Industrial SSD and Memory

Playing a Crucial Role in the Deployment of Edge AI Systems

- Product Portfolio
- Key Winning Features
- Successful Story
- Intelligent Software

ADVANTECH

Enabling an Intelligent Planet

A Member of WPG Holdings
WPG Americas Inc.

www.advantech.com

A Spectrum of SSD & DRAM for Edge AI

Accelerate Edge Computing Deployment

- Customized Service
- Early Product Access
- Complete Portfolio
- Technical Support
- Software Integration
- Data Security
- Longevity

SECURITY SSD FIPS 140-2 LEVEL 2 CERTIFIED

MILITARY GRADE MIL-STD 810G CERTIFIED

SATAIII

SQF 840, SQF 650

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Design-in Service

Complete Data Security

Customization

Intelligent Software

AI

Crypto Erase
Write Protection
FW Fine-Tune
SQ Manager 2.0
Backup & Recovery

PCIe 5.0
SQF EU-2, SQR-CX5N
(E3.S, U.2, CXL2.0)

PCIe 4.0
SQF 930, SQF EU-1

- **Outstanding Performance**
  PCIe 5.0 with Read: 14000 MB/s;Write: 8,500 MB/s
  Random(4KB): 3,050K IOPS QoS 99%
- **Power Loss Protection**
  3500 times cycle test
  Data in transit is protected
- **Durable & Reliable**
  AES 256 / TCG-OPAL
  Garbage Collection / TRIM

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Star Selections for Focused Applications

High-Performance Embedded Computing Solutions

High Speed SMT Machine

SQR-UD5N SQF-C8M 930

Industry leading reliability 24/7 High speed productivity

24/7 assembly production is necessary with stability and reliable quality in semiconductor market, High speed productivity SMT machine can improve factory production capacity with high efficiency.

Outstanding speed and reliable quality can help system perform well in assembly process

Data Centers

SQR-CX5N SQF-CU2 ER-1

Supreme system performance

Maximum system performance with high efficiency for mass data processing, and manage abnormal situation. Enterprise SSD has extreme high performance and low latency to optimize in data center environments. In addition, end-to-end data protection can ensure data is protected at every stage of the data transfer process. SQ provides comprehensive security functions to protect sensitive data.

AOI Inspection Machines

SQR-SD5N(ECC) SQF-CU2 EU-2

Precision quality check

To ensure product quality after assembly, test equipment include AIO, X-Ray or solder paste inspection is essential part of assembly flow. Image processing requires highly precise instruments to ensure accuracy, and it is crucial that no errors occur during the process to maintain the integrity and quality of the operation

The Error Correction Code (ECC) function of SSD and DRAM helps in accuracy judgment and ensures that all data quality is correct

Advantech provides a wide range of memory products, including Industrial SSD, DDR, and I/O extension modules. We are committed to providing high-quality modules and security with corresponding software utilities and solutions. These include Advantech DeviceOn/SQ Manager, Trellix whitelisting and Acronis backup solutions — which simplify real-time status and lifespan monitoring. Advantech delivers total solutions for a diverse range of embedded, automation, transportation, and networking applications. In addition, these solutions are compatible with all Advantech platforms. The SQFlash and SQRAM are your best peripheral choices for data-intensive processing so as to accelerate IoT and AIoT transformations.

Various Robotics Environments

Robotic Arms

SQR-SD5N

SQF-S25 660BR

Self OS backup solution

SQFlash 660BR series provide new function with “SSD backup and recovery by SSD itself”. 660BR can make on-site recovery and make it return to your personalized backup settings. System can reboot by simple one command which mean just need to click the button. User friendly for operators. Cost Efficiency for saving both SSD HW cost and the labor cost. Simple process for reducing down time.

Medical AI

SQR-SD4N

SQF-C8M730

High Performance Data Reliability

The SQF-C8M 730 (-20 ~ 85°C) PCIe Gen4 x4 SSD with sTLC technology enhances medical AI performance, offering double the bandwidth for faster diagnostics and imaging. Its industrial-grade durability and encryption ensure secure, 24/7 operation while protecting critical patient data.

Outdoor AMR or Drone

SQR-YD4I

SQFFSM8 840F

Military Standard FIPS 140-2 / MIL-STD-810G

Certified by national military institutes, SQFFSM8 840F FIPS and SQR-YD4I ECC Rugged DIMM deliver a range of wide temperature (-40~85C)solutions that are reliable, secure, and strong, enhancing capabilities for mission-critical applications

Testing is performed for 24-hour at least, including high-low temperature and humidity to ensure stability and reliability. SQ is engineered to provide perfect performance at every critical moment to help users accomplish their tasks.

SSD Solutions

Advantech SSDs are designed with industrial operation in mind, and provide highly-reliable storage with excellent compatibility, performance, and security. All our products are built with a TCG-OPAL self-encryption disk functionality powered by AES-256 internal encryption, and Advantech's unique Flash Lock function for disk protection.

	DRAM-Less	w/ DRAM	Edge Server
NVMe (PCIe 5.0)	**740** • M.2 2280 (M key) (MP@Q3,'25) Upcoming		 **EU-2** • U.2 2.5" SSD (SFF-8639) • E3.S 1C (EDSFF 7.5mm) • E1.S 1C (EDSFF 9/15mm)
NVMe (PCIe 4.0/ 3.0)	 **730** • M.2 2280 (M key) • M.2 2242 (M key) • M.2 2230 (M key)  **720** • M.2 2280 (M/B+M key) • M.2 2242 (M key) • M.2 2230 (A+E key) • CFX (Type B)	 **930** • M.2 2280 (M key)  **920** • U.2 2.5" SSD (SFF-8639) • M.2 2280 (M key)  **920F** • M.2 2280 (M key)	 **930L (Enterprise)** • E1.S 1C (EDSFF 9 mm) • M.2 22110 (M key) • M.2 2280 (M key)  **ER-1** • U.2 2.5" SSD (SFF-8639) • M.2 2280 (M key)  **EU-1** • U.3 2.5" SSD (SFF-TA-1001)
SATA	 **650** • 2.5" SSD / Half-slim SSD • mSATA / Half-sized mSATA • M.2 2242 / 2280 (B+M key) • CFast **660BR (Backup & Recovery)** • 2.5" SSD • M.2 2280 (B+M key)	 **840** • 2.5" SSD / mSATA • M.2 2280 (B+M key) **840V (Power Loss Protection)** • 2.5" SSD • M.2 2280 (B+M key) • M.2 2242 (B+M key) **840F (FIPS)** • 2.5" SSD • M.2 2280 (B+M key)	 **840L (Enterprise)** • 2.5" SSD

OS backup & Recovery

The Advantech SQF 660BR series use Logical level recovery, entire recovery by LBA to LBA to ensure compatibility and reliability with host system. The SQF 660BR series supports function which system can reboot by simple one command which mean just need to click the button.

FIPS 140-2 Level 2 certifications

Advantech SQFlash SSD security design is verified by National Institute of Standards and Technology(NIST), an agency of US government. SQFlash 840F and 920F series meet FIPS 140-2 Level 2 certifications. The SQFlash has passed rigorous line-by-line review process, aimed at minimizing data leakage risks and protecting user data.

Leading Industrial SSD Solutions

Comprehensive Security

- FIPS certified SSD
- TCG-OPAL compliant
- Crypto Erase and Military Erase

High-Endurance Solutions

- 10x more durable SSD with sTLC solution (P/E cycle: up to 100k)
- Industrial extended temperature support
- SSD lifespan could be predict by SQManager

Thermal Solution

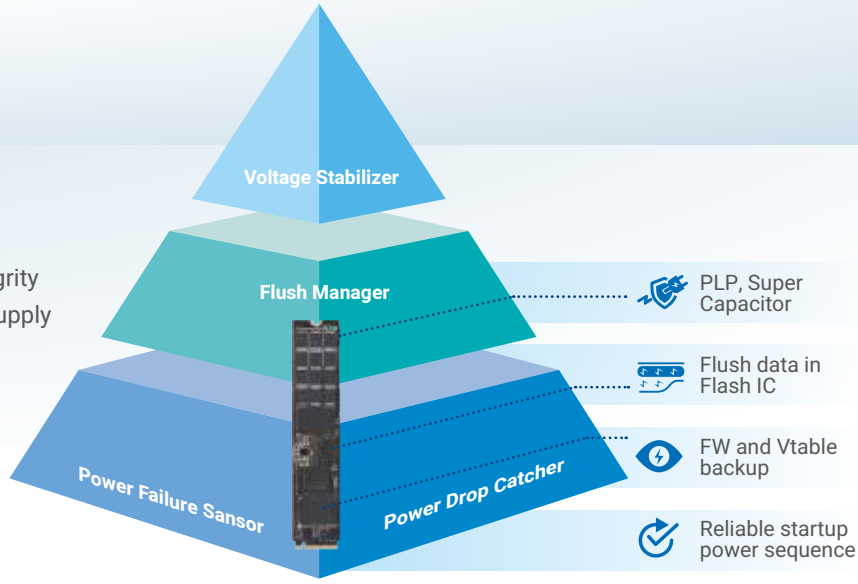
- Fin designed heatsink cools SSD by up to 30 °C
- Thermal grease prevents physical IC damage
- Smart thermal throttling against sudden performance drop
- Warning notice when overheat

Customization Service

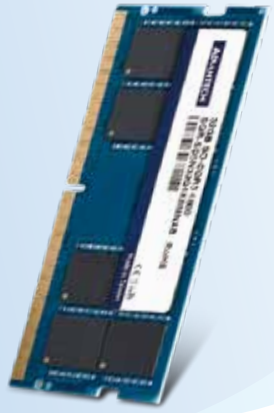
- 30-day time to market design-in service
- Extended longevity: 3 ~ 5 years
- Early access to the latest Storage technology
- System integration with FPGA and firmware support

Power Failure Protection

- Comprehensive protection ensures data integrity
- Built-in voltage stabilizer for internal power supply
- Reliable startup power sequence



Memory Solutions



Pioneering DDR5 6400 Choice

SQRAM DDR5 6400 memory module, featuring CKD functionality, TVS protection, and an exclusive 64GB capacity option. This series is the perfect solution for Edge AI, high end medical image, and enterprise applications that demand the highest levels of speed with reliability.

CKD On-Module
Enhances signal integrity by buffering clock signals

TVS Diode adopted
Protect from transient voltage fluctuations, enhancing data stability

On-Die ECC Support
In-band ECC technologies for more reliable data transmission

Exclusive CXL 2.0 Memory Expansion Module

Traditional memory architectures are limited by fixed allocations, which has bottlenecks in data-intensive workloads. CXL Memory is providing memory expansion with a high-speed, low-latency memory capacity expansion to meet the demands of large AI Training application.

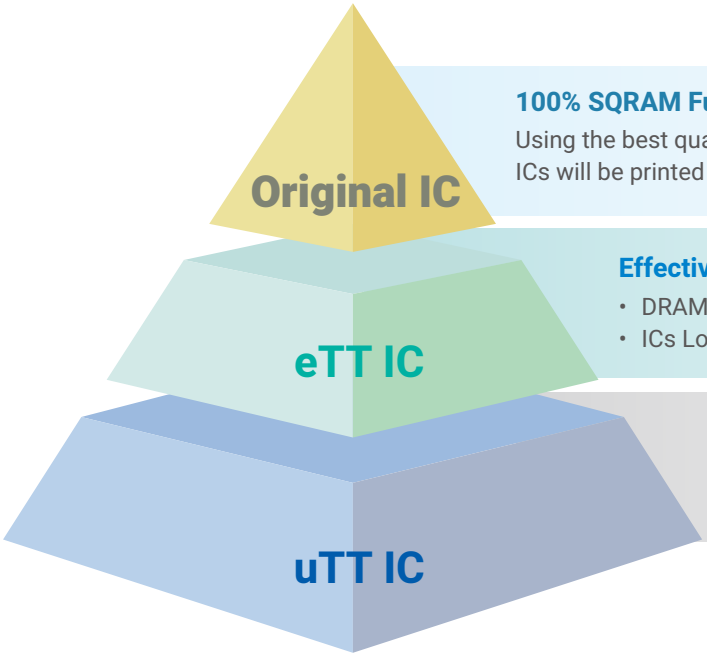
High-Speed Interconnect via PCIe 5.0 Interface
Memory Expansion via E3.S 2T PCIe 5.0 Form Factor

Memory Pooling & Switching
Optimizing memory resource and improving system efficiency

Hot-Plug support
To ensure optimal performance without power off disruption

Memory IC Quality Level

Advantech's industrial-grade SQRAM memory modules are only selected original-grade IC chips which have passed through various rigorous internal tests to ensure the highest quality.



100% SQRAM Fully Tested by Major IC Manufacture

Using the best quality Memory Chip, and following the original factory's testing procedures ICs will be printed with the manufacturer's trademarks, such as Samsung, Hynix

Effectively Tested DRAM IC

- DRAM ICs have been tested for effectiveness, but have not been fully tested
- ICs Logo unmarked or only marked with partial IC part number

Untested DRAM IC

- DRAM ICs without any test after packaging.
- ICs logo unmarked

AI Pioneering Product Segmentation

Advantech Memories offers a range of product lines including Unbuffered DIMM, ECC DIMM, Server DIMM, and Rugged DIMM with speeds of DDR5, DDR4, DDR3, DDR2, and DDR1. The latest DDR5 6400 is ready to give you a total upgrade in operating performance.

	Embedded Series	Robust Series	Server Series
DDR5	**SODIMM** • SQR-SD5N **UDIMM** • SQR-UD5N	**SODIMM** • SQR-SD5I/SQR-SD5U **Rugged DIMM** • SQR-YD5I **ECC DIMM** • SQR-SD5I(ECC)	**RDIMM** • SQR-RD5N **ECC DIMM** • SQR-SD5(ECC) • SQR-UD5(ECC) **CXL Memory Module** • SQR-CX5N
DDR4	**SODIMM** • SQR-SD4N **UDIMM** • SQR-UD4N	**SODIMM** • SQR-SD4I/SQR-SD4E **Rugged DIMM** • SQR-YD4N **ECC DIMM** • SQR-SD4I(ECC)	**RDIMM** • SQR-RD4N **LRDIMM** • SQR-LD4N **ECC DIMM** • SQR-SD4(ECC) • SQR-UD4(ECC)
DDR3	**SODIMM** • SQR-SD3N **UDIMM** • SQR-UD3N	**SODIMM** • SQR-SD3I **Heatsink DIMM** • SQR-HS3I **ECC DIMM** • SQR-SD3I(ECC)	**ECC DIMM** • SQR-SD3(ECC)

Embedded Extension Modules

Dynamic Connectivity for Versatile Applications

Advantech's embedded extension modules (EXM) are standard full-sized Mini PCIe modules equipped with variety of I/ O interfaces. EXM users can extend extra interface ports without customization or board modification. This eases EXM modules/adapter integration and delivers high flexibility to a diverse range of embedded, automation, transportation, and networking applications.

Product Highlights

Adapter

EXM-CMPF1

A or E key

- M.2 (NGFF) to mPCIe (PCIe+USB) adapter
- Supports MiniPCIe thru PCIe and USB
- Full-size MiniPCIe with -40 ~ 85 °C

SATA Port

EXM-520

- Supports PCIe to 2-Ch SATA III port
- Mini PCIe thru PCIe interface
- Full-size Mini PCIe with -10 ~ 70 °C

Giga LAN Port

EXM-510

- Supports PCIe to 1-Ch Giga LAN port
- MiniPCIe thru PCIe interface
- Full-size MiniPCIe with -40 ~ 85 °C

Giga LAN Port

EXM-523

- Supports PCIe to 2-Ch Giga LAN port
- MiniPCIe thru Pcle interface
- Full-size MiniPCIe + Extension board with 0 ~ 70 °C

Applications

Elevator Communication

Quickly extend CANBus interfaces

CANBus

EXM-320

Fanless Box PC

ARK-2121

Kiosk Applications

Quickly extend USB 3.0 interfaces

USB 3.0

EXM-521

Embedded Box PC

AIMB-B2274

SQ Manager 2.0 & Utility

Intelligent Monitoring Tool With Cloud Capabilities

DeviceOn/SQ Manager is a smart software utility that secures data 24/7. Indeed, it allows users to access information on disk health, lifespan, device power-on time, temperature, power-cycle, and event logs in real-time for diagnostic purposes. Advantech's solution enables users to execute predictive maintenance and budget for repair and replacement early. The software significantly reduces service times and cost by helping users monitor and diagnose systems remotely, as well as update mass edge devices over the air. Additionally, SQ Manager provides full spectrum of security protection in different OS and BIOS. Users can contact Advantech's technical support for immediate action upon receiving alerts. Advantech also provides customized services such as conformal coating/underfill and SPD tuning with full hardware, software, and firmware aimed at supporting diverse applications.

SSD Health Performance Monitoring & OS Backup&Recovery Utility

Disk status and endurance estimation

- Monitor SQFlash health status. Early-warning mechanism can be performed with API integration
- Real time SSD endurance prediction based on user operation history

Disk security management and encryption

TCG OPAL compliant drive encryption and Crypto Erase

SSD OS backup and recovery utility

DRAM Dynamic Speed/Thermal Monitoring

DRAM real-time status processing

- System speed monitoring
- Easily check system memory informatior include speed, capacity loading and operating temperature
- Memory SPD timing information
- Memory product record

Temperature Alerts

- Thermal alert will be triggered when memory operating temperature is excessive.
- Alert temperature can be set according to the user environment.

Elevating Enterprise Performance: Utilizing SQF EU-2 series in Multinucleated Cell Detection

Region: North America

Project Introduction

The growing demand for advanced medical applications is driven by the need for high performance and large data capacity. This surge requires high-performance storage solutions. To meet these needs, Advantech SQF EU-2 U.2 drives are designed with industrialgrade heat dissipation capabilities, ensuring stable operation and reliability for advanced medical applications such as genetic analysis and multi-core cell detection. These solutions enable faster and more efficient data processing.

Project Requirements

In recent years, precision medicine has gained prominence, with gene-targeted drugs becoming mainstream therapies. Nextgeneration sequencing assists doctors in identifying lesions, thereby enhancing medical efficiency by enabling the simultaneous testing of numerous cancer genes. These testing systems rely on extensive medical imaging data, which must be stored and processed in real time.

Project Description

The EU-2 SQFlash NVMe PCIe Gen5 SSDs are engineered for high-speed, low-latency data transmission and processing. They feature Hynix high-level NAND Flash, delivering impressive read and write speeds of up to 14,000 and 8,500 MB/s respectively. This speed is vital for processing large datasets. With an overall capacity of up to 32 TB and a DWPD of 1, these SSDs confidently meet the demands of high-end medical diagnostics. In addition, EU-2 supports full hot-plug functionality, allowing SSDs to be swapped out without powering down the whole system. This feature significantly reduces interruptions in medical data processing. SQFlash is tailored for the advanced medical applications market, offering the large capacity, high performance, and reliability required for such demanding tasks.

Product Specifications

SQFlash EU-2 NVMe SSDs

- Flash storage up to 32 TB (0 ~ 70°C)
- Enterprise SSD, with DWPD of 1
- Hot plugin support
- Read speed: 14,000 MB/s, Write speed: 8,500 MB/s

SQFlash Ultra-Speed Rugged NVMe PCIe Gen4 SSD for 5G Edge Computing in Data Logging Applications

Region: Europe

Project Introduction

5G edge servers used in Data Logging applications must provide low-latency, high-bandwidth computing resources at the network edge. This enables faster and more efficient data processing. These resources are particularly useful in surveillance, in-vehicle, and aviation applications.

Project Requirements

The demand for mission-critical data loggers is driven by the need for reliable and accurate data collection in extreme environments with high-stress conditions. The use of storage servers or Network Attached Storage (NAS) enables secure and efficient storage and retrieval of mission-critical data—including maps, images, and video footage. NAS for mission-critical data also enable real-time data processing and analysis to empower situational awareness, intelligence gathering, and decision-making.

Project Description

The ER-1, SQFlash NVMe PCIe Gen4 SSD, is designed for high-speed, low-latency data transmission and processes. Featuring KIOXIA's BiCS 3D NAND Flash technology, it supports read and write speeds of up to 7,100 and 6,700 MB/s, with a capacity of up to 15.3 TB per drive. Available in both M.2 2280 and U.2 form factors, the ER-1 leverages Advantech's industrial heatsinks and a robust firmware thermal throttling mechanism to ensure optimal heat dissipation. The heatsinks are paired with thermal grease, providing outstanding mechanical flexibility and reducing the risk of physical damage from abrupt temperature changes.

The Advantech SQFlash ER-1 NVMe SSD serves as self-encrypting drive (SED) and is compliant with TCG-OPAL 2.0, supporting AES-256 encryption. It also includes a variety of security erase functions powered by the SQErase tool.

Product Specifications

SQF-CU2 ER-1 and SQF-C8M ER-1

- SQFlash ER-1 DWPD 1 NVMe SSD up to 12.8TB / 6.4TB (0 - 70 °C/ -40 - 85 °C)
- 100% burn in test at the production line before shipment
- SQFlash undergoes a 24-hr high-low burn-in test under 100% full load conditions and a low-temperature boot-up test with 1,000 cycles

SQRAM High-Speed DDR5 5600 with Wide Temperature Range and Conformal Coating for Outdoor Robotic Arms

Region: Region: Europe, Agriculture and Farming vertical

Project Introduction

A leading robotic company aimed to develop a new generation of outdoor robotics arms, needed to operate effectively in diverse conditions, including wide temperature fluctuations and exposure to humid environments.

The Robotic arms rely on sensors, cameras, and feedback systems that continuously provide data about the arm's position, which will need High-speed memory enables the robot to process this data in real time, ensuring that the robotic arm can make immediate adjustments and respond quickly to its surroundings without delay.

Project Requirements

The development of autonomous cleaning robotics capable of performing effectively across diverse environments presented several key challenges. These robotics needed to operate seamlessly in conditions that included extreme temperature fluctuations and high levels of humidity, both of which could compromise the performance and longevity of their internal components.

The company sought a memory solution that would provide high speed, operate in extreme temperatures, and withstand harsh environmental factors, including humidity, to enhance the robot's reliability and operational lifespan.

Project Description

The Advantech wide temperature SQR-SD5I 5600 48GB SODIMM is an excellent solution for outdoor visual needed applications.

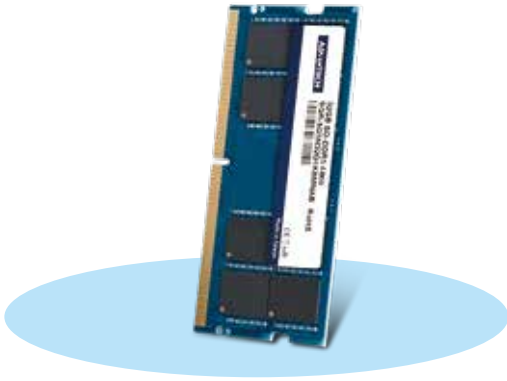
With an operating temperature range of -40°C to 95°C, the memory provided the robustness needed to maintain optimal performance across temperature extremes. Because of humidity environment, SQR's conformal coating service applied to the DRAM modules offered added protection against environmental contaminants.

By integrating SQRAM, the cleaning robotics not only met but exceeded the required performance standards. The solution provided the reliability and durability needed to operate autonomously and effectively in a wide range of environments, addressing the key pain points of temperature fluctuations and humidity.

Product Specifications

SQRAM SQR-SD5I 5600 48GB

- Up to 48GB (-40 - 95 °C)
- Industrial-grade IC with high-quality original IC & fixed die
- 30μ" PCB chamfer edge Gold Fingers
- Default anti-sulfuration protection for harsh environments
- Additional Conformal coating against high-humidity environments
- Lifetime Warranty



Enhanced Data Security and Continuity Through Power Failure Protection

Region: Europe

Project Introduction

The SQFlash SSD successfully integrates power failure protection mechanisms with Human Security Gates to fortify SQFlash memory for enterprise applications, offering clients a more secure, reliable, and efficient storage solution. It not only minimizes risks related to power failures but also reinforces the physical security aspect, ensuring a robust operational environment.

Project Requirements

As SSD products become increasingly prevalent in enterprise environments, the necessity for a robust solution to shield these systems from the repercussions of power failures has grown. This project aimed to create a technology that not only mitigates the risks posed by power interruptions but also seamlessly integrates Human Security Gates to ensure a comprehensive and secure operational environment.

Project Description

At its core, the project revolved around devising a technology capable of protecting SSDs during power failures. Moreover, it sought to seamlessly integrate Human Security Gates into the system, combining power failure protection with enhanced physical security measures to fortify the entire operational setup.

Product Specifications

SQF-C8M 930L

- Performance Enhancement: Faster data transfer speeds and reduced latency contribute to improved system performance, amplifying overall productivity.
- 100% burn in test at the production line before shipment
- SQFlash stress test for 24-hr high-low burn-in test with 100% full loading criteria; and low temperature boot up test with 1000cycles
- Data Protection: The integration of power failure protection and Human Security Gates mitigates the risk of data loss or corruption

SQFlash Industrial Storage Modules

NVMe SSD

	Edge Server						Enterprise Series				
											
Model Name	**SQF-CU2 EU-2 series**	**SQF-CE3 EU-2 series**	**SQF-CE1 EU-2 series**	**SQF-CU3 EU-1 series**	**SQF-CU2 ER-1 series**	**SQF-C8M ER-1 series**	**SQF-CE1 930L series**	**SQF-C8M 930L series**	**SQF-C8M 930 series**	**SQF-C25 920 series**	**SQF-CM8 920 series**
Form Factor	U.2 2.5" NVMe SSD	E3.S 7.5mm NVMe SSD (EDSFF)	E1.S 9/15mm NVMe SSD (EDSFF)	U.3 2.5" NVMe SSD	U.2 2.5" NVMe SSD	M.2 2280 NVMe SSD	E1.S 9mm NVMe SSD (EDSFF)	M.2 2280 NVMe SSD	M.2 2280 NVMe SSD	2.5" U.2 NVMe SSD	M.2 2280 NVMe SSD
Transfer Protocol	PCIe Gen.5 x4	PCIe Gen.5 x4	PCIe Gen.5 x4	PCIe Gen.4 x4	PCIe Gen.4 x4	PCIe Gen.4 x4	PCIe Gen.4 x4	PCIe Gen.4 x4	PCIe Gen.4 x4	PCIe Gen.3 x4	PCIe Gen.3 x4
Connector	U.2 NVMe (SFF-8639)	EDSFF 1C	EDSFF 1C	U.3 NVMe (SFF-TA-1001)	U.2 NVMe (SFF-8639)	M.2 M key with PCIe pin-out	EDSFF 1C	M.2 M key with PCIe pin-out	M.2 M key with PCIe pin-out	U.2 NVMe (SFF-8639)	M.2 M key with PCIe pin-out
Flash Type	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC
Maximum Power Consumption	25.0W	25.0W	25.0W	21.5W	11.5W	7.3W	13.5W	11.6W	11W	7.5W	5.5W
Capacity	1.9TB ~ 30.7TB	1.9TB ~ 15.3TB	1.9TB ~ 7.6TB	1.9TB ~ 30.7TB	400GB ~ 12.8TB	400GB ~ 3.2TB	480GB ~ 3.8TB	480GB ~ 1.9TB	400GB ~ 3.8TB	400GB ~ 15.3TB	240GB ~ 1.9TB
Maximum Read / Write Performance (MB/s)	Seq. : 14,000 / 8,500 Ran. IOPS@4k: 3,050k/ 440k	Seq. : 14,000 / 8,500 Ran. IOPS@4k: 3,050k/ 480k	Seq. : 14,000 / 8,300 Ran. IOPS@4k: 3,000k/ 220k	Seq. : 7,000 / 6,800 Ran. IOPS@4k: 1,600k/ 180k	Seq. : 6,900 / 5,700 Ran. IOPS@4k: 779k/ 761k	Seq. : 6,500 / 5,000 Ran. IOPS@4k: 779k/ 753k	Seq. : 6,800 / 2,000 Ran. IOPS@4k: 900k/ 60k	Seq. : 5,500 / 2,000 Ran. IOPS@4k: 800k/ 58k	Seq. : 7,200 / 6,300 Ran. IOPS@4k: 550k/ 1000k	Seq. : 3,300 / 3,000 Ran. IOPS@4k: 590k/ 470k	Seq. : 3,300 / 3,000 Ran. IOPS@4k: 650k/ 650k
Op. Temperature	0 ~ 70 °C	0 ~ 70 °C	0 ~ 70 °C	0 ~ 70 °C	0 ~ 70 °C / -40 ~ 85°C	0 ~ 70 °C / -40 ~ 85°C	0 ~ 70 °C	0 ~ 70 °C / -20 ~ 85°C	0 ~ 70 °C / -40 ~ 85°C	0 ~ 70 °C / -40 ~ 85°C	0 ~ 70 °C / -40 ~ 85°C
DeviceOn/ SQ Manager	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Shock	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5ms	1,500G, Peak / 0.5ms	1,500G, Peak / 0.5ms	1,500G, Peak / 0.5ms	1,500G, Peak / 0.5ms
Vibration	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G, Peak / 80~2,000Hz	20G,Peak / 80~2,000 Hz

	Embedded Series									Onboard BGA SSD	
	Upcoming 										
Model Name	**SQF-C8M 740 series**	**SQF-C8M 730 series**	**SQF-C4M 730 series**	**SQF-C3M 730 series**	**SQF-C8M 720 series**	**SQF-C8B 720 series**	**SQF-C4M 720 series**	**SQF-C3A 720 series**	**SQF-CFX 720 series**	**SQF-CUS 730 series**	**SQF-SUS 640 series**
Form Factor	M.2 2280 NVMe SSD (NGFF)	M.2 2280 NVMe SSD (NGFF)	M.2 2242 NVMe SSD (NGFF)	M.2 2230 NVMe SSD (NGFF)	M.2 2280 NVMe SSD (NGFF)	M.2 2280 NVMe SSD (NGFF)	M.2 2242 NVMe SSD (NGFF)	M.2 2230 NVMe SSD (NGFF)	CFexpress card	291 ball BGA-1620	156 ball BGA-1620
Transfer Protocol	PCIe Gen.5 x4	PCIe Gen.4 x4	PCIe Gen.4 x4	PCIe Gen.4 x4	PCIe Gen.3 x4	PCIe Gen.3 x2	PCIe Gen.3 x4	PCIe Gen.3 x2	PCIe Gen.3 x2	PCIe Gen.4 x4	SATA 6Gb/s
Connector	M.2 M key with PCIe pin-out	M.2 M key with PCIe pin-out	M.2 M key with PCIe pin-out	M.2 M key with PCIe pin-out	M.2 M key with PCIe pin-out	M.2 B+M key with PCIe pin-out	M.2 M key with PCIe pin-out	M.2 A+E key with PCIe pin-out	CFexpress (Type B)	N/A	N/A
Flash Type	3D TLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC	MLC / UMLC / 3D TLC
Maximum Power Consumption	<25W	5.3W	5.3W	5.2W	3.6W	3.0W	3.6W	2.0W	3.4W	3.2W	1.5W
Capacity	TLC: 512GB ~ 4TB	TLC: 256GB ~ 4TB sTLC: 64GB ~ 512GB	TLC: 256GB ~ 2TB sTLC: 64GB ~ 512GB	TLC: 256GB ~ 512GB	TLC: 128GB ~ 2TB sTLC: 32GB ~ 512GB	TLC: 128GB ~ 2TB sTLC 32GB ~ 512GB	TLC: 128GB ~ 2TB sTLC: 32GB ~ 512GB	TLC: 128GB ~ 512GB sTLC: 32GB ~ 128GB	TLC: 128GB ~ 1TB sTLC: 32GB ~ 256GB	256GB ~ 1TB	4GB ~ 512GB
Maximum Read / Write Performance (MB/s)	Seq. :10,300 / 8,600 Ran. IOPS@4k: 1300k/ 1500k	Seq. : 4,900 / 3,700 Ran. IOPS@4k: 700k/ 800k	Seq. : 4,900 / 3,700 Ran. IOPS@4k: 700k/ 800k	Seq. : 4,900 / 3,300 Ran. IOPS@4k: 320k/ 600k	Seq. : 2,450 / 1,900 Ran. IOPS@4k: 250k/ 420k	Seq. : 1,750 / 1,650 Ran. IOPS@4k: 260k/ 380k	Seq. : 2,450 / 1,900 Ran. IOPS@4k: 250k/ 420k	Seq. : 1,200 / 900 Ran. IOPS@4k: 130k/ 210k	Seq. : 1,750 / 1,650 Ran. IOPS@4k: 270k/ 380k	Seq. : 3,700 / 3,000 Random IOPS@4k: 600k/ 310k	Seq. : 550 / 490 Random IOPS@4k: 74k/ 86k
Op. Temperature	-20 ~ 85°C / -40 ~ 85°C	"0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C"	"0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C"	0 ~ 70°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C
DeviceOn/ SQ Manager	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported		
Shock	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5ms	1,500G, Peak / 0.5ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5ms	1,500G, Peak / 0.5ms	1,500G, Peak / 0.5 ms		
Vibration	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G, Peak / 80~2,000Hz	20G,Peak / 80~2,000 Hz		

SQFlash Industrial Storage Modules

SATA SSD

	Performance Series			Power Loss Protection			Enterprise Series	FIPS Certified		Backup & Recovery	
											
Model Name	**SQF-S25 840 series**	**SQF-SM8 840 series**	**SQF-SMS 840 series**	**SQF-S25 840V series**	**SQF-SM8 840V series**	**SQF-SM4 840V series**	**SQF-S25 840L series**	**SQF-S25 840F series**	**SQF-SM8 840F series**	**SQF-S25 660BR series**	**SQF-S8B 660BR series**
Form Factor	2.5" SATA SSD	M.2 2280 SATA SSD (NGFF)	mSATA SSD (MO-300A)	2.5" SATA SSD	M.2 2280 SATA SSD	M.2 2242 SATA SSD	2.5" SATA SSD	2.5" SATA SSD	M.2 2280 SATA SSD	2.5" SATA SSD	M.2 2280 SATA SSD
Transfer Protocol	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Connector	7 + 15 pin SATA	M.2 with B+M key SATA pin-out	Mini PCIe with SATA pin-out	7 + 15 pin SATA	M.2 with B+M key SATA pin-out	M.2 with B+M key SATA pin-out	7 + 15 pin SATA	7 + 15 pin SATA	M.2 with B+M key SATA pin-out	7 + 15 pin SATA	M.2 with B+M key SATA pin-out
Flash Type	3D TLC / sTLC	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC
Maximum Power Consumption	4.6W	3.0W	3.0W	3.7W	2.7W	2.7W	3.4W	2.2W	2.0W	2.5W	2.6W
Capacity	TLC: 240GB ~ 15.3TB sTLC: 60GB ~ 1.9TB	240GB ~ 1.9TB	240GB ~ 1.9TB	240GB ~ 7.6TB	240GB ~ 960GB	240GB ~ 480GB	240GB ~ 7.6TB	256GB ~ 2TB	256GB ~ 2TB	TLC: 128GB ~ 2TB	TLC: 128GB ~ 2TB
Maximum Read / Write Performance (MB/s)	Sequential: 550 / 530 Random IOPS@4K: 100K/90K	Sequential: 550 / 530 Random IOPS@4K: 100K/90K	Sequential: 550 / 520 Random IOPS@4K: 100K/90K	Sequential: 550 / 530 Random IOPS@4K: 100K/100K	Sequential: 550 / 530 Random IOPS@4K: 98K/88K	Sequential: 550 / 340 Random IOPS@4K: 93K/85K	Sequential: 550 / 530 Random IOPS@4K: 100K/90K	Sequential: 550 / 530 Random IOPS@4K: 100K/90K	Sequential: 550 / 530 Random IOPS@4K: 100K/90K	Sequential: 550 / 510 Random IOPS@4K: 80K/70K	Sequential: 550 / 500 Random IOPS@4K: 80K/70K
Op. Temperature	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C	0 ~ 70 °C	0 ~ 70 °C	0 ~ 70°C / -40 ~ 85°C	0 ~ 70°C / -40 ~ 85°C
DeviceOn/ SQ Manager	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Shock	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms
Vibration	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~ 2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000Hz	20G, Peak / 80 ~2,000Hz

	Embedded Series							eMMC		High Speed Card	
											
Model Name	**SQF-S25 650 series**	**SQF-SMS 650 series**	**SQF-S8B 650 series**	**SQF-S4B 650 series**	**SQF-SHM 650 series**	**SQF-S10 650 series**	**SQF-SLM 650 series**	**SQF-MM5**	**SQF-MMC**	**SQF-ISD**	**SQF-MSD**
Form Factor	2.5" SATA SSD	mSATA SSD	M.2 2280 SATA SSD	M.2 2242 SATA SSD	Half-size mSATA SSD	CFast SATA SSD Card	Half Slim SATA SSD	153 ball BGA-1113	100 ball BGA-1113	SD Card	Micro SD Card
Transfer Protocol	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	eMMC 5.0	eMMC 5.0	UHS-I, CL10, A2 SD / SPI	UHS-I, CL10, A2 SD / SPI
Connector	7 + 15 pin SATA	Mini PCIe with SATA pin-out	M.2 with B+M key SATA pin-out	M.2 with B+M key SATA pin-out	Mini PCIe with SATA pin-out	CFast Type-I	7 + 15 pin SATA	NA	NA	9-pin	8-pin
Flash Type	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC	MLC / UMLC / 3D TLC	MLC / UMLC	3D TLC / sTLC	3D TLC / sTLC
Maximum Power Consumption	1.8W	1.8W	1.8W	1.8W	1.3W	1.6W	1.4W	0.4W	0.4W	1.4W	1.4W
Capacity	TLC: 64GB ~ 2TB sTLC: 32GB ~ 512GB	TLC: 64GB ~ 2TB sTLC: 32GB ~ 512GB	TLC: 64GB ~ 2TB sTLC: 32GB ~ 512GB	TLC: 64GB ~ 1TB sTLC: 32GB ~ 256GB	TLC: 64GB ~ 1TB sTLC: 32GB ~ 256GB	TLC: 64GB ~ 512GB sTLC: 32GB ~ 128GB	TLC: 64GB ~ 1TB	2GB ~ 64GB	2GB ~ 64GB	16GB ~ 256GB	16GB ~ 512GB
Maximum Read / Write Performance (MB/s)	Sequential: 550 / 520 Random IOPS@4K: 96K/86K	Sequential: 550 / 520 Random IOPS@4K: 96K/86K	Sequential: 550 / 520 Random IOPS@4K: 96K/86K	Sequential: 550 / 520 Random IOPS@4K: 96K/86K	Sequential: 550 / 510 Random IOPS@4K: 89K/86K	Sequential: 550 / 510 Random IOPS@4K: 91K/85K	Sequential: 550 / 520 Random IOPS@4K: 96K/87K	Seq. : 250/ 150 HS200 Upto 200MB/s HS400 Upto 400MB/s	Seq. : 250/ 150 HS200 Upto 200MB/s HS400 Upto 400MB/s	Seq. : 100/ 93 Random IOPS@4k: 9.8k /2.7k (Upto V30)	Seq. : 100/ 93 Random IOPS@4k: 9.8k /3.8k (Upto V30)
Op. Temperature	0 ~ 70°C / -20 ~ 85°C/ -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	-25 ~ 85 °C / -40 ~ 85 °C	-25 ~ 85 °C / -40 ~ 85 °C
DeviceOn/ SQ Manager	Supported	Supported	Supported	Supported	Supported	Supported	Supported				
Shock	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms				
Vibration	20G, Peak / 80 ~2,000Hz	20G, Peak / 80 ~2,000Hz	20G, Peak / 80 ~2,000Hz	20G, Peak / 80 ~2,000Hz	20G, Peak / 80 ~2,000Hz	20G, Peak / 80 ~2,000Hz	20G, Peak / 80 ~2,000Hz				

SQRAM Industrial Memory Modules

DDR5 NEW

Series	SQR-SD5N	SQR-SD5I	SQR-SD5U	SQR-SD5 (ECC)	SQR-UD5N	SQR-UD5 (ECC)	SQR-RD5N	SQR-HS5N	SQR-CX5N
Interface	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5
Form Factor	SODIMM	SODIMM	SODIMM	SODIMM	UDIMM	UDIMM	RDIMM	SODIMM	CXL 2.0
Pin	262pin	262pin	262pin	262pin	288pin	262pin	288pin	262pin	288pin
Frequence(MT/s)	6400/5600/4800	6400/5600/4800	5600/4800	6400/5600/4800	6400/5600/4800	6400/5600/4800	6400/5600/4800	6400/5600/4800	PCIe Gen.5 x8
Capacity	8/16/32/48/64GB	8/16/32/48/64GB	16/32GB	16/32/48/64GB	8/16/32/48/64GB	16/32/48/64GB	16/32/64/128GB	8/16/32/48/64GB	64GB
Voltage	1.1v	1.1v	1.1v	1.1v	1.1v	1.1v	1.1v	1.1v	1.1v
Temperature	0~95°C	-40~95°C	-40~105°C	0~95°C	0~95°C	0~95°C	0~95°C	0~95°C	0~70°C

DDR4

Series	SQR-SD4N	SQR-SD4I	SQR-SD4E	SQR-SD4 (ECC)	SQR-UD4N	SQR-UD4 (ECC)	SQR-RD4N	SQR-RD4I	SQR-YD4N	SQR-HS4N
Interface	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4
Form Factor	SODIMM	SODIMM	SODIMM	SODIMM	UDIMM	UDIMM	RDIMM	RDIMM	RUGGED DIMM	SODIMM
Pin	262pin	262pin	262pin	262pin	288pin	288pin	288pin	288pin	260pin	262pin
Frequence(MT/s)	3200/2666	3200/2666	3200	3200/2666	3200/2666	3200/2666	3200/2666	3200/2666	3200/2666	3200/2666
Capacity	8/16/32GB	8/16/32GB	8/16/32GB	8/16/32GB	8/16/32GB	4/8/16/32GB	8/16/32/64/128GB	8/16/32/64/128GB	16/32GB	8/16/32GB
Voltage	1.2v	1.2v	1.2v	1.2v	1.2v	1.2v	1.2v	1.2v	1.2v	1.2v
Temperature	0~85°C	-40~85°C	-40~125°C	0~85°C	0~85°C	0~85°C	0~85°C	-40~85°C	0~85°C	0~85°C

DDR3/DDR2/DDR1

Series	SQR-SD3N	SQR-SD3I	SQR-SD3 (ECC)	SQR-UD3N	SQR-UD3N (ECC)	SQR-HS3N	SQR-SD2N	SQR-SD1N
Interface	DDR3	DDR3	DDR3	DDR3	DDR3	DDR3	DDR2	DDR1
Form Factor	SODIMM	SODIMM	SODIMM	UDIMM	UDIMM	SODIMM	SODIMM	SODIMM
Pin	204pin	204pin	204pin	240pin	240pin	204pin	200pin	200pin
Frequence(MT/s)	1600	1600	1600	1600	1600	1600	667	333
Capacity	2/4/8GB	2/4/8GB	2/4/8GB	2/4/8GB	2/4/8GB	2/4/8GB	1G/2G	512M/1G
Voltage	1.35v	1.35v	1.35v	1.35v	1.35v	1.35v	1.8v	2.5v
Temperature	0~85°C	-40~85°C	0~85°C	0~85°C	0~85°C	0~85°C	0~85°C	0~85°C

EXM Embedded Extension Modules

Adapter



Model Name	EXM-CMPF1 (A key)	EXM-CMPF1 (E key)	EXM-110 (EMIO-100TL)
Type	M.2 (NGFF) to mPCIe (PCIe+USB) adapter	M.2 (NGFF) to mPCIe (PCIe+USB) adapter	LVDS to 1-Ch RGB TTL port
Communication Interface	PCIe and USB	PCIe and USB	18/24-bit LVDS
Interface Connector	MiniPCIe thru PCIe and USB	MiniPCIe thru PCIe and USB	External 18/24-bit LVDS, DF13-20DP-1.25V
Channel Connector	1 (2230/2242 A key)	1 (2230/2242 E key)	1
Operating Temperature	-40 ~ 85 °C	-40 ~ 85 °C	-10 ~ 70 °C
Storage Temperature	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C
LED Status	Activated indicator	Activated indicator	-
Dimensions (L x W x H)	50.59 x 30 x 15 mm (1.98 x 1.18 x .78 in)	50.5 x 30 x 15 mm (1.98 x 1.18 x .59 in)	50.5 x 30 x 15 mm (1.98 x 1.18 x .59 in)

PCIe Signal






Model Name	EXM-510 (EMIO-100E)	EXM-523	EXM-520 (EMIO-200SA)	EXM-521 (EMIO-200U3)	EXM-522	EXM-540
Type	PCIe to 1-Ch Giga LAN port	PCIe to 2-Ch Giga LAN port	PCIe to 2-Ch SATA III port	PCIe to 2-Ch USB 3.0 port	PCIe to 2-Ch USB 2.0 port	PCIe to 4-Ch USB 2.0 port
Communication Interface	PCIe	PCIe	PCIe	PCIe	PCIe	PCIe
Interface Connector	MiniPCIe thru PCIe	MiniPCIe thru PCIe	MiniPCIe thru PCIe	MiniPCIe thru PCIe	H/S MiniPCIe thru PCIe	MiniPCIe thru PCIe
Channel Connector	1	2	2	2	2	4
Operating Temperature	-40 ~ 85 °C	0 ~ 70 °C	-10 ~ 70 °C	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C
Storage Temperature	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C
LED Status	Reserve the LED signal for external usage	Reserve the LED signal for external usage	Activated indicator	-	-	-
Dimensions (L x W x H)	50.5 x 30 x 20 mm (1.98 x 1.18 x .78 in)	50.5 x 30 x 20 mm (1.98 x 1.18 x .78 in) + iDoor PCB Board	50.5 x 30 x 20 mm (1.98 x 1.18 x .78 in)	50.5 x 30 x 15 mm (1.98 x 1.18 x .59 in)	26.65 x 30 x 15 mm (1.04 x 1.18 x .59 in)	50.5 x 30 x 15 mm (1.98 x 1.18 x .59 in)

Note: "-" : means Not Applicable (N/A)

USB Signal




Model Name	EXM-321 (EMIO-210S)	EXM-322 (EMIO-220S)	EXM-311 (EMIO-100S)	EXM-320 (EMCB-200U)
Type	USB to 2-Ch High Speed RS-232 port	USB to 2-Ch High Speed RS-422/ RS-485 port	USB to 1-Ch High Speed Serial COM port	USB to 2-Ch CANBus port
Communication Interface	Combo USB (Internal/ External)	Combo USB (Internal/ External)	Combo USB (Internal/ External)	Combo USB (Internal/ External)
Interface Connector	Internal USB port: MiniPCIe thru USB External USB port: 2.0 mm, 1x4-pin, male type wafer box	Internal USB port: MiniPCIe thru USB External USB port: 2.0 mm, 1x4-pin, male type wafer box	Internal USB port: MiniPCIe thru USB External USB port: 2.0 mm, 1x4-pin, male type wafer box	Internal USB port: MiniPCIe thru USB External USB port: 2.0 mm, 2x5-pin, male header
Channel Connector	2	2	1	2
Operating Temperature	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C
Storage Temperature	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C
LED Status	Power On/Off: Red LED COM-1 working : Green LED COM-2 working: Green LED	Power On/Off: Red LED COM-1 working : Green LED COM-2 working: Green LED	Activated indicator	Activated indicator
Dimensions (L x W x H)	50.5 x 30 x 15 mm (1.98 x 1.18 x .59 in)	50.5 x 30 x 20 mm (1.98 x 1.18 x .78 in)	50.5 x 30 x 20 mm (1.98 x 1.18 x .78 in)	50.5 x 30 x 15 mm (1.98 x 1.18 x .59 in)

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