LINE 21 DATA RECOVERY

In the default mode, the eZSelect Z86130/Z86230 is designed to decode program rating and Extended Data Services (XDS) data in the Vertical Blanking Interval (VBI) of Line 21. However, the Z86130/Z86230 can also recover all the data packets in both fields of Line 21 by issuing the {3A} and {3B} commands, which are described in the following table. The data recovered from Line 21 is fully compliant with EIA-608A and EIA-744A, including V-Chip data packets, Closed Caption data, and XDS data.

LINE 21 DATA RECOVERY COMMANDS

WRITE Command	Function
{3A}	Recovers Line 21 data from both Field 1 and Field 2.
{3B}	Sets the part to the Normal Decode mode. The Normal Decode mode decodes any data that is fully compliant with EIA-608A and EIA-744A in both fields of Line 21.

After setting the Z86130/Z86230 to the Normal Decode mode and enabling Line 21 data recovery, the data pairs are loaded into the serial output registers of the Z86130/Z86230 immediately upon receiving the valid data packets in Line 21. The DAV (D6) and RD2 (D5) bits of the serial status register (SSR) go High ("1"), indicating the availability of the two output bytes. Following a successful indication by the SSR, the external TV processor or main microcontroller can directly read two bytes of data. The external TV processor can read these data bytes without sending a READ SELECT command. For more details, see the following example.

> Note: By sending the {3B} command, the Z86130/Z86230 acts as a general Line 21 decoder. To use all the V-Chip decoding features described in the specifications, the external TV processor must send the RESET {FB} command, which resets the part to the V-Chip Decode mode. This is the default mode.

AN EXAMPLE OF HOW TO RECOVER LINE 21 DATA

This example assumes that the external main microcontroller is an I^2C master. The master microcontroller communicates with the Z86130/Z86230 I^2C slave device using the two-wire I^2C protocol.

```
// After Power-On Reset (POR)
     {28h, FBh}              // 28h is the Z86130/Z86230 I2C write address.
                            // The main microcontroller sends the FBh
                            // command to reset the Z86130/Z86230.
          .
          .
// During Initialization
     {28h, 3Bh}              // The 3Bh command sets the Z86130/Z86230 to the
                            // Normal Decode mode. The Z86130/Z86230 becomes
                            // a general Line 21 decoder.
```

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```
                 .
                 .
                 .
// In the main loop:
Main:
                 .
                 .
                 .
      {28h, 3Ah}              // 3Ah is the Line 21 data recovery
                             // command.
      {29h, xx1, xx2, xx3} // 29h is the Z86130/Z86230 I2C read address.
                             // The main microcontroller immediately reads
                             // three bytes from the Z86130/Z86230.
                             // xx1 is the first byte and is the
                             // serial status register byte.
                             // xx2 and xx3 are the real-time data
                             // on Line 21, which is the data pair
                             // just loaded in the Z86130/Z86230 serial
                             // output buffers.
// ************************************************************** //
// The main microcontroller then interprets the serial status      //
// register, xx1 (see page 25 of the Z86230 specification), bit D6  //
// for DAV (1 = data available; 0 = no Line 21 data available).     //
// Bit D1 identifies the current active field (1 = Field 1;         //
// 0 = Field 2). If Line 21 data is available, the main             //
// microcontroller processes two data bytes, xx2 and xx3).          //
// ************************************************************** //
                 .
                 .
      jp    Main
```

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