



STANDARD  
MICROSYSTEMS  
CORPORATION

## APPLICATION NOTE 4.12

### FDC37C6XX THREE-MODE DRIVE SUPPORT

This note discusses the proper way to interface to a three-mode 3.5" floppy disk drive using the FDC37C661/662, FDC37C663/664 and FDC37C665/666.

#### OVERVIEW

The three-mode drive is a 3.5" floppy disk drive capable of supporting 2MB/1.6MB/1MB unformatted diskettes. The primary difference between the 2MB mode and 1.6MB mode is the spindle RPM (refer to Table 1 below).

DENSEL	MEDIA TYPE	DATA RATE	MODE	RPM
1	HD	500Kbps	2MB	300
0	HD	500Kbps	1.6MB	360
0	DD	250Kbps	1MB	300
1	DD	(Reserved)	(Reserved)	(Reserved)

**Table 1**

There are two types of three-mode drives that we have received information on.

Type 1: The mode of the drive is selectable by the type of media inserted and the logic level of the DENSEL input as shown in Table 1.

Type 2: The mode of the drive is selectable by two inputs, one input is DENSEL as shown in Table 1. The other input (Density Sel 2) is the media type. Fortunately this type of drive also contains a Media ID output which indicates the type of media present in the drive. For this type of drive, Media Type can be inverted and used as Density Sel 2. Refer to Table 2.

MODE	DENSEL	MEDIA TYPE	MEDIA ID	DENSITY SEL 2
2MB	1	HD	1	0
1.6MB	0	HD	1	0
1MB	0	DD	0	1
(Reserved)	1	DD	0	1

**Table 2**

### **FDC37C661/662 Support**

The support for the three-mode drive is achieved by using Enhanced Floppy Mode 1. In this mode, the logic level of DENSEL can be controlled directly through floppy disk register 3F3H. The software must properly select the value of DENSEL.

### **FDC37C663/664 and FDC37C665/666 Support**

The support for the three mode drive is achieved by using the DENSEL control provide in configuration register CR5.