Introduction

The GT-64240/60A serial controllers can receive a clock source from different sources. It is possible that one of these sources is the the baud rate generators (BRGs). There are two baud rate generators (BRGs) in the GT-64240/60A.

Note

> The nonA version of these parts (GT-64240/60) has three BRGs.

There are six clock inputs to the BRGs – BClkIn, SClk0/1, TsClk0/1, TClk. One multi-purpose port pin can be programmed to function as a clock input to the BRGs. Additionally, each of the serial input clocks can be used as a BRG clock. Finally, TClk is also an optional clock input.

When a BRG is enabled, it loads the CDV value from the BRGx Configuration register's bits [15:0] into its count down counter. When the counter expires (i.e. reaches zero), the BRG clock output, BCLK, is toggled and the counter reloads.

Description

The BRG Settings Tool is an Microsoft Foundation Class (MFC) executable file has two operations that can either calculate the BRG Configuration register's Count Down Value or the baud rate.

Note

> In the following formulas, TCDV and RCDV are labeled MPSC_CDV.

The first operation calculates the Count Down Value (CDV) using the following formula. The `CDV` parameter is definied by bits [15:0] in the BRGx Configuration register.

```
CDV = (CLK_IN / 2*BAUD_RATE* MPSC_CDV) - 1
```
- The CLK_IN is the BRG's input clock.
- The BAUD_RATE is the BRG output rate.
- The `TCDV` are bits [10:9] from MPSCx Main Configuration High register.
- The `RCDV` are bits [26:25] in MPSCx Main Configuration High register.

The second operation calculates the baud rate using one of the following formulas.

If the CDV value is greater than zero, the following formula is used:

```
BAUD_RATE = CLK_IN / 2* MPSC_CDV*(CDV+1)
```
If the CDV value is equal to zero, the following formula is used:

```
BAUD_RATE = CLK_IN / MPSC_CDV
```

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- The CLK_IN is BRG's input clock.
- The TCDV are bits [10:9] from MPSCx Main Configuration High register.
- The RCDV are bits [26:25] in MPSCx Main Configuration High register.
- CDV are bits [15:0] in the BRGx Configuration register.

Figure 1:   BRG Settings Tool
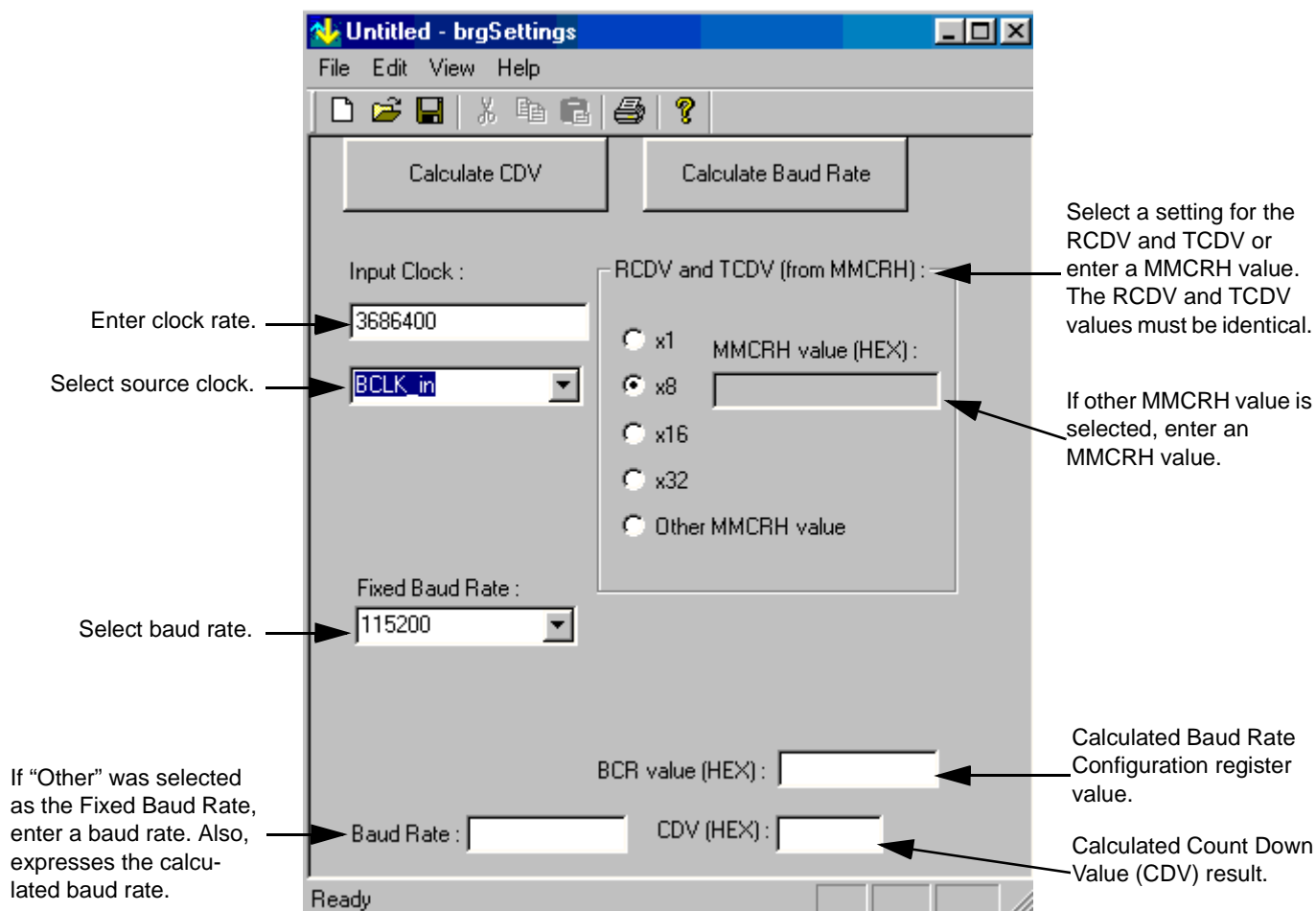
Using the Tool

To use the BRG Settings tool:

1. Run BrgSettings.exe.
2. Enter the parameters for calculating the CDV or baud rate.

Note

The CDV must be an integer. If this value is not an integer, the calculation returns the lower value.

The TCDV and RCDV parameters must be identical.

3. Depending on the desired return, click Calculate CDV or Calculate Baud Rate. The calculated value appears.

When calculating the CDV value, the tool also returns the Baud Rate Configuration register value.

If "Other" is selected as the fixed baud rate, a baud rate value must be entered.

If "Other MMCRH value" is selected, a MMCRH value must be entered.

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