



FlashOverview

Industrial Grade Flash Solutions

2.5" Flash Drive | ATA PC Card | MACH4 CompactFlash | CompactFlash Small Cards (SecureDigital, miniSD) | Single Chip Drive | Flash Module | Flash Drive

ATA/IDE INTERFACE

The IDE/ATA interface has long been the most popular storage media connection. As the digital world has migrated to serial interfaces, so goes the ATA interface rapidly being replaced by the higher speed Serial ATA (SATA). However, many legacy designs still call for ATA storage. At STEC, we are committed to providing new, evolving, and high-performance solid state drive designs based on the ATA interface.



Product Specifications

Product Type	Capacities	Sustained Read/Write	Interface	Dimensions (mm)	Optional Features
2.5" Flash Drive	128MB to 16GB	Up to 10MB/sec	ATA with True IDE mode support, MWDMA; 44-pin IDE Interface	100.0(L) x 69.8(W) x 9.5(H)	Purge, life cycle management (LCM), password protection, and write protection features available
ATA PC Card	128MB to 16GB	Up to 10MB/sec	ATA with True IDE mode support, MWDMA; 68-pin PCMCIA Interface	85.6(L) x 54.0(W) x 5.0(H)	Purge, life cycle management (LCM), password protection, and write protection features available
MACH4 CF	8GB to 32GB	Up to 90MB/sec Read Up to 55MB/sec Write	ATA with True IDE mode support, UDMA 0-6; MWDMA 0-4; 50-pin CF Interface	Type I 36.4(L) x 42.8(W) x 3.3(H)	Purge, life cycle management (LCM), encryption, and write protection features available
CompactFlash	128MB to 16GB	Up to 30MB/sec (IDE)	ATA with True IDE mode support, UDMA; MWDMA 50-pin CF Interface	Type I 36.4(L) x 42.8(W) x 3.3(H) Type II 36.4(L) x 42.8(W) x 5.0(H)	Purge, life cycle management (LCM), password protection, and write protection features available
Flash Disk Module	128MB to 8GB	Up to 10MB/sec (IDE)	IDE, MWDMA (IDE)	50.8(L) x 22.3(W) x 11.2(H)	Purge, life cycle management (LCM), password protection, and write protection features available
Single Chip Drive	128MB to 4GB	Up to 10MB/sec (IDE)	IDE , MWDMA (IDE)	21.7(L) x 19.2(W) x 3.8(H)	Life cycle management (LCM),

STEC VALUE PROPOSITION

STEC offers all ATA/IDE products with value added services and benefits:

- Proprietary controller boosting performance and reliability
- Life Cycle Management to monitor card evolution and plan preventive maintenance
- Power Down Data Protection Algorithm to protect data against power loss
- Optional TotalDriveProtection to manage card partitioning and define access write and read privilege
- Optional purge features to sanitize the drive in mission critical application
- Optional Small sector firmware for optimized performance in small file transaction

SD/MMC/SPI INTERFACE

The SD and SPI interfaces allow for easy integration of the SecureDigital Cards in any application. The communication over the SD and SPI bus is based on command and data bit streams which are initiated by a start bit and terminated by a stop bit. The applications requiring higher data bandwidth have the flexibility to select the bus width from 1 bit to 4 bits on the SD card. The SD and SPI protocols minimize the number of pins. In fact, the cards require only 1 to 4 pins for data on top of the pins for Command, Clock, power, and ground signals.

On top of their proprietary interfaces, both SD and SPI cards can be addressed via the Serial Peripheral Interface (SPI). The SPI bus is a byte oriented general purpose synchronous serial interface. Every command or data block is built of 8-bit. The SPI is a very simple interface that is widely available on most of the chipset. For this reason, many Industrial applications that don't require high speed can easily address SD and miniSD using the SPI interface.



Product Specifications

Product Type	Capacities	Sustained Read/Write	Interface	Dimensions (mm)	Optional Features
Secure Digital	64MB to 2GB	Up to 12.1MB/sec	SD 1-bit, 4-bit Interface	32.0(L) x 24.0(W) x 2.1(H)	CID customization TotalDriveProtection
SDHC (SD High Capacity)	4GB	Up to 20MB/sec	SD 1-bit, 4-bit Interface	32.0(L) x 24.0(W) x 2.1(H)	CID customization TotalDriveProtection
miniSD	128MB to 2GB	Up to 12.1MB/sec	SD 1-bit, 4-bit Interface	20.0(L) x 21.5(W) x 1.4(H)	CID customization TotalDriveProtection

STEC VALUE PROPOSITION

STEC offers all ATA/IDE products with value added services and benefits:

- Wide variety of form factor and capacity
- Highly reliable assembly process
- Fully compatible with the SD1.1 and SD2.0 specification
- Tested on thousand of applications
- Designed to extend endurance and reliability
- Optional TotalDriveProtection to manage card partitioning and define access write and read privilege

USB INTERFACE

With the increasing popularity of USB for attaching peripheral devices, due to its efficient electrical and mechanical interface and hot pluggability, it was only a matter of time up until storage devices would incorporate the USB Interface. Starting in 2001 when the first 8MB USB thumb drive entered the market, most users now carry at least 1GB or more of portable storage with them. But the trend didn't stop there.

USB has an improved performance over legacy IDE, and an easier electrical and mechanical interface. Getting rid of the bulky and big 40 or 44 pin IDE connectors and using the small 2x5 header that is present on many motherboards, embedded USB storage has become the next logical step in the evolution of embedded Flash solutions. Embedded USB storage has been incorporated in many applications, ranging from Point-of-Sales terminals and printers to single board computers and blade servers.



Product Specifications

Product Type	Capacities	Sustained Read/Write	Interface	Dimensions (mm)	Optional Features
Flash Module	128MB to 8GB	Up to 14MB/sec (Read) Up to 12MB/sec (Write)	USB 2.0/1.1	37.8(L) x 26.6(W) x 10.27(H)	TotalDriveProtection, unique serial number
Single Chip Drive	128MB to 4GB	Up to 14MB/sec (Read) Up to 12MB/sec (Write)	USB 2.0/1.1	21.6(L) x 12.6(W) x 3.8(H)	TotalDriveProtection, unique serial number
USB Flash Drive	128MB to 4GB	Up to 14MB/sec (Read) Up to 12MB/sec (Write)	USB 2.0/1.1	68.6(L) x 18.6(W) x 9.1(H)	Unique serial number; Laser Etched Manufacturing info; Customizable for logo/graphics design; ESD rated version available

STEC VALUE PROPOSITION

STEC offers all ATA/IDE products with value added services and benefits:

- Proprietary controller boosting performance and reliability
- IC Tower Chip Stacking technology to achieve higher capacity
- Life Cycle Management to monitor card evolution and plan preventive maintenance
- Power Down Data Protection Algorithm to protect data against power loss
- Optional TotalDriveProtection to manage card partitioning and define access write and read privilege
- Optional ESD rated Flash Drive enclosure



PRODUCT PART NUMBER SCHEMATICS

2.5" IDE FLASH DRIVE

SLFLD25-(xxx)(M/G)M1U(I)

xxx = capacity M/G = Megabyte/Gigabyte U = RoHS Compliant I = industrial
ex. SLFLD25-512MM1U(I) = 512MB IDE Flash Drive
SLFLD25-8GM1U(I) = 8GB IDE Flash Drive

ATA PC CARD

SLATA(xxx)(M/G)M1U(I)

xxx = capacity M/G = Megabyte/Gigabyte U = RoHS Compliant I = industrial
ex. SLATA512MM1U(I) = 512MB ATA PC Card SLATA8GM1U(I) = 8GB ATA PC Card

COMPACTFLASH (M1)

SLCF(xxx)(M/G)M1U(I)

xxx = Capacity M/G = MegaByte/GigaByte
ex(A). SLCF512MM1U(I) = 512MB CompactFlash Card

SLCF(xxx)(M/G)M1T2U(I)

M/G = MegaByte/GigaByte U: RoHS Compliant I = Industrial Temperature
ex(B). SLCF16GM2U(I) = 16GB MACH2 CompactFlash Card

MACH4 COMPACTFLASH

SLCF(xxx)(M/G)M4U(I)

I = Industrial Temperature T2 = CompactFlash Type II

SECURE DIGITAL (SD)

SLSD(xxx)B(S)(I)U

xxx = Capacity S = TotalDriveProtection U = RoHS Compliant
ex. SLSD2GBB(I)U = 2GB Secure Digital Card

SD HIGH CAPACITY (SDHC)

SLSHD4GCS(I)U

S = TotalDriveProtection I = Industrial Temperature

miniSD

SLMSDxxxBS(I)U

U = RoHS Compliant

IDE FLASH MODULE (iFM)

SLFDM(xx)(zzz)-(xxx)(M/G)M1U(I)

xx = Pin xxx = Capacity M/G = Megabyte/Gigabyte U = RoHS Compliant I = Industrial Temperature z = IDE Connector Orientation: V (Vertical), H (Horizontal)
ex. SLFDM40H-512MM1U(I) = 512MB 40Pin Flash Disk Module (Horizontal) SLFDM44V-8GM1U(I) = 8GB 44Pin Flash Disk Module

USB FLASH MODULE (uFM)

SLUFDMxxx(M/G)U1U(I)-y

xxx = Capacity M/G = Megabyte/Gigabyte U = RoHS Compliant I = Industrial Temperature y = Form Factor: A (Horizontal), B (Low profile)
Ex. SLUFDM128MU1U-A = 128MB USB Flash Disk Module, Horizontal, Lead-Free, Commercial Temperature
SLUFDM1GU1U-B = 1GB USB Flash Disk Module, Low Profile, Lead-Free, Industrial Temperature

IDE Single Chip Drive (iSCD)

SLISCDxxx(M/G)M1U(I)-y

xxx = capacity M/G = Megabyte/Gigabyte U = RoHS Compliant
Ex. SLISCD1GM1U-A = 1GB IDE Single Chip Drive, Commercial Temp, Form Factor A, Lead-Free
SLUSCD4GU1U-B = 4GB USB Single Chip Drive, Industrial Temp, Form Factor B, Lead-free

USB Single Chip Drive (uSCD)

SLUSCDxxx(M/G)U1U(I)-y

I = industrial Y = A for Single Flash iSCD, B for Stacked Flash iSCD

USB FLASH DRIVE (UFD)

SLUFDxxx(M/G)U1U(I)-y

xxx = Capacity M/G = Megabyte/Gigabyte U = RoHS-6 Compliant I = Industrial Temperature
y = Enclosure (A= Standard Enclosure/B= ESD-Rated Enclosure)

Standard Specifications

Write/Erase Cycle

- Up to 10-years (depending on usage)

ECC Engine

- Up to 5 bytes detection, 4 bytes correction

NAND Flash

- SLC and MLC

RoHS-Compliant

- Yes

Operating Temperature Range

- Commercial (0° to 70°C) ; Industrial (-40° to 85°C)

Warranty

- 2 years

Value Added Services

- Customized form factors and test solutions, advanced wear leveling algorithm, custom firmware, software imaging, controlled BOM's, customer-specific labeling, and serialization

why STEC

STEC is a world wide technology provider of OEM memory and solid state storage solutions that empower our partners to achieve the highest level of system performance. As a leader in OEM SSD/Flash and DRAM memory technology for over 18 years, STEC has developed a solid foundation of quality and value. We are proud to provide our customers with a comprehensive array of support, experience, and knowledge.

STEC's Value Proposition:

INNOVATION | RELIABILITY | QUALITY | SUPPORT | COMMITMENT | EXPERIENCE | KNOWLEDGE | TRUST

Breadth of Products

- Industry's widest range of SSD Products
- Extensive interface expertise and support on FC, SAS, SCSI, SPI, SATA, ATA, PCIe, CF, USB, SD Products
- Specialty form factors (VLP, mini-DIMM, So-RDIMM)
- Legacy products (EDO and FPM)
- Industrial temperature products

Sales Service and Support

- Faster answers to technical questions by our skilled FAEs
- Knowledgeable support and experience on industry standards
- Expert advice from industry-leading engineers to assist in system design decisions
- Sales offices worldwide and local support for all regions

Vendor Independence

- Better continuity of supply
- Unbiased information on different component manufacturers
- Better pricing flexibility

Associations

Member of:

- JEDEC
- SecureDigital Association (SDA)
- CompactFlash Association (CFA)
- MMC Association (MMCA)
- ONFI
- SCSI Trade Association
- Member of T10 and T13
- Microsoft Certified (MSFT)
- Designs Qualified by Intel Designated Test Laboratory (CMTL)
- USB Implementer Forum
- PCMCIA.org
- SATA-IO
- IDEMA
- SNIA
- TCG
- FCIA
- IEEE

Test

- Proprietary test systems and processes designed to ensure optimal product reliability
- TDBI (Test During Burn-In)
- Industrial Temperature Testing/Environmental Testing

In-House Manufacturing

- Faster time-to-market
- Dock-to-stock delivery
- Kanban ID system
- In-house controlled BOM

Responsiveness and Flexibility

- Fast turn-around for production orders
- Chip stacking performed in-house
- Global manufacturing facilities

Customization

- Special security features
- Labeling
- Testing
- Locked Bill of Materials
- Custom module designs
- Serialization

Quality

- ISO9001
- ISO14001

Compliance

- UL approved
- RoHS Compliant
- CE
- FCC
- BSMI
- TUV
- WEEE
- CTICK
- MIC
- CSA
- VCCI
- China RoHS

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