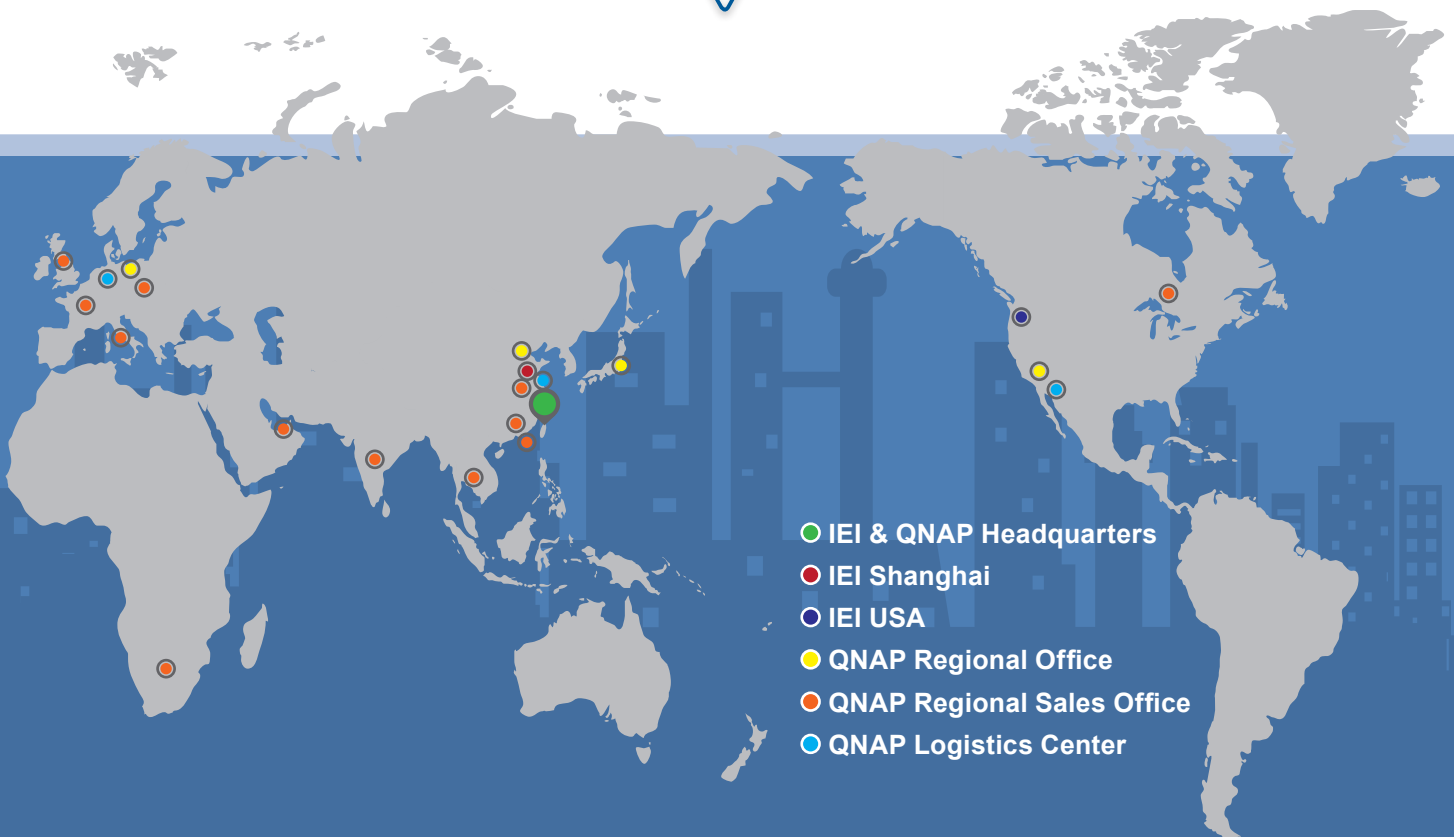# IEI Group

IEI Group has 20 offices in 14 countries. IEI is alliance with Intel, Microsoft, Wind River, SAP and Amazon to offer a complete intelligent system with various options, including kinds of hardware devices supporting different operating systems, multiple applications, private/hybrid/public cloud computing and data storage/security for developing integrated solutions, collaborating new applications and expanding the markets.

IEI Integration Corp.

Industrial Integrated IoT Solution Provider

MOTORCON INC.

Leading Automation System Products Provider

QNAP Systems, Inc.

Leading Network Attached Storage Provider

iEi GROUP
威強電集團

ArmorLink SH Corp.

Leading Network Attached Storage Provider

XINGWEI COMPUTER CO., LTD.

Professional Chassis Manufacturer

BriteMED Technology Inc.

Intelligent Medical System Provider

20 Offices in 14 Countries

- 🟢 **IEI & QNAP Headquarters**
- 🔴 **IEI Shanghai**
- 🔵 **IEI USA**
- 🟡 **QNAP Regional Office**
- 🟠 **QNAP Regional Sales Office**
- 🔵 **QNAP Logistics Center**

IEI X QNAP

IEI Integration Corp. cooperates with its group company QNAP System Inc. to provide great service and technologies in both hardware and software. The upgraded services and the complete smart solutions enable our customers to easily achieve win-win business success.

iEi

Leading industrial computer provider

- Solid experience in a wide range of technologies and vertical know-how
- Support from concept to finished goods
- Specializes in IoT gateway, embedded system, panel PC, image capture and cloud based applications
- Meets market expectations by supplying a complete portfolio of computer-based applications

QNAP®

Leading network attached storage provider

- Innovative software development and IoT integration applications
- Complete portfolio from development and hardware design to manufacturing
- Global market allocation
- 1000+ employees worldwide

Smart Transport   **Smart Factory**   **Smart Healthcare**   **Smart Retail**   **Building Automation**   **Smart Fitness**

A Meticulous Commitment to Product Quality

Comprehensive quality assurance tests are performed on all IEI products throughout the product development cycle. Testing is initiated in the research and development phase of a product and continued throughout the manufacturing phase. Quality assurance testing throughout the product development cycle ensures all IEI products to provide stable performance in the industrial environments.

■ In-house Reliability Testing Facilities
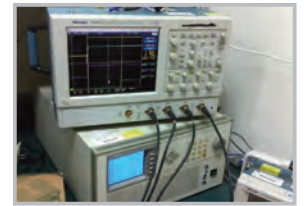
ICP Reliability and Environment Lab
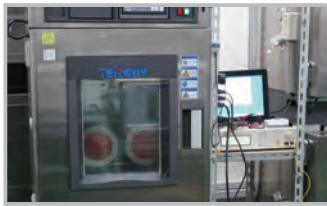
Temperature Testing
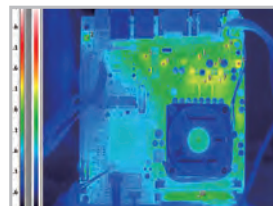
ESD Testing

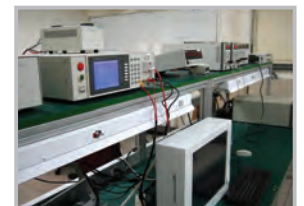Vibration Testing

Power Consumption Testing

IP 65 Testing

Drop Testing

Thermal Testing

Safety Testing

■ Thermal Test Criteria

IEI uses the following thermal measurement criteria for selecting the critical monitor points of thermal testing. Revealing the complete thermal

- A minimum of 1 DUT must be tested
- There must be no function error
- No any selected component temperature is higher than the maximum specified components specification.
- The test result of all the selected point should meet the specified DUT components thermal specification.
- The operating DUT power input is fixed on AC 110 V or DC 24V voltage.
- Minimum testing DUT configuration: highest speed CPU, add-on card, SPS, HDD, FDD, CD-ROM, DVD-ROM, CD-R/W, max. RAM memory.
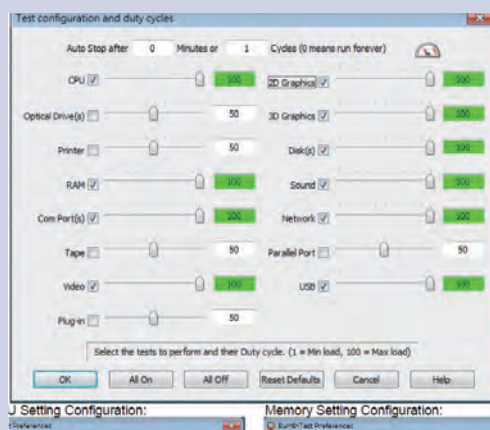
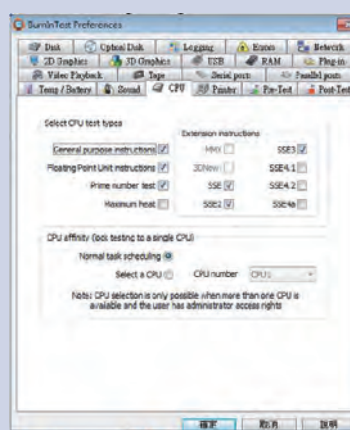**AVIO Neo Thermo TVS-700N Testing Equipment**

Better temperature control guarantees more reliable system operation in the long run
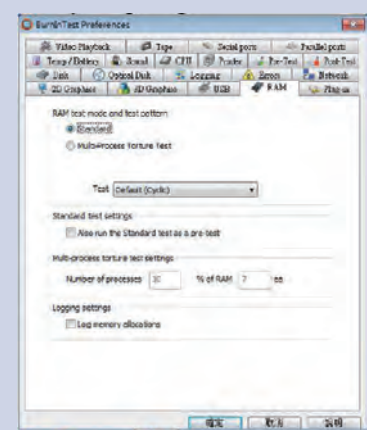
Test Software

Passmark Burn-In Test Program V6.0

Setting Configuration

CPU Setting Configuration

Memory Setting Configuration

■ Thermal Test Results

Against to each testing point, we detected the temperature of system to show the overheat. It reveals how the rugged system we support for user, adapting in wide range temperature situation and application.
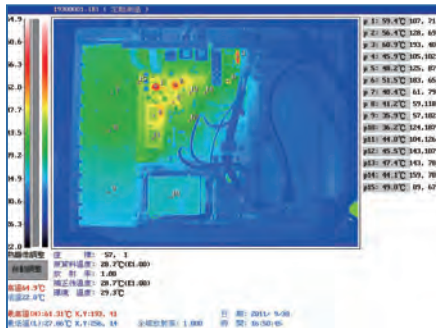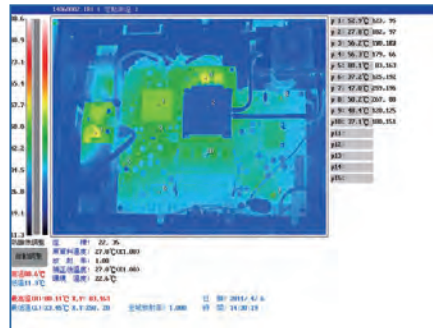

Agilent 34970A-Data Acquisition/Switch Unit

Type K thermocouple

System Thermal Test

Test Condition: test temperature is 50°C, Test Humidity: 95%

PPC-5152-D525

AFL-19i-HM55
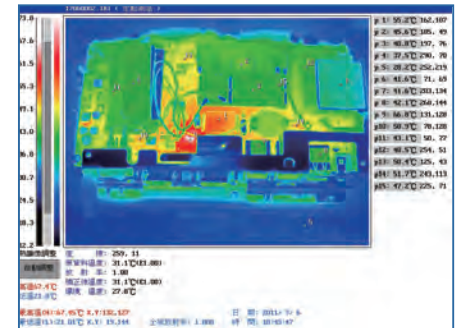
AFL-07A-LX

■ Mobile System In-house Reliability Testing Facilities
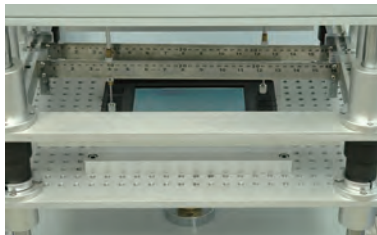
Keypad Life Test/Touch Panel Tap Test

Press the keypad button and taps the touch panel 1,000,000 times using a test fixture. Measures the force and pressure of the keypad button and touch panel to observe potential damage.
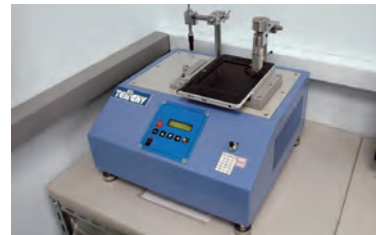
I/O Connector and Connector Rubber Insert/ Remove Test

Ensures the I/O function by testing 5000 times.
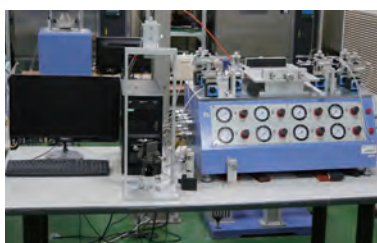
Touch Panel Scratch Test

Ensures the touch panel resists deformation, surface defects, color-off, spots and scratches by testing the surface 15000 times.

Sunshine Super Long-life Weather Meter

Simulates sunlight environments to estimate the lifespan of the materials.

◤ Flexible Customization Service

Example:

Front panel customization according to expansion adaptor selections
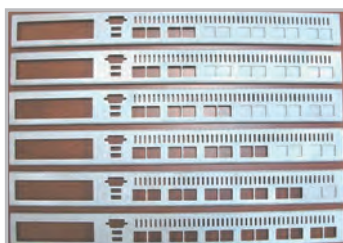
Front panel smapling by in-house CNC in 2 days
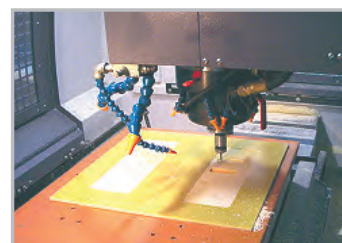
Optical Design

In order to ensure the quality of all IEI optical products, IEI R&D department has its own optical laboratory, and all optical products are developed and tested in accordance with the standard procedure.

Both the optical lens and the camera itself undergo a series of rigorous tests and calibrations, including color balance, contrast and sharpness (by SFR), white balance, gamma correction, dynamic range (DR), distortion, shading, etc. IEI's products give exactly the same output as the original image, achieving the highest level of what you see and what you get.

■ Optical Lab Facility

Color Matcher

Digital Camera
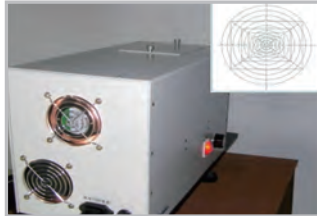
Resolution Capability Projector

Transparency Illuminator

Light Source Box

Barcode Reader

Display Color Analyzer

Illuminance Spectrophotometer

■ Algorithm

■ Dynamic change output image resolution

Real time Image scaling

Before
original soure: 1080P image

After
1920x1080

After
3840x2160

■ Image fusion

Seamless

Before

After

■ Image uniformity

Before (sides 66.7%)

After (sides 99.9%)

■ 3D image processing

■ Data encryption and decryption algorithm (AES / 3DES)

■ Gamma Curve Adjustment , Anti-aliasing , Dithering and Color Space Convertor

■ IC/ASIC/FPGA Customization

IEI's R&D team has the ability to develop FPGA programs. The FPGA technology is implemented in our video capture card, industrial camera and barcode products to optimize image processing. In addition, and more importantly, our products can be customized according to customer specific needs.

Support multi-video format

FPGA

LCD
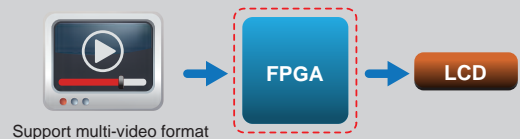
Waterproof Certification Laboratory

IEI follows standard testing procedures (UL 50) to design ruggedized LCD products with high reliability. We mainly provide IP 64, IP 65 and the latest IP 67 specifications in various dust and water resistant mechanical designs, ideal for outdoor and harsh environment applications.

IEI's LCD products are front sealed and tested in the certified house chamber under UL's Witnessed Test Data Program (WTDP).

IP 66 / UL 50
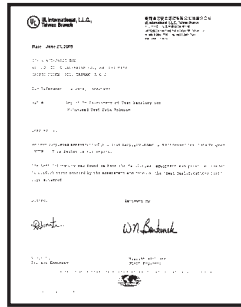
IP 69K

IP 64

IP 65

UL 50 Certificate
Chamber strickly approved by Underwriters Laboratories Inc.
IEI's in-house water resistance chamber is approved by the UL organization commonly recognized in North America.
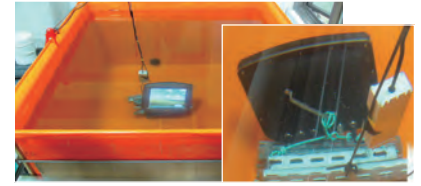
IP 67

The IP Code defined in international standard IEC 60529 classifies the degrees of protection provided against the intrusion of solid objects, dust, accidental contact, and water in electrical enclosures. It consists of the letters IP followed by two digits and an optional letter. The digits indicate conformity with the conditions summarized in the tables below.

First digit

The first digit indicates the level of protection that the enclosure provides against access to hazardous parts

| Level		Object size protected against	Effective against
0		-	No protection against contact and ingress of objects
1	Ø50mm	>50 mm	Any large surface of the body, such as the back of a hand, but no protection against deliberate contact with a body part
2	Ø12.5mm	>12.5 mm	Fingers or similar objects
3	2.5mm	>2.5 mm	Tools, thick wires, etc.
4	1mm	>1 mm	Most wires, screws, etc.
5		dust protected	Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact
6		dust tight	No ingress of dust; complete protection against contact

Second digit

Protection of the equipment inside the enclosure against harmful ingress of water.

Level		Protected against	Details
0		-	not protected	—
1		dripping water	Dripping water (vertically falling drops) shall have no harmful effect
2		dripping water when tilted up to 15°	Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle up to 15° from its normal position
3		spraying water	Water falling as a spray at any angle up to 60° from the vertical shall have no harmful effect
4		splashing water	Water splashing against the enclosure from any direction shall have no harmful effect
5		water jets	Water projected by a nozzle against enclosure from any direction shall have no harmful effects
6		powerful water jets	Water projected in powerful jets against the enclosure from any direction shall have no harmful effects
7		immersion up to 1 m	Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion)
8		immersion beyond 1 m	The equipment is suitable for continuous immersion in water under conditions which shall be specified by the manufacturer
9K	90° 60° 0°	Powerful high temperature water jets	Protected against close-range high pressure, high temperature spray downs.Test duration: 30 seconds in each of 4 angles ,Water temperature: 80 °C

Complete Line of Innovative Solutions

IEI invests significantly in research and development to provide more consumer-oriented and application-specific products. Extensive design and production experience allows IEI to create products for a diverse range of industries including health care, retail, factory and home automation.

Rich Variety to Match Diversified Applications

ODM Reference

Telehealth / Telemedicine Solution (ODM & OEM)

- 8" 16:10 IPS TFT LCD (1280x800)
- 8-core Cortex-A53 1.5GHz
- IEEE 802.11 a/b/g/n ; 2x2 802.11n, Bluetooth 4.0
- Android 6.0

Flexible ID design (open frame)

- IEI customer reference board (10.1 "/18.5"/21.5")
- Waterproof: IPX5 (for customized ID)
- Support Android 7.1

Mobile Solution

Industrial PDA

- 1.5m drop survival and IP67 protection
- Octa-Core Cortex A53 64bit 1.5GHz Processor
- 5.5" Display PDA
- Android 7.0 OS

Tablet PC

- 10.1" 350 cd/m² TFT LCD with capacitive touch
- Intel® Celeron® 1007U or Intel® Core™ i7-3517UE platform
- Powered by Windows® Embedded Standard 7 P
- Bluetooth, Wi-Fi, 3.75G wireless with GPS

Display Solution

Light Industrial Panel PC

AFOLUX GEN III PPC

Narrow bezel, sleek outlook, easy installation

- W7"~W19" Flat-bezel with IP65/IP64 front protection
- Narrow and symmetric bezel allows portrait mode or landscape mode
- Less screws design easy for installation

AFOLUX GEN II PPC

Flat bezel, multi-touch, wide voltage

- W7"~21.5" Flat-bezel with IP64 front protection
- LED dash system for eye-catching notification
- IEI Light Fanless technology allows the system to turn on/off smart fan automatically according to environmental temperature, enhancing system stability.

AFOLUX PPC

Economical HMI device

- 5.7"~19" multi-functional all-in-one Panel PCs
- Streamlined plastic housing
- Water and dust resistance IP64 front panel protection

Heavy Industrial Panel PC

PPC-F Series
- 5.7"~24" rugged panel PC with metal housing
- IP 65 front protection
- Flexible expansion interface

Full IP65 PC Series
- Redundant power backup
- Sunlight readable LCD
- IP 65 waterproof protection

Marine Series
- DNV, IEC 60945 4th, IACS-E10 Compliant
- 19" and 24" Fanless marine Panel PC

IP69K Series
- 15" with SUS304 Stainless Steel Housing
- Anti-corrosion, anti-oxidation, anti-bacteria, high-pressure and IP69K rated allow to high temperature steam clean

RISC based Panel PC

IOBA Series
- 10.1" 1280 x 800 LCD
- Project Capacitive Touch Screen
- CPU: Freescale i.MX6 Cortex-A9 Quad-Core 1GHz
- OS: Android 4.2 or 5.1

IOVU Series
- 10.1" 1280 x 800 LCD
- Project Capacitive Touch Screen
- CPU: Freescale i.MX6 Cortex-A9 Quad-Core 1GHz
- OS: Android 5.1

Display Monitor

DM-F Series
- IP65 flat-bezel
- Resistive touch window: 6H anti-scratch PCAP multi-touch
- HDMI/DP high definition audio/video interface

Marine Series
- DNV Certified
- PCAP multi-touch
- DVI/VGA/BNC output and BNC input
- Redundant power : AC and 18-36V DC

LCD-KIT-F Series
- Integrated open frame mounting holes
- Flexible touch selection: resistive touch, resistive touch window or PCAP touch
- Flexible power selection: 12V DC or 9-36V DC power

Healthcare Solution

Medical Panel PC
- FHD Fanless Panel PC
- Three hot-swappable batteries with a total runtime of 8 hours is ideal for non-powered medical cartsideal for non-powered medical cartsideal for non-powered medical carts
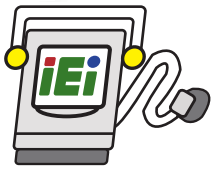
Medical Embedded System
- High Performance (Core i7)
- Fan-less
- Isolation COM Ports

Nursing Cart
- Battery System Integrated for Max. 8hrs Operation Time
- Easy-to-Use & Easy-to-Clean
- Flexible Configuration for Storage Space

Powered by BriteMED

IEI Intelligent System Management Module

What is IEI Intelligent System Management Module?

The IEI Intelligent System Management Module (iSMM) is a system health supervision application which utilizes sensor chips on IEI motherboards to track CPU and system temperatures, fan speed, watchdog timer, digital I/O status and system event. By quickly capturing and reporting system health data, users can prevent disasters such as system instability or damage.

Features

- Both local and remote management
- External and on-chip voltages data feedback
- CPU and system temperature data feedback
- Cooling fan speed data feedback
- Cooling fan speed controlled by PWM/On-Off/Automatic Mode
- Warning sound provided by the buzzer
- WDT test
- Programmable digital I/O
- Save and load system health configurations
- Remote power on/off control

Architecture

| User Model | User App | iSMM+ V1.21 Intelligent System Management Module Plus |

| Kernel Model | **API** IEI API provides a quick and easy tool for developing applications for your customers. | **iSMM Library/DLL** |

iSMM Device Driver

Hardware Portion Update

iSMM+ supported EC:	iSMM supported Super I/O:
1. iWDD IW0001E	1. Winbond W83627
2. ITE IT8528E	2. Winbond W83697
	3. ITE IT8712
	4. ITE IT8718
	5. ITE IT8783F
	6. Fintek F81216D
	7. Fintek F81865
	8. SMSC SCH311x

PWN/DC

Fan Tachs

CPU Thermal Diode/Thermistor   Voltage Planes   Fan#1~~ #N   Warning Signal

Available Operation System

- Windows® XP
- Windows® Vista
- Windows® 7
- Windows® 8
- Windows® 10

Note: Please disable the UAC function or enable Administrator account while using iSMM+ remote management under Windows® Vista, Windows® 7, Windows® 8 and Windows® 10
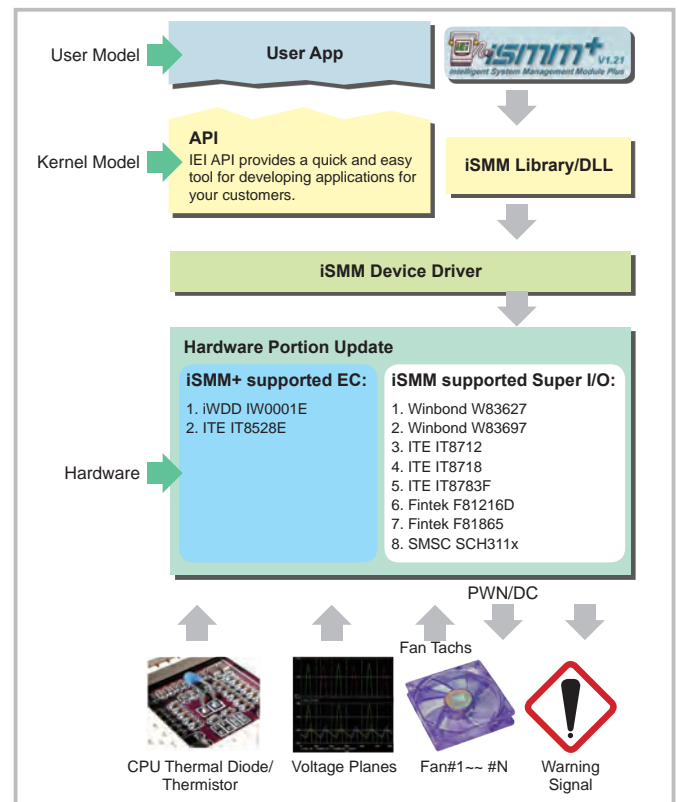
Remote Control and Management

- Event log list
- Temp. & fan speed value
- Temp. & fan event alert
- System health monitoring

Group of Devices

- Remote power control
- System alert limit setting
- WDT/DIO setting
- Temp & fan alert setting
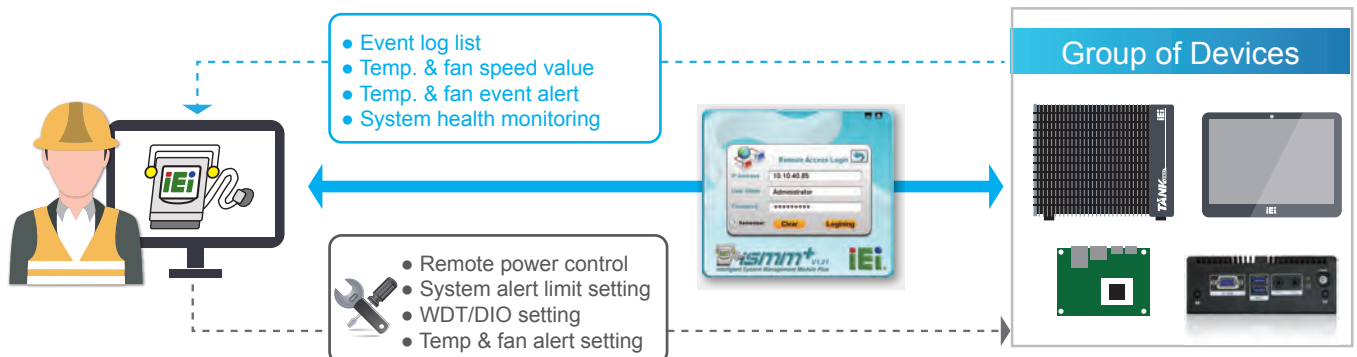
iSMM+ Interface

■ Local/Remote Management

1. Temperature monitoring and alert limit value setting
2. Fan speed control
3. Watchdog timer setting
4. DIO setting
5. Smart fan control
6. Event page
7. iSMM+ setup

**Full graphical user interface
Real-time access system
Efficient API functions**

ismm+ V1.21
Intelligent System Management Module Plus

IEi

Local Management

Remote Management

Temp. Sensors
CPU + System temperature monitoring and alert limit setting

Fan
Dynamic fan speed monitoring, control and alert limit setting

Watchdog Timer
Trouble free watchdog timer testing

DIO
Easy digital I/O configuration

Smart Fan Control
Advanced fan setting for both CPU and system smart fan

Event List
Clear list for abnormal events with event name, event status and 1st generation time

Beep/Save/Load
Flexible user profile retrieval and beep function setting

Remote Power On/Off
Remotely turn off iSMM+ supported system and turn on system which supports remote wake-up

iSMM Interface

INTELLIGENT SYSTEM MANAGEMENT MODULE

Temp.
CPU + System temperature monitoring

Fan
Dynamic fan speed control

Voltage
Real-time voltage alarm

DIO
Easy digital I/O configuration

WDT
Trouble free watchdog timer testing

Save/Load
Flexible user profile retrieval

QTS Gateway for IoT Cloud Solution

Could Base IPC Built-in with QTS Gateway OS for IIoT

IoT Empowered by your Private Cloud

QNAP iEi
QIOT

By connecting machines, work pieces and systems, we can create intelligent networks along with the entire value chain of IoT, that is, at your demand, our expandable products are connected to each other autonomously.

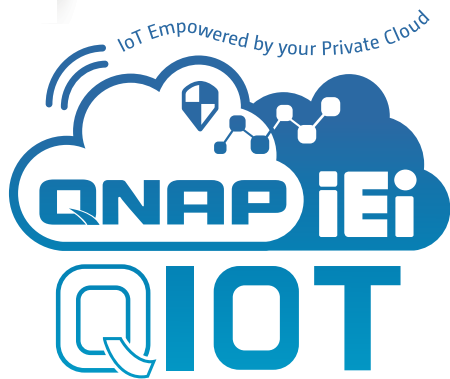The IIoT (Industrial Internet of Things) concept is changing the past production modes; more and more automated equipment is used to replace manual labor. However, the meaning of automation would have been lost if these equipment still have to rely on a lot of manpower. Machine to machine (M2M) communication, data storage and analysis capability are the keys to creating a smart production line. IEI incorporates with QNAP to launch cloud-based IPC with QTS Gateway operating system, offering possibilities of connecting devices, communications and the cloud servers for IPC applications.

Health Care/ Hospital Care	Factory Automation & MES	Fleet Management	Retail	Home Automation
POC-W22A	TANK-870	IVS-300	IDS-300	uIBX-250

■ QTS Gateway for Cloud based IPC Solution

IEI's new generation smart fan-less embedded computer has an ultra-rugged design that allows stable operation even under the worst environments; it is not only quiet but also safe. The QTS Gateway platform allowing you to easily monitor the system status. Diverse application programs can also be downloaded to satisfy different application needs.

QTS Gateway is an operating system designed specifically for IEI IPCs and fully integrated the QNAP NAS operating system (QTS), breaking through the stereotype of IPCs of not having operating systems and saving unnecessary costs for installing servers and computers. QTS Gateway not only allows easy monitoring of computer status through its visualized interface, it also allows the use of many free application programs, making it multifunctional while challenging the values of traditional IPCs.

	Traditional IPC	Cloud-based IPC
Remote System Visualization	No	Yes
OS	No (additional devices must be purchased and installed)	Built-in VM virtual application
Remote Device Management	No (additional management software must be installed)	Free Apps: Qcenter, QRM+
Data Backup	No (additional management software must be installed)	Hybrid Backup Sync
myQNAPcloud Management	No	Yes, supports system update through a cloud
Video Surveillance	No (additional surveillance software must be installed)	Free software: Surveillance Station
RAID Data Storage	No (must use with specific platforms)	RAID 0, RAID 1
Support for Mobile Devices	No	Free App Qfile, Qmanager

Virtualization Station Painless migration, complete OS virtualization

- Quick transfer, zero threshold
- PCIe card connection
- VM Backup & Restore
- Remote Import & Export
- USB Passthrough
- Advances in VM network structure, again — the Software Dened Network
- Virtual switch
- Device Management
- Visibility and direct access to files
- User-based permissions settings
- Operate VMs through web browsers
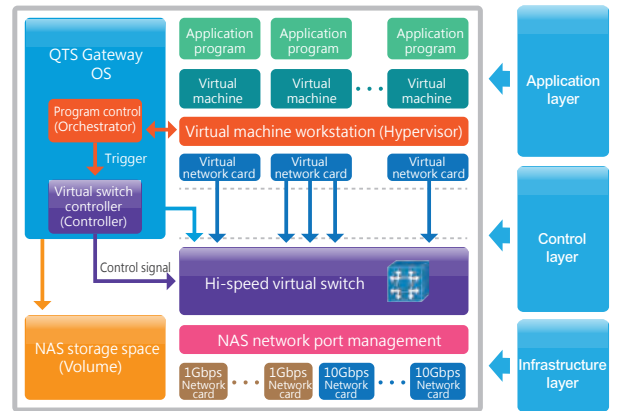
■ Quick Transfer, Zero Threshold

Provides physical-to-virtual (P2V) technology can be used to create a familiar operating system (e.g. Win 2000/XP/7/8.1/10/Server 2003/2012, Linux, x86-Android…etc) adding more flexible system management.

■ VM Backup & Restore with VM Snapshot

Supporting local and remote backup and restore your VM avoid disaster. Able to set schedule or real time snapshot to reduce the downtime while restoring.

Snapshot 1 2013/11/18 19:27
Snapshot 2 2013/11/19 10:45
Snapshot 3 2013/11/20 12:15
Snapshot 4 2013/11/30 22:40
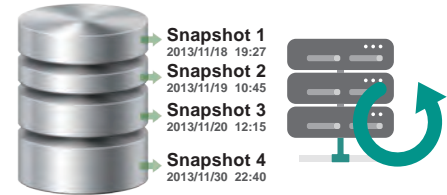
■ PCIe card connection and USB Passthrough

With Intel® Virtual technology allowing VMs to allocated H/W resources such as PCIe, PCI, Lan, USB, COM, DIO…etc.

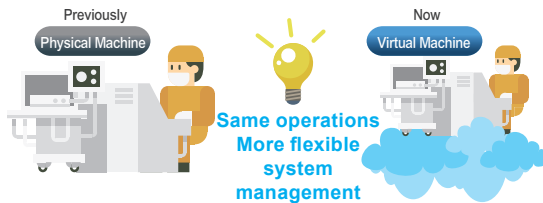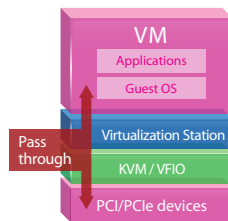### ■ Remote Import & Export

Virtual machines of various formats can be easily imported to and exported from the Virtualization Station.
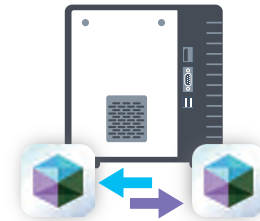
Container Station – Rapidly deploy containers

Container Station is developed following the Just enough OS, or JeOS, philosophy. This lightweight virtualization technology can instantly and truly create a ready-to-use environment on PCs, TANK-860-QGW and the Cloud for RD developers and IT administrators.

Micro services, quick deployment

Container Station only requires 64MB of memory to run an application program; such lightweight virtualization technology allows you to quickly deploy large numbers of environments.

A growing number of popular apps

Container station offers the most up-to-date and top-of-technology applications for rapid deployment with just a click. The following apps are now available: LibreOffice, MongoDB, Nginx, Node.js, Redis, MySQL, WordPress, Deluge, Minecraft, Wine, Jenkins, GitLab, Redmine, Joomla! and OpenERP.

Best partner for IoT maintenance and operation

Container Station supports the required device protocols (MQTT and AMQT etc.), interface services and data computation needed in the IoT environment, allowing it to be easily connected to the IoT era.

HD Station

Using VGA, DVI, HDMI, DP display to output the entire HD Station provides you east to access your application (VM), output the Virtual Machine (VM) console via HDMI monitor.

Linux

Windows

Android

QVM Desk

Linux Station

Comprehensive service from the Ubuntu Linux. Just download Linux Station from the App Center and use VGA/DP/DVI display to output the entire Ubuntu desktop.

Surveillance Station – remote video surveillance

QNAP video sur veillance center provides four free camera channels, and suppor ts ONVIF and PSIA universal camera protocols, compatible with over 3,000 IP camera models of over 100 brands. It allows you to easily create an automated video surveillance system for your factory to protect property and personnel safety, and to create a working environment with no blind spots.

free4 video channels

Manual recording
Microphone
Audio
Snapshot
Digital zooming
Camera setting
Camera information
Key areas

TANK-860-QGW

Q'Center – Centralized multi-GTS Gateway management

Q'Center offers you a powerful management solution can view the status and system information of multiple QTS Gateway systems at the same time. Q'center can greatly assist IT administrators in system resource allocation and future capacity planning.

Q'center centralized management

IT department

RD department

Factory terminal
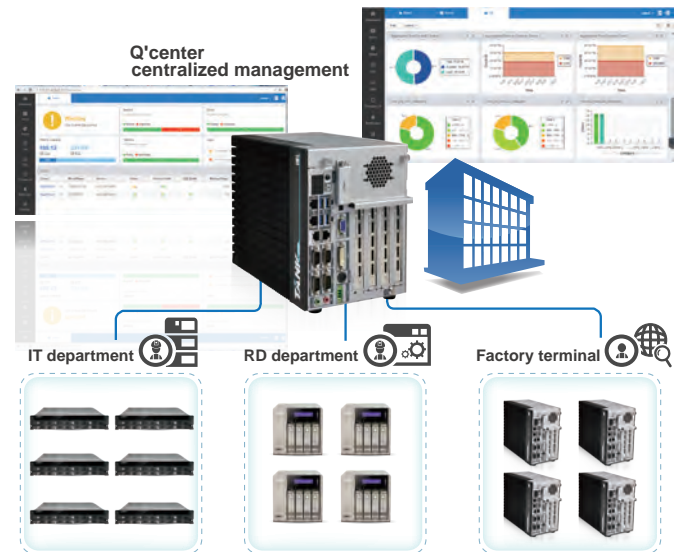
Data Center and Backup – per fec t integration of public and private clouds

In the era of information explosion, there are dozens of thousands of data being written every day. QTS Gateway continues the essence of the cloud purpose operating system and provides several management and backup tools to allow you to easily nd data and back them up or share them to other devices or cloud services, providing more diverse and mind-easing backup management solutions.

Local backup and synchronization:
• External device
• Local folder

Remote backup and synchronization:
• RTRR
• FTP
• Rsync
• CIFS/SMB

Cloud backup:
• Support for a variety of enterprise-class cloud storage

QRM+
IT infrastructure management

QRM+ is a centralized remote server and PC management solution from QNAP designed for IT teams. QRM+ monitors and controls the pulse/health of all the mission critical servers in your network. QRM+ provides a single point solution to discover, map, monitor and control all the critical devices (Servers/PCs/Thin Clients etc.) in your network. Manage your servers remotely from dierent client with-in or from outside of the same network.

Remote management

UNIX® | Windows | Linux | IPMI

Discover   Map   Monitor   Control
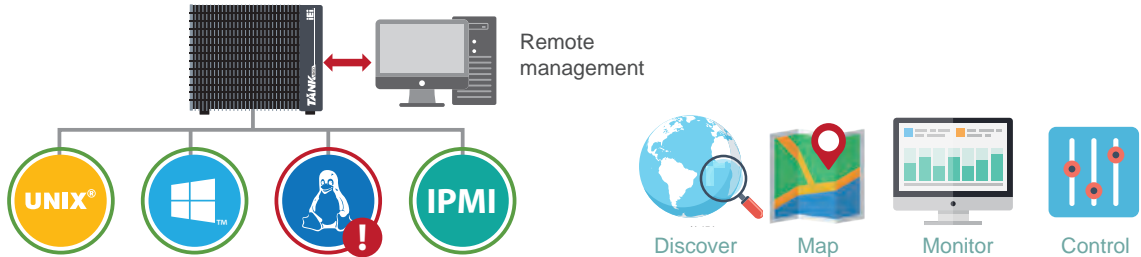
- Improve server health status control for the administrators
- Discover, map, monitor and control resources in your network on a single platform.
- Supports Agent based (QRMAgent) and Agentless (IPMI) surveillance, supports IPMI 2.0.
- Keeps track of all mission-critical device settings and provides state of art alert/event management.
- Generate reports to help analyze the performance of network resources.
- Exclusive QRMAgent (lightweight remote management agent service) that supports multiple platforms such as Windows and Linux.
- Save time on troubleshooting and quickly restore the system to operable status.

QRMAgent

Developed by QNAP, QRMAgent is an agent program installed on workstations. QRM+ can monitor and manage the workstations through this program. After you add a device to the QRM+ server, the system will automatically install this agent program to that device. Or, you can choose to manually install QRMAgent on the workstation if you prefer. QRMAgent currently supports the following operating systems (more to be added later):

Platform	Operating System
x86 - Windows	Windows XP/7/Vista/8/8.1/10, Windows Server 2008/2012
AMD64 - Windows	Windows XP/7/Vista/8/8.1/10, Windows Server 2008/2012
X86 - Linux	Ubuntu 12.x/14.x/15.x

QIoT Suite – Your private IoT cloud platform

A look at IoT technology

IoT (Internet of Things) architecture consists of 3 main layers: sensors, networks, and applications. The sensor layer includes devices that collect data about the environment and send that data to the network layer. The network layer transports the accumulated data to the application layer; the application layer combines and processes the data to transform it to actionable information, and eventually help enterprises make informed decisions.

Devices   Any Connectivity   Public Cloud   Application

Rules Engine   Storage   Data Push   Data Pull
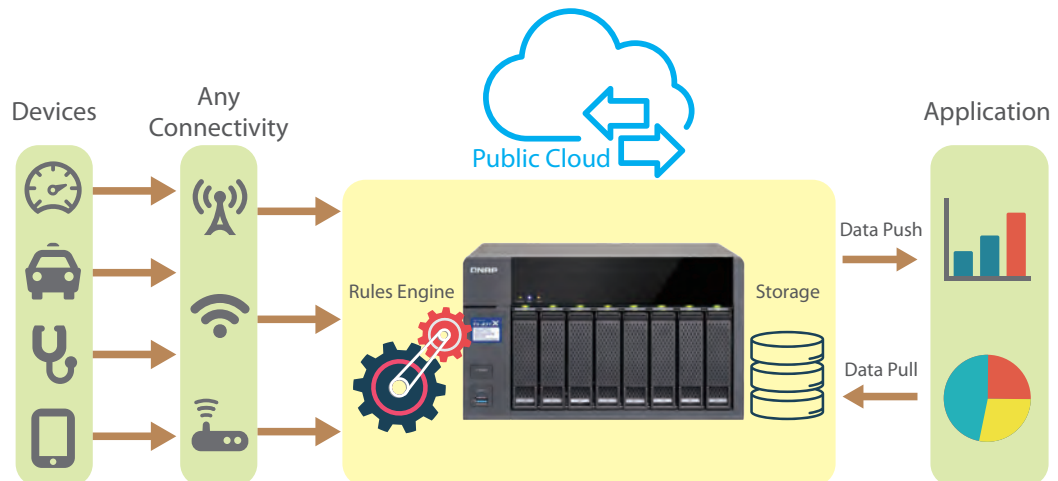
QIoT Suite with efficient development cases

QIoT Suite provides several IoT tools to help developers build an IoT environment, integrate sensors, and make use of development kits (Arduino, Raspberry Pi, etc) with the NAS's Ponte (data receiver), Node-RED (data analysis), MongoDB (data storage), Freeboard (data presentation) to construct a comprehensive IoT architecture.

Product List

PPC-FxxB-BT	TANK-860-HM86	TANK-760-HM86	ECW-281B-BT
■ 12"/15"/17"/19" Fanless Intel® Bay Trail Solution ■ Robust IP65 aluminum front bezel	■ Ruggedized fanless embedded system with Intel® HM86 mobile solution ■ Up to six different expansion slot options	■ Ruggedized fanless embedded system with Intel® HM86 mobile solution ■ Three independent video outputs	■ Fanless embedded system with Intel® Celeron J1900 Processor ■ 12V DC and 9~36V DC models available

DRPC-120-BT	IDS-300-BW	ECN-380-QM87i	uIBX-250-BW-QGW
■ Fanless DIN-Rail embedded system with Intel® E3845 processor ■ Programmable OLED display	■ Digital signage system with Intel® Celeron N3160 solution ■ Three independent HDMI output	■ Fanless embedded system with Intel® Core™ i5/Celeron® CPU ■ Triple display with two HDMI and one VGA outpu	■ Fanless system with Intel® Celeron® N3160 processor ■ Dual display

SBOX-100-QM87-QGW	IVS-200-ULT2-QGW	TANK-870-Q170-QGW	IVS-300-ULT3-QGW
■ Fanless marine computer with Intel® Core™ i5 CPU ■ Isolated 18 V~36 V DC input	■ Intel® i5-5350U or Celeron® 3755U CPU ■ 9~36V DC input ■ E-Mark certification	● Triple independent displays ● Flexibility for hardware expansino	● 4 x PoE IEEE802.3af ● E-Mark certification

IEI One Key Recovery Solution

IEI's unique One Key Recovery solution allows you to recover and backup your operating system without complicated settings. One Key Recovery is bundled with every IEI SBC, embedded system, and all-in-one panel PC product.

Recovery Tool for IEI Products Only

A. Local operation:
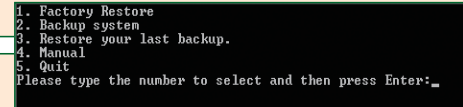
Fix problems at your finger tips via hot key

By pressing F3, users can access the backup/recovery process easily. One Key Recovery simplifies the imaging and migration process, increasing efficiency in system maintenance.

Support OS List	
Windows® XP	Windows® Vista
Windows® 7	Windows® CE 5.0
Windows® CE 6.0	Windows® XP Embedded
Linux OS 1. RedHat 9 2. RedHat RHEL- 5.4 3. Fedora Core 7, 8, 10, 11, 12	4. Ubuntu 6.10, 7.10 , 8.10 5. Debien 4.0, 5.0 6. SuSe 10.3, 11.2

One Key Backup / Restore

Press F3 to boot into recovery mode...

- **One-Key Recovery**
  - Factory restore: restore your system to default setting (iei.gho)
  - Restore your last backup: recover the last system configuration (iei_user.gho)

```
1. Factory Restore
2. Backup system
3. Restore your last backup.
4. Manual
5. Quit
Please type the number to select and then press Enter:_
```

- **One-Key Backup**

  Backup your operating system to the secure hidden partition. You can create your own ghost image as "iei_user.gho" including your application programs set-ups.

B. Auto scheduling:

Instant problem solving from auto recovery

When the system encounters a Blue Screen of Death (BSoD) or hangs for 10 minutes [Default setting is 10 minutes , If want to change the time setting please contact us], the auto recovery function enables the factory default image automatically. This function shortens repair downtime, ensuring continuous work.

Supported OS List	
Windows® 2000	Windows® XP Embedded
Windows® XP	Windows® Embedded Standard 7
Windows® Vista	

Optional function, support by request.
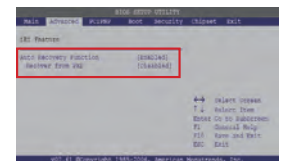
Make sure to enable auto recovery function from BIOS after standard set up

OS Partition C: → Create Partition → Recover image to partition + Start SRFixMBR → TCO timer counts down → BSOD or system crash → Auto reboot → Recover factory image

TCO timer time-out

Into recovery mode

C. Network:

Remote recovery through LAN

One key Recovery also provides a remote recovery function. IT professionals can easily maintain client device through the network. When the system has a Blue Screen of Death (BSoD) or hangs for 10 minutes [Default setting is 10 minutes , If want to change the time setting please contact us], the default factory system image can be restored from server to ensure seamless workflow.

F3

Install utility from One Key Recover CD for server

Install setup from One Key Recover CD for client device

IPMI Remote Management in IEI Solution
- IPMI 2.0 Compliant

Bank

Entertainment

Retail

Agriculture

Hospital

Transportation

Factory

What is iRIS?

Let's start from IPMI first before we talk about iRIS. IPMI is a standardized computer system interface used by system administrators for out-of band management of computer systems and monitor and control of their operation. It is a way to manage a computer that may be powered off or otherwise unresponsive by using a network connection to the hardware rather than to an o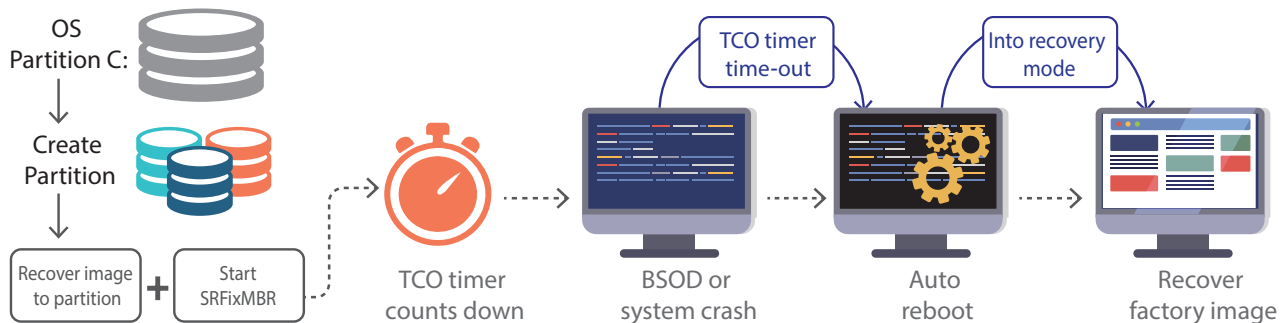perating system or login shell. iRIS is a modularized IPMI product, which is designed and manufactured by IEI company. iRIS is compliant with IPMI 2.0, and supports out-of –band remote management to allow administrators to manage a system remotely in the absence of an operating system or of the system management software. Thus, IPMI functions can work in any kind of scenarios such as:

1. Before an OS has booted
2. When the system is powered off
3. After OS or system failure or BSOD
4. Cross platform and OS independent

Using a worldwide standardized IPMI 2.0 interface and protocol allows IEI's iRIS technology to assist administrators to remotely monitor and manage all IEI iRIS supported devices by group or individual via Internet communication.

Application for iRIS

■ Retail Industry

Retail industry relies on software more than pure hardware architecture. Maintenance cost is the highest cost since service location could be everywhere, and any shutdown will cause business lost. Graphics performance with hardware management is the requirement for retail application such as digital signage, vending machine, kiosk, and ATM machine. IEI offers AMD graphics solution with IPMI module to fulfill application needs.

■ Factory Automation

Each production line has its own computer systems to do automated control of production processes. Active system alert could help to monitor all systems in production lines with less human resources, and instant notice and detailed event log with screen record could save time for troubleshooting. IEI provides a variety of solutions with iRIS support to save both time and human resources, and achieve less loss in production capacity.
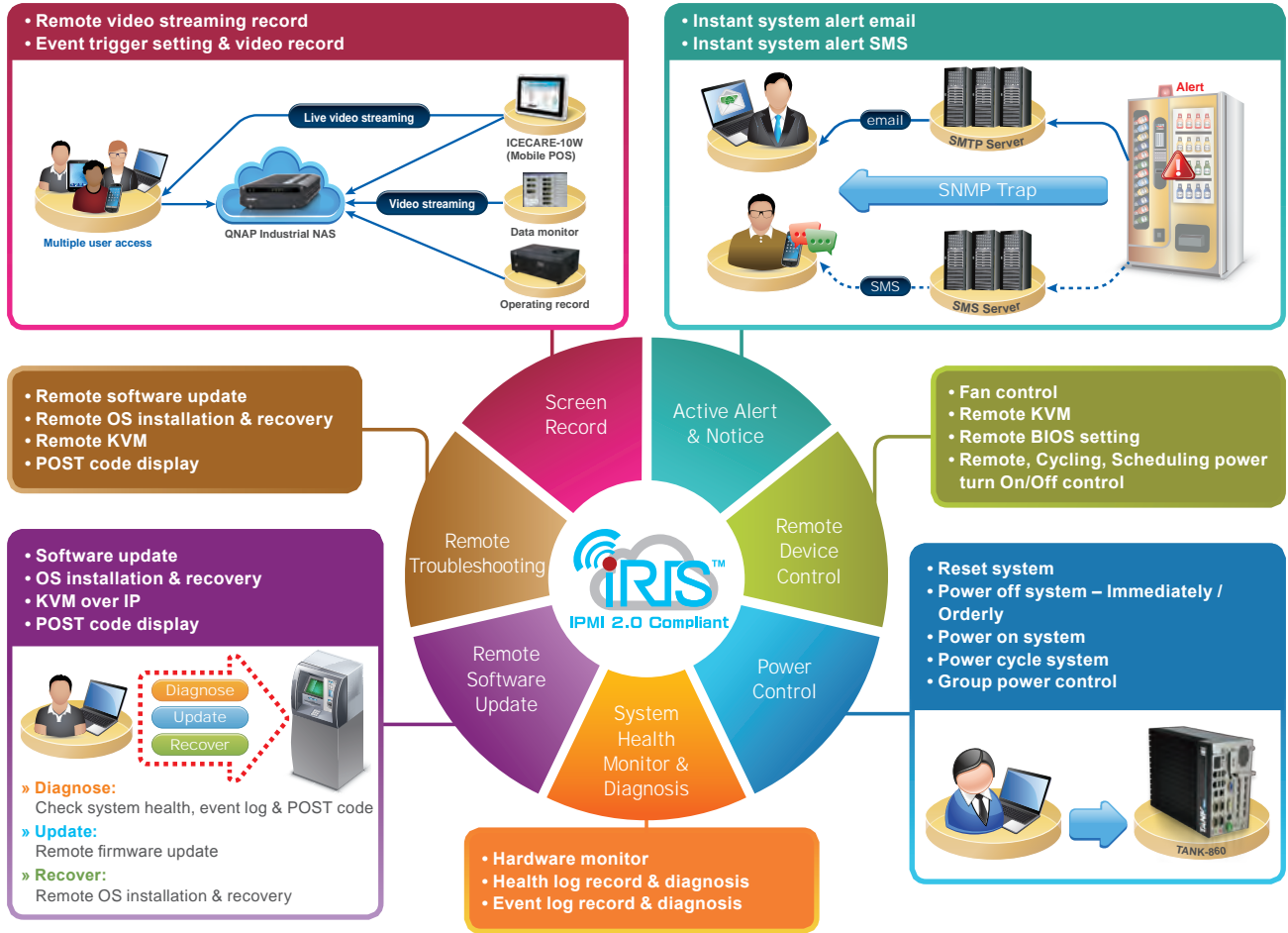

PPC-F22A-H81

ECN-380

PPC-FXXA-H81

TANK-870

DRPC-120

iRIS Key Features

- **Remote video streaming record**
- **Event trigger setting & video record**

Live video streaming — ICECARE-10W (Mobile POS)

Multiple user access — QNAP Industrial NAS — Video streaming — Data monitor

Operating record

- **Instant system alert email**
- **Instant system alert SMS**

email — SMTP Server — Alert

SNMP Trap

SMS — SMS Server

- **Remote software update**
- **Remote OS installation & recovery**
- **Remote KVM**
- **POST code display**

- **Software update**
- **OS installation & recovery**
- **KVM over IP**
- **POST code display**

Diagnose
Update
Recover

» **Diagnose:**
Check system health, event log & POST code
» **Update:**
Remote firmware update
» **Recover:**
Remote OS installation & recovery

Screen Record

Active Alert & Notice

Remote Troubleshooting

Remote Device Control

iRIS IPMI 2.0 Compliant

Remote Software Update

Power Control

System Health Monitor & Diagnosis

- **Fan control**
- **Remote KVM**
- **Remote BIOS setting**
- **Remote, Cycling, Scheduling power turn On/Off control**

- **Reset system**
- **Power off system – Immediately / Orderly**
- **Power on system**
- **Power cycle system**
- **Group power control**

TANK-860

- **Hardware monitor**
- **Health log record & diagnosis**
- **Event log record & diagnosis**

Conclusion

As mentioned in the introduction, more and more devices need to be organized by a smart way. iRIS module is able to support a variety of working environments, and to run in different operating systems. Moreover, iRIS solution can not only help you to manage devices, but also bring more convenience into your business for increasing working efficiency and reducing system failure probability.

IEI iRIS Solution

Intel® Skylake Porject		
Project	Form Factor	IPMI Solution
SPCIE-C2360-i2	PICMG 1.3	iRIS-2400
PCIE-Q170-i2	PICMG 1.3	iRIS-2400
IMBA-C236-i2	ATX	iRIS-2400
IMBA-Q170-i2	ATX	iRIS-2400
Intel® Broadwell-DE Project		
IMBA-BDE	ATX	iRIS-2500 (on board)
Intel® Haswell Projects		
SPCIE-C2260-i2	PICMG 1.3	iRIS-2400
PCIE-Q870-i2	PICMG 1.3	iRIS-2400
IMBA-C2260-i2	ATX	iRIS-2400
IMBA-Q870-i2	ATX	iRIS-2400
IMB-Q870-i2	microATX	iRIS-2400
IMB-H810-i2	microATX	iRIS-2400
KINO-DQM871-i1	Mini-ITX	iRIS-1010
NANO-QM871-i1	EPIC	iRIS-1010
WAFER-ULT/ULT2-i1	3.5"	iRIS-1010
Intel® Bay Trail		
KINO-ABT-i2	Mini-ITX	iRIS-2400
NANO-BT-i1	EPIC	iRIS-1010
WAFER-BT-i1	3.5"	iRIS-1010

AMD G-series		
Project	Form Factor	IPMI Solution
KINO-KBN/SE-i2	Mini-ITX	iRIS-2400
NANO-KBN/SE-i1	EPIC	iRIS-1010
WAFER-KBN-i1	3.5"	iRIS-1010
Embedded Box		
TANK-6000	Intel® Haswell (C226)	iRIS-2400 (on board)
TANK-760	Intel® Haswell (HM86)	iRIS-2400
TANK-870	Intel® Skylake (Q170)	iRIS-2400
TANK-860	Intel® Haswell (HM86)	iRIS-2400
TANK-801	Intel® Bay Trail (J1900)	iRIS-2400
DRPC-120	Intel® Bay Trail (E3845)	iRIS-2400
SBOX-QM87	Intel® Haswell (QM87)	iRIS-2400
ECN-380	Intel® Haswell (QM87)	iRIS-1010
ECW-281B-BTi	Intel® Bay Trail (J1900)	iRIS-1010
Panel PC		
PPC-FxxA-H81	Intel® Haswell (H81)	iRIS-2400
PPC-FxxA-BT	Intel® Bay Trail (J1900)	iRIS-2400
PPC-FXXB-BT	Intel® Bay Trail (J1900)	iRIS-2400
POC-W22A-H81	Intel® Haswell (H81)	iRIS-2400
SxxA-QM87	Intel® Haswell (QM87)	iRIS-2400

Telehealth / Telemedicine Solution (ODM & OEM)

IEI introduces the AfoBot, an assistant robot with 8" screen, to offer an open, flexible and affordable way to develop innovative devices with state-of-the-art components and to design applications based on Android 6.0 platform that can quickly be transformed into final solution.

Android Open Development Platform

IEI has released a SDK for the Android 6.0 open platform to enable developers, content creators, and service providers to build apps and value-added experiences for home, office, retail and healthcare industries.

APP
Any idea?

Wireless Mobility

Sleek and compact design makes AfoBot a convenient device to any environments. With its built-in wireless functions, you can place AfoBot in the living room and use it as a multi-function remote controller to control your home devices, or use it as a conference control terminal that can improve your meeting efficiency.

- 1.7kg light weight
- Access Point
- Miracast
- 802.11 a/b/g/n Bluetooth 4.0

Voice-Activated Robot

You can talk to AfoBot just like talking with your friends and family. AfoBot provides hands-free voice control, and enables you to launch programs, commands and actions via voice commands - you can ask or command AfoBot for information and get results or responses instantly.

- Voice and video call
- Auto answer calls from AfoTalk (iOS, Android) or other AfoBot.
- Conference recording
- Supports single or multiple peer calls
- On-line/Off-line voice recognition
- Echo cancelling, noise reduction, auto gain control
- 360° omni-directional audio

Hi AfoBot! Play music!

Turn Left, Turn Right, Turn up, Turn down

Screen On, Screen Off

Rotate Camera

Rotate Body

Play, Pause Desktop Screen

17:05

100°
Tilt 5-megapixel

100°

Voice-recognition

10-point touch

10 Point Touch

360°
Body Rotation

360°

33°
Panel Tilt

33°

Programmable RGB LED

LED

8 core A53
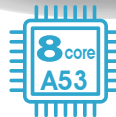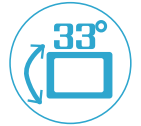
The Value of Software & Hardware Integration with AfoBot

• Call taxi
• Prescription ordering & delivery
• Preventive health caring
• Online shopping
• Order food delivery
• Hotel or restaurant reservation

• Control smart home devices
• Home caring
• Home security

Service

IoT

AI

ASR STT TTS NLP Bot Face recog. Speaker recog. ML DL DST

Voice Interface Voice Interface Voice Interface Voice Interface Voice

Content

• Music: KKBOX, Spotify
• Video: Youtube, LiTV, Netflix
• Education: eNewton, encyclopedia

Personal Assistant

• Alarm
• Timer
• Calendar/Reminder
• Picture taking
• Video recording
• Album
• News
• Weather
• Stock
• Voice control TV
• Real-time translation
• Emergency call
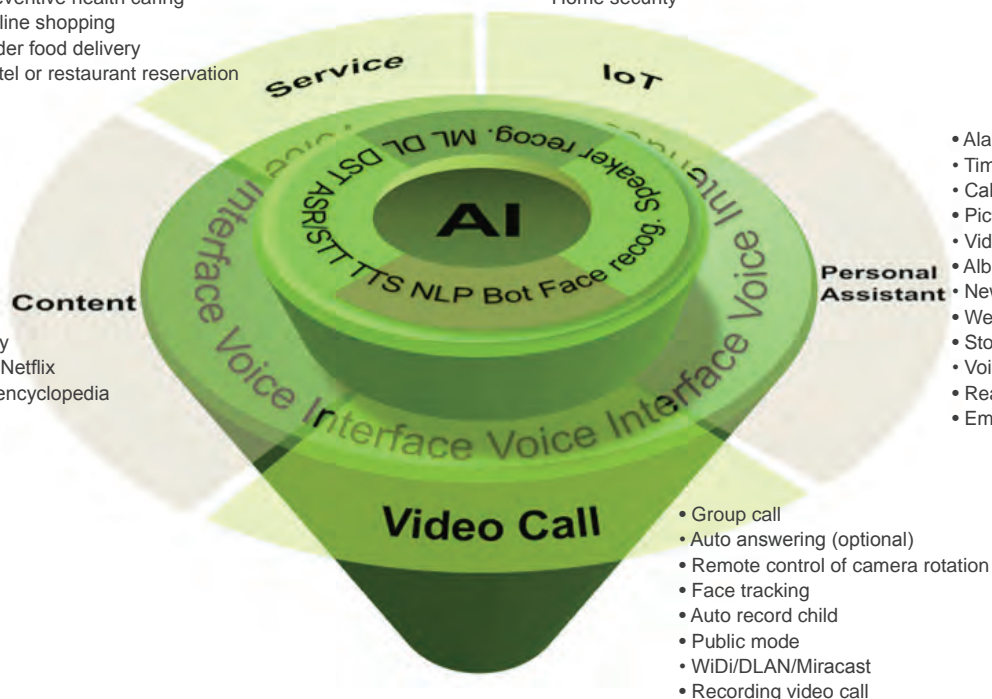
Video Call

• Group call
• Auto answering (optional)
• Remote control of camera rotation
• Face tracking
• Auto record child
• Public mode
• WiDi/DLAN/Miracast
• Recording video call

AfoBot

8" TFT LCD with 1280 x 800 Full HD

Features

- 8" 16:10 IPS TFT LCD (1280x800)
- 8-core Cortex-A53 1.5GHz
- 32GB eMMC flash on-board
- 5-megapixel camera, 2592×1944@15fps, F2.2, FF, FOV 103.5° 1/4" OV5640 image sensor
- IEEE 802.11 a/b/g/n; 2x2 802.11n, Bluetooth 4.0
- 5200 mAh Li-ion battery (2 x 18650 3600mAh)
- Android 6.0

1.7kg light weight · **Access Point** · **Miracast** · **Bluetooth**

Specifications

Model	AfoBot
Display	8" TFT LCD with 1280 x 800 Full HD
Processor	8-core Cortex-A53 SoC
Touch Screen	Projected capacitive touch screen with 10-point multi-touch
Memory	On-board 2 GB LPDDR3
Graphics	4K*2K H.264/H.265, 4K*2K@60Hz
Storage	On-board 32GB eMMC 1 x microSD card slot
Wireless Connectivity	Wi-Fi 802.11 a/b/g/n dual band Wi-Fi Direct for Miracast Bluetooth 4.0 Wi-Fi access point
Power Adapter	AC Input: 100-240V AC, 50/60Hz DC Output: 12V 2.5A
Motion	Body: 360° horizontal pan (motorized) Camera: 100° tilt (motorized) Panel: 33° tilt (manual)
I/O Interface	1 x USB2.0 Type C 1 x USB2.0 Type A 1 x GbE LAN
Camera	5-megapixel camera, F2.2, FOV103°
Audio	2 x Digital microphone 5W 4Ω stereo reflective speaker Echo cancelling, noise reduction and auto gain control
Operating System	Host: Android 6.0 Client APP: Android / iOS
Color	Pantone White and pantone 312C
Size	271 mm x 213 mm x 136 mm
Weight	1730g
Certificate	CE, FCC Class B and BSMI
Battery	Lithium Ion; 5200mAH; 3.7V; 1S2P run time 2.5 hrs

Ordering Information

Part No.	Description
AfoBot-F08A-AD6-R10	8" Assistant Robot with 8-core Cortex-A53 SoC, Wi-Fi 802.11a/b/g/n, BT 4.0, 5-megapixel webcam, PCAP touch, onboard 32GB eMMC, Android 6.0, R10
AfoBot-F08A-AD6-BAT-R10	8" Assistant Robot with 8-core Cortex-A53 SoC, Wi-Fi 802.11a/b/g/n, BT 4.0, 5-megapixel webcam, PCAP touch, on-board 32GB eMMC, Android 6.0, w/ battery pack (Li-ion 5200mAH; 3.7V), R10

Options

Item	Description
33502-000394-RS	EU power plug
33502-000393-RS	US power plug
33502-000392-RS	UK power plug

Packing List

Item	Q'ty
QIG	1
Power adapter	1

AfoBot
Dimensions *(Unit: mm)*

Camera Tilt 100°

Panel Tilt 33°

360° Rotate

271,2

213,3

136,1

Ø242,6(ROTATION DIAMETER)
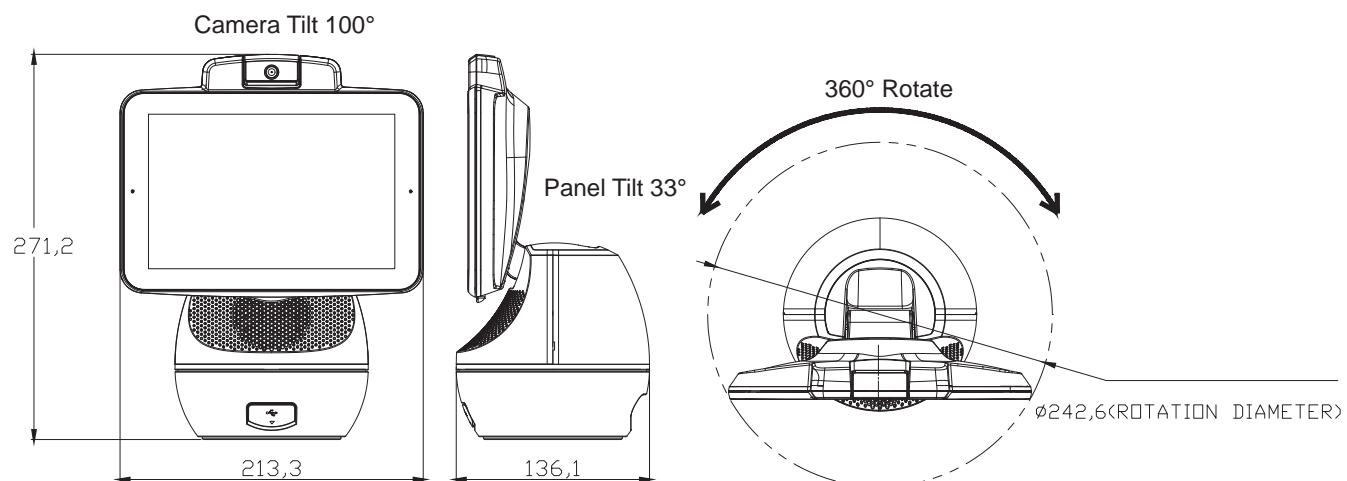
Smart Fitness Solution

IEI Fitness provides fitness consoles that are customized to satisfy various requirements. IEI Integration Corp. has many years of experience in board design, ID design, and system integration. We have highly-qualified research and development team to fulfill customers' needs. We also have the ability to integrate types of boards with different types of motors for treadmill, bike and elliptical, and have experiences to integrate different software functions to help our customers develop their own fitness applications.

The fitness console developed by IEI can fulfill needs of those people who are not satisfied with traditional workout experience. With the entertainment system provided by IEI Fitness console, people can watch TV, use social media such as Twitter or Facebook to connect with their friends, and use the virtual run program to enjoy scenery and landscape of other countries while they are running or cycling.

Core Value of IEI Integration

Android Board Design
● Freescale CPU
● Rockchip CPU

SW: APK Creation
● Android OS development
● APK development
● 3rd party SW integration

System Integration
● Console & Motor integration
● Extended devices integration

Fitness Console Solutions

Treadmill console

Elliptical console

Indoor bicycle console

FIT2-W10A-RK	10.1" RockChip-3399- Dual Cortex-A72+Quad Cortex-A53	*preliminary*
FIT2-W18A-RK	18.5" RockChip-3399- Dual Cortex-A72+Quad Cortex-A53	*preliminary*
FIT2-W21A-RK	21.5" RockChip-3399- Dual Cortex-A72+Quad Cortex-A53	*preliminary*

Features

- Support Android 7.1
- Flexible ID design (open frame)
- IEI customer reference board (10.1"/18.5"/21.5")
- Waterproof: IPX5 (for customized ID)
- Support Bluetooth 4.2 / NFC (optional)
- Support ATSC / DVB-T2 TV tuner (optional)

Bluetooth Wi-Fi IPX5 Touchscreen 2GB DDR3 RAM Speaker Android

Model	FIT2-W10A-RK-R10	FIT2-W18A-RK-R10	FIT2-W21A-RK-R10
Size	10.1"	18.5"	21.5"
Resolution	1280 (W) x 600 (H)	1366 (W) x 768 (H)	1920 (W) x 1080 (H)
Brightness (cd/m²)	300 (cd/m²)	300 (cd/m²)	250 (cd/m²)
Contrast Ratio	600:01:00	500:01:00	3000 (Typ.)
LCD Color	16.7M	16.7M	16.7M
Pixel Pitch (mm)	0.1695 x 0.1695	0.252 x 0.252	248.25 x 248.25
Backlight MTBF (hrs)	15000	50000	30000
Touchscreen	Projected capacitive flat touch		
CPU	RK3399: Dual Cortex-A72+Quad Cortex-A53, 64-bit		
RAM	2GB DDR3 SDRAM		
Boot Flash	32GB eMMC NAND Flash		
OS Support	Android 7.1		
Input / Output	1 x USB 2.0 1 x CSAFE 1 x HDMI-in 1 x 10/100/1000 Mbps Power over Ethernet 1 x Audio out and microphone in	1 x Ground 2 x Hand pulse connector 1 x Keypad connector 1 x SD card slot 1 x USB 3.0	
Audio	2 x 3 W speaker		
Wireless	BT 4.2 + Wi-Fi 802.11 b/g/n+ac		
Color	Black		
Dimensions (WxHxD) (mm)	229.46 x 149.1 x 2.5	430.4 x 254.7 x 12.7	495.6 x 292.20 x 10.5
Operating Temperature (°C)	0°c~+40°c		
Storage Temperature (°C)	(-10°c~+50°c)		
Humidity	5%~95%		
Power Requirement	12 V~36 V		
Power Consumption	3.3 W	13.5 W	14.3 W

Automatic Identification and Data Capture (AIDC) Technology

Near Field Communication (NFC) Technology

QNAP NAS **ICECARE-10W** **ICEROCK3** **MODAT-550A**

■ Comparison of Short-range Communication Technologies

Technology	Standard	Frequency	Range	Data Rate
RFID	ISO 10536	13.56 MHz	0~2 mm	9.6 Kbps
	ISO 14443	13.56 MHz	0~10 cm	106, 212, 424 Kbps
	ISO 15693	13.56 MHz	0~70 cm	26 Kpbs
NFC	ECMA-340, 352, 356, ISO/IEC 18092, 2148, 1ETSI TS 102 190	13.56 MHz	0~20 cm	106, 212, 424 Kbps
Infrared	IrFM	405 THz-300 GHz	20 cm~30 cm low power to 1 m~2 m	9.6 Kbps~4 Mbps
Bluetooth	Bluetooth V4.0	2.4 GHz	10 m-100 m	720 Kbps

● NFC, as an open platform technology, is standardized in the NFC Forum, which was found by Philips (MIFARE®), Sony (FeliCa™), Samsung and Nokia.
● NFC is based on and the extension of RFID. It operates on 13.56 MHz frequency and is compatible with today's field proven contactless MIFARE® and FeliCa™ smart cards
● NFC communication range is up to 10 cm.
● NFC standard supports different data transmission rates such as 106 kbps, 212 kbps, and 424 kbps.

■ Three NFC Application Families

The Near Field Communication (NFC) extends the RFID technology, and utilizes the 13.56MHz frequency to communicate and exchange data between devices which are in close proximity (less than 10cm) to each other. Popular applications include payment, gaming, and social networking (e.g. mobile gaming and device-to-device communication).

Secure Identity Door Access

Soical Networking Data Exchange P2P

Automobile Security Key Car Transponder

Communication Easy Pairing

IoT Appliances

Commerce Mobile Payment

Medical & Healthcare Devices

Logistics Goods Tracking

Radio Frequency Identification (RFID)

The RFID technology uses radio frequency as a data transmission intermediary. It can be classified by the frequency band the RFID system adopts since different frequencies will result in different physical attributes.

Frequency band	Operating range*	Applications		Benefits	Drawbacks
LF, < 135KHz	< 0.5m	• Access control • Product authentication	• Animal tracking	Works well around water and metal	• Short read range • Slower read rate
HF, 13.56MHz	< 1m	• Smart cards • Airline baggage	• Library books	Low cost	Higher read rate than LF
UHF 860MHZ to 930MHz	< 4m	• Pallet tracking • Parking lot access	• Carton tracking	EPC standard built around this frequency	Does not work with items of high water or metal content
Microwave 2.4GHZ	< 1m	• Airline baggage • Electronic toll collection		Most expensive	Fastest read rates

* The operating range depends on reader power and operating environment

■ HF RFID and NFC Supported Models

	IKARPC-07A	ICECARE-10W	ICEROCK3	MODAT-532A
Size	7"	10.1"	10.1"	5.3"
Protocols supported	•ISO/IEC 14443A, ISO/IEC 14443B PCD 106 kbit/s to 848 kbit/s •ISO/IEC 14443A, ISO/IEC 14443B PICC 106 kbit/s to 424 kbit/s •MIFARE® reader encryption mechanism (MIFARE® 1K/4K) •Reading NFC Forum tags (MIFARE® Ultralight, Jewel, FeliCa™ open tag, ISO/IEC 14443-4) •Reading DESFire card •ISO/IEC 15693/ICODE reader •NFC-IP1 and NFC-IP2 protocols (ISO/IEC 18092 / ECMA 340 and ISO/IEC 21481/ECMA 352) 106 kbit/s to 424 kbit/s •B' and MIFARE® card emulation	•Supports ISO/IEC 14443A Reader/Writer mode up to 848 kbit/s •Supports ISO/IEC 14443B Reader/Writer mode up to 848 kbit/s •Supports contactless communication according to the FeliCa™ protocol at 212 kbit/s and 424 kbit/s •Supports MIFARE® encryption •Typical operating distance in Read/Write mode for communication to ISO/IEC 14443A/MIFARE®, ISO/IEC 14443B or FeliCa™ cards up to 50 mm depending on antenna size and tuning		•Reader Features (106k-848Kbits/s) -Support ISO 15693-Support ISO14443A -Support NFC Forum Type 1-4 Tag •Card Emulation Mode (106K-848Kbits/s) (optional) -Support ISO 14443A -Support NFC Forum Type 1-4 Tag -Support MIFARE® via CLT •Near Field Communication (106K-424Kbits/s) -Peer to Peer Active/Passive mode -ISO 18092 compliant

	AFL2-xxxA Series	POC-W22A-H81
Size	7" ~ 22"	22"
Protocols supported	•ISO14443A/B 106kbps/212 kbps/424 kbps/848 kbps •ISO15693	•ISO/IEC 14443A/MIFARE® Reader/Writer •FeliCa™ Reader/Writer •ISO/IEC 14443B Reader/Writer •ISO/IEC 14443A/MIFARE® Card MIFARE® 1 KB or MIFARE® 4 KB emulation •FeliCa™ Card emulation •ISO/IEC 18092, ECMA 340 Peer-to-Peer

1D/2D Barcode Capability

■ Mobile Barcode Reading

The embedded Honeywell or Motorola scan engine, which is a decoded miniature area imaging scan engine designed to scan 1D and 2D barcodes, features a megapixel imaging sensor, a wide angle lens design, the integration of illumination and aiming function, and an industrial leading decoding software to deliver fast and aggressive scanning performance.

● Accurately decodes all 1D and 2D codes, even wrinkled, damaged or poorly printed
● Large scanning area
● Fast scan rate

Technology	1D Barcode	2D Barcode
Reading Condition	20 to 25 characters	100 to about 2,000 characters
Symbologies	EAN/UPC, RSS, Code 39, Code 128, UCC/EAN 128, ISBN, ISBT, Interleaved, Matrix, Industrial and Standard 2 of 5, Codabar, Code 93/93i, Code 11, MSI, Plessey, Telepen, postal codes.	Data Matrix, PDF417, Micro PDF 417, Maxicode, QR, Aztec, EAN.UCC composite