

# SMART FLASH SOLUTIONS



EMBEDDED AND  
REMOVABLE STORAGE  
PRODUCTS



# SMART MODULAR TECHNOLOGIES

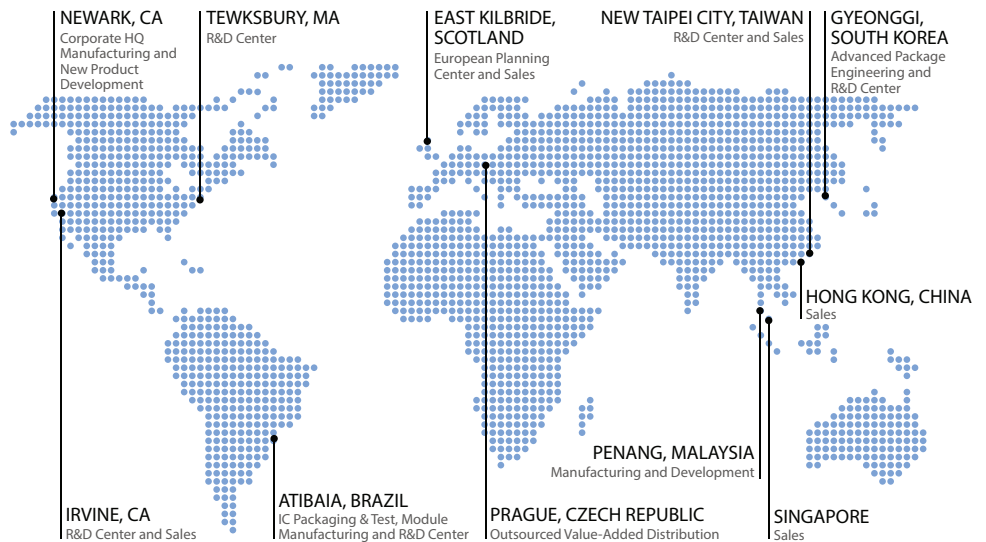
INDUSTRY EXPERIENCE  
DESIGN EXPERTISE  
GLOBAL MANUFACTURING

SMART Modular Technologies is a global leader in specialty memory solutions serving the electronics industry for over 25 years. SMART Modular delivers solutions to a broad customer base, including OEMs that compete in the computing, networking, communications, storage, mobile and industrial markets.

Focused on providing extensive customer-specific design capabilities, technical support and value-added testing services, SMART collaborates closely with their global OEM customers throughout their design process and across multiple projects to create memory solutions for demanding applications with differentiated requirements. Taking innovations from the design stage through manufacturing and supply, SMART Modular has developed a comprehensive product line comprised of DRAM and Flash memory technologies across various form factors.

## GLOBAL FOOTPRINT

DESIGN  
MANUFACTURING  
TEST  
LOGISTICS  
SALES



SMART Modular Technologies designs and manufactures industrial-grade flash storage products with industry standard interfaces in a variety of form factors and capacities. Offering high performance, exceptional reliability, and endurance in a very small package, these products are ideal for OEMs designing, networking, telecommunications, mobile and embedded, automotive, GPS, and

industrial computing appliances. SMART provides consistent quality and long product life cycles. Most products are available in Commercial and Industrial operating temperature ranges. Strong relationships with numerous suppliers of flash and controller ICs allow SMART to offer a wide range of cost-effective products to its customers.

## Embedded Storage Solutions

### Slim SATA



- Networking
- Industrial
- Telecom
- Storage

DENSITIES FROM 8GB UP TO 480GB

SMART's Slim SATA X10, XP+, XL+, and Value Series (SATA III) are JEDEC MO-297A standard embedded SSDs. Slim SATA is ideally suited for use in a wide variety of OEM storage applications that require multiple supply chains, design interoperability, rapid time to market, and long product life cycles. The X10 product is SMART's latest product, which has enterprise class features, including NAND RAID protection.

Slim SATA SSD		
Slim SATA XP+ SLC	8GB to 128GB	SG9SLM6E128GHS01*
Slim SATA XL+ SLC	8GB to 64GB	SH9MST6D64GJSI21*
Slim SATA X10 MLC	60GB to 480GB	SV9SLM6B480GLM02*
Slim SATA VAlue Series MLC	8GB to 64GB	SV9SLM6B064GJM21*

\* Part number noted is that of highest density available

### mSATA



- Networking
- Industrial
- Telecom
- Storage
- Servers

DENSITIES FROM 8GB UP TO 480GB

SMART's mSATA X10, XP+, XL+, and Value Series (SATA III) are JEDEC MO-300A standard embedded SSDs. Providing high performance in a small form factor, mSATA is ideally suited for use in a wide variety of OEM storage applications that require multiple supply chains, design interoperability, rapid time to market, and long product life cycles. The X10 product is SMART's latest product which has enterprise class features, including NAND RAID protection and over provisioning to increase endurance.

mSATA SSD		
mSATA XP+ SLC	8GB to 128GB	SH9MST6D128GHS01*
mSATA XL+ SLC	8GB to 64GB	SH9MT6D64GJI21*
mSATA X10 MLC	60GB to 480GB	SV9MST6D480GLM02*
mSATA Value Series	8GB to 64GB	SV9MST6D064GJM21*

\* Part number noted is that of highest density available



## M.2 SATA MODULE



- Networking
- Industrial
- Telecom
- Storage
- Servers

DENSITIES FROM 8GB UP TO 480GB

Utilizing an industry standard M.2 SATA interface and connector, X10, XP+, and Values Series product in 2242, 2260 and 2280-D2-B-M form factors offer best-in-class sequential and random read/write performance in transaction intensive applications. M.2 SATA can be easily integrated into a host system without any special BIOS modifications or additional device drivers. The X10 product is SMART's latest product which has enterprise class features, including NAND RAID protection and over provisioning to increase endurance.

### M.2 SATA Modules

M.2 2260 D2-B-M MLC	60GB to 240GB	SV9M2S66D240GLM21*
M.2 2280 D2-B-M MLC	60GB to 480GB	SV9M2S86D480GLM21*
M.2 2280 MLC	16GB to 480GB	SV9M2S86D480GLM21*
M.2 2242 Value Series MLC	8GB to 128GB	SV9M2S46D128GJM21*

\* Part number noted is that of highest density available

## eUSB



- Networking
- Telecom
- Medical
- Industrial

DENSITIES FROM 1GB UP TO 32GB

SMART's industrial-grade embedded USB (eUSB) flash drives feature sustained read speeds of up to 33 MB/s, write speeds up to 21 MB/s and seek time of typically 500 uS. eUSB Plus integrates SMART's industrial grade eMMC product and a USB bridge chip to create a cost-effective eUSB solution.

### eUSB

Standard Connector	1GB to 32GB	SHEU52LO32GQDUx*
Low Profile Connector	1GB to 32GB	SHEU52UO32GQDUx*
2mm Connector	1GB to 32GB	SHEU52M032GQDUx*

x = version code

\* Part number noted is that of highest density available

# Removable Flash Solutions

## 2.5" SATA SSD



- Networking
- Industrial
- Medical
- Telecom

DENSITIES FROM 16GB UP TO 960GB

SMART's 2.5" X10 and XP+ SATA (SATA III) SSDs provide low power, high reliability solid state storage. These SSDs can be used as a direct replacement for an HDD or in ruggedized notebooks and other embedded mobile applications. The X10 is SMART's latest product which has enterprise class features, including NAND RAID protection and over provisioning to increase endurance.

### 2.5" SATA SSDs

2.5" SATA XP+ SLC	16GB to 128GB	SH9SAT6E128GM11*
2.5" SATA X10 MLC	60GB to 960GB	SV9SAT6B960GLM11*
2.5" SATA XP+ MLC	32GB to 256GB	SH9SAT6E256GM21*

\* Part number noted is that of highest density available

## CF CARD



- Networking
- Telecom
- Embedded Designs

DENSITIES FROM 128MB UP TO 64GB

SMART's CF Cards are high-capacity, low-power memory cards that act like hard drives but are reliable, fast and portable. These cards also support self monitoring analysis and reporting technology (S.M.A.R.T.) attributes to help reduce unexpected field failures.

### Flash Card Products

CF Card XL SLC	128MB to 4GB	SS9FD08GH3BAxS01*
CF Card XL+ SLC	512MB to 64GB	SG9CF64GHYDD*

\* Part number noted is that of highest density available

## SD CARD



- Automotive
- Industrial
- Networking
- Telecom

DENSITIES FROM 8GB UP TO 64GB

SMART's industrial SD cards are robust and reliable solutions for solid state storage needs. Not to be confused with consumer grade cards, SMART's SD cards are designed, built and tested to far higher standards of reliability and endurance.

### SD Card

SD XL+ SLC	512MB to 32GB	SH9SD032GSNIDSCxx*
SD XL MLC	8GB to 64GB	SH9D064GPHEDMC21*

xx = version code

Commercial (y=C), Industrial (y=I), Extended (y=E)

\* Part number noted is that of highest density available

## microSD



- Automotive
- Industrial
- Networking
- Telecom

DENSITIES FROM 1GB UP TO 64GB

SMART's industrial microSD cards are robust and reliable solutions for solid state storage needs. Not to be confused with consumer grade cards, SMART's microSD cards are designed, built and tested to far higher standards of reliability and endurance.

### microSD Card

microSD SLC	1GB to 4GB	SH9UD004GPHF9Syyx*
microSD MLC	8GB to 64GB	SH9UD064GPHECMyyx*

xx = version code

Commercial (y=C), Industrial (y=I), Extended (y=E)

\* Part number noted is that of highest density available

## USB MEMORY KEY



- Networking
- Embedded Designs
- Telecom

DENSITIES FROM 1GB UP TO 32GB

SMART's Enterprise USB Memory Key address the need for enhanced reliability and are designed with the industry's best-in-class read and write speeds, providing reliable operation over the product life cycle.

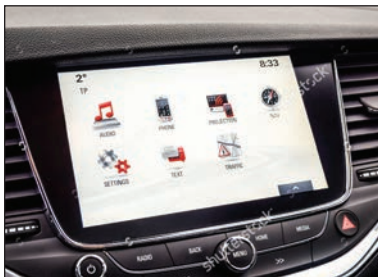
### USB Key

USB Memory Key SLC	1GB to 16GB	SG9MK16GQx*
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x = version code

\* Part number noted is that of highest density available

# APPLICATIONS



## Auto

Advancements in auto electronics usher in the era of the connected car, including feature-rich infotainment systems. Modern auto applications require highly reliable Flash memory technologies to support data storage.

### Embedded Options

- mSATA
- M.2 SATA
- Slim SATA

### Removable Options

- SD Card
- microSD



## Computing

Computing applications have unique, wide-ranging needs that span multiple architectures, configurations, densities, speeds, and packages required by big data processing.

### Embedded Options

- M.2 SATA
- mSATA
- Slim SATA
- eUSB Drives

### Removable Options

- CF Card
- SD Card
- microSD
- 2.5" SATA
- USB Memory Keys



## Communications

Communications applications typically require small to standard form factors. Reduced voltage, high performance, and reliability are also prerequisites for use in the communications arena.

### Embedded Options

- M.2 SATA
- mSATA
- Slim SATA
- eUSB Drives

### Removable Options

- CF Card
- SD Card
- microSD
- 2.5" SATA
- USB Memory Keys



## Defense

SMART Modular designs Flash memory to support a broad range of defense applications. Key defense needs for memory require rugged and durable designs with proven reliability in extreme conditions (shock, vibration, dust, humidity, and temperature), technical support, and low power operation.

### Embedded Options

- M.2 SATA
- mSATA
- Slim SATA
- eUSB Drives

### Removable Options

- CF Card
- SD Card
- microSD
- 2.5" SATA
- USB Memory Keys



## Gaming

SMART Modular manufactures Flash memory to support a broad range of gaming and media applications. These gaming applications typically require small to standard form factors, reduced voltage demands, high performance, and high reliability.

### Embedded Options

- M.2 SATA
- mSATA
- Slim SATA
- eUSB Drives

### Removable Options

- CF Card
- SD Card
- microSD
- 2.5" SATA
- USB Memory Keys





## Industrial

Industrial applications often need replacement storage solutions with extended life cycles with a guarantee of a long-term supply. Key features include reliability, security, and performance.

### Embedded Options

- M.2 SATA
- mSATA
- Slim SATA
- eUSB Drives

### Removable Options

- CF Card
- SD Card
- microSD
- 2.5" SATA
- USB Memory Keys



## Networking

Requiring small to standard form factors, networking applications have strict footprint and thermal specifications and need storage solutions with low latency as well as high performance and signal integrity.

### Embedded Options

- M.2 SATA
- mSATA
- Slim SATA
- eUSB Drives

### Removable Options

- CF Card
- SD Card
- microSD
- 2.5" SATA
- USB Memory Keys



## Printers

Printers require compatible, certified memory in a range of speeds, densities, form factors and technologies that offer high quality and performance.

### Embedded Options

- M.2 SATA
- mSATA
- Slim SATA
- eUSB Drives

### Removable Options

- CF Card
- SD Card
- microSD
- 2.5" SATA
- USB Memory Keys



## Servers

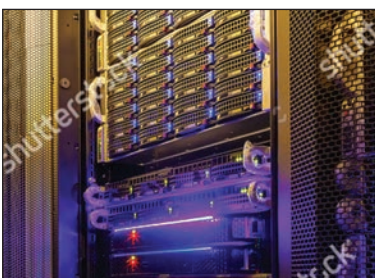
Server applications need reliable, high-quality, high-density memory modules with the lowest power consumption. SMART's industrial grade, low-voltage Flash meet critical requirements.

### Embedded Options

- M.2 SATA
- mSATA
- Slim SATA
- eUSB Drives

### Removable Options

- CF Card
- SD Card
- microSD
- 2.5" SATA
- USB Memory Keys



## Storage

Flash memory for storage needs to be highly secure with data protection and encryption capabilities. Storage memory solutions also need to be available in a range of speeds, densities, form factors and technologies.

### Embedded Options

- M.2 SATA
- mSATA
- Slim SATA
- eUSB Drives

### Removable Options

- CF Card
- SD Card
- microSD
- 2.5" SATA
- USB Memory Keys

# CUSTOM PRODUCTS

SMART has a long history of partnering with customers to satisfy their specific design needs. With extensive industry and design expertise and global manufacturing capabilities, SMART offers a unique combination of advantages that can support customers' unique designs from conception to manufacturing and test. This allows SMART to efficiently and reliably tailor products to meet particular customer needs. For more information, please email [customers@smartm.com](mailto:customers@smartm.com).

# SERVICES

SMART built its reputation by providing proven technology and quality products to the most demanding OEMs around the world. SMART backs these products with outstanding services and expertise in design, manufacturing, test, and logistical support. OEMs can be confident that SMART products will perform to the highest degree of reliability and compatibility, as well as meet all system requirements and OEM specifications. More information on SMART can be obtained at [www.smartm.com](http://www.smartm.com).

## Key Competitive Advantages

- Inventory management of volatile commodity parts
- Established strategic alliances with major semiconductor manufacturers
- Broad custom design and packaging capabilities
- Value-added engineering
- Custom testing capabilities
- Comprehensive pre- and post-sale technical support
- Conformal coating, stacking and component underfill for enhanced ruggedization

SMART Modular Technologies excels in designing, manufacturing, testing, and rapidly delivering both standard and custom modular technologies to OEMs around the world.



## Design

SMART views design as the customer's path to market advantage. By working in partnership with its customers, SMART is able to deliver the most technically advanced products available.



## Test

SMART's test procedures are designed to enable customer confidence in dock-to-stock operation. Formalized, precise operational controls, SPC, and strong quality audit procedures allow SMART's OEM customers to eliminate incoming test with confidence. SMART's Enterprise Grade test option provides unmatched reliability.



## Manufacturing

SMART offers localized, cost-efficient manufacturing services from consigned to turnkey manufacturing, all backed by 100% test using the industry's most advanced testing equipment.



## Logistics

SMART sets itself apart from the competition through logistic services tailored to meet specific customers' needs. Services offered include procurement, inventory control, retail and bulk packaging, and drop-ship delivery.

# Contact Us

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