

## Recommended Read ID Algorithm for Macronix Multi-I/O Serial Flash

June 2008

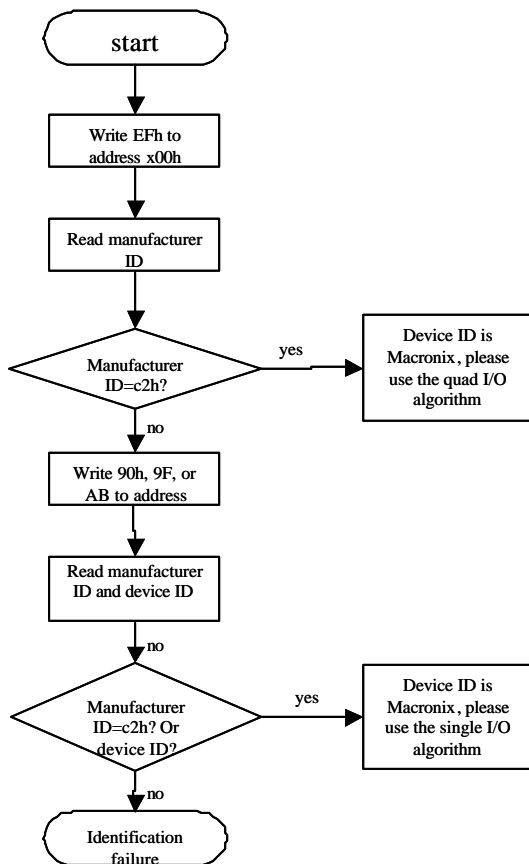
### Introduction

Macronix offers a broad range of serial flash devices with multi-I/O features. These products not only provide cost advantage of Serial Peripheral Interface but also outstanding access time, which enables system designer no longer compromising with low speed performance of Serial Flash. However, the device identification must be well taken care of to distinguish the traditional single I/O serial flash from the new multi-I/O serial Flash.

This application note shows the recommendations for customers while adopting these devices in their systems, and the proper algorithm for device identification that should be taken care of.

### The Flow Chart for Multi-I/O Serial Flash Device Identification

The following flow chart shows the recommended device identification flow, for multi-I/O serial flash device. The recommended flow is as followings: to write dual I/O read ID command(EF hex) and then compare the data with correct device ID, if the data matches correct device ID, which means the device can be operated in dual I/O mode; if the data doesn't match the correct ID, write the single I/O read ID command(90 hex, 9F hex, or 9F hex) to compare with the correct device ID. If they match, it is Macronix single I/O serial Flash.



When the correct ID is read out, the system firmware identifies the SPI type (single I/O or dual I/O or quad I/O) as shown in the flow chart. The proper algorithm to be used depends on whether it is single I/O, dual I/O or quad I/O.

# Application Note

---

## Recommended Read ID Algorithm for Macronix Multi-I/O Serial Flash

---

### System Design Recommendations

Macronix recommends that system firmware should consider the above device identification flow to make sure the algorithm to be used properly.