

# MACH2 and MACH4 CompactFlash Cards

## Embedded Flash Memory with Industry-Leading Ruggedness and Performance

With applications ranging from a mile deep at the tip of a drill bit to the upper atmosphere and beyond, STEC's MACH2 and MACH4 CompactFlash (CF) cards are designed for embedded applications that demand ultimate reliability with high tolerance to shock, vibration, humidity, altitude and temperature. MACH2 and MACH4 CF cards incorporate STEC's patented state-of-the-art flash memory controller technology, providing the flexibility to meet specific application requirements while supporting enterprise-class flash management.

**STEC MACH2 cards** are a 2-channel design that supports Ultra Direct Memory Access (UDMA) and True IDE modes for hard disk equivalent performance, with sharply reduced power consumption. MACH2 cards provide a wide range of capacities from 128MB to 16GB, with multiple configurations to meet application throughput requirements, including smaller sector, random or larger sector, and sequential transfers.



**STEC MACH4 cards** feature an ultra high-performance, 4-channel design that supports UDMA and True IDE modes, making it an ideal entry-level parallel ATA (PATA) solid-state drive (SSD). The MACH4 card is the perfect solution for high-throughput applications and transitioning from low-capacity PATA hard drives to SSD technology.

Features	Benefits	
	MACH2 CompactFlash	MACH4 CompactFlash
Power consumption	100mA (max) for low power consumption requirements	200mA (max) is less than half the power of a mobile hard disk drive
Simple integration	True plug-and-play storage device for short design cycles. Compact Flash Association (CFA) Compliant Type 1 CompactFlash card with ATA interface and True IDE support	
Full data-path protection	Provides enhanced data integrity with full data-path protection. SSDs built with 8-bit ECC engine offload overhead from host	
Ultra-high endurance	Built-in wear leveling and block management	
High reliability	Built-in power-down data protection is designed to protect data in event of unexpected power loss	
Flash management	Includes read disturb and write amplification mitigation algorithms to improve data integrity, performance and overall endurance	

### Industrial-Grade Embedded Storage with Ultimate Ruggedness and Reliability

Small-footprint STEC CF cards are ideal for space-constrained embedded applications, including industrial devices, professional media, telecom and networking equipment, military, aerospace and automotive systems. STEC CF cards incorporate industrial-strength flash management technology for high-data integrity in rugged, high-endurance designs that tolerate industrial temperature ranges (-40°C to +85°C).

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## Embedded Flash Memory with Industry-Leading Ruggedness and Performance

### Technical Specifications

	MACH2	MACH4
<b>Capacity</b>	128/256/512MB 1/2/4/8/16GB	8/16GB
<b>Interface</b>	UDMA-4	UDMA-4
<b>Form Factor</b>	CompactFlash (Type 1)	CompactFlash (Type 1)
<b>Performance</b>	Transactional Performance (Read IOPS) Transactional Performance (Write IOPS) Average Response Time Transfer Rate (Read) Transfer Rate (Write) MTBF	15,650 13,900 <90ms Up to 85MB/s Up to 50MB/s 4 million hours
<b>Physical</b>	Size Power Power Supply	36.4mm (L) X 42.8mm (W) X 3.3mm (H) <100mA 5V/3.3V
<b>Environmental</b>	Operational Temperature Humidity Shock / Vibration Altitude	-40°C to +85°C 85°C, 85% RH 1500G / 20G -1,000 to 85,000 ft
<b>Compliance</b>	RoHS-6, EU Directive	RoHS-6, EU Directive

### STEC: Leadership in Solid-State Embedded Solutions

The need for small-footprint, highly durable, power-efficient embedded storage continues to grow. STEC solid-state storage products provide the performance, reliability, data integrity and product longevity needed by today's embedded market segments.

Available in a wide range of industry-standard form factors and serial interfaces, STEC embedded storage products include industry-leading patented flash controller technologies with the long-term product support and reliable sourcing and supply chain management that only a vertically integrated supplier can provide.

For more information on STEC products, solutions and technology, please visit [www.stec-inc.com](http://www.stec-inc.com)

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