Let $m =$ base of the counter

$\quad s =$ starting value of counter

$\quad h = m^{\lceil \log_m s \rceil} - 1$, halting value of the counter

$\quad d = \lceil \log_m s \rceil$, number of digits in each value of the counter

$\quad d_r = \left\lceil \dfrac{d}{3} \right\rceil$, number of digit regions

$\quad l = \lceil \log_2 m \rceil + 2$, number of bits needed to represent each digit plus 2 for MSR and MSD

$\quad H_{d_r} = 3 \cdot (l + 30)$, height of a counter value

**Counter Writers**

**Warp Units**

```
Pre_First_Warp
First_Warp
Warp_Bridge
Second_Warp
Post_Warp
```

**Digit Top**

```
DigitTop
DigitTop_Digit1
DigitTop_Digit2
DigitTop_Digit3
```

**ReturnDigitNReadDigitN+1**

```
ReturnDigit1_ReadDigit2
ReturnDigit2_ReadDigit3
ReturnDigit3_ReadDigit1
```

**ReturnDigitNReadNextRow**

```
ReturnDigit1_ReadNextRow
ReturnDigit2_ReadNextRow
ReturnDigit3_ReadNextRow
```