host over wireless IP network. It can add wireless capabilities to a wide range of units, including USB-based peripherals, RS232 devices, HDMI capture devices, webcams, scanners, RFID readers and touch screen monitors. WiLink Station brings deployment flexibilityy which allows peripheral devices to be placed anywhere as required within a wireless LAN, without having to locally attach them to a host PC using physical cables.

- High Speed Wi-Fi 6 (IEEE 802.11 ax):Advanced D/UL MIMO and OFDMA with 80MHz bandwidth and 2 by 2 antennas.Wireless phy rate up to 1.2Gbps and provides low latency bi-directional communication. Compatible with WiFi 5
- Wireless QoS Configuration: Wireless channel selection
- Wireless Virtual USB Data Transfer Types: Interrupt transfer/Bulk transfer/Isochronous transfer
- Expanded I0 Interface: 0USB 2.0 Host, 5V/1.5A
- Wireless Latency: p2p. <5ms
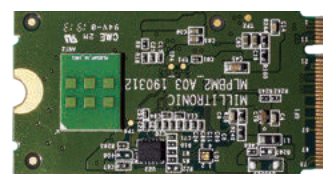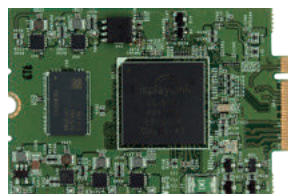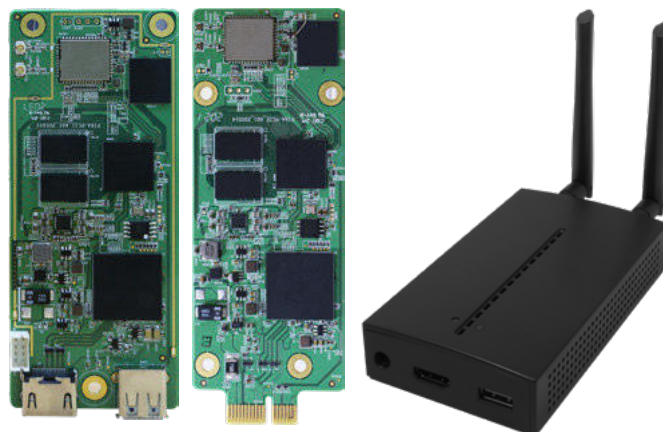
Wireless Gigabit USB Transmitter

Compliant with IEEE 802.11ad
Provides high-efficiency MMW phase array and beam-forming design
Provides wireless gigabit network up to 1Gbps

- Dimension 78 x 35 mm
- High bandwidth (57-65GHz)
- Radiation efficiency > 90%
- Max EIRP 18 dBm
- USB3.0 Type A
- Antenna & RFIC in Package

4K M.2 Graphic Card

- Dimension: 55 x 39 mm
- Interface: M.2 B key
- Resolution: 4K UHD (3840 x 2160 @ 30 fps)
- Low Latency
- Pixel-perfect graphics
- Adapt automatically to bandwidth constraints
- Compression tuned for video content and high quality graphics
- Uncompromised 4K quality

Wireless Gigabit M.2 Card

Compliant with IEEE 802.11ad
Provides high efficient MMW phase array and beam-forming design
Provides wireless gigabit network up to 1Gbps

- Dimension: 42 x 22 mm
- High bandwidth (57-65GHz)
- Radiation efficiency > 90%
- Max EIRP 22 dBm
- M.2 B_key Interface
- Antenna & RFIC in Package

Wi-Fi 6E solution for Edge AI computing

Customized Driver Support for NVIDIA Platform

Stable and low-latency wireless communication and high-performance AI edge computing are key elements for Industry 4.0, which allows people to collect and analyze data quickly from machines, factories, and IOT devices deployed in the field. With the increasing number of IOT devices deployed, the corresponding connectors and cables also make the environment complex. Therefore, it has gradually become a trend to make edge capture and low-latency connections wireless, and the demand for aggregated data traffic is also getting higher and higher.

Nvidia Jetson is a leading platform of high-performance AI edge computing, and Millitronic has customized Intel Wi-Fi 6E M.2 network card and IO adapter for Nvidia Jetson platform to assist customers accelerating the adoption of Wi-Fi 6E and BT 5.2 technologies, in order to create a low-latency, high-stability wireless environment.

Millitronic's Intel Wi-Fi 6E wireless industrial network card has been successfully verified in Jetson Nano and provides IEEE 802.11ax 2.4/5/6 GHz tri-band Wi-Fi application services, and its BSS coloring and OFDMA wireless technology will greatly reduce co-channel interference in the field and communication delay (<5ms), wireless transmission speed up to 2.4Gbps (5/6GHZ) and 600Mbps (2.4GHz), can deploy a large number of wireless IP cameras and remote control for Nvidia Jetson. In response to harsh industrial environments, the module supports -40 to 85 °C wide temperature working environment, and its lifespan can reach 10 years under 100% working activation every day.

ABOUT Sysinno

Sysinno Technology Inc. was established in August 2012, and excels at providing various types of sensor-related product designs, applications and services. The team members have more than 20 years of experience and see a future where small-size sensor technology will bring great changes in our daily lives. The products are integrated with multiple miniature sensing elements, including physical, chemical, and biological factors, and introduce the appropriate mathematical algorithms to develop smart, intelligent sensing products. We strive towards helping people achieve an intelligent, high-quality living environment.

Our Advantages

Sensor component design, system development
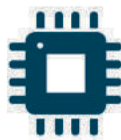
Microprocessor hardware design, firmware development

Software application development, user interface design

Wireless technology applications

Mechatronics, algorithm technology

Cloud applications, IoT technology

iAeris Series

iAeris 5 HDMI IAQ Detector

- HDMI interface, plug and play
- Wall-mounted design, easy to install
- Detect Index: T, RH, PM10, PM2.5, CO2, CO, TVOC, HCHO, O3
- WiFi, Ethernet, RS485, USB
- Independent calibration service
- Internal memory to store data
- Dry Contact x 3 for HVAC control

▲iAeris1
▼iAeris2

▲iAeris3
▼iAeris3 weather station

▲KR01/KR02 IoT controller

- KR01/KR02 WiFi, RS485, Dry contact input x 2
- RS485, Relay output terminal x 2
- Terminal block
- Connection status LED, Relay LED

- Detect Index: T, RH, PM10, PM2.5, CO2, CO, TVOC, HCHO, O3
- iAeris 1 7" TFT-LCD Touch Panel WiFi, BLE, RS485, Dry Contact x 2 iAeris 2 Compact design Wi-Fi, BLE, RS485
- Independent calibration service
- Internal memory to store data
- Warning alarm setting
- Wall Mount/Stand alone design

- Professional mechanism structure design for air flow convection can effectively detect the ambient air quality
- Detect Index: Temperature, Relative Humidity, PM10, PM2.5, CO, TVOC, O3, SO2, NO2
- Atmospheric: Temperature, Relative Humidity, Wind speed, Wind direction Air pressure, Noise
- 4G, NBIoT, WiFi, RS485
- AC 110V~220V
- Pole hanging and wall mount design

▲KH01/KH02 HDMI controller

- KH01 RS485 input, HDMI output
- KH02 Wifi input, HDMI output
- Display auto switch according to iAeris models

Successful
Stories

Learn more about how we solve the challenges of AIoT through real-world cases

Printed Matter Defect Inspection

Accelerate AI-enabled Automated Optical Inspection (AOI) with Real-time Inference

Introduction

Printed matter manufacturing includes roll-to-roll processing, trimming, line scan imaging, and marking defect plots. It's crucial to ensure a fast and highly accurate printed matter defect inspection system is in place to detect and prevent incidents from occurring during these advanced technical steps. For this reason, Aetina collaborated with Innodisk Group and partners to build an AI-enabled Automated Optical Inspection (AOI) solution.

Challenges

1. Must be able to compute high-resolution images at high speed
2. Needs to be able to read and write to memory at high speed
3. Requires compatibility with a variety of algorithms

Solutions

1. Aetina AI inference platform flexibly supports NVIDIA GPUs
2. High-performance Innodisk DRAM allow fast read and writes to memory
3. Aetina AI inference platform can perform real-time inference with universal AI frameworks

Our Roadmap to Success

Aetina AI inference platform: AIP-FH31-A Series
• Expansion kit of discrete graphics such 1x PCIex1 and 1x PCIex16 for AI accelerators
• Combines solid components for long-term, stable operation
• Grasps real-time conditions of computing devices via EdgeEye, Aetina's monitoring software

Innodisk DDR4 3200 Industrial Grade DRAM
• Industry's fastest memory speed with 3200MT/s
• Stability and performance: 100% tested and optimized

Innodisk 2.5" SATA SSD 3TE7
• Built-in thermal sensor, and iData Guard ensure data integrity and reliability

Result

Aetina's partners successfully integrated its vision positioning algorithms, Aetina AI inference platform, Innodisk DRAM, and linear image sensors into a one-stop AOI solution, drastically enhancing the accuracy and speed of the defect inspection and detection process.

iAeris

ABC-123

QAZ-010

DEF-789

ABC-123

Smart City Solution

Vehicle Exhaust Emissions Sensing
for Environmental Protection

Introduction

As environmental protection consciousness is gradually highlighted worldwide, governments strive to reduce air pollutants and greenhouse gas emissions from vehicles. However, traditional policies lack efficiency and accuracy. As a result, partners collaborated with Aetina and Sysinno to build the smart city solution.

Challenges

1. Computing latency in automated license plate recognition (ALPR)
2. Collects all environmental indicators from several sensors
3. Compatibility with cameras, computing platforms and air quality sensors

Solutions

1. Aetina edge AI computing platform attains real-time, high-resolution images detection
2. Sysinno Outdoor Air Quality Detector allows users to choose up to nine air factors
3. Integrates Aetina platform and Sysinno detector into AIO with both H/W and S/W service

Our Roadmap to Success

Aetina Edge AI Computing Platform: AN810-XNX
• Supports NVIDIA® Jetson Xavier™ NX module
• Flexibly supports full M.2 expansion and on-board SIM card slot
• Microsoft Azure certification to accelerate IoT solutions

Sysinno iAeris3 Outdoor Air Detector
• Can provide the status of temperature, humidity, particulate matter PM2.5CO, TVOC-total volatile organic compounds, HCHO-formaldehyde, O3-ozone, SO2-sulfur dioxide, and NO2-nitrogen dioxide
• Built-in memory to store sensing data, and records can be accessed via software or cloud platforms

Result

Partners accurately found vehicles that violated emission standards via the smart city solution. Furthermore, the solution helped the government guard the health of citizens by grasping the air quality in real time.

Intelligent Warehouse

Upgrade AGV and AMR with Leading Edge
Computing and Wireless Network Technologies

Introduction

With the development of e-commerce, the logistics industry is forced to increase productivity, speed, and quality. To efficiently manage numerous inventories, logistics companies tend to deploy Automated Guided Vehicles (AGV) and Autonomous Mobile Robots (AMR) in warehouses. In view of connectivity and computability, partners collaborated with Aetina and Millitronic to build an intelligent warehouse solution.

Challenges

1. Wired networks limit mobility, while wireless networks can be unstable
2. Must ensure a full recovery when operating system crashes
3. High-resolution image recognition in an instant

Solutions

1. Millitronic Wi-Fi 6E module provides a high-speed, stable wireless environment
2. Innodisk InnoAGE™ 2.5" SATA SSD supports both in-band and out-of-band network management
3. Aetina Edge AI computing platform transmits high-resolution images with low latency

Our Roadmap to Success

Aetina Edge AI Computing Platform: AX720-X32
• Based on NVIDIA® Jetson AGX Xavier™
• Supports 4K MIPI and 2M SerDes cameras
• Supports dual 10G LAN extension modules, 5G/LTE data cards, and Wi-Fi 6E modules

Millitronic Intel Wi-Fi 6E AX210 module with customized driver
• Supports 2.4GHz, 5GHz, and 6GHz dual-band Wi-Fi
• Features orthogonal frequency division multiple access (OFDMA) for improved performance in dense environments
• Provides industry grade 7-year availability and 7-year support

Innodisk InnoAGE™ 2.5" SATA SSD 3TI7 Industrial Grade SSD
• The World's first hybrid SSD with an Azure Sphere inside
• Encrypted end-to-end security from the edge to the cloud

Innodisk DDR4 32GB SODIMM W/T 3200
• Stability and performance: 100% tested and optimized.
• Anti-sulfuration: protection against harsh environments
• W/T solution: ranging from -40°C to 85°C

Result

Partners' Automated Guided Vehicles (AGV) and Autonomous Mobile Robot (AMR) achieved instant image recognition with a stable, high-speed wireless network thanks to the combination of the Aetina'a Edge AI computing platform, Innodisk's InnoAGE™ SSD and DDR4 DRAM, as well as Millitronic's Wi-Fi 6E module.

Improved Air Quality

Conference Room Air Quality
Improvement Project

Introduction

Many enterprises and companies set up conference rooms for meetings and employees, but few people pay attention to the quality of the air in the conference room and the impact of poor air quality. In a closed conference room, air will become polluted and the carbon dioxide concentration will increase after long periods. Prolonged exposure to such an environment will not only affect decision-making, but can also be bad for the physical and mental health of employees. Traditional air-conditioning systems only adjust the temperature and do not improve the actual air quality. Therefore, Sysinno and Innodisk Group provided a smarter and more effective solutions to solve this problem.

Challenges

1. Lots of people in an enclosed environment for long periods will impact air quality
2. Due to existing equipment and pipelines, construction is not possible
3. The value presented by traditional sensors may differ from reality, because the installation location can affect the sensitivity and representativeness

Solutions

1. Install multiple air quality detectors to monitor the overall air quality of the conference room.
2. Utilize the KR02 IoT controller to control existing HVAC systems. No need for major equipment change.
3. Use the iCAP system to analyze and manage environmental data, as well as automatically notify managers about indoor air quality conditions.

Our Roadmap to Success

Sysinno iAeris1 IAQ Detector
• Can detect T, RH, PM10, PM2.5, CO2, CO, TVOC, HCHO, and O3
• Independent calibration service
• Internal memory to store data
• Warning alarm setting

Innodisk iCAP Cloud Management Platform
• Integrates all of the air quality data into a single dashboard

Sysinno KR02 IAQ IoT Controller
• Connected to iAeris through both wireless (WiFi) and wired (RS485, 2 dry contacts) connections
• Can perform data backup and remote control functions through the internet to the Sysinno Cloud

Result

Following Innodisk Group and Sysinno's partnership, a solution was introduced to control the air quality using Sysinno's advanced systems. The solution provides enterprises improved indoor air quality and allows them to make the most of efficient energy-saving controls in meeting room settings.

Public Transport Tracking

Accelerate AI-enabled Automated Optical Inspection (AOI) with Real-time Inference

Introduction

At some point or another, everyone has used their phones to check when the next bus is coming. Thanks to modern technology, we can now see exactly where the next bus is, and plan ahead, to avoid waiting at the bus stop. However, in New York City, which is full of high-rise buildings, tracking bus locations has long been a pain-point for system integrators. With Dead Reckoning functionality, Antzer Tech's CAN Bus and GNSS Combo card enables accurate positioning information for tracking systems, even when the GNSS signals were poor or obstructed.

Challenges

1. High-rise buildings affect the reception of GPS positioning signals
2. In environments without positioning functionality, it is necessary to be able to calculate the driving route and draw it in the backend system, and then present it to the customer
3. In addition to capturing the vehicle's own speed, and other data, it is also necessary to combine positioning functionality

Solutions

1. Innodisk's M.2 SSD provides high-performance processing
2. Antzer Tech's CAN Bus and GNSS Combo card provides a perfect combination of vehicle information and positioning functionality
3. Through system integration in the background, high-quality information is provided to passengers, which creates a diverse and high-quality ride experience in high-rise building environments

Our Roadmap to Success

Innodisk's M.2 (S80) 3ME4 MLC SSD
• Wide temperature industrial-grade design
• Extensive power stability technology
• 256GB capacity and 6Gb/s SATA III interface

Antzer Tech's CAN Bus and GNSS Combo card [GADN series]
• Built-in u-blox M8 GNSS modules
• Optionally supports Dead Reckoning (UDR/ADR/Can-to-ADR)
• Compact single Mini PCI Express with GNSS & CAN features

Result.

Innodisk and subsidiary Antzer Tech were able to supply a public transport tracking solution that excelled in the face of poor signals and obstructions