

Product Not Recommended for New Designs



Notification Information System ACE CompactFlash Compatibility

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General Description

This document provides vendor compatibility information for the System ACE™ CompactFlash (XCCACE-TQ144) controller.

Background

Due to product cancellation by the Xilinx supplier of the System ACE CompactFlash (CF) cards, XCCACE128-I and XCCACE256-I are unavailable.

Xilinx has evaluated the listed vendor products and has tested them for compatibility with the System ACE CF (XCCACE-TQ144) controller. The compatibility list will be updated periodically as devices are added or removed. Xilinx has tested these devices for functionality but makes no claims or warranty for the listed devices.

Products Tested

The following products were tested in October 2005.

Delkin (<http://www.delkin.com>)

- CFX128E1G1-DAAA000
- CFX256E2G1-DAAA000

SiliconSystems (<http://www.siliconsystems.com>)

- SSD-C25MI-3005
- SSD-C51M-3005

Product Test Specification

CompactFlash Card Specification

At the time of publication of this document, the current version of the CFA Card Specification is v3.0 and is available at:

<http://www.compactflash.org>

However, the XCCACE-TQ144 controller was designed to use CFA Card Specification v1.5. This does not mean that CF cards compliant to CFA v3.0 will not work with v1.5 systems, but any new v3.0 features (such as high-speed write capability, etc.) will not be supported by XCCACE-TQ144.

Timing Requirements

XCCACE-TQ144 only uses the CF card in attribute memory and common memory modes, so close attention must be made to the CFA Card Specification sections 4.3.10 through 4.3.13 for timing requirements. Timing requirements in sections 4.3.14 through 4.3.18 do not apply to XCCACE-TQ144 and should be ignored.

Performing CF Card Read/Write Tests

A good test for checking CF card functionality is to perform multiple read-modify-write-verify cycles of different CF sector locations. Given that XCCACE-TQ144 relies on the FAT file system, care must be taken to identify the sector location where the modify-write part of the test is performed. Make sure you do not modify any sectors containing FAT file system information, including (but not limited to) the partition boot record, FAT tables, or directory entry information. However, performing a write-modify test in an unused sector will ensure that CF card writing will work. A simple configuration of a FPGA device using XCCACE-TQ144 is a good way to ensure that CF reads are working.

Temperature

The CF cards that Xilinx had provided were I-temperature rated device rated from -40 to 85C. All XCCACE-TQ144 controller ICs are also I-temperature rated. End users should contact the CF card vendor to make sure they meet system requirements and quality guidelines.

Suggested Test Platform

One requirement for any test platform is that it has at least an 8-bit MPU interface to the XCCACE-TQ144 device. The Xilinx ML401 board is one such platform, however, any Xilinx demo board that includes a XCCACE-TQ144 with MPU port connected to the FPGA would be an acceptable test platform. Due to support and the wide variety of possible platforms, Xilinx does not currently have any plans to supply a test FPGA design for CF card testing.

Things to Look For

Performing a normal read/write or configuration test that results in an error LED (ERRLED) condition should be considered a failure. While the XCCACE-TQ144 controller is flexible on timing, some manufacturers of CF devices violate the common memory timing specification and/or CF-ATA command timeout conditions. Therefore, reviewing the manufacturer's CF Card Specification against the CFA Specification and System ACE CF Data Sheet is recommended. In many cases of timing discrepancies, the XCCACE-TQ144 device may report a CFCERROR error status condition in the ERRORREG register inside the device.

In addition to timing errors, you should also look for any data errors that occur while performing the read-modify-write-verify tests of various CF card sectors.

Revision History

Date	Version	Revision
11/07/05	1.0	Initial release.
5/11/06	1.0.1	Edits for web release.