
Application Note #1223: **Selecting a CF Card to Use as PC Media**

Introduction

In recent years there has been a trend toward using Solid State Drives using Compact Flash (CF) technology in industrial PCs. The potential benefits include reliability (no moving parts) and serviceability (easy removal and replacement). Enhancements in operating systems such as Windows XP™ and later make this transition much easier.

The differences between the various CF cards on the market are more complex than simply the performance speed and price. Consumer CF cards are typically optimized for cameras and other consumer applications. They are not designed for PC applications.

Select the Correct Compact Flash Card

For trouble free performance we recommend purchasing your CF cards from us. In the event you wish to choose your own here are some pointers that might help you fast track to efficient and reliable use of CF media in your Industrial PCs:

1. There are 3 basic modes of operation for CF cards:

- I/O Mode,
- Memory Mode
- True IDE mode.

Most off the shelf cards are targeted for cameras and consumer applications that use I/O or Memory Mode. True IDE mode functionality is required for booting a computer operating system.

2. Within the True IDE mode there are sub-modes of operation. Some of these sub-modes are:

- 3.3V operation versus 5V operation, (We use 3.3VDC)
- Fixed Disk versus Removable configuration, (We use Fixed Disk, otherwise no page file is created for operating system.
- Master versus Slave IDE configuration support.
- UDMA and/or DMA support versus no DMA or no UDMA support. (UDMA is supported on newer products)

Each of these sub-modes may or may not be supported properly by some CF cards.

3. Revision control is extremely important to provide confidence that a particular CF card will work each time a new lot is purchased. Some vendors have Commercial and OEM CF cards that have the same P/N's. But behind the scene they may be using a mixture of different controllers without identifying a change that might make a card unsuitable. The CF cards purchased from Pro-face have revision changes monitored and tightly controlled. In addition we also do extensive compatibility testing to insure the CF card will properly perform for you.

4. We select longer life CF cards with a high MTBF specification. When used as computer storage media CF cards are subjected to many more read and write cycles than in consumer applications such as cameras.

5. Many of our products use the HD DASP signal to show HD LED activity. Some CF cards don't control this signal properly.

6. Some CF cards don't work with various CDROM or DVDROM or DVDRW or CDRW type drives when configured as the master or slave IDE device. The matrix to test this functionality can be very large.

7. Some CF cards don't have wear leveling to even out the usage on individual flash parts internal to them. This is a must for the many writes encountered by computer storage media. Without wear leveling a CF card will fail much sooner.

8. Read/Write speed varies between different vendors. We need to have some speed consistency so that the operating system functions as the user expects it to.

9. Pro-face technical support. Card compatibility issues can be very difficult to pinpoint. If you purchase a card from a third party vendor we may not be able to determine the cause of problems if they are generated by a card that does not perform properly.

You can be confident the CF cards you purchase from us for use in our products will work today, tomorrow and beyond. If you are considering purchasing them elsewhere, ask your supplier if they can meet the above requirements.

For more information on Pro-face and our full line of HMI, Operator Interface and Industrial PC products please visit our web site at www.profaceamerica.com.

For technical support email: support@profaceamerica.com or call: 800.289.9266.

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