



# Application Note E2000-01

## Converting Dallas iButton Serial Number to Corby Datachip Access Code

### Background

All of the Corby access control system have the ability to use Datachips, sometimes referred to as Touch Memory Chips or iButtons. These datachips are made by Dallas Semiconductor, and the 16-digit serial number follows a specific format designated by Dallas. Corby Systems 2 and 2000 use the full 16-digit serial number as the access code, but the Systems 4, 5 and 10 can only use codes that are five (5) digits or less. Corby has defined a conversion scheme which allows customers to enter a five digit access code, along with a four digit batch code, to represent the 16-digit serial number.

### Dallas iButton Serial Number

The 16 Digit serial number is printed on the outside of each datachip, in the form of a hexadecimal number (See Figure at right). The two digits in the upper right are the family code. Dallas semiconductor uses this same serial number scheme for all of its products. For all datachips, the family code is 01 Hexadecimal or 01H. The two digits in the upper left make up a 1 byte CRC, or cyclic redundancy check. In the figure at right, the CRC equals 66H. This CRC is calculated by applying a special algorithm to the actual serial number. It's primary purpose is to help eliminate counterfeit datachips, but Corby does not use this feature. The remaining 12 digits make up the actual serial number.



### Corby Batch and Access Codes

Corby breaks this 12 digit serial number into a batch code, and an access code. The first four digits are all zeroes and are discarded. The next four digits are the batch code in Hexadecimal. To use in the System 4/5/10, this number needs to be converted from hexadecimal to decimal. The serial number is the last four digits, plus a preceding zero or one, whether the last digit of the batch code is even or odd. Again this five digit serial number (0/1 plus XXXX), is in hexadecimal and it must be converted to decimal. If the decimal conversion results in a number greater than 5 digits, the access code crops off the preceding digit.

*Example 1:*

66	0000	00FB	C52B	01
CR C	Discard Zeroes	Batch Code 00FBH = 0251D	Access Code 1 C52BH (since B is odd) = 116011D Crop to 16011D	Family Code

*Example 2:*

EA	0000	04A8	D593	01
CR C	Discard Zeroes	Batch Code 04A8H = 1192D	Access Code 0 D593H (since 8 is even) = 59583D	Family Code



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