

DeviceOn/SQ Manager

Intelligently monitor and manage
your SQFlash & SQRAM solutions



The coming future, AIOT

The explosive growth of semiconductor manufacturing technology has caused computer chips to grow smaller and more powerful. Consequently, anything can be incorporated into the IoT — from small cameras to big trains. Imagine a world in which thousands of **autonomous cars**, millions of **surveillance cameras**, countless 5G and **VR/AR applications**, intelligent systems and robotics all connect to global networks to gather **BIG DATA**. In such a future, industrial SSD and memory play an increasingly important role in the AIoT application sector by comprehensively processing data and leading an industrial manufacturing transformation. The growing demand for high performance IoT and edge computing devices comes with demands **for remote management, industrial-grade data storage, and memory solutions** at the cloud and the edge. This unprecedented growth in data is driving a system evolution.



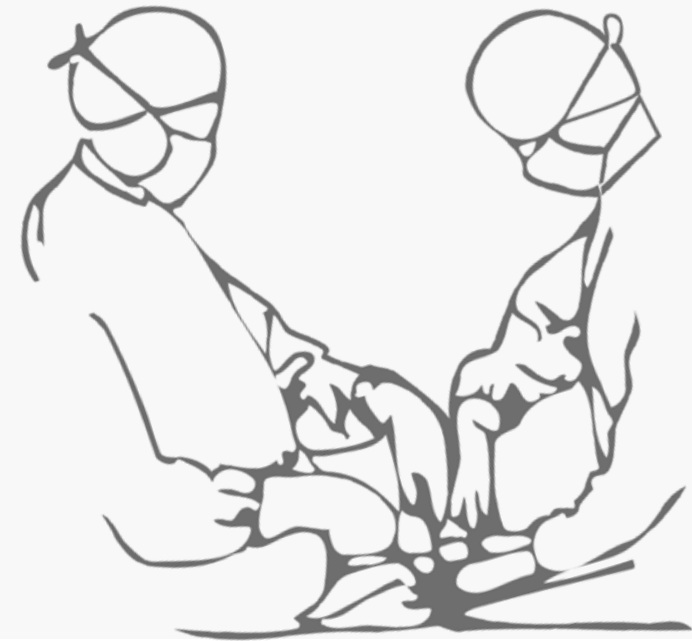
Why does a good data storage
and memory solution matter?

Invaluable Cost of System breakdown

Every system contains one or more data storage and memory solution.

Malfunctioning SSD or DRAM can cause systems to break down — a disastrous scenario for **critical applications**. For example, in time sensitive medical and in-vehicle applications such as an operation room's medical video recorder or in a fast-moving metro trains. The failure of either could result in **death or injury**.

Indeed, even in non-life-threatening applications, the cost of system downtime is unacceptable; and can result in production line wastage. Similarly, a failed server could cost a company years of **valuable data**.



Harsh environment & High-performance computing

Many modern field application systems require high performance computing solutions capable of processing large amounts of video data and running AI models. These systems are often installed in **harsh environments** or **rural locations**, such as on a metro line waysides or high voltage electric pylons. In such circumstances, performing on-site system diagnosis and maintenance is exceedingly time consuming and costly. Additionally, the dramatic changes of temperatures and the **excess heat** generated by high performance computing systems make it difficult for storage and memory solutions to survive.



What makes a good data storage and memory solution?



High Quality Endurance



Security Built-in



Wide Temperature



Ruggedized Design

SQFlash Security Management Tool



Third-party Value-added Integration



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Advantech's data storage and memory solutions surpass high quality and endurance features. Advantech offers SSD and flash modules with **AES-256 internal encryption** — a unique Flash Lock function for disk protection. Advantech also offers McAfee and Acronis, built-in third party anti-virus and data back-up/recovery software utilities.

DeviceOn/SQ Manager

A smarter software utility to secure your data 7/24 to help maintain device stability and security.

The screenshot displays the DeviceOn/SQ Manager software interface. The main dashboard includes several monitoring widgets:

- Online System:** A gauge showing 2/12 Online / Total.
- Abnormal System Voltage:** A gauge showing 0/3 Abnormal Voltage / Total.
- SQRAM SPD Lock Enabled:** A gauge showing 1/3 Enabled / Total.
- SQRAM Bus Speed:** A pie chart showing 2667 and 2133.
- Top 5 System SQRAM workload:** A horizontal bar chart showing workload for SQ w SOM-5899 and Simon Test.
- Top 5 SQRAM Temperature:** A horizontal bar chart showing temperature for RAM1@SQ w SOM-5899, RAM0@SQ w SOM-5899, and RAM0@Simon Test.
- Top 5 SQFlash Life:** A horizontal bar chart showing life for Disk0@Simon Test, Disk0@SQ w SOM-5899, and Disk1@SQ w SOM-5899.
- Top 5 SQFlash Bad Block Count:** A widget showing a checkmark icon.
- Top 5 SQFlash Temperature:** A horizontal bar chart showing temperature for Disk0@SQ w SOM-5899, Disk1@SQ w SOM-5899, and Disk0@Simon Test.

Two detailed windows are overlaid on the dashboard:

- SQFlash Manager:** Shows information for SQF-S25M8-1T-SAC [Serial ATA], including Firmware (SAFIM02A3), Serial Number (FECA0788060803622996), Transfer Mode (SATA/600 | SATA/600), Power On Hour (4174), Power Cycle (1535), Temperature (33), Flash Maximum P/E Cycle (3000), Average Erase (101), ECC Count (0), Later Bad Block (0), and CRC Error Count (2). It also features an Endurance Check pie chart and an SSD Life section with a General_Prediction table.
- SQRAM Manager:** Shows device monitoring for SQR-SD4N-16G2K4HBC, including Socket No. (No.1 selected), Part Number, Interface (DDR4 SDRAM), Capacity (16 GB), Operation Temperature (43.5 °C / 110.3 °F), and Alert Temperature (50 °C). It also includes a temperature gauge and a link to the Advantech website.

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This software utility is compatible with all modules to ensure around-the-clock SSD and RAM health monitoring and management with an intuitive real-time UI. It supports end-to-cloud device management and provides full spectrum of security protection in different OS and BIOS.

Ask the Experts!

What is the toughest application scenario?

A well-known semiconductor manufacturer's production machines endured a severe cyberattack. The downtime resulted in a USD 250 million loss. Fortunately, data back-ups in the cloud allowed them to conduct a system recovery remotely, returning their machines to normal operation quickly.

What can SQ Manager offer?

DeviceOn/SQ Manager provides disk wear status and real-time operating information like power-on time, temperature, power-cycle counts, and event logs for diagnostic purposes. This delivers real-time warnings — such as overheating and system overload alerts — to users.



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Manager
SQ Product Division



Tones Yen
Product Manager
SQFlash



Vicky Su
Product Manager
SQRAM

Ask the Experts!

What is SQ?

SQ means secure. Security and data safety are at the heart of Advantech's designs. Many of our customers' applications require excellent data protection due to cyber security issues and sensitive data breach concerns. Therefore, our products are TCG-OPAL and TCG-Enterprise compliant as well as FIPS certified.

What does Advantech offer?

Users can contact Advantech's tech support for immediate action upon receiving alerts via DeviceOn/SQ Manager. Advantech provides customized services such as conformal coating/underfill and SPD tuning with full hardware, software, and firmware support to meet different application needs.



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How can users benefit from **DeviceOn/SQ Manager**

Comprehensive data encryption, anti-virus protection, and disk back-up ensure data integrity. Additionally, health status, lifespan prediction, and remote device monitoring functions allow users to budget for predictive maintenance, repair, and replacement early on. SQ Manager helps users reduce service costs and time by monitoring, diagnosing, and updating systems and massed edge devices remotely over the air.

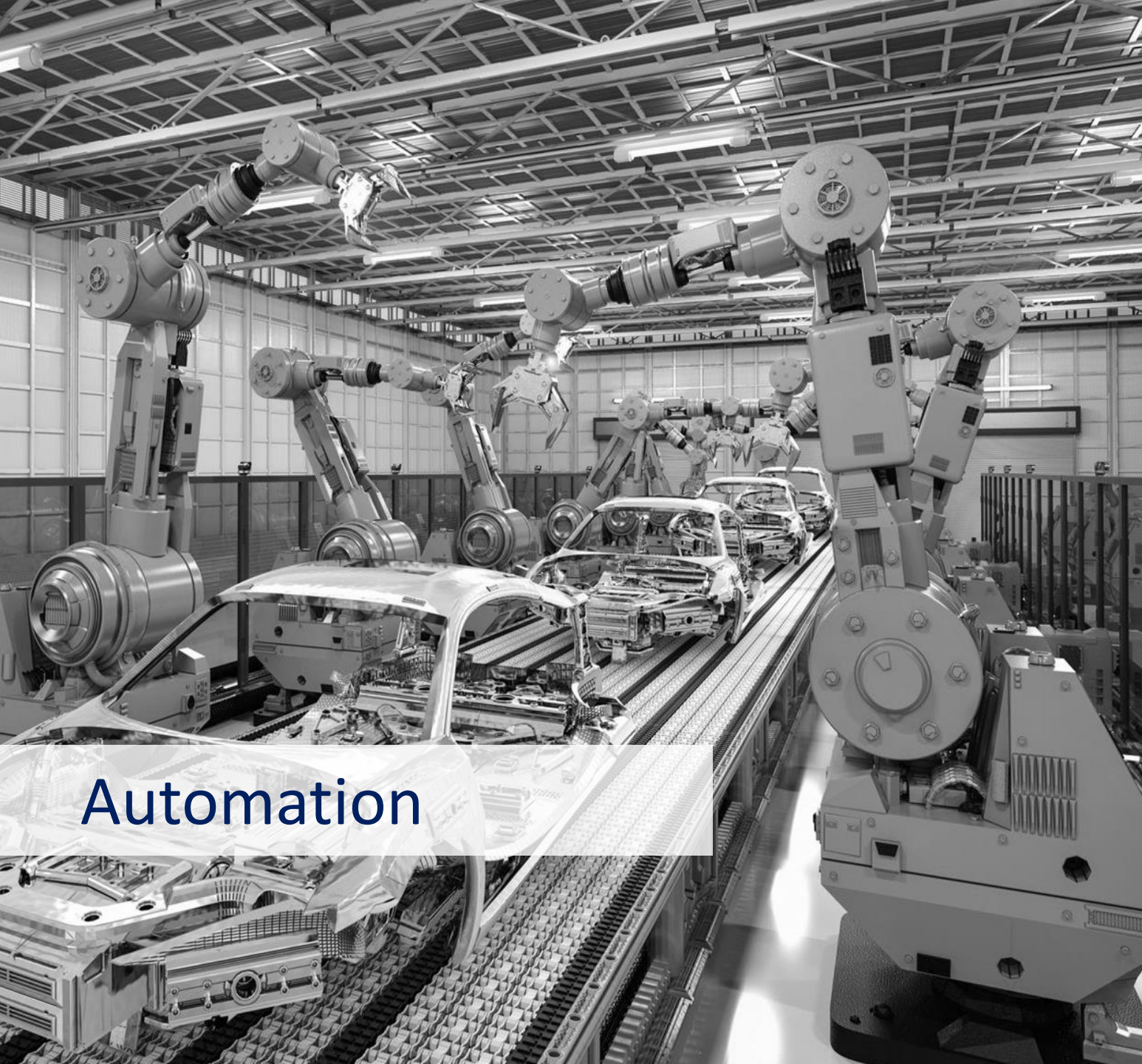


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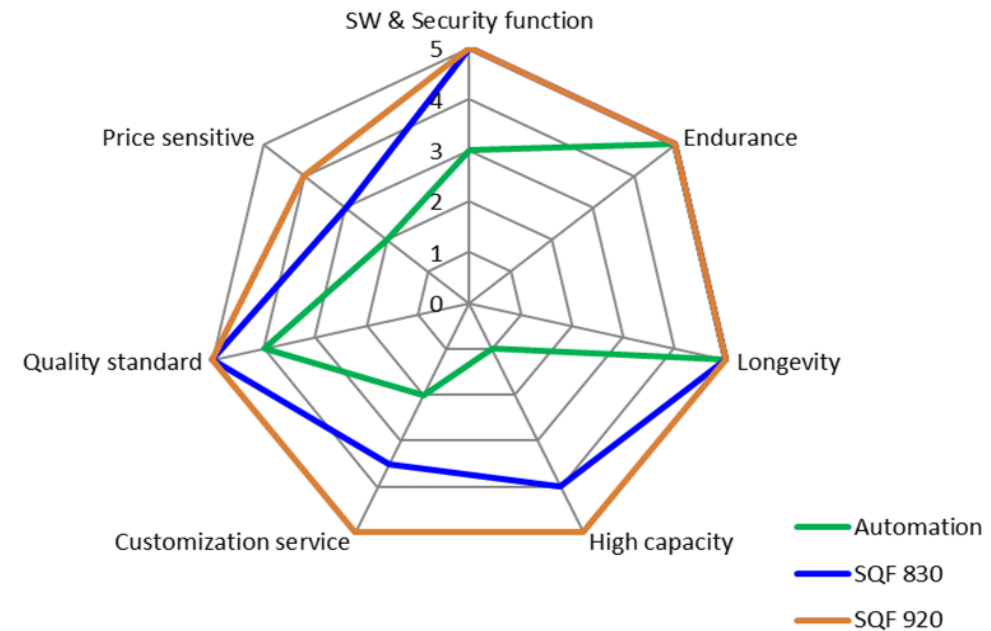
How to choose the SSD/DRAM?

Different Industrial applications require different SSD/DRAM specifications. Please refer to the following series of charts on SQFlash and SQRAM compatible solutions for industry specific requirements.

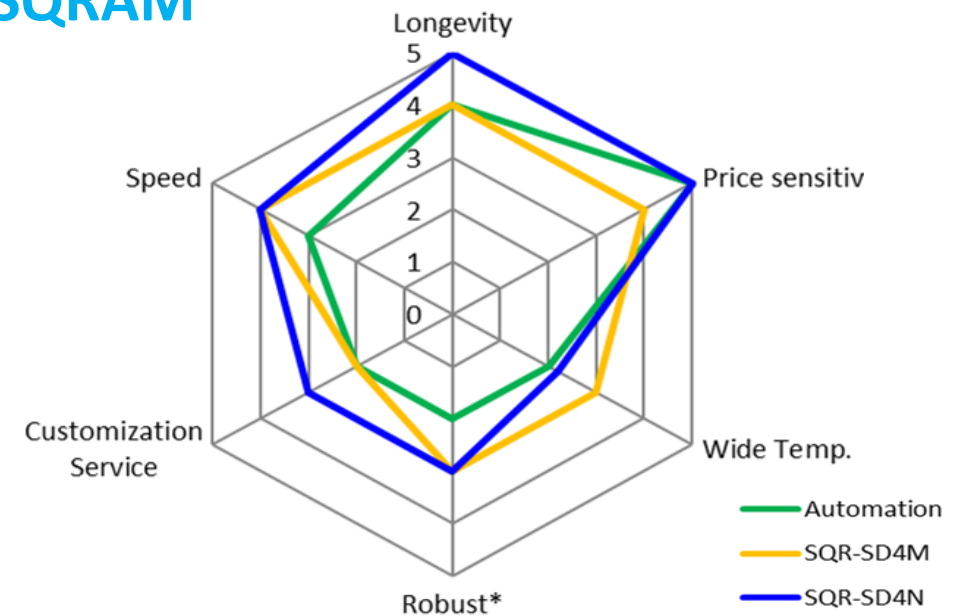


Automation

SQFlash



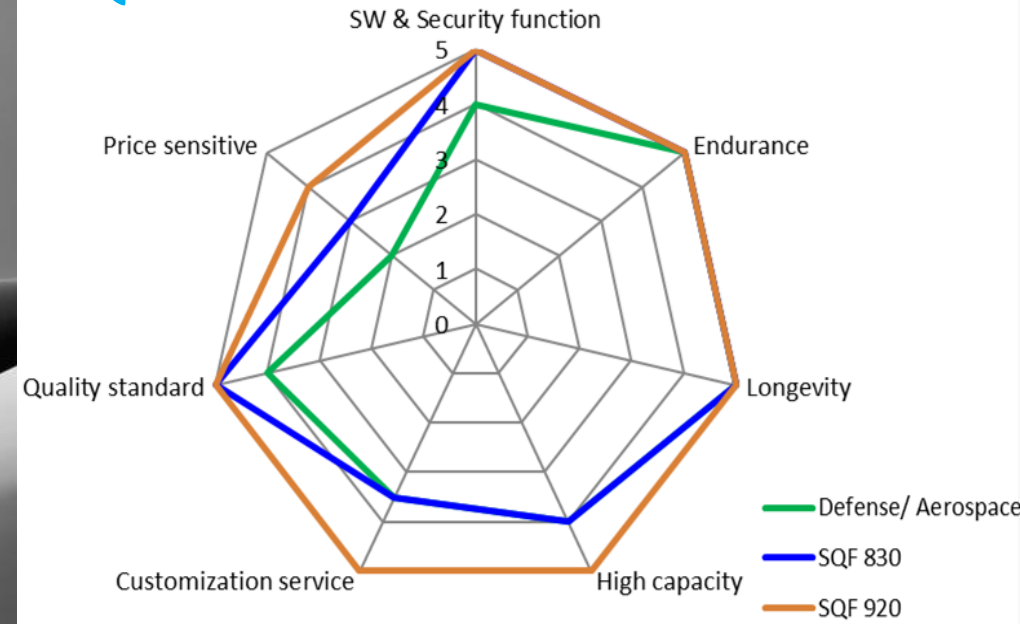
SQRAM



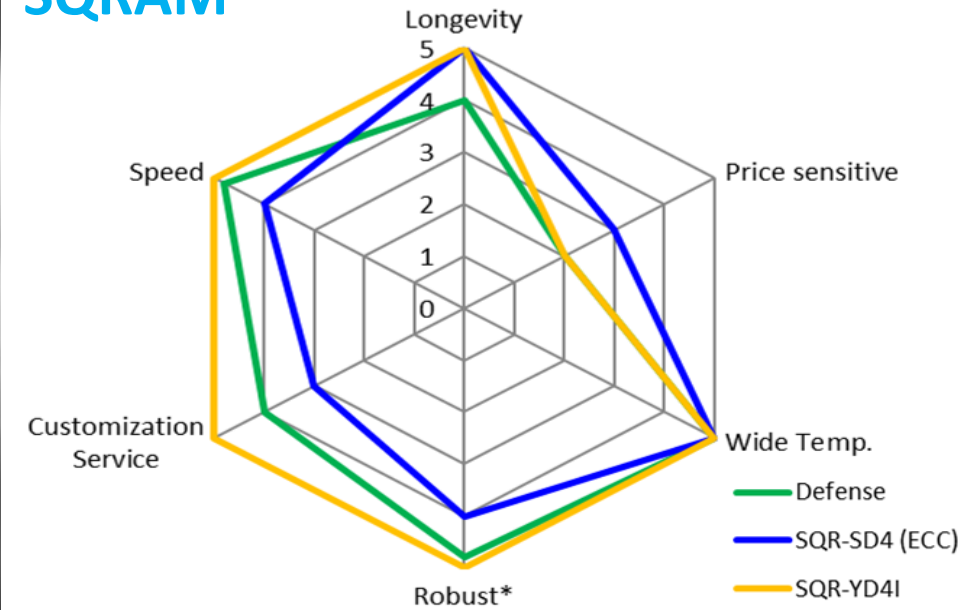


Defense/ Aerospace

SQFlash



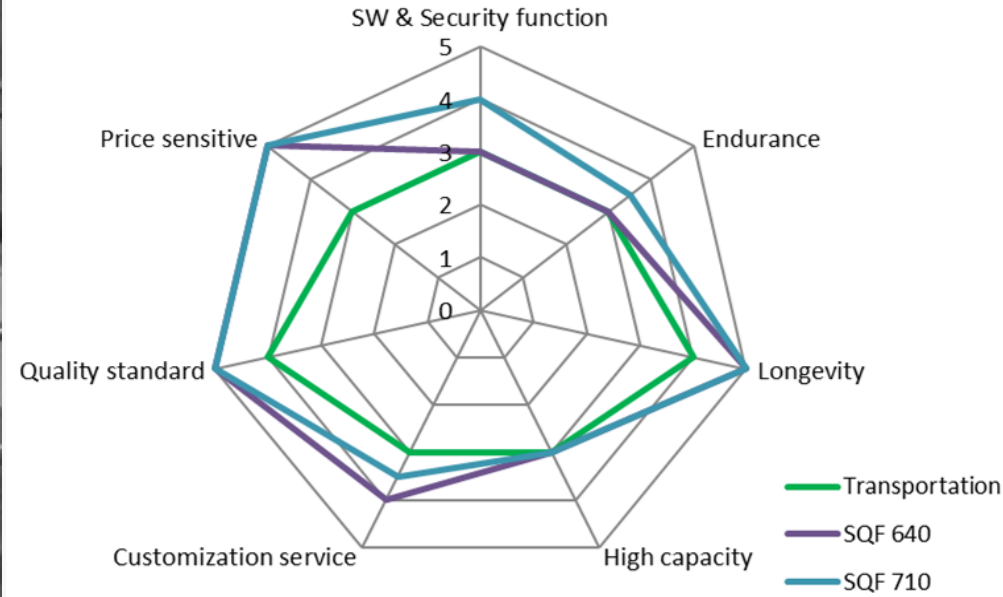
SQRAM



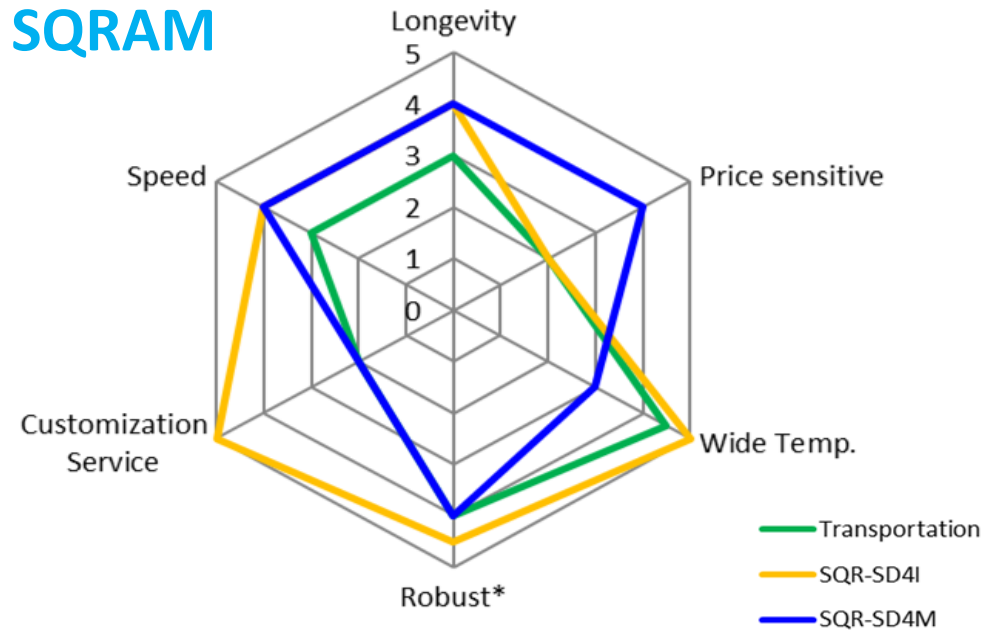


Transportation

SQFlash



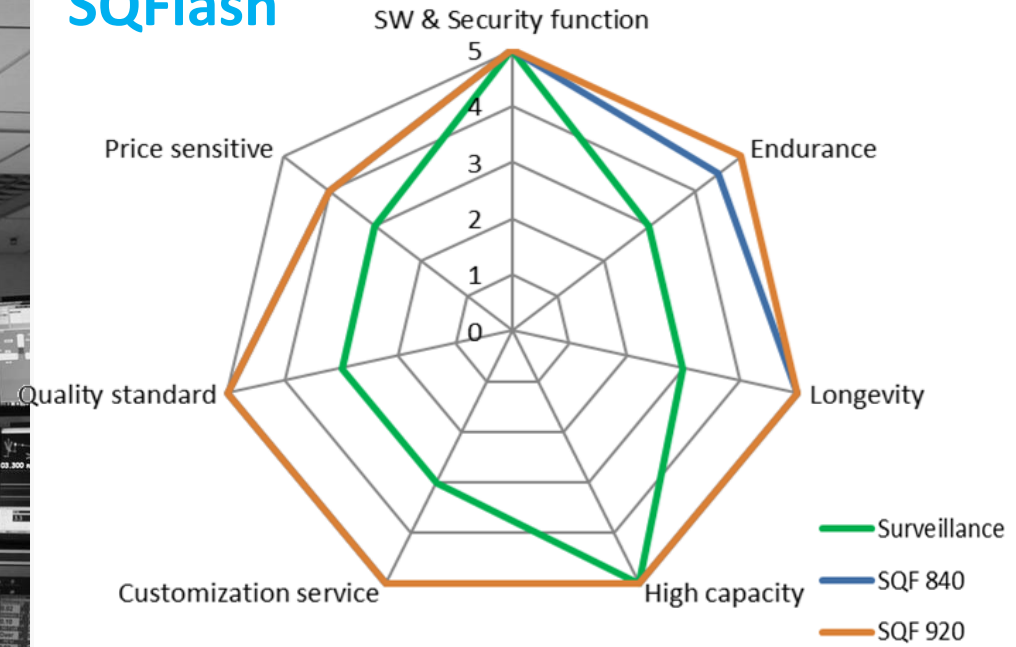
SQRAM



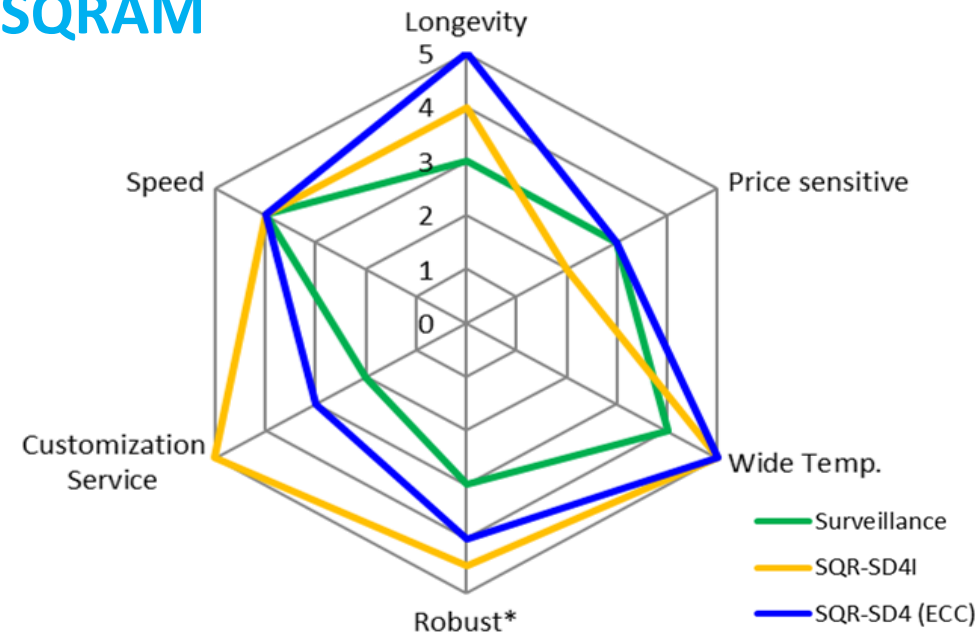


Surveillance

SQFlash



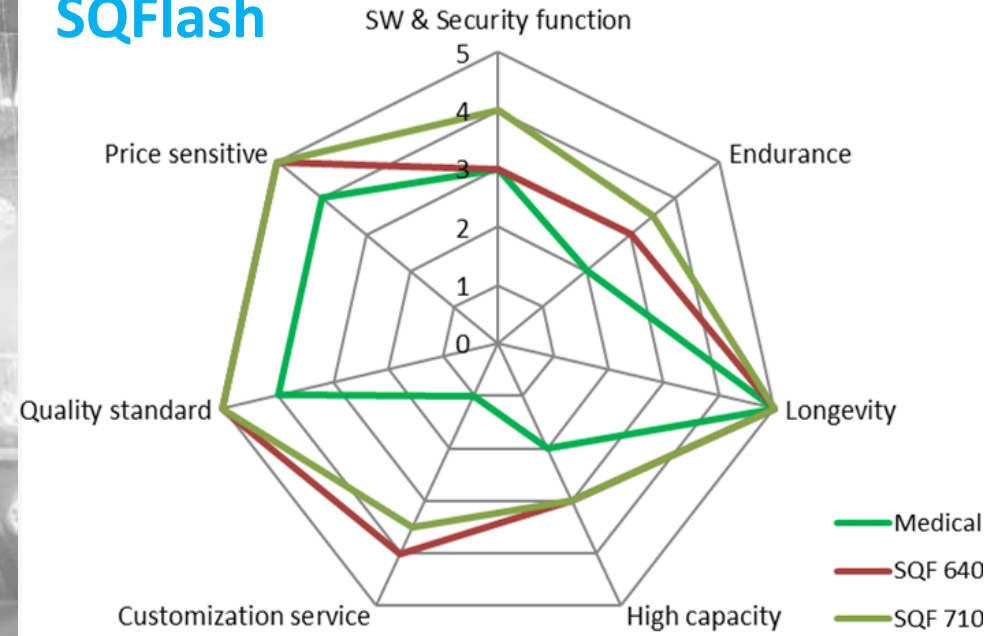
SQRAM



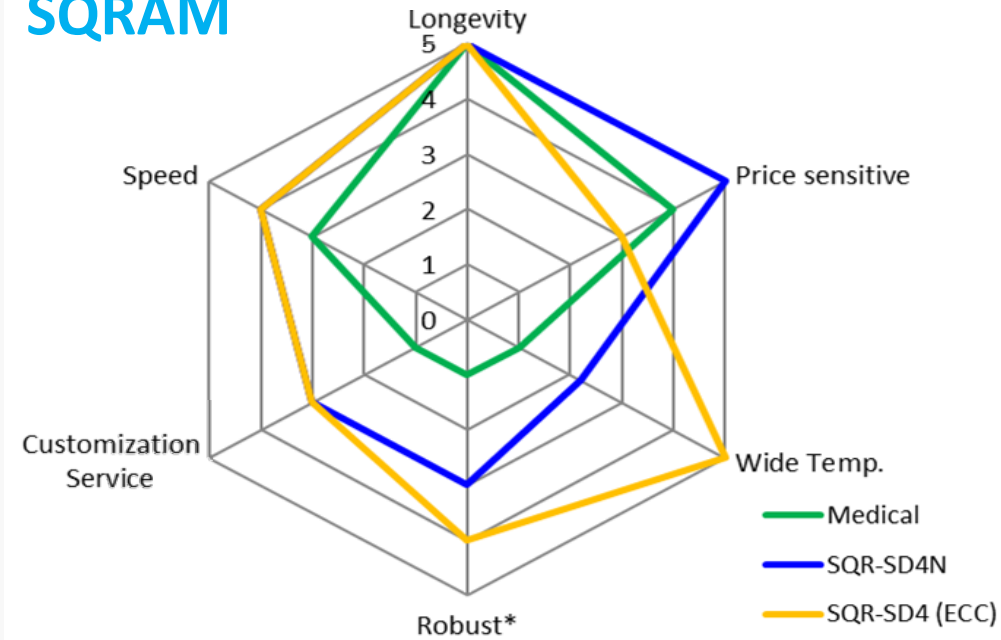


Medical

SQFlash



SQRAM



At a Glance: Comparison Table

	Advantech Industrial Solution	Commercial Memory Module
Usage	Specific Vertical Market	Fulfills a single personal or commercial usage
Applications	Mission-critical applications found in automation, in-vehicle computing, surveillance, and medical devices.	Personal or commercial PC / laptop / handhelds
Limitations	Popular form factors found in consumer spaces take longer time to standardize for industrial market	Lack of quality control and no longevity commitment, as well as less BOM control
Trends	<ul style="list-style-type: none"> • Longevity and revision control • Durable and Stable for industrial applications 	Rapid product change based on latest technology
System Integration	As a leading IPC company, we provide system level services including thermal / signal integrity / mechanical / system ODM design	None
Advanced Features	Security/encryption features, write protection, and emergency erase	Limited
Software Capability	Strong in-house software division for industrial APP or industrial cloud services	Focuses exclusively on memory product related utilities

Commitment to Premium Quality & Longevity

SQFlash and SQRAM are verified with all Advantech platforms and fully tested in rugged environments to ensure its high compatibility and reliability. It provides 3-year longevity and at least 15-month lifecycle to service long design-in schedules for embedded projects.

Take the Next Step

Advantech offers a complete product selection of storage modules providing seamless product integrations to build systems faster. For more information about how Advantech can help businesses solve tough storage problems in the industrial market, visit us online at:

<http://sqflash.advantech.com/>

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