

ZipWire Bit-pump Version 4.4 Release Notes

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1 Introduction

The ZipWire Bit-pump Version 4.4 Channel Unit Version 6.2 release includes changes to the Bitpump directory. The changes were done to enable the RS8973 R6798-13 devices additional transmit filters, explicitly set signed variables, fix a mask interrupt initialization issue and update the version number.

2 Bit-Pump Code

2.1 Additional Code for the R6798-13 Transmit Filter

Add the following additions to the bitpump/util.c file to take advantage of the spectrally enhanced feature of the R6798-13. This is done so a 400kbps or lower transmit filter is enabled for –13 RS8973 devices. For more information, please see the RS8973 R6798-13 App Note – 101239A.

2.1.1 Additional #define

An addition _400K_FILTER value added towards the top of the file.

```
/* Continuous Real Time Filter Settings */
#define _1168K_FILTER      0
#define _784K_FILTER      1
#define _2320K_FILTER     2
#define _400K_FILTER      3      //ADD THIS LINE
```

2.1.2 Additional Check for Symbol Rate

The following lines in the BtReset() function labeled 1-14 are added to check if the R6798-13 device is used and the symbol rate is low enough to enable the new transmit filters.

```
/* Bt8973 */
/*-----*/
/* Pulse Shaping Filter (Bt8973 Only) */
/*-----*/
1 if ( _bp_vars[no].symbol_rate < 50 )
2 {
3   if ( BP_READ_BIT(bp_mode_ptr, global_modes, hw_revision) >= 0x02 )
4   {
5     BP_WRITE_BIT(bp_mode_ptr, adc_control, cont_time, _400K_FILTER);
6   }
7 else
8   {
9     BP_WRITE_BIT(bp_mode_ptr, adc_control, cont_time, _784K_FILTER);
10  }
11 BP_WRITE_BIT(bp_mode_ptr, adc_control, switch_cap_pole, 0);
12 BP_WRITE_BIT(bp_mode_ptr, receive_phase_select, imp_short, 0);
13 }
14 else if ( _bp_vars[no].symbol_rate < 100 )
{ /* Less than 800kbps */
BP_WRITE_BIT(bp_mode_ptr, adc_control, cont_time, _784K_FILTER);
BP_WRITE_BIT(bp_mode_ptr, adc_control, switch_cap_pole, 0);
BP_WRITE_BIT(bp_mode_ptr, receive_phase_select, imp_short, 0);
}
```

2.2 Explicitly Setting “Signed” Variables

In typedefs.h the signed variables are explicitly set, since not all compiler default non-explicit variables to signed. The BP_S_8BIT and BP_S_16BIT caused the most issues.

```
typedef unsigned char  BP_BIT;
typedef unsigned char  BP_BIT_FIELD;
typedef signed char     BP_S_8BIT;
typedef unsigned char  BP_U_8BIT;
```

```
typedef signed short    BP_S_16BIT;  
typedef unsigned short  BP_U_16BIT;  
typedef signed long     BP_S_32BIT;  
typedef unsigned long   BP_U_32BIT;  
typedef short           BP_TABLE;
```

2.3 BP_MASK_INTERRUPT Masking Issue

The addition of BP_MASK_INTERRUPT compiler option in the MaskHomerBtInt in BTMAIN.C.

```
BP_WRITE_REG(bp_ptr, mask_low_reg, 0xFF);  
BP_WRITE_REG(bp_ptr, mask_high_reg, 0xFF);
```

```
#ifdef BP_MASK_INTERRUPTS  
  /* Set the 'bp_vars...interrupt_enabled' flag */  
  _bp_vars[no].temp_mask_low_reg = 0xFF;  
  _bp_vars[no].temp_mask_high_reg = 0xFF;  
  _EnableBitpumpInterrupt();  
#endif
```

```
BP_WRITE_REG(bp_ptr, misc_test, RESET);
```

2.4 Version Modification

Update the Bitpump Version to 4.4 in the bitpump/api.c file.

```
#define SW_VERSION    13  
#define MAJOR_VERSION 4  
#define MINOR_VERSION 4          MODIFY this to 4
```