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 IC’s allow SMART to offer a wide range of cost-effective products to its customers.

### Embedded Storage Solutions

#### eMMC
SMART’s eMMC Product Family is designed to meet the rigid requirements of the Automotive, Industrial, Medical, and Networking segments where technical support, extended life, and stable roadmaps are critical in choosing the right supplier. Available in -40°C to +85°C and -25°C to +85°C versions.

**Applications:**
- Automotive
- Industrial
- Medical
- Networking

**eMMC Packages**
- 1.0mm pitch, 100-ball 8GB to 64GB SH8M64GAGTCEBAyxx*
- 0.5mm pitch, 169-ball 8GB to 64GB SH8M64GCETCEBAyxx*

*Auto (y=A), Industrial (y=I), Extended (y=E)

#### mSATA
SMART’s mSATA XP+ (SATA III) and mSATA XL (SATA II) are JEDEC MO-300A standard embedded SSD solutions. 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.

**Applications:**
- Networking
- Industrial
- Telecom
- Storage

**mSATA Modules**
- **mSATA XP+ SLC** 8GB to 128GB SG9MST6D128GHSxx*
- **mSATA XP+ MLC** 16GB to 256GB SG9MST6D256GHMxx*
- **mSATA XL SLC** 4GB to 128GB SG9MST3D128GBSxx*
- **mSATA XL MLC** 16GB to 256GB SG9MST3D256GBMxx*

#### SATA Slim
SMART’s SATA Slim XP+ (SATA III) and SATA Slim XL (SATA II) are JEDEC MO-297A standard embedded SSDs. SATA Slim 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.

**Applications:**
- Networking
- Industrial
- Telecom
- Storage

**SATA Slim SSD**
- **SATA Slim XP+ SLC** 8GB to 128GB SG9SLM6E128GHSxx*
- **SATA Slim XP+ MLC** 16GB to 256GB SG9SLM6E256GHMxx*
- **SATA Slim XL SLC** 8GB to 128GB SG9SLM3E128GBSxx*
- **SATA Slim XL MLC** 8GB to 256GB SG9SLM3E256GBMxx*

#### SATA Slim SSD
SMART’s SATA Slim XP+ (SATA III) and SATA Slim XL (SATA II) are JEDEC MO-297A standard embedded SSDs. SATA Slim 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.

**Applications:**
- Networking
- Industrial
- Telecom
- Storage

**SATA Slim SSD**
- **SATA Slim XP+ SLC** 8GB to 128GB SG9SLM6E128GHSxx*
- **SATA Slim XP+ MLC** 16GB to 256GB SG9SLM6E256GHMxx*
- **SATA Slim XL SLC** 8GB to 128GB SG9SLM3E128GBSxx*
- **SATA Slim XL MLC** 8GB to 256GB SG9SLM3E256GBMxx*

#### mSATA Mini
SMART’s mSATA Mini XL is a very small form factor SATA II embedded SSD. Measuring only 30x30 mm, it conforms to the JEDEC MO-300B standard, making it an excellent storage choice when faced with tradeoffs between performance, standard interface and space constraints.

**Applications:**
- Networking
- Telecom
- Servers
- Storage

**mSATA Mini Modules**
- **mSATA Mini XL SLC** 8GB to 32GB SG9MSM3D32GBSxx*
- **mSATA Mini XL MLC** 16GB to 64GB SG9MSM3D64GBMxx*

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xx = version code
* Part number noted is that of highest density available
2.5” SATA SSD
SMART’s 2.5” SATA XL (SATA II) and XP+ (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.

**Applications:**
- Networking
- Medical
- Industrial

<table>
<thead>
<tr>
<th>2.5” SATA SSDs</th>
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</thead>
<tbody>
<tr>
<td>2.5” SATA XL SLC</td>
<td>8GB to 128GB</td>
<td>SG9STL2H128GEXxx*</td>
<td></td>
</tr>
<tr>
<td>2.5” SATA XL MLC</td>
<td>16GB to 256GB</td>
<td>SG9STL2H256GEXxx*</td>
<td></td>
</tr>
<tr>
<td>2.5” SATA XP+ MLC</td>
<td>16GB to 256GB</td>
<td>SG9SAT6E256GEXxx*</td>
<td></td>
</tr>
</tbody>
</table>

**eUSB**
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 flash drives are compatible with the USB 2.0 Hi-speed protocol standard for high-performance, low-power mass storage devices that, unlike rotating media, can operate at a very low idle current, which is crucial for embedded systems design.

**Applications:**
- Networking
- Medical
- Industrial

<table>
<thead>
<tr>
<th>eUSB</th>
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<tbody>
<tr>
<td>Standard-Profile Legacy</td>
<td>1GB to 32GB</td>
<td>SH9ED52U32GQDTC*</td>
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</tr>
<tr>
<td>Low-Profile Legacy</td>
<td>1GB to 32GB</td>
<td>SH9ED52M32GQDTC*</td>
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<tr>
<td>Legacy w/ Standoff</td>
<td>1GB to 32GB</td>
<td>SH9ED52L32GQDTC*</td>
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</table>

**Removable Flash Solutions**

**SD Card**
SMART’s industrial SD cards are a robust and reliable solution 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.

**Applications:**
- Automotive
- Networking
- Industrial
- Telecom

<table>
<thead>
<tr>
<th>SD Card</th>
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<tbody>
<tr>
<td>SD XL SLC</td>
<td>1GB to 32GB</td>
<td>SG9SD32GPHDDxx*</td>
<td></td>
</tr>
<tr>
<td>SD XL MLC</td>
<td>8GB to 128GB</td>
<td>SG9SD128GPHEMCxx*</td>
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</table>

**CF & CFast Card**
SMART’s CF and CFast 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.

**Applications:**
- Networking
- Telecom
- Embedded Designs

<table>
<thead>
<tr>
<th>Flash Card Products</th>
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</thead>
<tbody>
<tr>
<td>CF Card XL SLC</td>
<td>128MB to 4GB</td>
<td>SG9CF4GHYB9A*</td>
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</tr>
<tr>
<td>CF Card XL+ SLC</td>
<td>512MB to 64GB</td>
<td>SG9CF64GHYDD*</td>
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<tr>
<td>CFast Card XL+ SLC</td>
<td>2GB to 34GB</td>
<td>SG9CF332GASxx*</td>
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</table>

**EFD**
SMART’s high-performance Embedded Flash Drive (EFD) is specifically designed for networking, telecommunications, and data communication applications. SMART’s EFD features a 52-pin BGA package, operates in either 3.3V or 5V hosts, and is available in capacities from 128MB to 4GB.

**Applications:**
- Networking
- Telecom
- Industrial

<table>
<thead>
<tr>
<th>EFD</th>
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<tbody>
<tr>
<td>52-pin BGA</td>
<td>128MB to 4GB</td>
<td>SG9EFD4GHYB8T*</td>
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</tbody>
</table>

**USB Memory Key & ATA**
SMART’s Enterprise USB Memory Key and ATA 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.

**Applications:**
- Networking
- Telecom
- Embedded Designs

<table>
<thead>
<tr>
<th>USB Keys and PC Cards</th>
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<tbody>
<tr>
<td>USB Memory Key SLC</td>
<td>1GB to 32GB</td>
<td>SG9MK32GQE*</td>
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</tr>
<tr>
<td>USB Memory Key MLC</td>
<td>16GB to 64GB</td>
<td>SG9MK64GQFM*</td>
<td></td>
</tr>
<tr>
<td>ATA Card XL SLC</td>
<td>128MB to 32GB</td>
<td>SG9PC32GHDYD*</td>
<td></td>
</tr>
</tbody>
</table>

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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.

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.

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.

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.

Test
SMART’s test procedures are designed to enable customers to be confident 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.

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.

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