

## Product Lines

### Industrial Grade Embedded Flash Storage Devices

- ➔ Long Life Cycles - Fixed BOM Control
- ➔ Rugged, Reliable, Based on select SLC NAND components
- ➔ Industrial Strength Wear Leveling, Defect Management
- ➔ Available in a Wide Variety of Industry Standard Form Factors
- ➔ Industry Leading:
  - Handling of Unexpected Power Interruption
  - Data integrity, Quality & Reliability
  - Endurance
  - Temperature Options (-45C to 90C)
- ➔ SMART - Self Monitoring Analysis and Reporting Technology for useable life prediction
- ➔ Optional ATA Security, CTPurge™, CTLock™ and Write Protect Features, Physical Write Protect Switch

### Commercial Grade

- ➔ Most Reliable MLC NAND products in market
- ➔ Qualified and Tested to Industry Leading MLC specs
- ➔ Available in a Wide Variety of Industry Standard Form Factors

# Industrial Grade Embedded Flash Storage Devices

Cactus Technologies Industrial Grade solutions have the highest specifications for Ruggedness, Temperature, Altitude, Endurance and many other areas demanded by military, medical, manufacturing, industrial and other applications. Industrial Grade products use only SLC (Single Level Cell) NAND flash memory for the highest endurance, performance and reliability.



## SATA Interface SSDs:

The SATA interface, developed in 2003, is becoming a key interface in the embedded OEM flash storage market. With sustained read and write performance >500MB/sec on the SATA III interface products, it will meet almost every OEM's performance needs.

Form Factor	Series	Capacities		Sustained Transfers	
		Min	Max	Read	Write
CFast	900S	1GB	64GB	110MB/s	90MB/s
mSATA	900S	4GB	64GB	110MB/s	90MB/s
Slim SATA	900S	4GB	64GB	110MB/s	90MB/s
2.5" SATA II SSD	900S	4GB	128GB	110MB/s	90MB/s
2.5" SATA III SSD	910S	32GB	640GB	500MB/s	500MB/s



## ATA/IDE Interface Devices:

The ATA/IDE interface, also known as PATA (Parallel ATA) interface, was developed in the early 1990s. While one of the older flash storage interfaces, the IDE interface is still widely used in OEM and Industrial designs today.

Form Factor	Series	Capacities		Sustained Transfers	
		Min	Max	Read	Write
CompactFlash	203	32MB	2GB	8MB/s	6MB/s
CompactFlash	303	128MB	32GB	35MB/s	20MB/s
CompactFlash	503	1GB	64GB	50MB/s	30MB/s
PC Card	203	32MB	4GB	8MB/s	6MB/s
PC Card	303	128MB	32GB	35MB/s	20MB/s
IDE Disk-On-Module	203	32MB	2GB	8MB/s	6MB/s
IDE Disk-On-Module	303	128MB	32GB	35MB/s	20MB/s
1.8" IDE SSD	303	128MB	32GB	35MB/s	20MB/s
2.5" IDE SSD	203	32MB	4GB	8MB/s	6MB/s
2.5" IDE SSD	303	128MB	32GB	35MB/s	20MB/s
2.5" IDE SSD	503	1GB	64GB	50MB/s	30MB/s



## SD Interface Devices:

The SD interface, developed in the late 1990s, has a low pin count serial bus which makes it ideal for small form factor designs. Many embedded processors come standard with the SD interface built-in for ease of implementation.

Form Factor	Series	Capacities		Sustained Transfers	
		Min	Max	Read	Write
SD Card	806	128MB	8GB	22MB/s	16MB/s
SDChip	806	128MB	4GB	10MB/s	8MB/s
microSD	803M	1GB	4GB	20MB/s	17MB/s



## USB Interface Devices:

The USB interface, developed in the mid-1990s, is typically used for removable devices such as the USB Flash Drives. With USB support on many processors, many designs have chosen to use an embedded USB module as well.

Form Factor	Series	Capacities		Sustained Transfers	
		Min	Max	Read	Write
USB Flash Drive	100	128MB	8GB	33MB/s	26MB/s
USB Disk-On-Module	100	128MB	4GB	33MB/s	26MB/s



Physical Write Protect Switches



## Pro Series

Available on select ATA and SATA devices

- ➔ ATA Security Feature Set: Set/Disable Password, Security Lock/Unlock, etc.
- ➔ CTPurge™: Generic Erase Options:
  - Erase Only
  - Erase and Overwrite with random data once
  - Erase and overwrite with random data N times
- ➔ CTPurge™: Erase Options according to:
  - USA-AF AFSSI 5020 specification
  - USA Navy NAVSO P-5239-26 specification
  - DoD 5220.22-M specification
  - NSA Manual 130-2 specification
  - USA-Army 380-19 specification
  - NISPOMSUP Chap.8, Sect.8-501 specification
  - IREC (IRIG) 106 specification
  - Others upon customer request
- ➔ CTLock™: Simplified Lock/Unlock Command

Form Factor	Series	Capacities		Sustained Transfers	
		Min	Max	Read	Write
CompactFlash	303	128MB	32GB	35MB/s	20MB/s
Compact Flash	503	1GB	64GB	50MB/s	30MB/s
PC Card	303	128MB	32GB	35MB/s	20MB/s
2.5" IDE SSD	303	128MB	32GB	35MB/s	20MB/s
2.5" IDE SSD	503	1GB	64GB	50MB/s	30MB/s

- ➔ CTWPROT™ - Write Protect:
  - Software command
  - Hardware selection (CF pin 40, Jumper on SSD)

## Commercial Grade

Commercial Grade products are based on MLC (Multi Level Cell) NAND flash memory and offer a cost effective solution required by budget limited applications. The Commercial Grade offering is targeted at applications not requiring high endurance cycles or extreme reliability attributes of Industrial Grade.

Form Factor	Series	Capacities		Sustained Transfers	
		Min	Max	Read	Write
CompactFlash	220	4GB	128GB	80MB/s	65MB/s
SD Card	220	4GB	64GB	35MB/s	20MB/s
CFast	220S	4GB	128GB	240MB/s	75MB/s
mSATA	220S	4GB	128GB	240MB/s	75MB/s
Slim SATA	220S	4GB	128GB	240MB/s	75MB/s
2.5" SATA II SSD	220S	4GB	256GB	240MB/s	75MB/s
2.5" SATA III SSD	230S	32GB	640GB	500MB/s	500MB/s

## Customization Services

Cactus Technologies understands many OEMs require additional features or functionality in their flash storage devices than what is available off the shelf. With that in mind, we offer customization of our products to meet your specific requirements.



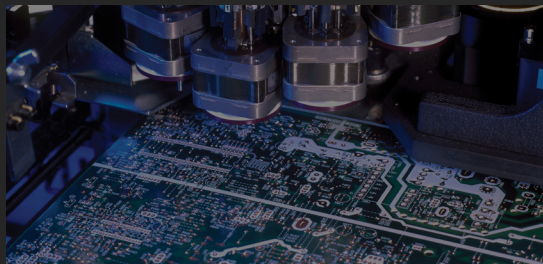
### Custom Labeling & Preloaded Content

Cactus can produce any of our products with custom labeling or preloaded content based on customer provided artwork and data.



### Custom Firmware/ID

Cactus can change the manufacturer's ID or create special firmware functionality for specific OEM needs.



### Custom Feature Sets

Cactus can create a special firmware or hardware function in the event our off the shelf products do not meet a customer's requirements.



### Complete Custom Products

We will review and can develop products when a customer needs a ground up custom flash storage design focusing on the Cactus Industrial Grade flash storage strengths.

### Other Cactus Advantages

- ➔ Pre-Sales Engineering Design Assistance
- ➔ Post-Sales Applications Engineering Support
- ➔ Leading Industrial Grade Flash Storage Supplier
- ➔ Development Adapters
- ➔ Bonded Inventory
- ➔ Extended Last-Time-Shipments option

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